How to use Unique key in Dediware

Version 2.2

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Table of Content:

I. Description 2
II. Preparation before Setting 2
III. From the Unique Key File..... 6
IV. From the Serial Number 11
V. From the Serial Number for Multi-address 15
VI. Revision History..... 21

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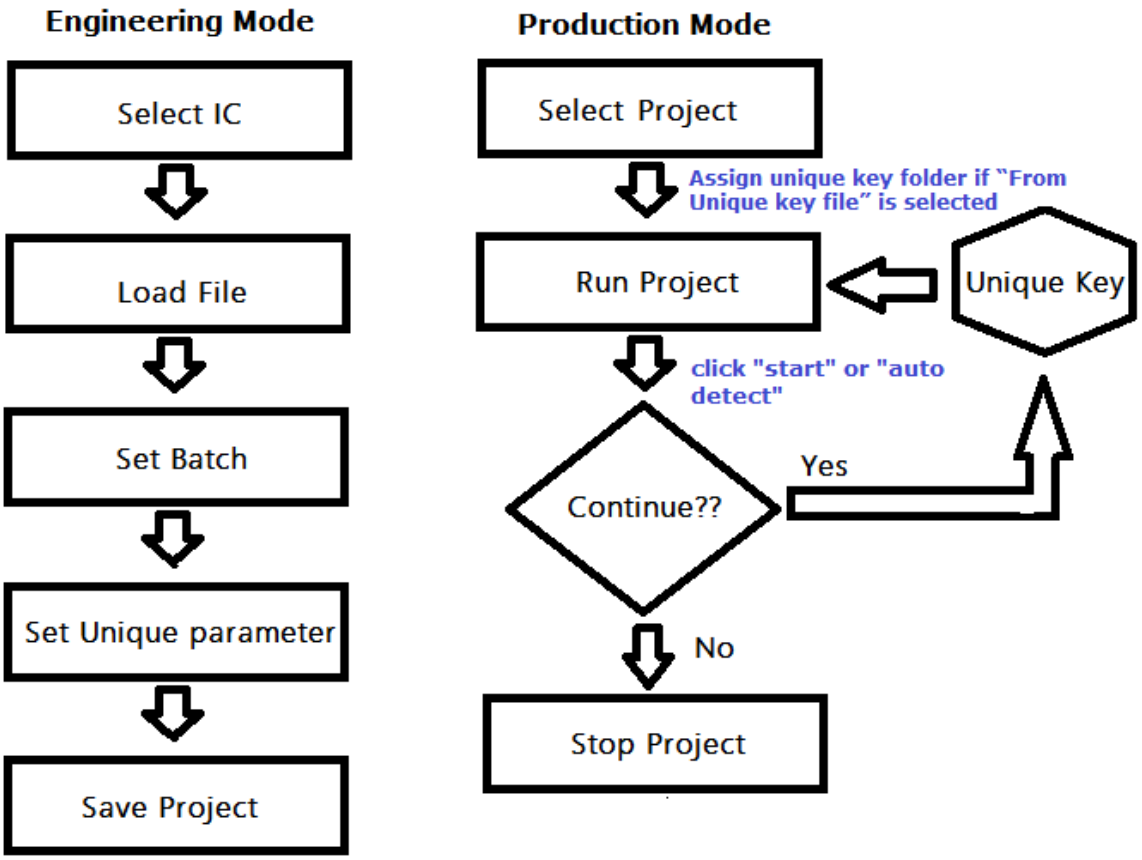
I. Description

This application note illustrates the setting of Unique key in Dediware. There are three ways to program the key to the chips. Learn more about DediProg products and how to use them.

※ **The Unique key only supported in the USB Mode (connect to PC) because the key is produced by the software (Dediware).**

II. Preparation before Setting

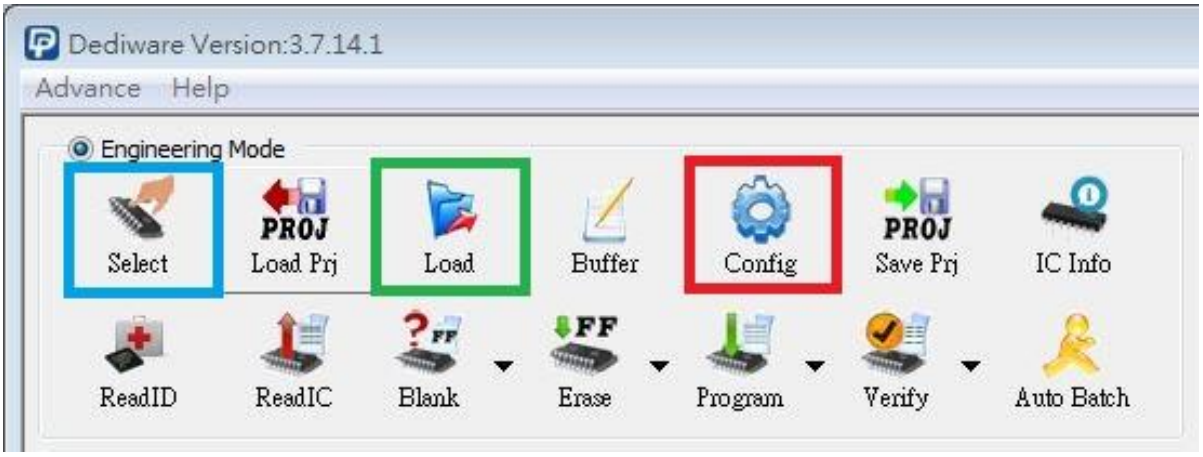
The following figure shows the process of programming the Unique key:



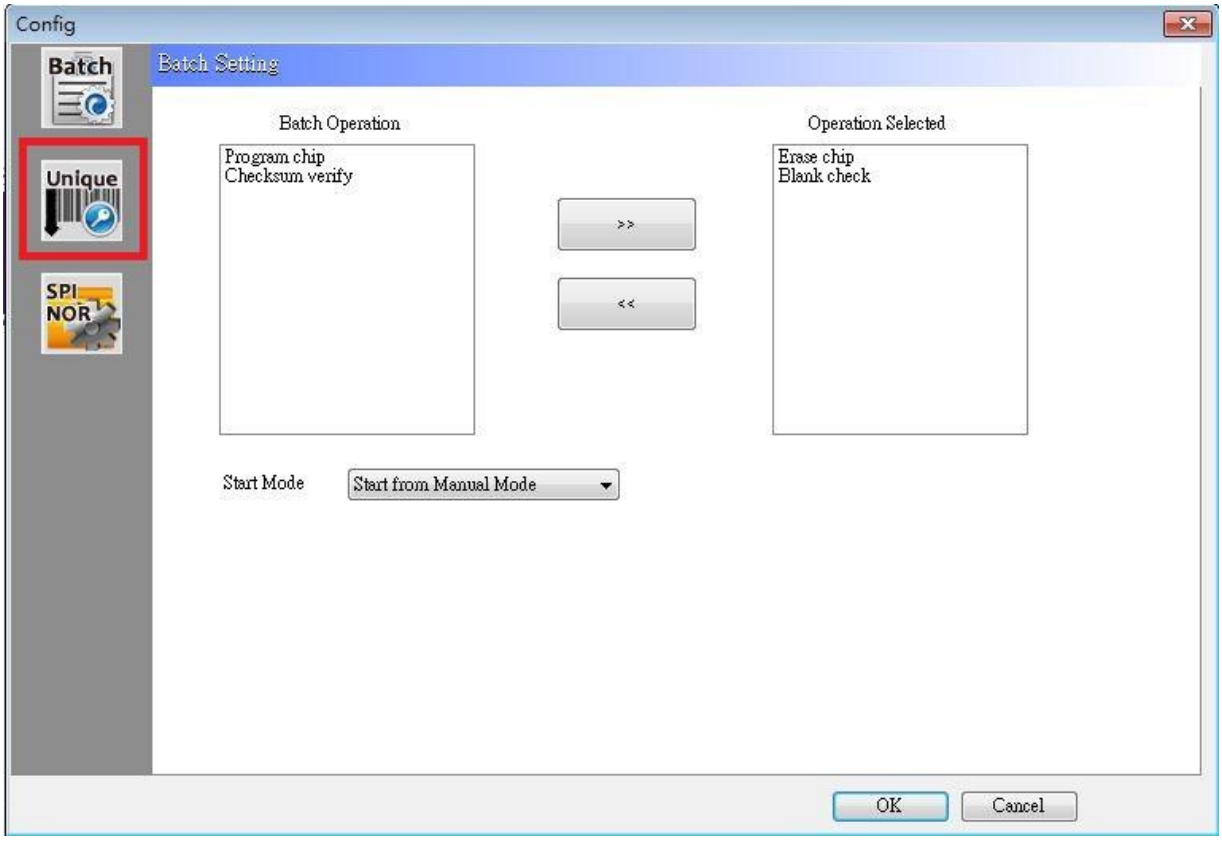
Users can complete most of the settings in Engineering Mode. However, only Production Mode provides programming function.

Step 1: Select the chip and the programming file

First, start Dediware and select the chip's part number (Framed in blue) and load the programming file (Framed in green), and then you can find the **Unique** key icon in "Config" (Framed in red):

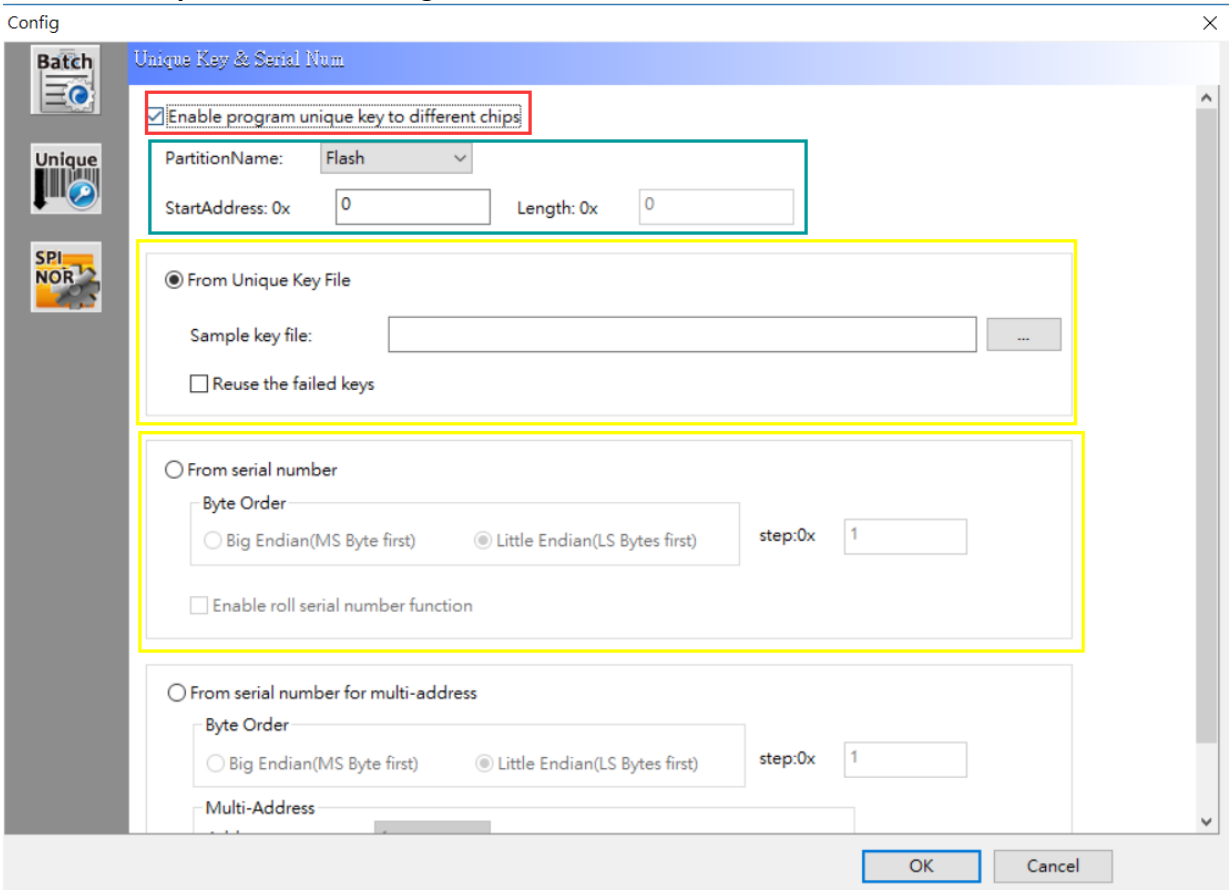


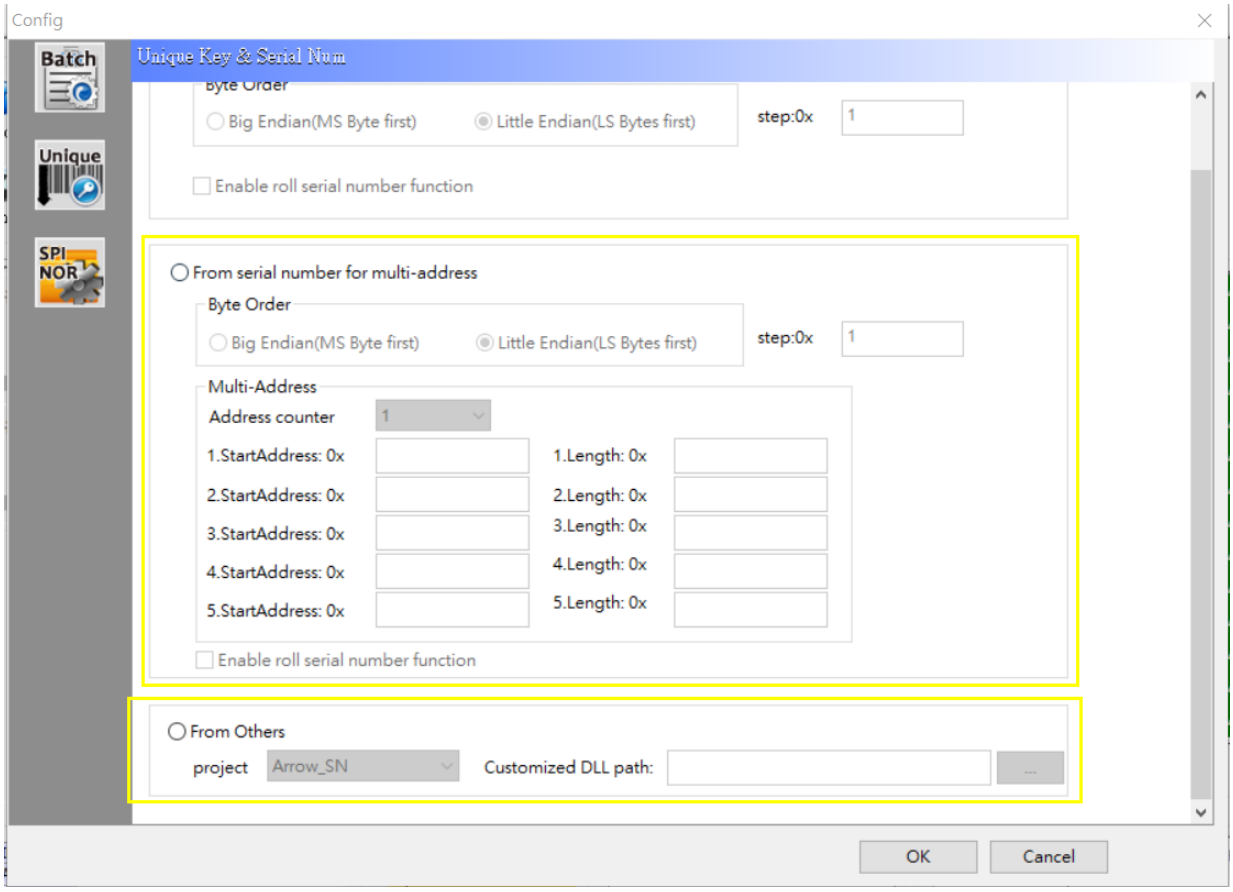
After setting the batch operation, click the "Unique key" icon (Framed in red):



Step 2: Unique key set up window

Click the **Unique** icon, the settings will show as below:





(Framed in red)

- **Enable program unique key to different chips:** The Unique key will be activated automatically in production mode.

(Framed in green)

- **Partition Name:** Assign the partition for programming.
- **Start Address:** Assign the start address for programming (Hex).
- **Length:** The length of Unique key.

(Framed in yellow)

- **From Unique key file: Load the serial numbers file to program**
  - Sample key file: Read the length of key after loading the file.
  - Reuse the failed keys: Reuse the key that has failed.
- **From serial number: Given random key from Dediware automatically**
  - Byte Order: Select the order of the key numbers by Big Endian or Little Endian.
  - Step: The cumulative value of the serial number. The default is 1, ex:0000, 0001, 0002…etc.
  - Enable roll serial number function: If the number exceeds the setting range, then it will start from the first number again.
- **From serial number for multi-address: Given random key from Dediware automatically**
  - Byte Order: Select the order of the key numbers by Big Endian or Little Endian.
  - Step: The cumulative value of the serial number. The default is 1, ex:0000, 0001, 0002…etc.
  - Multi-Address:

- Address counter: Set up to 5 groups of Unique keys
- Start Address: Assign the start address for programming (Hex).
- Length: The length of Unique key

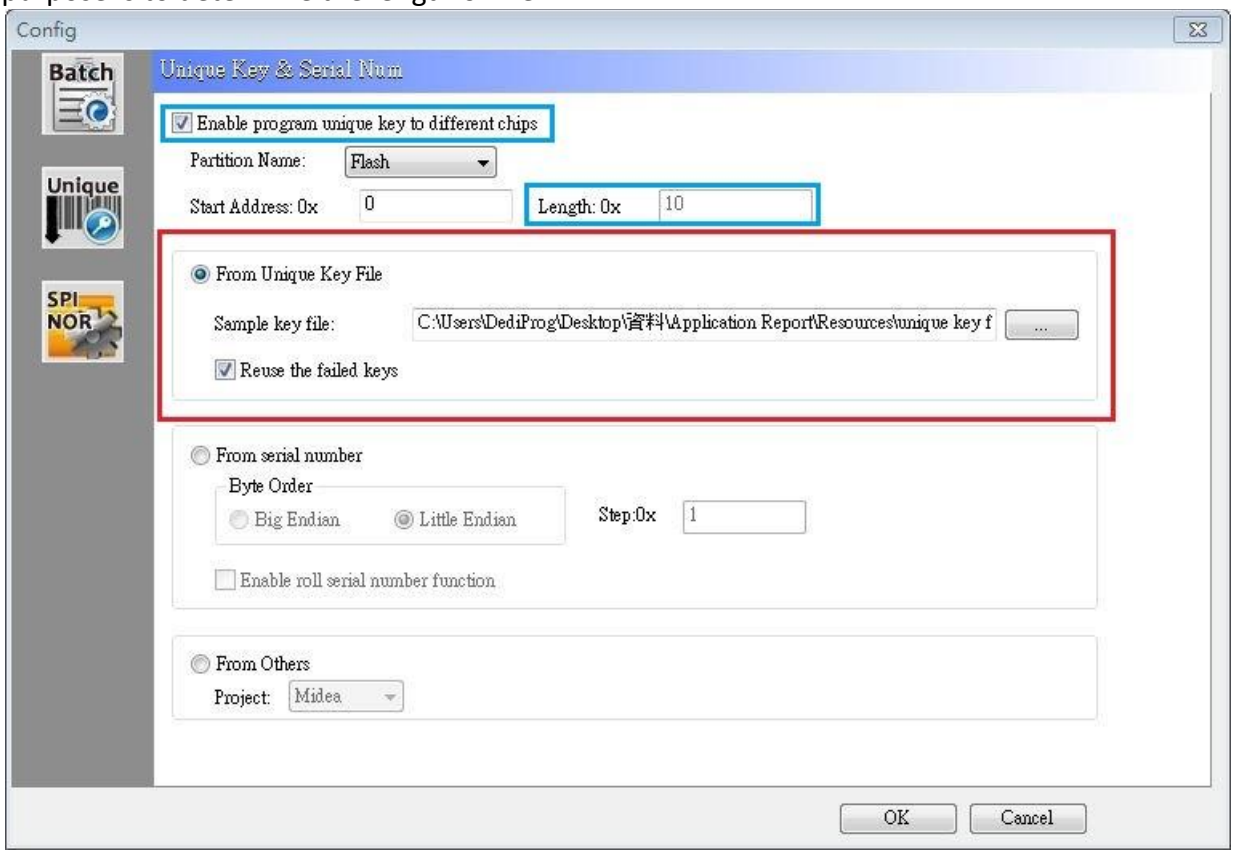
➢ Enable roll serial number function: If the number exceeds the setting range, then it will start from the first number again.

- **From Others: This selection is only for specific customers. (We will not introduce this use in this note.)**

III. From the Unique Key File

Step 1: Choose the File, the Partition, and the Address

After selecting "Enable program unique key to different chips", choose a **Sample key file**, the purpose is to determine the length of file:



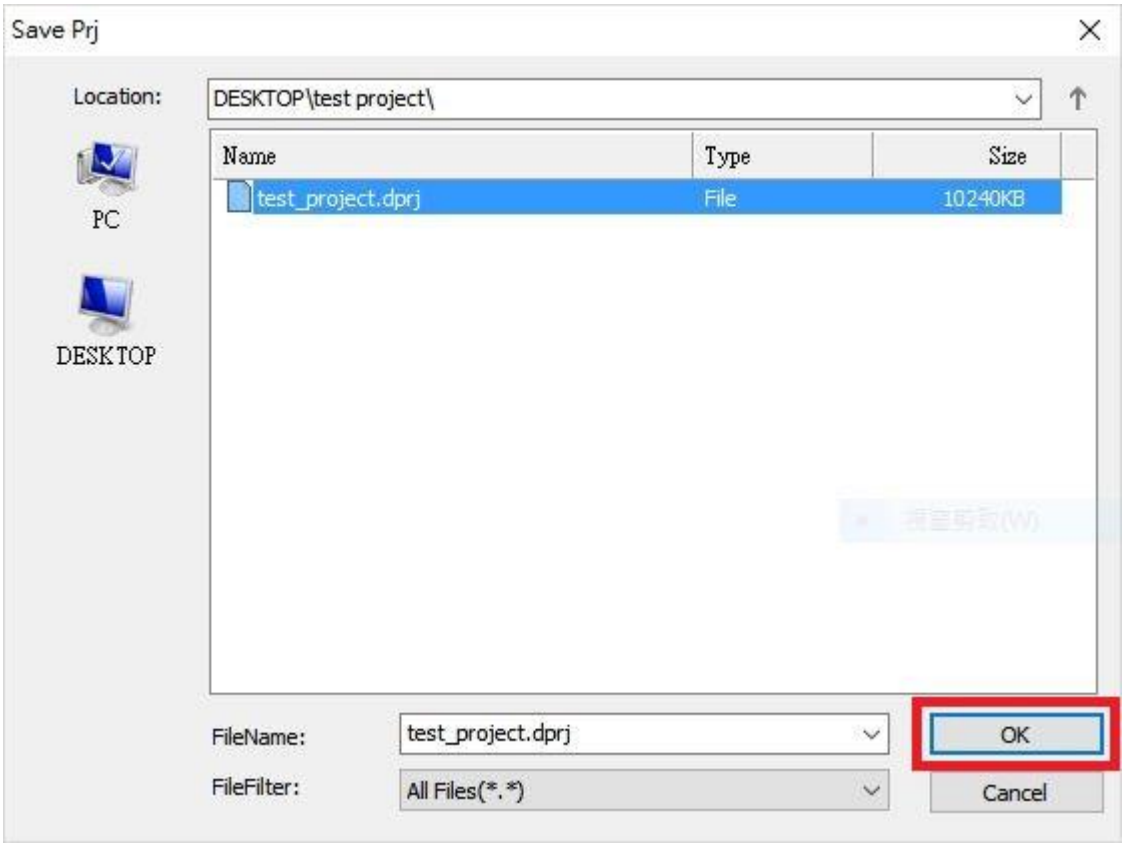
As the figure above, the Length of the key is shown by Dediware automatically. Choose the "Partition name" of the key that you want to program and set the "Start Address" (Hex).

"Reuse the failed keys" decides the location of the keys that have failed. If it is selected, then the failed key will be reused; if it is not selected, then the failed key will move to the "Failed" folder.

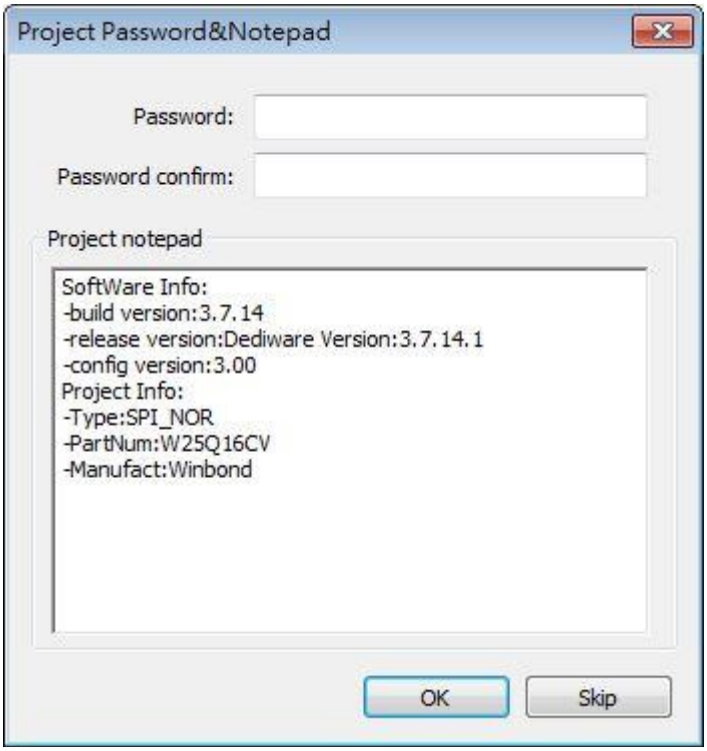
Click "OK" to save the settings.

Step 2: Save your project and run in Production Mode

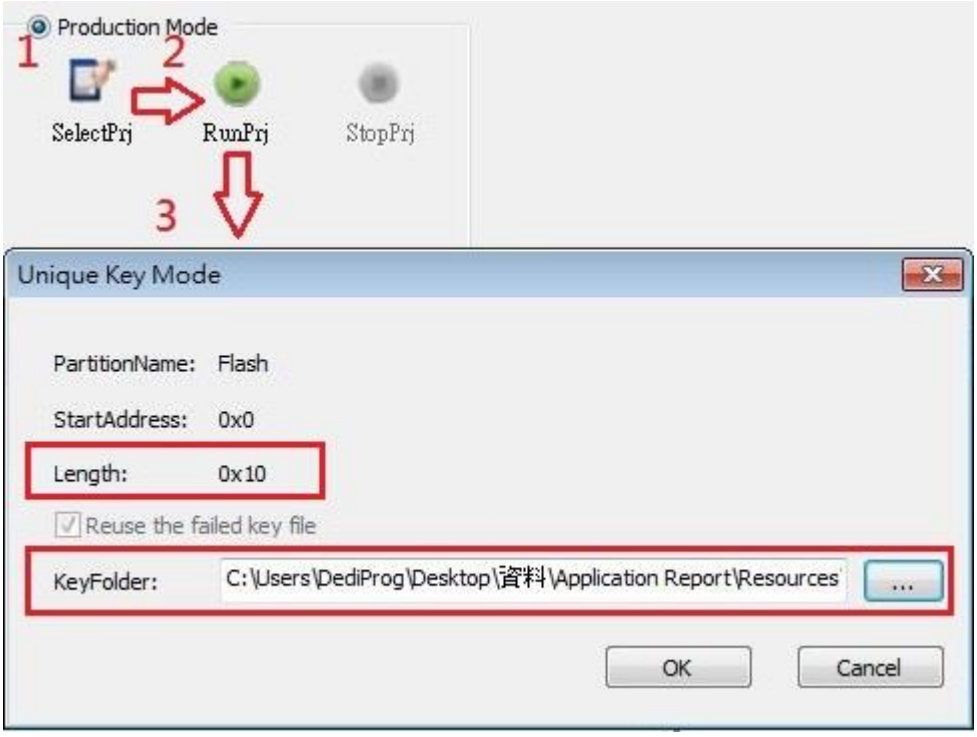
Save the project (Framed in red) after step 1.



Please click **OK** after editing the password or the note; if not, please click “Skip”.



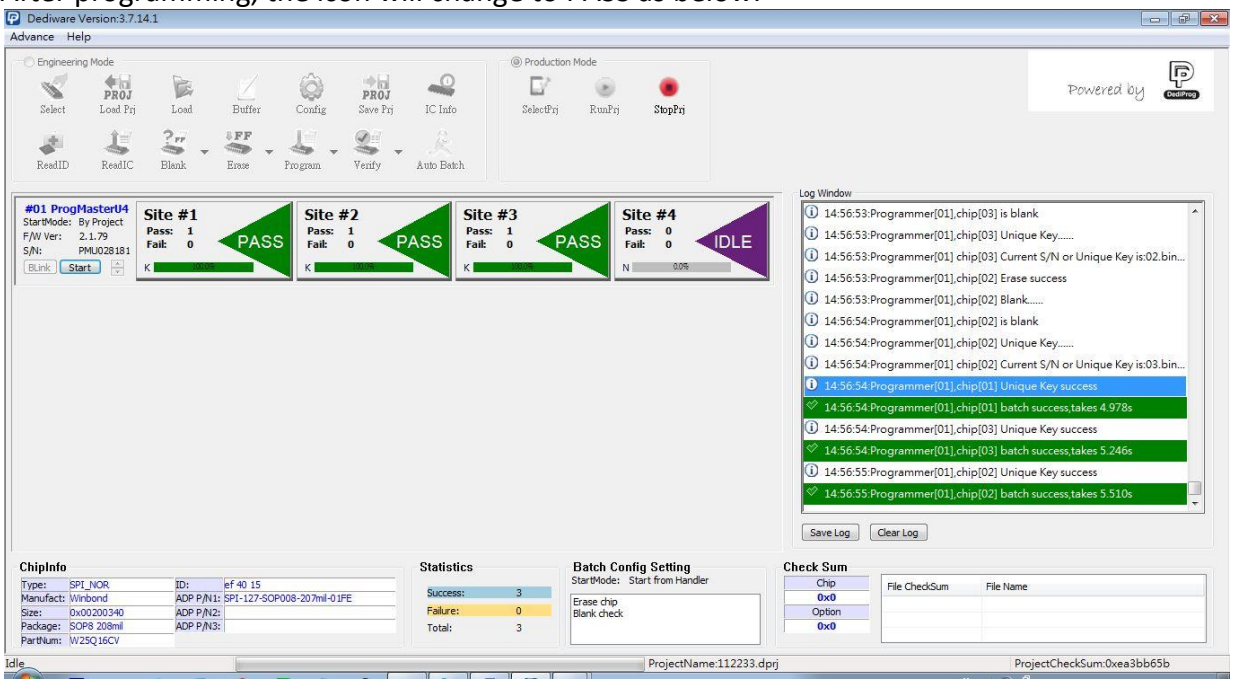
After saving the project, please switch to Production Mode, select the project that you have just saved, and click “Run Prj” icon.



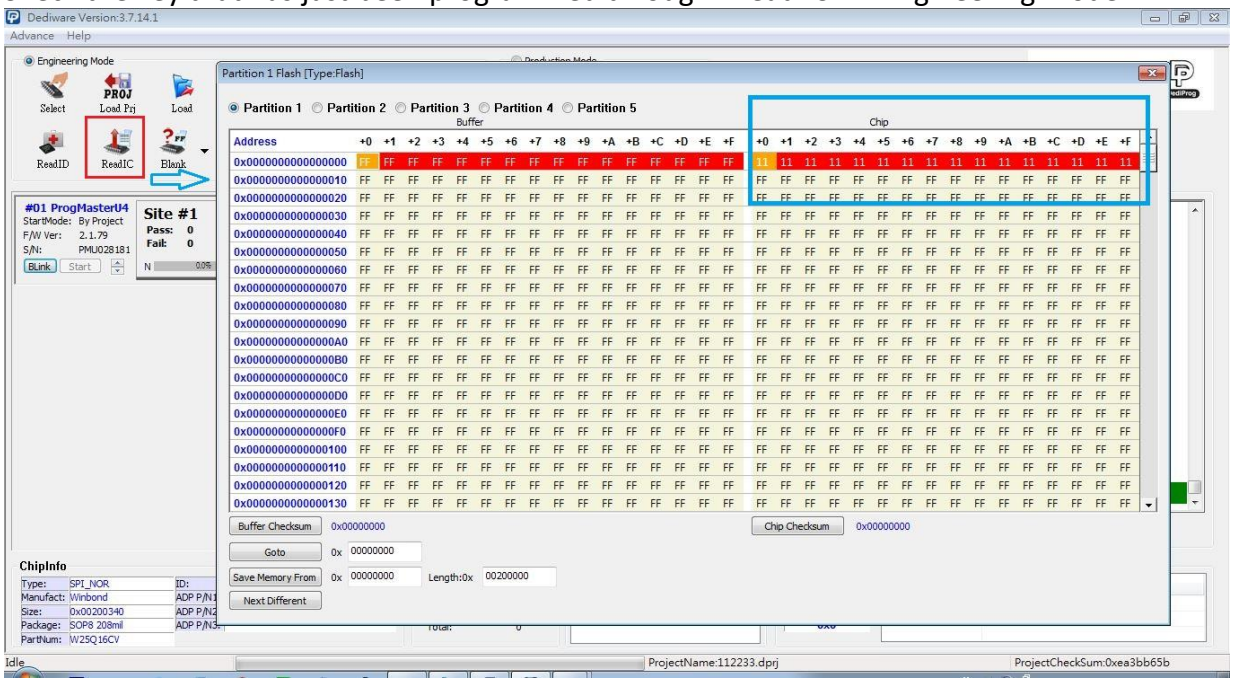
The Key Length and the KeyFolder address must be the same as the Key file that you need to program, click “OK” to start programming.

Step 3: Key Check in Engineering Mode

After programming, the icon will change to PASS as below.



Check the key that has just been programmed through “Read IC” in Engineering Mode.



As the figure above, it shows the key that has been programmed correctly and is identical to the original file (shown as below).

Remark:

1. Please arrange the order of the Key File names from the smallest to the largest. Ex:01, 02, 03…

2. Dediware will create three folders, including “Used”, “Failed” and “uc-log”.

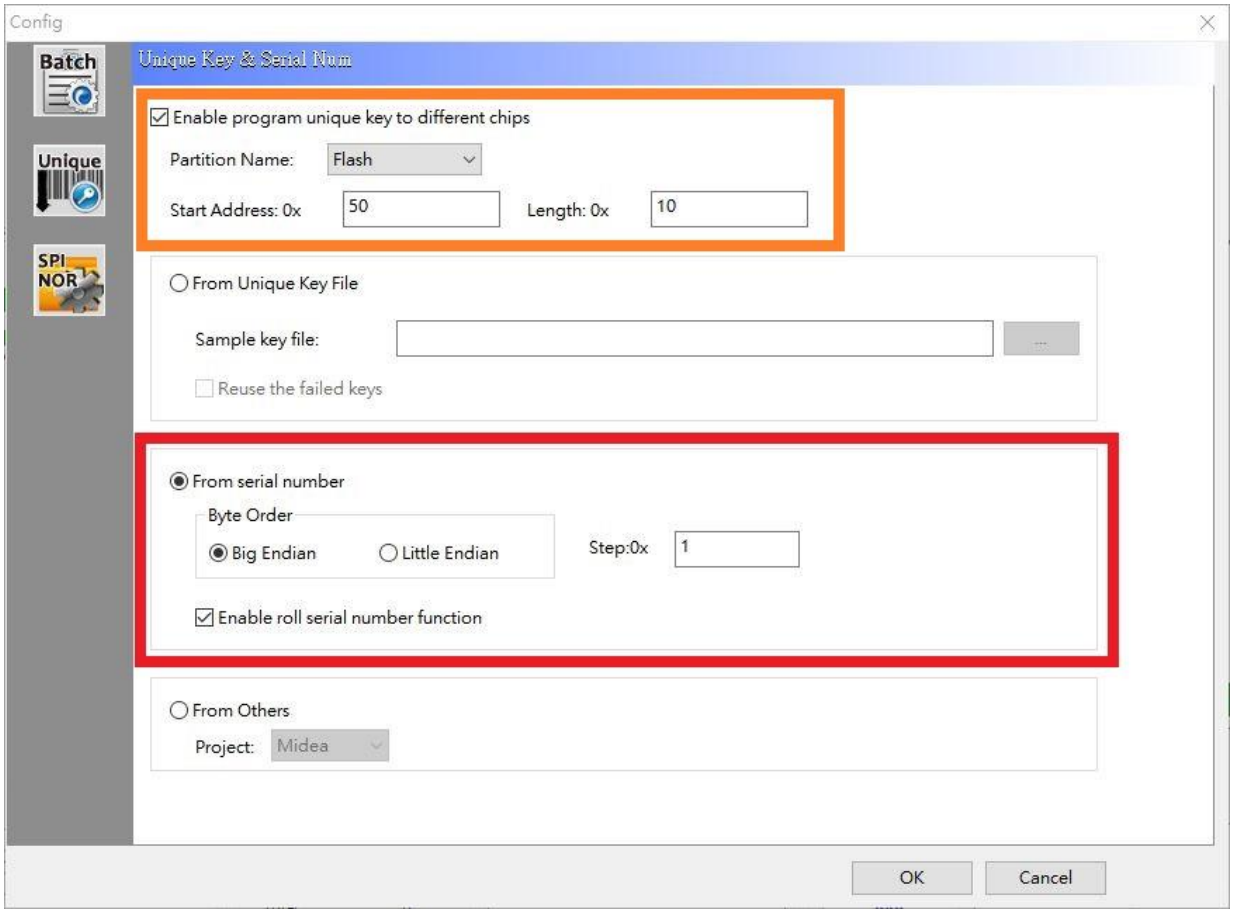
“Used” is for the key that has passed.
“Failed” is for the key that has failed.
“uc-log” is for the log file.

3. Unique Key length must be in 0x00 ~ 0x100000.

IV. From the Serial Number

Step 1: Choose the Partition and set up the Address and key length, and then set the Byte Order and the Steps.

Select “Enable program unique key to different chips”; set the starting address for programming serial number and the numbers’ length, and then select “From serial number”.

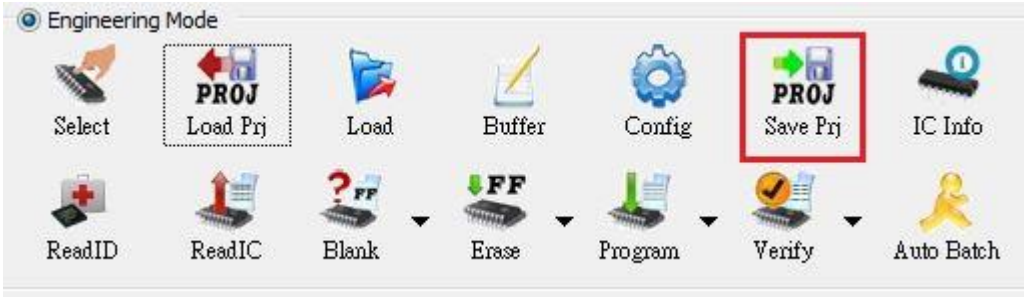


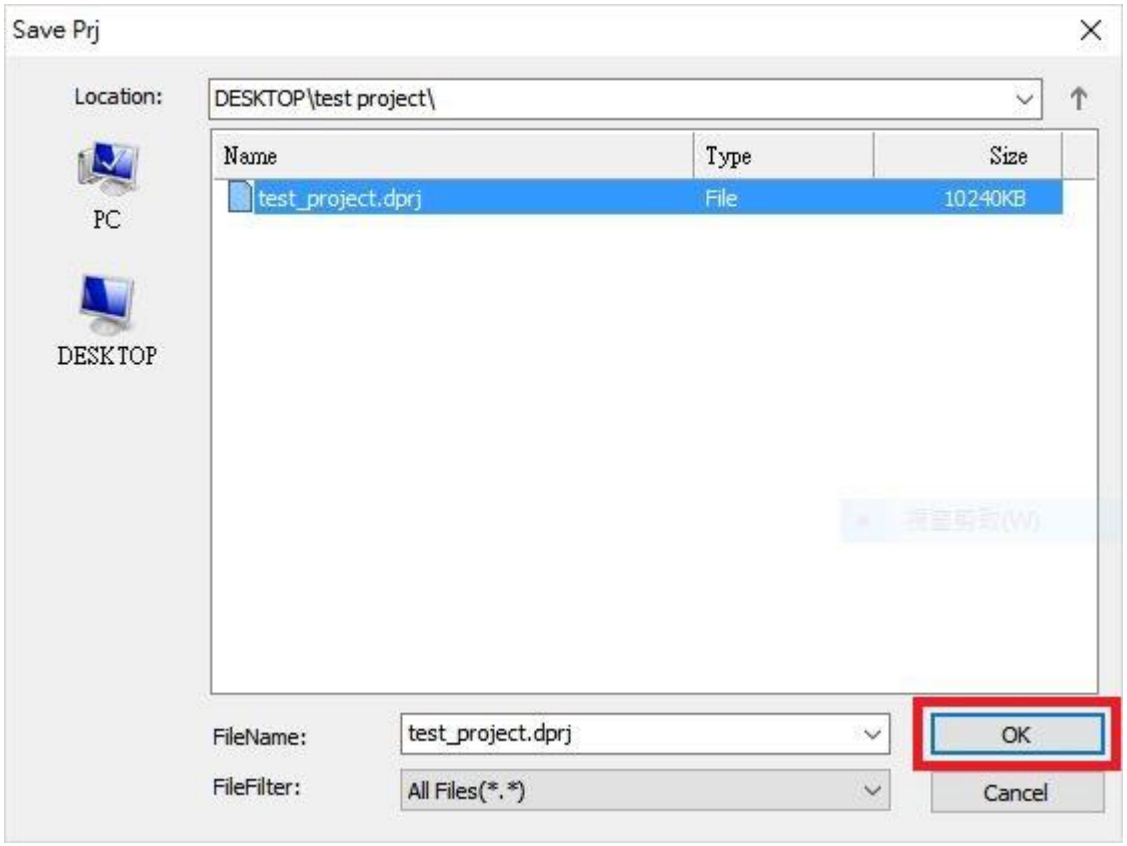
The Byte Order is the direction of the serial number:

- “Big Endian” means the lowest byte list from the highest address bit;
- ”Little Endian” means the highest byte list from the lowest address bit.
- ”Step” represents the value between each byte (Hex).
- ”Enable roll serial number function” means it will reuse the used keys when it is out of range. After finishing with the settings, please click “OK”.

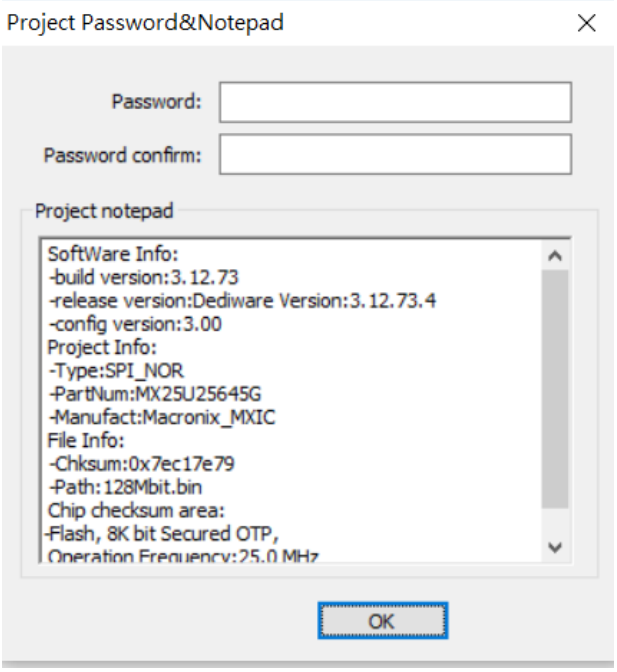
Step 2: Save your project and run in Production Mode

Remember to save the project (Framed in red) after step 1.

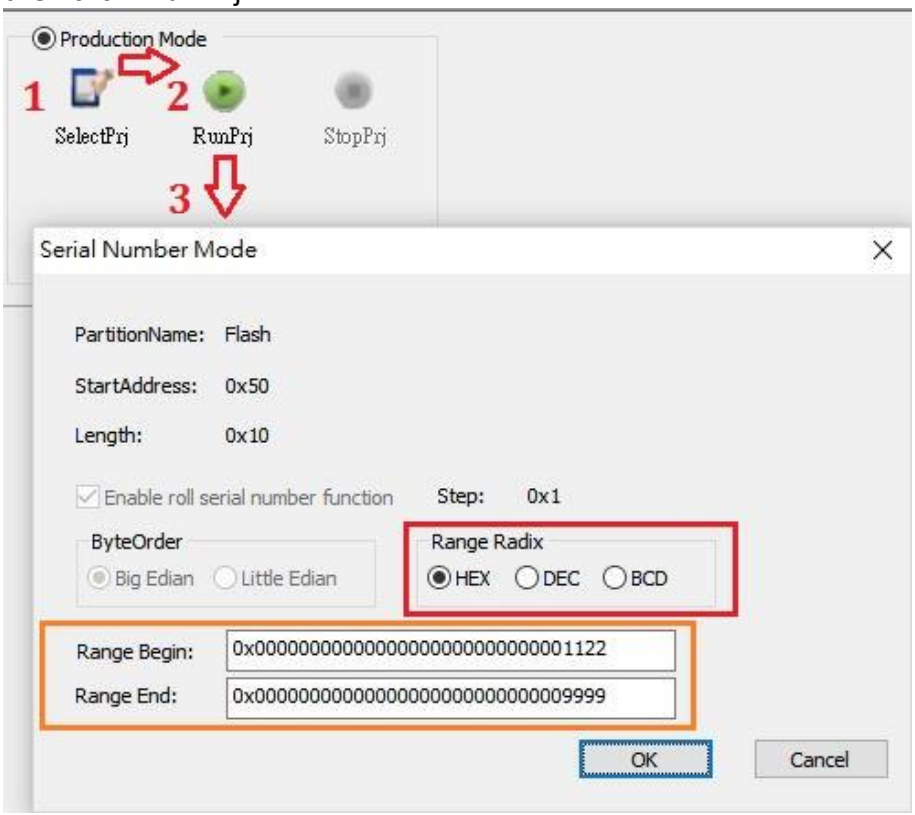




Please click **OK** after editing the password or the note; if not, please click “Skip”.



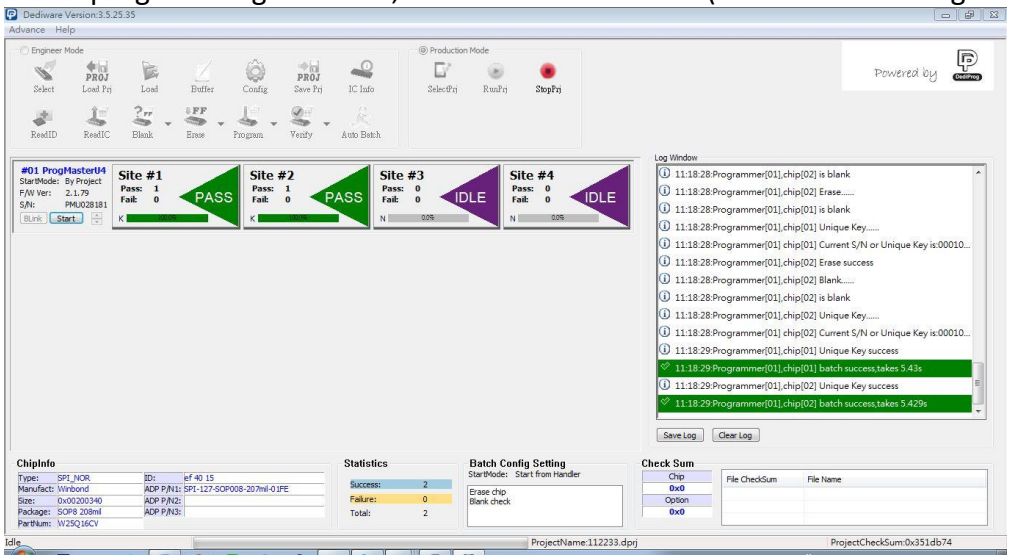
After saving, please switch to Production Mode to select the project that you just saved, and then click “Run Prj”.



There are three kinds of Range Radix: HEX, DEC and BCD. Select the one that you want and set the Range for the serial number. For example, as the figure above, the serial number that needs to be programmed is from 0x00000000000000000000000000001122~0x00000000000000000000000000009999 in HEX. Click “OK” to start programming.

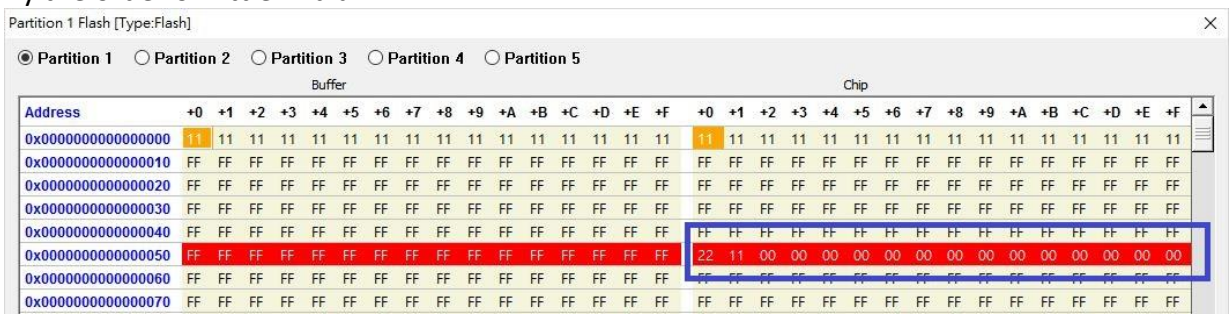
Step 3: Key check in Engineering Mode

When programming succeeds, the icon will turn PASS (Shown as below figure).

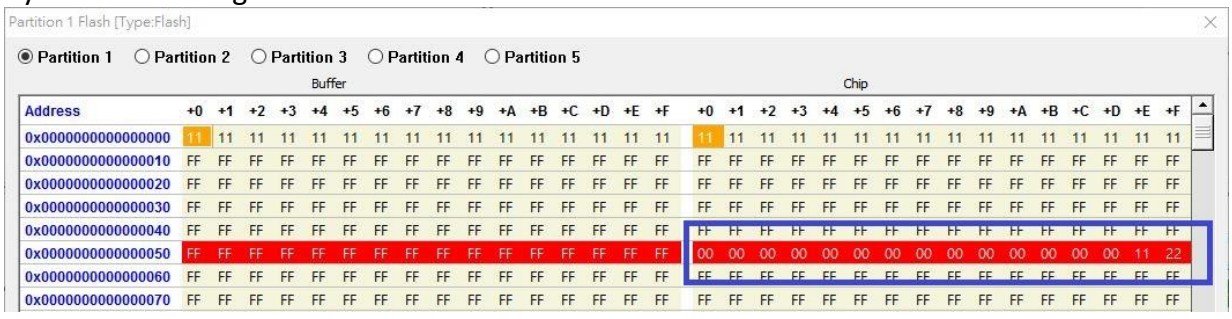


Next, check the key through “Read IC” in Engineering Mode.
As the figure below, the window shows the key has been programmed correctly.

By the order of Little Endian:



By the order of Big Endian:



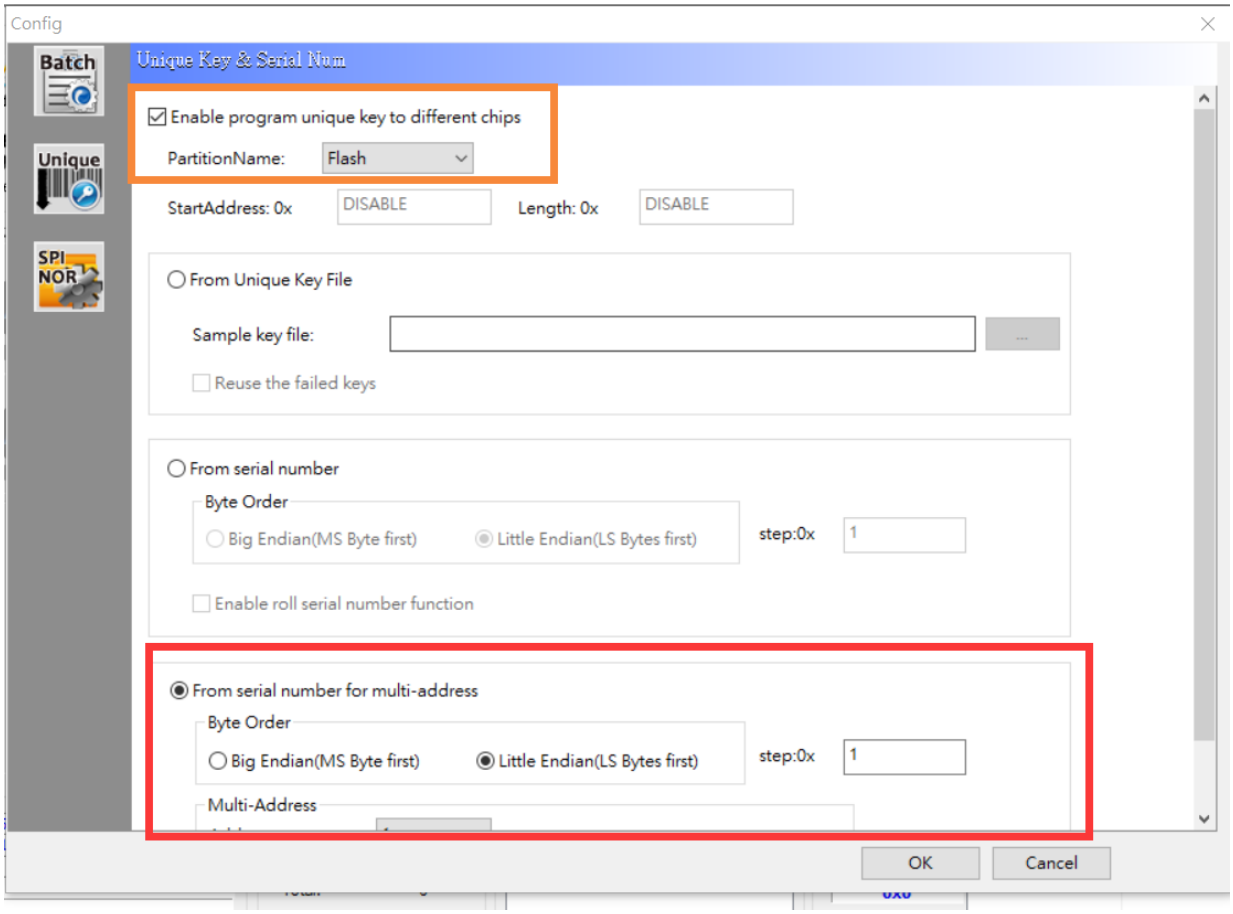
Remark:

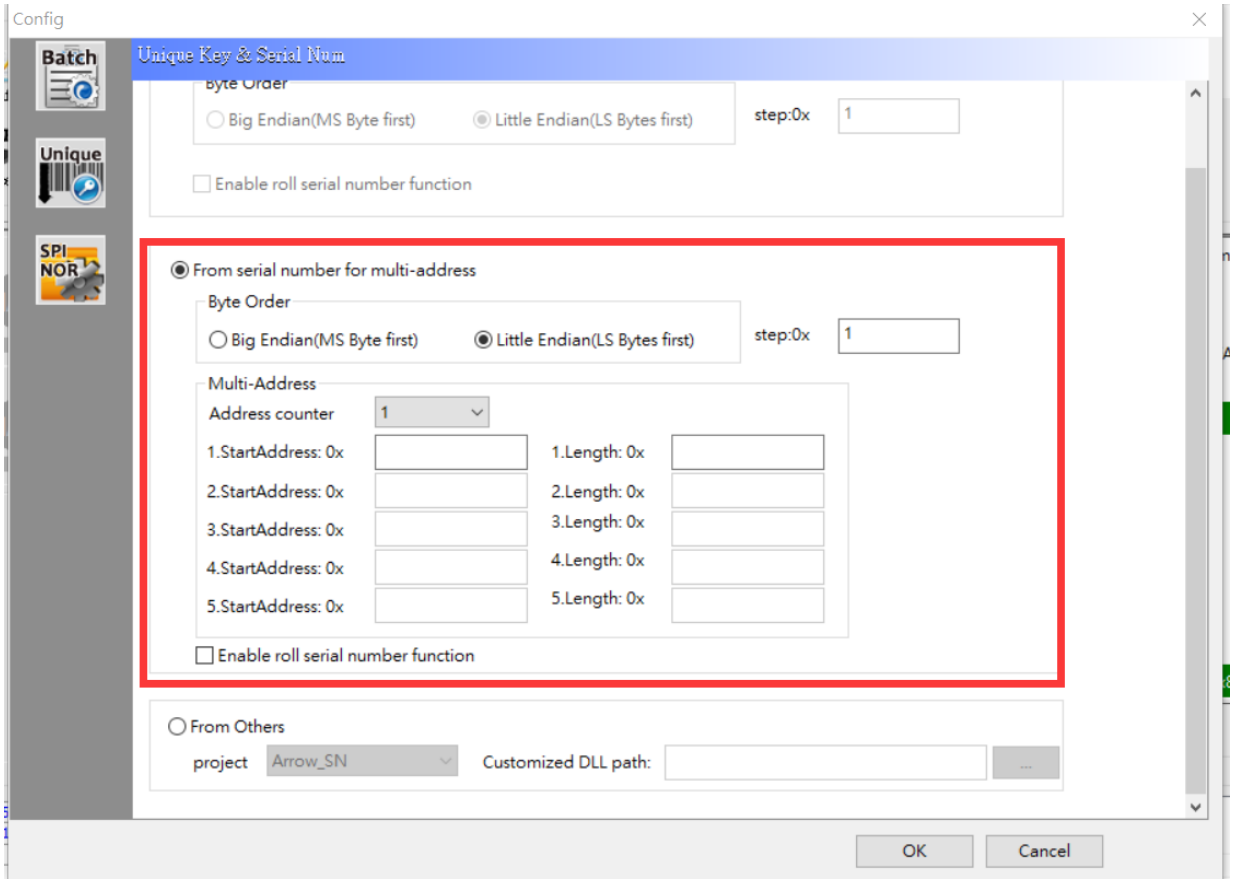
1. Please make sure the “Start Address” is blank, since the serial number will overwrite the existing file.
2. Serial number length must be less than 0x10 (16 bytes).

V. From the Serial Number for Multi-address

Step 1: Choose the Partition

Select “Enable program unique key to different chips”, and then select “From serial number for multi-address”.



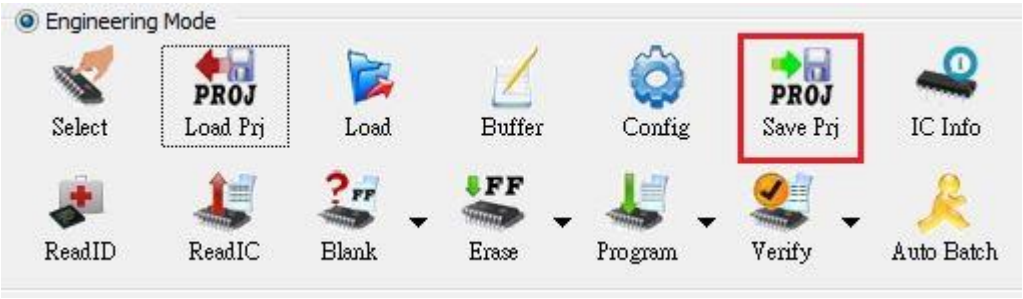


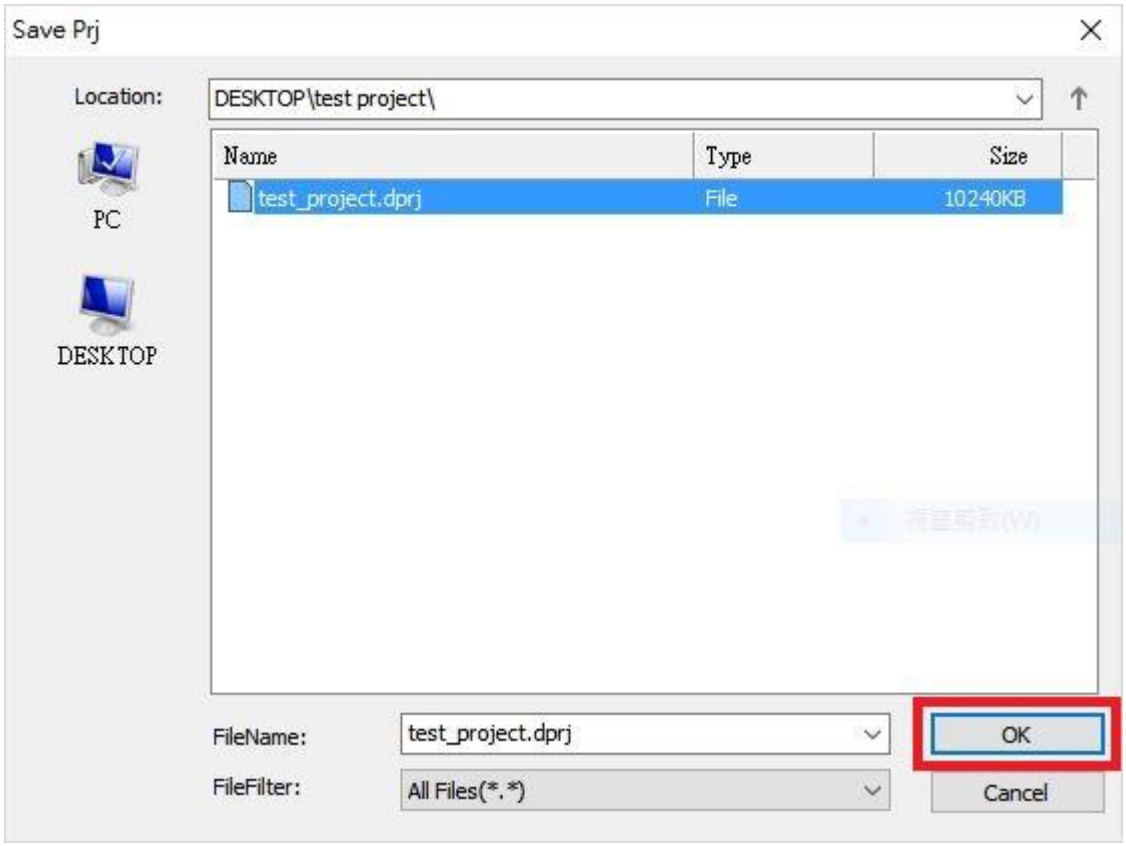
The Byte Order is the direction of the serial number:

- "Big Endian" means the lowest byte list from the highest address bit.
- "Little Endian" means the highest byte list from the lowest address bit.
- "Step" represents the value between each byte (Hex).
- "Multi-Address" means set the starting address for programming serial number and the numbers' length. (Set up to 5 groups of Unique keys.)
- "Enable roll serial number function" means it will reuse the used keys when it is out of range. After finishing with the settings, please click "OK".

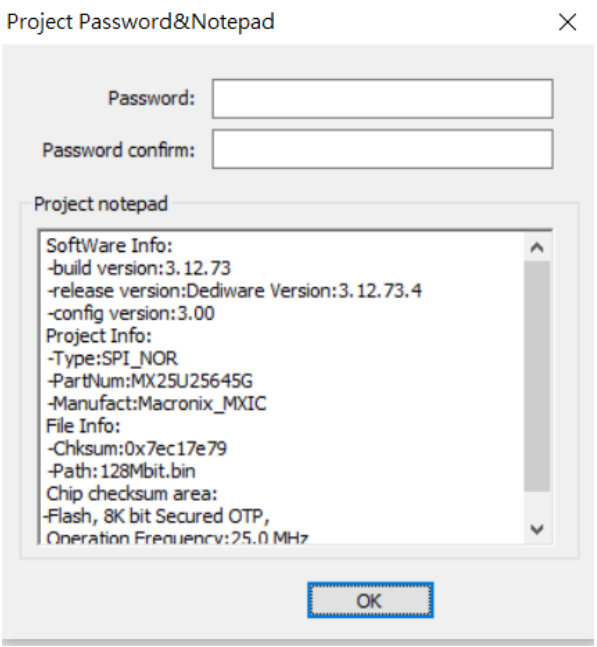
Step 2: Save your project and run in Production Mode

Remember to save the project (Framed in red) after step 1.

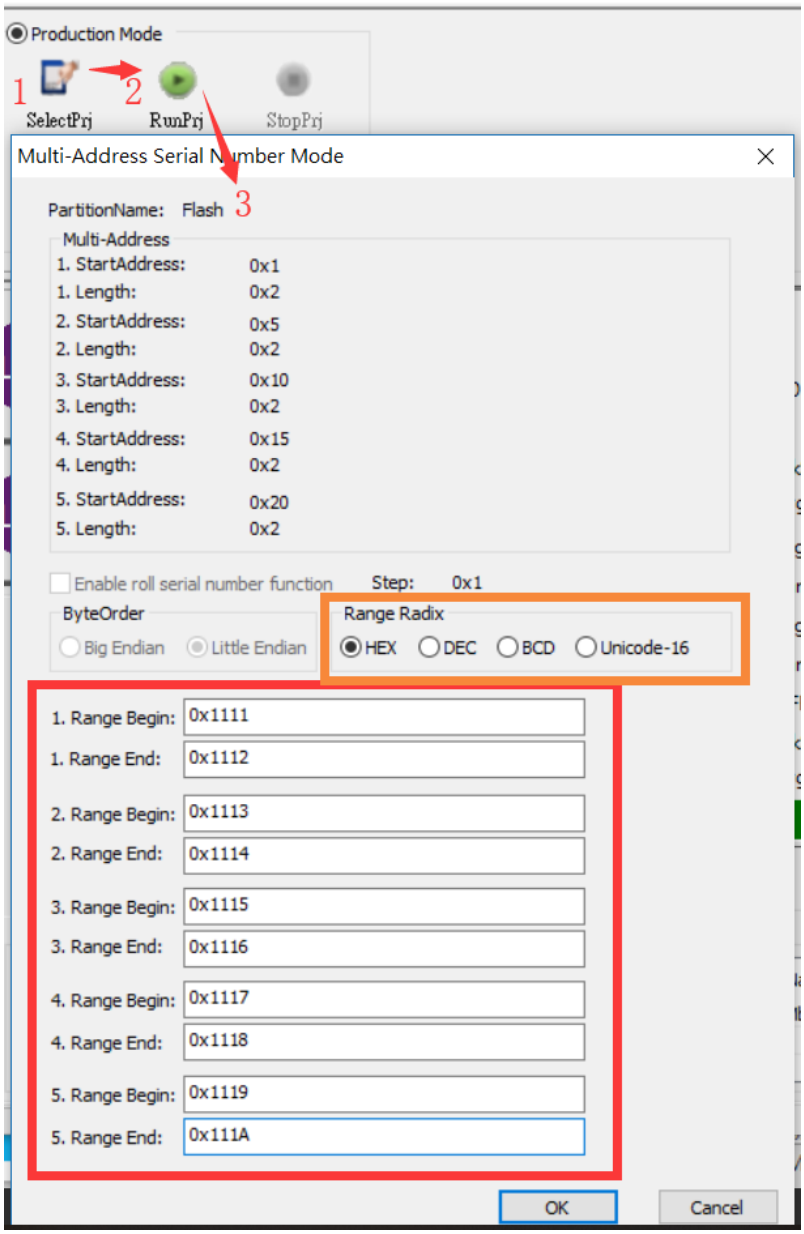



Save Prj
Location:
DESKTOP\test project\
Name
Type
Size
test_project.dprj
File
10240KB
PC
DESKTOP
FileName:
test_project.dprj
FileFilter:
All Files(*.*)
OK
Cancel

Please click **OK** after editing the password or the note; if not, please click “Skip”.



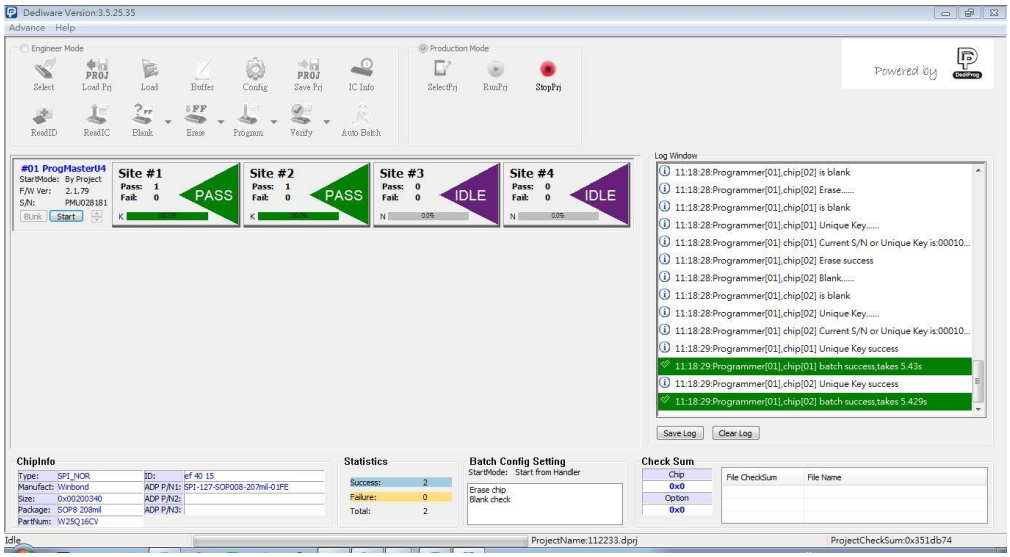
After saving, please switch to Production Mode to select the project that you just saved, and then click “Run Prj”.



There are three kinds of Range Radix: HEX, DEC, BCD and Unicode-16. Select the one that you need and set the Range for the serial number. Click “OK” to start programming.

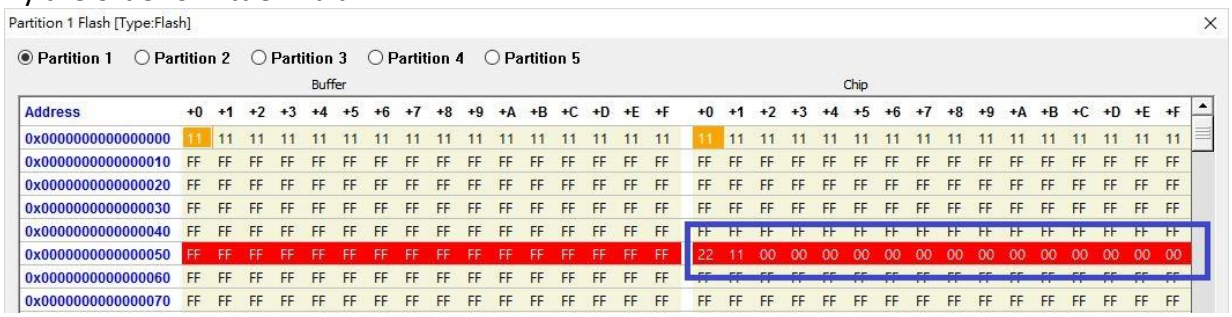
Step 3: Key check in Engineering Mode

When programming succeeded, the icon will turn PASS (Shown as the below figure).

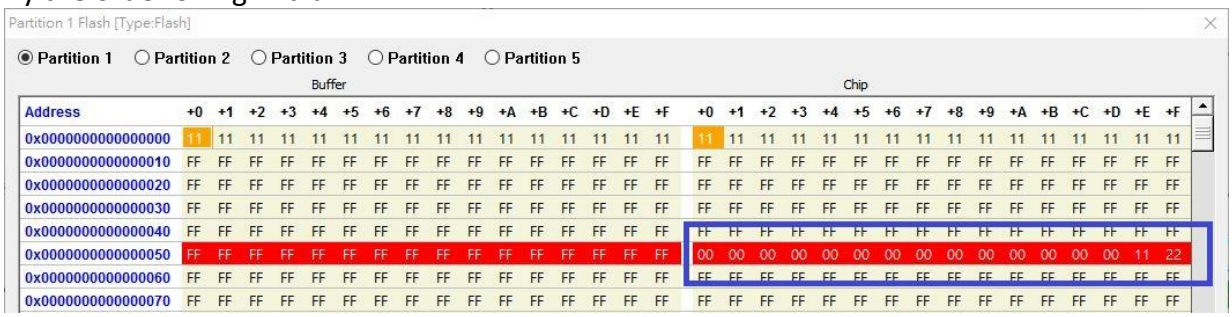


Next, check the key through “Read IC” in Engineering Mode.
As the figure below, the window shows the key was programmed correctly.

By the order of Little Endian:



By the order of Big Endian:



Remark:

1. Please make sure the “Start Address” is blank, since the serial number will overwrite the existing file.
2. Serial number length must be less than 0x10 (16 bytes).

VI. Revision History

Date	Version	Changes
MM/DD/YYYY	1.0	Initial release.
01/30/2016	2.0	Re-edit, and add more figure.
08/11/2016	2.1	Renew some images and add more remarks.
06/12/2019	2.2	Add “From serial number for multi-address” feature

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