Evaluation Process

To Moway 1

Version 1.06

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This document is designed to help the software developer to complete software protection testing and evaluation process by using Moway 1 hardware and related tools quickly. If software developer want to design and customize their dedicate protection scheme for their software product by call API or increase protection security level, you can refer the Moway 1 User Manual to get more detailed information for how to use and call API and also take a reference from ***API sample/demo*** and ***mowaydoc.chm*** *documentation* from the relevant SDK sub directory.

1. Moway1

Product Overview

Moway 1 is the latest hardware lock (Dongle) for software protection with easy to use, cost effective functions to software developer. Equipped with 32-bit smart card inside and the security level up to CC EAL4+, Moway 1 supports multi advanced encryption algorithm to protect software and also provides large data storage capacity (varies from 8Kb/32Kb) to store and protect the license and critical data; Moway 1 supports HMAC identity authentication, Remote update, Driverless mode and can be flexibly used in different scenario. In cooperate with Moway 1 Virbox Protector and other toolkits, Software developer will be easily and quickly to complete the highly secured software protection scheme to safeguard their software program far away from piracy.

2. Tool chains and API provided

Tool chains

Virbox Moway 1 provides following tool chains for software developer to complete whole protection process for: Device Initialization and Setting, Software Protection, Algorithm Test, Volume Setting and Remote update, you can find the description to each tool in the table attached blow:

Tool Chain	Purpose	Functionality & Description	Operate by
DevTestTool.exe	Development and Testing Tool for Moway 1	Initialize the Moway 1 device, such as generate or modify the PID; File Operation to Moway device, such as create new file, import, delete and edit file in the Moway device, etc.	Developer
CryptoTool.exe	Cryptographic Algorithm Tool	Test the different kind of Cryptographic algorithm which use in Moway 1 device, or create the key file to Moway 1.	Developer
BatchTool.exe	Batch setting Tool for Moway 1 Lock setting	Volume production (setting) of the Moway 1 device with the same PID by using the created template.	Developer
MakePackageTool.exe	Create License update package to Moway 1 device	Developer to create License update file package in developer premise, and distribute this update file (package) to user.	Developer with Master lock
UpdateTool.exe	Update Tool used to import the user update package into the Moway 1	When developer issue license update package to software user, then software user will use this tool in user premise to import this update package into the Moway 1 dongle.	Software User
virboxprotector.exe	Professional Protection tool to protect/encrypt your software.	As a Fast, easy to use and Secured protection tool, Developer may use Virbox Protector to protect software quickly with codeless effort.	Developer

Table 1

Advanced comprehensive solution to get higher software security with Moway1

API and Sample

Virbox provides a series API and the Samples for software developer to take a reference includes Moway 1 dongle setting (initialization), Basic operation, File Operation, Cryptographic Algorithm and Remote upgrade by use of

API calling, for more details you can refer the chapter 3.6 and Chapter 4 in ***User Manual_Moway 1.pdf*** and also you can contact us.

Note: Moway1 support the software developer to Store the key file, data file or license file into Moway1. Which can be used to complete a comprehensive solution for the software protection.

If you want to design customized & higher security of the software protected by calling API, you can contact us for the detail operation or refer relevant documentation.

Email address: support@senselock.com.

3. Evaluate process

Preparation

- Download (You can also contact Virbox team to get the SDK) and install the Moway 1 SDK on your computer (Windows), the installation path is like the following picture showing:

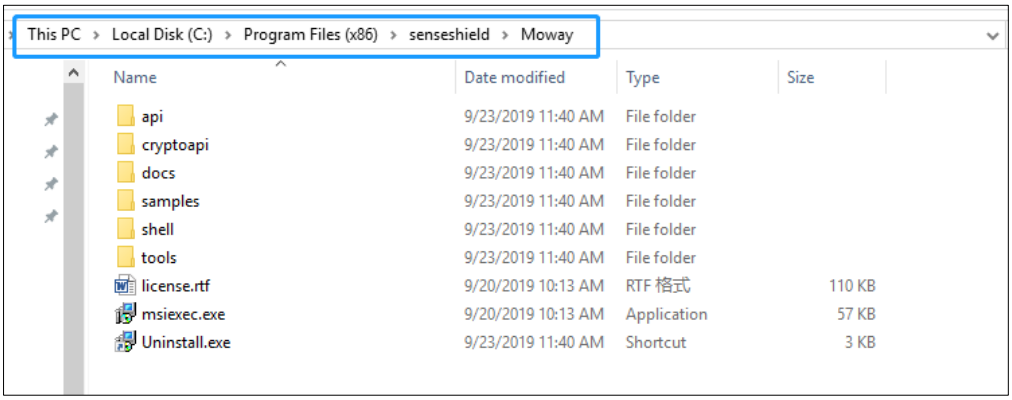

Figure 3-1

- A Windows application sample to be protected and tested
- A Moway 1 User dongle in hand (If you want to test the remote update function of Moway1 you need to have a Moway 1 Master dongle in hand which need to be ordered separately)

With the following 4 steps we can complete a basic evaluation process:

Evaluation Step:

- Moway 1 initialization with DevTestTool.exe;
- PID setting by use of DevTestTool.exe;

- Software protection (Protect and bind the software and dongle with same PID) by use of Virbox Protector(Moway 1 version);
- Verify the protection.

Moway 1 initialization by DevTestTool.exe

When you order a new Moway1 dongle, you need to initialize the dongle by setting a new PIN both Master PIN code and User PIN code. The default Master PIN code is “000000000000000000000000” (24 “0”), the default User PIN code is “00000000” (8 “0”), you can complete the initialization by setting the Master and User PIN code and the number of “**The maximum of error enter**” (You can use the default Master PIN code and User PIN code, and also set your own Master PIN code and User PIN code):

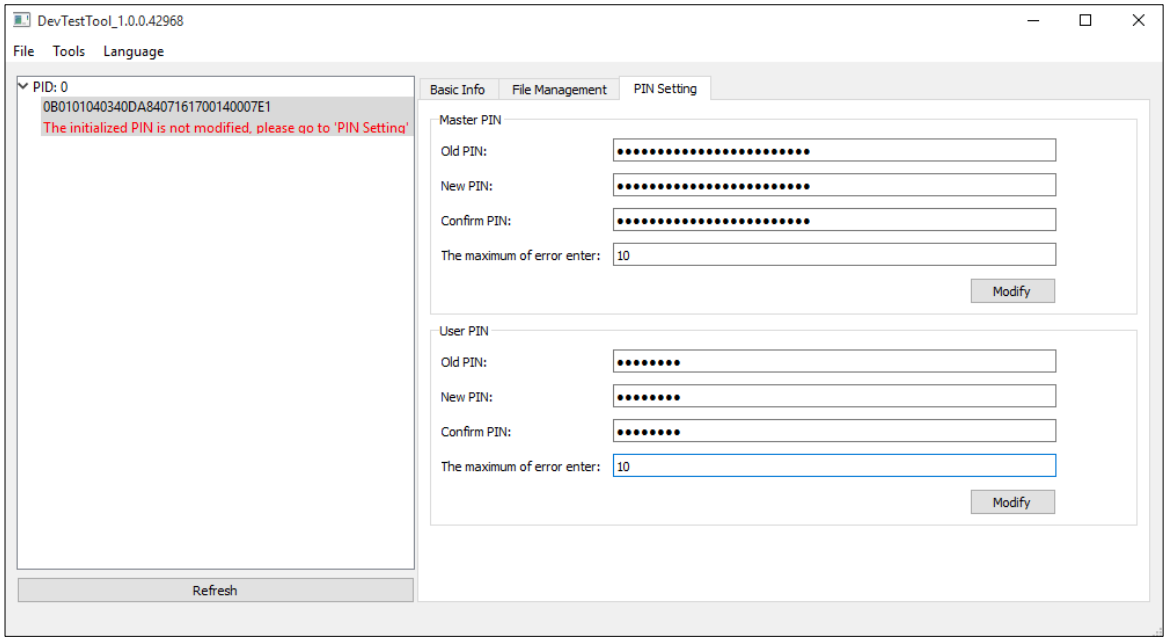

Figure 3-2

After you modified the PIN code successfully, it will show “Modify successfully!”

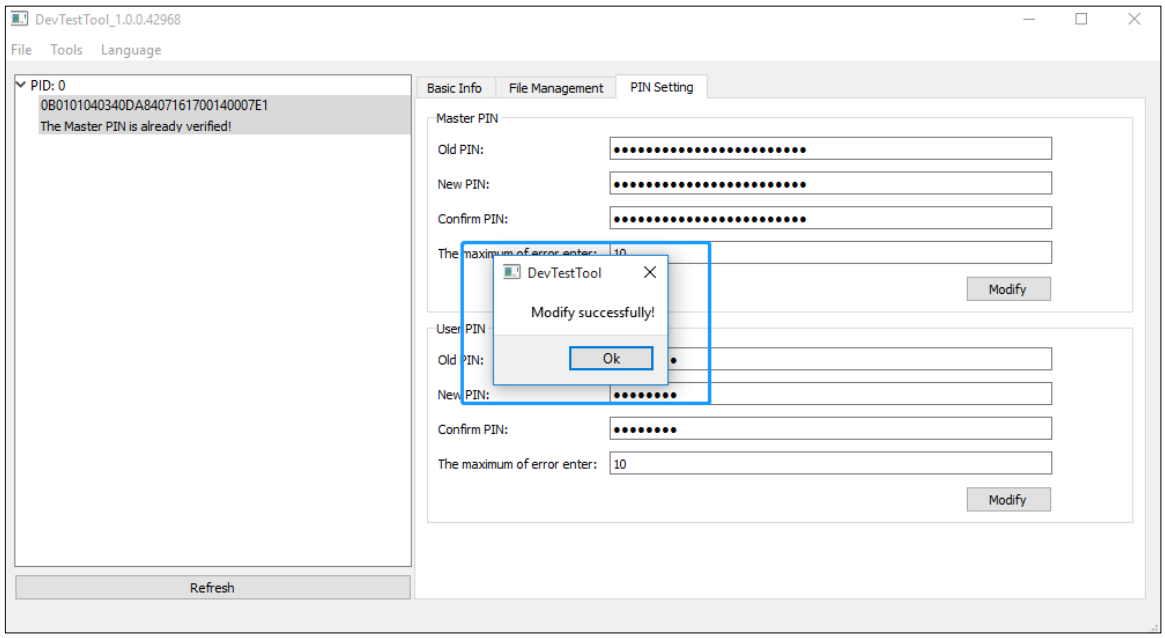

Figure 3-3

Then we need to set the PID in the next step.

Setting the PID of the dongle by use of DevTestTool.exe,

Seed Code

Seed code used for setting PID, Seeds code is critical data to generate the product PID, please keep the seeds code in security and safety, the same PID may only be generated and available by use of the same seeds code.

PID

Product Identification ID, and generated by use of Seeds Code, developer use the PID to identify each of product, or each of sub developer, PID is the key identification and differentiated from the other software product which also used Moway 1 protected. So please set your dedicate PID for your product before using Moway 1.

PID is useful to those developer who didn't establish license system; With PID, developer has capable to use PID to manage and sell software to users;

Note:

1. All the PIDs of Moway 1 in factory setting are same, on default is "0", please make sure to modify the PID before use, otherwise you can't use any functions except of dongle initialization.
2. Developer Authorization (Access Right) is required to set the PID, you can re set the PID when obtain the developer authorization;

3. The PID is unique ID generated by one seeds code, and The PID generated by different Seed code is different, So, when setting a certain type of product, be sure to use the same seed code for PID setting. Otherwise, different PIDs will be generated in dongle for same product.

Only the same seed code can generate the same PID. The way to distinguish the dongle from different customer or different software product is by the user PIN code and PID. Two different dongle that have the same user PIN code and PID can open the same software. Therefore please keep the seed code properly to avoid leaking or lost it. In this way to protect the software from being used illegally.

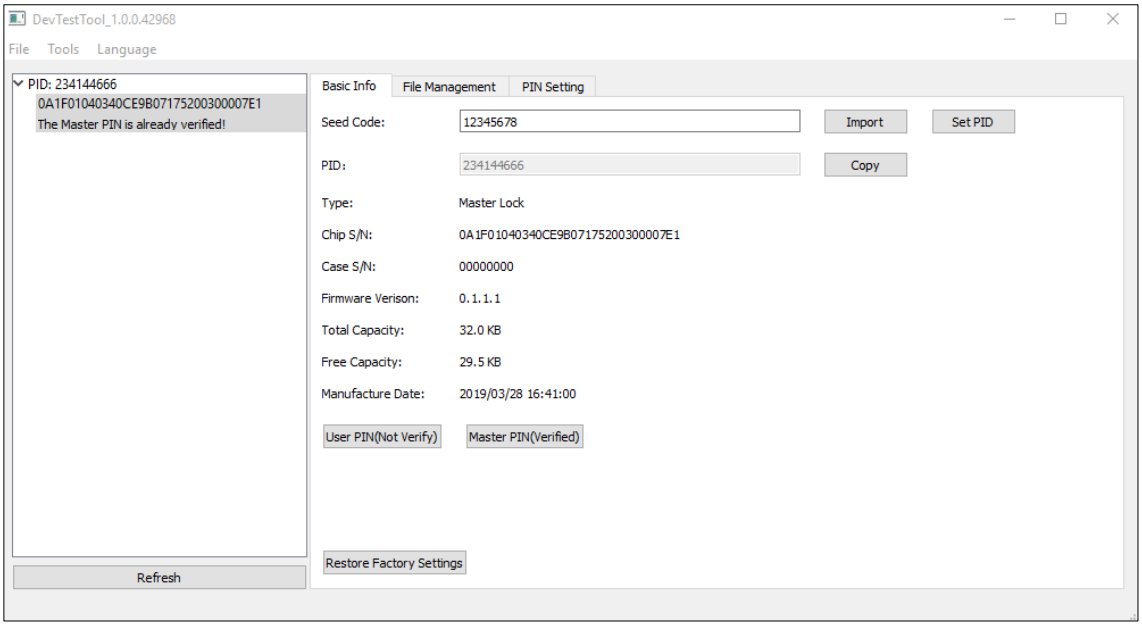

Figure 3-4

After the initialization of the new Moway USB dongle, you need to set the PID for the dongle, which will be used to create a bind relationship between the Moway USB dongle and the software protected.

The detail steps:

1. Plug in the Moway 1 dongle on your computer
2. Verify the PIN code

   After insert the Moway1, you need to verify the PIN code to use the Developer access right.

   The default Master PIN code is “000000000000000000000000”, you need to use the new Master PIN code after you did modification in the “Moway 1 initialization” step.

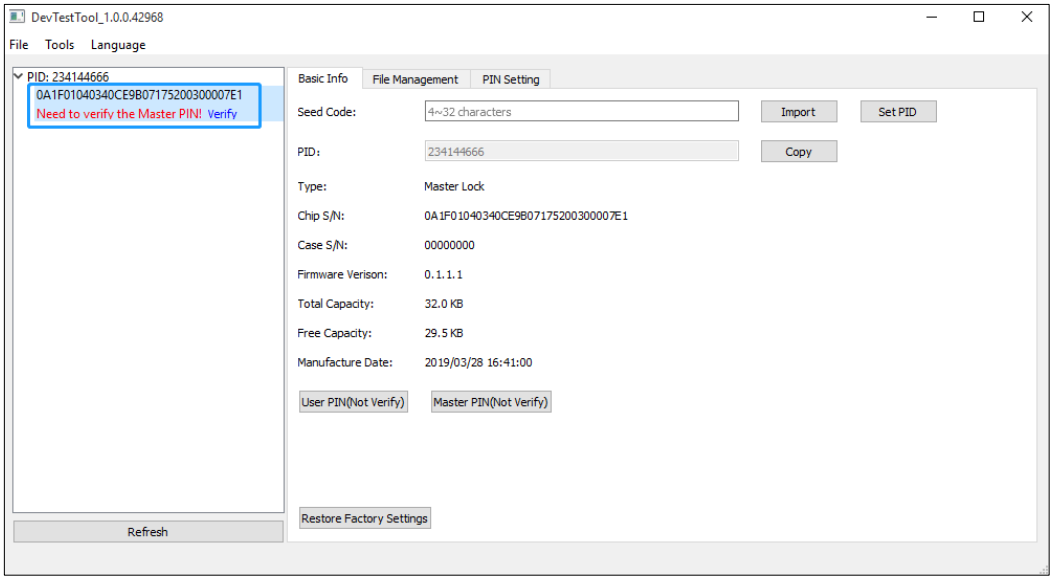

Figure 3-5

3. Input the seed code

> Note: You can generate a relatively complex seeds code with a random number generation tool, or use the random number generate function in the **CryptoTool.exe** provided in the SDK, you can refer the ***User Manual_Moway 1.pdf*** for how to generate random number in detail.

You can directly input the seeds code or by import the seed code file with the import function in DevTestTool.exe (Here we take the seed code "12345678" as an example).

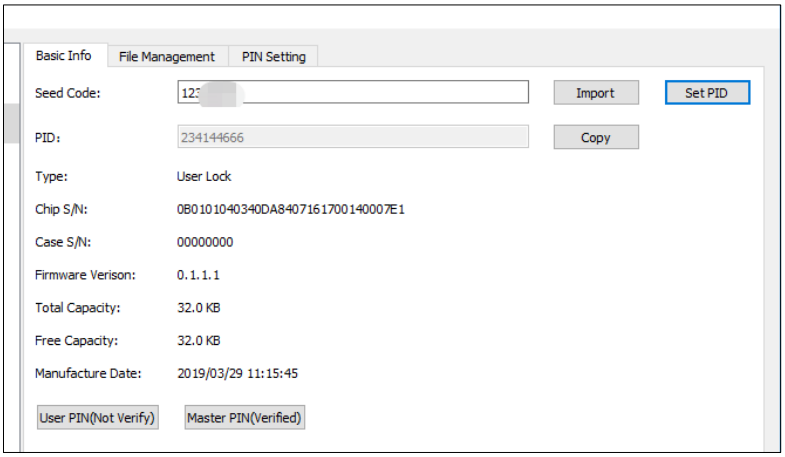

Figure 3-6

4. Set PID

After you input the seed code, you can click "**Set PID**" button to set the PID for the Moway 1 device:

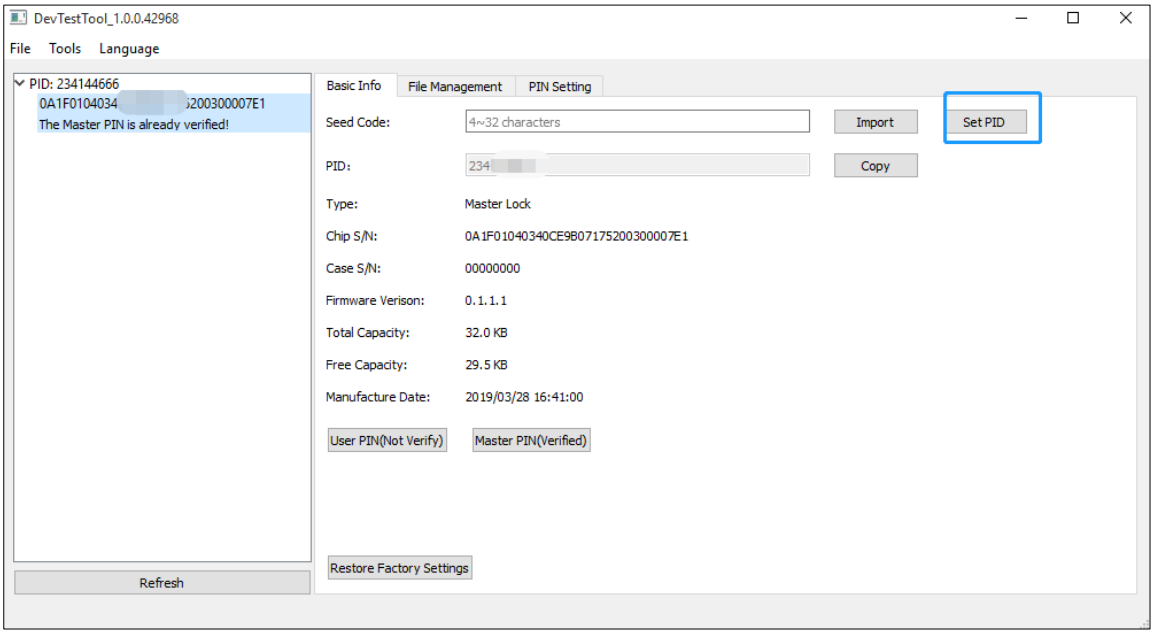

Figure 3-7

After the PID setting, a unique PID will be set to this dongle, we can use this dongle to verify your protected software later, next you will need to input the PID generated by **DevTestTool.exe** to protect your software by use of Virbox Protector.

Other function in DevTestTool.exe tool:

For more information about how to use those tool chains, you can refer the document: ***User Manual_Moway 1.pdf.***

Software protection

Note:

Virbox Moway SDK provides software protection tools: Virbox Protector basic edition to software developer;

Virbox Protector basic edition support developer to protect application to prevent cracker from decompiling, de-assembling, tampering application with basic protection options;

For developer require to have most secure protection option to protect application to against static attack and dynamic analysis, injection, memory dump. You can select to use Virbox Protector Pro edition for Moway;

Double click the "**Virbox Portector.exe**" which located in the "bin" folder of "shell" sub-directory of SDK directory to start Virbox Protector in the SDK installation path (The default path is ***C:\Program Files (x86)\senseshield\Moway\shell\windows_x64\bin***), then GUI shown as in Figure 3-8. Virbox Protector basic

edition supports to protect PE, .Net format and Unity3D program currently.

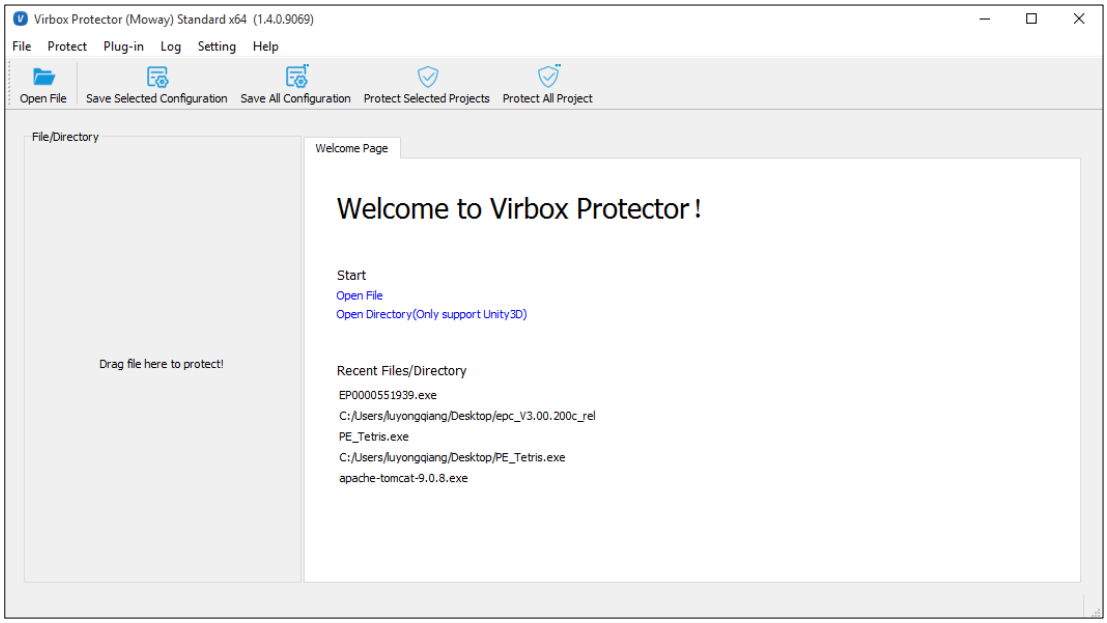

Figure 3-8

Select the file/program you want to protect, and open this program, shown as below figure 3-9

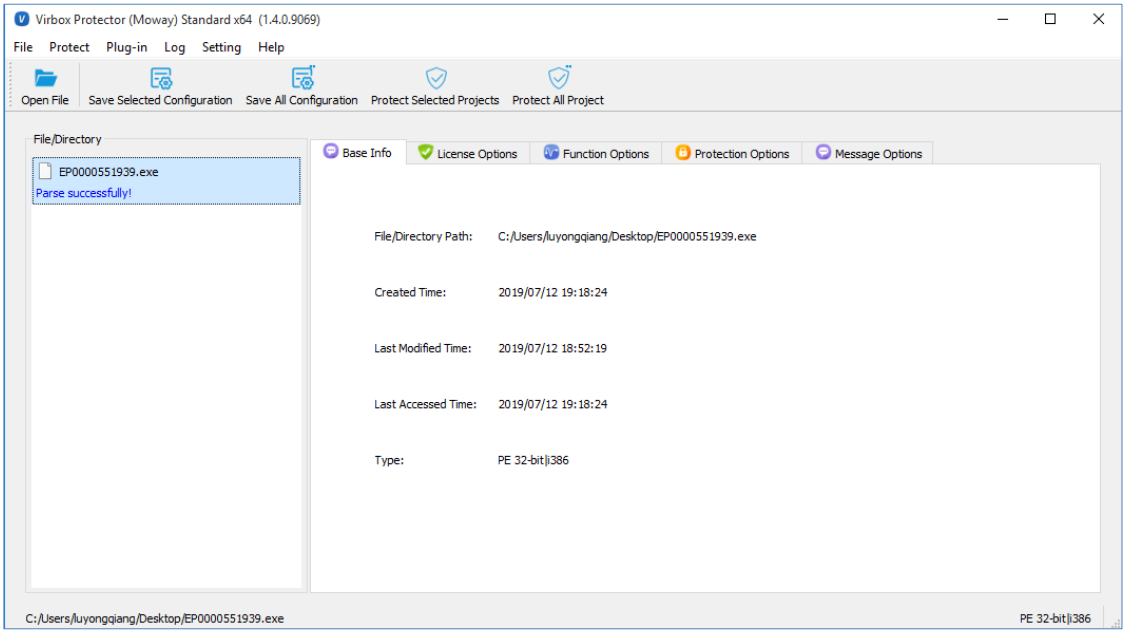

Figure 3-9

Select the "License Option" tab, input the **PID** of the device, and the **User PIN** code. If you want to bind the software with specific dongle, you need to fill in the **Chipset S/N** number of chipset of dongle.

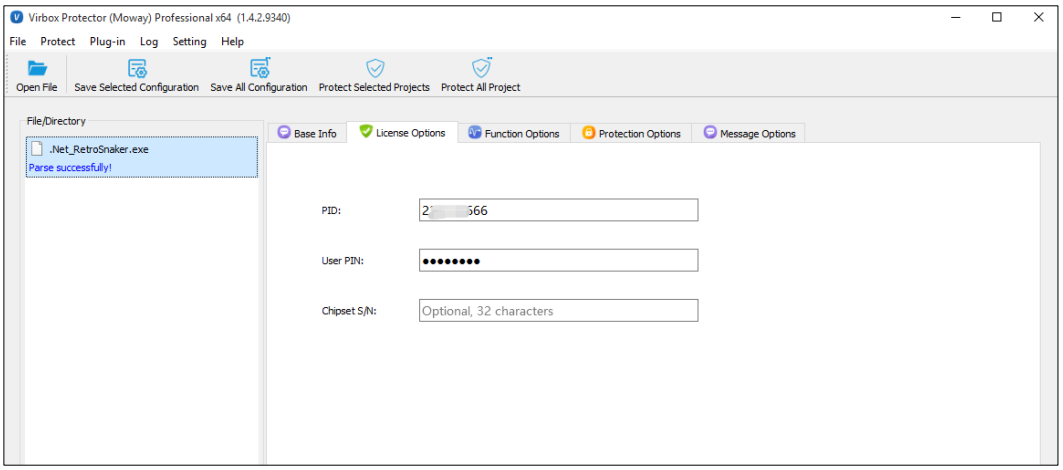

Figure 3-10

In this step developer also set to bind with specific dongle with the application as well as with PID. You can open the protected software only when the specific dongle plugged on your computer.

In the Protection Options tab you can use the **compression, import table protection (for PE program)** and **name obfuscation protection (for .Net program)** to protect the application in general, as the screenshot showing blow:

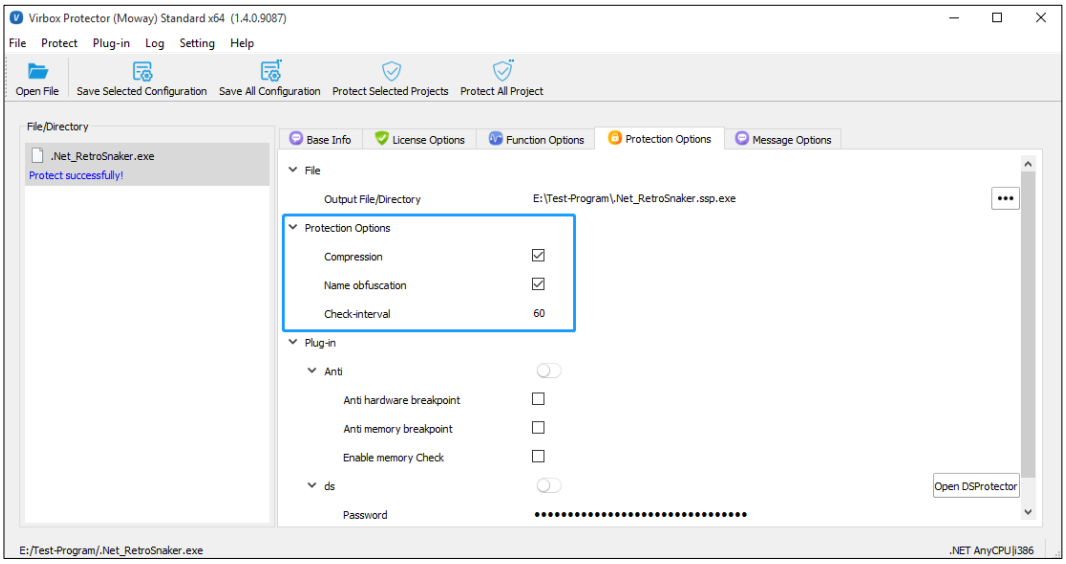

Figure 3-11

In the Function Options, you can select the functions by click “Add Function” and select “obfuscation”, “Virtualization” or “Encryption” to protect the specific or critical functions to prevent those functions from reverese engineering by powerful decompiler or de-assembler (static analysis)

Then click “**Protect Selected Project**” button to complete the software protection.

After Protection, 2 more files will be generated in output folder:

.Net.exe.ssp and **.Net.ssp.exe**

.Net.exe.ssp is the configuration file that can be used to protect the data resources. If you do not need to protect the data resources, you can delete this configuration file. This file will also save your software protection configuration, for detail step of data resources protection please refer the related document or contact us.

.Net.ssp.exe is the protected application, please noted that the name of this file is different from the original file. You need to modify it to be the original name then distribute this file to software user. To avoid error caused by incorrect file name.

.Net.exe is the original file. Pls keep it in safe and do NOT distribute this file to your user.

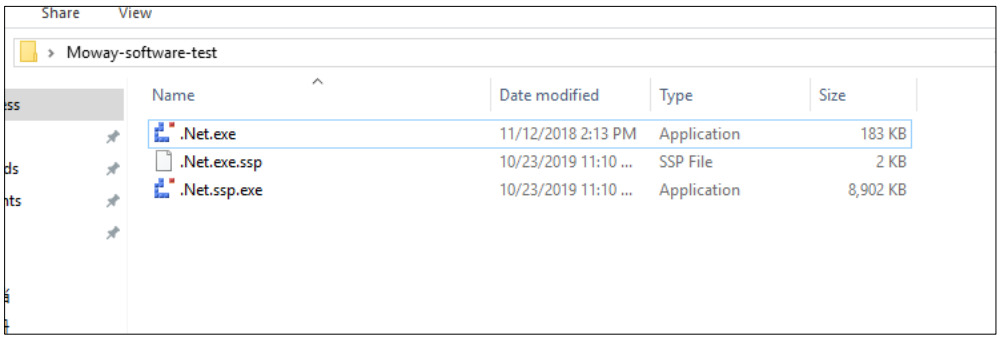

Figure 3-12

Note: Virbox Protector provides basic protection function to software developer, if you want to use advanced protection option of Virbox Protector, you need to purchase Virbox Protection (Pro), please contact us for details protect function available for Virbox Protector (Pro). Virbox Protection (Pro) support to following protection options: Obfuscation, Virtualization Protection and Code Encryption to the software.

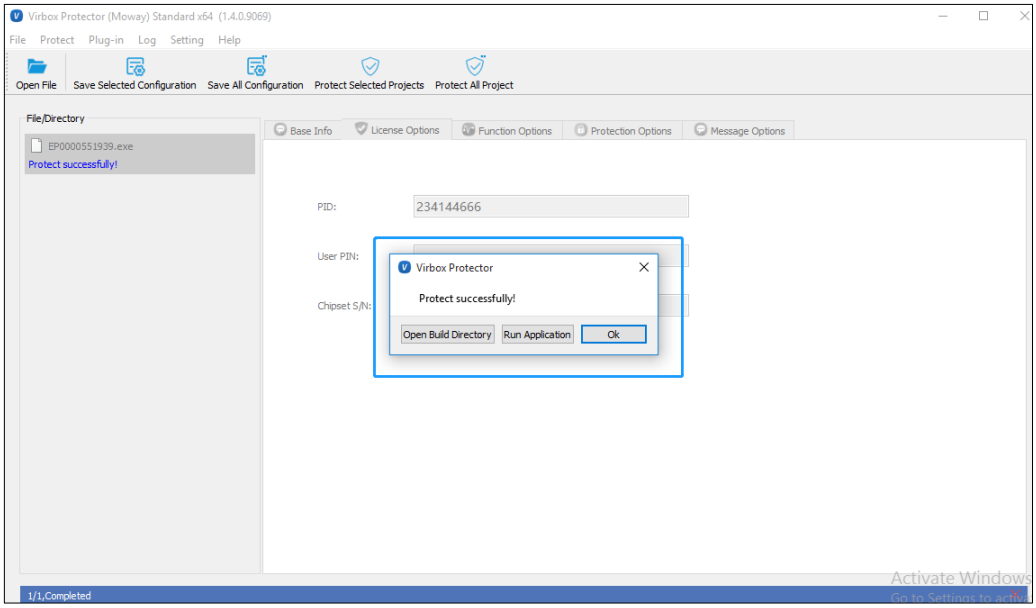

Figure 3-13

The above is the basic function of the Virbox Protector. Virbox Protector also supports more advanced protection functions. If you want to use these advanced functions or want to know what kind of protection you can use, please contact us (support@senselock.com) to get quick feedback consultation and get the related Virbox Protector installation package and related document for Moway1.

Verify the protection.

You can run the protected software when the dongle is plugged on the computer.

In this evaluation process, when we run the program with the Moway 1 dongle plugged in, the software can start up correctly:

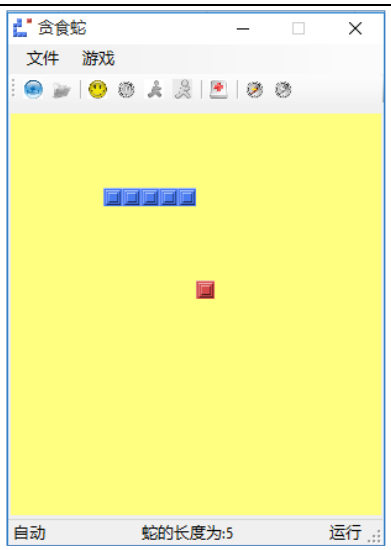

Figure 3-14

When you run the program without the dongle plugged in, it will show:

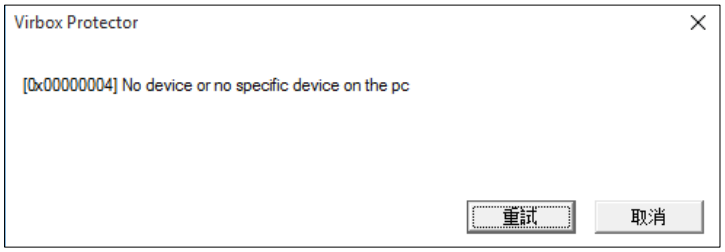

Figure 3-15

In the evaluation process above, we use the same PID which generated by DevTestTool to set up the link between the protected software with Moway1 dongle to complete a simple protection process by Virbox Protector. If developer want enhance the security to protect the software, Moway1 also support developer to select the key/data generated by different encryption algorithm (by use the CryptoTool), the key or data can be store inside of dongle with following way to verify the protected software: signature/verify signature, encryption/decryption, and HMAC challenge/response. And also, developer may refer a series API sample in the SDK to flexible design your dedicate protection scheme to protect your software.

4. Other Functionality

Volume Setting Tool (by use of BatchTool.exe)

The Volume Setting Tool help the developer to setup the completed protection/encryption scheme into the

Moway 1 dongle in volume for mass production of dongle. When you complete your protection/encryption scheme in this Volume Setting Tool, you can use this protection scheme and setting in one Moway 1 dongle or setting to multiple dongles at same time. Developer also can save your protection/encryption scheme in the tool as a template for Volume setting in next times. Developer may import the template which has been saved before use, click the "Start Batch" Button in the bottom, and it is not necessary to redesign your encryption scheme again in the tool.

Double click the "**BatchTool.exe**" which located in the Tool directory to start the Volume Setting Tool, The GUI is shown in the figure 4-6, The left panel list all the dongle device hosted by local computer, the dongle device with red colors indicates that volume setting is not performed yet. To design and complete a new encryption/protection scheme, developer need to verify the seed code first, which means, developer may either input the seed code or import the seed code file externally. Then click the "**Generate PID Test**" button to verify if the PID generated by the seed code is the product type for Volume Setting the Dongle for mass production. When PID verified, you may input the old and new PIN Code in the PIN code setting box, and also set the maximum error PIN code input times limitation. If you do not want to set the limitation, you can leave the box with empty. The encryption scheme file is set in the file setting tab, and the data file and the key file can be imported externally. The data file needs to be set with associated access right according to your encryption scheme, when data file is set. You will complete the encryption scheme, and then click "**Start Batch**" button in the bottom. The mass production can be started. When the production is completed, the red mark of the device in the left device panel turns green, the mass production is successful, and the production count is updated.

There are two buttons to manage the template on the right top of tool: "**Import Template File**" and "**Save as Template File**", you may save current protection/encryption scheme as a template file or import a template from external and start Volume setting dongle for mass production quickly.

Attn: To Verify the seed code, the host Computer needs at least one device (Moway 1 Dongle) existed, used to verify the generate PID; For normal Moway 1, the factory default PIN setting is 24 "0", so, for old PIN input, please use 24 "0" to input. If it is volume setting in second time, the old PIN code needs to input the current developer PIN code of the device;

The following figure will show you the setting and achieve a successfully batch setting for Moway1 device.

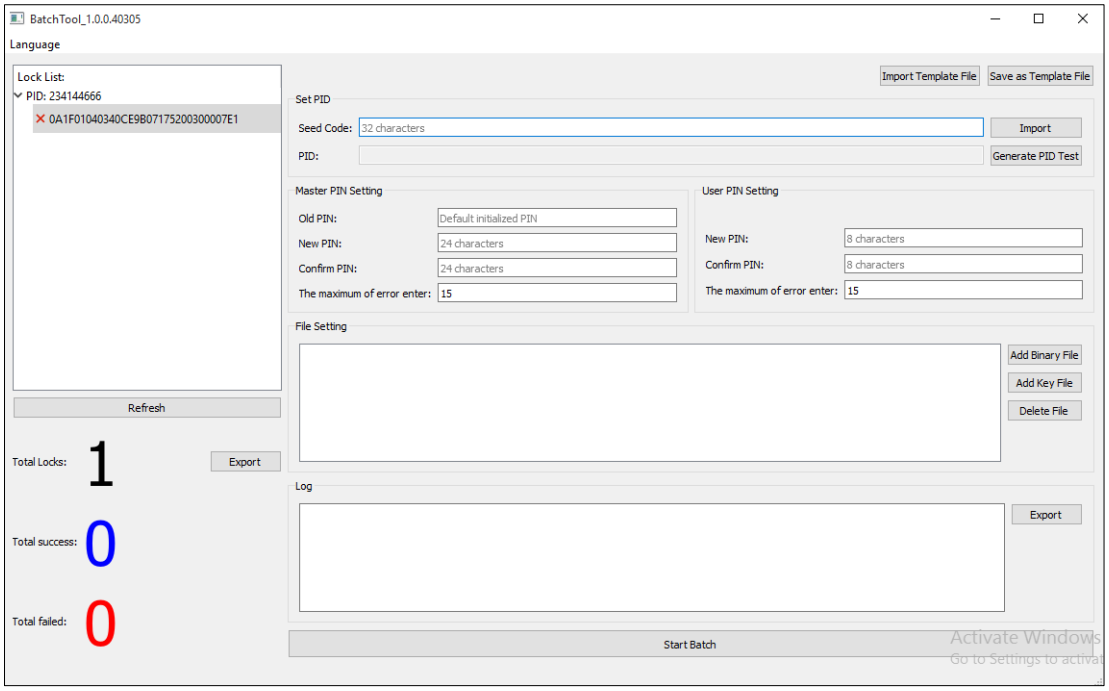

Figure 4-1

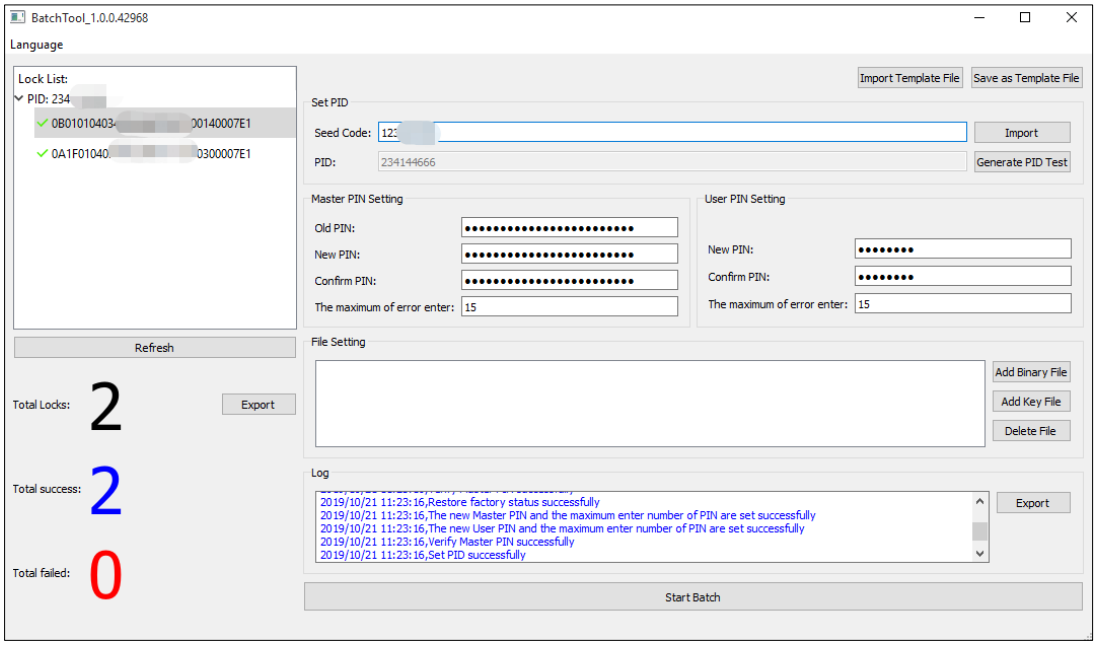

Figure 4-2

Remote Update

Create a "License update package" by use of MakePackageTool.exe

Developer sometimes need to prepare a license update package to software user when the files in dongle need to be updated, Moway 1 provides 2 license update tool to software developer. Which can be used to update the files in the dongle remotely:

MakePackageTool.exe will be used by developer to create a remote update package in Developer premise. Please note, to create a remote update package, developer need to use Moway 1 Master Lock together with this MakePackageTool.exe.

UpdateTool.exe will be used by software user to import the update package into the Moway 1 user dongle in User premise.

Developer Premise:

Double click the "**MakePackageTool.exe**" which located in the "tool" sub directory to start this license update package tool. The Tool GUI shown as in Figure 4-1.

The "Lock" tab shows the list of Master Lock hosted by local computer, select the master lock for which the PID update package need to be created, and input the Master PIN code. If the update package is made to specific user lock, then you need to click the "**Set Lock S/N**" check box and input the S/N of the dongle.

The three function buttons ("Add Binary File", "Add Key File", "Delete File") on the right side can edit the files in the device that need to be updated. After completing the settings, click "**Start Make**" Button on the bottom of panel, select the directory to save the update package, and complete to make the update package like the figure showing blow.

Notes: To Make the Update Package the software developer need to use the master lock, the normal user lock doesn't has access right to issue the license update package to other user lock. The master lock need to be initialized before issue the license update package then the master lock may issue license update package to the user lock which has same PID type with the master lock.

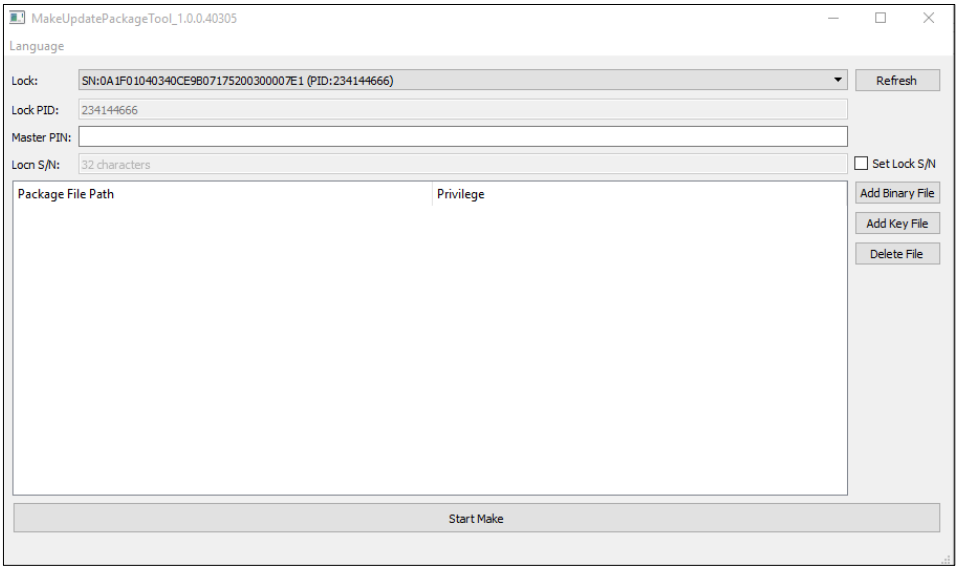

Figure 4-3

Select the files to be updated:

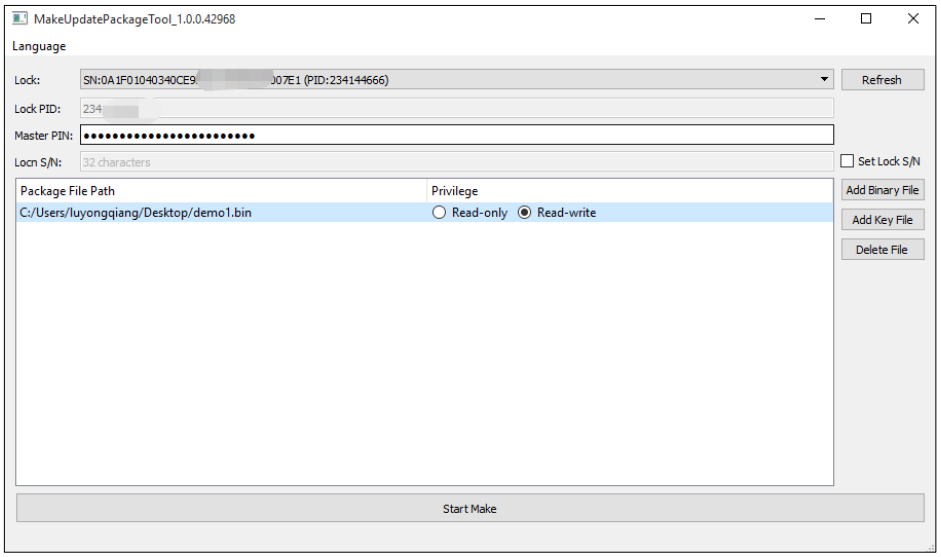

Figure 4-4

Save the update package:

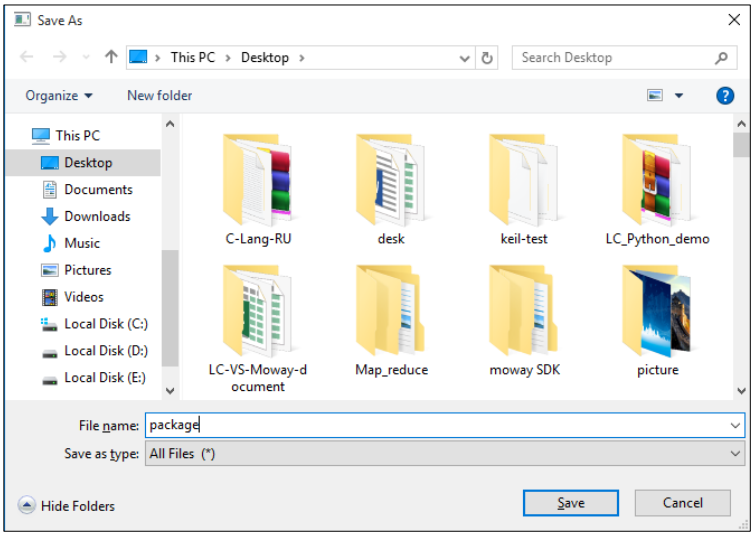

Figure 4-5

Note: The software user need to use this update package to update the files into the user dongle.

Update the update package file into dongle by use of UpdateTool.exe

Software User Premise:

The software user need to double click the "**UpdateTool.exe**" which located in the "tools" sub directory of SDK to start this Update tool, the GUI interface show as below: Figure 4-4. In practical case, Developer need to deliver this UpdateTool.exe with update package to user when update required.

Select the lock (Moway 1 Dongle device) need to be updated from the "Lock" field, input User PIN code into the "**User PIN" tab**, select the Update package, then click the "**Update**" button to complete update process.

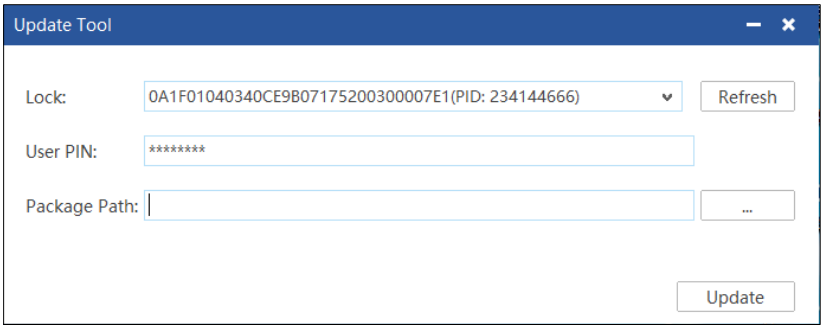

Figure 4-6

If the update package is imported successfully it will show “Update successfully”.

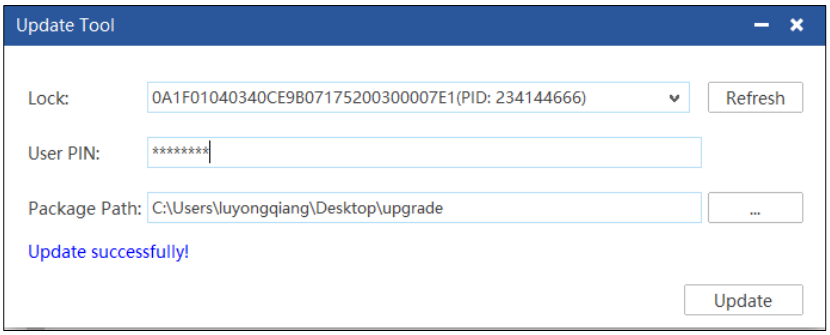

Figure 4-7

So till now with the above operation to the tools you can complete the dongle initialization, PID setting, program protection (bind the dongle with the software), license verification, and update of the files in the user dongle remotely.

Any question, you can contact us: support@senselock.com.