Airoha IoT SDK for BT Audio FOTA Application Note

Version: 1.2
Release date: 3 May 2023

Document revision history

Revision	Date	Description
1.0	19 January 2022	Initial version
1.1	17 March 2023	Update Android APP UI
1.2	3 May 2023	Added support for AB1627 and renamed the documentation to Airoha IoT SDK for BT Audio FOTA Application Note.

Table of contents

Lists of tables and figures

1. Introduction

1.1. Overview

This FOTA application note contains the following information:

1) The Firmware Over-the-Air (FOTA) application process;
2) How to generate the FOTA package;
3) Android FOTA application user guide; and
4) iOS FOTA application user guide.

2. FOTA Application Flow

2.1. Flow chart for a single device

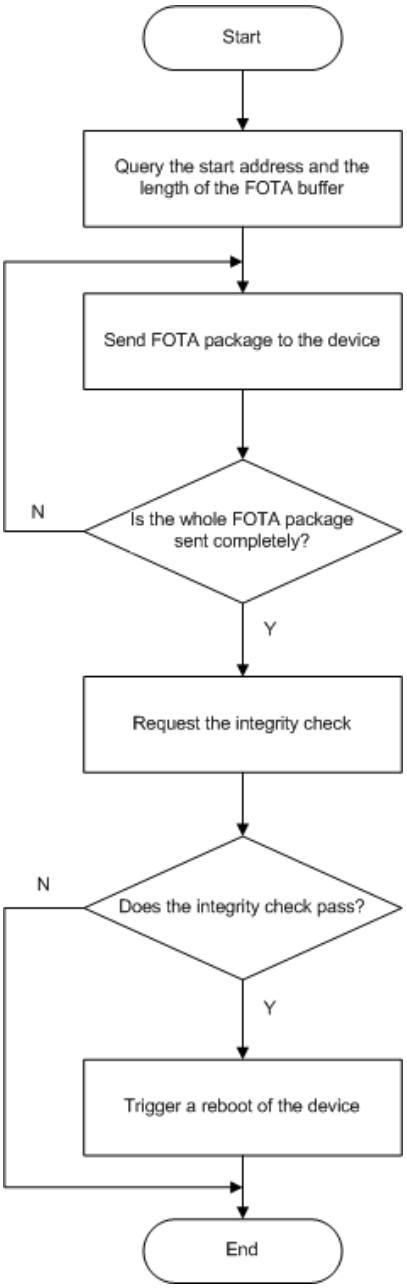

Figure 2-1. FOTA application flow chart for single device

2.2. Flow chart for dual devices

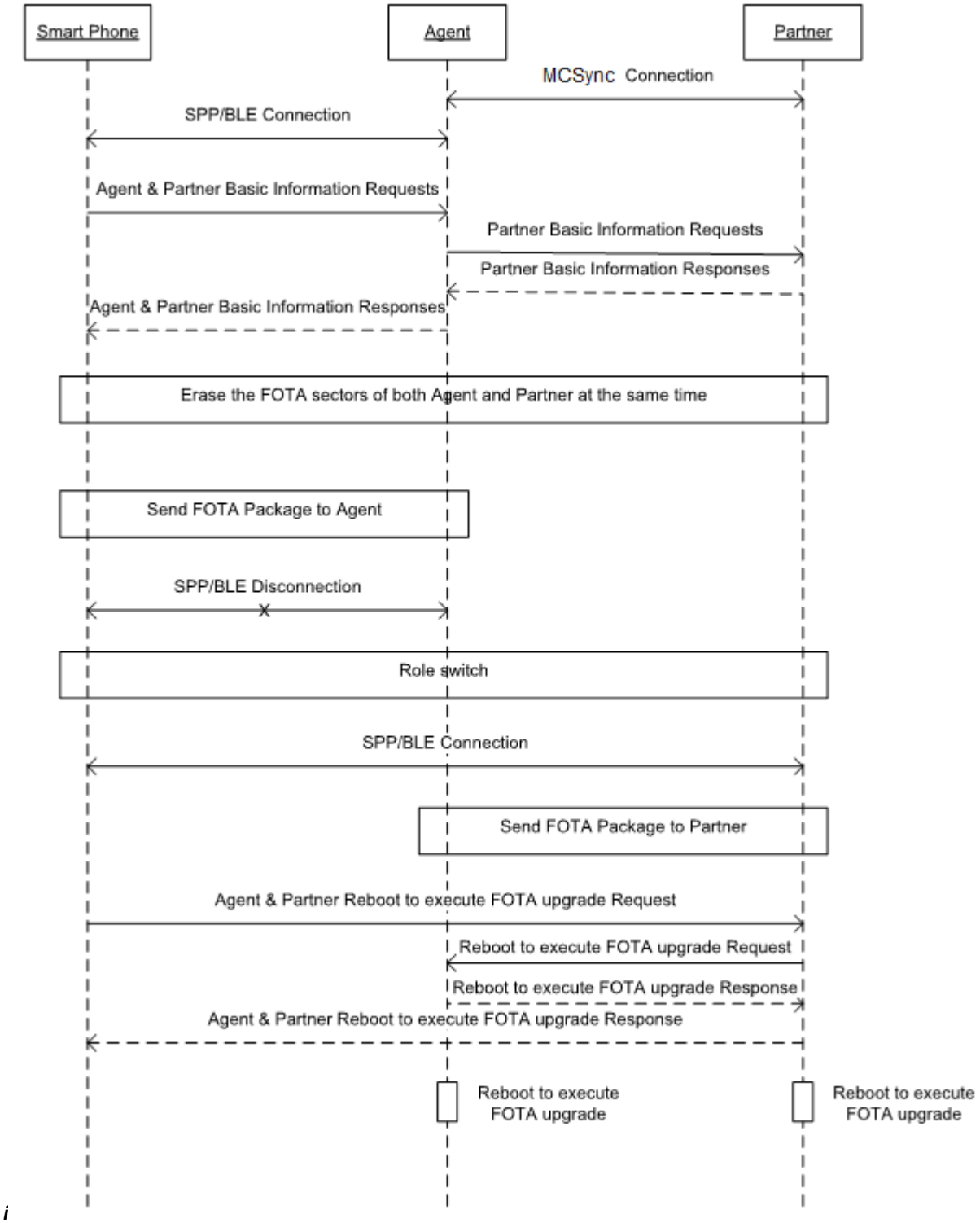

Figure 2-2. FOTA application flow chart for dual devices

3. Generating the FOTA Package

3.1. Starting the Airoha FOTA package tool

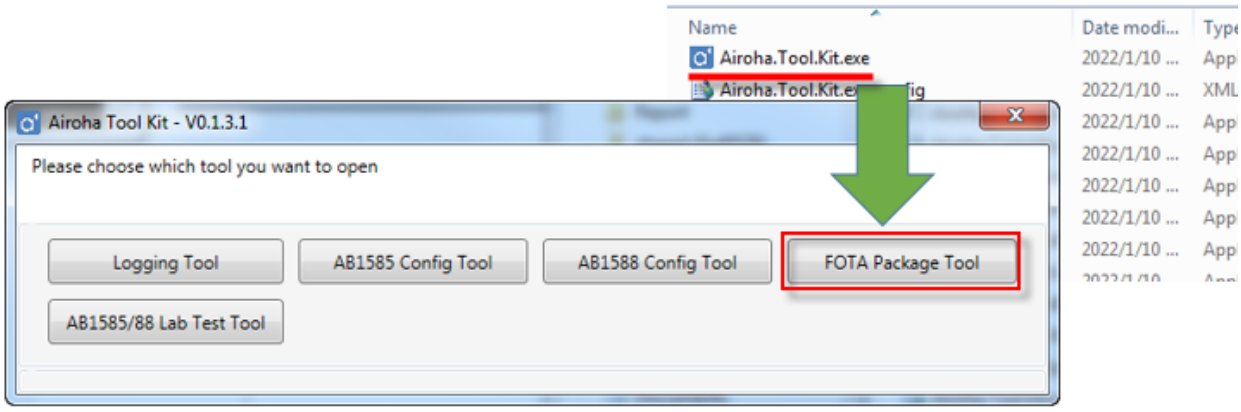

Figure 3-1. Starting the Airoha FOTA package tool

3.2. Generating the FOTA package

The FOTA package tool helps the user to generate the FOTA package.

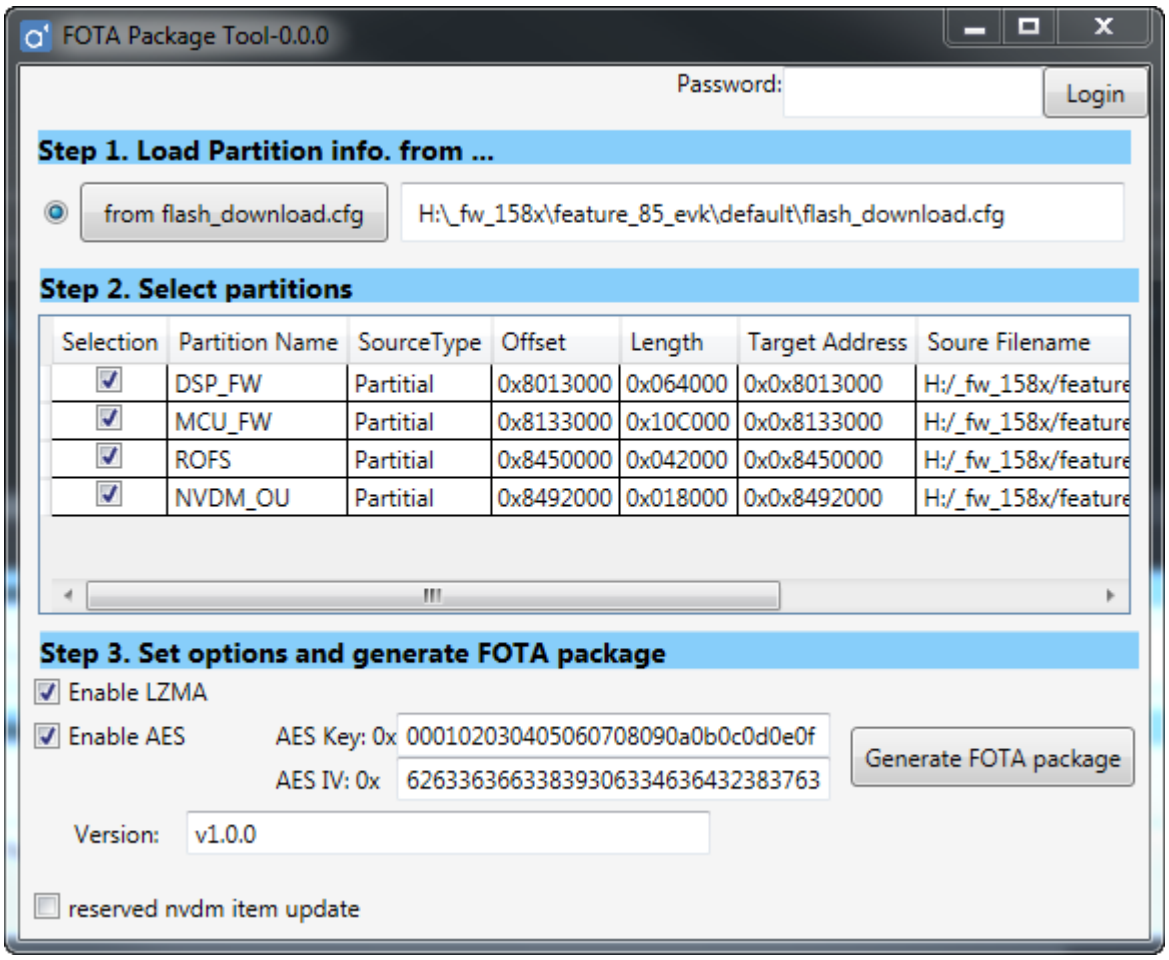

Figure 3-2. FOTA package tool UI

To generate the FOTA package:

1) Load the partition info. from a flash_download.cfg file.
2) Select the partitions to update.
3) Set the FOTA package options and generate the FOTA package.

4. Android FOTA Application User Guide

4.1. Pairing the device through Bluetooth settings

You must pair the device through the system Bluetooth settings before using the application to connect to the Serial Port Profile (SPP) due to Android's security policy.

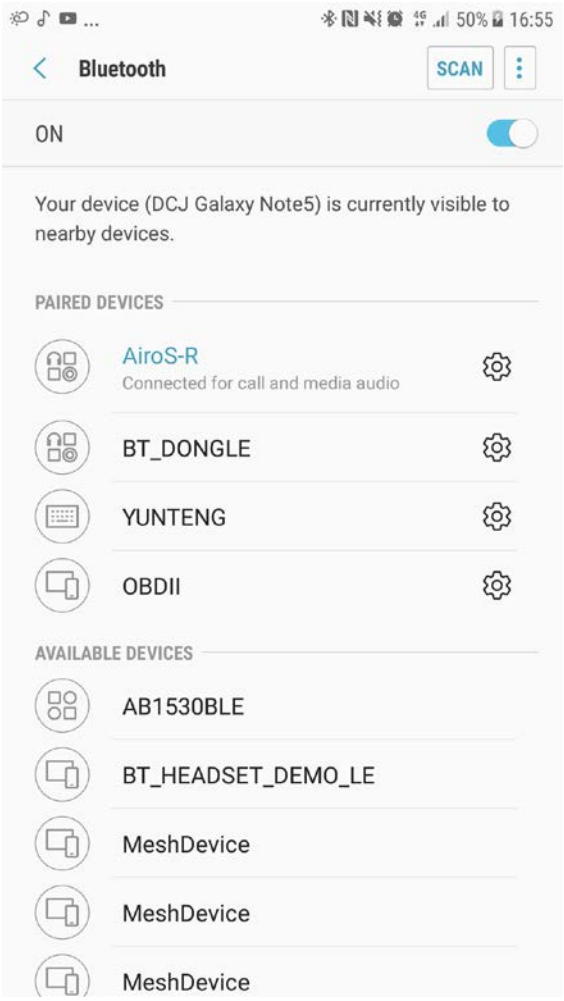

Figure 4-1. Pair the Airoha device via System Bluetooth Setting

4.2. Software Update

Tap **Software Update** to do device firmware update.

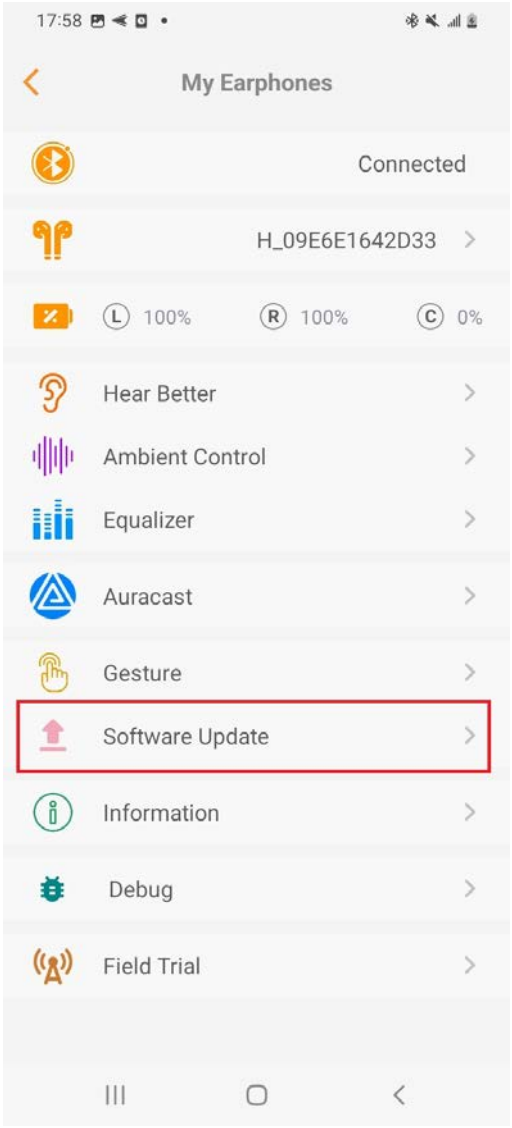

Figure 4-2. Software Update

4.3. Select FOTA package file

You can select the FOTA package file from mobile storage.

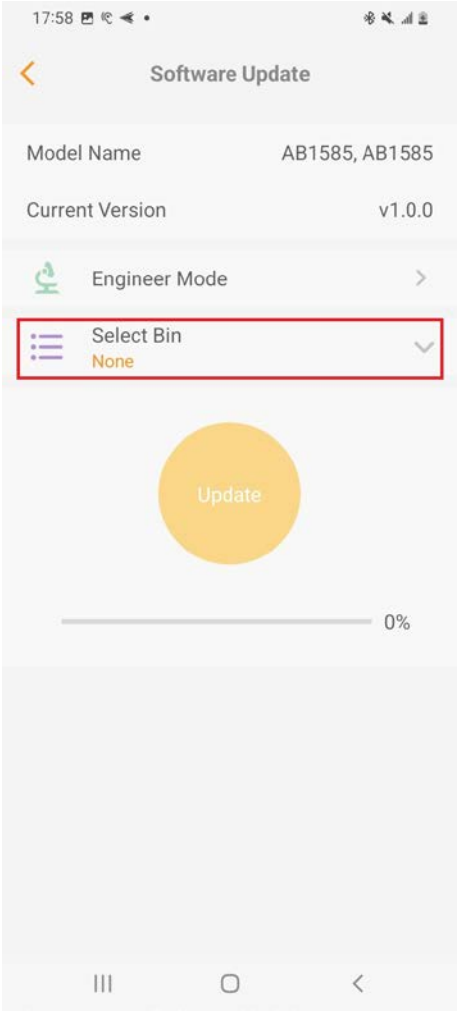

Figure 4-3. Selecting FOTA package file

4.4. FOTA Operation

Tap **Update** to start the FOTA process when the file is selected.

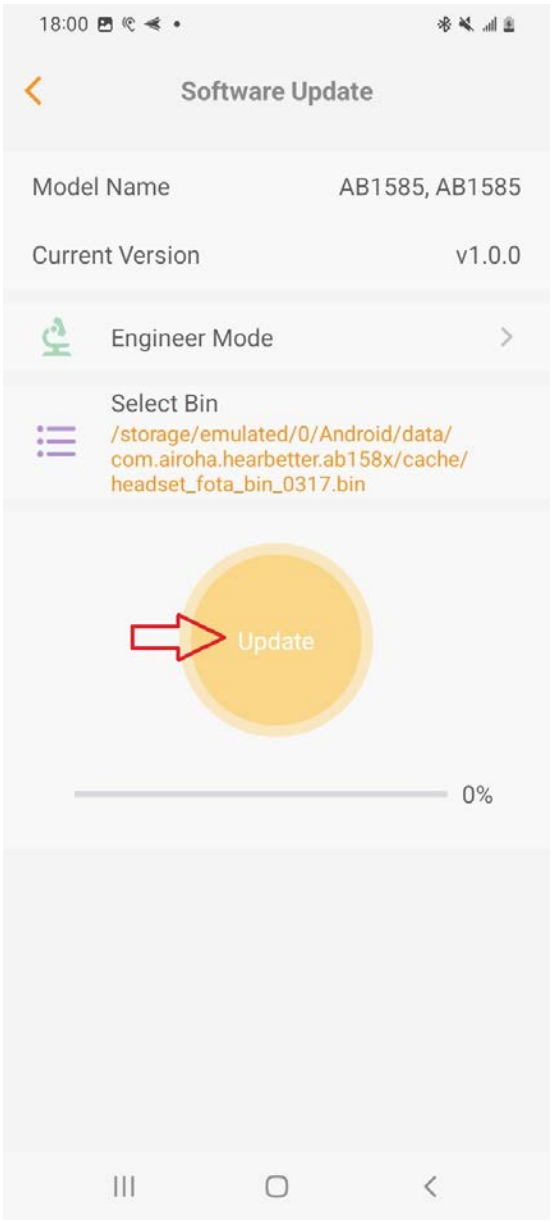

Figure 4-4 Start FOTA

Once the FOTA starts running, you can cancel it during the process.

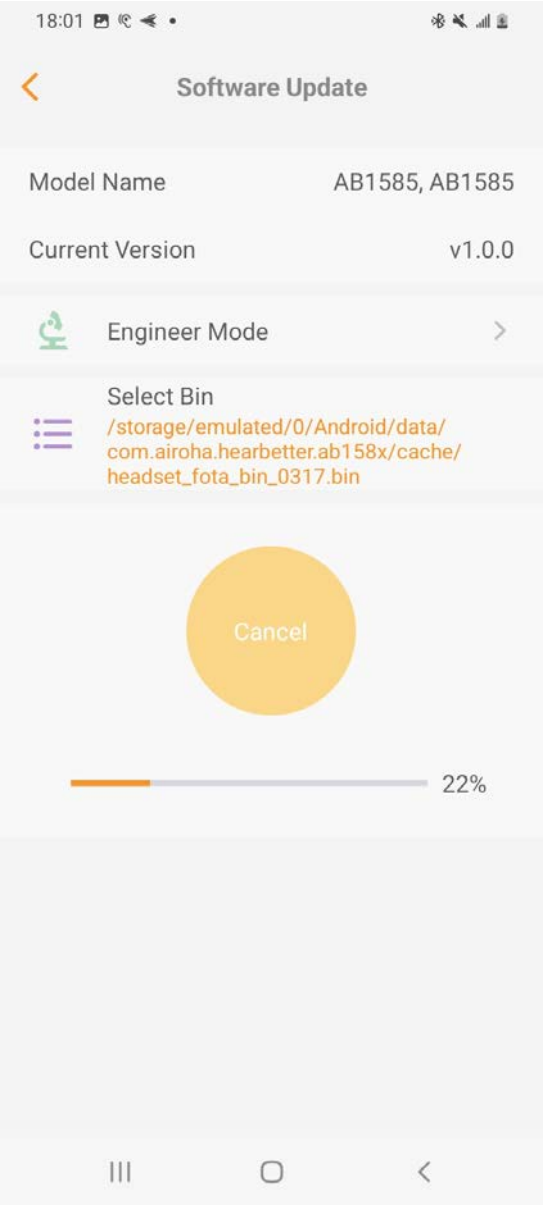

Figure 4-5 Cancel FOTA

When the FOTA transfer is complete, tap “Commit” to trigger the device reboot and FOTA upgrade.

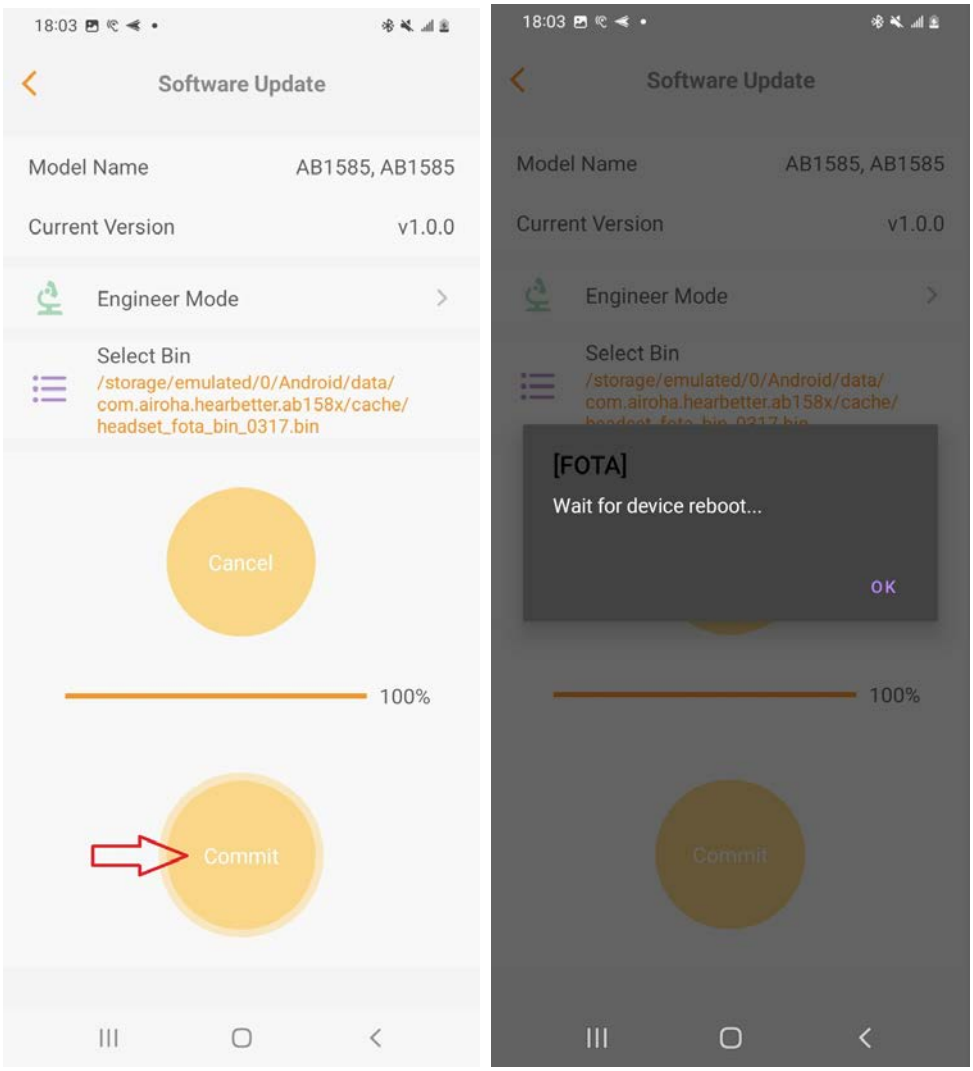

Figure 4-6 FOTA commit

4.5. Checking whether the FOTA process is successful

To check if FOTA is successful:

1) Modify the firmware version when you first generate the FOTA package.

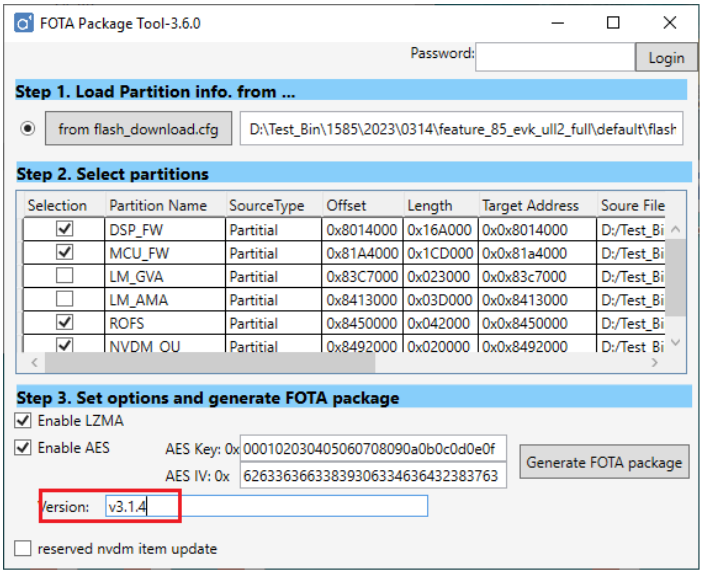

Figure 4-7. Version setting in FOTA package tool

2) Make sure the version number is updated when the FOTA process is complete.

You can check the firmware version when the FOTA process is complete.

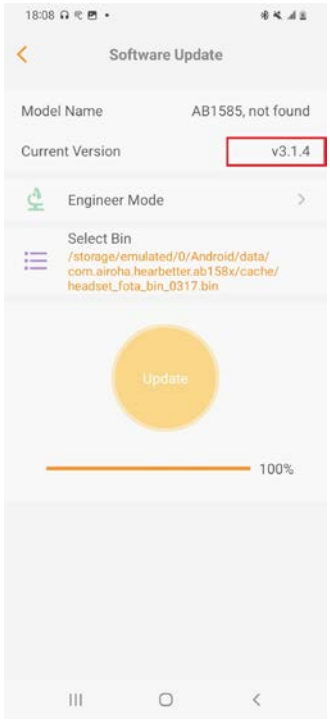

Figure 4-8. Checking the firmware version

5. iOS FOTA Application User Guide

5.1. BLE device connection

The application starts searching for any nearby BLE devices. Select the AB1585 device for the FOTA process.

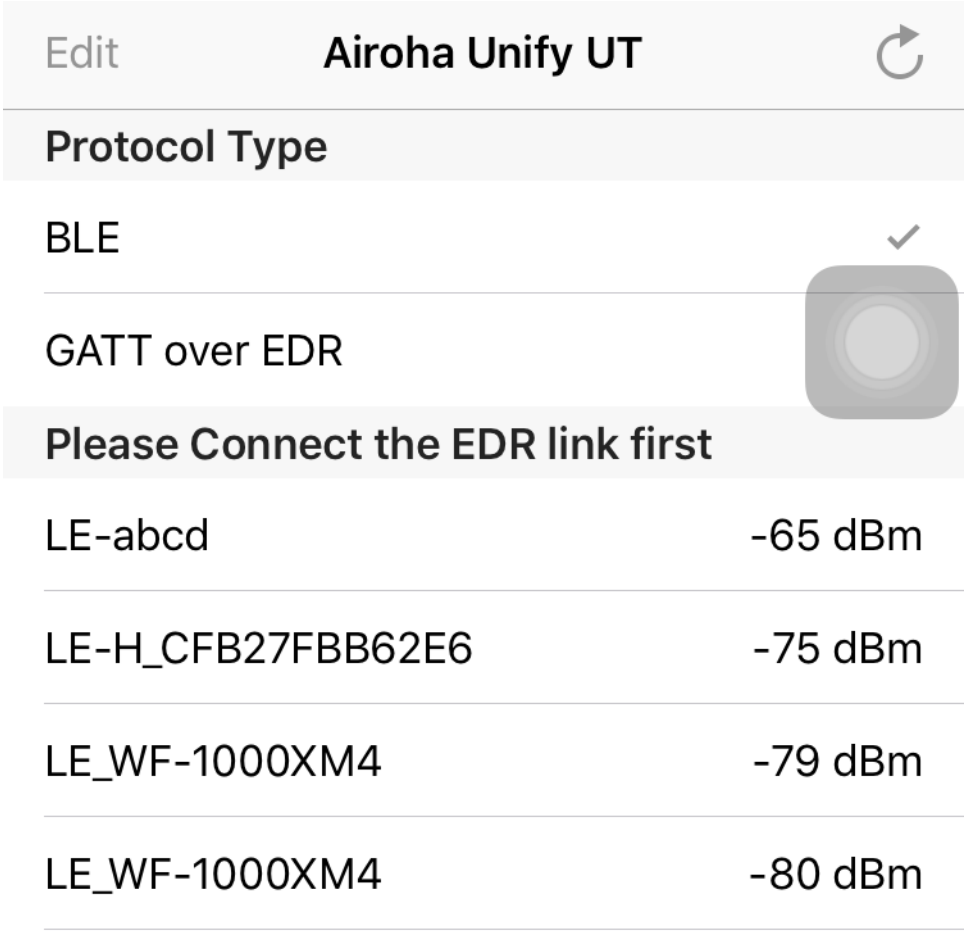

Figure 5-1. BLE Device Connection

5.2. FOTA mode selection (Single/ MCSync)

Select the FOTA mode according to the Bluetooth device you have.

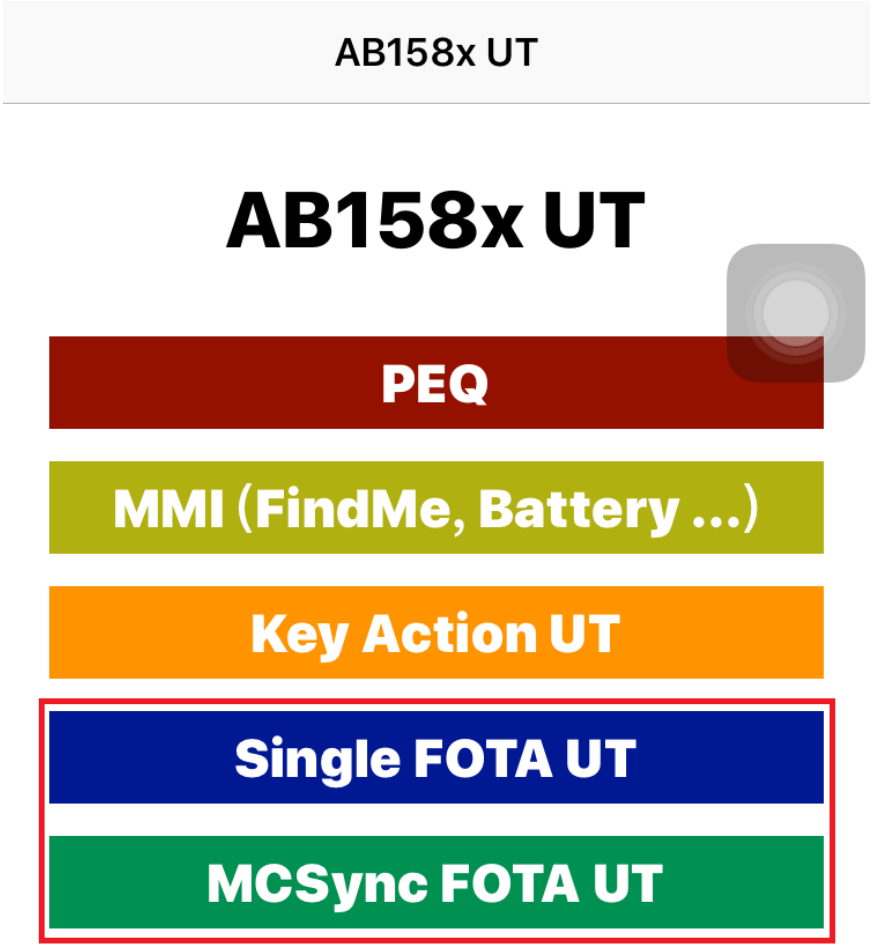

Figure 5-2. iOS FOTA Mode Selection

5.3. Downloading the FOTA package

To download the FOTA package, set the FOTA bin file and select **Start Download File**.
The FOTA package is ready when the application shows the message that the firmware was successfully downloaded.

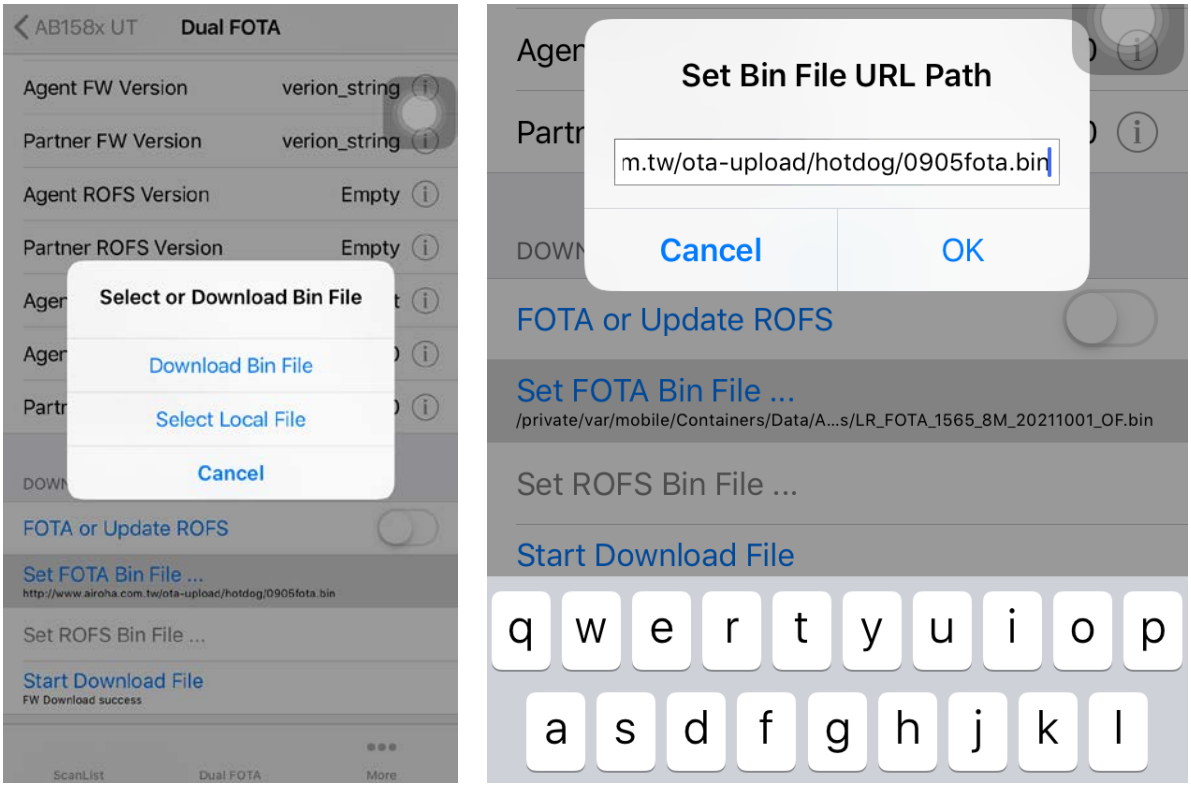

Figure 5-3. Downloading the FOTA package

5.4. FOTA configuration

The default settings are applicable for the FOTA process. It is not necessary to change these settings.

Figure 5-4. FOTA Configuration

ACTIVE OR IDLE MODE – Selecting Idle Mode allows the FOTA operation and listening to music at the same time. Otherwise, the application sends an active FOTA preparation command to avoid interference during the FOTA process.

Set Battery Threshold – The application uses the value as the battery level check threshold to avoid an incomplete update process because the battery level is too low.

Program Interval (Idle Mode) – The application uses the value as the interval of program command to send to the device.

5.5. FOTA state and corresponding operation

The FOTA state is automatically queried when BLE is connected.

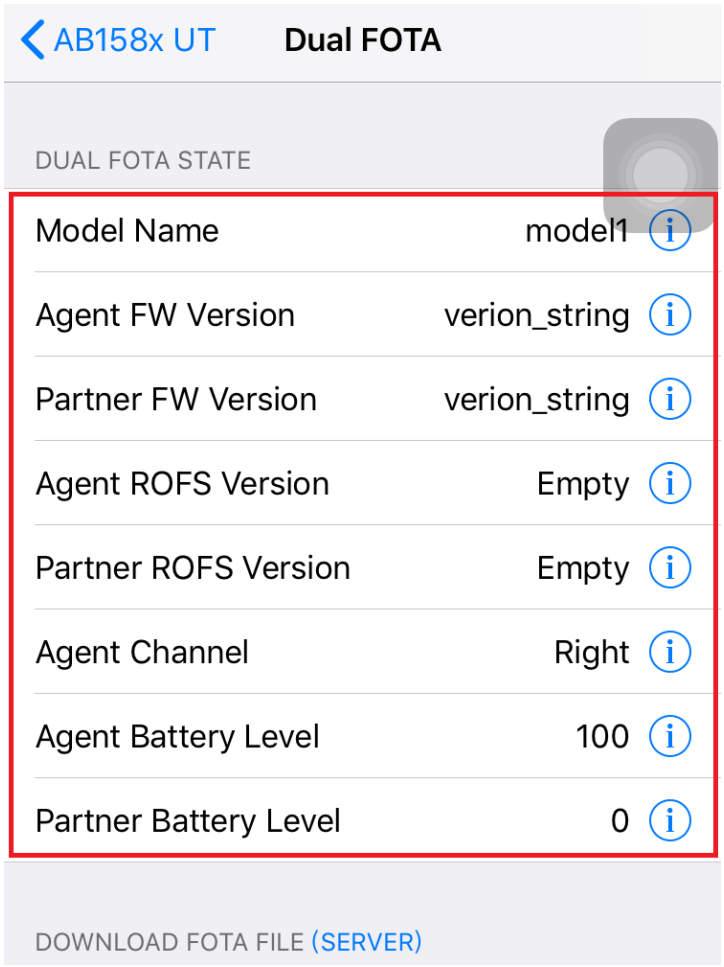

Figure 5-5. FOTA state

Model Name – The model name of the device.

Agent FOTA State – A UInt16 value represents the agent device state of FOTA.

Partner FOTA State – A UInt16 value represents the partner device state of FOTA.

Agent FW Version – Shows the agent device FW version.

Partner FW Version – Shows the partner device FW version.

Agent Channel – Shows the agent device is right or left channel.

Agent Battery Level – Shows the agent device battery level. The FOTA process cannot start if the battery level is less than 70%.

Partner Battery Level – Shows the partner device battery level. The FOTA process cannot start if the battery level is less than 70%

There are two FOTA operations.

Figure 5-6. FOTA Operation

Start FOTA – Starts the FOTA process.

Cancel – Cancels the FOTA process.

5.6. Exporting the application log

If there is an issue during the FOTA process, please click **Export Log** to export the log and then send it to the Airoha support team for debugging.

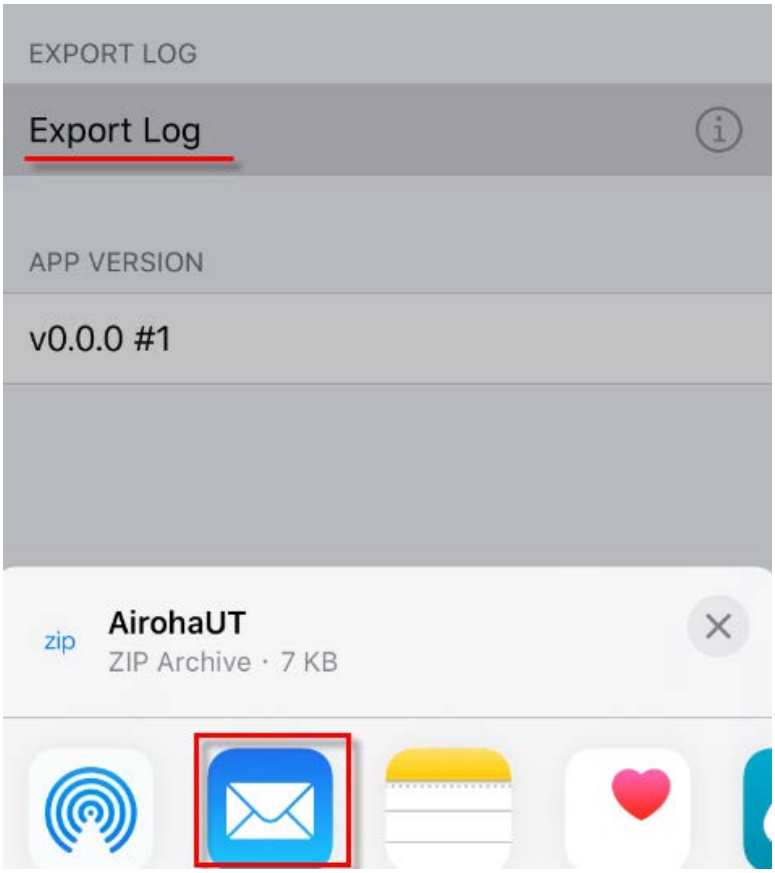

Figure 5-7. Export application log