1. Introduction

This demonstation contains 2 programs. One of them, called DemoSoftware, illustrates the usage of Senselock SL Enduser keys. And the other, called DemoTool, illustrates the usage of Senselock SL Master Keys. Besides, all the Senselock SL APIs are involved in these programs, so that the programs could be used as sample code for the APIs.
Because the DemoSoftware is bound with an Enduser Key, there is a piece of data need to be changed according to your keys and the program need to be rebuild before it could be used.

2. About the demonstration programs

2.1. The DemoSoftware program

This program emulates a real software protected by a Senselock SL Enduser Key. It could show one of 5 photos circularly. But this function is restricted by a license module stored in the Enduser Key. Initially, the license permits the function to be used 20 times. When the license module is expired, it could be reactivated by remote updating. To illustrate the use of the Readonly Memory in the Enduser Key, a short message is stored in the key, and this message could be changed by remote updating too.

2.2. The DemoTool program

This program is desgined to prepare an Enduser Key for the DemoSoftware program. In detail, it can write a License Module and a short message into an Enduser Key. It can also be used to generate Activation Code, Synchronization Code and Package files. If needed, it can be used to change key's password and Product ID too.

3. Prepare to run the DemoSoftware

The DemoSoftware needs a Senselock SL Enduser Key to run with.
To Initialize the Enduser Key, run the DemoTool, plug in an Enduser key, input the password, press the [Make] button. This step will write a license module into the key. and store a short string of current date-time into the key's Readonly Memory. The license module has it Execution Count field set to 20, the Trial Days field set to 100. When this step is done, press the [Get New Signature] button and a messagebox will apear. Modify the DemoSoftware according to the steps listed in the messagebox and rebuild it. This is a simple modification, only a array's initialization data need to be changed.

4. Run the demonstration programs

4.1. Test the usage of License modules

(1) Plug in the Enduser Key initialized in the preparation steps, then run the DemoSoftware.exe. The program should launch successfully. A picture should appear in the window, and a message below the [ShowPhoto] button says "19 tmies remain to use".
(2) Press the [ShowPhoto] button, the message will change and the photo will be changed too.
(3) After 19 pressing, an error message will appear telling you that the license has been used up.
(4) To reactive the license, press the [Update] button. The Update dialogbox will appear.
(5) Copy the Serial Number from the dongle status editbox.
(6) Run the DemoTool program.
(7) Plug in your Senselock SL Master Key.
(8) Paste the Serial Number into the Target Key's Serial Numbre editbox.
(9) Type number 5 into the License[1].count editbox in the Generate Activation Code groupbox.
(10) Press the [Generate] button.
(11) Press the [Copy] button on the right to copy the Activation Code to clipboard.
(12) Go back to the DemoSoftware's Update dialogbox.

(13) Paste the Activation Code in to the Input Activation Code editbox.
(14) Press the [Active] button. If succeed, the Dongle Status editbox will show the new License[1].count value you set in step 9.
(15) Close the Update dialogbox, press the [ShowPhoto] button in the main window. The button should be usable again.

Remarks:
The Master Key and the Enduser Key must have the same DeveloperID and ProductID. To check this setting, the Designer.exe tool can be used, it locates in the $(InstallDir)\Tools\ folder.

4.2. Test the remote updating of the Readonly Memory

(1) Plug in an Enduser Key initialized as described in the preparation steps, then launch the DemoSoftware program.
(2) Press the [Update] button. The Update dialogbox will appear.
(3) Copy the Serial Number from the dongle status editbox.
(4) Run the DemoTool program.
(5) Plug in your Senselock SL Master Key.
(6) Paste the Serial Number into the Target Key's Serial Numbre editbox.
(7) Type some text, such as "New data in the Readonly Memory Block." into the editbox in the Generate Package File For The Readonly Memory Block groupbox.
(8) Press the [Generate] button below the editbox. A Save File dialogbox will appear.
(9) Input a filename for the file.
(10) Go back to the DemoSoftware's Update dialogbox.
(11) Press the […] button and specify the file generated in step 9. If succeed, the Dongle Status editbox will show the text you typed in step 7.

Remarks:
The Master Key and the Enduser Key must have the same DeveloperID and ProductID. To check this setting, the Designer tool can be used, it locates in the $(InstallDir)\Tools\ folder.

4.3. Test the usage of Synchronization Code

(1) Plug in an Enduser Key initialized as described in the preparation steps, then run the DemoSoftware.exe. The program should launch successfully.
(2) Press the [ShowPhoto] button. No error message should appear.

(3) Change your compter's clock 5 minutes late, such as change from 10:30 to 10:25.
(4) Press the [ShowPhoto] button. An error message should appear, telling that a time mismatch error occurred.
(5) Press the [Update] button. The Update dialogbox will appear.
(6) Copy the Serial Number from the dongle status editbox.
(7) Run the DemoTool program.
(8) Plug in your Senselock SL Master Key.
(9) Paste the Serial Number into the Target Key's Serial Numbre editbox.
(10) Press the [Generate] button in the Generate Synchronization Code groupbox.
(11) Press the [Copy] button on the right to copy the Synchronization Code to clipboard.
(12) Go back to the DemoSoftware's Update dialogbox.
(13) Paste the Synchronization Code in to the Input Synchronization Code editbox.
(14) Press the [Update] button on the right. If succeed, the [ShowPhoto] button in the main window should be usable again.

Remarks:

The Master Key and the Enduser Key must have the same DeveloperID and ProductID. To check this setting, the Designer tool can be used, it locates in the $(InstallDir)\Tools\ folder.

4.4. Test the Encryption/Decryption function

(1) Prepare the DemoSoftware program as described in the preparation steps.
(2) Run the DemoTool program.
(3) Plug in an Senselock SL Enduser Key.
(4) Input "12345678901234567890" into the Seed Data editbox in the Set Product ID groupbox.
(5) Input the password. The default password is "abcdefgh12345678".
(6) Press the [Set] button.
(7) In the Make Keys groupbox, input the password and press the [Make] button.
(8) Run the DemoSoftware. An error message should appear telling that the key is invalid.

Remarks:

The DemoSoftware keeps string "demotool"'s cipher in a source file. When started, it asks the dongle to decrypt the cipher. If the result is not equal to "demotool", then the dongle is taken as an invalid one. The SLEncrypt/SLDecrypt is depends on dongle's DeveloperID and ProductID. So you must use your Enduser Key to generate the cipher and use it to replace that in the source file. In this demonstration, the cipher is called Signature. You can get it by following the steps in "Prepare to run the DemoSoftware" section.

In this test, the Enduser Key's ProductID is changed. So it can not decrypt the cipher correctly and can not pass the verification progress of the program.

5. Appendix

The following tables list the source files that uses Senselock SL APIs.

In the DemoSoftware

Source file	Involved Senselock SL APIs
SLApiHelper.cpp	SLOpen SLClose SLGenActivationCode SLGenTimeSyncCode SLGenMemoryUptPkg SLEncrypt
DemoSoftwareDlg.cpp	SLGetLicense SLFreeLicense SLQueryLicense SLClose SLDecrypt
DlgUpdate.cpp	SLGetDeviceInfo SLQueryLicense SLReadMemory SLUpdate

In the DemoTool

Source file	Involved Senselock SL APIs
SLApiHelper.pas	SLOpen SLClose SLGenActivationCode SLGenTimeSyncCode SLGenMemoryUptPkg SLEncrypt
DemoToolDlg.cpp	SLVerifyPwd SLWriteLicense SLWriteMemory SLReset SLClose SLSetProductId SLLedCtrl SLChangePwd