Elite EL Enveloper

Developer Guide v1.0.8.0

SENSESHIELD

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OVERVIEW 1

About the Guide

Mode	Model	Version	Releasing Date
Elite EL Enveloper	STD, Genii, RTC, RTCC	v1.0.8.0	2017.02.22

Conventions Used

The following conventions are used throughout this document:

Italic	Words in italic represent file names and directory names.
Bold	Words in boldface represent keystrokes, menu items, and window names and fields.
	The caution icon flags some content you should be careful of.

Document Improvement

Document Writing Team dedicates to insure the accuracy and completeness of context. Your feedback will assist them to make continuous improvement on EL document. Please do not hesitate to email us, sense@Sense.com.cn

PREFACE 2

Elite EL Enveloper helps you reduce time and effort that you spend on software protection. Using **Elite EL Enveloper** you can simply add the encryption code to compiled binaries code to prevent software license abuse, without modify the source code of software.



Elite EL Enveloper cannot provide protection as strong as encrypt with API calls, which is comprehensive and more secure protection method.

It is recommended to use **Elite EL Enveloper** as a temporary solution.

MECHANISM 3

How is the **Elite El Enveloper** different from any other ordinary envelope tools? **Elite El Enveloper** binds the enveloped software with EL device, so that software runs properly only if the corresponding EL device is plugged in. To increase the de-shelling difficulty and protection strength, **Elite El Enveloper** also offers anti-debugging, device detection and symbol obfuscation functions which are enhance security while software running.

Elite El Enveloper supports *EXE* and *DLL* assemblies, which are formatted in *Win32PE*.

INSTRUCTION 4

This Chapter gives a brief guide for how to use **Elite EL Enveloper** to protect software.

With **Elite EL Enveloper**, there are three simple steps to complete files encryption and protection:

Step 1. Select a file to envelope.

Step 2. Set envelope parameters (envelop options, symbol obfuscation, strong-name signing, anti-debugging, bind serial number, background check and custom error messages).

Step 3. Input EL Developer Password to complete the envelope.

Following are detail instructions for how to use **Elite EL Enveloper** to envelope files.

Select a File to Protect

(1) Plug in Elite EL device.

(2) Launch *ELEnveloperGui.exe* as showed in Figure 4-1. The Serial number of plugged EL device will show in square 4&5.

(3) Click browse to select a file to protect or you can drag and drop the file into the square which displays the file path.

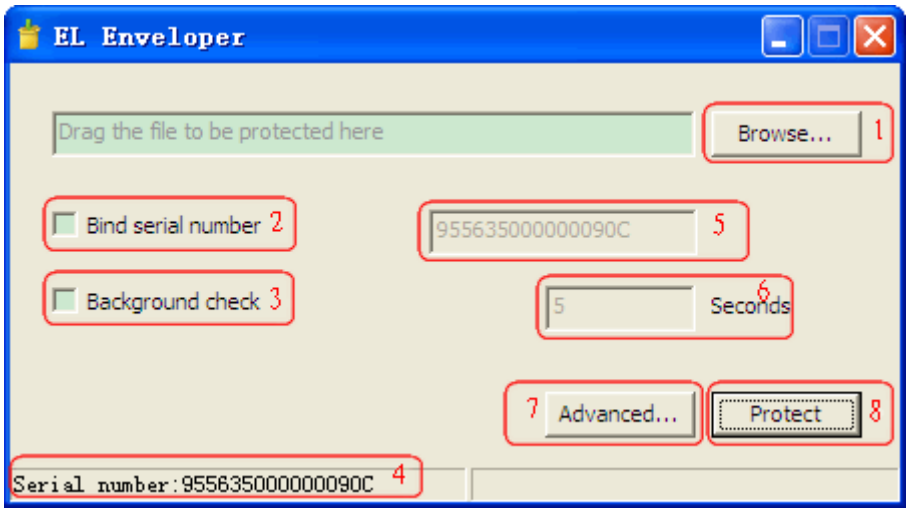


Figure 4-1 Enveloper

Parameters Setting

1. Bind Serial Number

[Optional]

'Bind Serial Number' function will bind enveloped software with the Global Unique Serial Number inside device, which means the enveloped software can run properly only when the specific device which has the bound serial number is plugged in. Tick the box before 'Bind Serial Number' and set the Global Unique Serial Number, Serial Number of current connected device is showing as default.

Example:

Software S has three sets of copies SoftwareA, SoftwareB and SoftwareC, whose Corresponding devices are KeyA, KeyB and KeyC. KeyA, KeyB and KeyC share the same Developer ID but have different Global Unique Serial Numbers.

When use KeyA to envelope executable file (.exe file) of SoftwareA, if:

(i) the enveloped softwareA executable file is bounded with Serial Number of KeyA, enveloped softwareA can only run properly when KeyA is plugged in;

(ii) the enveloped softwareA .exe is ***NOT*** bounded with any Serial Number, either KeyA, KeyB can allow softwareA .exe run properly.

2. Background check

[Optional]

Tick 'Background check' to enable the background device detection function. With this option, background system will detect device regularly to ensure device is plugged in along with software running all time. Time interval for device detection unit per second, available value is an integer from 1 to 9999, the default frequency setting is checking every 5 seconds.

3. Advanced

[Optional]

Click square 7 in Figure 4-1 to get access to advanced options for shell encryption as showed in Figure 4-2. Reminding messages can be customized and saved that will show up when the software launches.

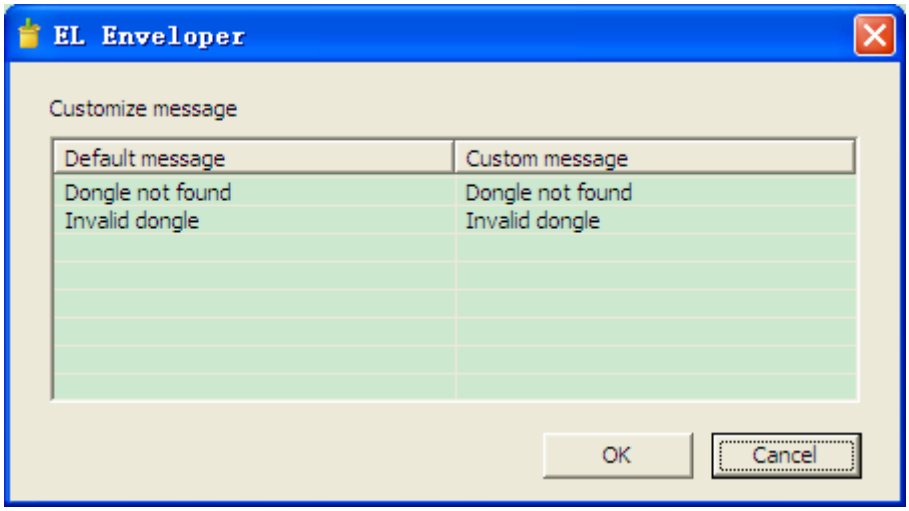


Figure 4-2 Advanced

Input password

Click square 8 in Figure 4-1 to start shell encryption on software after setting up. Developer Pin, User Pin and Shell Encryption Key should be typed in as showed in Figure 4-3. Developer Pin will be used when downloading dongle program into EL device while shelling software. Due to no records of Developer Pin in shelled software, the default Developer Pin can be used. However, the default User Pin is not recommended when shelling software because this Pin would be recorded into shelled software. Note that Shell Key is to generate encryption & decryption password by indongle program. Different Shell Keys produce different encryption & decryption passwords. Thus, even though bind serial numbers are not ticked, EL devices cannot be used on same kind shelled software if indongle Shell Keys are different. For example, EL devices A and B are used to shell a same software S and produce S_A and S_B. Both 2 dongles can execute S_A as well as S_B without binding serial number. Yet, if Shell Encryption Keys are different or random keys are used, S_A can be started only with device A while S_B can be executed only with B.

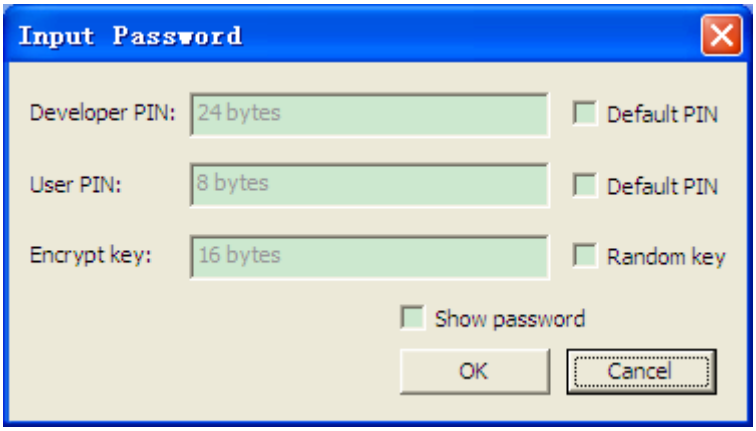


Figure 4-3 Input password

Envelope

Click OK to start software envelop. Figure 4-4 will pop out and executable file ***_shell_yyyyMMddHHmmss.exe or ***_shell_yyyyMMddHHmmss.dll will be produced under the original program path after shelling successfully. This is the shelled file.



Figure 4-4 Envelope success

An executable file named EC01 is needed when operating shelled software and this file is automatically downloaded into current device when shelling. As a result, shelled software can be started once the correspondent device is plugged in. If there is already an executable file named EC01 in the root directory of the current device, the original one will be overwritten. For other dongles whose root directory has no EC01, the shelled software cannot be executed normally even plugging these devices in.

For conveniences of setting up dongles in batch, a bin file will be generated under the same path of EL Enveloper after shelling successfully. Download this bin file into dongles' root directory and rename to EC01. Extra shelled files and bin files under the same path of EL Enveloper will be produced if same software is shelled more than once. It is linkable visually by time stamp in file name. For example, abc_shell_20110907134911.exe is produced after shelling abc.exe and it matches bin file with the name of EC01_20110907134911.bin. The file name including time stamp is used only for convenience but no restrictions and check will be executed. Thus, EL devices with same bin file can be used for shelled software if serial number is not bound. In addition, the final indongle program is the bin file with the latest time stamp if one device is used to shell more than once, for the original executable file EC01 has been overwritten when shelling if the file existed.

SUPPLEMENT 5

Following are explanations of error messages and notice messages from **Elite EL Enveloper**.

Device Not Found Error

The current calling device is failed to access to when the enveloped software is running. (Figure 5-1)



Figure 5-1 Error-Dongle not found

Invalid Device Error

When software enveloper is binding with a Serial Number, a device with different Serial Number is detected while the enveloped software is running; following error message will pop up (Figure 5-2).

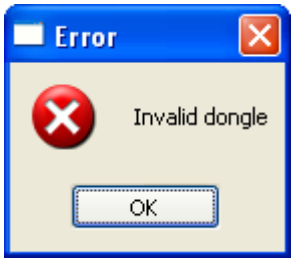


Figure 5-2 Error-Invalid dongle

Background Check Errors

When software is enveloped with 'Background check' function, the enveloped software will check device regularly while it's running. If device cannot be detected, an error message will pop up (Figure 5-3). Click 'Retry', the device will be redetected, click 'Cancel' the software will exit. You can retry 3 times consecutively, the software will exit when failed to detect the device at the third time.

When software is enveloped with 'Background Check' function and 'Binding Serial Number' function at the same time and error message 'Failed to Enumerate Device' is pup out (Figure 5-4), click 'Retry', error message 'Invalid Device' will display if the detected device' Serial Number not match the binding Serial Number.



Figure 5-3 Error-Dongle not found



Figure 5-4 Error-Invalid dongle

If shelled software crashes in execution, the reason could be that the indongle executable file EC01 is different from the one used during shelling, which leads to an error. Software crashes instead of showing error because the shell code cannot judge whether the decryption is correct.

Shelled program does not support running in VM.