

HS-Security ware

What is Enky XL Dongle?

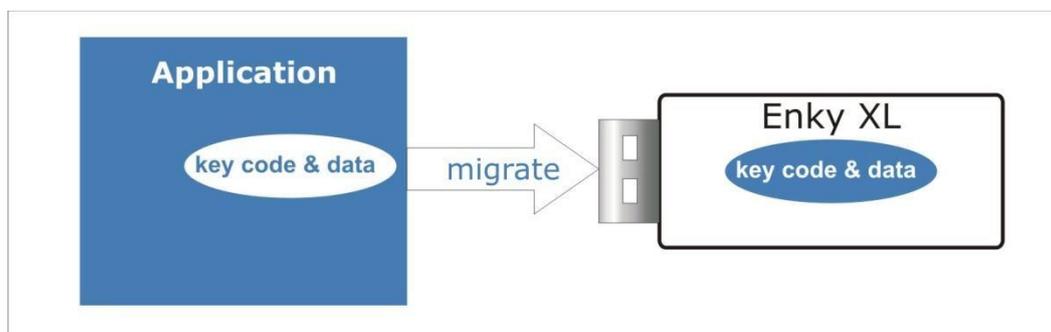
Enky XL is a new generation software dongle developed by HS-Security Ware. It is now one of the most secure software protection products in the world.

Enky XL is not a simple dongle, so you need to develop "dongle" version for some parts of the software on its operating system¹. This is not an arduous task. Under most circumstances, you can make them run in Enky XL by very simple modification of the codes since Enky XL supports codes compiled with standard C language. If the software is developed via other high-level languages, such as Delphi, you need to re-write the ported part in C language. Although some efforts are required for the "translation" between high-level languages, if "translating" several hundred-line codes can keep you thoroughly away from piracy, it is definitely worth doing. In the subsequent part of this text, we usually call the codes ported into Enky XL "Enky XL Application" or "Enky XL EXFs".

If you have used dongles of other types, please try your best to forget the technical details of those dongles and digest the contents of this section, because this is a cutting-edge and brand new notion. If you have never used any dongle before, take a look at the picture below and you will find the whole process quite easy to understand.

Do remember that there are no such concepts as "data area", "algorithm unit", etc., which are all outdated. Now your dongle is provided with a complete "operating system" consisting of all files: executable files, data files and key files as well as directories, of course. You can imagine it as a MS-DOS operating system.

Next let us take a look at how software protection is achieved



Enky XL Software Protection Method

1. Develop and debug software wholeheartedly, ignoring completely the dongle and software protection technologies;
2. Find some relatively important codes from the software and compile these codes via the compiler compatible with Enky XL before writing into Enky XL;

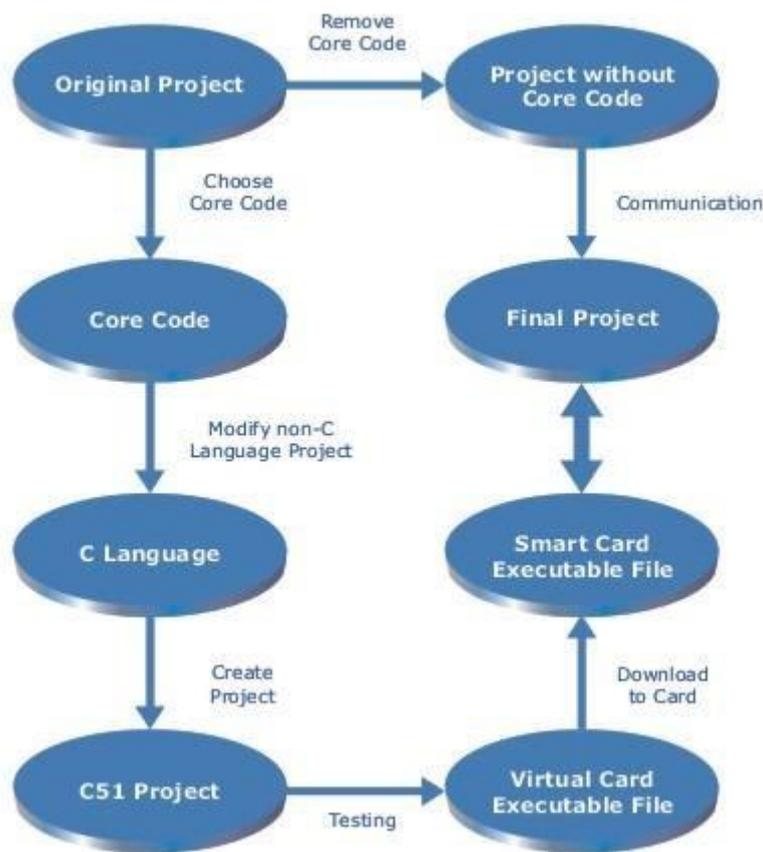
¹ The internal operating system of Enky XL complies with the international standard of the Smart Card operating

3. Add the call of Enky XL to where the codes are "dug out" in the software;
4. When the software is run, these ported codes will run inside Enky XL and return the results to the software:

As part of the software is ported to the hardware of Enky XL, the software will be incomplete if it is detached from Enky XL. As a result, it is a "mission impossible" to crack the software protected by Enky XL.

Each ported code part can become an independent "executable file" inside Enky XL. Of course, they can also be combined into one. Enky XL can now offer a maximum of 64K security storage space with almost no limit over the number of files (the file header may take up some space, so too many files will result in a waste of storage room). The total number of portable codes is round 10,000 lines, so Enky XL can protect as much software as it can be.

How to protect software with Enky XL Dongle



Step 1 - Choose core/kernel codes

Identify and choose the vital part of Core Codes from the original project (the to be protected main program). Core Codes are usually the important coding part that involves crucial operation or calculation formula that if without it, the whole program won't execute successfully.

Step 2 - Modify non-C language project into C language project

Develop or modify the selected Core Code into C language project. Skip this step if original project is a C language project.

Step 3 - Create/convert C language project into C51 project

Create or convert into C51 project (i.e. external program) using Keil compiler in IDE.

Step 4 - Test C51 project with virtual card

Test and debug the C51 project (i.e. external program) with the virtual card.

Step5 - Download tested C51 project into Enky XL smartcard

Download the C51 project (i.e. external program) into Enky XL smartcard, i.e. import all files of the virtual card into the real card and test it.

Step 6 - Remove core/kernel codes from main application

Remove core code from the original project.

Step 7 - Include communication between main application and Enky XL

Include intercommunication between original project with the C51 project (i.e. external program) that on the real card and it will become the final project that integrated with Enky XL.

Note: Code Selection

What code should be transferred to the device?

To maximize the security protection of your application, you should select code which is:

1. Processor intensive, because the processor on the smart Unique and specific to your application. This provides you with a more secure solution.
2. Vital to the operation of your application. Without it, your application does not run.

Hackers will not be able to use your application by bypassing these key functions and you should avoid code which is:

1. Based upon a popular algorithm. Hackers understand the functionality of most popular algorithms and can simulate them.
2. Card is slower than most computers and you want to avoid any bottlenecks.

Contact: info@hs-securityware.com

www.hs-securityware.com

Tel: +49 5031 9020 788

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