

Virbox User Manual

Virbox Protector

Version 2.1



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The specifications contained in this document are subject to change without notice.

Documentation Improvement

Any suggestion to this manual from you are welcome, We are glad to hear any feedback from you which will help us to continuously improve the documents quality and support and serve the developer to protect software products more efficiently.

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About this document

This document is designed to help Software developer to learn about the Virbox Protector protection and encryption process to software application, describes the process step by step for how to protect software by use of Virbox Protector and related functionality of Virbox Protector.

Target User: R & D staff of software developer who responsible to protect software and create product license plan;

Virbox Protector supports to protect to the software program running in Windows, Linux and Mac Environment:

Virbox support to protect/encrypt software application includes

Windows: .exe, DLL;

Linux: executable file and .so

Program Language: C/C++, C#, Java, .NET, VB6.0, VC6, VC2003, VS2005-VS2017, Delphi7 DeliphXE-XE10, BCB6.0, Unity 3D, UE4, etc

Plugin can be protected with Virbox Protector : AutoCAD ARX, Revit etc.

Objective: Software developer will learn the Virbox Protector operation process and understand the functionality of Virbox Protector; Developer will have competence to decide and select protection option to functions and software to protect the software, setup popup/prompt option when license invalid/expired, select the flexible license mode (according to software product sales strategy and different market segment) to issue the license to software user with suitable license repository: Hardware lock (Dongle), Cloud Lock or soft lock; etc.

For essential concept to Virbox License System , please refer to:

Virbox License System Instruction:



[Virbox License System Architecture ;](#)

For More detail information for how to protect the Data file or other digital resource by use of Virbox Protector DS (plug in), please refer to:

Virbox Product Description:



[DS Protector & Use case;](#)

Virbox also Provides a series **Quick Start Guide** to help developer to quickly use Virbox solution to protect software and issue license to hardware lock (dongle), Cloud License and soft license , please refer these "quick

start guide" documentation:

Virbox Provides Virbox User License Service and User License Tools which installed software user premise which for pro active software protection service (runtime service) to safeguard software copyright, IP, and license verification to software user, for more detail information how to install and use this Virbox User License Tools in user computer, please refer to:

User Manual:



[Virbox User License Tools;](#)

Let's Start Your Software Protection and Licensing Journey!

Virbox will help you to protect your software copyright/IP Value and Create Revenue for you.

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1 Overview

Virbox Protector, is latest Enveloper tools for Software application protection and developed by SenseShield which provides top security and protection to the software developer, Virbox Protector integrate multi Security technology to protect software copyright, IP, includes Virtualization, Code Obfuscation, Encryption and Envelop, Encryption to the data and resource, Code snippet and transplantation etc. Software developer may use Virbox Protector to protect the software and use Virbox License Manager to issue the license to end user, License repository support Virbox EL5 Dongle, Virbox Cloud License, Virbox Soft License etc.

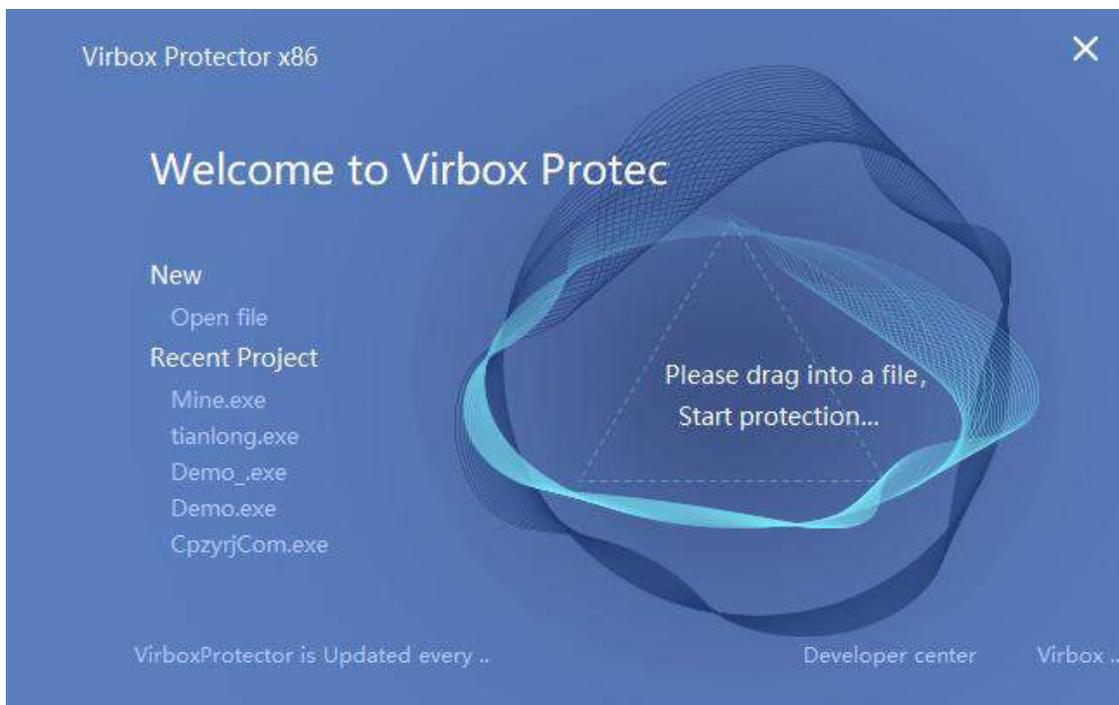
The security level of Software protected by Virbox Protector will up to top level without any coding competence required and workload for software developer.

Virbox Protector is latest and leading software protection tools for software developer and widely used in different industry in worldwide.

2 Technical Support

Any inquiry, question or support Request to Virbox Protector, Please contact us with following email: support@senselock.com

3 Home Page

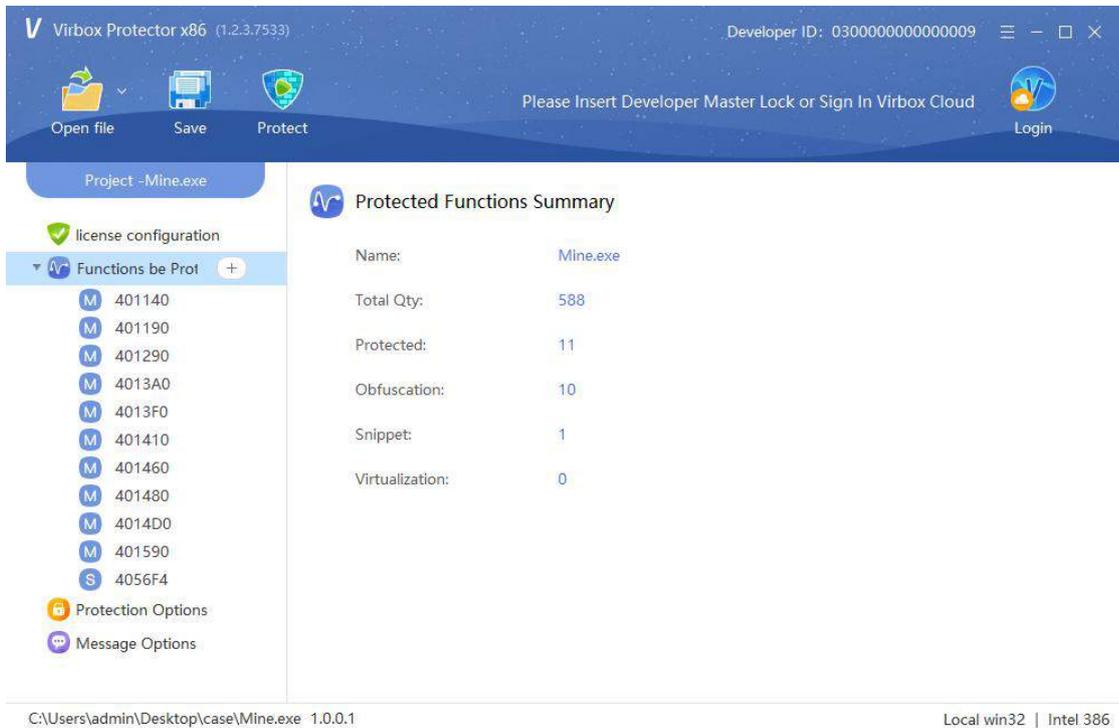


Developer will start your Journey of Software Protection with following ways:

- Open the Virbox Protector and drag the software you want to protected into Virbox Protector;

- Click the button under the "New" -> "Open File", Select the Software in your desktop, then you will going to entry the Main Menu of Virbox Protector.
- Select the software which under the "Recent Project" Button, then you can start protection for previously protected software.

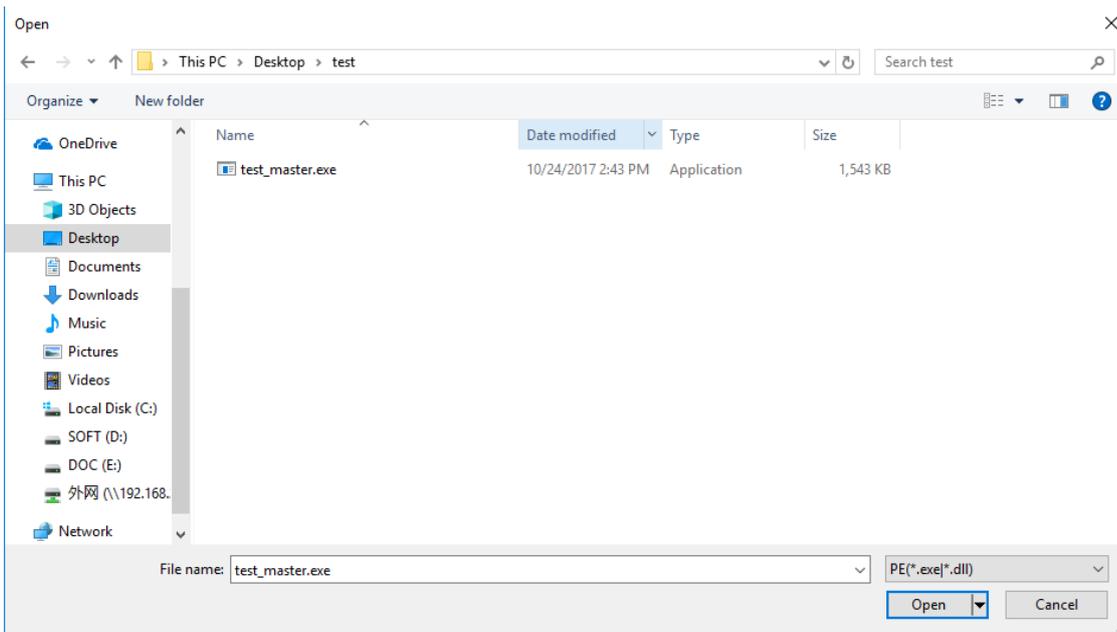
4 Main Menu



4.1 Toolbar of Main Menu

- There are 4 button listed on the Top Pane of Main Menu, From Left to Right: Open File, Recent Project (Drop Down Arrow), Save Project and Protect ### Open File
- Click "Open File" Button, Select the software and open it, Developer may protect XXX.exe Or XXX.dll file to protect, and entry the Main Menu of Virbox Protector .

[Note: if xxx.map file existed in the same folder of software be protected, Virbox Protector will load this map file automatically and list functions in the main menu, currently the map file support be protected includes the map file created by VS, VC, BCB, Delphi compilers.]



4.1.1 Recent Project

- Click "Drop Down" Arrow "Recent Project" , Virbox Protector will list 5 Project be Protected recently, Click and Select the Project then entry the Main Menu.

4.1.2 Save Project

- Click the Button "Save" on the Toolbar of Main Menu, and Save current project with the project name: "Project.ssp".

4.1.3 Protect

- Click the Button



Protect will binding the license input and create relevant protected software application. If Project information has been updated after protected, then you need to click "Protect" Button to save latest update project file; It will not save project file to click "Protect" if nothing has been changed.

- **Note:** [the License ID stored in the User lock must be same as the license ID input into Virbox Protector, then end user can use this User Lock to open the protected software application later.]

4.1.4 Login Virbox Cloud Account

- Click the button



to Login Virbox Cloud Account[Login]Developer Center Account and use Developer Hosted Lock in the cloud to protect software, if Developer doesn't login the Virbox Developer Center Account, then Virbox Protector will use local Master Lock to protect the software by default, Virbox Protector support to use Developer Master Lock in local and Developer Hosted Lock in Cloud to protect software currently.

[Notice: For Developer who want to use Developer Hosted Lock to protect software, developer need to login Developer account in Virbox Developer Center, not login the normal end user account]



4.1.5 PIN Verification Function



Enable PIN Verification will help developer to enhance Security level when use the Master Lock to protect software and issue license, Please input correct PIN code before use Master Lock for software protection and license issue. There are four status:

Version support PIN Function

PIN Verification Functional Available: Master Lock which Version 3.1.20 or above.

PIN Verification Functional not available

Master Lock version under 3.1.20 or earlier version, and Virbox Protector supports Developer to use Master Lock without PIN function to protect software till April.01. 2019.

PIN Enabled

PIN verification function to Master Lock has been enabled, Please Verify PIN code before use Master Lock, then you can use Master Lock to process after PIN verified.

PIN Disabled

Master Lock support PIN Verification function but not enable, you can use Master Lock without PIN code Verification. It is not recommended to use Master Lock under PIN disabled status, except special case to disable PIN, since it decrease the Security level of Master Lock.

PIN Verified

Master Lock Support PIN Verification Function and PIN Verified, You can Master Lock to process Software protection and Issue license under "verified" Status.

PIN Not Verified

Master Lock Support PIN Verification Function but PIN not verified, You can NOT use Master Lock to process Software Protection and Issue License before PIN verified.

4.2 Navigator

There are four Functions available (from Top to Down) in the Navigator Pane which located in the left part of Main Menu: License Configuration, Function Be Protected List, Protection Options and Message Option. These Function are reserved for Software Developer to setup and configure License and Protection Option during Software Protection Process.

4.2.1 License Configuration

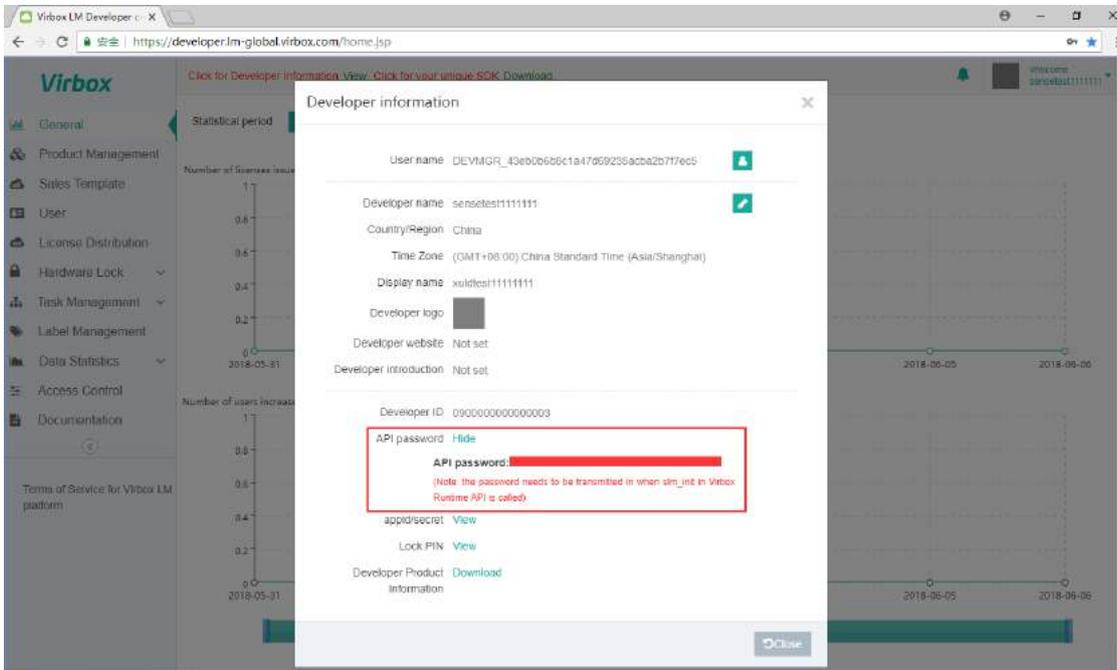
Developer can configure the License Type here; License Type means the License repository which protected software used, Virbox Support "Local", hardware based lock which insert in the end user premise machine; "Remote" means the hardware based lock insert in the other machine in the LAN environment; "Cloud" means the virtual License Repository in the cloud; "Soft" means the license repository independent of hardware lock, binding the hardware finger print of machine.

License ID

License ID is a Unique Series ID code for Software Developer which manage and issue license to end user to protect software copyright and Intellectual Property. Developer may issue and distribute license ID to end user account via Virbox Developer Center (Virbox Cloud License Manager) or Developer use Virbox Developer Utility to issue and distribute license to user lock in local.

API Password (API PWD)

API Password is a Series String which length up to 32 characters which correspondence with Developer ID, each developer has unique API password. Developer may obtain this API password by login Developer Account. [Virbox LM](#)



Chipset S/N (Optional)

a String which length up to 32 character, this is unique ID for each user lock, if developer choose and input "Chipset S/N" here, then the protected Software will be executed with the user lock with specific the chipset S/N only.

OAUTH URL

Login for User Account of Cloud License (Lock).

Not Set, then Login Virbox User License Center in Domestic or Virbox User License Center in Global, depends on which Developer Center when developer registered and download SDK.

Set, then login Private User License enter which dedicated deployed and specified by Developer.

Cloud License (Cloud Lock) URL

Cloud License Function Service Request Address

Not Set, Protected Software will access the functional Server in "Domestic Virbox Developer Center" or in "Global Virbox Developer Center" depends on which Developer Center for developer registered and download SDK .

Set, then Service request will go to Private Service request URL specified.

Soft License (Soft Lock) URL

Soft License Function Service Request Address

Not Set, Protected Software will access the functional Server in Domestic Virbox Developer Center or in Global Virbox Developer Center depends on which developer center for developer registered and download SDK .

Set, then Service request will go to Private Service request URL specified.

If OAUTH URL, Cloud License URL or Soft License URL are not set by Software Developer, then the Protected Software will access the "Domestic Virbox Developer Center" or "Global Virbox Developer Center" by default for License verification and activation which depends on where the developer registered: in Domestic Virbox Developer Center" or in "Global Virbox Developer center".

And License Service request will be sent to specific URL address if developer deployed Virbox Solution and build in their premise. and URL address can be set to specific address accordingly.

4.2.2 Functions be Protected List

Click the Button "Functions be Protected" on the Left Pane of Main Menu, Developer will get the List of Functions need to be protected.

click "+" to list all functions and add function need to protect; Developer can select "Protection Type" for each important function need to be protected: No Protected, Obfuscation, Snippet and Virtualization.

Click "Analysis" to Performance Analysis before protection and select "Protection Type" which to make the balance of performance and protection.

View Detail info to each Protected Functions

Click the "Function" under "Function be Protected" Button, it will list the detail information for this protected function on the right pane, include Protection Option, Functions Name, Functions address and Assembly Code.

Type	Value
Protection Option	
Compiler type	Obfuscation
Protection Function Information	
Name	4056F4
Address	4056F4
Assembly code	
4056F4	55 push ebp
4056F5	8BEC mov ebp, esp
4056F7	6AFF push 0xffffffff
4056F9	68B06A4100 push 0x416ab0
4056FE	6874824000 push 0x408274
405703	64A100000000 mov eax, dword ptr fs:[0x0]
405709	50 push eax

Protection Options for Functions

Developer may Select 4 kinds of protection option for functions be protected: No Protected, Obfuscation, Code Snippet and Virtualization.

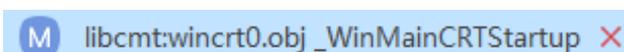
Item	Protection Option	Description	Potential Issue
1	No Protected	Not Protect selected Functions	No
2	Obfuscation	Transforming software program into the pseudo code which cannot be recognized and disassemble and convert these Pseudo code into original code when execute protected software.	No
3	Code Snippet	Transforming large volume of coding from the protected software program into R0 Virtual Environment coding and encrypted and executed these coding in Virtual Environment by valid license verification	There are certain formatting requirements for program, and some functions may not be protected
4	Virtualization	Transforming program code into the code in virtual environment and running in the R0 Level of Virtual Environment	There are certain formatting requirements for program, and some functions may not be protected

How to Add a Function to protect

1. Add the protected function by use of program and insert SDK Marker in the program.
2. Click the " Add " Button on the right side of "Functions Be Protected" to select the function listed in the right pane of the Main Menu and Click " Add " Button to add a new protected function.

How to Delete Protected function

1. Right Click "Function Be Protected"->"Remove from List", Remove and delete the protected function.
2. Move the mouse to the name of the function you want to delete and click[X].



4.2.3 Protection Options

Developer may edit output filename, path and select following protection options before protection and encryption.

Output File

Output File, Developer may edit output file name and output path here.

[Note:

1. Output path will keep original if modify the output file name only;
2. The original program will be REPLACED if the Output File Name is same as original Program]

Import Table Protection

Protect "Import Table", Developer may select this Protection Option of "Protect Import Table" to protect "Import table" which imported to PE Program and encrypt this table, API list has been hided and encrypted except this first API could be viewed only, To enhance and increase the security level to the PE Program, we recommend developer select this option to protect the table imported.

[Special Note: the Protection option of "Protect Import Table" support PE program only.]

Compression

Compression, Select this Option to compress software Program after Enveloped (protection and encryption) to reduce program size and also to prevent program against the static anti compile.

[Special Notice:

1. Since the overhead of Compression module will take certain size after compression, so the compression to small size of program is not good or even the file size larger than the file size before compression. It is suggest to use compression Option for large size of program.
2. Not support to compress the .Net DLL file
3. Not support to compress the arx format program]

Name Obfuscation (.Net Program Only)

Select this Option, developer can obfuscating the program file name and transforming software program name into the pseudo code which cannot be recognized by use of Static Anti Compiling Tools and convert these Pseudo code into original program name when execute protected software.

[Special Notes: This Option Supports .Net Program only, not support the Name Obfuscation to the IIS Type program]

Resource Section Encryption

Encryption to Resource Section, select this option, Virbox Protector will also Encrypt resource section of the program be protected, relate resource section will be decrypted with valid license verification when program executed.

[Special Notice: This option support program in local only]

Log Generation

Select this option, it will generate a log file of Virbox Protector, it will much easier to locate error in case error reported, it is not necessary to select this option for normal case, developer may enable this option when error reported when execute the protected program, then developer may send log file to Virbox Technician for troubleshooting.

Check Interval (in Seconds)

Setup the License check interval time in seconds, which means to check and verify the license in certain time period (in seconds), if no valid license available then a error message will pop up or exit program, if setup time interval with 0, then it will not check if license valid or not.

4.2.4 Message Option

Language Setting

Setting Popup message language, support Simplified Chinese, English, Traditional Chinese.

Setting Popup message when License invalid

Developer can setting Popup Message Options for end user if License invalid or not found, following Popup Message can be selected:

1. The Program will be forced to exit without prompt message;
2. The Program continue to execute till click to exit;
3. The Program will be frozen, end user can select "retry" or "exit";
4. Popup Login Pane if no valid license has been found;
5. Message Pane from Remote Desktop Service Session (Support Vista and Windows Server 2008 or above).

Note: Suggest to select the 5th Popup Message if protected program is arx program of AutoCAD.

Postpone to Exit the Program(in seconds)

Setting Postpone time (in Second) before exit program when license session expired, it will popup Prompt Message Pane, if end user click "Cancel", then the program will exit when "postpone to exit" time arrived. the purpose to set this time period is to set time period for end user to save program before exit.

Prompt Message Tittle

Setting Prompt Message Tittle here.

Customized Message

Developer may setting customized Prompt message to License status information be displayed, and the developer customizes the editing Prompt Message according to a certain format, so that the protected program is more humanized to present the license status information to end user.

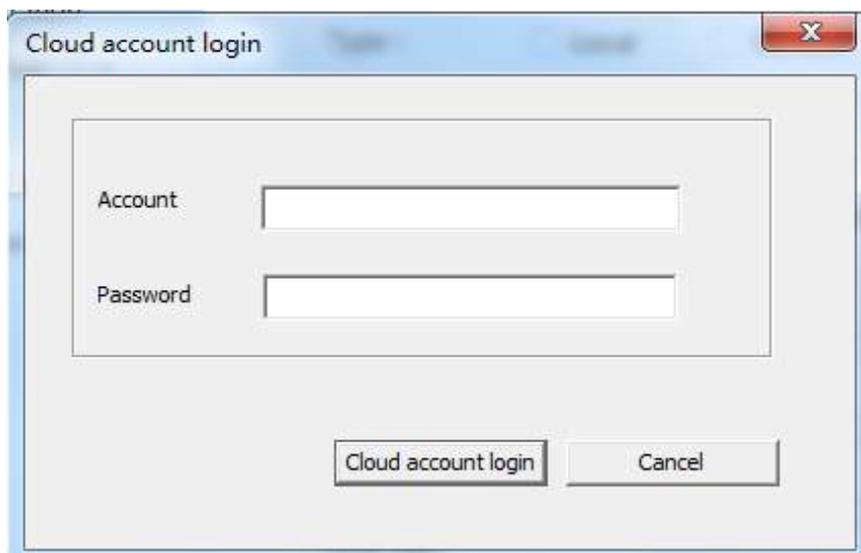
Error Message When Login Cloud Account

Error Message will Popup if user failure to login cloud account when Developer setting License invalid Popup message to be the "Login Pane" if no valid license has been found.

[Special Note: Developer may setup the default user account and access password to volume issue "trial license" to potential software users, setup "Default Account & Password" support to issue soft license only]

Account Login for Cloud License (Cloud Lock)

Account Login for Cloud License (Cloud Lock) User Setup, Popup a Account Login Pane for login Account when protected Software cannot find license. as show below



Following pre-conditions must be met when popup pane for Account login:

1. Cloud License has been selected when License Setup.
2. Select "Popup Login Pane if cloud license cannot be found" when setting "Message Option" in "Virbox Protector".
3. License cannot found when protected Software executed.

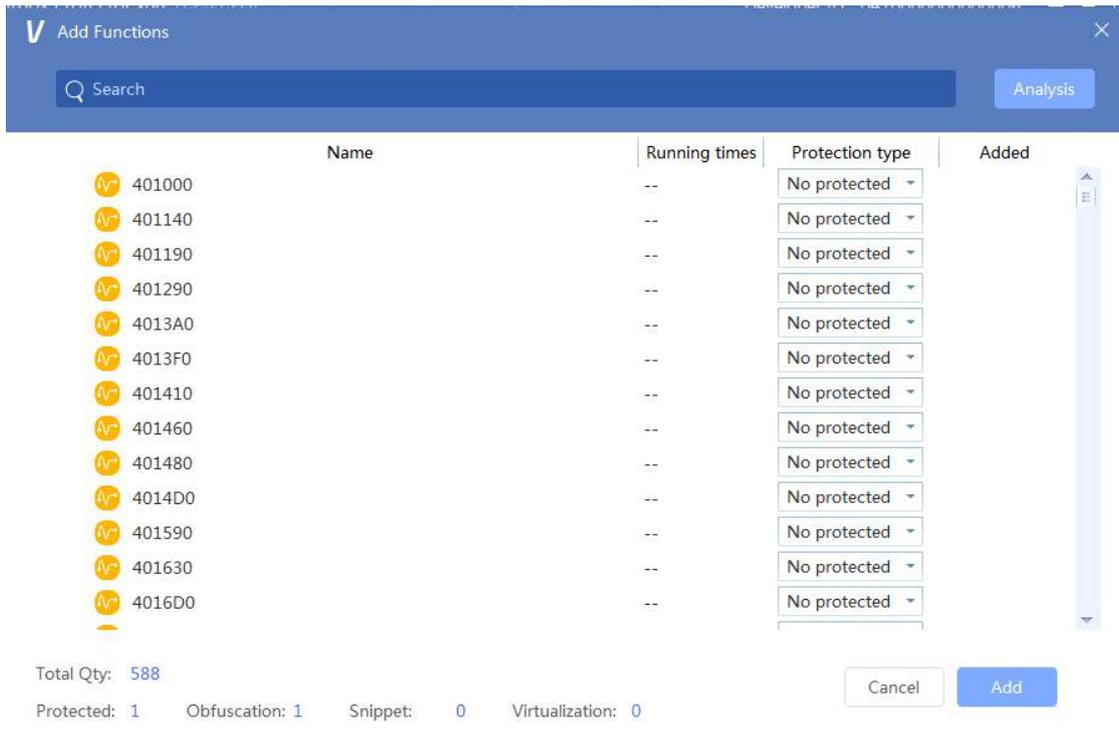
Error Message

Setting Error Message which correspondence with error code, The Format of Error Code is [8-bit hexadecimal error code-Error Message], developer may either add error message or delete error message. if no customized error message has setting by developer, then a "System Error" Message will be pop up if error happened when protected software executed.[please find detail information in the file "ss_error.h" SDK package]

4.3 Status Bar

Status Bar display following status of protected program (from Left to Right): the full path of protected Program, Release Version, Type and Hardware information.

4.4 The List of Function Modules which can be add to protect



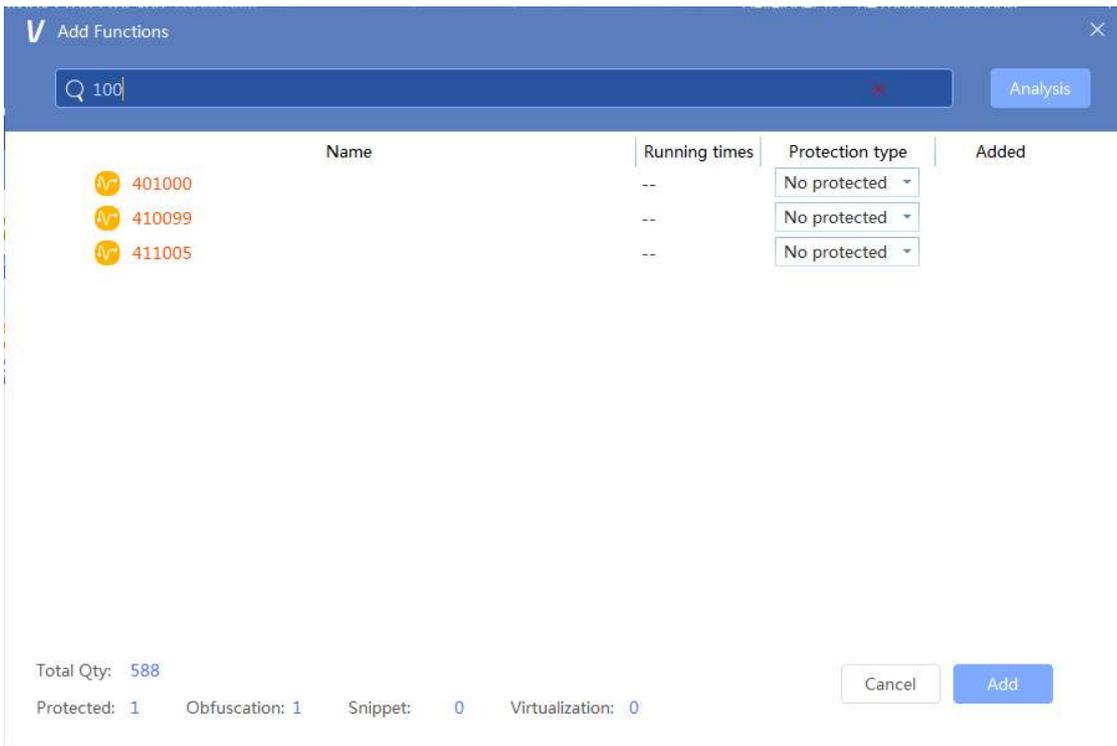
The screenshot shows the 'Add Functions' dialog box. It features a search bar at the top with a magnifying glass icon and the text 'Search'. To the right of the search bar is an 'Analysis' button. Below the search bar is a table with the following columns: 'Name', 'Running times', 'Protection type', and 'Added'. The table lists 14 function modules, each with a small Virbox logo icon to its left. The 'Running times' column contains dashes '--'. The 'Protection type' column contains a dropdown menu with 'No protected' selected. The 'Added' column is empty. At the bottom of the dialog, there are summary statistics: 'Total Qty: 588', 'Protected: 1', 'Obfuscation: 1', 'Snippet: 0', and 'Virtualization: 0'. There are also 'Cancel' and 'Add' buttons at the bottom right.

Name	Running times	Protection type	Added
401000	--	No protected	
401140	--	No protected	
401190	--	No protected	
401290	--	No protected	
4013A0	--	No protected	
4013F0	--	No protected	
401410	--	No protected	
401460	--	No protected	
401480	--	No protected	
4014D0	--	No protected	
401590	--	No protected	
401630	--	No protected	
4016D0	--	No protected	

Total Qty: 588
 Protected: 1 Obfuscation: 1 Snippet: 0 Virtualization: 0

Searching Functions

Enter keywords in the search box, the program will list all the function containing names with color display in the Search box, support fuzzy Searching.



Performance Analysis

Click "Analysis" button to execute and operate the protected program, and exit the program, then The number of running times each function module is called in the program can be displayed in the list, see above. If the currently analyzed program bit is a .NET program, select the startup module.

Functions be protected List

Click "+" button which locate in the right of "Functions be Protected" to list all functions can be protected by Virbox Protector, there are some difference between Managed Code Program and no Managed Code Program.

[Note: Not all functions module can be listed in this pane.

1. The function module which program size less than 15 bytes will not be listed;
2. Some unconventional function modules are not listed ('.', '<', '>', '@', ':', '?', etc.) exist in the name.]

Managed Code Program

1. The function name is "namespace + class name + function name".
2. The function list can be switched to the list mode and tree mode. Click the button on the right side of the [Added] button to switch.

V Add Functions ✕

Analysis

	Name	Running times	Protection type	Added
▼ bounce2		--		
▶ Program		--		
▼ Vector2		--		
op_Addition		--	No protected ▾	
op_Subtraction		--	No protected ▾	
op_Multiply		--	No protected ▾	
▶ BounceForm		--		
▶ bounce2.Properties		--		

Total Qty: 29

Protected: 1 Obfuscation: 0 Snippet: 1 Virtualization: 0

Cancel
Add

- Tree Mode

V Add Functions ✕

Analysis

	Name	Running times	Protection type	Added
▼ bounce2		--		
▶ Program		--		
▼ Vector2		--		
op_Addition		--	No protected ▾	
op_Subtraction		--	No protected ▾	
op_Multiply		--	No protected ▾	
▶ BounceForm		--		
▶ bounce2.Properties		--		

Total Qty: 29

Protected: 1 Obfuscation: 0 Snippet: 1 Virtualization: 0

Cancel
Add

- List Mode

Name	Running times	Protection type	Added
bounce2::Program::Main	--	Snippet	✓
bounce2.Properties::Resources::get_ResourceManager	--	No protected	
bounce2.Properties::Resources::get_h1d3_pow2	--	No protected	
bounce2.Properties::Resources::get_h1d3_pow3	--	No protected	
bounce2.Properties::Resources::get_h1d3_pow4	--	No protected	
bounce2.Properties::Resources::get_h1d3_yellowballp	--	No protected	
bounce2.Properties::Resources::get_magentaball	--	No protected	
bounce2.Properties::Resources::get_pow	--	No protected	
bounce2.Properties::Resources::get_powerball	--	No protected	
bounce2.Properties::Resources::get_yellowball	--	No protected	
bounce2::Vector2::op_Addition	--	No protected	
bounce2::Vector2::op_Subtraction	--	No protected	
bounce2::Vector2::op_Multiply	--	No protected	

Total Qty: 29
 Protected: 1 Obfuscation: 0 Snippet: 1 Virtualization: 0

Click on the list header to sort all functions in the "List Mode"

3, function selection support [Control + A], [Control + mouse] and [Shift + mouse] and so on.

4, the function of protection mode supports right-click selection.

5, After the protection mode is selected, "Added" will be indicated as selected.

Unmanaged code program

1, the function name is the value of the function va.

2, the display list only support the list mode.

The remaining features are consistent with the managed code program.

Summary

Information Summary can be found in the bottom of Pane, include total Qty of Functions, Qty of Protected Functions, Qty of Obfuscation of Functions, Qty of Code Snippet and so on; Qty of Virtualization etc.

Total Qty: 29 ;
 Protected: 9 ; Obfuscation: 6 ; Snippet: 3 ; Virtualization: 0 ;

Add

Click the button "Add" and exit this pane and add the functions into Functions List on the left part of Pane.

Cancel

Click "Cancel" button and exit the pane without any editing.

4.5 How to use SDK Marker to add a new Function module be protected

Virbox SDK consist of head file, static link lib and dynamic link lib, Developer may load the SDK Marker into the functions be protected when programming, and generate a executed program, then Virbox Protector will analysis and recognize this function is the functions with SDK Marker and located key code position in the program. SDK Marker currently include:

VBProtectBegin(Conventional Protection), VBVirtualizeBegin(Virtualization Protection), VBMutateBegin(Obfuscation Protection), VBSnippetBegin(Code Snippet Protection), VBProtectDecrypt(Encrypt and Decrypt License).

[Note: It much easier to locate key code position in the program by use of SDK Marker]

Special Attention by use of SDK Marker:

SDK Marker Notice

- 1,Support loading with Static link lib, not support to loading dll (i.e.loadlibraryA).
- 2,For the String parameter loading by VBProtectBegin, VBVirtualizeBegin, VBSnippetBegin and VBMutateBegin, it cannot be share used with other functions.
- 3,All String parameter loaded must be ANSIII code, to make sure to display correctly, otherwise it cannot be display correctly.
- 4,Every "Begin" must correspondence with "End" , it must always in pairs, and never more than one Begin + End in one function.
- 5,If the protection mode represented by SDK conflicts with the protection mode saved in the project file, the protection mode in the project file shall prevail.
- 6,The Key code marked by "Begin+End" should be more than 3 lines coding, since it will not display in the main menu of Virbox Protector if the code size less 15 bytes after assembling.
- 7,SDK dynamic link library, incudes 32 and 64 bits link lib, requires developers to load the corresponding libraries according to program to compile when using it.
- 8,Language not support SDK Marker includes: Yi Language, Java program, Unity 3d.
- 9,begin/end not support multi embedding use.
- 10,For the Length of String which encrypted by use of VBProtectDecrypt or the length of buffer size must be multiple of 16. i.e. `char g_test_string[16] = {"test_decrypt"};`
- 11, Upload Buffer must not be same as Output buffer.

12, The buffer loaded in by VBProtectDecrypt can only be placed outside the function, that is, a global variable. Refer to the demo for specific use.

13, VBProtectDecrypt currently doesn't support .Net program.

4.6 How to Use Customized Plug In

4.6.1 Customized Plug In

Let's take the demo under the Virbox Protector directory as an example:

1. Edit and compile the DLL of Plug In, the format refers to file "demo.cpp" in the demo project.
2. Edit and compile configuration file for plug In: "xxx.xml" and The writing rules are as follows.

```
<?xml version="1.0" encoding="UTF-8"?>
<plugin name="Plugin demo" id="demo">
  <image mode="x86" file="demo_x86.dll">
  <image mode="x64" file="demo_x64.dll">
  <options>
    <option name="output" id="path" type="string" value="default"/>
    <option name="Compression" id="zip" type="bool" value="false"/>
    <option name="Check Interval(in Seconds)" id="interval" type="number" min="0" max="86400" value="60"/>
    <option name="Language Setting" id="language" type="list" items="简体中文;English;繁體中文" value="0"/>
  </options>
</plugin>
```

4.6.2 Use Plug In

1, Format

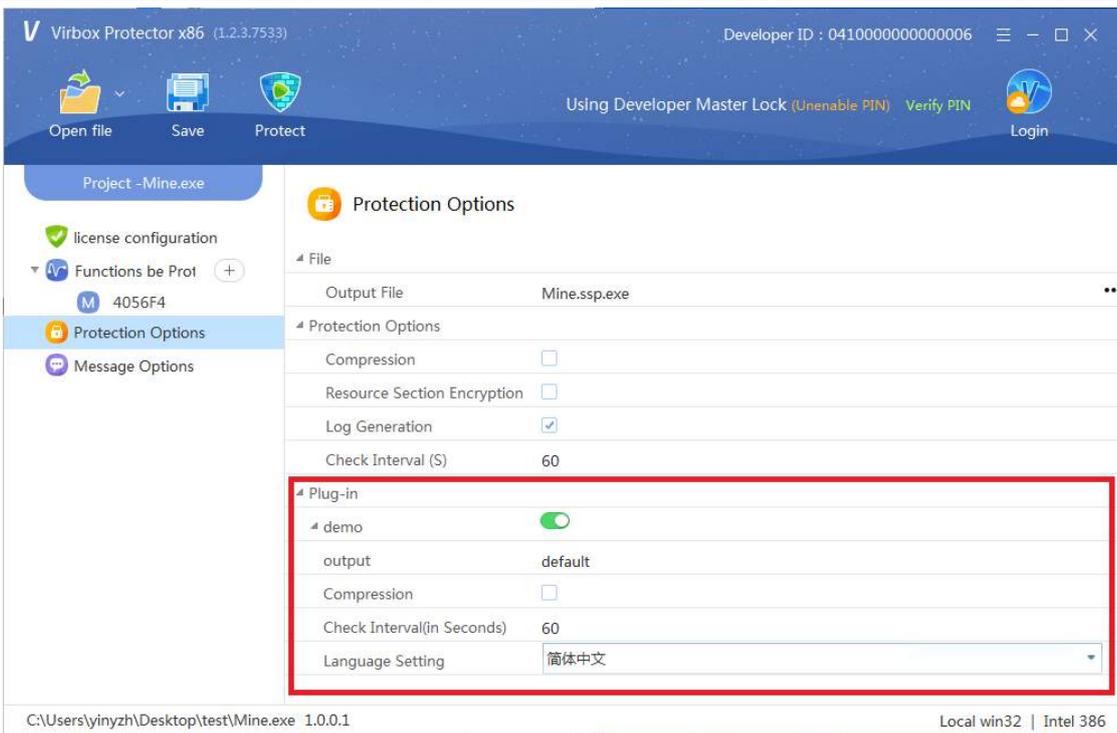
Name	Date modified	Type	Size
demo.xml	6/7/2018 5:39 PM	XML Document	1 KB
demo_x64.dll	6/7/2018 5:39 PM	Application extens	598 KB
demo_x86.dll	6/7/2018 5:39 PM	Application extens	494 KB

2, Save Plug in in the plugin directory

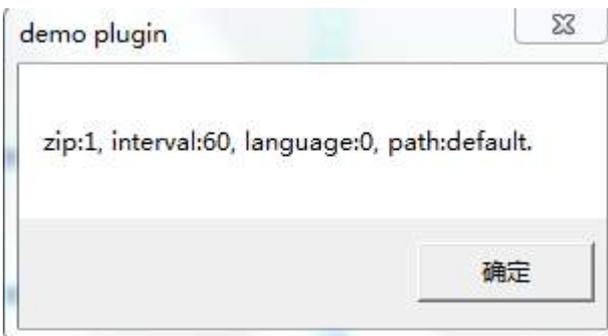
Note: Please don't use Chinese to name plugin folder which under plugin directory, otherwise you cannot use plug in options.

4.6.3 Display the Plug In

1. Display the Plug In the Virbox Protector.



2. Display the Plug In the program after protected.



5 Troubleshooting

5.1 The Concept of Licensing

License Management means to encrypt software and manage the license which distribute to end user accordingly. Virbox Licensing Solution developed with rich experience of Senseshield in software copyright and IP protection and deeply market understanding. The essential of Virbox Licensing Solution is control and manage the usage the protected software within valid license and authorization by Software developer. which integrated with multi advantage security technology and provide solution to meet the challenge in software trial, dongle lost and replacement and keep balance between top security and flexible licensing for developer. Virbox Licensing solution is best cloud platform for software developer in software protection and

licensing and save workload to develop license solution and avoid leakage of license scheme and issue license illegal way.

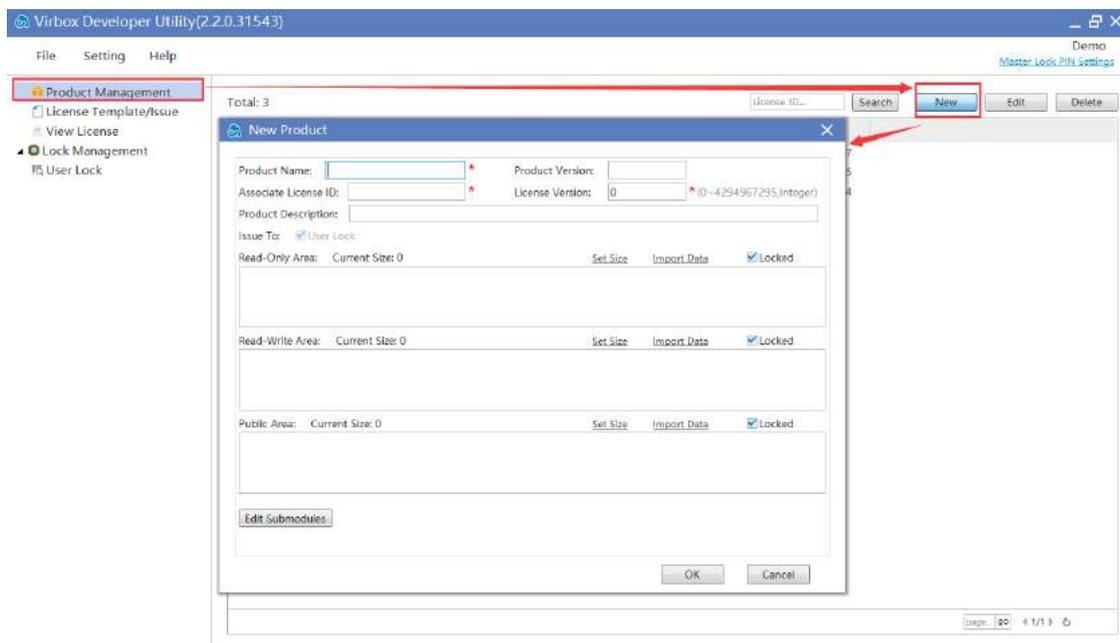
License entitlement is control and distribute copy of software to end user and end user can use the software with developer authorization, Virbox LM Solution provides developer with effective technical solution to against software piracy and protect software Intellectual Property.

Virbox solution consists and integrate technology for how to control license, includes License control and License entitlement: License control includes setup a limitation to: software Functional limitations such as license content, license use time, usage count, software concurrency limits, and the number of online users logged into the software system at the same time.etc. License Entitlement Management means The management of license use, license life cycle (Product creation, license creation, license issue, license revocation) and user management are integrated into license Entitlement management.

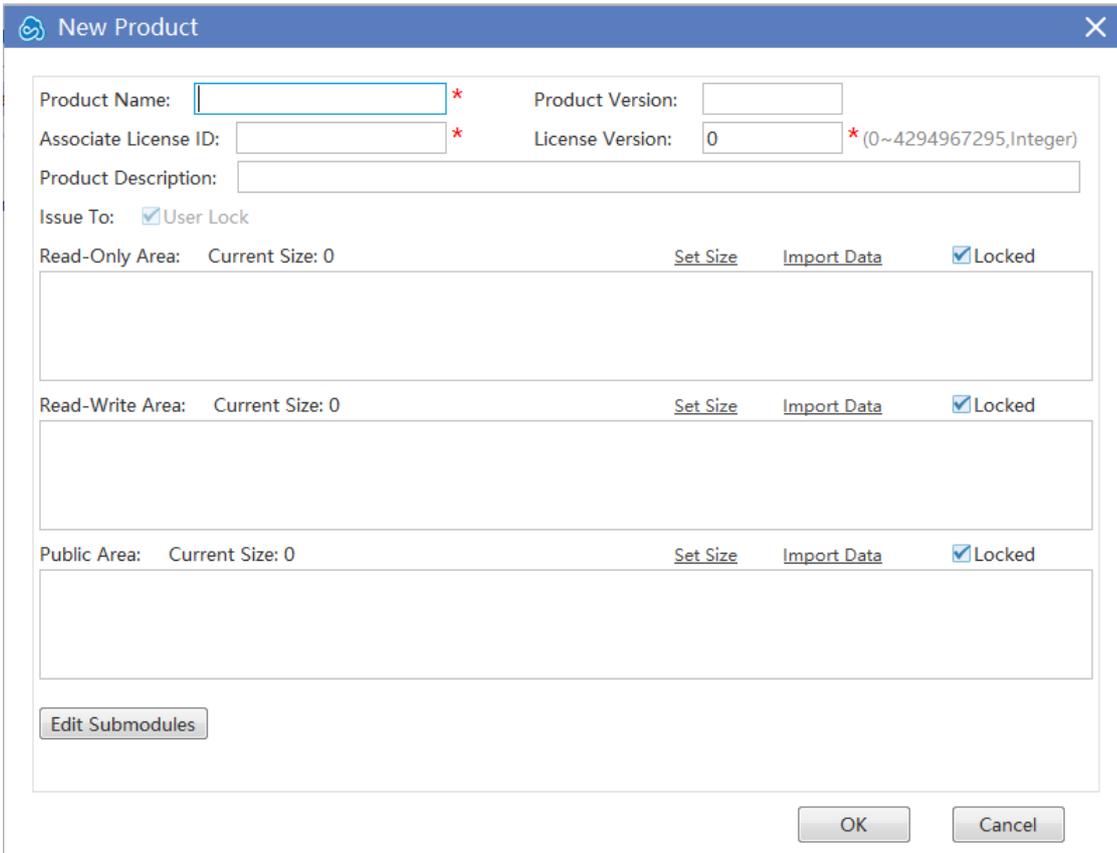
5.2 License Issue, Update and Delete

5.2.1 Use Virbox Developer Utility to issue License

5.2.2 Create a New License



5.2.3 Edit the License



"Locked" means click and select "Locked", the data area cannot be modified when create a new product and licensed.

5.2.4 Delete

Select the Product you want to delete, and click "Delete" button,

Note: All License Template will be deleted also when delete product.

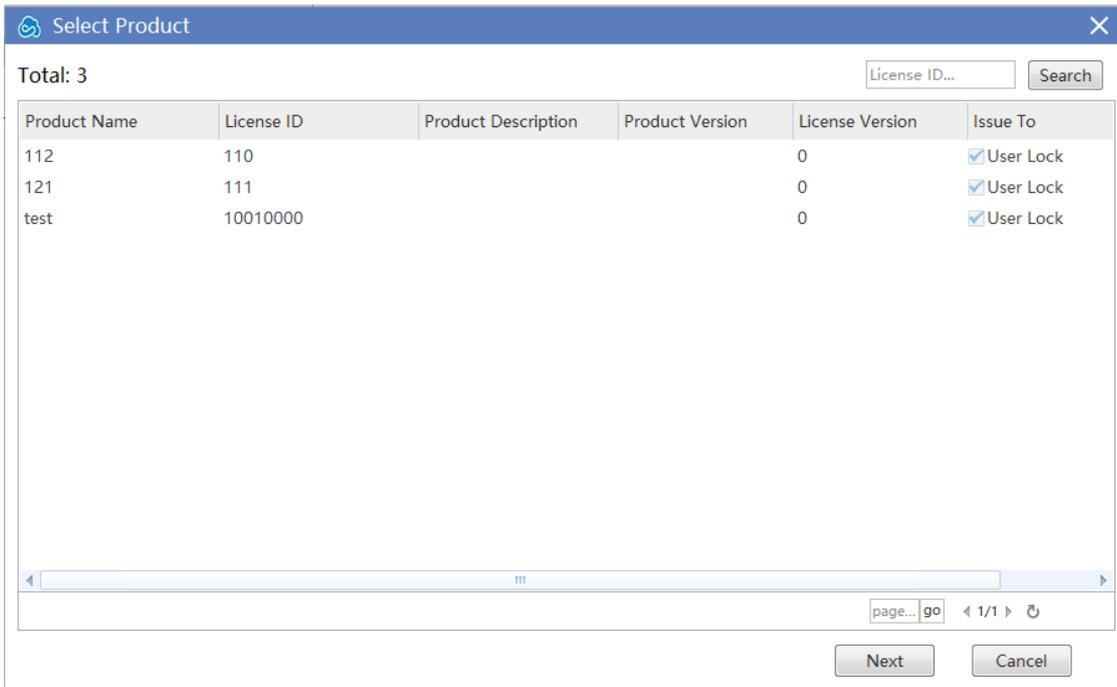
5.3 License Management

License Management includes Create Sales Template, Edit and delete the Sales Template and as well as the functions to License Issue and View license issue history.

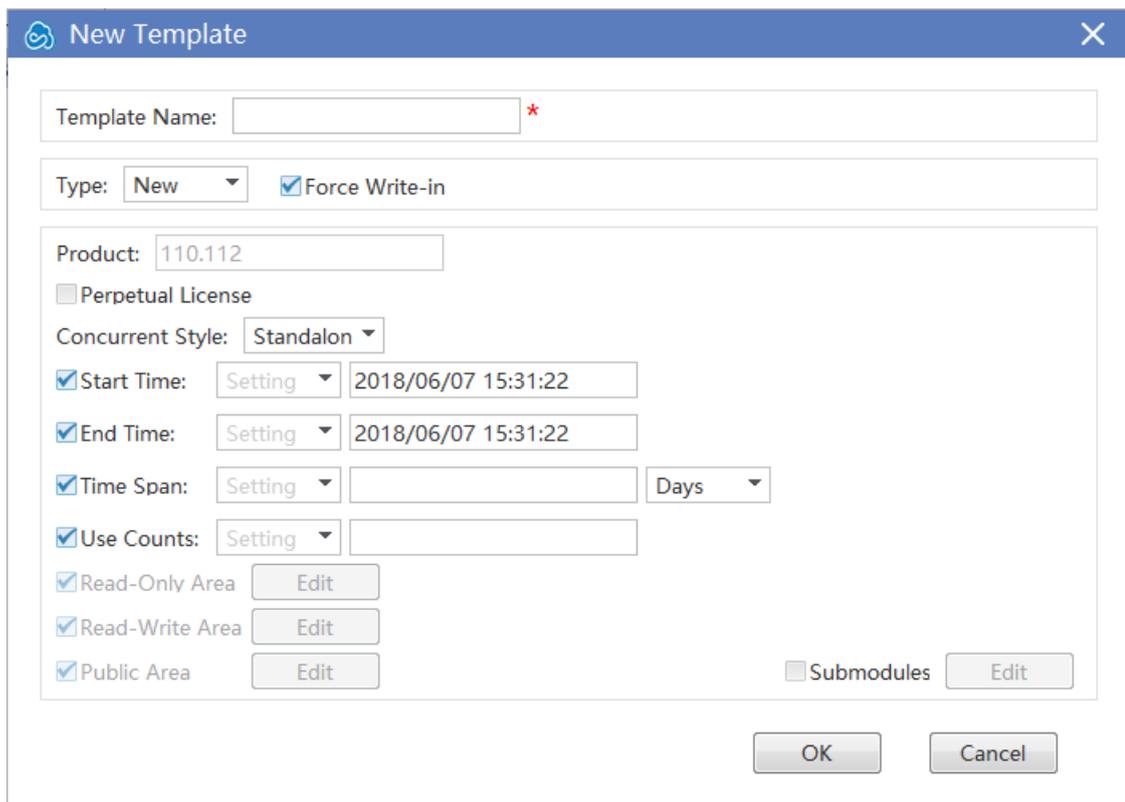
Use Template to issue the license will help developer to save time, avoid mistake in issue license. Virbox use "Sales Template" to define the same License type to be issued, one time to define the template and can be multiple use the same template in future.

5.3.1 Create a New Template

- Select Product.



- Input License Information, Template Name, License Type, etc.



5.3.2 Edit Template

Select existed License Template and edit.

5.3.3 Delete Template

Select the Template you want to delete, and click "Delete".

5.3.4 Issue License

- Select the template to be issued, click the button "Issue".

The screenshot shows the 'Virbox Developer Utility(2.2.0.33161)' application window. The interface includes a menu bar (File, Setting, Help), a sidebar with navigation options (Product Management, License Template/Issue, View License, Lock Management, User Lock), and a main content area. The main area displays a table of license templates with the following data:

Index	Template Name	License ID	Product Name	Updated Time	Created T
1	Lock All Licenses			2016/11/16 17:05:38	2016/11/16
2	Unlock All Licenses			2016/11/16 17:05:38	2016/11/16
3	Delete All Licenses			2016/11/16 17:05:38	2016/11/16
4	1	110	112	2017/06/05 19:08:39	2017/04/25
5	2	111	121	2017/06/05 19:06:22	2017/04/25
6	t	10010000	test	2017/05/25 19:43:58	2017/05/25
7	111	111	121	2017/06/05 19:10:16	2017/06/05

Buttons for 'New Template', 'Edit Template', 'Delete Template', and 'License Issue' are visible above the table. A search bar and 'Total: 7' are also present.

- Edit License

Developer may edit the license information before License issue if needed.

The "License Issue" dialog box contains the following fields and options:

- Template ID: 4 *
- Template Name: 1 *
- Type: New (dropdown), Force Write-in (checked checkbox)
- Product: 110.112
- Perpetual License (unchecked checkbox)
- Concurrent Style: Stalolon (dropdown)
- Start Time: (checked checkbox), Setting (dropdown), 2017/06/05 19:08:12
- End Time: (checked checkbox), Setting (dropdown), 2017/07/30 14:39:57
- Time Span: (unchecked checkbox), Setting (dropdown), Days (dropdown)
- Use Counts: (unchecked checkbox), Setting (dropdown)
- Read-Only Area (checked checkbox), Edit button
- Read-Write Area (checked checkbox), Edit button
- Public Area (checked checkbox), Edit button
- Submodules (unchecked checkbox), Edit button

Buttons: Next, Cancel

- Select "Write to Device"

Select "Write to Device", then issue the license to hardware lock (Virbox EL5 dongle), support to issue license to multi hardware lock at same time.

The "Select User Lock" dialog box contains the following elements:

- License Operation: Write to Local Lock (dropdown), Refresh Local Locks (refresh icon)
- Lock SN... (input field), Search (button)
- Table with columns: Index, Lock SN, Issued Result

Index	Lock SN	Issued Result
<input checked="" type="checkbox"/> 1	099900000050	

Buttons: Issue, Cancel

- Issue License Click the button "Issue", then issue license will be successfully to hardware lock.

5.3.5 View License Issued

View and check the license issued, see below picture.

Virbox Developer Utility(2.2.0.33161)

File Setting Help

Product Management
 License Template/Issue
View License
 Lock Management
 User Lock

Total: 6

User Identification... Search

Product Info	Type	User Identification	Issue To	Issued Date
110.112	Device License	099900000011	Write to Local Lock	2017/04/27 14:40:37
111.121	Device License	099900000011	Write to Local Lock	2017/04/27 14:44:11
10010000.test	Device License	099900000011	Write to Local Lock	2017/05/25 19:44:12
111.121	Device License	099900000011	Write to Local Lock	2017/06/05 19:06:45
110.112	Device License	099900000011	Write to Local Lock	2017/06/05 19:08:52
111.121	Device License	099900000011	Write to Local Lock	2017/06/05 19:10:26

page... go 1/1

5.3.6 Issue Virbox Cloud License by use of Virbox Developer Center (Virbox Cloud License Manger in Web Mode)

Step 1, Login Developer Account in [Virbox Developer Center](#) .

Step 2, Create New Product.

Virbox LM Developer - X
 https://developer.lm-global.virbox.com/home.jsp

Virbox
 Click for Developer Information View Click for your unique SDK Download

General
Product Management
 Sales Template
 User
 License Distribution
 Hardware Lock
 Task Management
 Label Management
 Data Statistics
 Access Control
 Documentation

Search according to Products Search

License ID	Product Name	Creation Time	License Type	Operation
148	testaddproduct1111111111	2018-05-28 10:26:41	Cloud License	[Edit] [Delete] [Info]
749	749	2018-05-21 16:27:24	Soft License	[Edit] [Delete] [Info]
147	testbugga1	2018-05-14 11:22:45	Cloud License	[Edit] [Delete] [Info]
123	123	2018-05-10 16:58:52	Cloud License	[Edit] [Delete] [Info]
1	1	2018-05-10 16:03:05	Soft License	[Edit] [Delete] [Info]
4294967295	You need to composite two logos in 4040 and 120 120 pt	2018-05-09 16:19:28	Cloud License	[Edit] [Delete] [Info]
154	154cp	2018-05-09 16:13:03	Cloud License	[Edit] [Delete] [Info]
182	global_test	2018-04-25 14:37:21	Cloud License	[Edit] [Delete] [Info]

No. 1 Total 1 Pages 10

https://developer.lm-global.virbox.com/home.jsp#

Step 3, Create Sales Template by click "Sale Template" then click "New".

Virbox LM Developer - X
 https://developer.lm-global.virbox.com/home.jsp

Virbox
 Click for Developer Information View Click for your unique SDK Download

General
 Product Management
Sales Template
 User
 License Distribution
 Hardware Lock
 Task Management
 Label Management
 Data Statistics
 Access Control
 Documentation

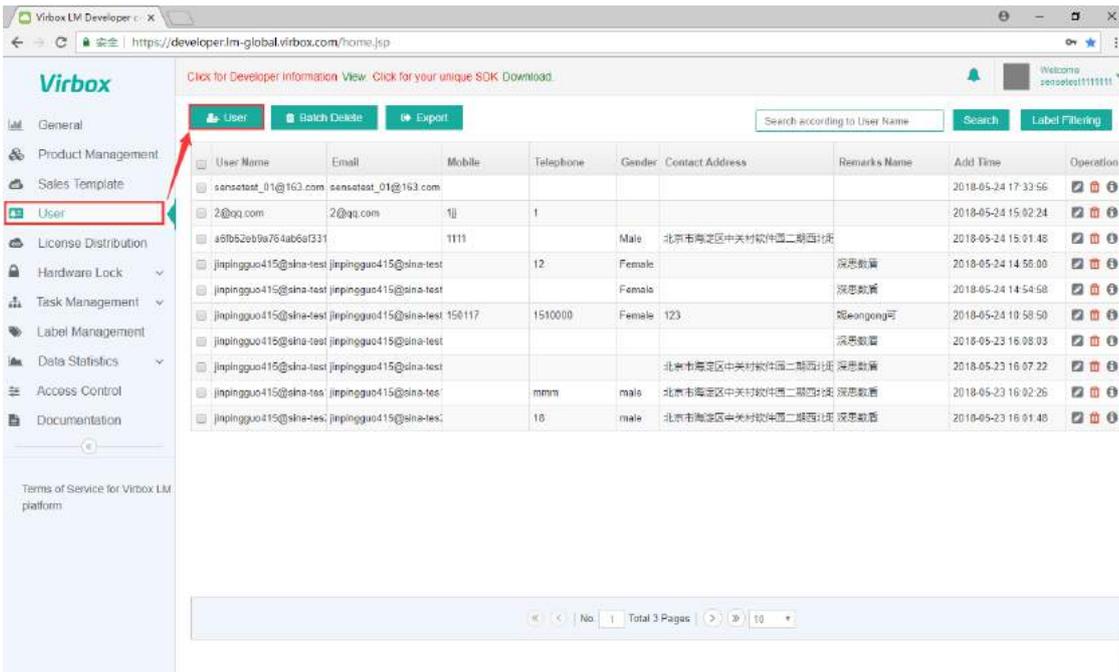
Search according to Template Name Search

+ New Balita Delete

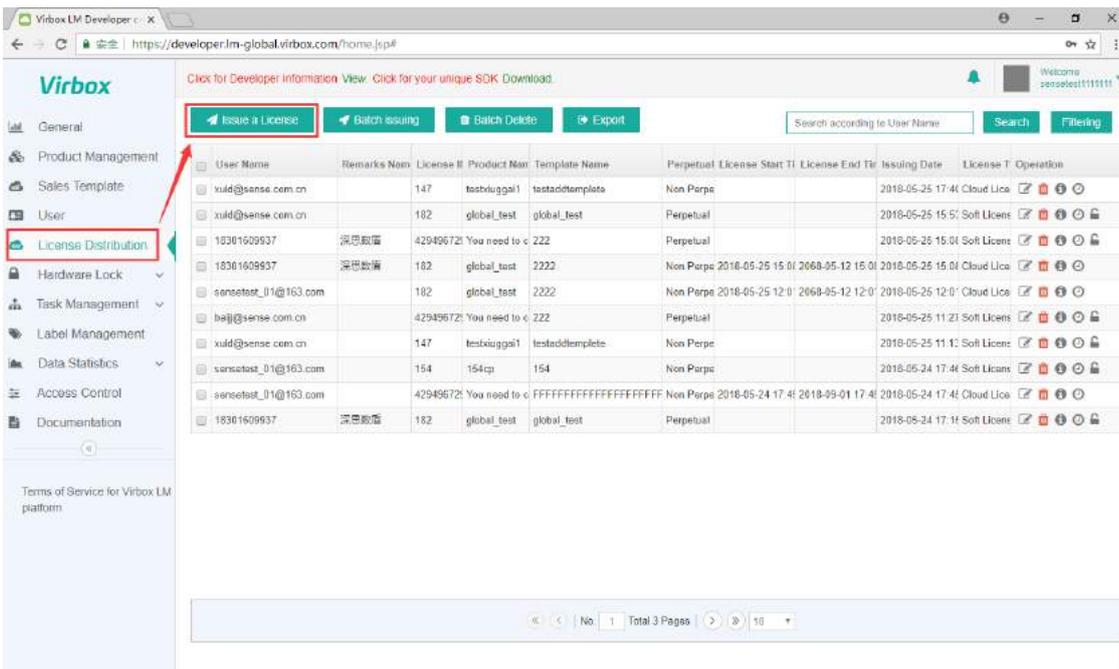
No.	Template Name	License ID	Product Name	Creation Time	License Type	Operation
452385	2222	182	global_test	2018-05-24 17:14:17	Cloud License	[Edit] [Delete] [Info]
452382	222	4294967295	You need to composite two logos in 4040	2018-05-24 17:14:02	Soft License	[Edit] [Delete] [Info]
430201	749	749	749	2018-05-21 16:28:25	Soft License	[Edit] [Delete] [Info]
404835	testaddtemplate	147	testbugga1	2018-05-16 19:26:18	Cloud License	[Edit] [Delete] [Info]
404832	testaddtemplate	147	testbugga1	2018-05-16 19:25:56	Soft License	[Edit] [Delete] [Info]
375757	123r	123	123	2018-05-10 16:59:16	Soft License	[Edit] [Delete] [Info]
375713	154	154	154cp	2018-05-10 16:35:21	Soft License	[Edit] [Delete] [Info]
375558	111	4294967295	You need to composite two logos in 4040	2018-05-09 16:39:59	Soft License	[Edit] [Delete] [Info]
375557	FFFFFFFFFFFFFFFFFFFFFFFF	4294967295	You need to composite two logos in 4040	2018-05-09 16:33:06	Cloud License	[Edit] [Delete] [Info]
375556	154span1	154	154cp	2018-05-09 16:13:46	Cloud License	[Edit] [Delete] [Info]

No. 1 Total 2 Pages 10

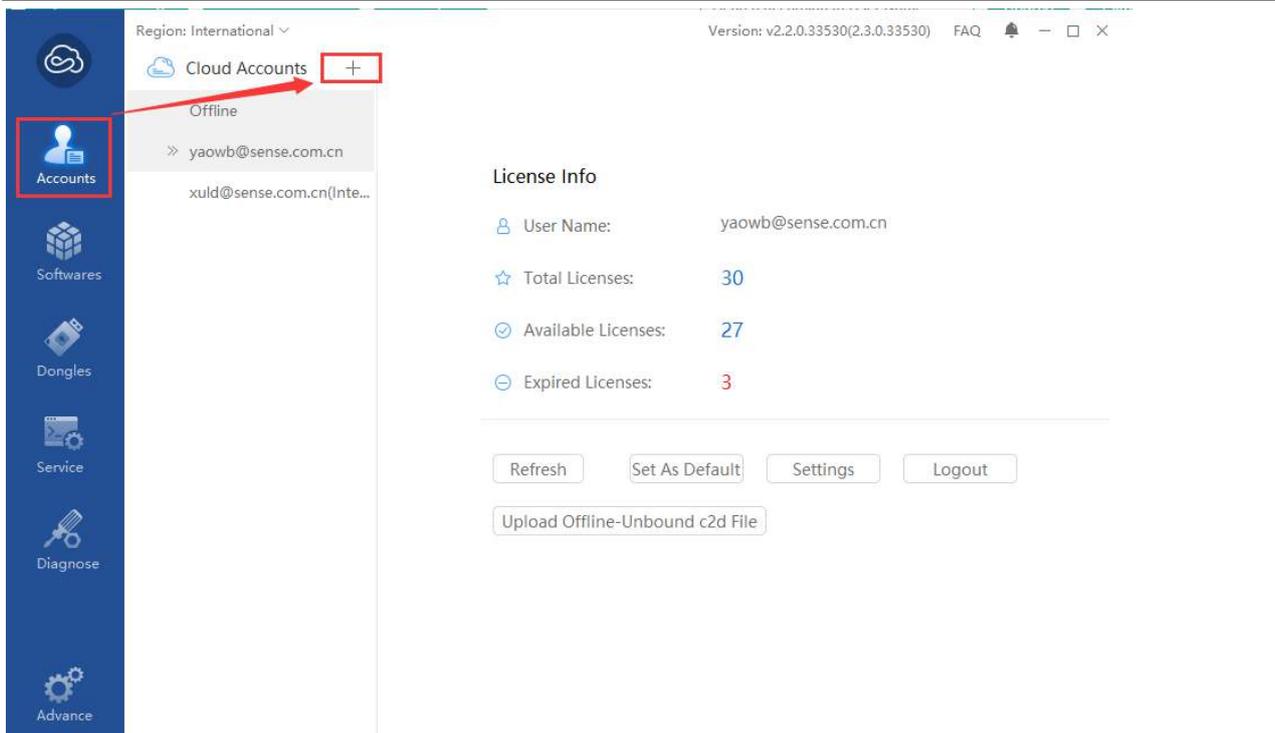
Step 4, Create New User by Click "User" then Click "+User".



Step 5, License Issue and Distribution.



Step 6, View License in the User License Tools.



5.4 Where is Protected Program located after protection

The Question/Issue: some of developer may not find the protected program after protection (Envelope) and mistakenly regard their original program as the program with protection.

Solution: we take mine.exe, a Mine clearance program, as an example, and min.ssp.exe, a program protected with Virbox Protector, located as the same directory as mine.exe.

5.5 Known issue and Solution

- Not support to protect the program already protected by Virbox Protector or other "enveloper".
- Support to protect .Net Program with standard Microsoft runtime library only, Not support to protect .Net Program with runtime library with third party.
- The configuration file of target protected program must existed when developer use command line to protect program.
- When using something like the GetField("name", bindingAttr) function in a.net program, there may be an exception to the name confusion after protection. If protection fails, try to remove the name confusion before protection.
- The SDK Marker does not support Managed programs with native code.
- When the function block is protected by Code-Snippet, there is a case where protection cannot be successfully performed. The main reason is that the length of

the code snippet to the code transplanted is too small, the code snippet may not be transplanted, then jump and so on.

- Some software programs need to change the name to the original name to run. (For example: program Mine.exe, the protected program is Mine.ssp.exe. If the program Mine.ssp.exe cannot be started successfully, it may be necessary to change Mine.ssp.exe to Mine.exe for normal use).
- If there is appendix data in the program, the Protected program may have unknown problems.
- AUTOCAD's arx plug-in can only select Popup Message with "Remote Desktop Services session message Pane", and currently only supports win7 and server2008 versions and above version.
- Protect the Unity3D program, if developer selects the license failure prompt message with "program freeze, user can choose to retry connection or exit", the program will crash.
- If it is a java program with the spring framework, please use the "Data Resource Encryption" to protect this program.
- Virbox Protector doesn't support to protect The Linux program and the mac program secondary protection, and the Virbox Protector cannot detect whether the protected program has been protected or not.
- For the Protection of Linux and Mac programs, log generation cannot be generated if the log generation option is selected.
- For the Protection of Linux and Mac programs, you cannot Select "ds" Option at the same time. Otherwise, the program may fail to execute.
- For software user which computer installed the anti-virus software "AVAST", probably the protected software application will be intercepted by anti-virus software installed when software user launch this protected software, solution: here we recommend the software user may stop this scanning & interception functions by AVAST or close AVAST temporary before launch the protected software.
- Currently, Virbox Protector does not support Protected "so" link to source file with gcc.

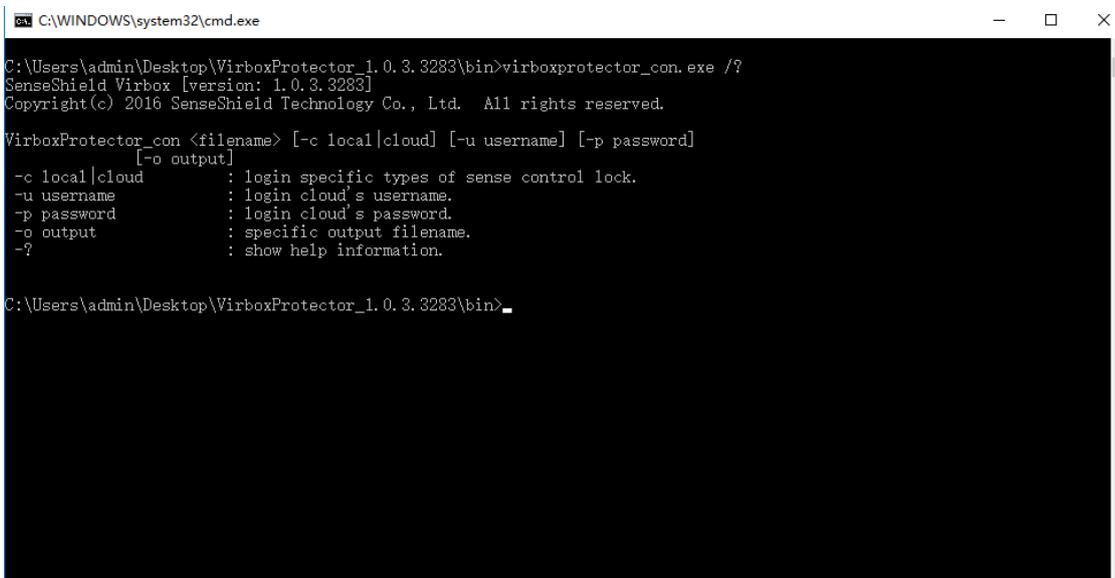
5.6 Language supported by Virbox Protector

No.	Item	Type	Note
1	.Net		
2	PE		
3	java		
4	arx	AutoCad Plug In	
5	VB6		

6	PowerBuilder		
7	VC		
8	Delphi		
9	Unity3d	.Net open source	
10	C++		
11	BCB		
12	*.Dylib Library		
13	mach-o executable file		
14	*.so	Dylib	
15	elf executable file	Exec, Dyn	

5.7 How to use VirboxProtector_con.exe, The "Command Line Protector" to protect program

1. Type "cmd.exe" in the run input box to open the console command window.
2. Input Path+VirboxProtector_con.exe /? and view help information.



```

C:\WINDOWS\system32\cmd.exe
C:\Users\admin\Desktop\VirboxProtector_1.0.3.3283\bin>virboxprotector_con.exe /?
SenseShield Virbox [version: 1.0.3.3283]
Copyright(c) 2016 SenseShield Technology Co., Ltd. All rights reserved.

VirboxProtector_con <filename> [-c local|cloud] [-u username] [-p password]
[-o output]
-c local|cloud      : login specific types of sense control lock.
-u username        : login cloud's username.
-p password        : login cloud's password.
-o output          : specific output filename.
-?                 : show help information.

C:\Users\admin\Desktop\VirboxProtector_1.0.3.3283\bin>
    
```

Command Line Protector Help Info

```

VirboxProtector_con <filename> [-c local|cloud] [-u username] [-p password] [-o output]
-c local|cloud|auto //login specific types of sense control lock.
-u username         //login cloud's username.
-p password         //login cloud's password.
    
```

-o output //specific output filename.
-?

3. Use Local Mast Lock to protect program

Full path of VirboxProtector_con.exe + full path of program need to protected -c local -o full path of output file, see picture attached below:

```
C:\Users\admin>C:\Users\admin\Desktop\setup\bin\virboxprotector_con.exe C:\Users\admin\Desktop\case\Mine.exe -local -o xxx.exe
SenseShield Virbox [version: 1.0.3.3074]
Copyright(c) 2016 SenseShield Technology Co., Ltd. All rights reserved.

loading Mine.exe ...
compiling...
save as xxx.exe ...
Succeed.
```

4. Use Cloud Hosted Lock to protect Program

Full Path of VirboxProtector_con.exe + Full Path of Program need to protect -c cloud -u Developer name -p Developer Password -o Full path of Output file. See Picture below:

```
C:\Users\admin>C:\Users\admin\Desktop\setup\bin\virboxprotector_con.exe C:\Users\admin\Desktop\case\Mine.exe -cloud -u senseCloud06@sense.com -p XXXXXX -o xxx.exe_
```

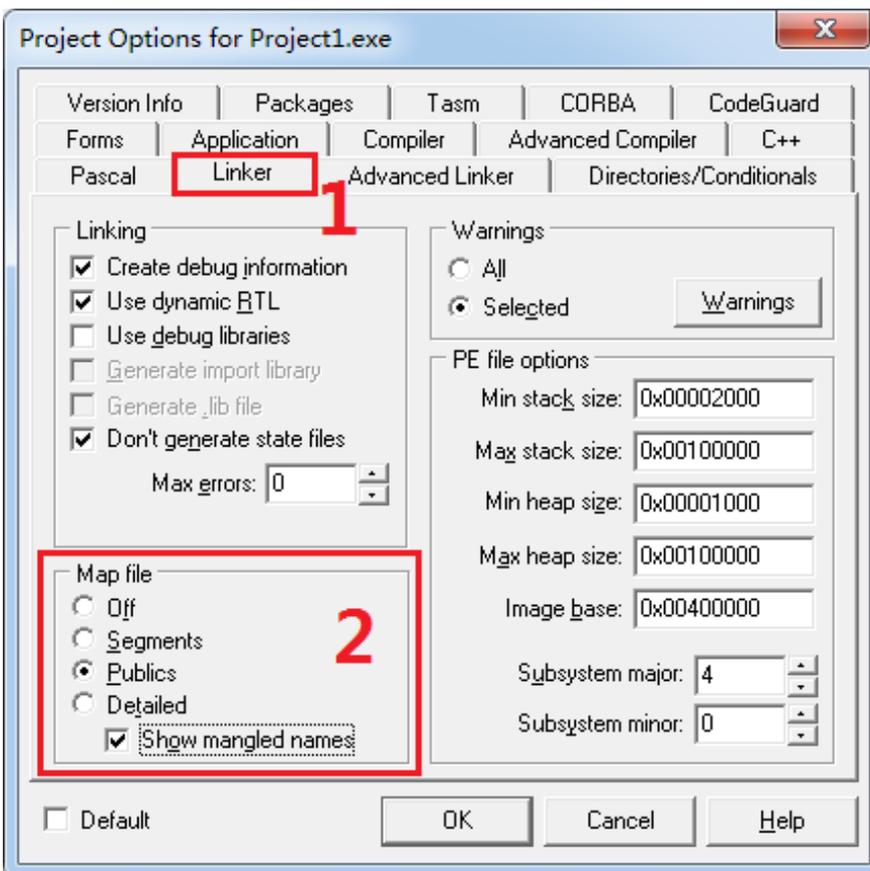
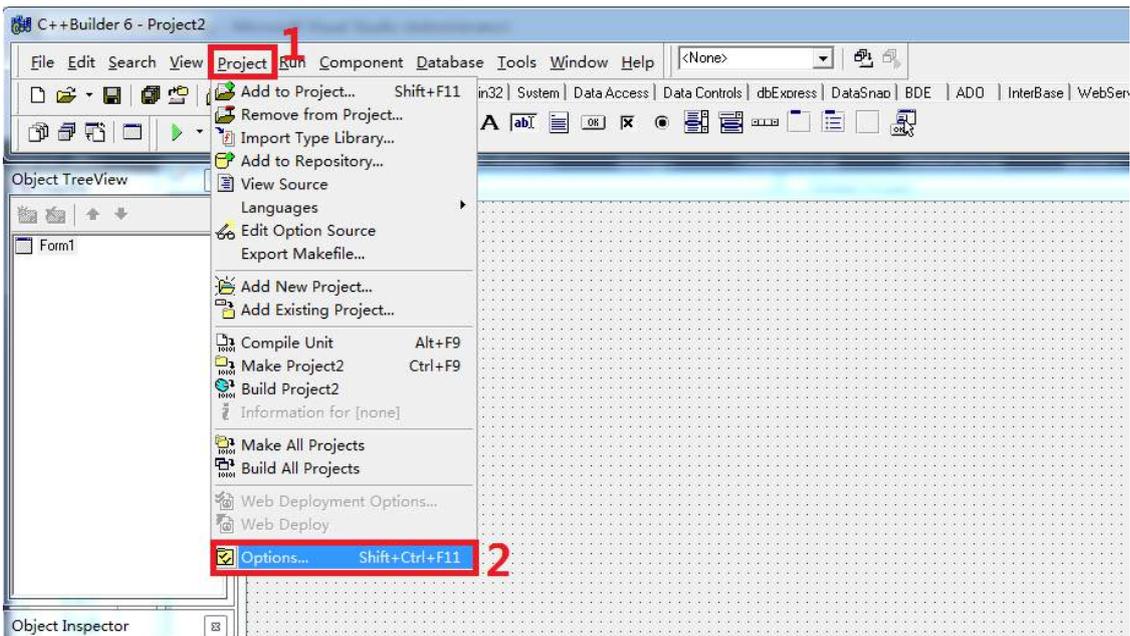
Note:

1. The command line tool will automatically search for the XXX.exe.ssp project configuration file from Virbox protector directory(the configuration file is generated by the Virbox Protector interface tool);
2. If the path has spaces, the path needs to use double quotation marks ("paths").

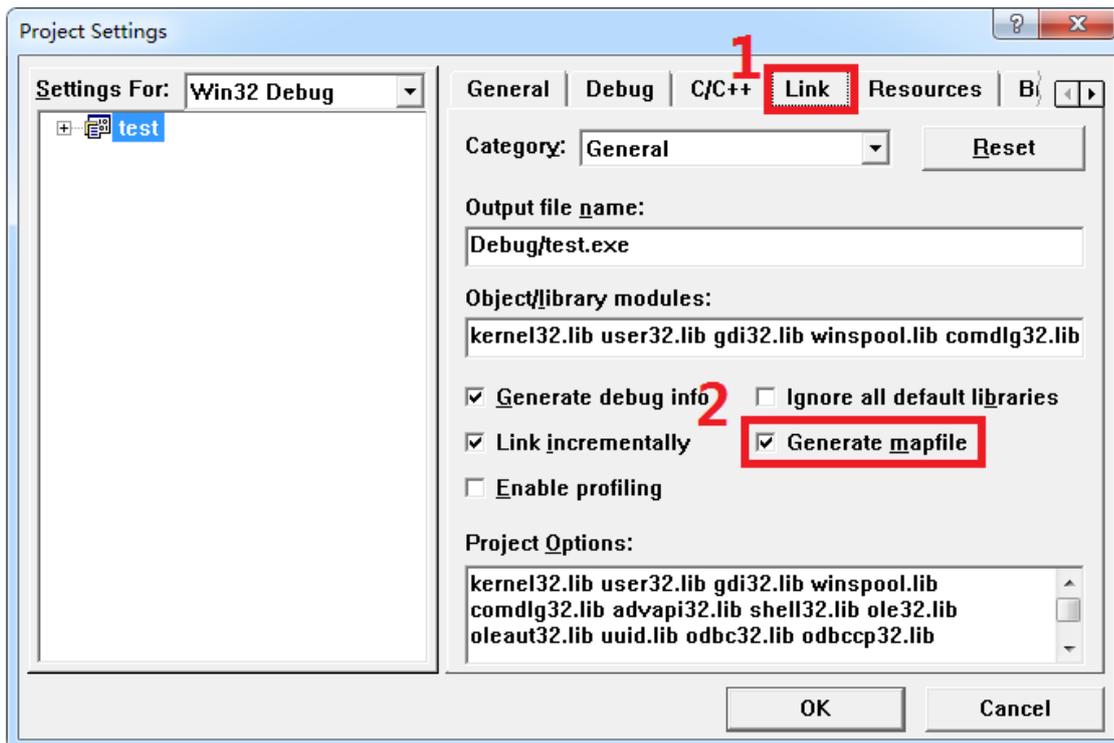
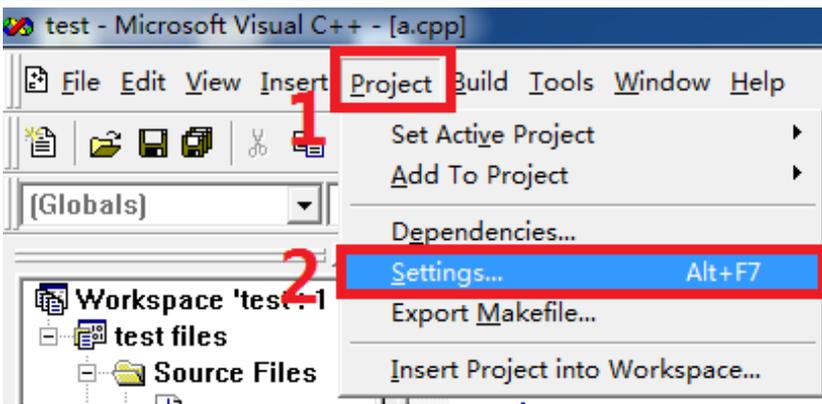
 Mine.EXE	2016/3/9 18:19	应用程序	224 KB
 Mine.EXE.ssp	2017/3/22 11:14	SSP 文件	3 KB
 Mine.EXE	2016/3/9 18:19	应用程序	2473 KB

5.8 How to Generate a Map File

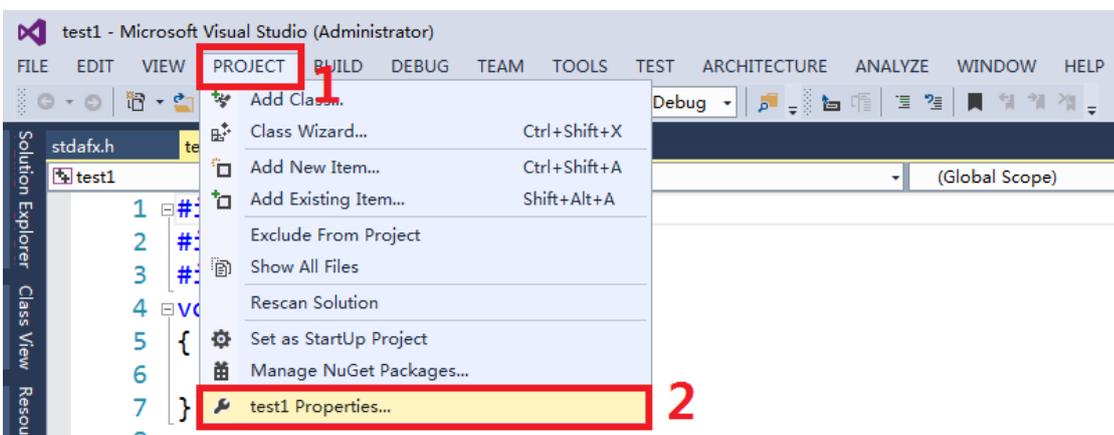
1. Generate BCB Program Map, Project settings as shown below.

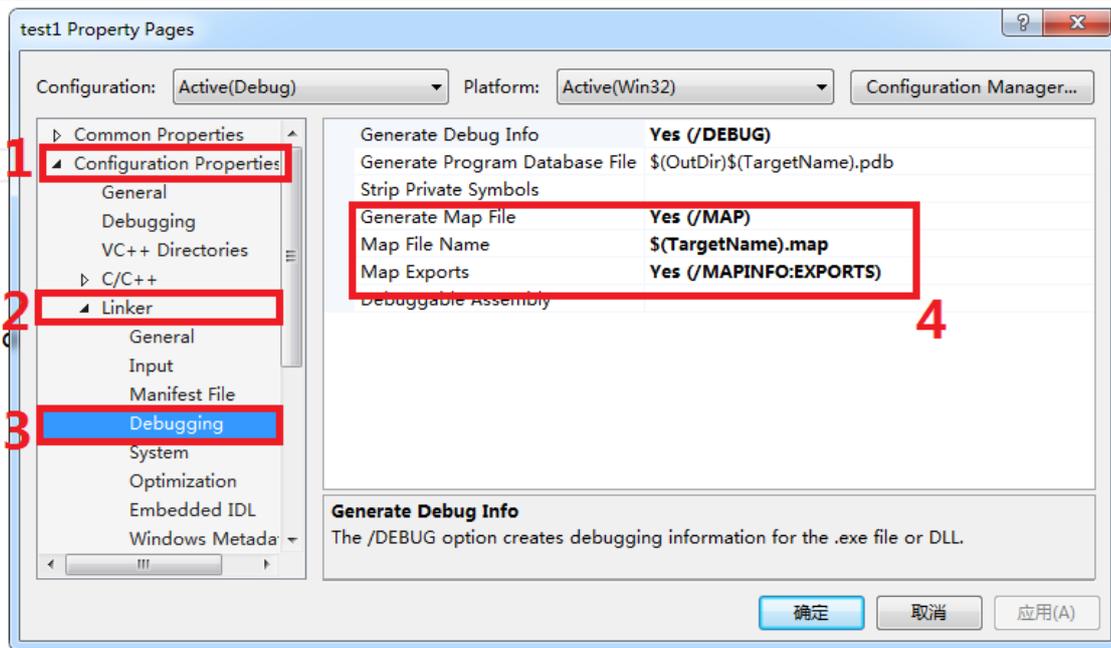


2. Generate vc program map, project settings as shown below.

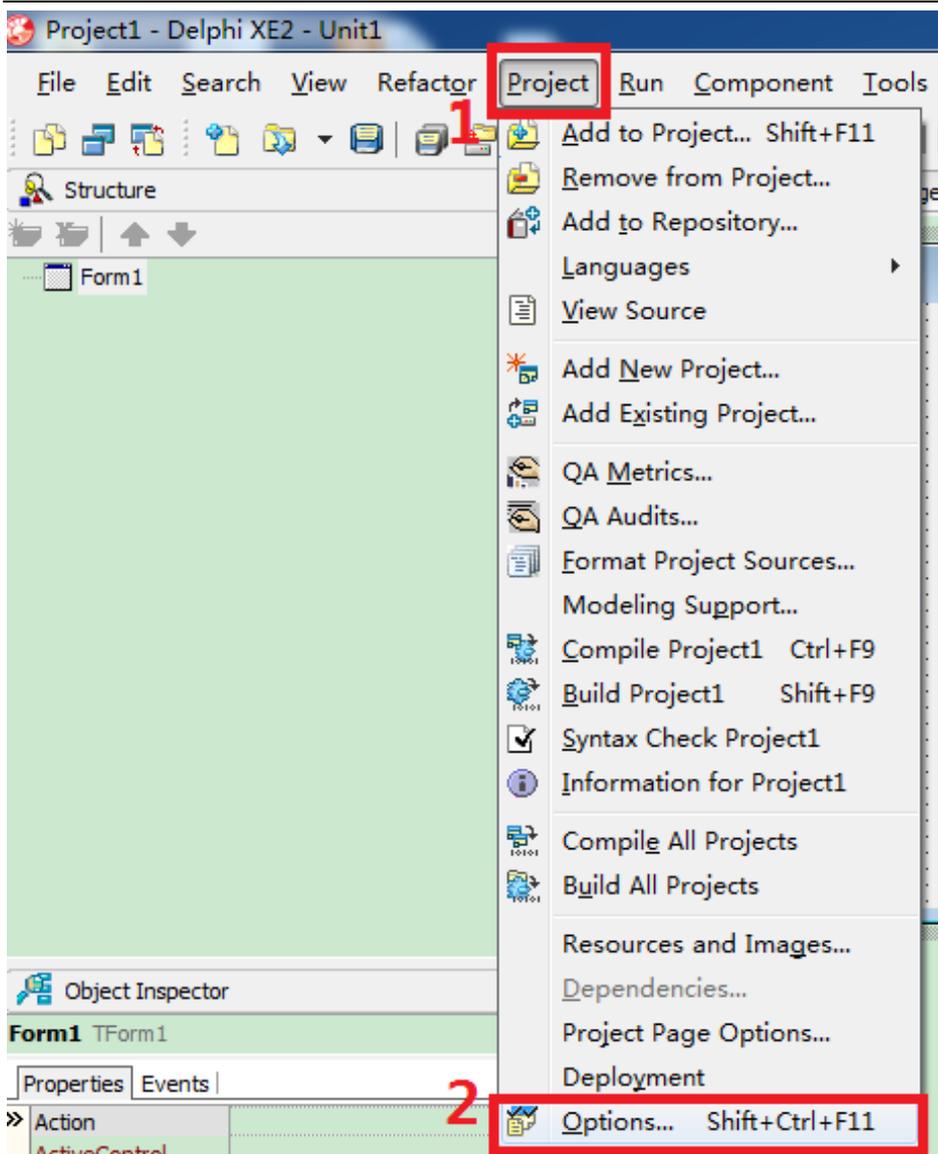


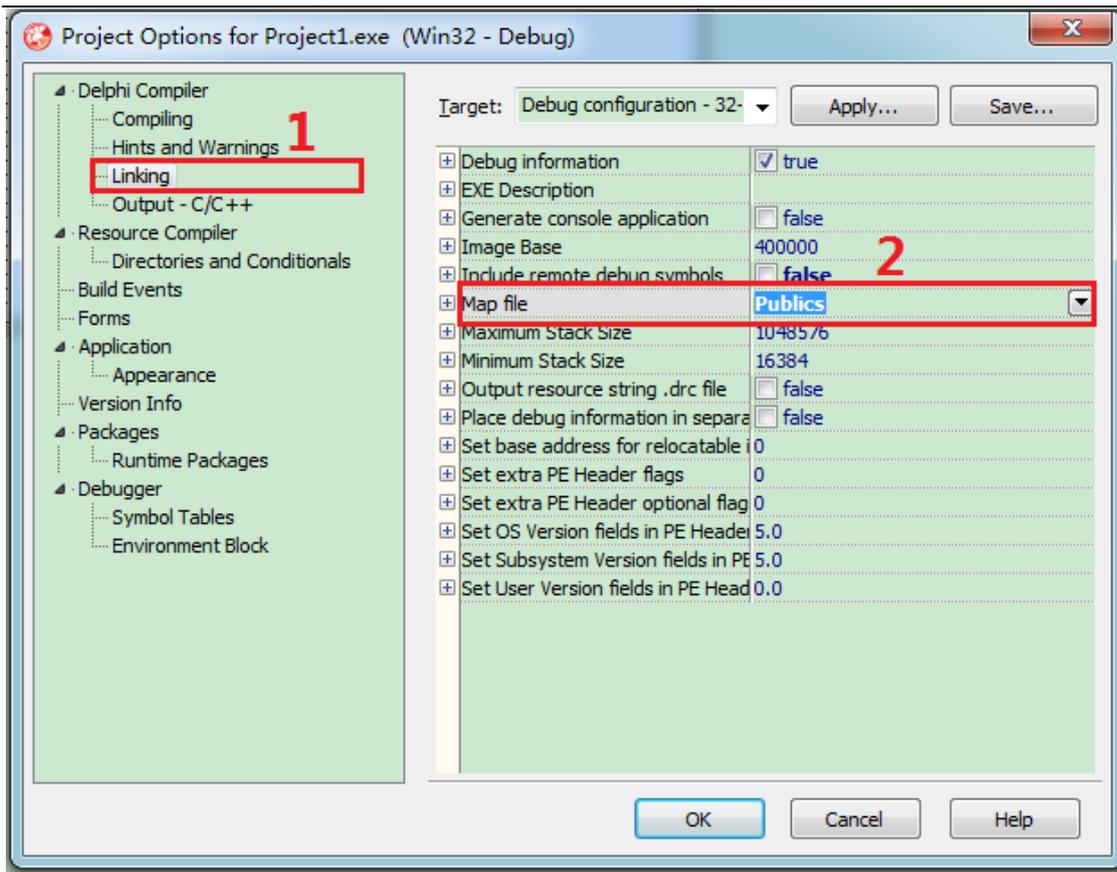
3. Generate VS program map, project settings as shown below.





4. Generate Delphi program map, project settings as shown below.





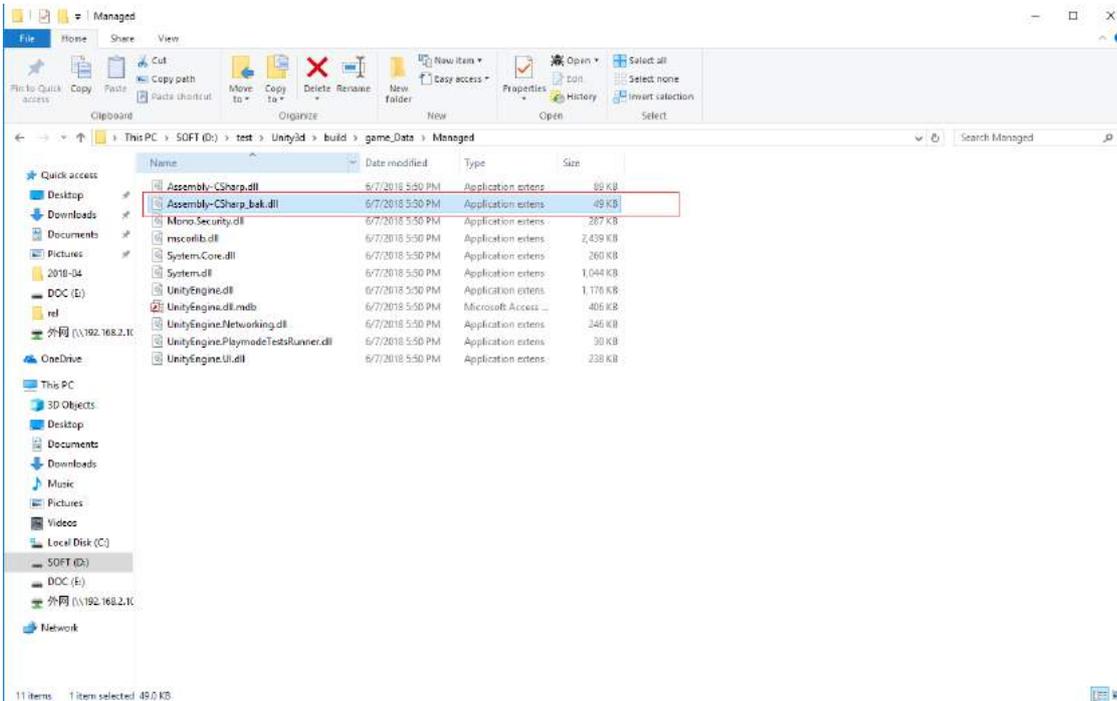
5. Generate a map of the vb6.0 program.

Add a "LINK" value to the system environment variable. The value is "/MAP". Restart the computer. This compiles and generates the exe program. The map file will not be automatically deleted, but will be retained.

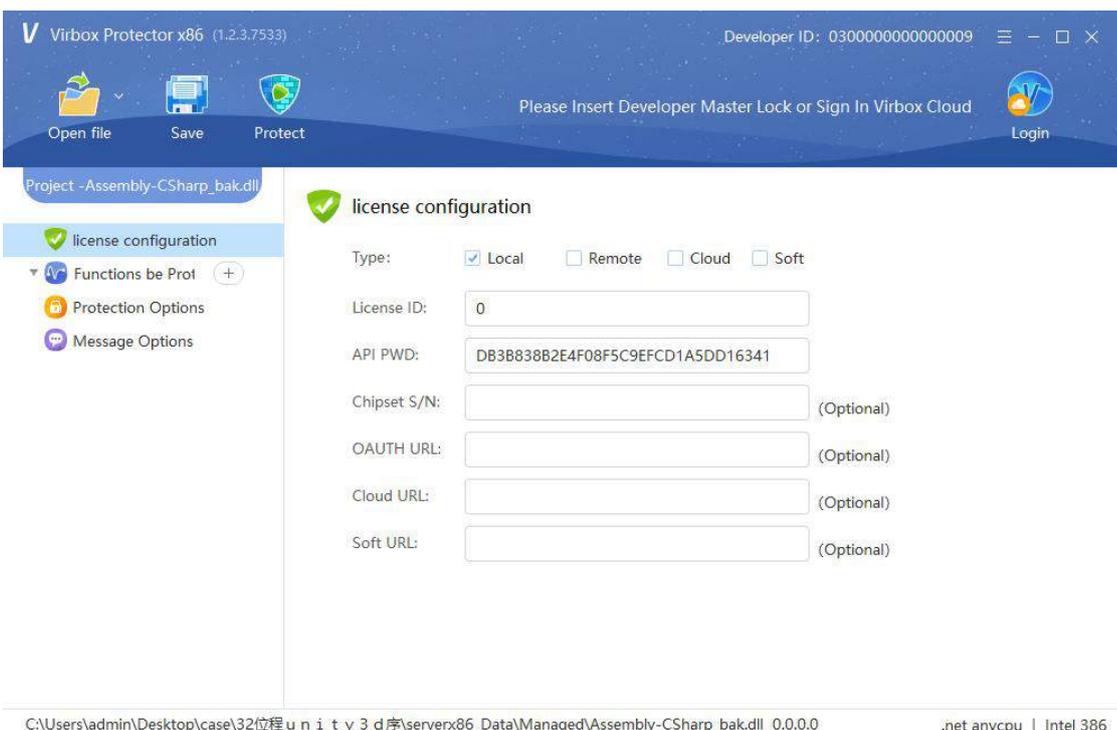


5.9 How to Protect Unity3D Programs

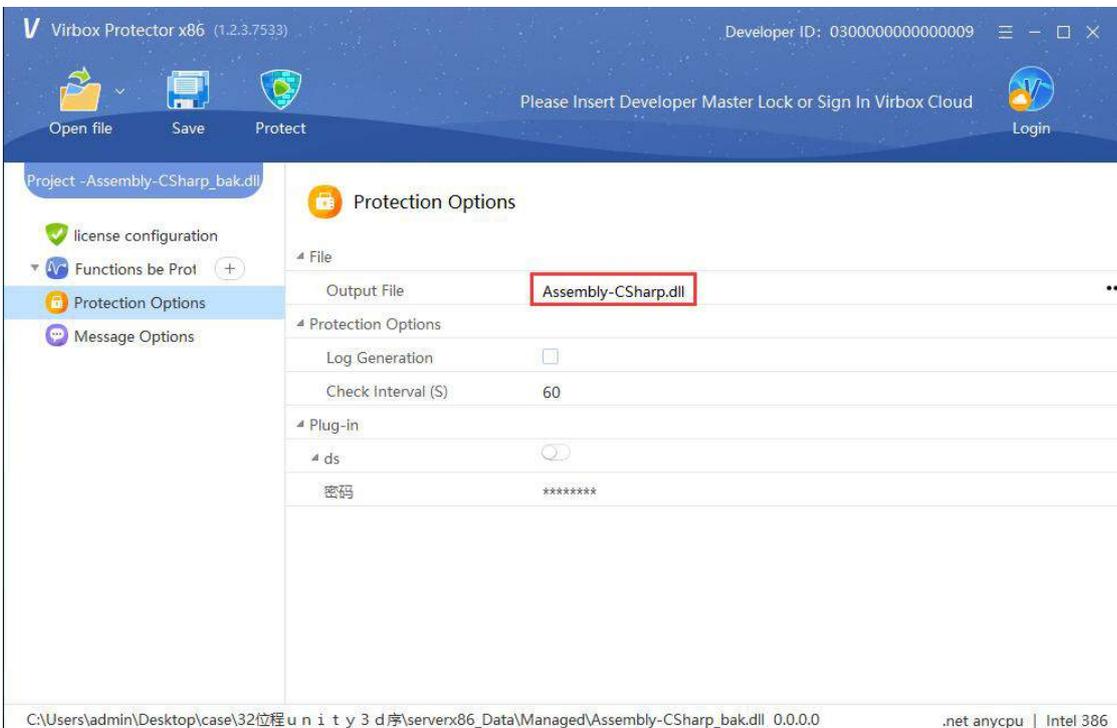
1. First, modify the name of the file that contains the code resource. For example, change the Assembly-CSharp.dll to Assembly-CSharp-bak.dll, because the protected file must be changed to the original name. Therefore, you need to change the name of the source file to a backup to prevent the destruction of your source file.



2. Drag the Assembly-CSharp-bak.dll file into Virbox Protector.



3. Modify the name of the output file. Change the output file name in [Encryption Options]->[Output File] to the original name of your program. Because Virbox Protector will output a file name similar to Assembly-CSharp-bak.ssp.dll by default, you need to manually change to Assembly-CSharp.dll (the program's original name).



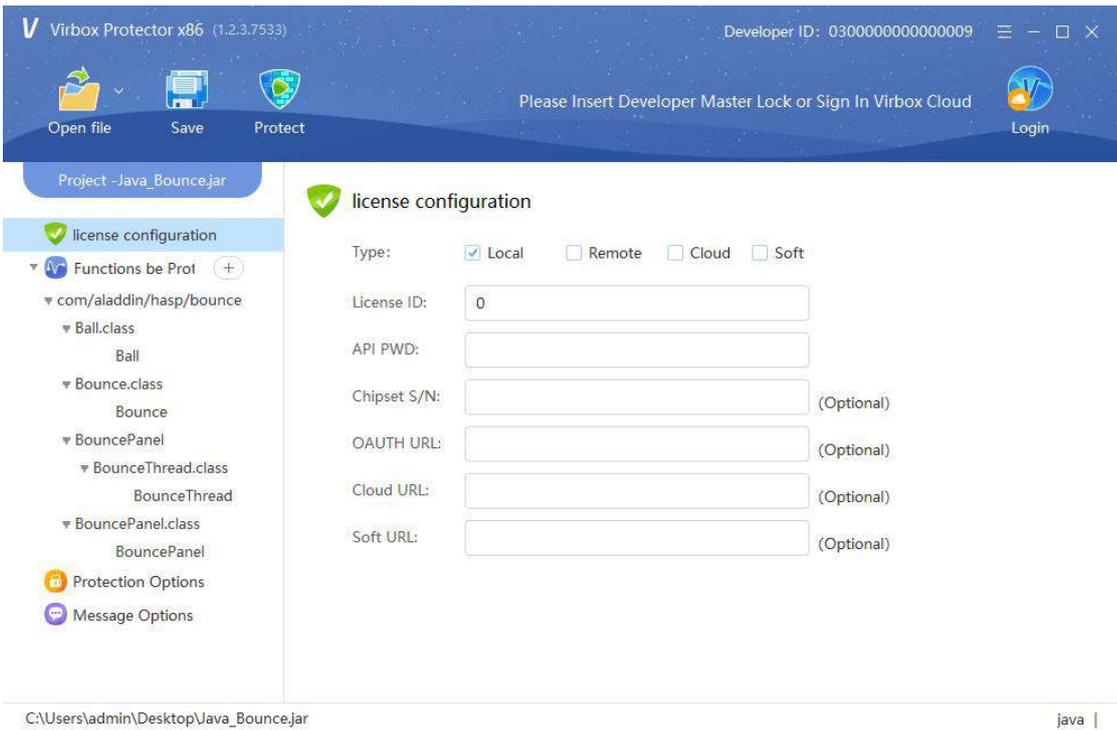
4. Click "Protect"



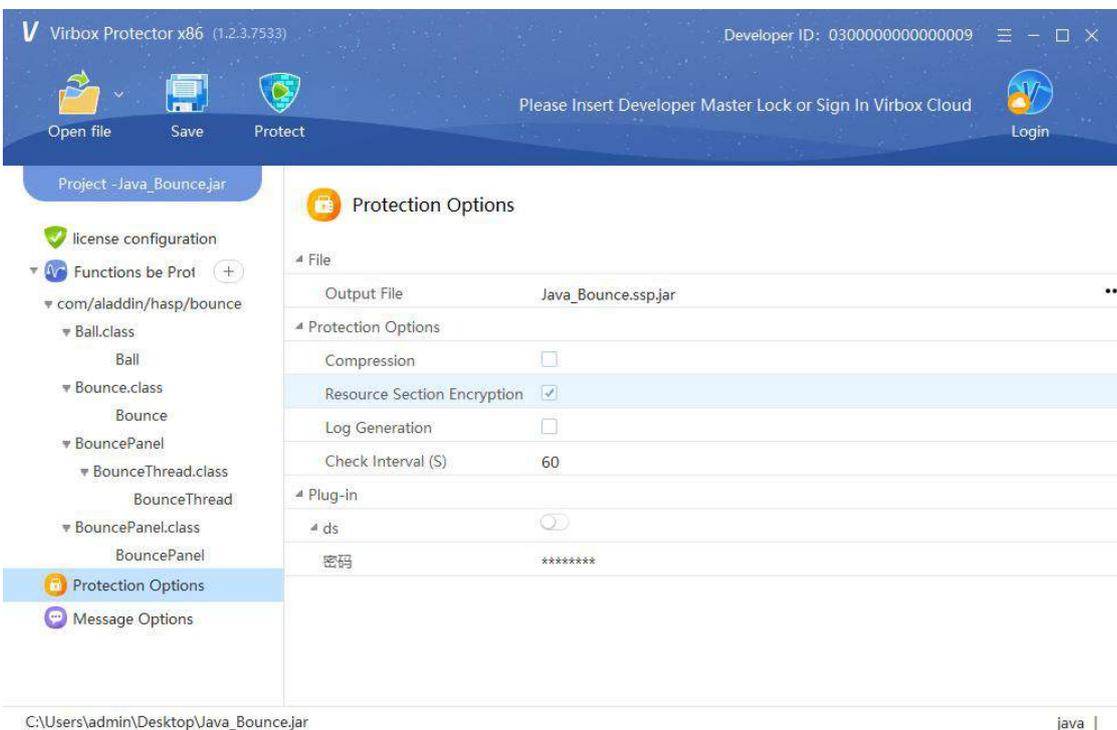
5.10 How to Protect Java Programs

5.10.1 Encrypting jar Packages

The first step: drag the jar package into the Virbox Protector.



Step 2, Setting "Protection Options".



Step 3, Set Message Options.

Message options can be selected by default or can be set according to Developer own needs.

Step 4, Click on "Protect" to generate a Protected program.

 Java_Bounce.jar	2017-04-17 21:02	Executable Jar File	5 KB
 Java_Bounce.jar.ssp	2017-07-05 15:45	SSP 文件	4 KB
 Java_Bounce.ssp.jar	2017-07-05 15:45	Executable Jar File	6 KB
 sjt32.dll	2017-07-05 15:45	应用程序扩展	2,661 KB
 sjt64.dll	2017-07-05 15:45	应用程序扩展	4,767 KB

Step 5, Execute the protected Software application.

Input in the command Line: javaw -agentpath:sjt64.dll -jar Java_Bounce.ssp.jar.

```
C:\Users\yinyzh\Desktop\java_test>javaw -agentpath:sjt64.dll -jar Java_Bounce.ssp.jar
```

5.10.2 Encrypt the war Package

Steps 1 to 4: The flow of the war package and the jar package are the same.

It should be noted that when the war package is protected, the license invalidation prompt pane in the message option can only select "program not prompting message and flash back".

Step 5: Run the Protected Program

1, need to copy sjt32.dll or sjt64.dll (detailed according to the installed java environment) to jdk\bin, jre\bin.

2, set JAVA_OPTS=-agentpath:sjt64.dll or set JAVA_OPTS=-agentpath:sjt32.dll to the catalina.bat file in the tomcat bin directory.

3, run tomcat.

4, complete the shell.

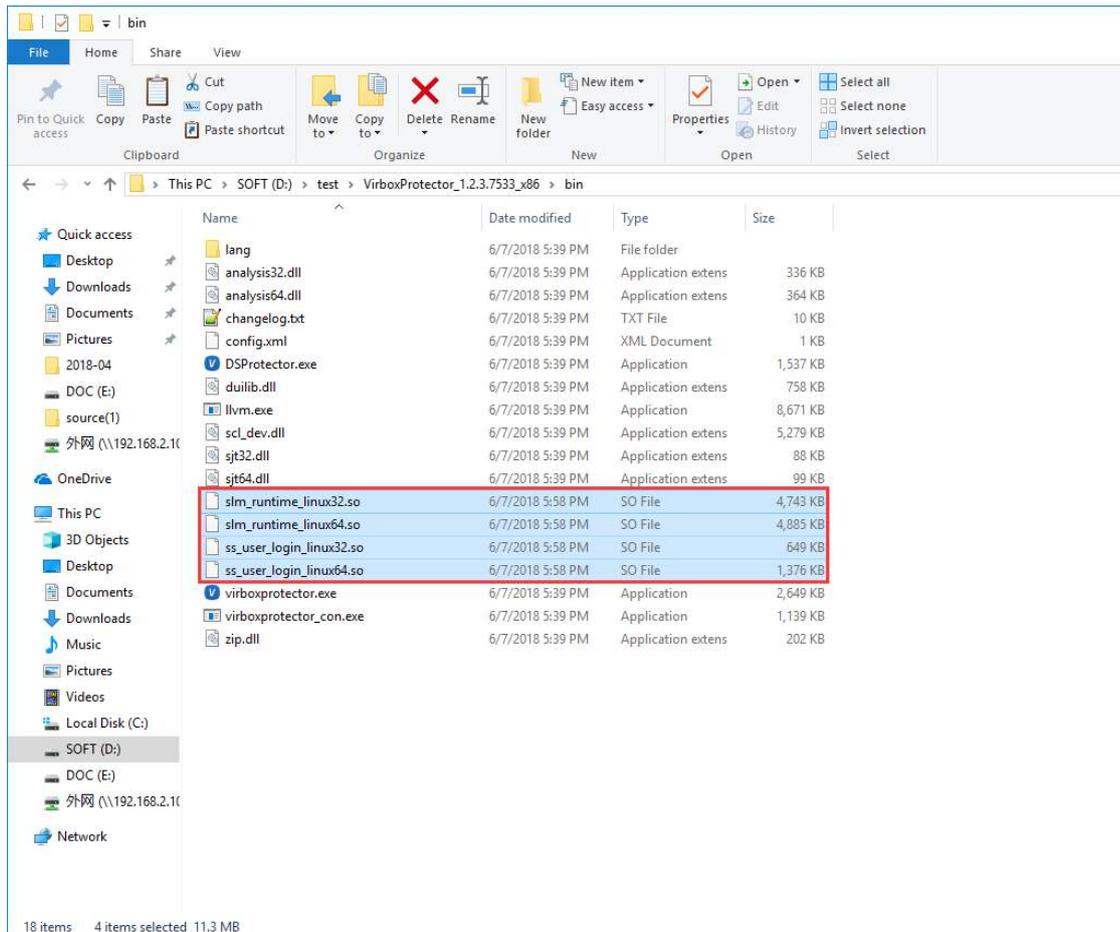
Note: If the above method can't run after the program is protected, it may be because the above methods are not applicable to your program. Please try to use [DS Protector](#) to protect your program. DS Protector is plug in units which can be used to protect some binary script which code used Python, R and data resources which includes: Audio, Video, PPT, pictures, jar, war and other data resource file also need to be protected with your software program. For more details how to use DS Protector, please refers to Virbox Production Description: DS Protector and Use Case.

6 Linux Program Protection

1. Unzip the SDK development package, for example: senseshield-sdk-2.2.0.28909.tar.gz, unzip the package.

- Copy the two files `libslm_runtime.so` and `libss_user_login.so` in the `lib` directory of the extracted files to the `bin` directory of the protect file directory, and change the two file names to `slm_runtime_linux32.so` and `ss_user_login_linux32.so`.
- Copy the two files `libslm_runtime.so` and `libss_user_login.so` from the `lib64` directory in the extracted files to the `bin` directory of the Virbox protector file directory, and change the names of the two files to `slm_runtime_linux64.so` and `ss_user_login_linux64.so`.

File structure as shown.

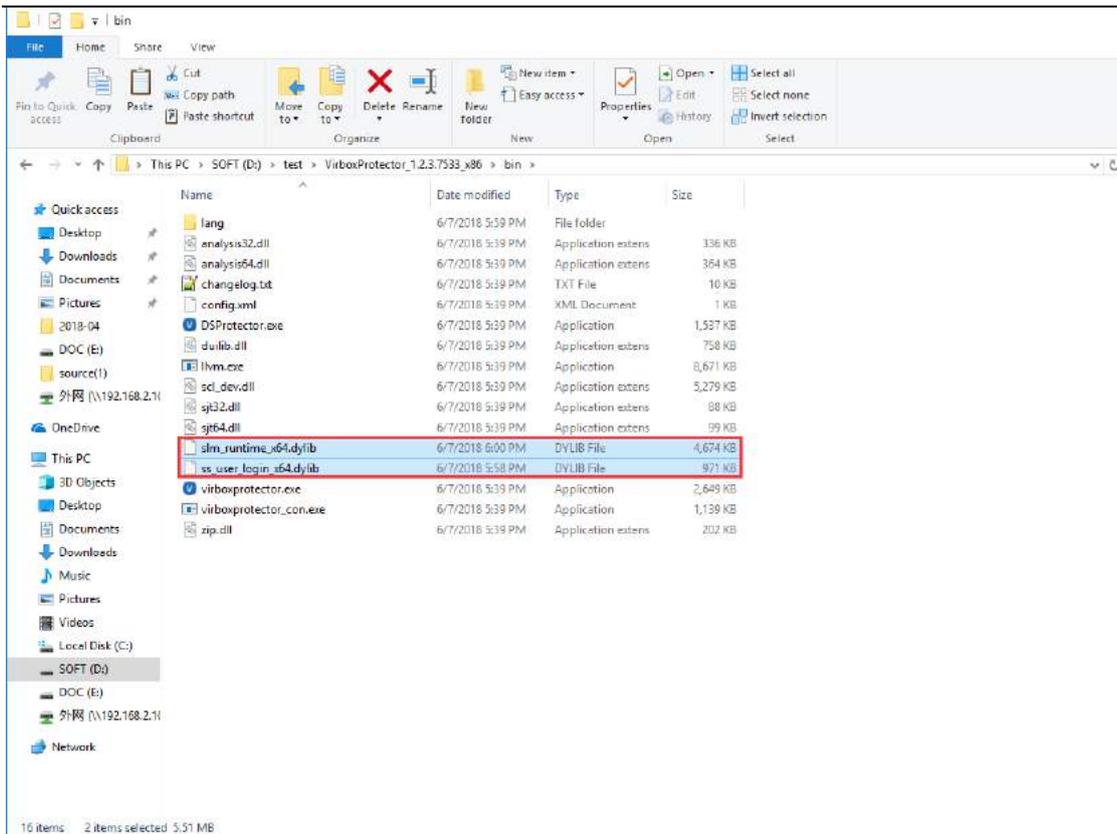


- The Protected program on Linux, copy it to windows and protect it , protected method is same with the windows program, and then copy the protected program to run on Linux.

7 Mac Program Protection

- Extract the SDK package, for example: `senseshield-sdk-2.2.0.28909-mac.tar.gz`, and unzip the package.
- Copy the two files: `libslm_runtime.dylib` and `libss_user_login.dylib` in the `lib64` directory in the extracted files to the `bin` directory of the Virbox protector file directory, and change the two file names to `slm_runtime_linux64.dylib` and `ss_user_login_linux64.dylib`.

File structure as shown.

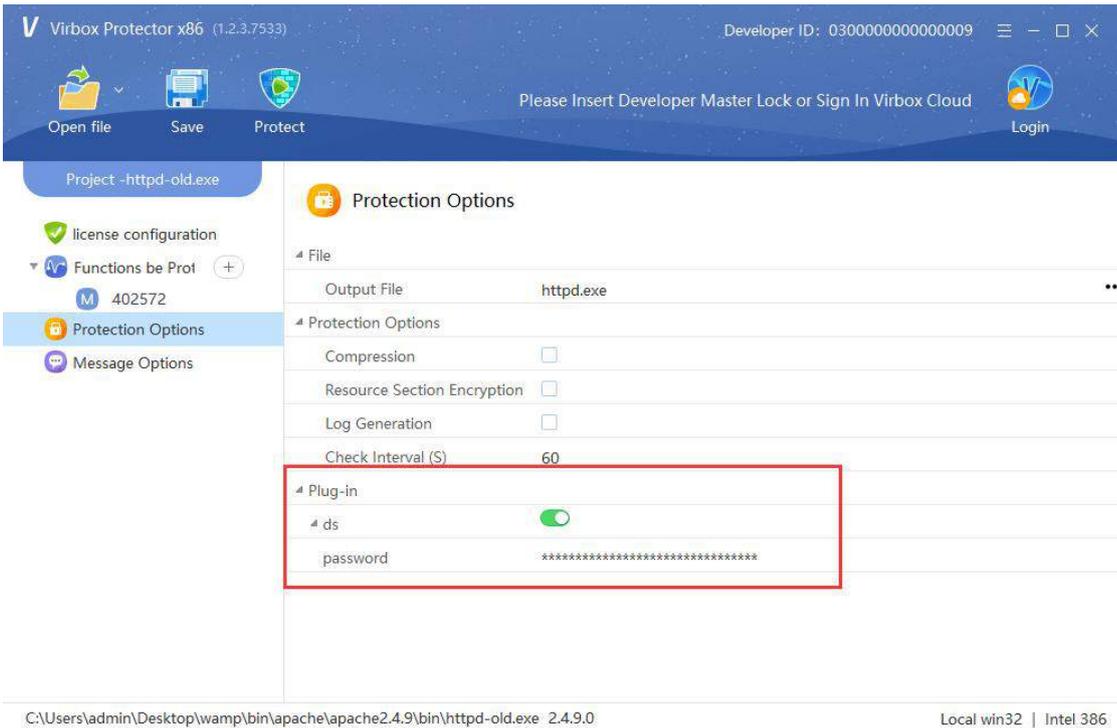


- The protected program on the Mac is copied to the windows for protecting. The protect method is the same as the windows program. Then the protected program is copied to the Mac machine.

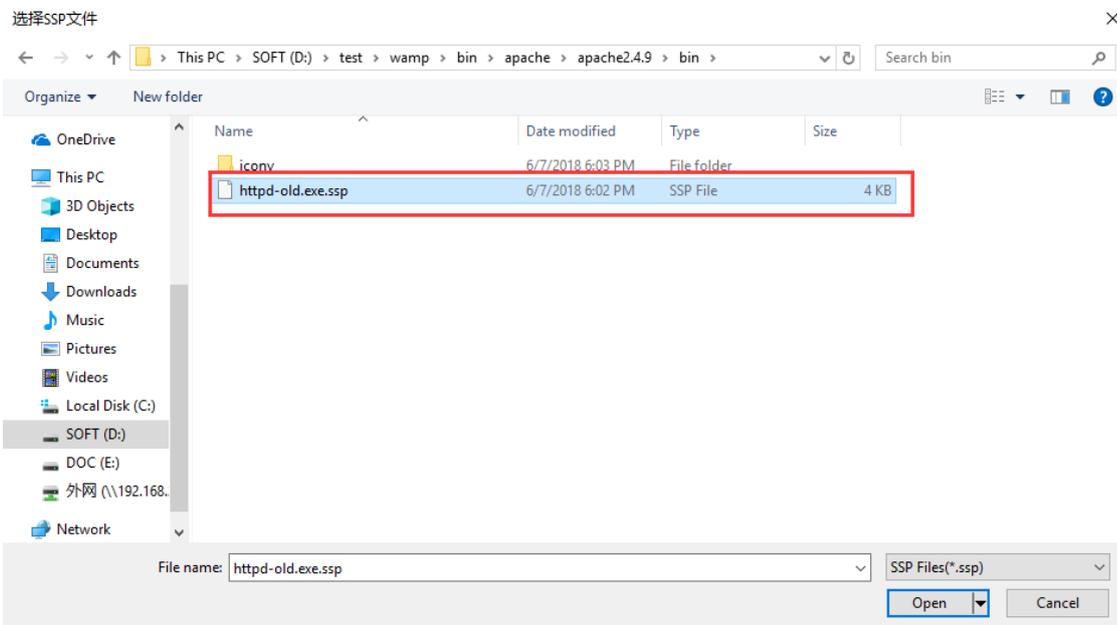
8 Protection to Data Resource File by use of DS Protector

8.1 How to Use DSProtector.exe Program for Data Resource Protection

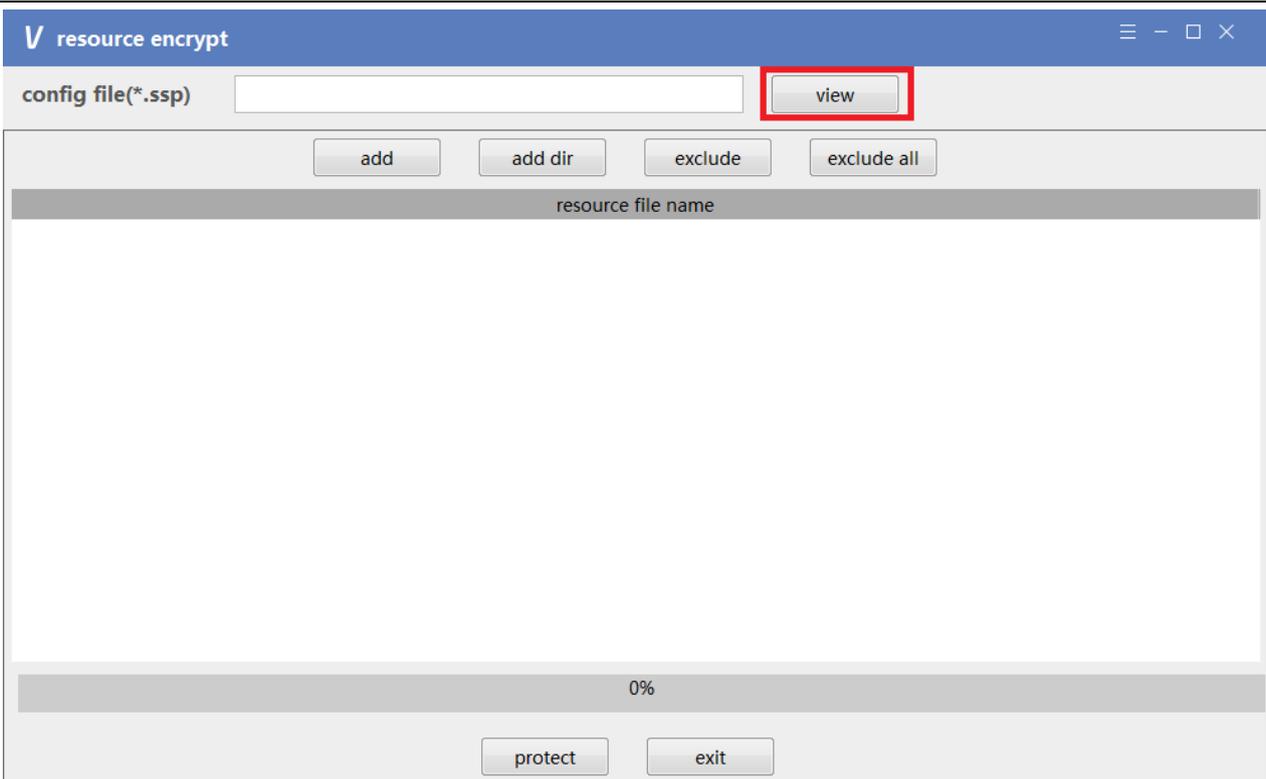
- The process to protect data resource and software program includes 2 steps:
 1. Use Virbox Protector to protect the software program as normal;
 2. Use DS Protector to protect the data resource file. see details instruction below:
- Before Execute Protected Program (Press "Protect" button), please switch on the plug in ->ds, and set the password, see picture attached in next page, then use this password to encrypt your data file.
- Protect the execution exe with the Virbox Protector. This process will inject the password and decryption plug in you set into the exe.
- Use DS Protector.exe to select *.ssp (generated by the Virbox Protector, which contains the key), then select the data file to be encrypted and click the "Protect it" button. Proceed as follows.



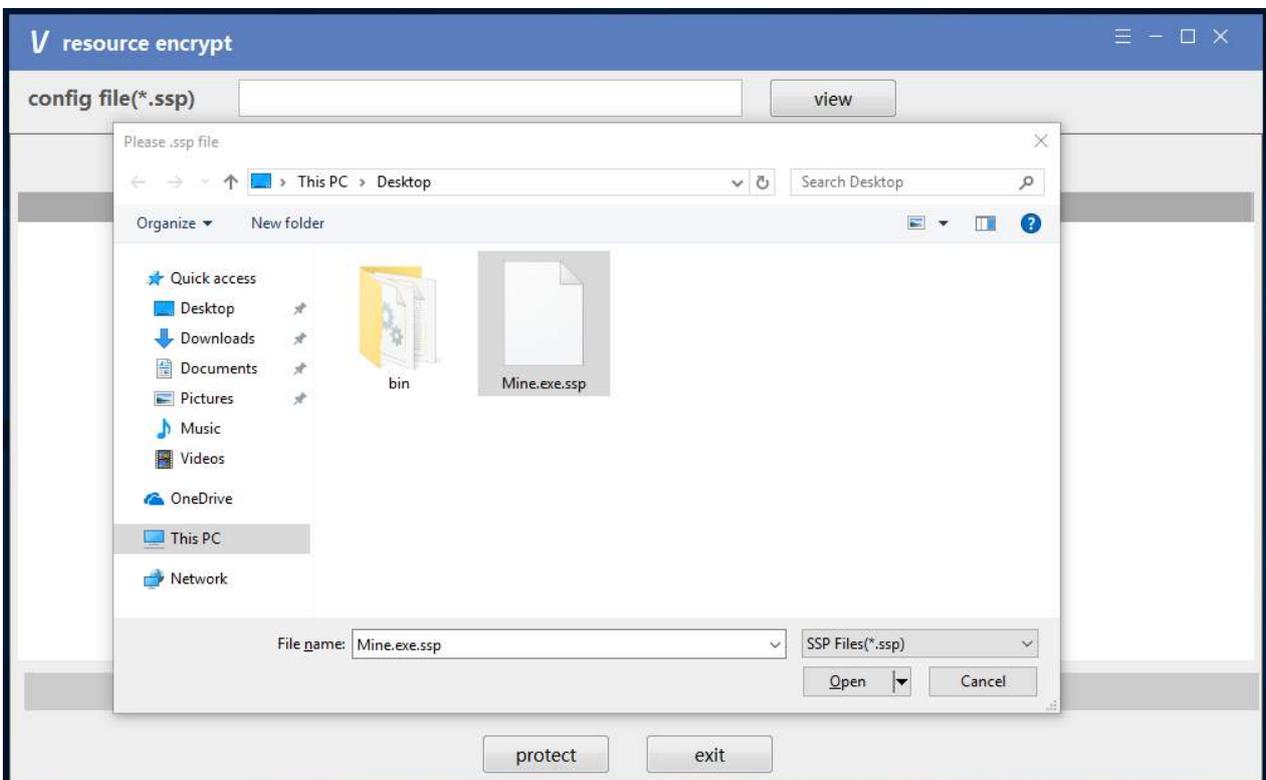
- then Press the "Protect" button to protect the software program, then the .ssp file will be create and show as below:



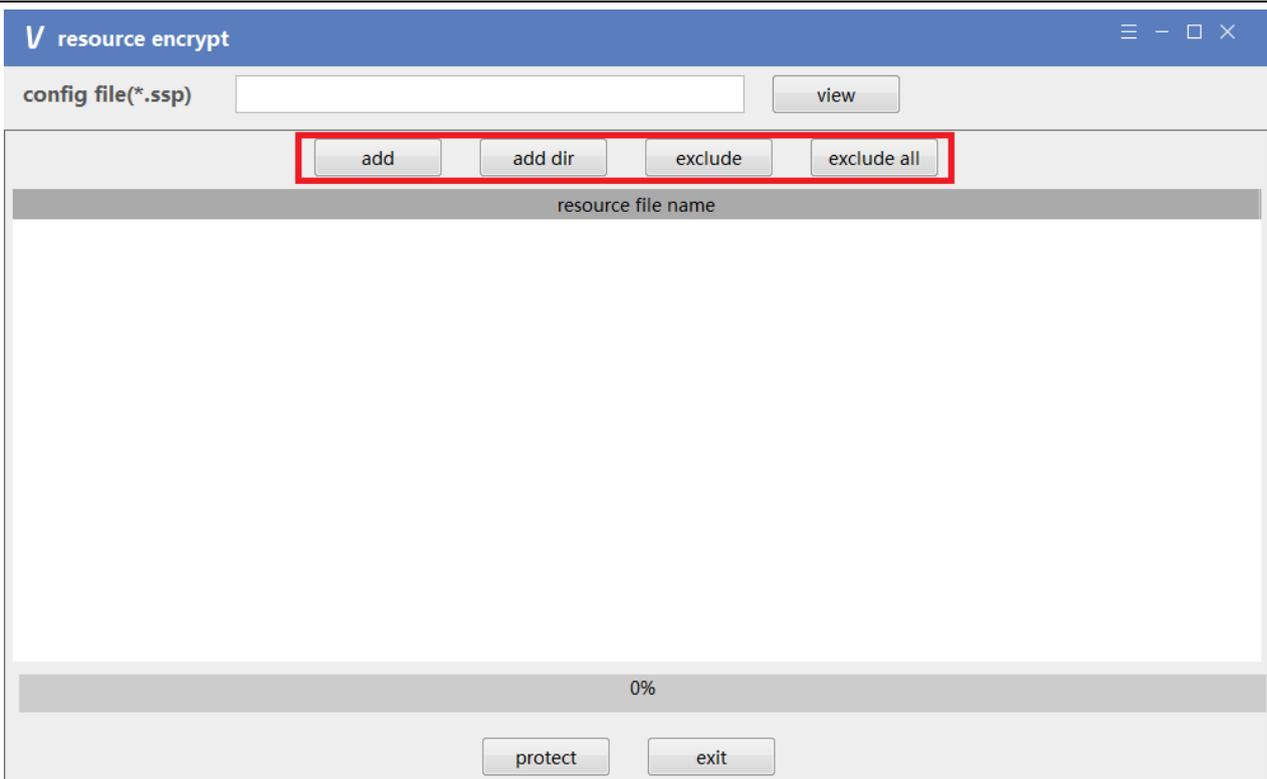
- Then open the DS Protector which located in the same director of Virbox Protector;
- Select the .ssp file which created in last step by press the "view" button;



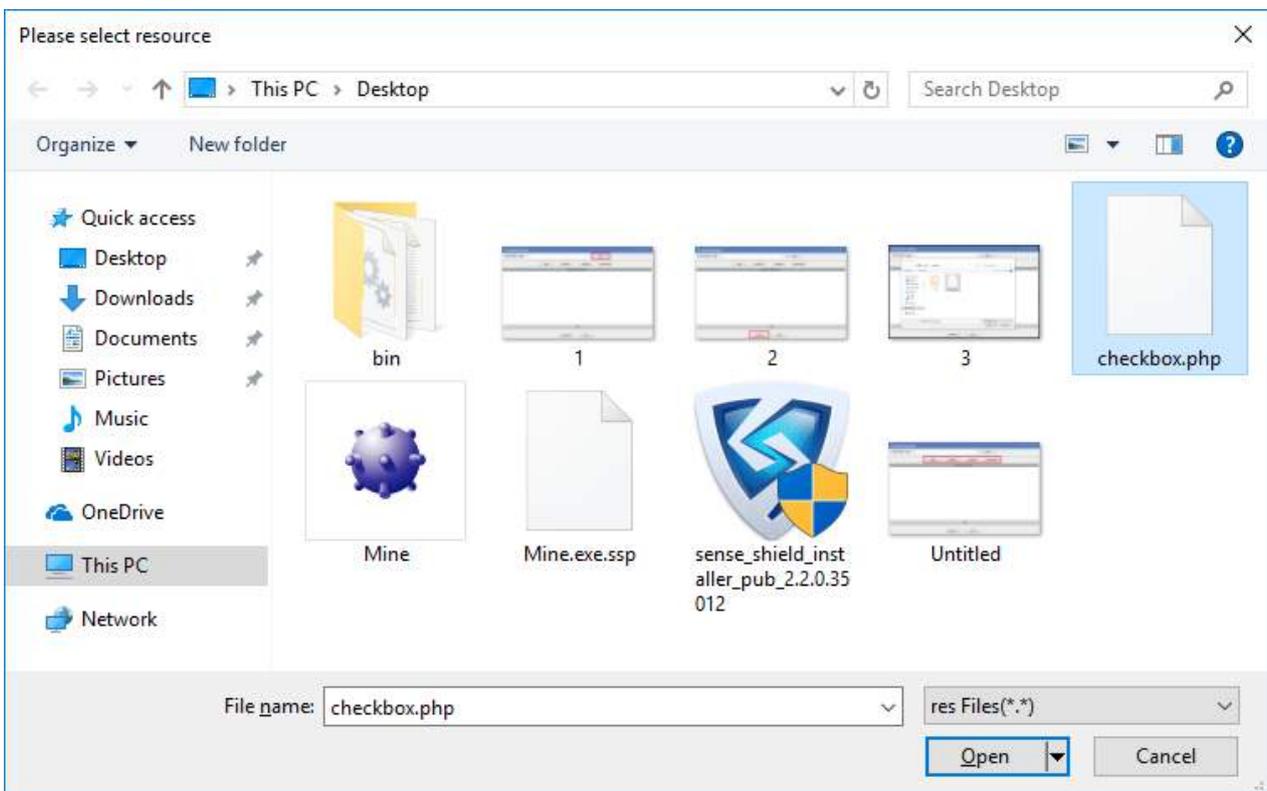
then select .ssp file from the same directory of protected software program.



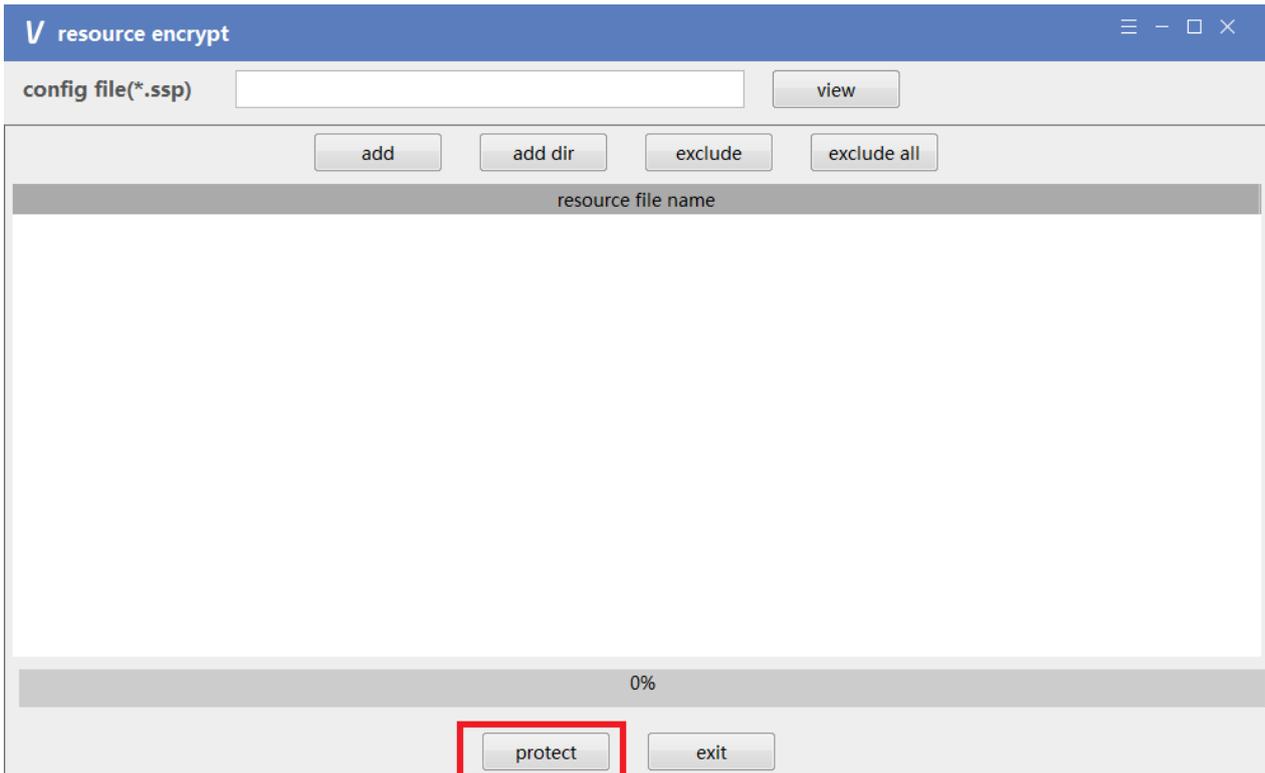
- Add Resource File. (Press the button: "Add"), see picture below.



- Select the resource you want to protected.



- Click "Protect", Click to automatically replace the original file with an encrypted file; the original file is renamed to {xxx}.bak and xxx is the name of the file you selected.



8.2 Protection Scope of DS Protector

Virbox Protector provides very good protection for most of the binary code of the software. For the resources used by the software, Virbox also provide the DS Protector.exe tool for Resource Protection. The Protected scope to Resource Protection (DSProtector.exe) currently supports(Tested and Verified) following Resources:

Item	Software	Type	Support or Not Support	Note
1	Python	Language	Y	Support topyc, Not support py source code
2	Lua	Language	Y	
3	Perl	Language	Y	
4	Erlang	Language	N	
5	Ruby	Language	Y	Support command Line, does not support web
6	Go	Language	N	
7	PHP	Language	Y	

8	R	Language	Y	
9	Unity 3D Game resource	Game	Y	Support DLL, res resources ,Unity 3D Program file
10	UE4	Game	Partial Support	
11	Potplayer	Media Player	Y	Mp4, MKV
12	Baofeng (Installation Version)	Media Player	Y	Mp4, MKV
13	Baofeng (Free Installation Version)	Media Player	N	
14	jar. war web or Client	Develop Environment	Y	
15	2345Kantuwant(Installation Version)	Picture	Y	Support jpg ,jpeg, png, bmp, gif
16	Foxitreader_cnlv(Free Installation version)	PDF Reader	Y	

For more detailed usage, please refer to "Virbox Product Description: DS Protector and Use Case".

9 Appendix

Glossary

<p>Virbox Elite 5 Acme</p>	<p>Virbox EI5 Acme is latest Generation of Virbox hardware Lock which improved both in Hardware performance and Security Performance. Virbox EI5 Acme is key component and License repository of Virbox LM solution. Virbox EI5 Acme can be used to be a standalone dongle without connect to Virbox LM, and also can be used seamless integrated with Virbox LM with additional and advance feature available. Virbox EI5 Acme support and suitable to deploy in tough industry environment. Software Developer can use this product to protect the Software copyright and IP. It will supports developer to protect software with most security technology, best performance and easy to use. For detail Specification of Virbox EI5 Acme, please refer to the Virbox EL5 Acme datasheet.</p>
<p>Virbox LM</p>	<p>Virbox LM is Cloud based Software protection, License Entitlement Solution and cloud service which provides to software developer with lowest Total cost ownership, Top Security of Software Copyright Protection and Easy to use in whole software life cycle. By use of Virbox LM, Developers can achieve extremely protection to software copyright/IP and flexible to issue license to software user with minimal effort and investment.</p> <p>Virbox LM One Stop Solution consist of following components: Virbox License Manager (Virbox Developer Center), Software Protection (Envelope) Tools (Virbox Protector), Local License Manger (Virbox Developer Utility) and Virbox License Service and User License Tool (Virbox User License Tool) and other support tools and documents.</p> <p>Virbox License Type supports: hardware lock(Elite 5 Acme Dongle), Soft Lock (Soft license) & Cloud Lock (Cloud license) and suitable to deploy in different Software implementation scenario, on line, offline, firewall isolated environment etc. Virbox provides flexible license mode to support ISV/software developer Software monetization which includes: Perpetual, trial, time based, feature on demand, subscription, concurrent; etc.</p>
<p>Virbox Developer Center</p>	<p>Virbox Developer Center consists of Developer website and Open API, It</p>

	<p>provides cloud based Service and website for License Issue and License Entitlement solution to software developer, Developer may use [Virbox Developer Center] (https://developer.lm-global.virbox.com/) to manage software product, user management, License Issue and Entitlement, Virbox Developer Center is online License solution for software developer, By use of Virbox Developer Center, it is not necessary for developer to build up in house License entitlement system and save the investment both in Capex and Opex.</p>
Virbox Protector	<p>Virbox Protector is the latest envelope tools for software protection and encryption, Virbox Protector integrated multi security technology includes Virtual Machine, Code Snippet (Code Fragmentation) and other static and dynamic technology/Service and provides top secure protection level to developer's software, Developer may protect software automatically by select protection options without any coding competence and save lot of workload and effort in software protection process.</p>
Virbox Developer Utility	<p>Virbox Developer Utility is local License Manager provided by Virbox LM, this Utility helps developer to issue the license to hardware lock (Virbox EL5 Acme) quickly. With Virbox Developer Utility, Developer will save Capex and Opex and not necessary to spend money to build up the In House License System.</p>
Virbox User License Tool	<p>A software installed in software user site that can be used for license verification, update and transfer service, Virbox User License Tools works with Virbox License service and provides static and dynamic protection service to software installed in software user site.</p>
Product	<p>Virbox Use "Product" refer to the Software application developed by software developer, software publisher which need to encrypt, protect the "product" by use of Virbox Protector.</p>
Sales Template	<p>The Sales mode for mature commercial software should support different sale mode and charging policy to meet the requirement of software users: pay per year/month/day, per usage, or pay for perpetual license. Above charge policy is independence with Product functions but depends on sales strategy to each market segment. so, Virbox designed the following "Concept" in Virbox License system to reduce duplicate workload for developer in protection and license process: *Sale Template*, developer may setup the different limitation to same product in different Sales Template to meet the different sales and marketing strategy.</p>
License ID	<p>License ID is the unique indicator which used in the software protection and</p>

	<p>license issuing/distribution process in the Virbox LM system, which presents the License No. for software. For details introduction to Virbox License Management and License concept, please refer to "Virbox License System"</p> <p>Developer must assign associate License ID to the product created. and the License ID must not be duplicated assigned and used for other product. The License ID associated with specific product will be use unique ID No. and Indicator to presents for this product in all protection and license process. The protected software will verify the associated License when software user execute the software.</p>
Account	<p>Account sign up by "user" in Virbox developer Center or Virbox User Center,</p> <p>For software developer, they can sign up account in Virbox developer center to evaluate and test the Virbox Solution for software protection and licensing to their product;</p> <p>For Software user, they can sign up a account or assign a account in Virbox User center by software developer, this user account will be the unique identifier for user to use and verify license issued by developer;</p>
Master Lock	<p>Virbox Solution provides 2 kinds of hardware lock for software developer: Master Lock and User lock; master lock is the unique Identity for each Software developer to protect software and issue license, it is mainly used for software encryption , protection, issue license and issue upgrade package to EL5 Acme user lock.</p>
User Lock	<p>User lock is the hardware based lock deliver to software user which contains the license file issued by Software developer, Virbox Provides following Virbox EL5 user lock to developer: EL5 Acme, EL5, EL5 RRTC, EL5 Genii.</p>
Soft Lock	<p>Soft Lock contains software license , saved in local safety environment. Which used to verify the protected software. Software developer may issue the Soft license from Virbox Developer Center to licensed software user account, Soft lock supports both online mode and offline mode.</p>
Cloud Lock	<p>The cloud license (cloud lock) is one of license type supported by Virbox LM, , Cloud License issued by developer from Virbox Developer Center and stored in Virbox Cloud and used to verify the protected software. The cloud license must be bound with the software user account. Users can use the protected software in online status (Access internet) and successfully logged in Virbox User Account.</p>
API	<p>Virbox SDK provides a complete package of APIs for license management and</p>

	<p>licensing that will help software developer get the most out of the Virbox licensing system. Developers can flexibly implement their own encryption scheme by calling these APIs, and combine the functions of encryption, decryption and data area provided by Virbox license to realize deeply protection scheme and further increase the difficulty of cracking.</p>
<p>Control API</p>	<p>This API is the management interface of Virbox License Manager, here referred to as Control API. Control API will mainly used and provides the inquiry to the hardware lock(dongle)'s information, inquiry to license terms and status, inquiry to license session etc.</p> <p>More details to how to use Control API and use case, please refer to Virbox License Architecture.</p>
<p>Runtime API</p>	<p>The API interface to access Virbox license , referred to as Runtime API, is the most critical interface for the Virbox licensing system. Runtime API is the key API interface for developer to use and call API, the software of Developer will use this API to access license. More details to how to use runtime API and use case, please refer to Virbox License Architecture.</p>
<p>d2c API</p>	<p>Virbox SDK provides "Developer Utility", the local License Manager, for developer to issue the license to hardware lock (Virbox EL5) quickly. d2c API provides the interface to developer to issue license to hardware lock. Developer may call the "D2C API" to issue license with more flexible operation and flexible to combine different license terms.</p> <p>the d2c package created by d2cAPI is the only license update package which can be recognized and identified by Virbox EL5 hardware lock, d2c package includes digital signature and encryption to the license terms which will guarantee the integrity and security of license data, on the other hands, the Virbox EL5 hardware lock provides the function to anti-replay, all d2c license update package will be used one time in the hardware lock only.</p> <p>Note: Calling d2c API is quite complicate process, more details, please refer to sample file.</p>
<p>Open API</p>	<p>Open API is the API that Virbox LM provides to developers to access the Virbox Developer Center. Open API can be used for integration with existed third party system in developer site, such as CRM or ERP system.</p> <p>Developers may use and call this OPEN API for user sign up, license issue, license distribution and other operations via third party system. For details, please refer to [Open API Guide V2.0/Virbox Developer Center]</p>

<p style="text-align: center;">API Assistant</p>	<p>API Assistant is a quick starter tool that helps software developers learn and understand the Virbox API. Execute the API via friendly GUI prompts message to view the API execution result. You can quickly familiarize with API and functions without coding.</p> <p>API Assistant is suitable for developers to quickly learn and understand the usage/calling of the API and verify the feasibility of the encryption scheme.</p>
<p style="text-align: center;">Code Fragmentation Execution</p>	<p>"Code Snippet Execution" or we can named with more simple and easy understanding: "Code Fragmentation Execution". Code Snippet Execution will utilized latest and mature technology in "Extracting the coding" and select and extract large amount of "coding" from original program code, and executed in the security virtual environment after encryption and obfuscation and integrated with Virbox Encryption Compiling Engine, Virtualization and driving technology, all technology integrated together makes protected software in more security during execution process.</p> <p>The Code Snippet Execution" can be simply understand as breaking down the functions or modules of software into code of fragments and execute these "fragments" into a secure environment, so that the crackers can't start to use hacker tools to analysis and get the original code and execution result. "Code Snippet Execution" is major milestone and breakthrough in the Software Encryption and Protection field. In addition to high Security, Code Snippet also rely on and work with "Virbox License Service" middleware to shield the interface from the fundamental layer and also compatible with Virbox Cloud Lock and Soft Lock, and help developer to realized business agility with different kind of license type.</p>
<p style="text-align: center;">Anti Hacker Service</p>	<p>Anti Hacker Service, usually, software will be protected in static way by use of traditional protection technology: obfuscation, Virtualization, it will not be update after software delivery to customer side, Virbox use "Anti Hacker Service" and associated tools installed in customer side which provides pro active detect hacker behavior when software execution, with anti hook, anti reverse engineering, anti debug, update hacker database functionalities and features, it comprise a series anti hacker technology to protect your software with dynamic and pro active way.</p>

Let's Start Your Software Protection and Licensing Journey!

Virbox will help you to protect your software copyright/IP Value and Create Revenue for you.