# **Quick Start Guide**

Software Protection and Licensing with Virbox Soft Lock (Offline)

Version 2.0





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#### **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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Website: https://Im-global.virbox.com/



### About this document

This document is designed to help Software developer to quickly start to use **Virbox Protector** and **Virbox Developer Center** to protect software and issue soft license (Offline) to software user. And describes the operation process step by step for how to sign up in Virbox Developer Center (Virbox LM), how to protect software by use of Virbox Protector and issue the license to software user.

**Target User:** R & D or Operation staff of software developer who is responsible to protect software and license issuing;

#### **Requirement & Environment:**

- Software developer has already signed up and upgraded to be a standard developer in Virbox
   Developer Center;
- Software developer has installed "*Virbox Protector*" in computer;

**Objective**: Software developer will have basic skill to use Virbox Protector to protect software application and issue a license to Soft Lock (Offline) that can be used by Software User;

For Software Protection and Licensing with Virbox EI5 Acme, please refer to:

#### **Quick Start Guide:**

# Software Protection and Licensing with Virbox EL5 Acme;

For Software Protection and Licensing with Virbox EI5 Acme (Network Mode), please refer to:

#### Quick Start Guide:

# Software Protection and Licensing with Virbox EL5 Acme (Network Mode);

For Software Protection and Licensing with Cloud license by use of Virbox Protector and Virbox Developer Center (Virbox LM), please refer to:

#### **Quick Start Guide:**

# Software Protection and Licensing with Virbox Cloud Lock;

For Software Protection and Licensing with Soft license (Online) by use of Virbox Protector and Virbox Developer Center (Virbox LM), please refer to:

#### **Quick Start Guide:**

# Software Protection and Licensing with Virbox Soft Lock (Online);

For Software Developer who use Unity 3D to develop Gaming software or other software applications, please refer a series of documentation of Unity 3D Quick Start Guide separately.



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# **1**. General Introduction

Virbox Soft License (Soft Lock) is a software product that based on Virbox LM "**account**", Software Developer can sign up on Virbox LM to be a Standard Software developer then can start software protection and License distribution.

The Virbox LM link is: https://developer.lm-global.virbox.com/home.jsp

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 Cloud, Developers can achieve extremely protection to software copyright and IP and flexible to issue license to end user with minimal effort and investment.

Virbox LM License Type supports: hardware lock (Elite 5 Acme), 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.

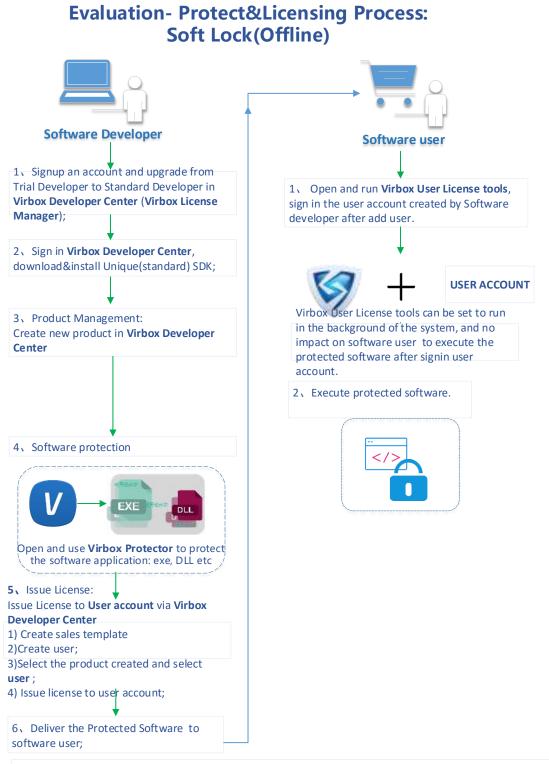
**Tips:** Soft Lock (Soft license), is the license type which hardware independently, with low cost, flexible to be used both in online or offline environment, and can be bind with specified hardware by use of the hardware fingerprint.

#### Installation and Working Environment:

Windows: Support Windows XP sp3 and above version; Linux OS: Support Debian, Ubuntu, CentOS, Fedora, OpenSUSE, Ubuntu Kylin OS Mac OS: Support MAC OX10.9 and above version

The Procedure to Software Protection/Encryption, Licensing and deliver to the user are shown as blow.





#### Note:

Use Account is the software user's Mailbox supplied to create user in Virbox Cloud LM, not the account the Software Developer use to sign in the Virbox Developer Center. Virbox LM link: https://developer.lm-global.virbox.com/



# **2.** Virbox Developer Center (Virbox LM)

# 2.1 Virbox SDK Introduction

#### Why Software Developer Need to sign up a developer account in Virbox Developer Center (Virbox LM)?

- When you are Protecting the software, you need install SDK(Software Development Kit) Virbox LM use Unique SDK to protect Software application; before using the Soft lock to protect your software, Developer need to sign up on Virbox LM and upgrade to be Standard Developer, then download the dedicated SDK for each Standard Developer.
- The only way for Software Developer to obtain unique and tailor made SDK is signup in the Virbox Developer Center and download SDK;
- Virbox Developer Center signup and sign in link:
   Signup link: <u>https://developer.lm-global.virbox.com/reg.html</u>
   Sign in link: <u>https://developer.lm-global.virbox.com/login.jsp</u>
   The Virbox Developer Center will be show as blow:

Virbox	Developer center	English •
	Virbox LM login Tensit/Mobile/Liternams Pactored Legin Forget password Create a new account Read and accept Terms of Service	

If you do not have an account, you need to sign up in Virbox Developer Center.



	Virbox LM login
	Email/Username
e Veter	Pastyrond
	Login, Forgat paseward Create a new account
	Read and accept Terms of Service Read and accept Privacy Pelicy

#### Note:

Please Read and Accept "Terms of Service" and "Privacy Policy" of Virbox LM before signup.

The fields with red mark are required.

Developer information		
* Developer name	Developer name	
	For company developers, please fill in the company name;for individual developers, please fill in the Individual's name.	
* Country/Region	~	This is important, please select accurately, You can search by nam
* Time Zone	~	
Administrator account in	formation	
* Email	Email	
* CAPTCHA	CAPTCHA Refresh	
* Email verification:	Email verification: Send	
* Create password	Create password	
	Weak Medium Strong	
* Confirm password	Confirm password	
	Terms of Service for Virbox LM platform	
	SenseShield Privacy Policy	
	Register now	

After signup in Virbox Developer Center, you can sign in and download a trial version SDK for testing and evaluation, like the picture attached:



¢	⇒ 0 @	A https://developer.im-global/virbox.com/home.jsp	*	☆	L
	Virbox	Click to Apply to be Standard Developer, which no Limitation. Click for Developer Information View Click for Trial Version of SDK Download.			Welco
-M	General	Statistical period 7 days 14 days 21 days 28 days Current month You are currently a test developer and may not us	e the stat	istical fu	nction
& 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Product Management Sales Template User License Distribution Hardware Lock × Task Management ×	Number of licences issued daily 0.6- 0.6- 0.4- 0.2-			
* * * *	Label Management Data Statistics ~ Access Control Documentation ()	0 Number of users increased daily 0 0			
	erms of Service for Virbox L atform				

■ Virbox provides 2 version of SDK to Developer: **Trial version** and **Standard version**.

**Standard version:** A Standard version SDK have unique developer ID, API Password, private key and matched digital certificate of Authorization. All of the developer's SDK (standard version) are different. There will be no general crack solution available for Hacker to software application protected by Virbox.

**Trial Version**: The Developer ID, API password, private key and certificate of authorization of trial SDK are same for all trial developer.

**Note:** Trial SDK use common SDK, CA, Private key and API password, Trial SDK will be only used for Developer for internal evaluation and would not be used for official software protection and distribution.

# 2.2 Login Virbox Developer Center for SDK

Virbox	Developer center	English •
	Email/Mobile/Joarnam Passward	Login Create a new account

Signin to Virbox Developer Center with your account ID and password.

### Apply to be a standard developer and download SDK:

After successfully signup an account in the Virbox Developer Center, (now your account is trial developer Copyright © 2018, Virbox, All Right Reserved.
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account), you can download a Trial version SDK, this version is for learning how to use Virbox solution to protect your software and issue license and evaluation. Trial version SDK is not used for official published software protection and software distribution.

If evaluation is successful and you want to choose Virbox to protect your application and issue license, please apply to upgrade your trial account to be "Standard Developer" account via Virbox Developer Center. You may get unique SDK after upgrading to be a Standard Account. Please be patient waiting for approval to be a standard account, it will take short time by Virbox Developer Center.

~	→ U @ (	} https://developer.lm-global.virbox.com/home.jsp.	<u> </u>	Y	7'≡
	Virbox	Click to Apply to be Standard Developer, which no Limitation. Click for Developer Information View. Click for Trial Version of SDK Downlead			
Lat	General	Statistical period 7 days 14 days 21 days 28 days Current month You are currently a test developer and may r	not use the	statis	stical fun
æ	Product Management				
۵	Sales Template	Number of licenses issued daily			
53	User	0.8-			
6	License Distribution	0.6			
۵	Hardware Lock 🛛 🛩				
#14	Task Management 🔍	0.4			
۲	Label Management	02			
(das.	Data Statistics	0			
÷	Access Control	Number of users increased daily			
в	Documentation				
		- 80			
	arms of Service for Virbox LM	0.6			
p	latform	04			

In the picture blow is a standard account and the place to download a standard SDK:

÷		A https://developer.lm-glob	and a second second	sDK Download			ш <b>*</b>	t≞ L L. L
	Virbox		_					LL SOUDO
N.	General	Statistical period 7 days	14 days 21 days	28 days Current month				
ß	Product Management	Number of licenses issued daily						
đ	Sales Template	11						
33	User	0.8						
8	License Distribution	0.5-						
1	Hardware Lock 🔍 👻		2018-07-	11				
£.	Task Management 🔍	0.4.*	License st	atistics : 0				
	Label Management	0.2						
M	Data Statistics v	2018-07-10	2018-07-11	2018-07-12	2018-07-13	2018-07-14	2018-07-15	2018-07-16
¥.	Access Control	Number of users increased daily						
9	Documentation	Number of users increased dairy						
		0.8-						
		0.5-						
	erms of Service for Virbox LN atform	10000						
0.0		0.4-						
		0.2						

**Note:** Please upgrade from trial developer account to standard developer account if you want to evaluate and protect your software with **Soft Lock**.

# 2.3 Virbox SDK Installation Introduction

Developer may download and obtain latest version of Virbox SDK from: Copyright © 2018, Virbox, All Right Reserved.



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

Download and install your SDK package in your computer, it will create 2 folder under directory of "C:\Program

Files (x86)\senseshield: ss and ss\_dev"

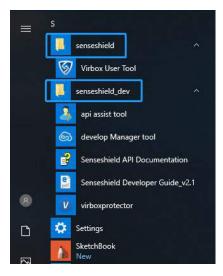
senseshield: This folder reserved and contains following software tools for Software users:

- Virbox User License Tool
- Driver of Virbox EL5 dongle
- Log File
- Configuration File

senseshield\_dev: This folder reserved and contains following software tools for Software Developer

- API sample lib, support multi Program language.
- Developer Utility (Developer Manager Tool).
- Virbox Protector (this is the tool for Developer to wrap/Envelope/Encryption for software be protected).
- Manual: Virbox Developer Guide and other Virbox Documents
- API Assistant: Online help tools for Software Developer.

Take **Windows 10** computer installation as an example, it will create shortcuts in the start menu, senseshield and senseshield\_dev folders can be viewed in the start menu.





# **3.** Product Management

## 3.1 Product Management by use of Virbox Developer Center (Virbox LM)

#### In this chapter we will use Virbox Developer Center (Virbox License Manager) to create new Product 🧖

Usually, there are more than one software product need to be protected, licensing and distributed to software user for one Software developer. So it is necessary for Software developer to well plan product ID for each product at the beginning phase. In order to avoid misunderstanding and confusion in the future.

What's more, it is also quite important for the Owner of software developer to setup a **principle** to Product Management in advance, since it will also make some difficulty for product management and maintenance in future in case without well planning for product management due to R&D and operation staff left company.

### **3.2 Create Product**

The **following steps** will introduce how to create and manage a product with **Virbox LM**.

Create a New Product in the "**Product Management**" by click "**+New**":

	Virbox	Click for Developer Infor	mation View. Click for your unique SDK Down	load.	4	Welcome sense
J.M.	General	+ New			Search according to Product	s Search
8	Product Management	License ID	Product Name	Creation Time	License Type	Operation
đà	Sales Template	2018 10	Snake_test	2018-07-09 18:04:06	Cloud License	E 🛙 0
	User	10	Snake_Test	2018-07-03 14:48:25	Cloud License	12 💼 O
۵	License Distribution					
2	Hardware Lock 🗸 🗸					
#	Task Management 🕞					
æ	Label Management					
-	Data Statistics 🔍 🗸					
ż	Access Control					
Ð	Documentation					

Then a window that needed to input the Product detail information will popup, as blow:



* License ID	License ID
* Product name	Product name
<ul> <li>Display name</li> </ul>	Product display name
* License Type	Cloud based license Soft based license (beta)
Product logo	logo Example:
	Current logo
	Only PNG format is supported, with length and width limit of 160 * 120 pixels;
	(You need to composite two logos in 40*40 and 120*120 pixels into one picture locally in accordance with the illustration example above and then upload it )
Product introduction	Product Briefing Note (within 600 letters)
+ Advanced O	ptions

- Define a License ID to this product or to define License ID to each functions of this product. This is an integer from 1~4.2 Billion. License ID is a key concept for software protection and encryption, license ID is unique ID represent for one software or for one functions or one software modules need be protected and encrypted. License ID could be setup to be an executed software, a software module or even to be a "Printing" or "Save" functions. Of course, License ID could be setup and define for a whole software package, depends on software sales strategy decided by software developer.
- Define a Product Name, this Product Name must to be correspondence with actual software product or the product's function, in this example we make the product name "Snake\_game";

**Note:** License ID defined here must be in line with the License ID input when protect software by use of **Virbox Protector**. Then the software user can verify license and run the protected software successfully.

- **Display Name:** This is the name will be show to software users in **Virbox User License Tool**.
- License Type: select to be "Soft Lock", here have two option: "Cloud" and "Soft". In this document we take "Soft" as an example. For the usage of "Cloud", please refer the related document.
- Product Logo: You can also upload your own company logo or product logo, this logo can also be seen in the Virbox User License Tool. For detail setting, like the request pixel, please read the remind information nearby.
- Product Introduction (Optional): Input short description for the product or the function of the software
   Copyright © 2018, Virbox, All Right Reserved.
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that to be protected;

Advanced Option: Each license ID can be attached to three data areas to store license-related data. The three data areas are: Read-Write, Read-Only, and Public area. The size of every area can be set up to 64K. Corresponding to different access attributes to adapt to different application scenarios.

**Note:** For **new starter** of Virbox developer, you can skip this part to next chapter.

- Read-write area: This area can be read and write. For example, some data that needs to be saved during the software operation can be stored here. For how to input/write data to this area please refer the related document.
- Read-only area: This area can only be read. For some configuration file, or other file that you do not want to be changed by other people, you can store it here.
- **Public area:** Both Software users and developers can see this area, such as the product name or some information about the product that can be shown to software users, you can put it here.

ROM	The attachment size may not be bigger than	Browse	Delete
RWM	The attachment size may not be bigger than	Browse	Delete
PUB	The attachment size may not be bigger than	Browse	Delete
Module	Customize the functional module you need	Define	

#### Note:

For how to use these three area, you can see the related document for detail.

If software developers have a lot of software module, and need to issue the license of different modules to different users, this can be implemented through the sub module function. Software module is a Boolean value, each License can have 64 sub modules, for detail information please refer the related document.

If you have already input all of the required information. We have completed the creation of the product, like in the picture blow:



4	→ C ŵ	https://developer.lm-s	and an or a control and a control and a		CI ★	\$ L ⊡ ··
	Virbox	Click for Developer In	formation View Click for your unique SDK I	Download		Welcome Luy sense
aul	General	+ New			Search according to Produc	cts Search
&	Product Management	License ID	Product Name	Creation Time	License Type	Operation
6	Sales Template	2010	Snake_game	2018-07-16 14 09 13	Soft License	2 🖞 🖯
45	User	2018	Snake_test	2018-07-09 18:04:06	Cloud License	Ø 🖞 Ø
6	License Distribution	10	Snake_Test	2018-07-03 14 46 25	Cloud License	a 🖞 O
0	Hardware Lock 🔷 👻					
də.	Task Management 🔍					
٠	Label Management					
	Data Statistics 🛛 👻					
E.	Access Control					
b)	Documentation					
	(()					

**So far,** Product Creation has been completed. If you have more than one kind of software need to be protected, you need to define more license ID and repeat the steps above.

**Note:** The License ID of the product you crated here, need to be in line with the License ID you use to protect software in next chapter, and in line with the License ID you use to issue license, please make sure they are same. In order to make sure a successful license distribution.

Next chapter we will use "Virbox Protector" to protect the software.



# **4**. Protect/Encrypt Software

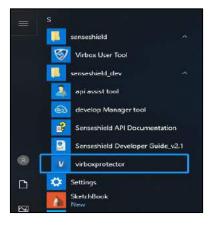
### **4.1 Virbox Protector Introduction**

#### To protect the software we will to use "Virbox Protector".

Virbox Protector is the latest envelope tool for software protection and encryption, it provides top security level to the software being protected with this tool, it integrated multi technology including Virtualization, Obfuscation, Compression, Code transplantation and Code Snippet and Encryption to protect software with flexible and easy to use features for software developer.

Developer even can protect software with top security level without any kind of coding which will save lot of workload for developer. If developer issue license to Virbox EI5 Acme, or issue **Soft License** or **Cloud License** to software user, all of the license issuing will need to use the Software protected by **Virbox protector**.

Also take Windows 10 as an example, open the start menu to open the Virbox protector, like the picture showing blow:



The appearance is like this:





**Application** can be protected with Virbox Protector:

Windows application: **EXE** and **DLL**.

Plugin maybe protected with Virbox Protector is:

#### AutoCAD ARX, Revit etc.

Program Language may protected with Virbox Protector:

$\checkmark$	C	C++
$\checkmark$	VB6.0	VC6
$\checkmark$	VC2003,VS2005-VS2017	Delphi7 DeliphXE-XE10
$\checkmark$	BCB6.0	C#
$\checkmark$	.Net	Java
$\checkmark$	ARX(AutoCAD)	Unity3D
$\checkmark$	Revit(Plugin)	Framework2.0~4.6

Virbox Protector is a fast Deployed Protection/Encryption tool, without any coding Competence, all Protection/Encryption Option can be setup via Virbox Protector;

**Virbox Protector** is suitable for fast deployed encryption and protection to your software application, software developer may protect software by use of Virbox Protector through setup/configure each option of Encryption/Protection without any coding effort for developer, which still can enhance security level.

For more detail operation instruction to Virbox Protector, please refer (yon can get this document from the installation path):

"User Manual: Virbox Protector"

Software developer may obtain latest version of Virbox Protector via below link:

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



# 4.2 Setup Virbox Protector (License Configuration)

Here we will take a "Snake" application as an example, which is a .Net program.

Drag the software you wanted to protect into the protect area.



#### **Protect Steps:**

Basic License configuration: In this section, we will introduce the basic License configuration for the product which created in Chapter 3:

Open file Save Protect		yongqia	ang.lu@senselock.com	Login
ProjectNet_RetroSnaker.exe	license conf	guration		
V license configuration	Type:	Local Remote Cloud Soft	9999	
Protection Options	License ID:	2010		
Message Options	API PWD:	FAD284C 181432D4D891		
	Chipset S/N:		(Optional)	
	OAUTH URL:		(Optional)	
	Cloud URL:		(Optional)	
	Soft URL:		(Optional)	
				3

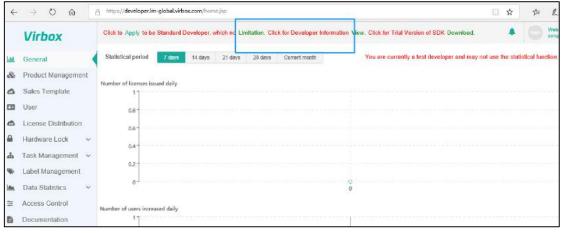
- Login Virbox Protector with Virbox LM account, on the left top pane.
- Select License Type: Soft type.



Note: Virbox Protector support following license Type: Local License Type, Remote (Network) Type, Cloud License Type and Soft License Type. Input License ID, i.e. The License ID you input must be in line with the License ID you have input and created in Virbox LM in previous step.

- License ID, input the license ID we created in chapter 3.
- Input API Password. (If you don't know how to get an API password, please refer the Tips blow.

**Tips:** To get API password, you need to login on **Virbox develop center** and click" **view**" shown in the picture. What's more, API password is very **important** parameter, please keep it in top security.



Click "view", you can copy it here.

eloper informatio	n	
User name	DEVMGR_9a558693dcd8445782b172ebb9d456b7	
Developer name	yongqiang_sense	
Country/Region	China	
Time Zone	(GMT+08:00) China Standard Time (Asla/Shanghai)	
Display name		
Developer logo		
Developer website	Not set	
Developer introduction	Not set	
Developer ID	030000000000009	
API password	Hide	
AP	I password: )D16341	
	le: the password needs to be transmitted in when stm_init in Virbox time API is catled)	
appid/secret	View	
Lock PIN	View	

Chipset S/N (Optional): If you input Chipset S/N here, then protected Software will be only valid and executed with the lock with this Chipset S/N. This function is for Hardware Lock.

 Note: Because PE program would not generate function name in the list, only function address could be displayed. Recommend Developer use third party program to generate the map file. Put the generated map files in same folder with protected software, and then drag the software to be

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protected into Protector, in this way you can see the name of the function in the function list.

### **4.3 Protection Setup Process by use of Virbox Protector**

Developer can configure following detail parameters before software protection according to specific software features, functions, etc.

• Select Functions be protected;

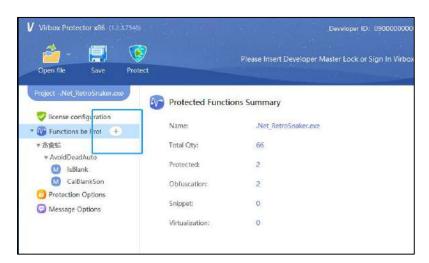
- Setup Protection Options;
- Setup Prompt Message Information;

Virbox Protector x86 (1.2.3.7548)	t		ID: 090000000000	
ProjectNet_RetroSnaker.exe	Vicense conf	iguration	ft	
Protection Options	License ID:	2010	Ĩ	
💬 Message Options	API PWD:	FAD284C 81432D4D891		
	Chipset S/N:		(Optional)	
	OAUTH URL:		(Optional)	
	Cloud URL:		(Optional)	
	Soft URL:		(Optional)	
C:\Users\liuguoquan\Desktop\.Net_Reti	oSnaker.exe 1.0.0.0			.net anycpu   Intel 3

The following are the detail explanation and configuration.



#### 4.3.1 Select Functions to be protected



Click "+" (See picture attached). Usually, software developer need to balance the performance and protection level before software protection.

**Note:** Be careful to select and protect these frequently called functions, since it will decrease software execution performance after protection and encryption.

The **Virbox protector** will list all of the functions used in this software in the left pane, and the functions called times will be displayed in right pane. We can also start to **Analysis** functions by clicking "**Analysis**" before protect software.

Q Search			Anal	
Name	Running times	Protection type	Added	Æ
▼ 含食蛇				_
<ul> <li>AvoidDeadAuto</li> </ul>			1	
😥 AvoidDead		No protected *		
Convert		No protected *		
M IsBlank		Obfuscation *	×	
USCanGo	121	No protected *		
100 InitPoints	260	No protected *		
🚱 CanToTarget	111	No protected *		
CalBlank		No protected *		
CalBlankSon	366120	Obfuscation -	1	
🚱 IsOut		No protected *		
G JudgeDirection	111	No protected 🔹		
<ul> <li>AutoShop</li> </ul>				
-				*
fotal Qty: 66		C 227 10		
	/irtualization: 0	Cancel	Add	

**Running times:** The Functions called times during this analysis process, after you have run the program for some time (several minutes).



Q Search			Anal	
Name	Running times	Protection type	Added	ъ
▼ 合食蛇	22			1
▼ AvoidDeadAuto				
🕼 AvoidDead	22	No protected 🔹		
M Convert		Obfuscation -	*	
S IsBlank		Snippet -	- ×.	-
🐶 IsCanGo	199	No protected 🔹		
🐶 InitPoints	418	No protected 🔹		
CanToTarget	178	No protected 🔹		
📀 CalBlank	12	No protected 🔹		
📀 CalBlankSon	592494	No protected 🔹		
No IsOut	201	No protected 🔹		
💮 JudgeDirection	178	No protected 🔹		
▼ AutoShop	w			-
		1		
Total Qty: 66 ;		Cancel	Add	
Protected: 6; Obfuscation: 5; Snippet: 1;	Virtualization: 0 ;	Current	, that	

To protect the functions of the software, following functions protection mode can be selected: **No protected**, **Obfuscation**, **Snippet** and **Virtualization**.

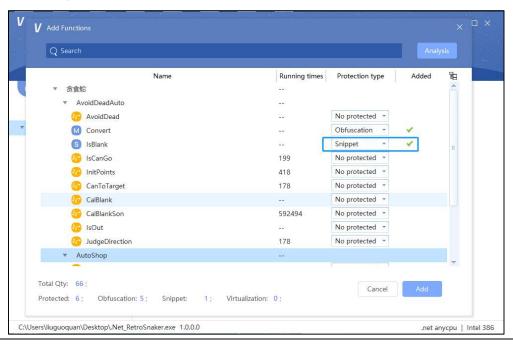
 For the function which call frequently, Select "No Protection" option, since if you protect the functions which is called frequently, it will decrease software's running performance when software is executed;

**Note:** You will find "**Call Times**" for each function after press "**Analysis**" Button after the software to be protected have been run for some time.

Q Search			Anal	
Name	Running times	Protection type	Added	16
▼ <u>会食給</u>	57%			-
🧽 AvoidDead	75.0	No protected -		
Convert	770) 1	Obfuscation -	~	
[S] IsBlank		Snippet *	4	
IsCanGo	199	No protected *		
00 InitPoints	418	No protected -		
CanToTarget	178	No protected +		
6 CalBlank	12.1	No protected +		
CalBlankSon	592494	No protected *		
😳 IsOut	221	No protected *		
😗 JudgeDirection	178	No protected *		
				5
ital Qty: 66;		Cancel	Add	1



Select "Code Snippet" Protection mode for Important Functions, which will increase protection level for those important functions or IP.



**Note:** Do not select too many functions with "**Code snippet**", since it will decrease software execution performance when selected too many functions be protected with this option;

Select "Obfuscation": Virbox Protector will translate the code instruction into a stream of pseudocode that neither the machine nor the human can recognize. When the pseudo-code executed, the software will translate and interpret to restore the code into the original code. To let it executable.

Q See	rch					Analysis
	Nan	ne		Running times	Protection type	Added B
v 5	食鯨			35		
5	AvoidDeadAuto			272		
Js.	AutoShop					
-	EatTargetAuto					
	🚺 EatTarget				Obfuscation •	~
	😡 LeftOrRight				No protected *	
	00 UpOrDown				No protected =	
Þ	frmFactory					
Þ	Snake			(77)		
Þ	frmGame					
>	Program					
þ	SnakelO					
Þ	SnakeLabel					
íotal Qty:	66;					1000
Protected:	2; Obfuscation: 2; 5	nippet: 0;	Virtualization: (	0	Cancel	Add

 Select "Virtualization": Virbox Protector will compiles instructions into virtual code and run them in the specified virtual machine.



Q Sea	ırch			Analysis
	Name	Running times	Protection type	Added
(V)	401000	1229 1229	No protected *	
0	401020		No protected 🝷	
	401090	225	No protected *	
(V)	4010D0	ತನ	No protected 💌	
•	4010F0	228	No protected *	
0	401110	551	No protected	
	401140	225	No protected	
0	401250		Obfuscation	
	401290		Snippet	
0	4012D0	<del></del> .	Virtualization	
	401310		No protected	
0	401380		No protected ·	
	4013A0	1228	No protected *	
-			1	-
Total Qty:	5875		Cancel	Add

Note: For .Net Programs, Support function protection options: No protect, Obfuscation, and Snippet; For Other Programs (PE or local program): Support Function protection options: No protect, Obfuscation, Snippet and Virtualization.

#### Here is a suggestion:

 Select "Code Snippet" protection option for Important Functions, which increase protection level for those important functions or IP;

But do not select too many functions and protected with "**Code Snippet** ", since it will decrease software execution performance;

#### 4.3.2 Setup Protection Options for protected software

Protection Option setting will be different for different program, Virbox Protector also provides "**Protection Option**" functions for professional developer when they protect software application, This "**Protection Option**" functions have little difference for PE (local program) and .NET application due to difference of PE and .NET technology. Developer can select and setup these "**Protection Option**" in actual project. For **.NET program**, following options could be set and selected:



ProjectNet_RetroSnaker.exe	Protection Optic	ons	
Vicense configuration	⊿ File		
r 🚱 Functions be Prot (十) * 贪食蛇	Output File	.Net_RetroSnaker.ssp.exe	1
• Program	Protection Options		
Main	Obfuscation	□ <b>2</b>	
Protection Options	Compression	□ 3	
💬 Message Options	Log Generation	□ 5	
	Check Interval (S)	60 6	
	<mark>⊿ d</mark> s	Ð	
	密码	*******	

For local program (PE), following options could be set and selected:

V Virbox Protector x86 (1.2.3.754	8)	Developer ID: 030000000000000	≡ - □ ×
Open file Save Pro	P vtect	lease Insert Developer Master Lock or Sign In Virbox Cloud	Login
Project -注入器.exe Icense configuration	Protection Options		
Functions be Prot + M 4FF9DA	Output File	注入器.ssp.exe	1
Protection Options	Protection Options		
💬 Message Options	Compression	□ 3	
	Resource Section Encryption	□ 4	
	Log Generation	5	
	Check Interval (S)	60 6	
	4 Plug-in		
	⊿ ds	$\odot$	
	密码	马 ************************************	
C:\Users\liuguoquan\Desktop\办公文	【档+文件\测试程序\注入器.exe 2.0.0.1	Local w	vin32   Intel 386

#### Press the "Protection Option"

- 1. **Output File**: Here you can change the output file path of the software.
- 2. Name Obfuscation: Obfuscation to each Functions name;

Note: Only support .Net program, do not support IIS type program.

3. Compression: Compression means to compress the application after protection and reduce size of



application, it is also prevents static anti-compile the software application by hacker who use static anti-compiler tools. When you select Compression: It will keep and control the size of protected software application not too big size. Also will enhance protected software's Security level after compression; For relatively big size program this function will be obvious to make the program smaller size.

**Note:** Do not support .Net dynamic library, ARX library compression.

4. **Resource Section Encryption:** Encrypts the resource section of the protected program, and requires the user to use the corresponding license to decrypt the program when executing the program.

**Note:** Encrypt the resource section. Only local programs are currently supported.

- 5. **Log Generation**: Log file will be created when select this option, when the protected software have problem when it is running, the generated log will be helpful for trouble shooting;
- 6. Check Interval: (In Seconds): Setup license check interval in seconds. If no valid license has been found in next check interval, the executed application will either quit or prompt error message if developer setup prompt message. If developer set "Check Interval" time to be 0 second, then the application will not check license.

**Note: Plug-in**, this is for **Resource Section Encryption**, if you want to protect resource, you need to open this option. For detail information please refer the related document.

#### 4.3.3 Message Option

 Setup the prompt message information to software user when License become invalid, includes setup the title of Message, left time before license expired, left counts (Consumption) and other message. This is helpful for software user to understand software operation status and locate the problem happened when the protected software are running.

For example: In "License Invalid Program will" field, if you input message "Invalid License", when the license is invalid, a window of "Invalid License" will remind you the reason why the protected software stop running.

**Note:** Please set language to **English** as the arrow remind in the picture, default is Chinese. Coming version, we will set the default language to be English.



Open file Save Pr	P rotect	lease Insert Developer Master Lock or Sign In Virbox Cloud
ProjectNet_RetroSnaker.exe	Message Options	
V license configuration	Message Options	
<ul> <li>✓ Functions be Prot +</li> <li>▼ 含食蛇</li> </ul>	Language Setting	English
▼ □ B 38	License invalid, Program will	Be frozen, User can select retry or exit.
Main	Postpone to exit the Program	0
Protection Options	Tips Tittle	Virbox Protector
😳 Message Options	Customized Message	
	Count Threshold of Remindin	g 10
	Day Threshold of Reminding	10
	Warn of remainder count	Count Left: {COUNT}{ENTER}
	Warn of day count	Day Left: {DAY}{ENTER}
	Warn of SS low version	You SS low version, Please contact the agency to update
	Warn of can not find license	Error Code{ERROR}: Can't find license.{ENTER} It is necessary to access the license
	License Expired Prompt	Error Code {ERROR}: License Expired{ENTER}It is necessary to access the license N
	Reach count Limit Prompt	Error Code{ERROR}: Concurrent count comes to the limit.{ENTER}License Expired{

#### 4.3.4 Protect the Software

When you complete each option Setup, click the Button "**Protect**" on the top of Menu to protect this software; It will start to protect the software.

Virbox Protector x86 (1.2.3.75	548) rotect	Developer ID: 09000000000000 $\equiv - \Box \times$ Please Insert Developer Master Lock or Sign In Virbox Cloud
ProjectNet_RetroSnaker.exe	Protection Option # File	ins
Protection Options	Output File	.Net_RetroSnaker.ssp.exe
Message Options	4 Protection Options	
	Obfuscation	
	Compression	
	Log Generation	
	Check Interval (S)	60
	# Plug-in	
	⊿ ds	0)
	密码	******
:\Users\liuguoquan\Desktop\.Net	RetroSnaker.exe 1.0.0.0	.net anycpu   Intel 38



Open file Save Protec		yongqiang.lu@senselock.com Login
ProjectNet_RetroSnaker.exe	V license configuration	
V license configuration	Type: 🗌 Local	🗌 Remote 📄 Cloud 🕜 Soft
Protection Options	License ID: 2010	
💬 Message Options	Binding	(Optional)
	OAUTH URL:	(Optional)
	Cloud URL:	(Optional)
	Soft URL:	(Optional)

V Virbox Protector x86 (1.2.3.7548)		Developer ID: 09000000000000 $\equiv$ $ \Box$ $ imes$
Open file Save Prote	ct	yongqiang.lu@senselock.com
ProjectNet_RetroSnaker.exe ② license configuration ▼ ⑥ Functions be Prot + ▼ 含食範	V Confirm	Remote Cloud Soft X
<ul> <li>Program</li> <li>Main</li> <li>Protection Options</li> <li>Message Options</li> </ul>	Compiling Successful Verify software:.Net_Re	etroSnaker.ssp.exe tione() Verify Quit tione()
	Cloud URL:	(Optional)
C:\Users\liuguoquan\Desktop\.Net_Ret	troSnaker.exe 1.0.0.0	.net anycpu   Intel 386

Virbox Protector will pop up to **verify** the license after protection completed, if you press "**Verify**" button of "Pop up Window", then a prompt message will pop up and show: "No license has been found, please plug in User Lock or login Cloud Account".



Virbox Protector	×	
Error Code13000020: Can't find license. It is necessary to access the license No.200 when executing. But this license is not found. Please plug in a user key or login your account which have license No.200 and click " Retry" to continue.		
Cancel		

The reason to pop up this message is because of Virbox split the software protection and license into 2 steps, and you just completed the protection of software and haven't issue the license to EL5 Acme dongle or issue soft license or cloud license yet.

# 4.4 Protected Software

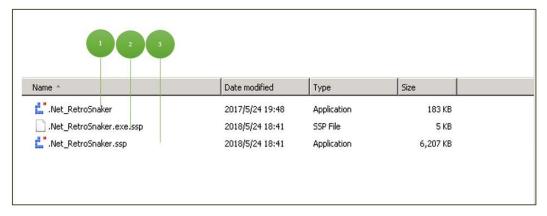
Now we can take a look at the folder before software protection and after protection.

The original folder before Software protection shows below:

Name ^	Date modified	Туре	Size	
💒 .Net_RetroSnaker	2017/5/24 19:48	Application	183 KB	

Only the original software will be protected.

The folder after software protection finished is as blow:



- 1. Original Software application;
- 2. A configuration file has been generated after software protection which contains some configuration information and API password accordingly, this can be deleted;
- The protected software, with all kinds of encryption option you setup earlier; we Suggest you to modify
   Copyright © 2018, Virbox, All Right Reserved.
   Page 28 | 52



this application name to be the original application name;

Note: The default path to generate the protected software is same with the Original Software.

Software protection has been completed till now, we will create correspondence sales template for different

market segment by use of Virbox Developer Center (Virbox License Manager) in next chapter.



# **5.** Issue License

In Chapter 3, we have created "**Snake\_game**" product by use of **Virbox Developer Center** and protected product by use of Virbox Protector in Chapter 4. In this chapter, we will use **Virbox Developer Center (Virbox LM)** to create sales template for this product and issue license.

### 5.1 Create a new Sales Template (By use of Virbox Developer Center)

#### Why we need a Sales Template?

Except of Some software application are customized to specific project, most of software applications are developed for mature markets and sell these software with volume, the bigger the market in potential, the more quickly delivery software are requested.

The purpose to create sales template is to support developer to Licensing software in volume and deliver software more quickly to target client according to different market strategy.

#### Create a new Sales Template:

Sign in Virbox Developer Center, click "Sales Template",

$\leftarrow$	ightarrow O G	A	https:// <b>deve</b> l	oper.lm-global.v	irbox.com/home.jsp#						
	Virbox	C	Click for Developer Information View. Click for your unique SDK Download.								
<u>.111</u>	General		+ New	🏛 Batch De	ete						
&	Product Management		No.	Ten	nplate Name		License ID	Product Name			
<b>a</b>	Sales Template		685147	Trial	version for 10 day		2018	Snake_test			
	User		665553	Tria	Version for 1 month		10	Snake_Test			
	License Distribution										
	Hardware Lock v										
#	Task Management 🗸 🗸										
	Label Management										
	Data Statistics v										
***	Access Control										
È	Documentation										

We need to create a new template, so click "**New**" button, then the new window will pop up, You need to select the product you want to sell and you can input the detail information of the sales template here. In the picture we take a "**Snake\_game**" product trial version for 10 days for an example.



							×
* Template name	Template name	1					
* Product	Snake_game	2				$\sim$	View
* License Type	Soft based licer	nse (beta)					
Perpetual Licensing	OFF						
Time Limit	Specific time	ime as lio	ense start time				
Start time			00	Hour	00	Minute	
	(GMT+08:00) China St		e (Asia/	Shangh	ai)		
		Ê	23			Minute	
	(GMT+08:00) China Sta	andard Lim	e (Asia/	Snangn	aı)		
Time span	Time span, unit: da	ay	4				OFF
Usage count	Usage count		5				OFF
* Off-line duration	Off-line duration (1	-180 days	) 6				
mber of concurrent	less than or equal t	to 65535 ι	inits 7	7			
		05505	., 0				
binding devices	less than or equal t	10 65535 L	inits C	,			
* Offline binding	Unsupported (	Suppor	ted 9				
Advanced Opti	ons						
							rm "DCancel
	* Product * License Type Perpetual Licensing Time Limit Start time End time Time span Usage count * Off-line duration mber of concurrent devices mulated number of binding devices * Offline binding	Product Snake_game     Soft based lice Perpetual Licensing     Time Limit      Specific time     Start time     (GMT+08:00) China St     End time     (GMT+08:00) China St     Time span     Time span, unit: da     Usage count     Usage count     Usage count     usage count     less than or equal     binding devices	* Product Snake_game 2      * License Type Soft based license (beta) Perpetual Licensing     Time Limit Specific time Specific time     (GMT+08:00) China Standard     (GMT+08:00) China Standard     (GMT+08	* Product Snake_game 2      * License Type • Soft based license (beta) Perpetual Licensing • • • • • • • • • • • • • • • • • • •	Product Snake_game 2      * License Type Soft based license (beta)  Perpetual Licensing      Time Limit Specific time     O Set license isses     Start time     (GMT+08:00) China Standard Time (Asia/Shangh     End time     (GMT+08:00) China Standard Time (Asia/Shangh     Time span     (GMT+08:00) China Standard Time (Asia/Shangh     Time span     Time span, unit: day     4     Usage count     Usage count     Soft     less than or equal to 65535 units 8     binding devices     * Offline binding     Unsupported     Supported     Supported	* Product Snake_game 2      * License Type • Soft based license (beta) Perpetual Licensing      • OFF Time Limit • Specific time • Set license issuing t     Start time • O Set license issuing t     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O (CMT+08:00) China Standard Time (Asia/Shanghai)     (GMT+08:00) China Standard Time (Asia/Shanghai)     (GMT+08:00) China Standard Time (Asia/Shanghai)     Time span • Time span, unit: day 4     Usage count • Usage count 5     * Off-line duration • Off-line duration (1-180 days) 6     mber of concurrent devices     mulated number of     binding devices     * Offline binding • Unsupported • Supported 9	* Product Snake_game 2      * License Type • Soft based license (beta) Perpetual Licensing      • OFF Time Limit • Specific time • Set license issuing time as lice     Start time • O Set license issuing time as lice     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     End time • O O Hour 00 Minute     (GMT+08:00) China Standard Time (Asia/Shanghai)     (GMT+08:00) China Standard Time (Asia/Shanghai)     Time span     Time span     (Issee count 5     (SMT+08:00) China Standard Time (Asia/Shanghai)     (SMT+08:00) China Standard Time (Asia/Shanghai

Select the product "Snake\_game" which we have created in chapter 3.

- Enter Template Name into the "Template Name". In general, the name of the template definition should be clearly available, easy to find, and preferably consistent with the corresponding business scenario. In our example we use "Trial version for 10 days" for an example which clearly describe this sales mode.
- 2) **Product**: Select the Product you created in chapter 3.
- 3) Perpetual Licensing:
- If switch off "Perpetual Licensing", you can setup License valid time period;

#### Time limit:

- If you select Specific time, Setup License start time and end time, the license will be valid only during specific time period;
- If you select "Set license issuing time as license start time", the license issuing time will be license issuing time, in combination with the setting of Time Span, This license will become invalid when time span expired.
- Perpetual Licensing: If you switched on this option, Issue license to be a "Perpetual Licensing", then this license issue to software user will be perpetual license and never be expired;
- 4) **Time Span**: License start time start from when software user first time to verify license, the license will be valid during time period setting;



- 5) **Usage Count** (Consumption): Set a limited number of use conditions, each time use, the number you can use the software will decrease, License will be expired when counting to zero.
- 6) **Off-line duration:** Soft license (online) requires regular online activation to ensure the security of the key and software. The offline duration indicates the days of the license can be used offline. Without online activation within the time period set the soft license will be invalid. The maximum setting is 180 days.
- 7) Number of concurrent devices: that is, the number of devices bound at the same time with the same license after logging into the same "user account", the number of devices bound at the same time decreases with each binding count, if the number count to "0", you can't bind more device.
- 8) Accumulated number of binding devices: Set a accumulate number of binding devices of the license, each time the License bind one more device, the number decreases, if the count returns to zero you can't not bind any more device.
- 9) Offline binding: For Soft license (online), which need regular online verification in certain time of period, for the software user is always in offline environment. Virbox launched offline verification solution. If you choose "support" means this soft license support off-line verification (This can be set in "off-line Duration" feature set). In this document we use offline verification, so we choose "Supported" here.

Click "**OK**" to create the Sale Template you want to create, then new sales template will be created successfully. It is successfully created here:

**Note:** Connect to Internet to verification at regular interval means Virbox user license tool to connect to Internet. This is to update secret key information to make sure the security of the software.

÷	→ ○ û	合 https://dev	eloper.Im-global.virbox.com/home.jsp#					, @ ·
	Virbox	Click for Developer In	formation View. Click for your unique SDK D	ownload.			A ().**	oome <sub>ng_sense</sub> •
-04	General	+ New D	Batch Daletu			Search a	ccording to Template Name	Search
æ	Product Management	No.	Template Name	License ID	Product Name	Creation Time	License Type	Operation
۵	Sales Template	690987	Trial version for 10 days	2010	Snake_game	2018-07-16 15:39:17	Soft License	12 <b>0</b> 0
	User	685147		2018	Snake_test	2018-07-09 18:05:04	Gloud License	Ø 🖬 🕅
đ	License Distribution	665553	Tria	10	Snake_Test	2018-07-03 14:52:57	Cloud License	20
2	Hardware Lock v							
h	Task Management 🔍 🗸							
	Label Management							
ha.	Data Statistics 🛛 🗸							
	Access Control							

# 5.2 Add User

Why we need to create user?

If the software user want to use the protected software, software developer need to issues license to software user. And they need use Mailbox or other information as a way to bind the license with software user's information.

Software Developer can create and manage user. Every user can have multi License in same account.



Developers can browsing and searching, edit, and delete users. After the user is successfully created, the email or mobile phone information can't be changed, and the release license could be bound to the user's mailbox or mobile phone number.

Following steps will show you how to Add User:

• Click User item on the left pane, and click "+User",

	Virbox	Clic	k for Developer	Information View. C	lick for your uni	que SDK Do	wnload.		
dıl	General		🏭 User	Batch Delete	Export				
8	Product Management		User Name	Email		Mobile	Telephone	Gender	Contact Address
ക	Sales Template		] DEVMGR_9a5	58693dcd8 yong	elock.			Male	
-	User								
@	License Distribution								
0	Hardware Lock								
ሐ	Task Management								
	Label Management								
<b>A</b>	Data Statistics	e							
	Access Control								
1									
÷ 1	Documentation								

 Input the detail information to create a new user(The fields with red mark are required), Email address or phone number can also be inputted.



Cr	eate a new user	r	×
	★ Account type	Set an email address as an account	
	★ Email	Email	
	Mobile	Mobile(example: 18XXXXXXXXX)	
	Gender	~	
	Telephone	Telephone	
	Contact address	Contact address	
	Remarks name	Remarks name	
	Description	User description(within 600 letters)	
	Label	Add label	
		Activation is required when login for first time	
		✓Save つ	ancel

After input the information, save and complete to create the user.

• If you use your mailbox to create a user, your mailbox will receive an random password, please remember this password, we will use this to login Virbox User License Tool to do license verification.

Till now, Creation of the **User** and **Sales Template** has been completed, we will evaluate licensing and distribution next.

**Note:** Developer may create different sales template for same software according to software sales strategy to different market segment.

# **5.3 License Issue (Virbox Developer Center)**

Sign in **"Virbox Developer Center"**, click **"License Distribution**" on the left pane of Main Menu. Select the template you have created in last chapter. And click **"Issue a License**" Button.



			developer.lm-global.v				2012/2021				¥	t≞ lL	ß
	Virbox	CIICK 10	Developer Informat	ION VIEW; CIICK TO	ryouruni	ique SUK Do	wnioad			1			
dd.	General	4	ssue a License	🛷 Batch issuir	ig	1 Batch De	elete 🛛 🖶 Exp	sit	Search according	lo User Name	Sea	irch 1	Filtering
-	Product Management	_ U	ter Name	Remarks Nam	License I	Product Nar	Template Name	Perpetual License Si	art T. License End Ti	I Issuing Date	License 1	Operation	
۵	Sales Template		WMGR_9a558693dcc	: 81	2018	Snake_test	Trial version for 10 c	ay Non Perps 2018-07-09	DO:0 2018-07-19 23:5	2018-07-09 18:0	Cloud Lice	2 1 0	0
	User							-	i.				
•	License Distribution												
1	Hardware Lock 🗸 🗸												
4	Task Management 🗸												
Ð	Label Management												
da.	Data Statistics 🛛 👻												
E.	Access Control												
	Documentation												
B													
	erms of Service for Virbox LM												

A window to input the detailed information will pop up, you need to select the "Sales Template" you just

created,

Issue a	a License		×
	* Template	Trial version for 10 days View	
	Product	Snake_game	
	Module	View	
	License Type	Soft based license	
	Perpetual	No	
	Time Limit	Specific time	
	Start time	2018-07-16 00:00:00	
		(GMT+08:00) China Standard Time (Asia/Shanghai)	
	End time	2018-07-25 23:59:59	
		(GMT+08:00) China Standard Time (Asia/Shanghai)	
	Time span	-	
	Usage count	_	
	Off-line duration	2	
Nur	mber of concurrent devices	5	
Accur	mulated number of binding devices	10	
	Offline binding	Unsupported	_
	* User	Selected user list Select	
		User Name:DEVMGR_9a558693dcd8445782b172ebb9 name:	
		✓ Issuing	ncel



Click "Select" to select user:

S	Select user	×
	Please input a user name to search Search	
	User name     Email     Mobile     Remarks name       DEVMGR_9a558693dc     yu@senselor	]
		J
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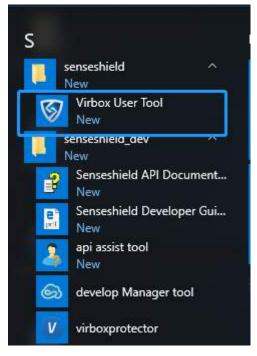


# **6.** License Verification & Using Protected Software

### 6.1 Run Virbox User License Tool on Online Computer

If you want to verify the protected software, you need to start the Virbox User License Tool and sign in the Virbox LM account to let the soft lock bind to your computer.(To let the account bind with the hardware 's fingerprint) As the software user's offline (Offline computer) computer can't connect to Network directly, to verify License, you need to use one computer that can connect to Internet (Online Computer) to generate the verification file. So now we need one online computer and install Virbox User license Tool on both **Online** and **Offline** computer. The software download link is: <u>https://lm-global.virbox.com/resource.html</u>

Open "Virbox User License Tool" as in the picture blow:



The Virbox User License Tool will start.

The main steps to finish the Hardware fingerprint binding are as follows:

- Generate c2d file on offline computer with Virbox User License Tool.
- Copy c2d file to online computer, generate the d2c file with c2d file with Virbox User License Tool.
- Copy d2c file to offline computer, and finish verification on offline computer with Virbox User License Tool.
  Next will be the detail configuration of above steps.



## 6.2 Offline software verification (Hardware fingerprint binding)

Following steps will show you how to do offline binding in detail

### 6.2.1 Generate c2d file on the Offline computer

- Open Virbox User License Tool, click "Accounts",
- Click "Offline" ,

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• Generate offline bind c2d file, and save the .c2d file.

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Now we have created c2d file successfully. We need to copy this c2d file to online computer.

#### 6.2.2 Create d2c file on the computer Online

#### How to do?

- Also need open Virbox User license Tool.
- Click "+" to login (This account need provided by software developer, and is authorized. The License should be soft lock and support offline verification), In the "Add user" step, you have the email address as an account and the password you received in your mailbox (Chapter 5.2).
- Login the account.

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	yongq:	License Info
Softwares	» yonge internatio	A User Name:       yongqiang.lu@senselock.com(International)         ☆ Total Licenses:       2         ② Available Licenses:       2
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Service		Refresh Default Settings Logout
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1		User Name:	Email or phone number	Register			
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• Double click the license, the detail information of the license will show:



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Dongles		License Status:	Available
		Start Date:	2018/07/18 00:00:00
2.		Expired Date:	2018/07/27 23:59:59
Service		First Use Date:	2018/07/18 10:52:13
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• Click "Download Offline Bound d2c file"

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Service		d2c File Path:	C:\Users\liu	uguoquan\Desktop\sense_offline_bind_201807	Browser	
R		Open d2c file	directory	Start	Cancel	
		🙏 Concurren				_
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- Selected the c2d file, you generated from last step on the Offline computer, software user need to copy it here.
- Click "Start",



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You can select the path to generate d2c file, here I put it to desktop. If the file is generated successfully, it will show "**Applied Done**" like in the picture.



**Note:** 1. Click "**open d2c file directory**", also will show the path of the file. 2. The valid time of this d2c package is 24 hour, please finish binding during this time.

#### 6.2.3 Verify d2c file on the Offline computer

Now we need to copy d2c file to the computer offline and complete verification.

- Copy the **d2c** file generated from the computer that can connect to Internet (Online computer).
- Import it in to the computer that will use protected software that can't connect to internet (Offline computer).



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		Activate Win Go to Settings to
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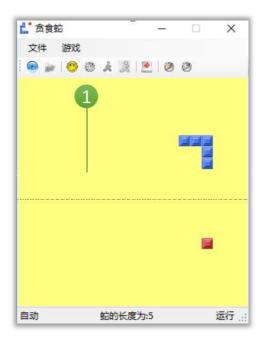
Now we have verified the license on the Offline computer.

If you have upload a logo in 3<sup>rd</sup> chapter when you create the product, you also can see the **logo** in the left top side.





Execute with valid license on the offline computer, please see attached sample program;



It can be run successfully.

When valid license is not found or the binding is not succeed, the software execution will stop and pop up following window:





# **7.** Virbox User License Tool

- The functions of Virbox User License Tool is setup security tunnel between Protected Software application and Soft License (Offline) which stored license, it is not necessary for developer to maintain this tool in daily operation. Virbox will provide continuously update/upgrade this tool and reduce developer workload which will help developer focus to develop their software only.
- Virbox User License Tool uses API for license verification and support device independently, Virbox User License Tool support license verification to all kinds of license repository: Hardware based Dongle, Soft Lock and cloud based lock.
- Virbox User License Tool support with Security API, Security driver software and other security technology, it provides dynamic security and protection to software being protected.
- Every software user must install the Virbox User License Tool for license verification, it is not necessary for software user to download and install developer SDK, and just install this user license tool for software execution, please go to following website to download latest version of Virbox User License tool.

Download Link: https://lm-global.virbox.com/resource.html

Any Question or Technical inquiry to Virbox solution, please visit Virbox LM website (https://lmglobal.virbox.com/) for downloading latest Virbox Software and get online support from Virbox Technical team!



# Summary

We have briefing for Software developer the whole Operation process of:

- How to Define and Well Plan a software Product and Product ID (License ID)=>Virbox Developer Center;
- How to use Virbox Protector to protect/Encrypt the software application=> Virbox Protector
- How to Create Sales Template in the Virbox Developer Center;
- How to Issue Soft license to software user =>Virbox Developer Center
- Executed protected Software with Soft License (Offline): License verification via Virbox User License Tool in the software user premise.



# Appendix

# Glossary

[	
Virbox Elite 5 Acme	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.
	Virbox LM is cloud based Software protection, License Entitlement solution and
	cloud service which provides 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. Virbox LM One Stop Solution
	consist of following components: Virbox License Manager (Virbox Developer
Virbox LM	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.
	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.
	Virbox Developer Center consists of Developer website and Open API, It
	provides cloud based Service and website for License Issue and License
Virbox Developer Center	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.
	Virbox Protector is the latest envelope tools for software protection and
	encryption, Virbox Protector integrated multi security technology including
Virbox Protector	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 can save lot of
	workload and effort in software protection process.
	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)
Virbox Developer Utility	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.
	A software installed in software user's site that can be used for license
Vieben Heer Lieben Teel	verification, update and transfer service, Virbox User License Tools works with
Virbox User License Tool	Virbox License service and provides static and dynamic protection service to
	software installed in software user's site.
Product	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.
	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
Sales Template	market segment. So, Virbox designed the following "Concept" in Virbox License
	system to reduce duplicate workload for developer in protection and license
	process: *Sales Template*, developer may setup the different limitation to
	same product in different Sales Template to meet different sales and marketing
	strategy.
	License ID is the unique indicator which used in the software protection and
	license issuing/distribution process in the Virbox LM system, which represents
License ID	the License No. for software. For details introduction to Virbox License
	Management and License concept, please refer to "Virbox License System"
	Developer must assign associate License ID to the product created. And the



	Lineare ID month and the doublingted end and and for other starts 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.
Account	Account sign up by "user" in Virbox developer Center or Virbox User Center,
	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;
	For Software user, they can sign up an 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;
	Virbox Solution provides 2 kinds of hardware lock for software developer:
	Master Lock and User lock; master lock is the unique Identity for each
Master Lock	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.
	User lock is the hardware based lock deliver to software user which contains
User Lock	the license file issued by Software developer, Virbox Provides following Virbox
USEI LULK	EL5 user lock to developer: EL5 Acme, EL5, EL5 RRTC, EL5 Genii.
	Soft Lock contains software license, saved in local safety environment. Which
Soft Lock	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.
	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
Cloud Lock	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.
	Virbox SDK provides a complete package of APIs (Application Program Interface)
	for license management and licensing that will help software developer get the
ΑΡΙ	most licensing function 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.
Control API	This API is the management interface of Virbox License Manager, here referred
	to as Control API. Control API will mainly be used and provides the inquiry to
	the hardware lock (dongle)'s information, inquiry to license terms and status,
	inquiry to license session etc.
	More details to how to use Control API and use case, please refer to Virbox
	License Architecture.
	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
Runtime API	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.
	Virbox SDK provides "Developer Utility", the local License Manager, for
	developer to issue the license to hardware lock (Virbox EI5) 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.
d2c API	the d2c package created by d2c API is the only license update package which
	can be recognized and identified by Virbox EL5 Acme 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.
	Note: Calling d2c API is quite complicate process, more details, please refer to
	sample file.
	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
Open API	system in developer site, such as CRM or ERP system.
Open API	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]
API Assistant	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, and can also get the demo code. You can



	quickly familiarize with API and functions without coding.
	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.
	"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.
Code Fragmentation	The Code Snippet Execution" can be simply understand as breaking down the
Execution	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.
	The Anti-Hacker service is composed of kernel state protection component and
	suspicious feature database collection component. It will keep on upgrade and
Anti-Hacker Service	collect the suspicious features of hacker, which will be used to help to protect
	the software being protected. And will protect the memory from being
	tampered. To make the software protection from static to be dynamic.

## 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.