MPPG Tool Chain User Guide

Version 1.6

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Revision History

Date	Version	Revision	Writer	Reviewer
2017/10/13	v1.0	First draft	Pu Liangzhou	
2017/12/26	v1.1		Pu Liangzhou	
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1 Overview

This document introduces useful tool chain which is integrated in MPPG Tool for REALTEK Bluetooth chip.

The major tool to introduce is “Pack tool”, which is used to generate pack image packet for chip flash programming or OTA.

For chips that support configurable flash layout, “Flash Map Layout Generator” and “OTA Header Generator” are also introduced. These functions are mainly applied for SDK customers.

2 Pack

2.1 Select IC

IC type should be selected at the first usage, as shown in Figure 2-1.

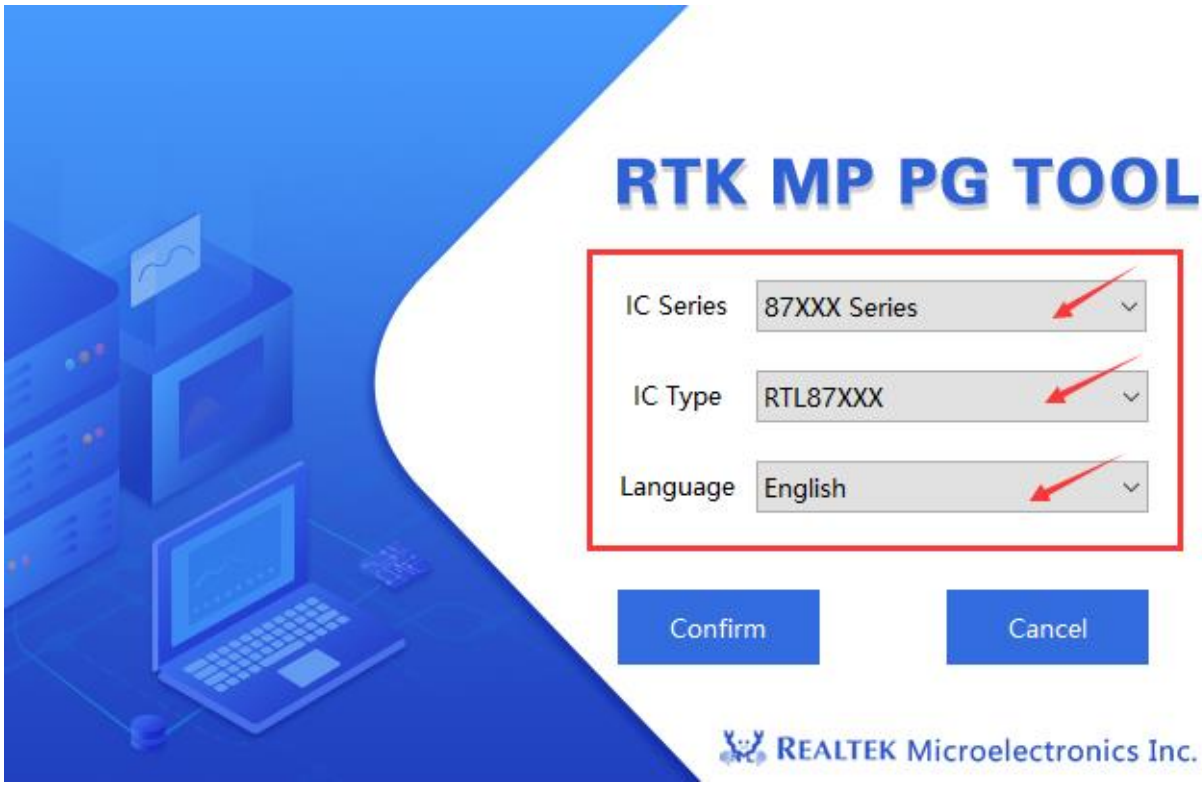

Figure 2-1 IC Type selection

Select IC series and IC type which you are going to use, and then click ‘Confirm’ button to enter MPPG Tool dialog.

Please make sure correct IC series and IC type is selected, or there may have error in pack procedure.

2.2 Select Pack Type

Pack Tool is integrated in “Tool” menu on MPPG Tool dialog (as shown in Figure 2-2).

Two pack types are supported in Pack Tool: “For MP” and “For OTA”. Different type supports different sub images in pack procedure, but the operating buttons and packing logic are the same.

“For MP” type is used to generate image packet for downloading procedure, it supports almost all sub images

which the selected IC supports.

“For OTA” type is used to generate image packet for OTA procedure, it only supports sub images which can be OTA for the selected IC.

Select pack type which you are going to use to enter Pack Tool dialog.

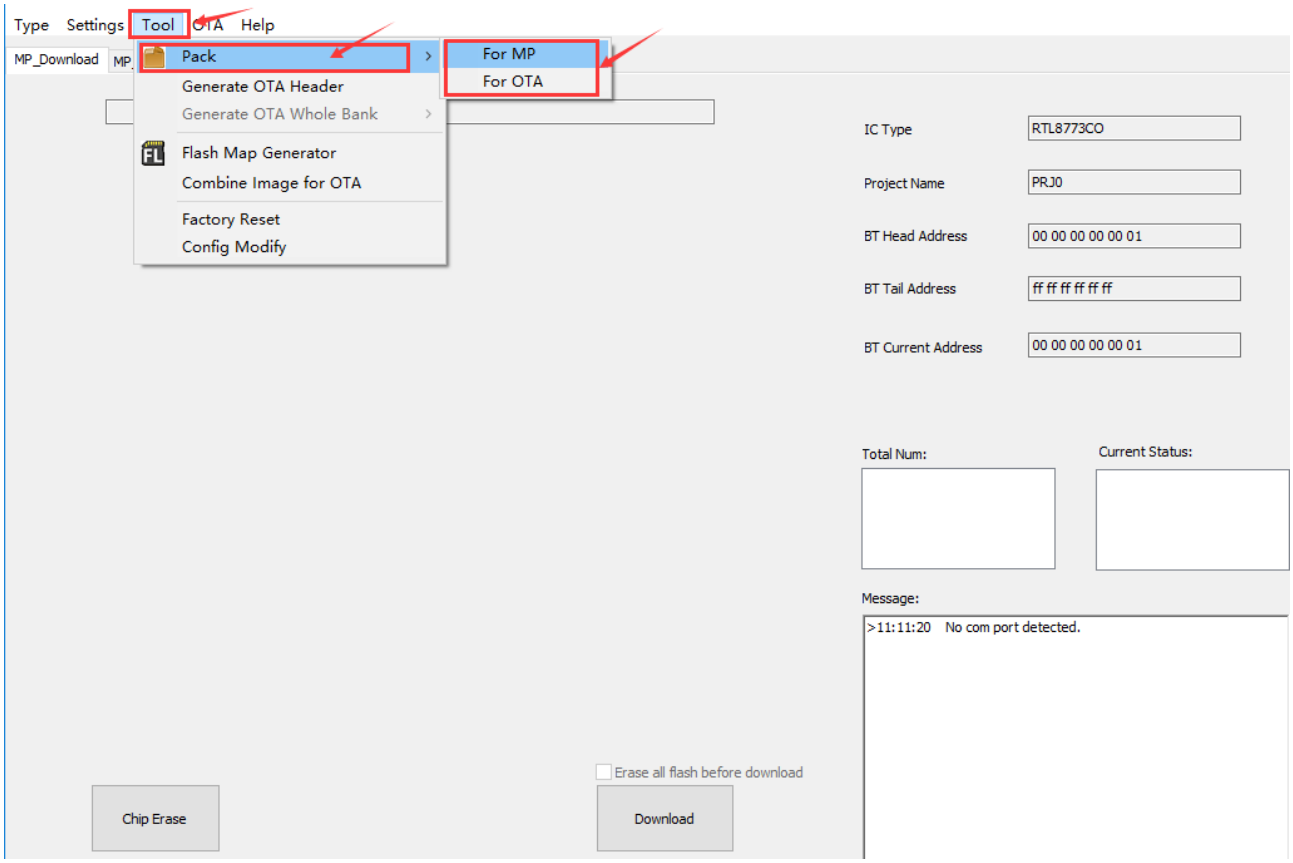

Figure 2-2 Select pack type

2.3 Add Sub Images

There are two ways to add sub images:

1. Add single sub image through image list column.
2. Add multi- images at one time by clicking “Add File(s)” button.

For chips that support configurable flash layout, it is required to load flash map.ini.

2.3.1 Load Flash Map

For chips that support configurable flash layout, it is required to import flash map.ini which provides flash address information of sub images (Shown in Figure 2-3). The sub image address will be shown after importing flash

map.ini, and image address cannot be modified.

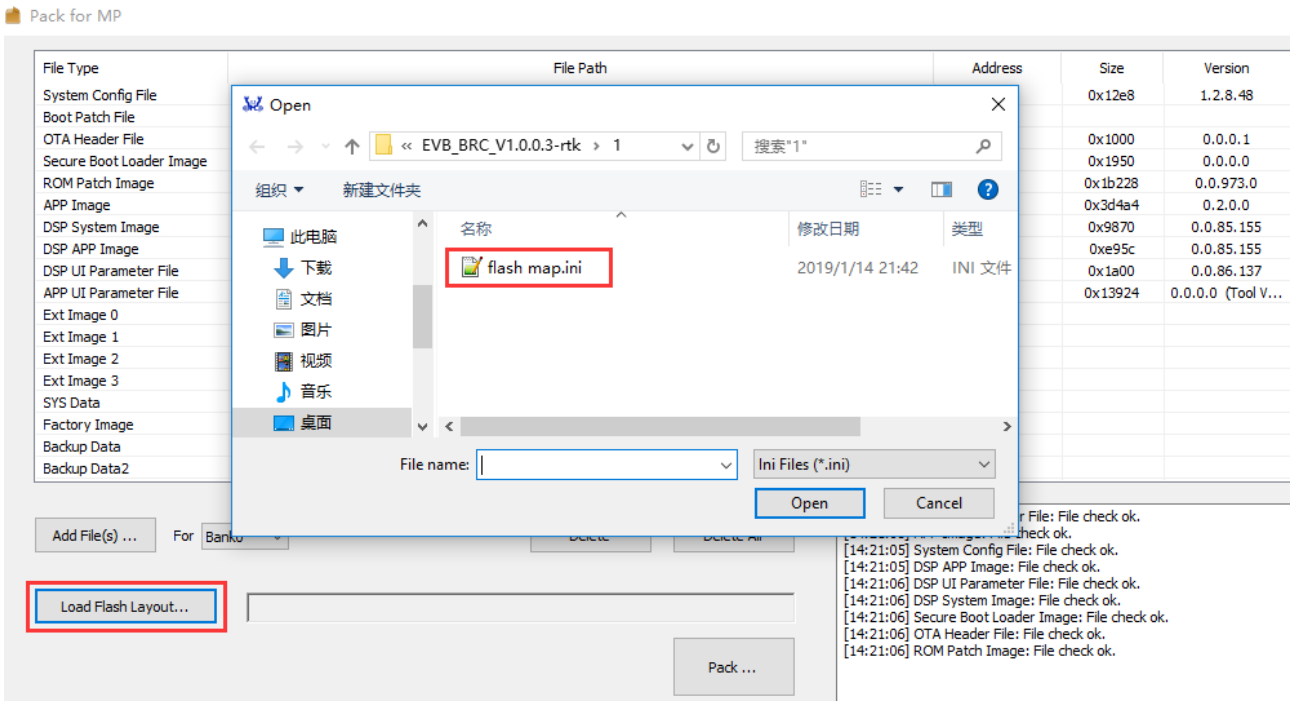

Figure 2-3 Import flash map.ini

For chips which do not support configurable flash layout, it do not need to load flash map.ini. The sub image address is fixed and cannot be modified.

2.3.2 Add Single Image

Single sub image can be added in following way:

1. Find the file type of the sub image to be added and double click the place in “File Path” column to switch into edit mode.
2. Click the folder button (Shown in Figure 2-4) to add sub image. Figure 2-5 shows Image File select dialog.

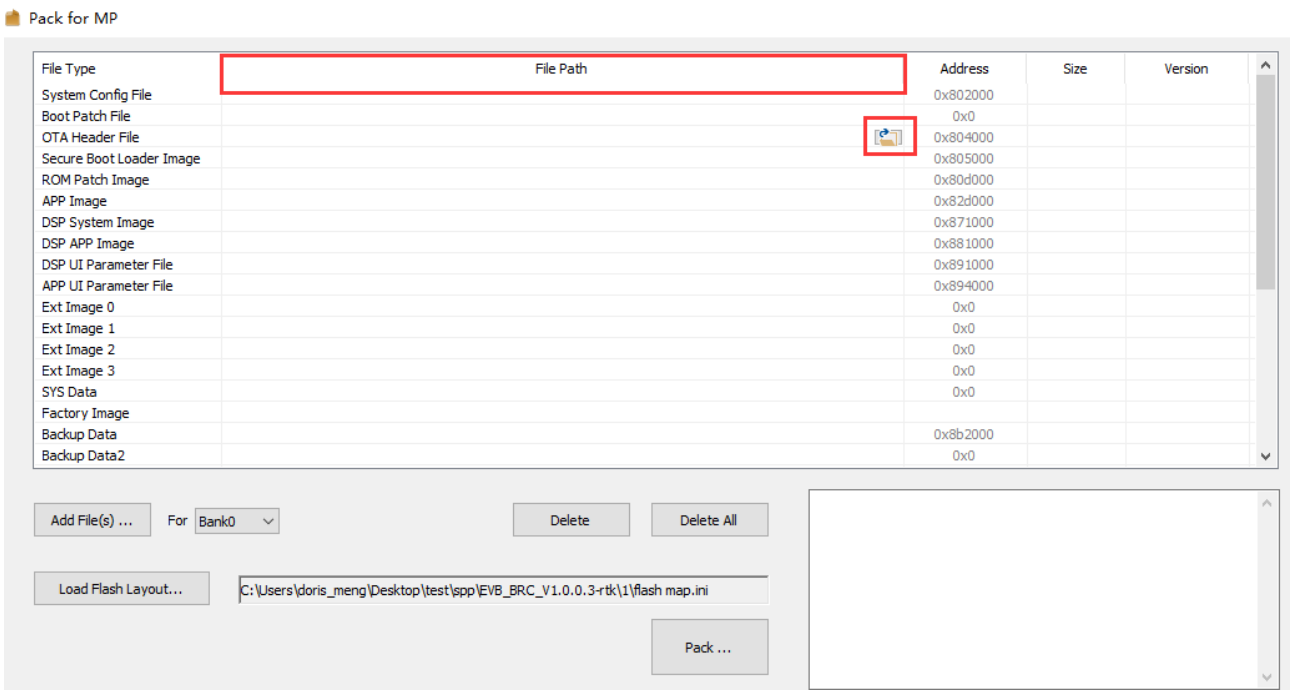

Figure 2-4 Add file path

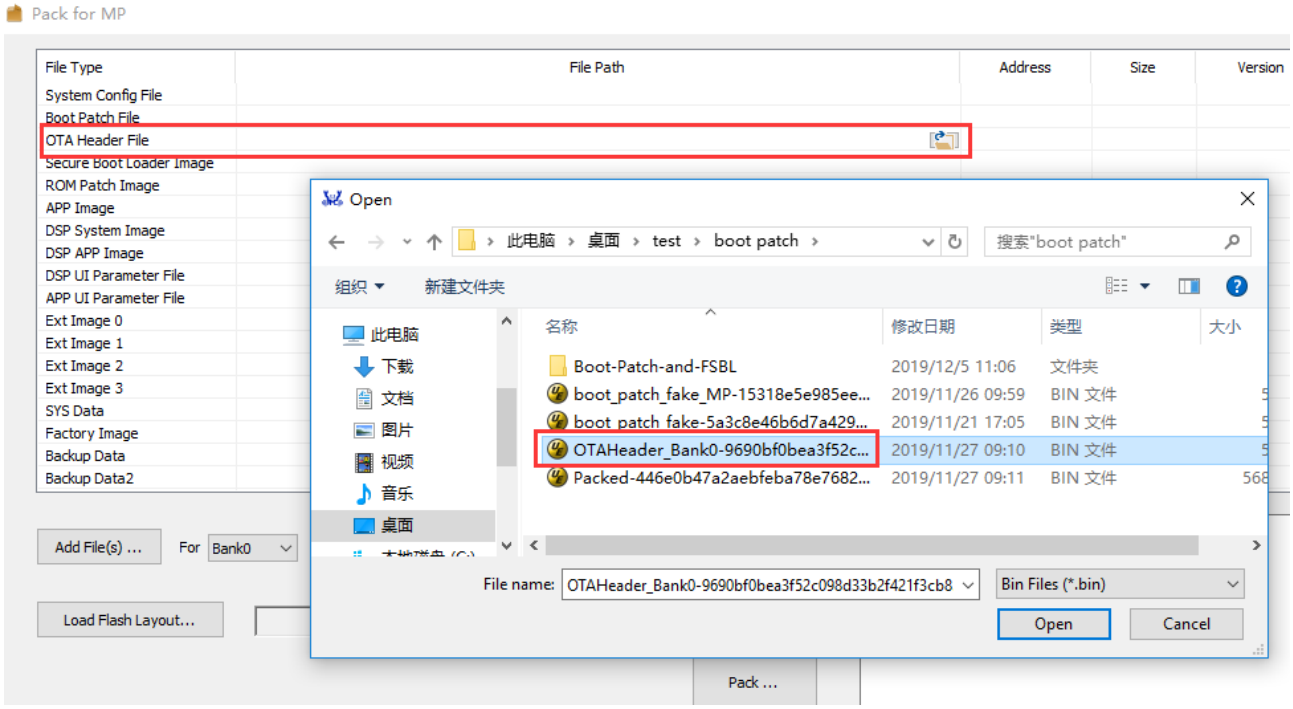

Figure 2-5 Image File select

2.3.3 Add Multi-Images

For chips that support configurable flash layout, it is suggest to select OTA bank before add multi-images. The

default OTA bank is “Bank0”. The sub images will be added in the selected bank for packing.

Click “Add File(s)…” button to add more than one files at one time, however, adding files in this way will firstly clear all the old files in the list and then add new files. (Shown in Figure 2-6).

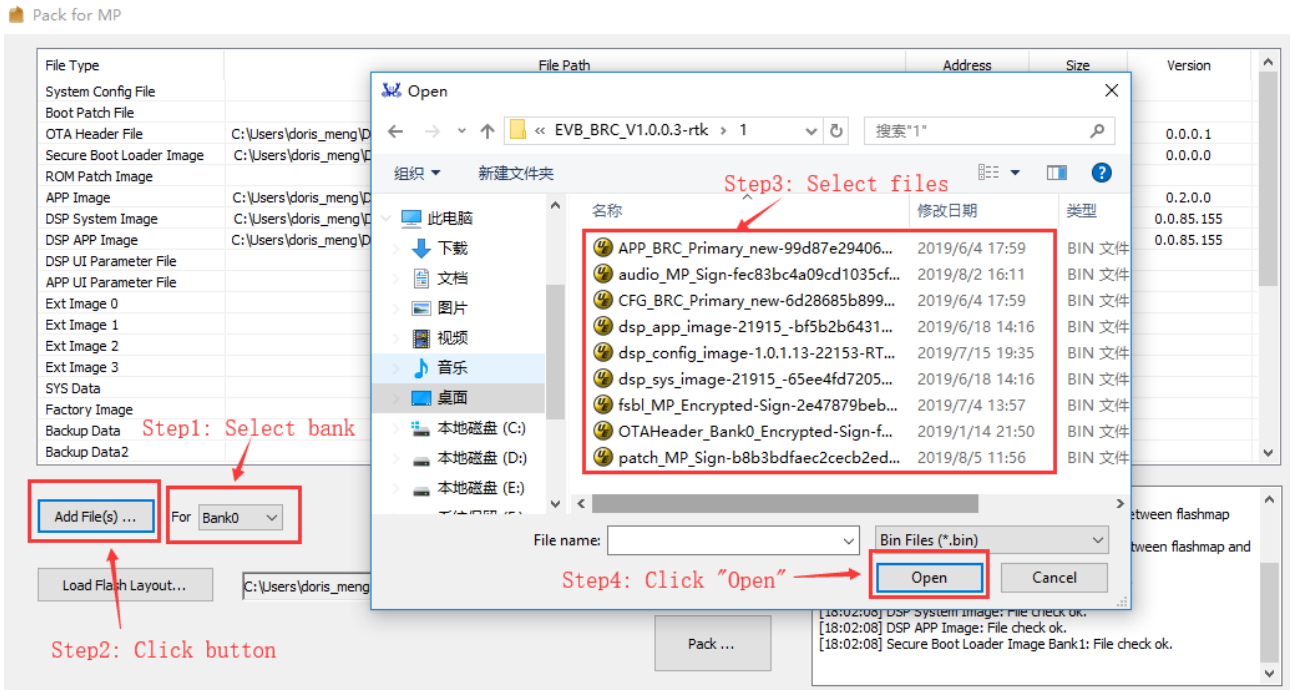

Figure 2-6 Add multi-image files to list

2.3.4 Image Check

The Pack Tool will check whether the selected images are valid, e.g. MD5 check is necessary for all the selected files. Sub image files are also need to check file type, file length, file version, etc. (Shown in Figure 2-7). The check result will be shown in message box. If check failed, the column color will be set to red.

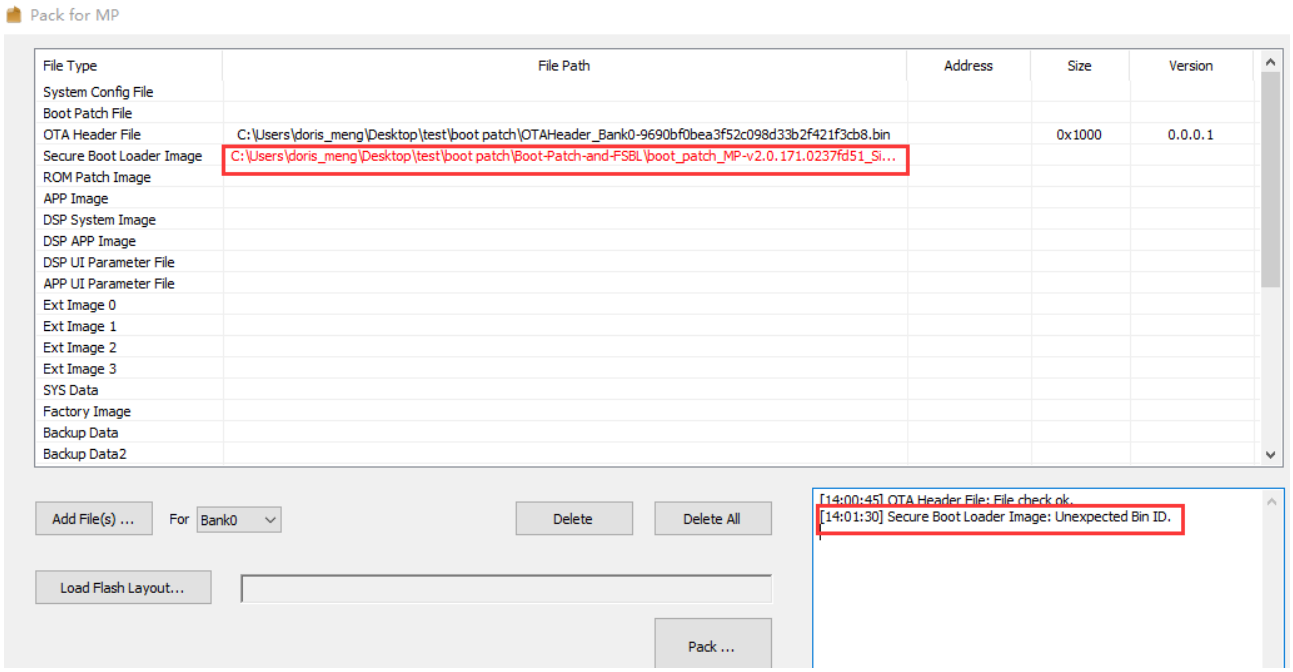

Figure 2-7 File check error & success

2.4 Remove Sub Images

If one sub image is mistaken added into the image list, select it in the image list and click “Delete” button to remove it (Shown in Figure 2-8).

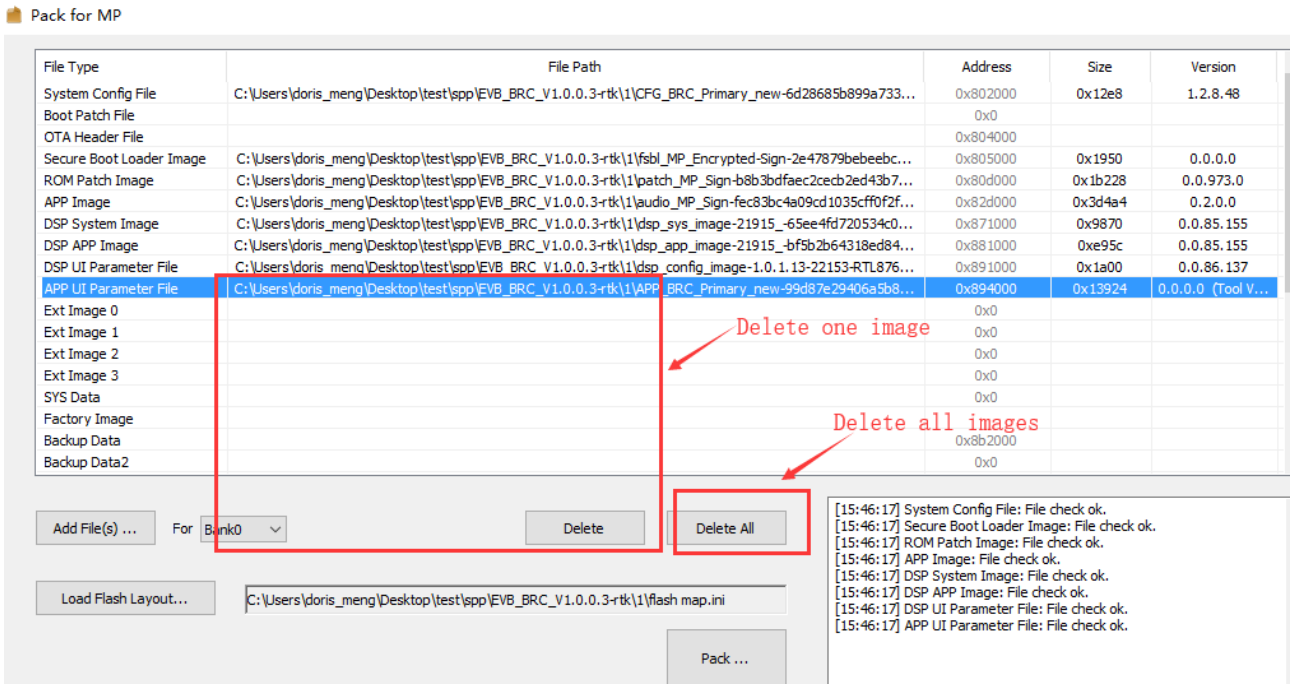

Figure 2-8 Remove Sub Image

You can also delete all images in the image list at one time by clicking “Delete All” button.

2.5 Generate a Packet

After building a complete image list, click the “Pack…” button to generate a packet. Choose a saving path for the packet and type in the custom name in the pop-up dialog, and then click the “save” button as Shown in Figure 2-9.

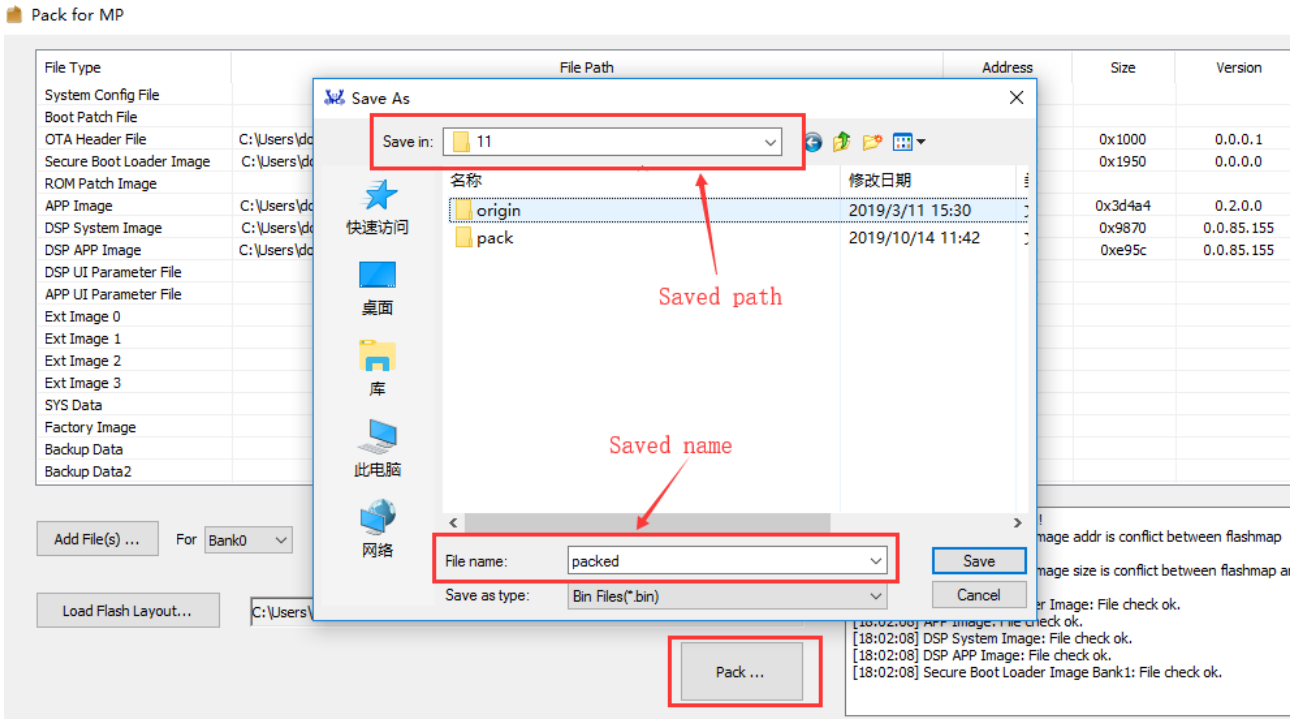

Figure 2-9 Save packet in custom path

The packet will be stored in the custom path named as “CustomName-MD5.bin” (Shown in Figure 2-10). MD5 is the MD5 value for the whole packet file.

If the packet file cannot be generated correctly, there will be error message. Change sub bin files’ selection according to the message and click ‘Pack…” again to generate packet file correctly.

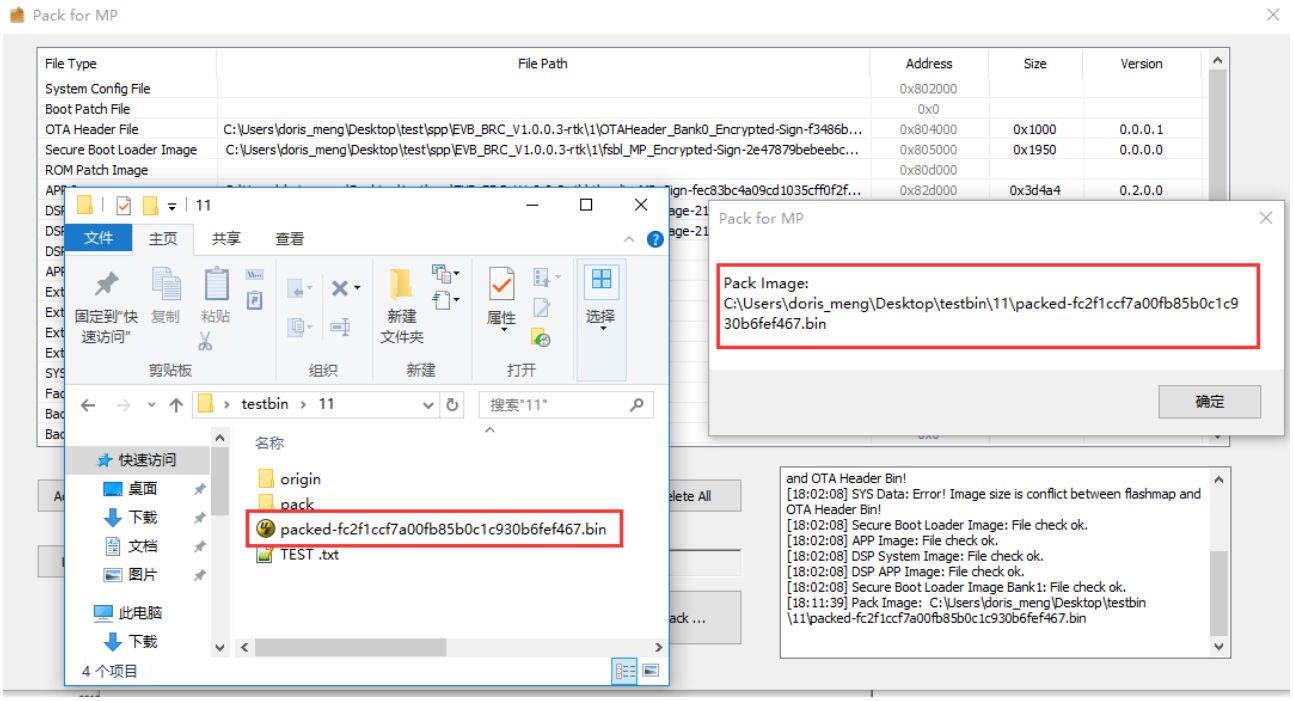

Figure 2-10 Saved packet

3 Generate OTA Header Bin

For chips that support configurable flash layout, tool chain provides OTA Header generator tool for “OTA Header bin” generating.

Click “Generate OTA Header” button in the “Tool” menu to open the Generate OTA Header dialog and generate OTA header bin (Shown in Figure 3-1).

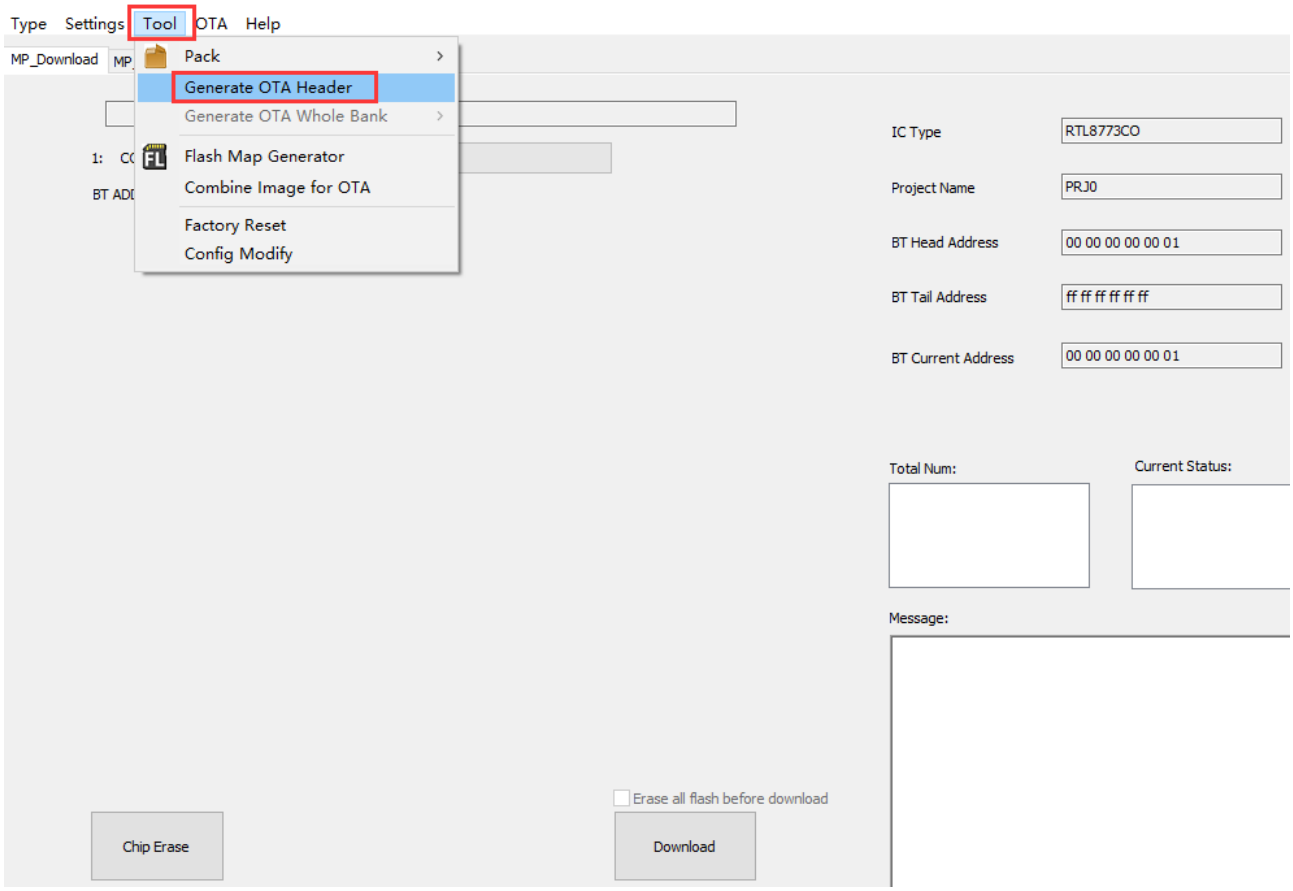

Figure 3-1 Open Generate OTA Header Dialog

Click “Load Flash Layout…” to load flash map.ini and click “Load RSA Key” to load a RSA key for OTA Header. The address and size of all type files in the list are configured according to the loaded flash map.ini and cannot be modified.

After configuring all the properties, click “Generate…” to generate OTA Header bin (Shown in Figure 3-2).

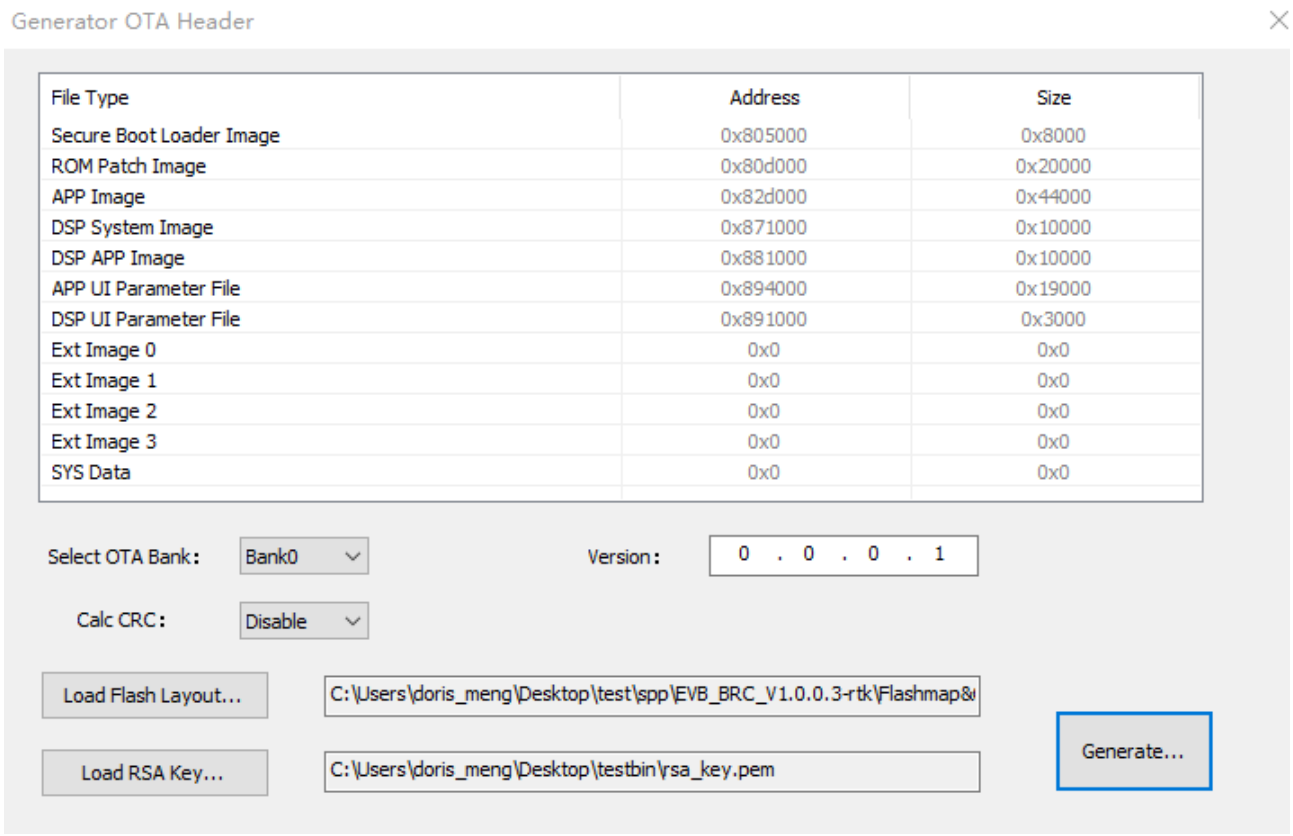

Figure 3-2 Generate OTA Header Dialog

4 Generate Flash Map

For chips that support configurable flash layout, tool chain provides Flash Layout generator tool for “flash map.ini” generating.

Click “Flash Map Generator” button in the “Tool” menu to open the Flash Map Generate dialog and generate flash map.ini (Shown in Figure 4-1).

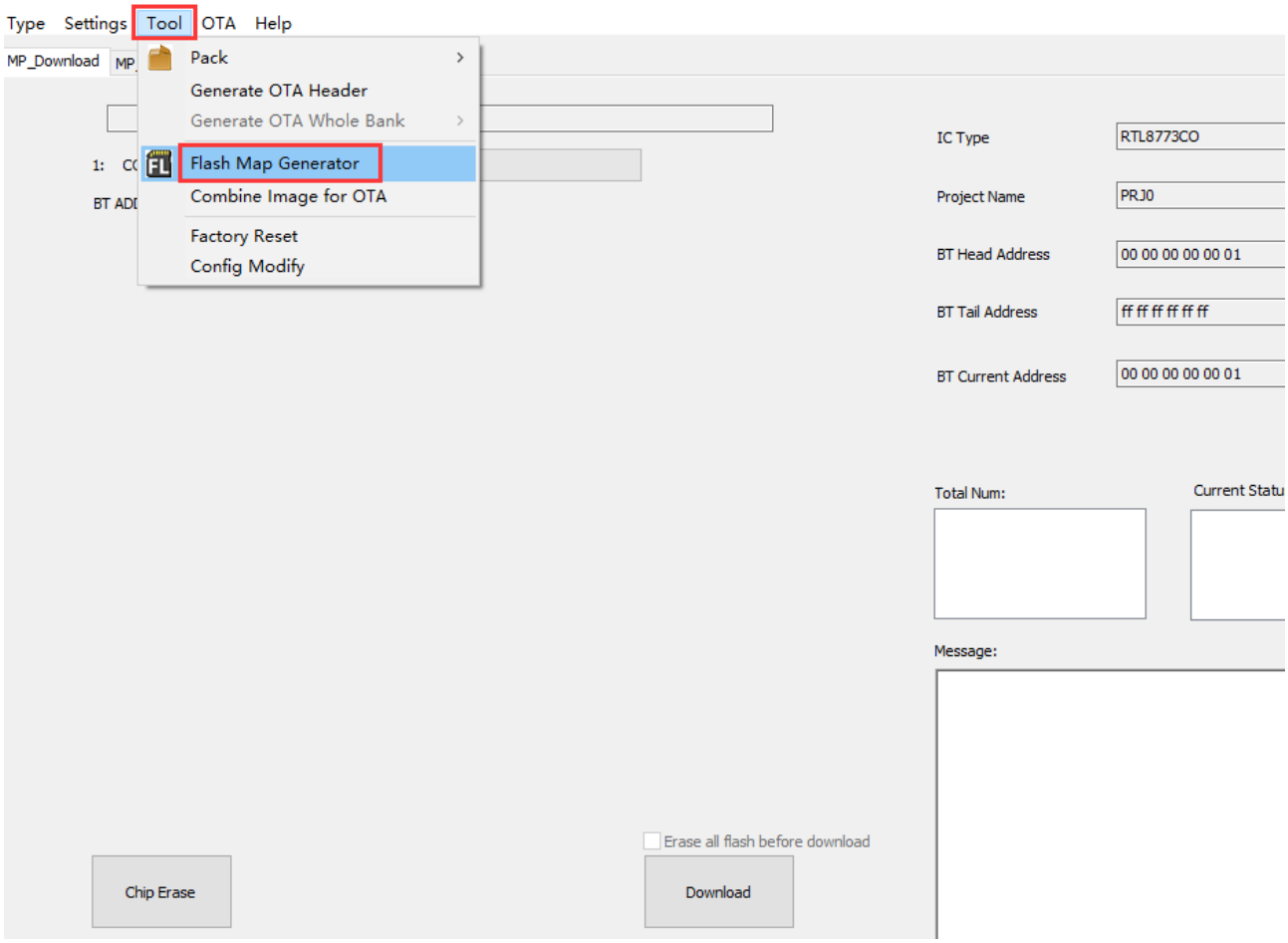

Figure 4-1 Open Flash Map Generate Dialog

Flash Map Generate dialog is shown in Figure 4-2. Configure the whole flash layout in “High Level Type” list and configure layout for bank0/bank1 in “OTA File Type” list after selecting “Flash Size” combo box. Multi-image header size is provided in “Image Header Size” combo box. “Set BP Size to Front” combo box is to set which area of flash the BP level protect for. Notice that items which “write enable” is selected “RW” should be placed out of BP size.

You can also import an existing flash map.ini by clicking “Import” button and then modify layout base on it.

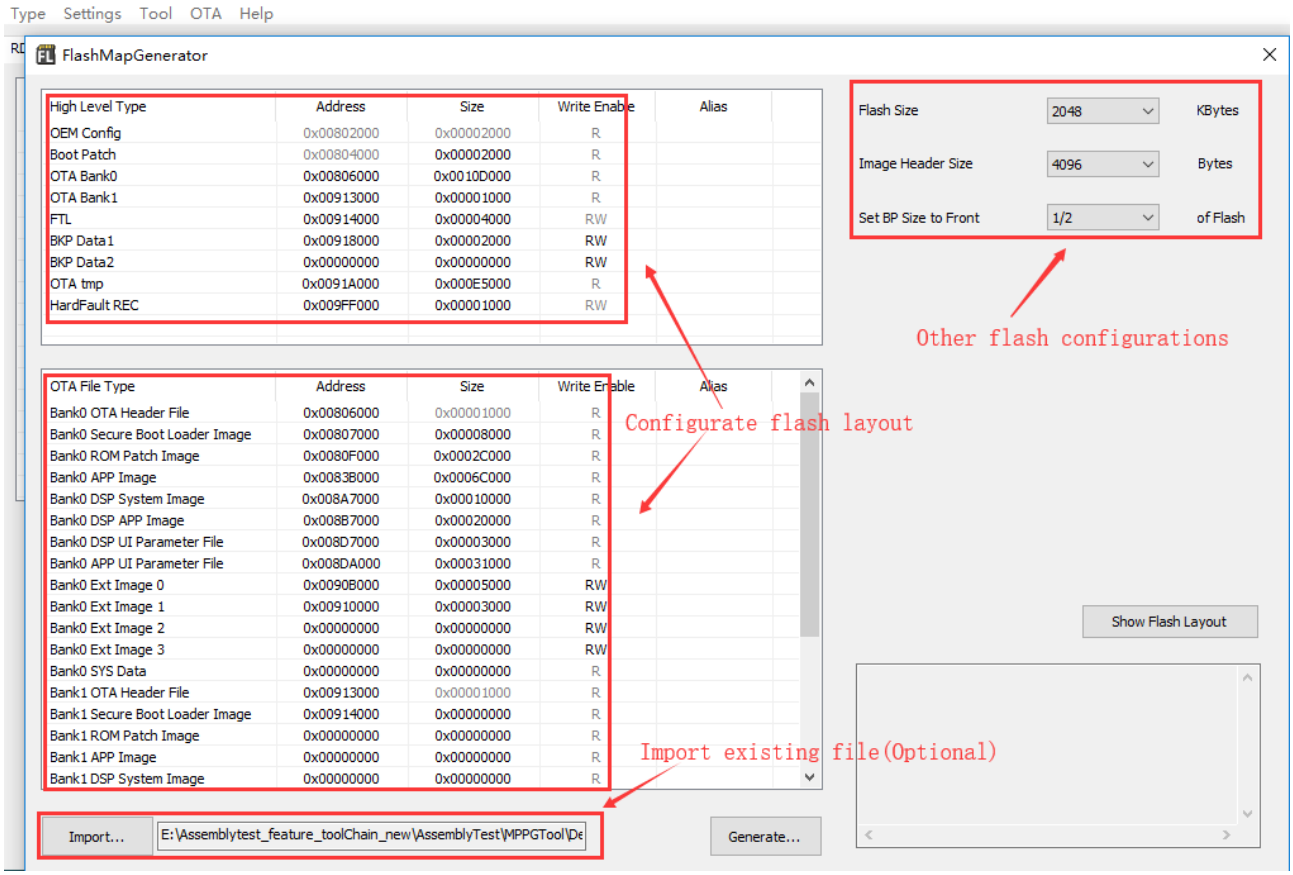

Figure 4-2 Flash Map Generate Dialog

If there are some memory overlap in the flash layout, the overlap file types will be set to other colors and error message will be shown in message box (Shown in Figure 4-3).

The overlapped file type should be configured correct address or size to resolve memory conflict.

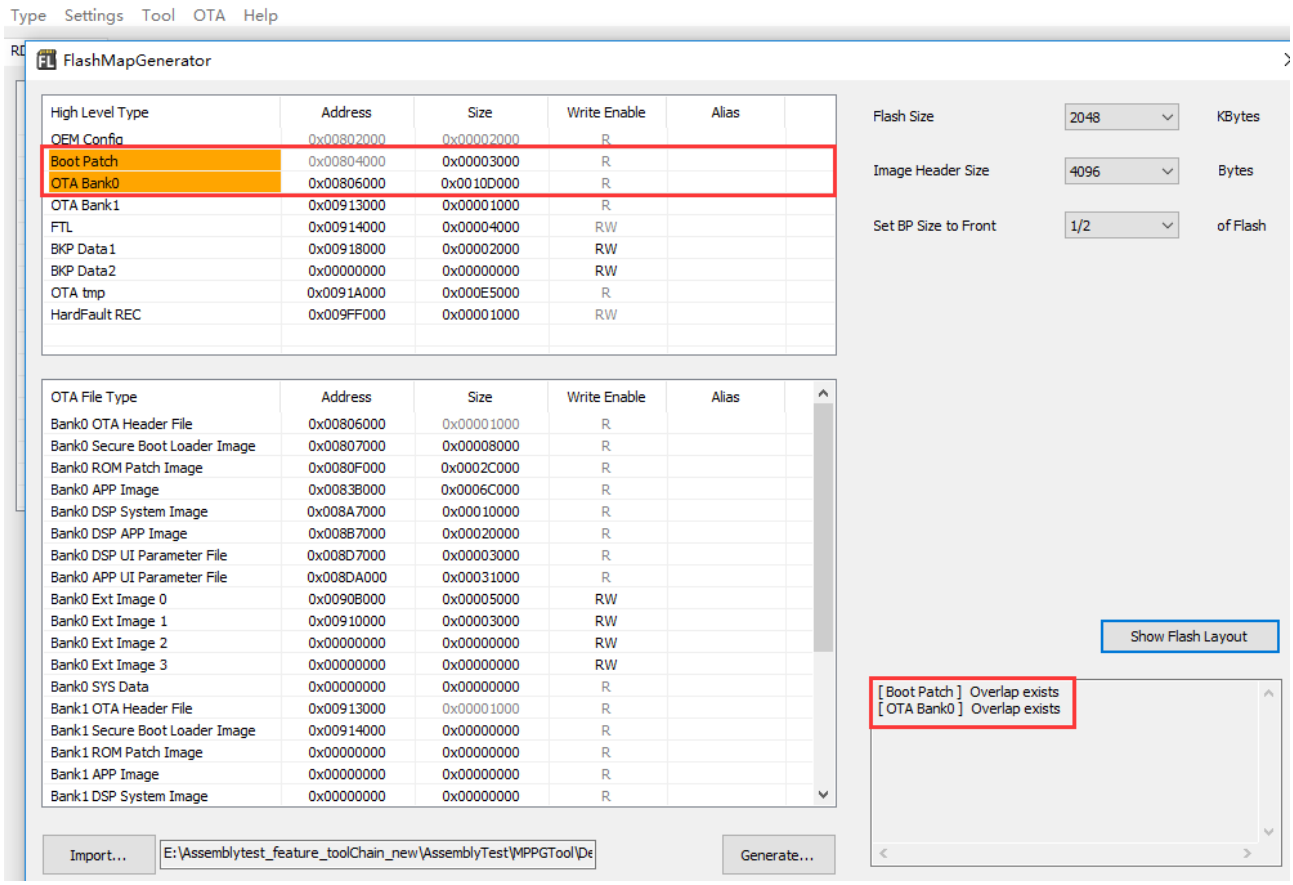

Figure 4-3 Memory Overlap

The Flash Map Generate Tool also provides a function to show memory layout. Using it to help check if there is any memory overlap in current build.

Choose a correct flash size before using it, make sure the selected size is match with the using flash. Then click “Show Flash layout” button to show memory layout (Shown in Figure 4-4).

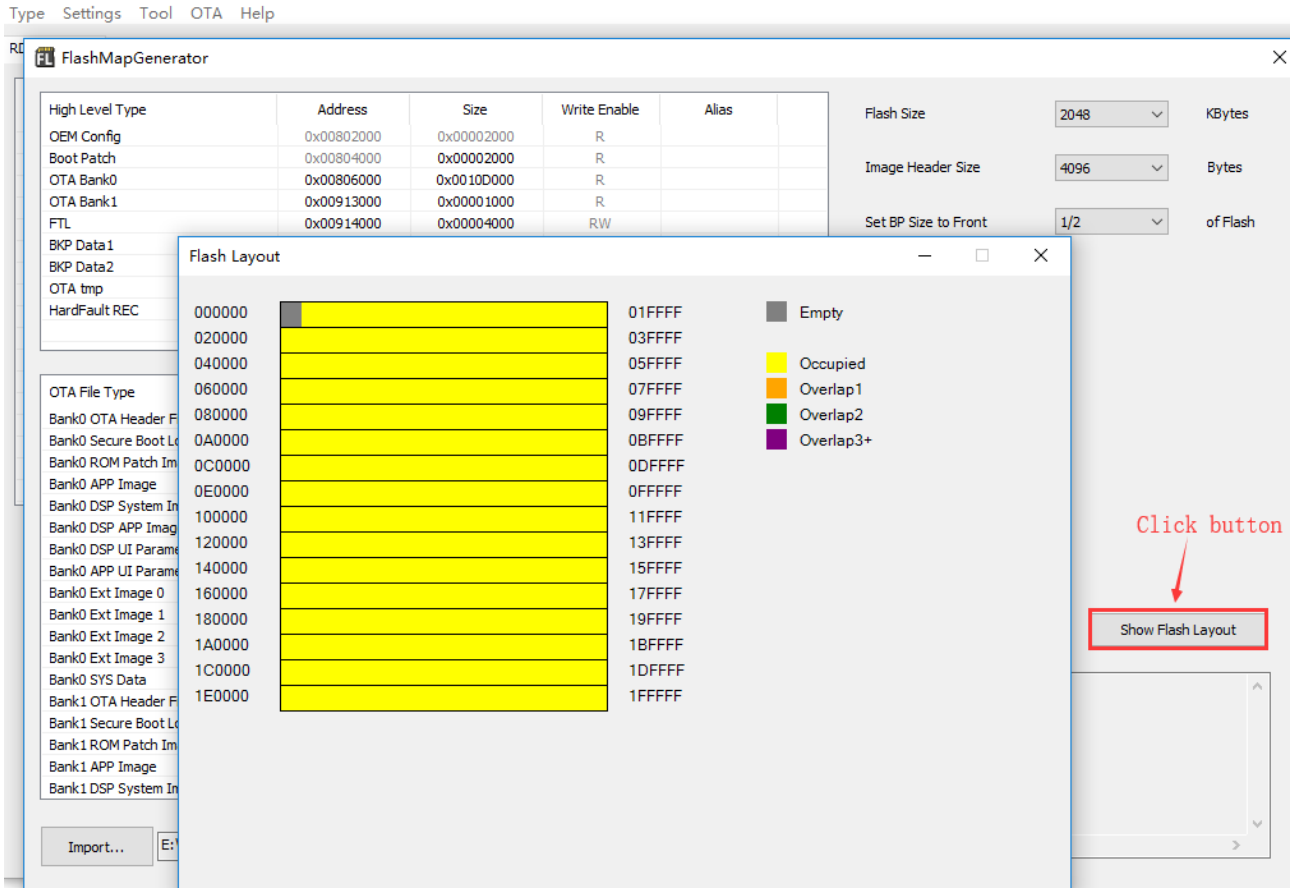

Figure 4-4 Show Memory Layout

After configuring all the properties correctly, click “Generate…” button to generate a flash map.ini file after configuring all the layout. The generated file can be used in Pack tool/MPPG Tool/MP Tool.

5 One-Click Pack for OTA

Please following the steps below:

1. Put bin files and flash map.ini into specified sub-folders of 'OneClickPack' folder.

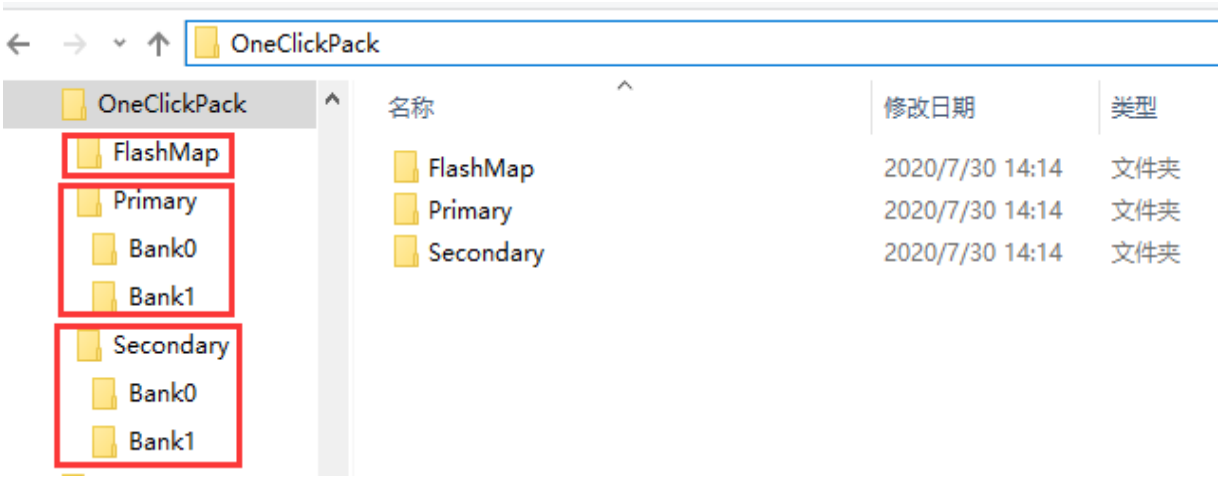

Figure 5-1 Fixed folder layout for One-Click Pack

2. Click 'One-Click Pack for OTA' on menu bar.

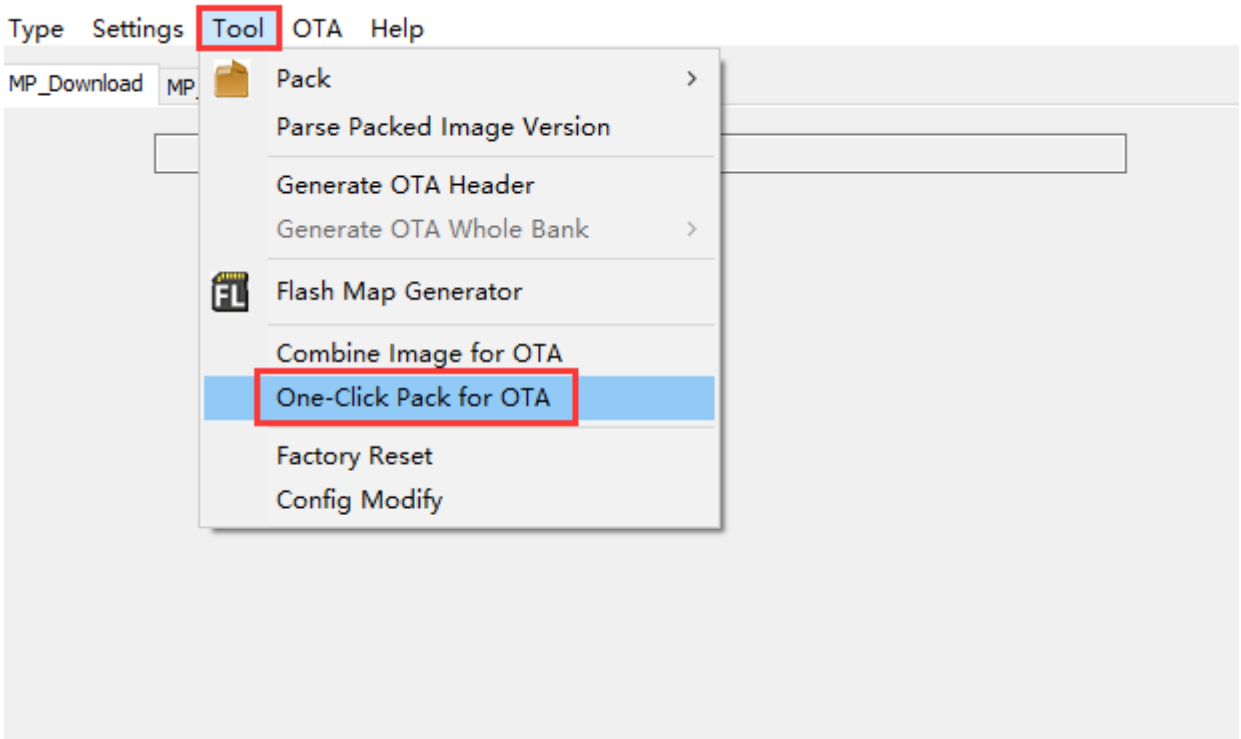

Figure 5-2 Open One-Click Pack Dialog

3. Load 'OneClickPack' folder and click 'Auto Pack'.

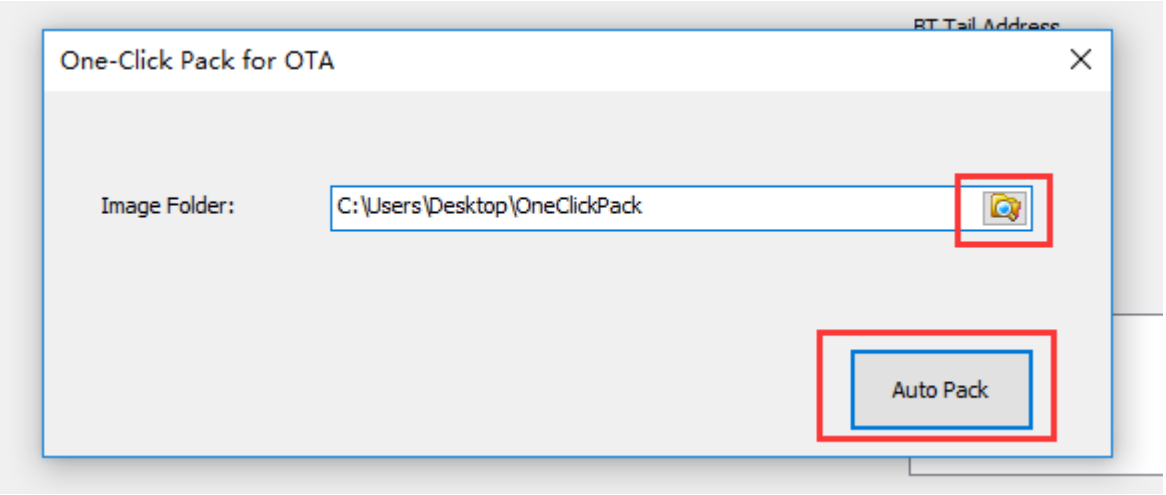

Figure 5-3 Auto Pack

6 Erase 8K Reserved Flash

Tool chain provide Erase Reserved Flash function, for erasing the reserved 8k block in flash memory.

This action will erase the reserved 8k block in flash memory, and the parameter could not be recovered.

1. Click “Erase 8K Reserved Flash” button in the “Tool” menu to open the Erase Reserved Flash dialog.

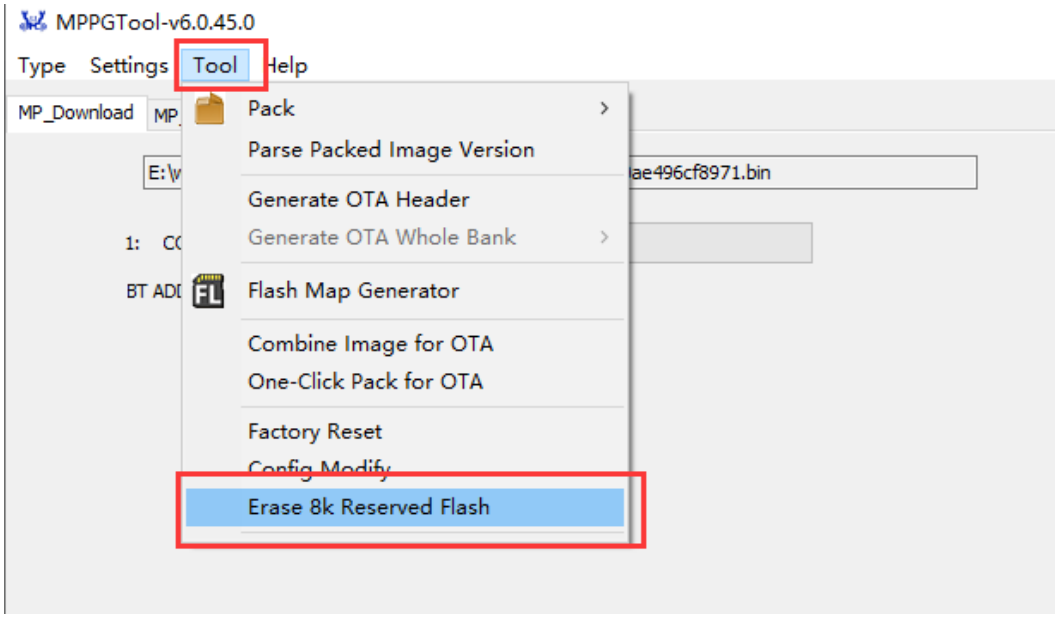

Figure 6-1 Open Erase Reserved Flash Dialog

2. Click ‘Erase 8K Reserved Flash’ Button in Erase Reserved Flash dialog.

   The warning message box will pop up twice after ‘Erase 8K Reserved Flash’ button is clicked.

   Before erase job started, the user needs to confirm the warning message twice.

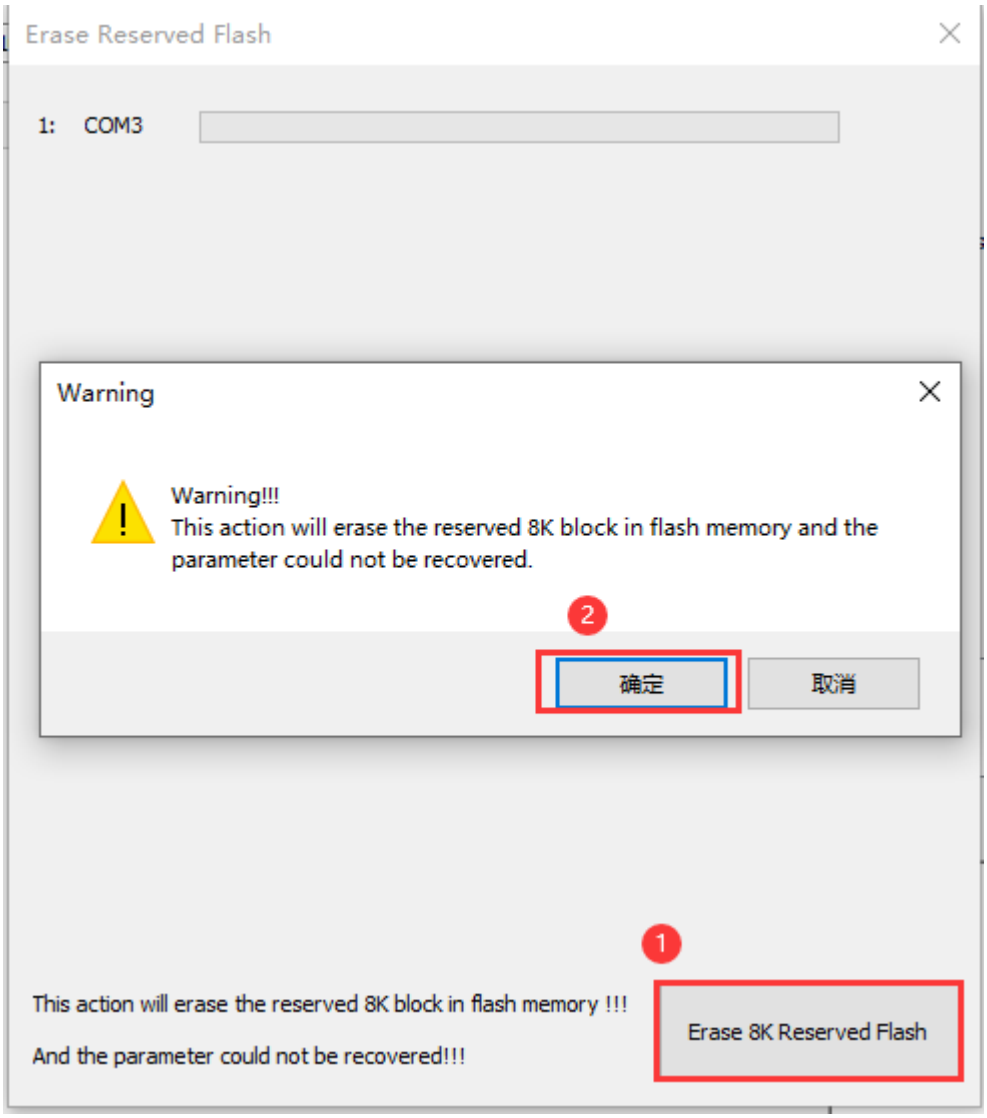

Figure 6-2 'Erase 8K Reserved flash' Button and Warning Message Box