


# **Morpho License Manager User's Guide**

Reference : 2016\_2000021908

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## 1) Introduction

Morpho License Manager is a component which manages different protection type (with external hardware protection device or machine-lock protection).

It stores licenses and made them available to other Safran Morpho components to allow/deny access to specific functions. Each component is responsible of its licenses definition and use.

If a component which uses Morpho License Manager does not work, you have to:

- install Morpho License Manager
- ask for licenses to Safran Morpho (or use a preloaded hardware such as a dongle or MSO)
- install licenses

It is available on Windows, Linux and mobile platforms.

### 1.1) Description

Morpho License Manager is composed of two elements:

- A service/daemon which collects licenses available and allows other components to ask for a specific licenses
- A Manager (Graphic UI or console) which shows the installed licenses and stores new licenses in the protection's hardware
- A tool to install licenses concatenated in a file (useful for deployment on a large set of computers)

The Graphic UI is available on windows platforms only (fig1).

Tool	Windows	Linux	Android
Service	X	X	X
Manager (GUI)	X		
Manager (Console)	X	X	X
Batch License Installer	X	X	

fig1. Morpho License Manager components availability by platform

For iOS/Windows Phone, licenses are embedded with application (=> each application have to manager its licenses).

## 1.2) Supported protections

Morpho License Manager supports the following protections (fig2):

- MorphoDongle (hardware)
- MSO - MorphoSmart (Safran Morpho single fingerprint sensor - hardware)
- SafeNet Dongle (hardware)
- MorphoTop (Safran Morpho multiple fingerprint sensor - hardware)
- Machine-locked protection (associated with computer or terminal)

Machine-locked protection works in two modes:

- Standalone: licenses are associated with local machine and is stored on this machine (this is the typical use of this protection)
- Server: licenses are stored in a remote server (a pool of server) available through the network. Licenses are associated with remote server with a limit per license

Only standalone machine-locked protection is available by default with the standard delivery of Morpho License Manager. This document assumes that your environment is running in this mode. For the server machine locked protection, refer to the document which explains how to install and configure a pool of server.

Protection	Type
MorphoDongle	Hardware
MSO	Hardware
SafeNet Dongle	Hardware
MorphoTop	Hardware
Machine locked (Standalone)	Software
Machine locked (Server)	Software

fig2. Type of the protections

**IMPORTANT : Since version 4.6.3 of Multiprotect there is an incompatibility between old token license server (delivered in previous Multiprotect delivery) and new Multiprotect version. YOU HAVE TO INSTALL NEW TOKEN LICENSE SERVER IF YOU PLAN TO USE NEW VERSION OF MULTIPROTECT.**

### 1.3) Supported Platforms

Morpho License Manager is available for the following platforms (fig2):

- Microsoft Windows 2003 (no more tested since 4.1 but should be compatible),
- Microsoft Windows XP (32bits, 64bits),
- Microsoft Windows Vista (32bits, 64bits).
- Microsoft Windows 2008 (32bits, 64bits),
- Microsoft Windows 2008 R2 (32bits, 64bits),
- Microsoft Windows 7 (32bits, 64bits),
- Microsoft Windows 8 (32bits, 64bits),
- Linux (Kernel 2.6.x) (32bits, 64bits) – Tested RHEL 5.3, CentOS 6.x + Ubuntu 10.04 LTS 32 bits,
- Android 4.x or higher

Protection	Windows standalone	Windows light	Windows network	Windows commuter
MorphoDongle	X	X	X	X
MSO/CBM	X	X	X	X
SafeNet Dongle	X		X	X
MorphoTop	X <sup>(2)</sup>	X <sup>(2)</sup>	X <sup>(2)</sup>	X <sup>(2)</sup>
Machine locked (Standalone)	X			
Machine locked (Server)			X <sup>(6)</sup>	
Commuter (Server)				X <sup>(6)</sup>

Protection	Linux standalone	Linux light	Linux network	Linux commuter
MorphoDongle	X	X	X	X
MSO/CBM	X	X	X	X
SafeNet Dongle	X		X	X
MorphoTop	X <sup>(3)</sup>	X <sup>(3)</sup>	X <sup>(3)</sup>	X <sup>(3)</sup>
Machine locked (Standalone)	X			
Machine locked (Server)			X <sup>(6)</sup>	
Commuter (Server)				X <sup>(6)</sup>

Protection	Android	iOS	Windows
------------	---------	-----	---------

			Phone
MorphoDongle			
MSO/CBM	X <sup>(4)</sup>		
SafeNet Dongle			
MorphoTop	X <sup>(7)</sup>		
Machine locked (Standalone)	X <sup>(5)</sup>	X <sup>(5)</sup>	X <sup>(5)</sup>
Machine locked (Server)			
Commuter (Server)			

fig3. Protection availability by platform

- (1) : MorphoDongle is disabled by default on Linux ( see paragraph 8) to enable it) and is not available on all Linux distributions (only Ubuntu 10.04/12.04 or CentOS 6.x are supported )
- (2) : MorphoTop is not available on Windows 8 and in 64 bits version
- (3) : MorphoTop is disabled by default on Linux ( see paragraph 11) to enable it) and is not available on all Linux distributions (only Ubuntu 10 or 12 )
- (4) : CBM is only available on MorphoTablet
- (5) : Specific mobile standalone license for each platform (not compatible with Windows/Linux standalone license scheme)
- (6) : Since version 4.6.3, there is an incompatibility between new Multiprotect daemon and older SafeNet token license server (old license server was based on SafeNet RMS 8.5.x and Multiprotect uses SafeNet RMS client in version 8.6.x and new RMS client is not compatible with old token license server).
- (7) : MorphoTop is supported since version 4.7.3 of protection on Android

## 1.4) Release history

### 4.7.4 (14/10/2016) on Windows / Linux / Android / iOS / Windows Phone

- Update of software license COTS version on Windows / Linux (impact on every delivery standalone/network/commuter)
- Update security checks on iOS
- Support MorphoKit mapping on Android
- Update version of security tool used to protect binaries on Windows

### 4.7.3 (09/09/2016) on Windows / Linux / Android / iOS / Windows Phone

- Change in Android ID
- Update CBM SDK on Android to use CBM on MorphoTabletV2

### 4.7.2 (30/06/2016) on Windows / Linux / Android / iOS / Windows Phone

- Fix in commuter license mode (change parameter storage on token license server)
- Change ID + algorithm used for Android locking
- Add more protection on Android/iOS

#### 4.7.1 (30/06/2016) on Windows / Linux / Android / iOS / Windows Phone

- Update in commuter license mode (change parameter storage on token license server)
- Publish full interface for Android for MiMS application
- Add fake license test on Android
- Make third party dll loading configurable

#### 4.7.0 (08/04/2016) on Windows / Linux / Android / iOS / Windows Phone

- Update SDK MorphoTop on Windows
- Fix issue on daemon on MEP (Linux ARM) platform

#### 4.6.3 (08/03/2016) on Windows / Linux / Android / iOS / Windows Phone

- Update of SafeNet COTS on Windows/Linux (from 8.5.x to 8.6.1)
- Change ID used for Android locking
- Build a vc12 client for Windows
- Fix an issue with Debian package

#### 4.6.2 (21/12/2015) on Windows / Linux / Android / iOS / Windows Phone

- Support commuter license for Windows
- Make a "light" version which support only Morpho hardware to store licenses
- Add new customID on Windows 8/2012 which authorizes licenses on VM
- Fix in Android root detection
- Compile for Android NDK10
- Fix in Android client which can lead to a crash with intensive calls
- Fix with commuter license and additional data retrieval

#### 4.6.1 (22/10/2015) on Windows / Linux / Android / iOS / Windows Phone

- Add new Linux ARM hard float version
- Support commuter license for Linux (with update of SafeNet COTS)
- Fix at startup with systemd

#### 4.6.0 (31/07/2015) on Windows / Linux / Android / iOS / Windows Phone

- Update mapping license for MorphoKit
- Update MSO SDK + drivers on Windows
- Update MorphoDongle drivers
- Support systemd as init manager on Linux
- Internal fix on daemon

#### 4.5.5 (07/05/2015) on Windows / Linux / Android / iOS / Windows Phone

- Add Windows Phone 8.1 as supported platform
- Support MorphoTop on Linux 64 bits

#### 4.5.4 (06/12/2015) on Windows / Linux / Android / iOS

- Compile specific client version for eTis project
- On iOS, use SDK 8.1 and use clang6
- Update documentation

#### 4.5.3 (12/12/2014) on Windows / Linux / Android / iOS

- add expiration date for licenses on Android
- send intent on Android when service is started and license are available
- support 2 new MorphoDongle (Windows)

#### 4.5.2 (06/11/2014) on Windows / Linux / Android / iOS

- recompilation process only

#### 4.5.1 (22/09/2014) on Windows / Linux / Android / iOS

- support CBM on MorphoTablet (Android)
- Fix on Android version

#### 4.5 (18/07/2014) on Windows / Linux / Android / iOS

- Add iOS version
- Add specific client for MorphoKit 4.x

#### 4.4 (25/04/2014) on Windows / Linux / Android

- Add network only version of software license (have to use token server on Windows/Linux)
- Update MSO/MorphoTop drivers on Windows
- Fix a memory leak in Java interface
- Fix memory leak on Linux linked with SafeNet dongle (even if no dongle is used)

#### 4.3.1 (25/02/2014) on Windows

- Fix 2 issues (wrong error code return by check + fix add MorphoDongle license on 64 bits platforms)

#### 4.3 (28/01/2014) on Windows

- Can view/load licenses on MASigma

#### 4.2.0 (15/12/2013) on Windows/Linux/Linux\_ARM/Android

- Port on Android
- Update SDK MTop on Windows/Linux
- Update SafeNet dongle driver

#### 4.1.0 (31/07/2013) on Windows/Linux/Linux\_ARM

- Port on Linux ARM
- Update MorphoTop SDK for Windows and Linux

- Update MSO SDK for Windows
- Make native 64 bits version for Windows and Linux
- Disable standalone software license on virtual machine
- Add option to store additional parameter into software license (both standalone or token license)

#### 4.0.0 (25/03/2013) on Windows/Linux

- Test with software license token server
- Preliminary port on Linux ARM
- Test on Windows 8 (32/64 bits) and update MorphoDongle drivers
- Fix internal bug (security alert by static code analysis)

#### 3.5.0 (05/10/2012) on Windows/Linux

- Update Java interface for loading native library
- Update software license COTS
- Update locking criterion for software license on Linux
- Support of MorphoDongle as dongle on Linux (ubuntu 10.4, RHEL/CentOS 6.x)
- Fix respawn issue with upstart on Ubuntu/RHEL 6.x
- Fix start issue on RHEL 6.x
- Fix internal bug + internal improvements

#### 3.4.0 (30/03/2012) on Windows/Linux

- Add Java interface for Windows + Linux
- Add new client libraries for Visual 2008 (32/64) + Visual 2010 (64)
- Add a tool to compute software identifier to simplify installation
- Add a new package installer (.deb) for Linux
- Fix a issue with MorphoDongle and computer hibernation
- Fix installation on RHEL 6 (upstart instead of inittab)
- Fix some internal bugs in component
- Change software ID on Windows

#### 3.3.2 (09/09/2011) on Windows/Linux

- Based on 3.2.1.1 version
- Update MSO + MorphoTop SDKs
- Update locking criterion for software license on Windows
- Update GUI tool on Windows

#### 3.2.1.1 (28/02/2011) on Windows/Linux

- New communication scheme on Linux between client and daemon
- Report every fixes from 3.2.2 and 3.2.3
- MorphoTop as dongle is disabled by default in this version

### 3.2.3 (15/10/2010) on Windows/Linux

- Remove daemon installation directory from prelink tool (Linux)
- Restart of service on Windows
- Set lower communication timeouts on Linux
- Fix an issue while starting daemon on Linux

### 3.2.2 (15/07/2010) on Windows/Linux

- Add support of MorphoTop as dongle on Windows
- Fix Linux rpm installation
- Fix logs due to respawn mode on Linux
- Fix add license tools issues
- Add new feature of license tool to load a set of licenses

### 3.2.1 (24/03/2010) on Windows/Linux/Aix

- Fix 2 major bugs of 3.1 on some protections (all platforms)
- Fix debug use of client library on Windows
- Fix handle leak on Windows if a USB device is plugged/unplugged
- Update MorphoDongle drivers for Windows 7 support
- Add respawn mode on Linux daemon

### 3.1 (30/09/2009) on Windows/Linux/Aix

- Rpm on Linux
- Fix issue while installing soft license on some computers (Windows)
- Fix memory leak while using MSO on Windows with no drivers or no plugged MSO
- Fix issues with soft license

### 3.0.2 (05/08/2009) on Windows/Linux/Aix

- Redesign of server and client part
- New communication scheme on Windows + Linux
- Update drivers
- Add option to use a license soft server

### 2.2.4 (16/07/2008) on Windows/Linux/Aix

- Fix problem while retrieving lock-code from soft licence
- Remove MSO service dependency on Windows

## **1.5) Compatibility between different versions of protection**

There is always a backward guarantee with previous clients protocol (an old client can always talk to latest version of protection but a new client might not communicate with old version of protection).

### 1.5.1) Windows

Client/Service	2.2.4	3.0.2	3.1	3.2.1	3.2.2	3.2.3	3.2.1.1	3.3.x	3.4	3.5	4.x
2.2.4	X	X	X	X	X	X	X	X	X	X	X
3.0.2		X	X	X	X	X	X	X	X	X	X
3.1			X	X	X	X	X	X	X	X	X
3.2.1				X	X	X	X	X	X	X	X
3.2.2					X	X	X	X	X	X	X
3.2.3						X	X	X	X	X	X
3.2.1.1				X	X	X	X	X	X	X	X
3.3.x				X	X	X	X	X	X	X	X
3.4				X	X	X	X	X	X	X	X
3.5				X	X	X	X	X	X	X	X
4.x				X	X	X	X	X	X	X	X

### 1.5.2) Linux

Client/Daemon	2.2.4	3.0.2	3.1	3.2.1	3.2.2	3.2.3	3.2.1.1	3.3.x	3.4	3.5	4.x
2.2.4	X	X	X	X	X	X	X	X	X	X	X
3.0.2		X	X	X	X	X	X	X	X	X	X
3.1			X	X	X	X	X	X	X	X	X
3.2.1				X	X	X	X	X	X	X	X
3.2.2					X	X	X	X	X	X	X
3.2.3						X	X	X	X	X	X
3.2.1.1							X	X	X	X	X
3.3.x							X	X	X	X	X
3.4							X	X	X	X	X
3.5							X	X	X	X	X
4.x							X	X	X	X	X

For example, on Linux a 3.3.x client is compatible with 3.2.1.1 and 3.3.x. A 2.2.4 client is compatible with all daemons.

### 1.6) Compatibility of token license server / Multiprotect

Since version 4.6.3, if you plan to use network or commuter delivery of Multiprotect, you have to ensure that Multiprotectdaemon/service is compatible with token license server version.

As a major update of SafeNet libraries has been done, latest Multiprotect versions are not compatible with former token license server (read Token license server installation to have full detail of compatibility).

## 2) Installation

### 2.1) Drivers installation

#### 2.1.1) Windows

You should be logged as administrator to install drivers or run setup as Administrator.

You can install only drivers for hardware device you use.

For example, if you do not use SafeNet dongle, do not install SafeNet drivers or if you do not use MorphoSmart, do not install MorphoSmart drivers.

##### 2.1.1.1 SafeNet Dongle

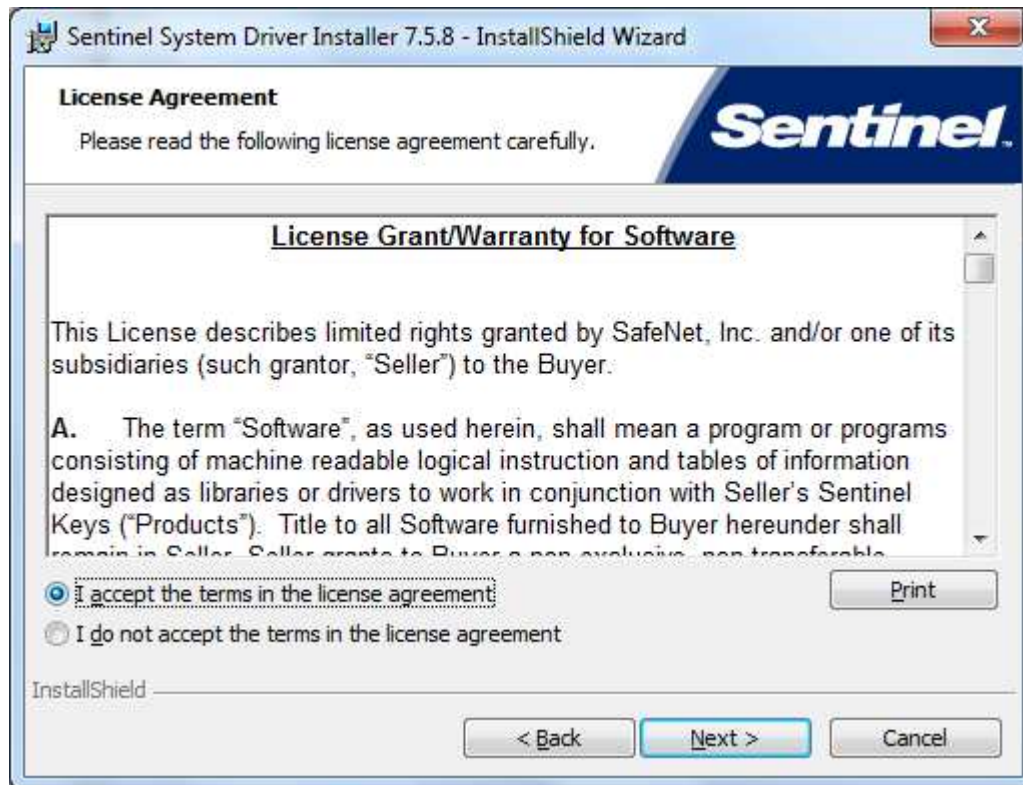
###### **VERY IMPORTANT :**

Do not plug your dongle before installing drivers otherwise your dongle might not be detected.

- Launch **Sentinel System Driver Installer 7.5.8.exe** and follow steps described below :



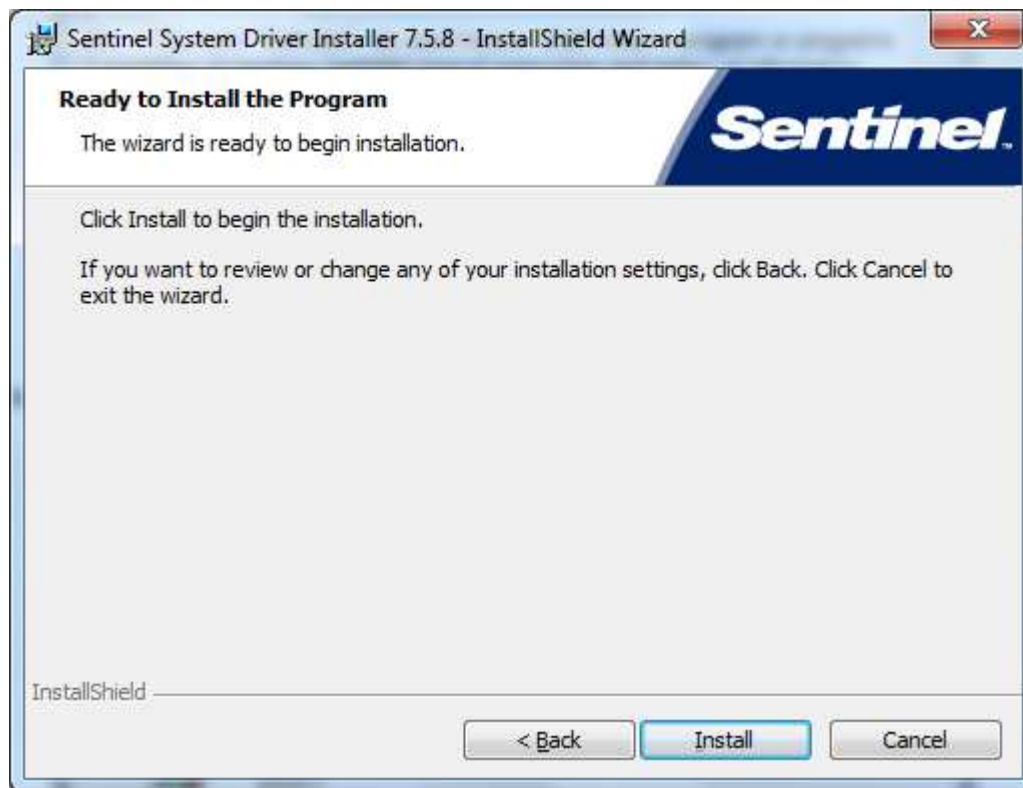
Click on **Next** button.



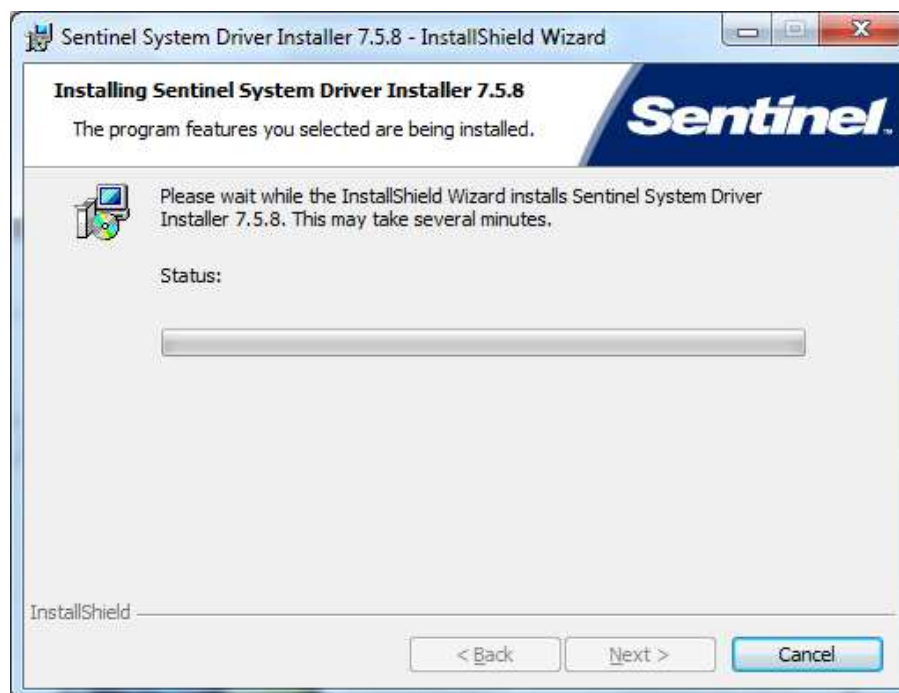
Select "I accept the terms in the license agreement" and click on **Next** button.

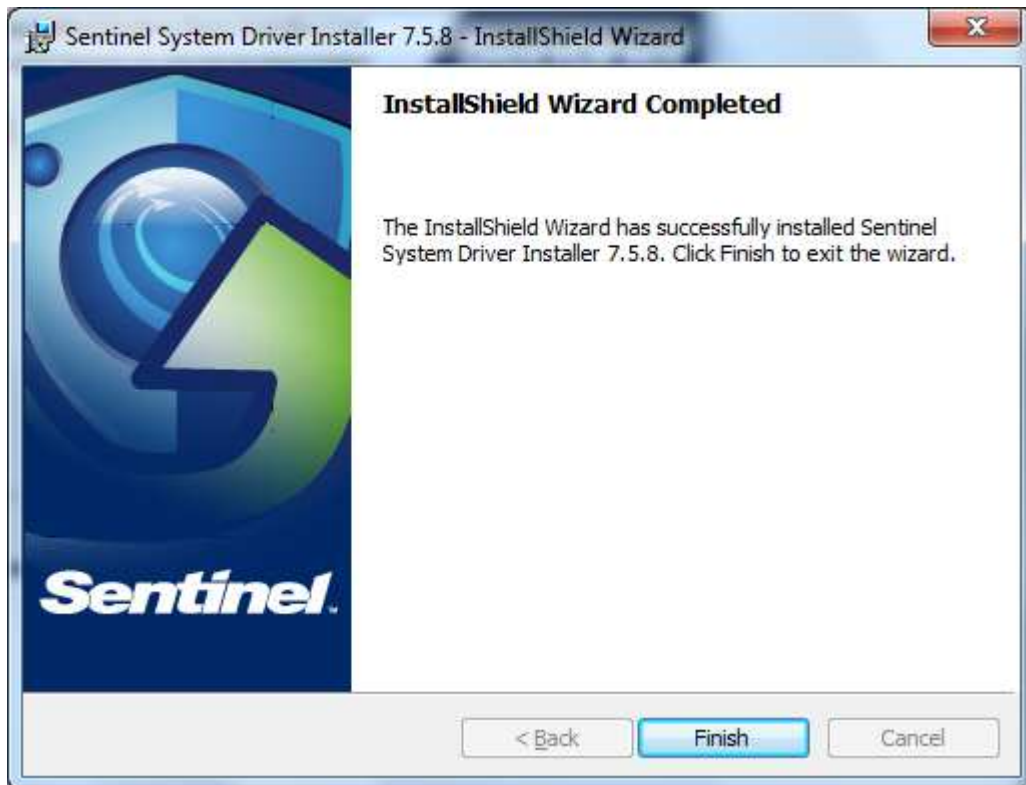


Select **Complete** choice and click on **Next** button.



Click on **Install** button.





When installation has been successfully performed, click on **Finish** button.

### 2.1.1.2 MorphoDongle

#### 2.1.1.2.1 ACS dongle

To use ACS SIM card reader, you have to install associated driver.

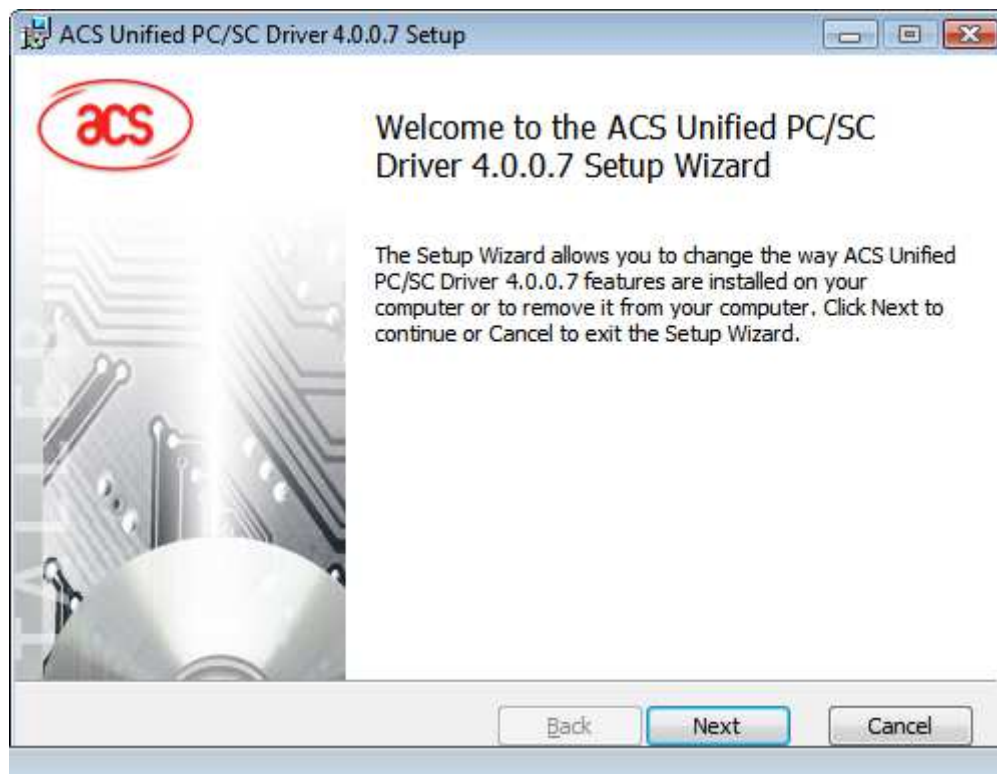
**VERY IMPORTANT:**

Do not plug your dongle before installing drivers otherwise your dongle might not be detected.

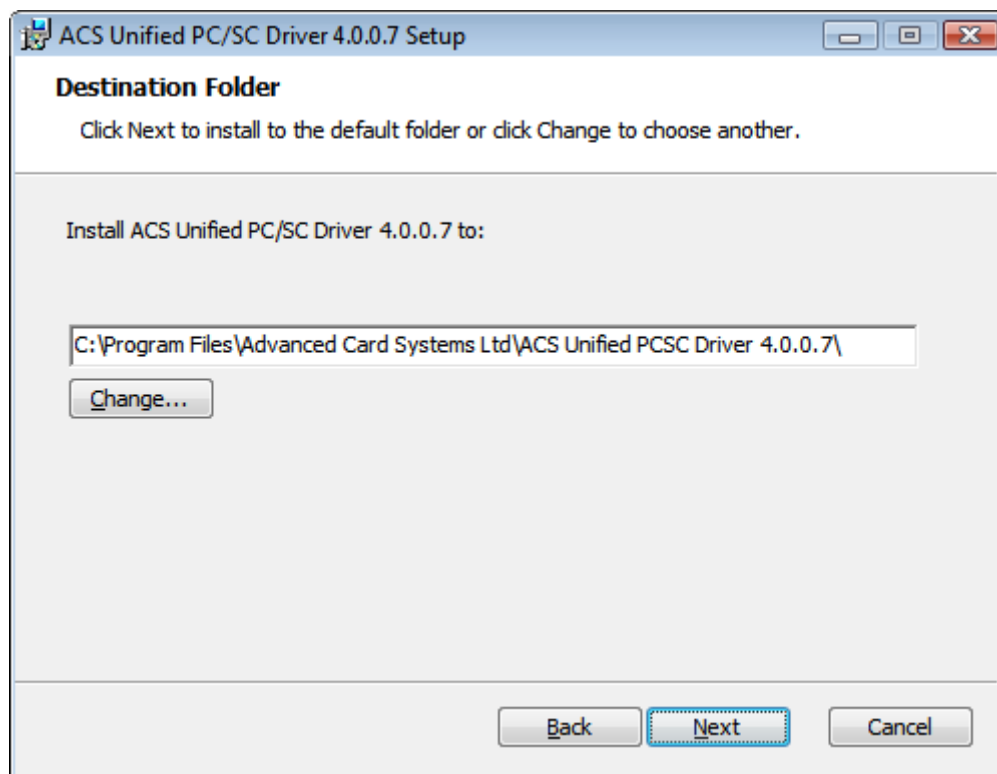
- Launch **Setup.exe** located in **drivers\MorphoDongle** directory
- Then select your language (next captured screen might vary depending on your selected language) and click on **OK** button



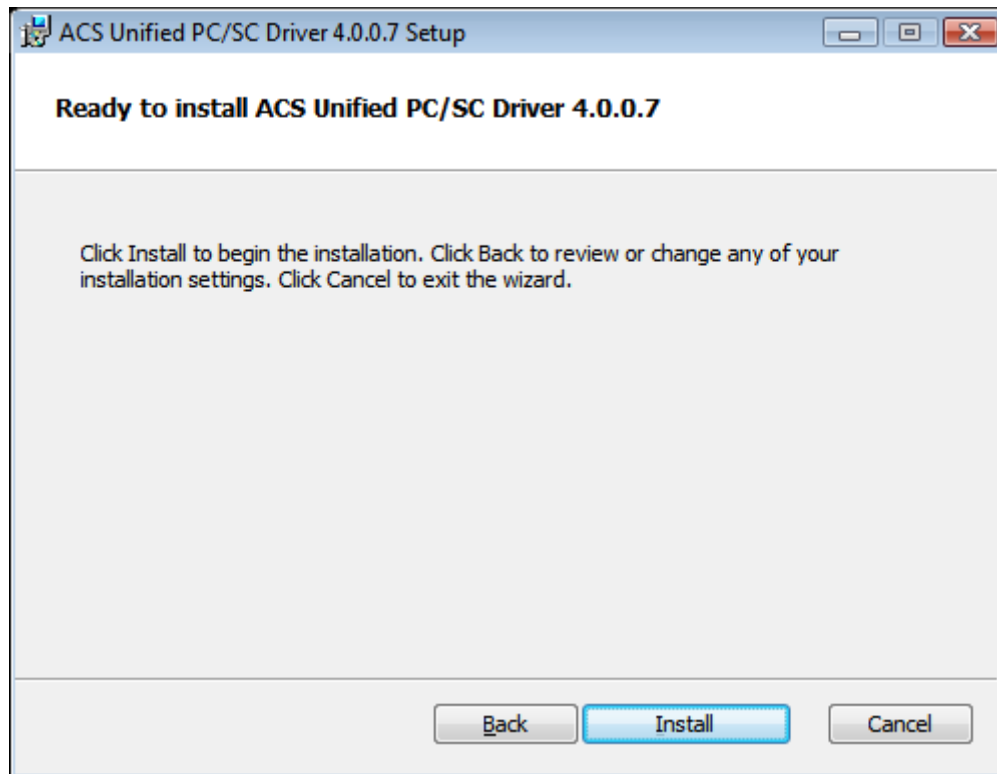
- Click on **Next** button



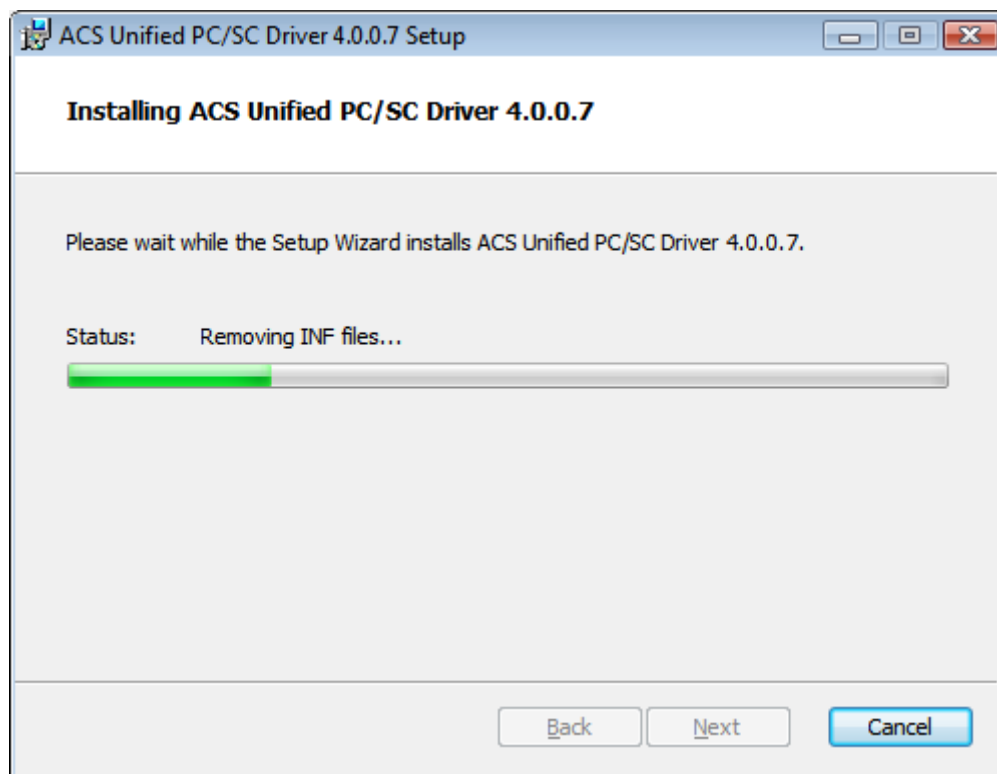
- Select your installation directory and click on **Next** button



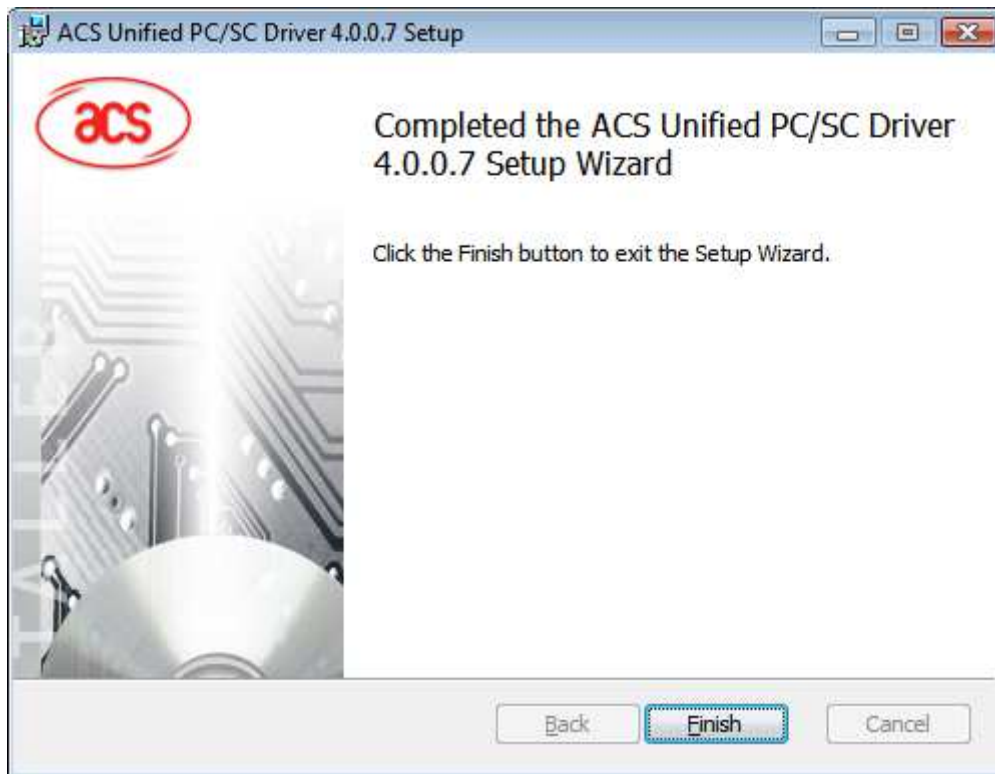
- Click on **Install** button



- Then installation starts



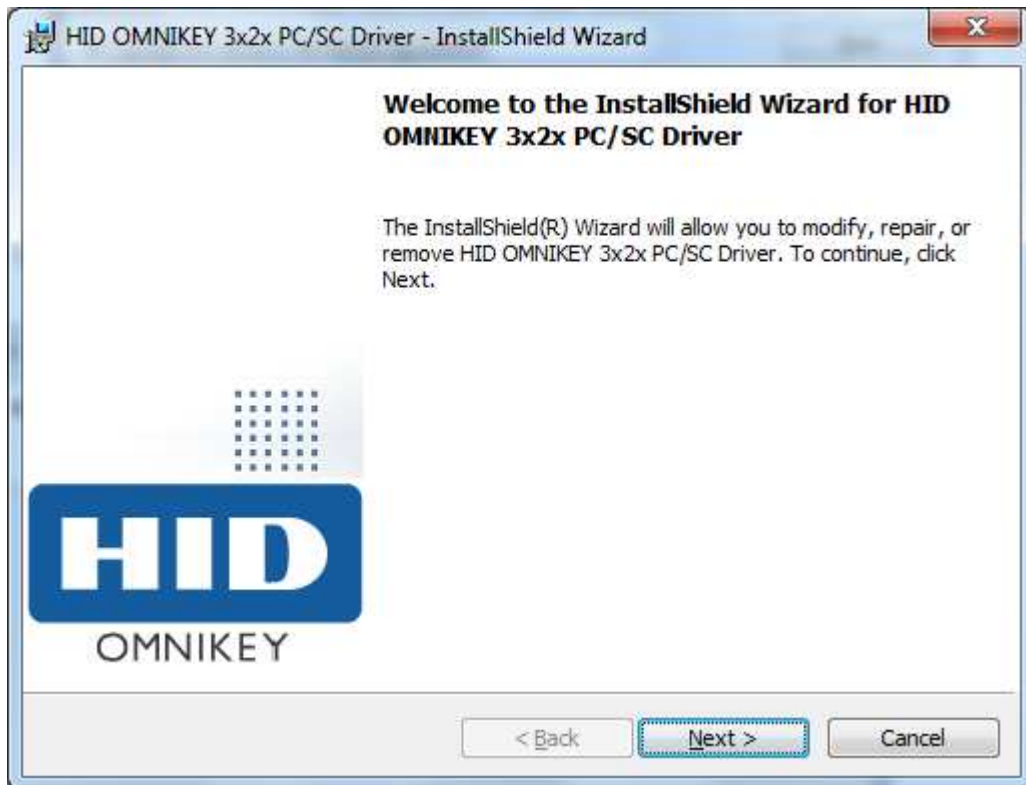
- At the end of installation, following screen is displayed. Click on **Finish** button



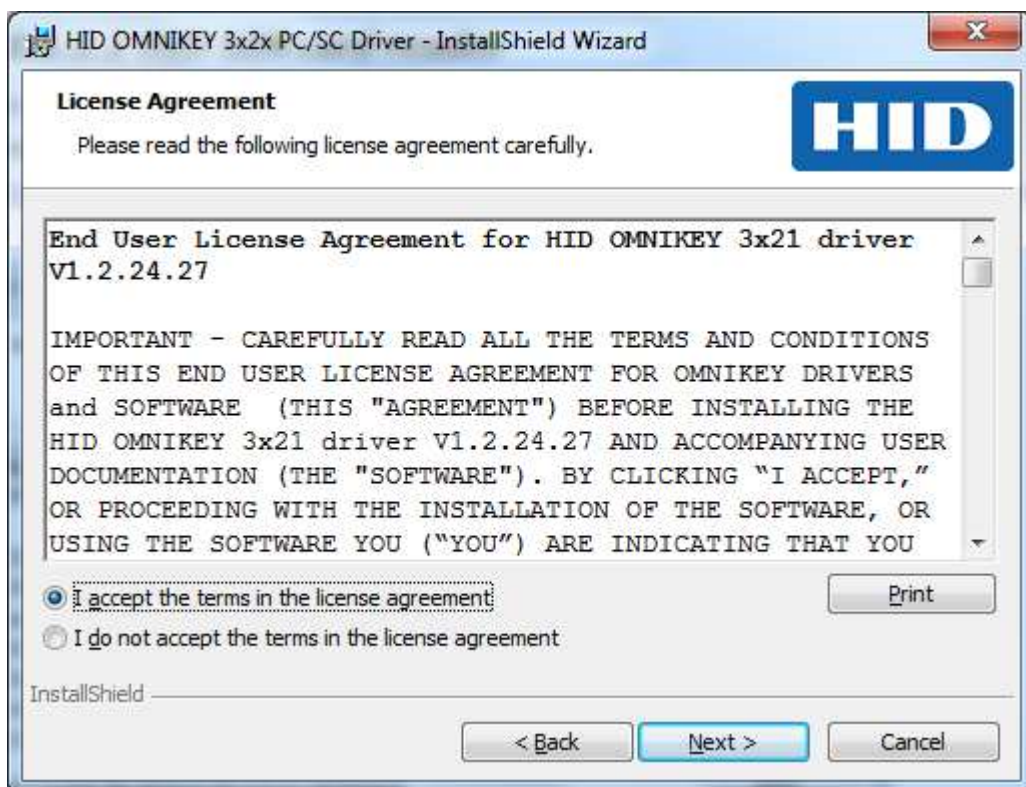
You can plug your MorphoDongle in an USB port of your computer.

#### **2.1.1.2.2 HID SIM card reader**

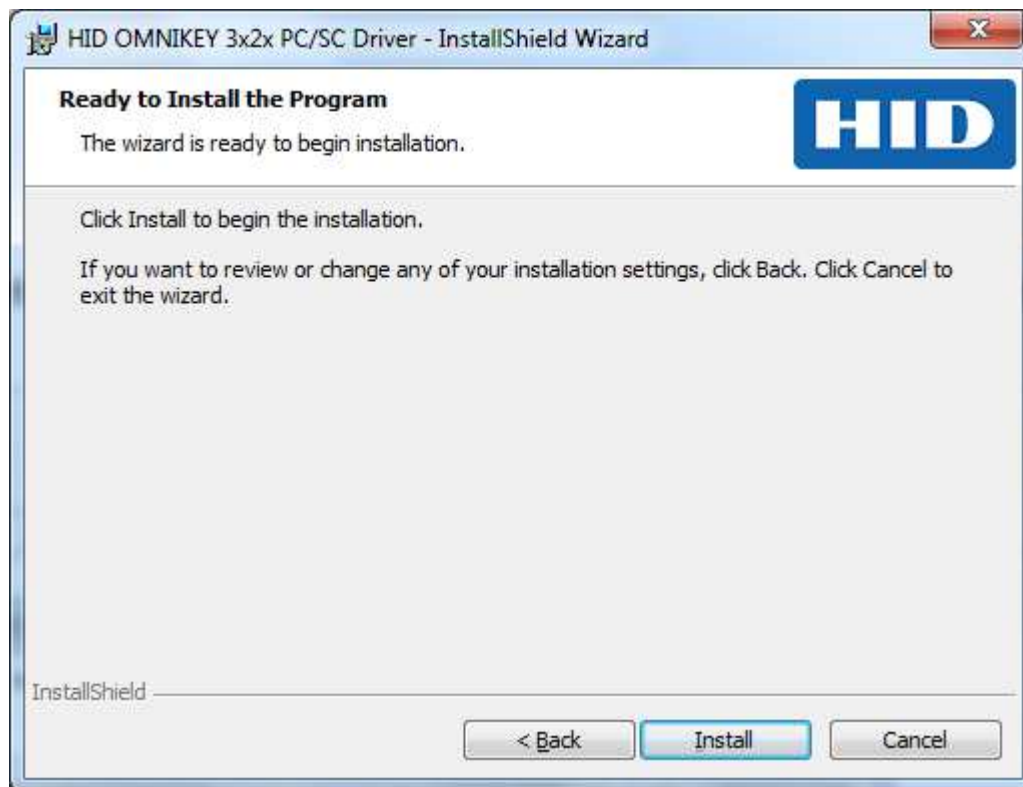
This driver is automatically recognized by Windows 7 but can be installed manually by launching driver which can be downloaded from HID website (<http://www.hidglobal.fr/drivers>) or with *HID\_OMNIKEY3x2x\_xZZ\_W7\_R1\_2\_24\_27.exe* (ZZ is equal to 86 or 64) which is delivered with this package.



Click on Next > button.

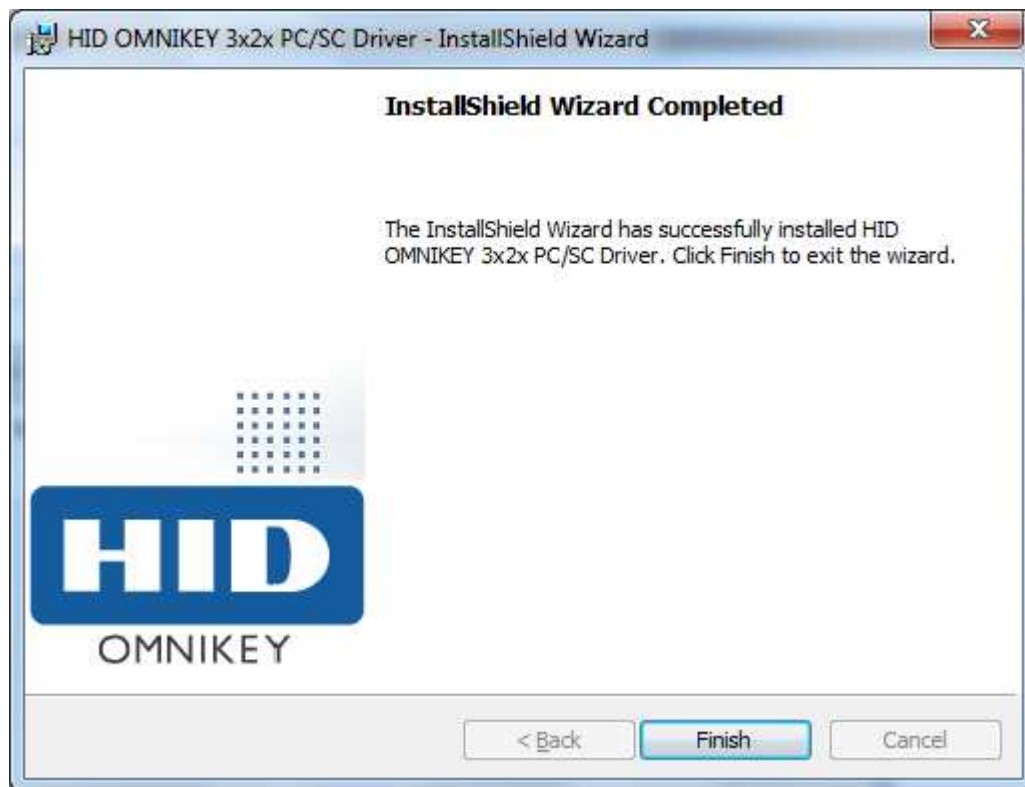


Click on I accept the terms in the license agreement and click on Next > button.



Click on Install button.





Click on Finish button. You can plug your HID MorphoDongle into your computer.

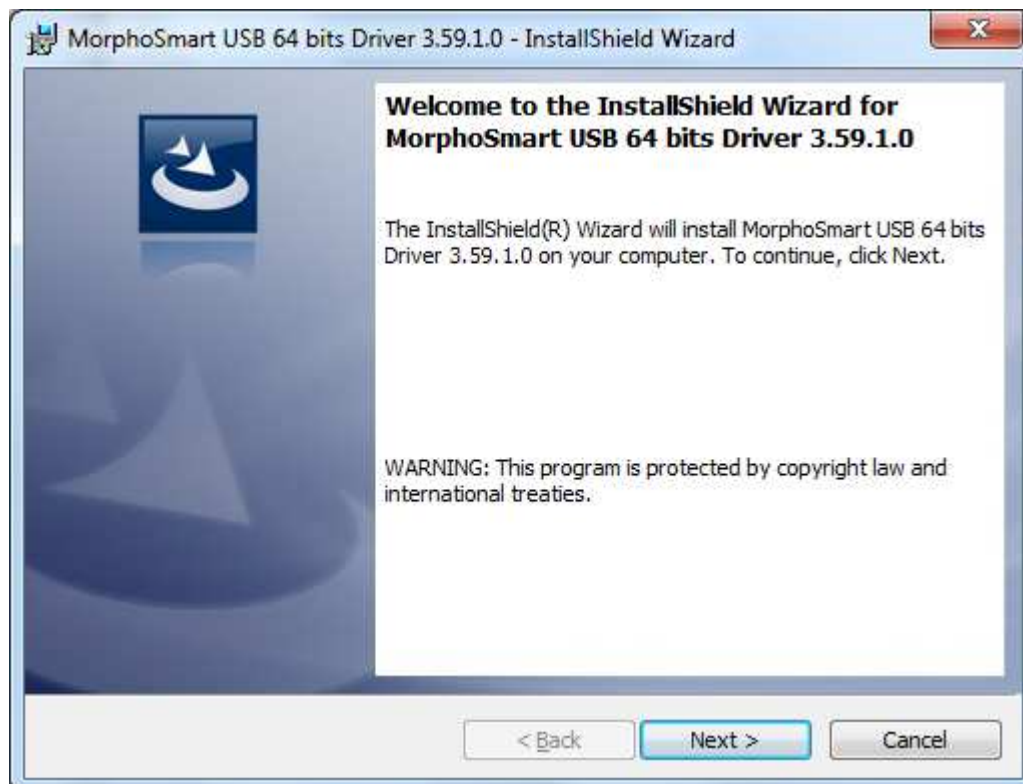
#### 2.1.1.3 MSO

##### **VERY IMPORTANT :**

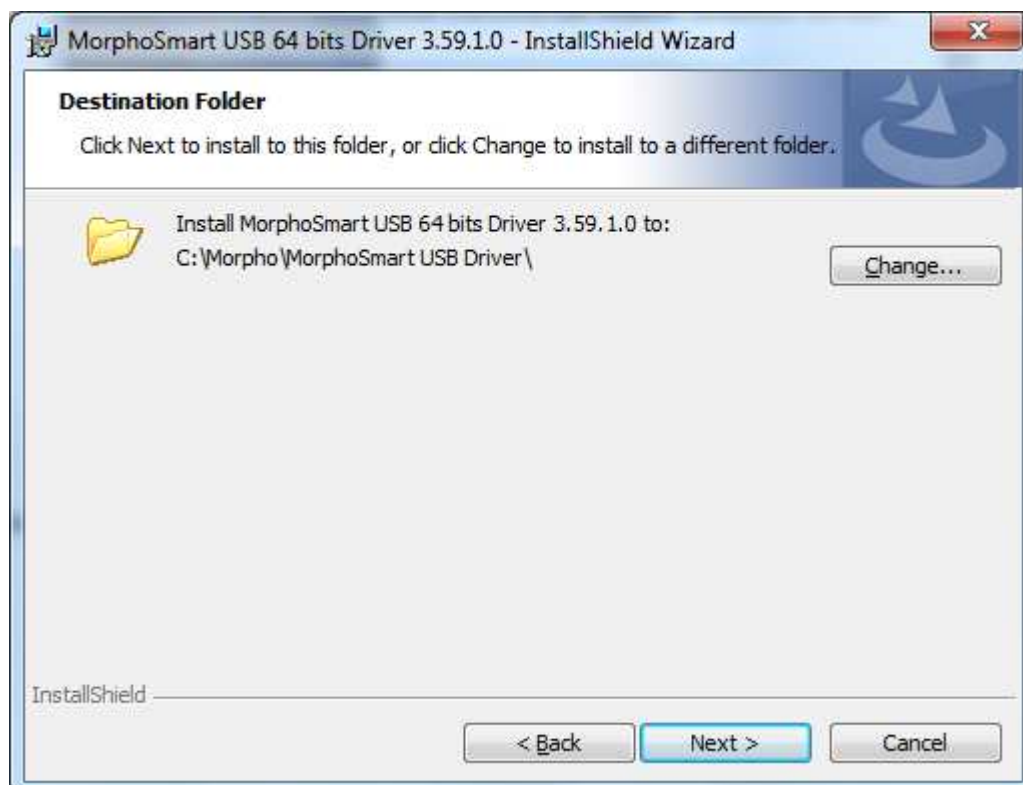
Do not plug your MSO before installing drivers otherwise your MSO might not be detected.

Go to directory **drivers\MorphoSmart\win32** if you have a Windows 32 bits or **drivers\MorphoSmart\win64** if you have a Windows 64 bits.

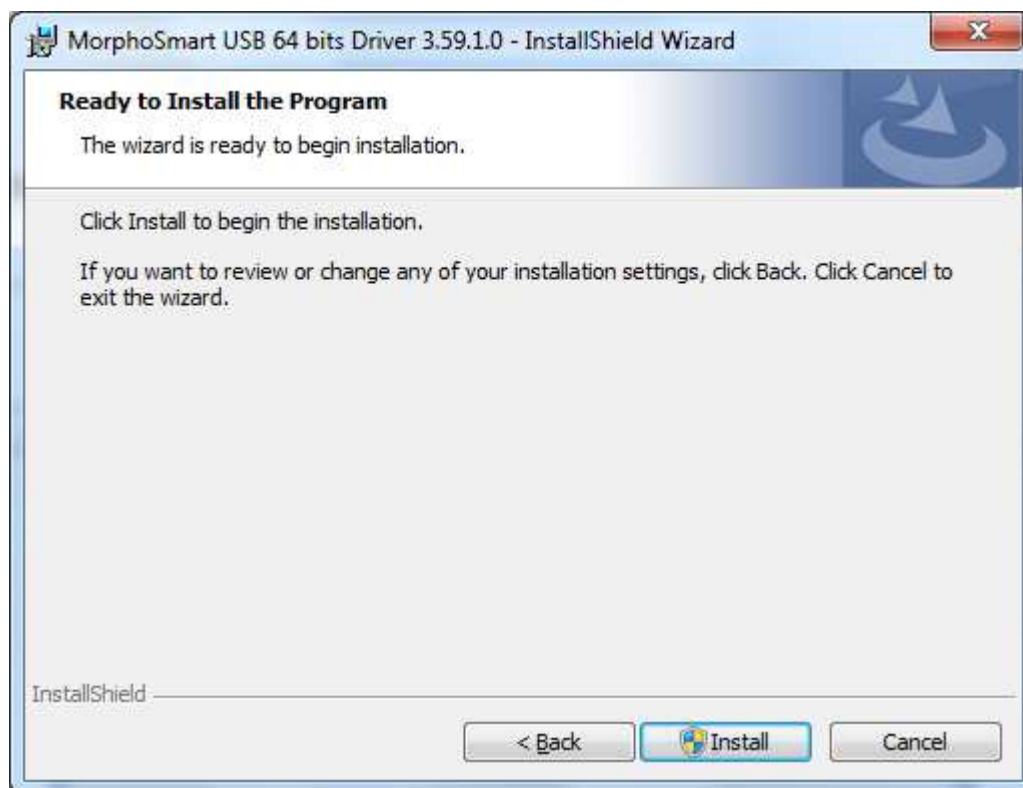
Launch **setup.exe** in selected directory (*run as Administrator* on Vista/Seven/Eight system).



Click on **Next** button.



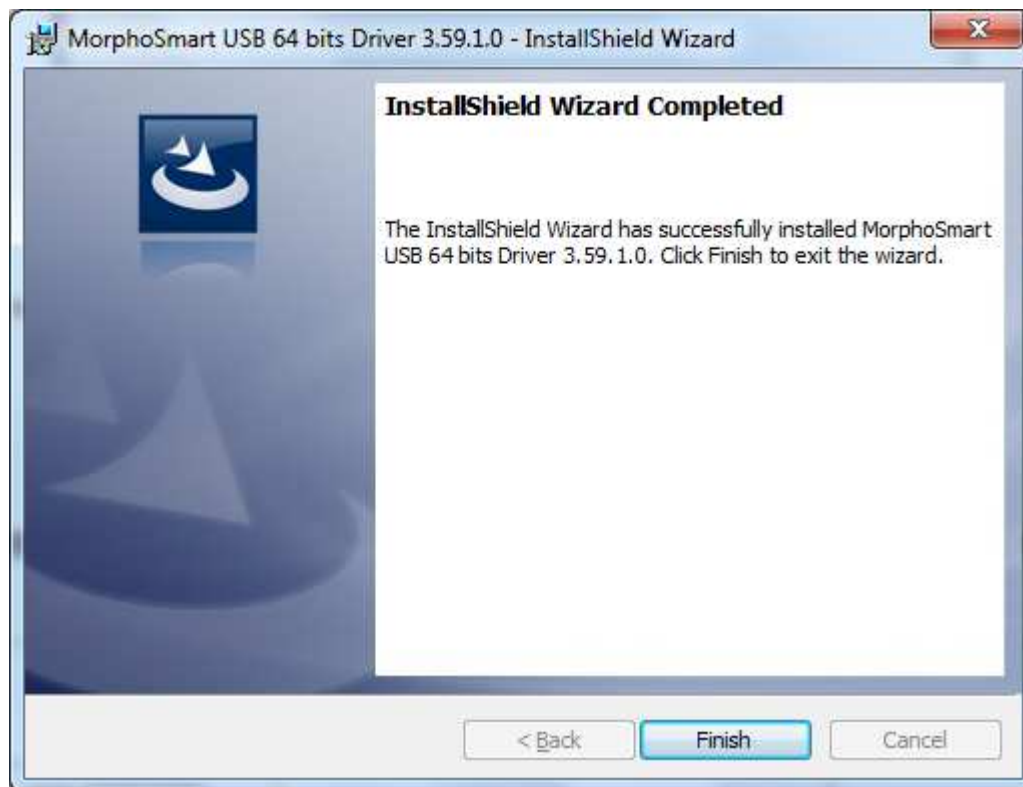
Click on **Next** button (if you want to change installation directory for MorphoSmart drivers click on **Change** button and select another installation directory).




Click on **Install** button (you can then be asked to validate installation of driver)



If you want to cancel installation, click on **Cancel** button.



Click on **Finish** button.

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Then, to be sure that "Morpho License Service" will start after "SAGEM MorphoSmart Service Provider Usb Server" service, you should add a dependency between these 2 services.

If you do not add this dependency, then licenses in MSO/CBM could not be seen at system startup.

There are 2 ways to do this:

- Using sc tool (to be launched as Administrator) :  
Type following command to add MSO service as a dependency to Morpho License Protection :  
*sc config "Sagem License Service" depend= MSO\_SpUsb\_Service*
- By manually edit registry (not recommended)  
To add a dependency, you should add in Windows Registry following key :  
In "HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Sagem License Service" key, you should add a value called DependOnService of type REG\_MULTI\_SZ with value *MSO\_SpUsb\_Service*.  
Here is a copy of registry file which perform this operation.  
*Windows Registry Editor Version 5.00*  
*[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Sagem License Service]*  
*"DependOnService"=hex(7):4d,00,53,00,4f,00,5f,00,53,00,70,00,55,00,73,00,62,00,\*  
*5f,00,53,00,65,00,72,00,76,00,69,00,63,00,65,00,00,00,00,00*


We do not add this dependency by default because MSO is not always used as protection device and users want to install only minimum set of drivers (and if MSO is not used, MSO drivers don't have to be installed and license Service will not start).

Furthermore, some MSO detection issues have been seen on some computer when computer boots.

To solve this issue, change type of start of Sagem License Service from 'Automatic' to 'Automatic (Delayed Start)'.

#### **2.1.1.4 MorphoTop**

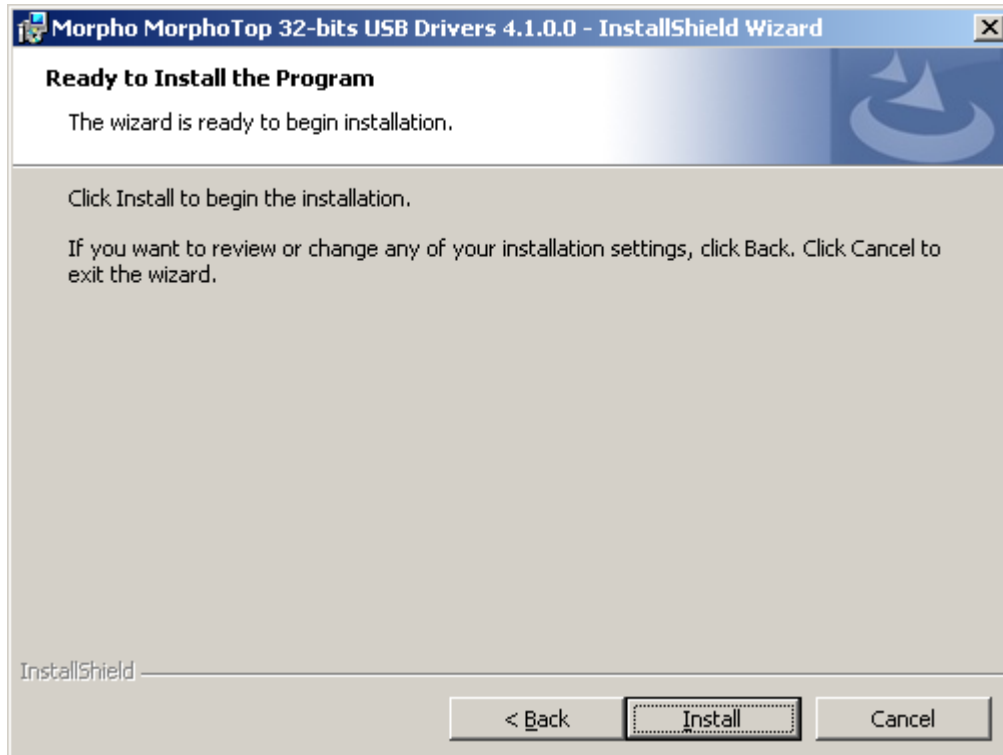
Go to directory **drivers\MorphoTop\MorphoTop Usb Driver** if you have a Windows 32 bits or **drivers\MorphoTop\MorphoTop Usb Driver x64** if you have a Windows 64 bits.

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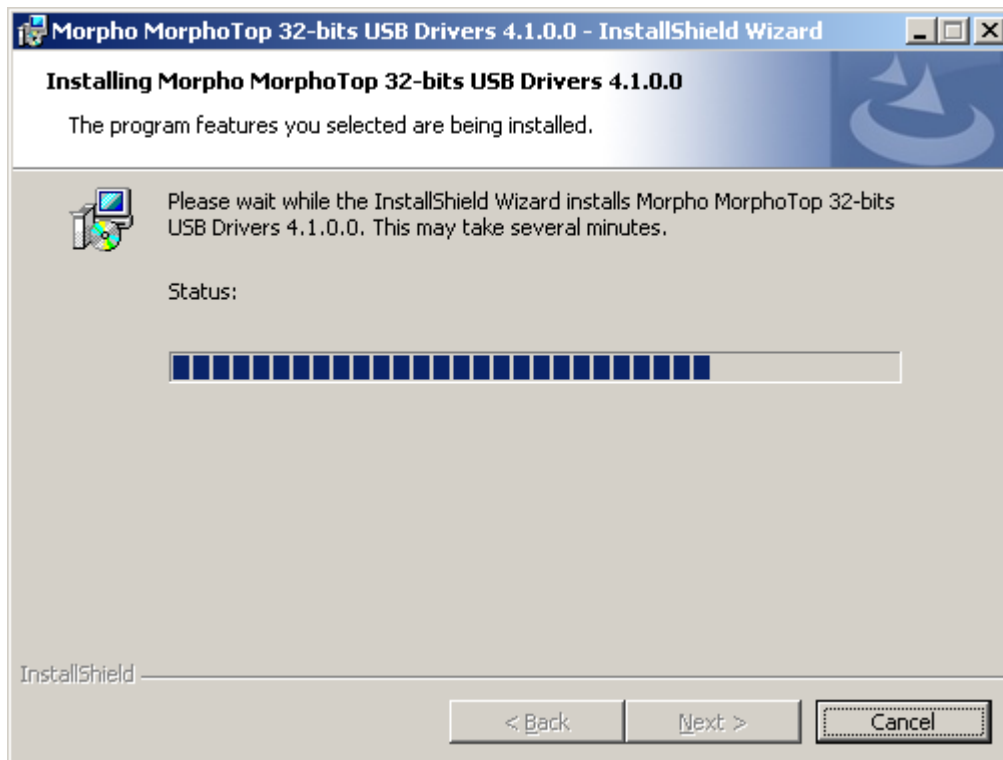
Launch **setup.exe** in selected directory (*run as Administrator* on Vista/Seven/Eight system)



Click on **Next** button.



Click on **Install** button.



If you want to cancel installation, click on **Cancel** button.



Click on **Finish** button.

## 2.1.2) Linux

### 2.1.2.1 SafeNet dongle

To install SafeNet dongle drivers, launch script `Install_SagemSecurite_Protection.sh` and select option 2 (install SafeNet dongle driver).

### 2.1.2.2 MorphoTop

MorphoTop has only been validated with Ubuntu 10.04 LTS version (and 12.04) in 32 bits and on Fedora 20 for 64 bits platform.

To install MorphoTop drivers + required libraries, you have to install Debian package *morphotop-sdk-12.3.3.deb* at least on 32 bits platform or use *morphotop-sdk-12.6.11.2-0.x86\_64.rpm* on Fedora 20 64 bits.

Follow each MorphoTop recommendation (especially for *libusb* library).

### 2.1.2.3 MorphoDongle

MorphoDongle has been successfully tested on Ubuntu 10.04 LTS (32 bits) and CentOS 6.x (64 bits). MorphoDongle does not work on RHEL 5.X (both 32 or 64 bits version).

Required packages for Ubuntu and RHEL/CentOS 6.x:

- PCSC daemon (*pcscd*) and libraries (*libpcsc-lite*): Middleware to access a smart card using PC/SC. You have to install 32 bits version of *libpcsc-lite* because Linux daemon is a 32 bits process.

Purpose of *pcsc-lite* library is to provide a Windows<sup>(R)</sup> SCard interface in a very small form factor for communicating to smartcards and readers. PC/SC Lite uses the same *winscard* API as used under Windows(R).

The PC/SC daemon is used to dynamically allocate/deallocate reader drivers at runtime and manage connections to the readers.

- ACR38 driver (***libacr38u***): CCID ACR38u Smart Card reader driver for PCSC-lite.

- CCID driver (***libccid***): Generic USB CCID (Chip/Smart Card Interface Devices) driver

These packages can be installed using the Synaptic Package Manager for Ubuntu 10 and rpm for RHEL.

#### Nota:

To use MorphoDongle protection, it is necessary that:

- pcsc daemon (pcscd) is started
- For RHEL 6.x, the package openct must be uninstalled using the command "rpm -e --nodeps" otherwise MorphoDongle is not recognized (there is an incompatibility issue between openct and ACR38 driver)

## 2.2) Protection installation

### 2.2.1) Windows

This paragraph describes the installation of Morpho License Manager protection on Windows.

Morpho License Manager runs as a Windows service and is by default automatically registered in Windows and launched.

To remove this service, go to add/remove programs in windows configuration panel and uninstall "*Morpho License Protection*". A shortcut is also created in Start / All Programs / Morpho to uninstall Morpho License Service.

There are several deliveries for installation:

- Windows x86 (32bits) with software license in standalone and network license mode
- Windows x86 (32bits) with network license mode only
- Windows x86\_64 (64bits) with software license in standalone and network license mode
- Windows x86\_64 (64bits) with network license mode only

You can still use 32 bits version on 64 bits OS.

**IMPORTANT:** If you plan to use token license server, you have to install network only mode of software license. Otherwise if token license server goes down, tokens could be lost and could not be retrieved anymore without restarting service.

#### 2.2.1.1 Windows

**(2000/XP/2003/Vista/2008/Seven/Eight/10)**

##### Prerequisites:

First, you have to install drivers associated with your dongle (look at paragraph 2.1):

- If you plan to use a hardware dongle, do not plug it until its associated driver is installed
- for SAFENET dongle, launch **SafenetDongle/ Sentinel System Driver Installer 7.5.8.exe**

- for MorphoDongle, launch **setup.exe** located in **drivers\MorphoDongle\Drivers** directory
- for MSO dongle, depending on your version(32 bits or 64 bits), launch **SagemMorphoSmart/version/setup.exe**  
You could also add a dependency between license service and MSO service to be sure that licenses of MSO will be OK.
- for MorphoTop dongle, depending on your version (32 bits or 64 bits), launch **setup.exe** in **drivers\MorphoTop\MorphoTop Usb Driver** or in **drivers\MorphoTop\MorphoTop Usb Driver x64** directory

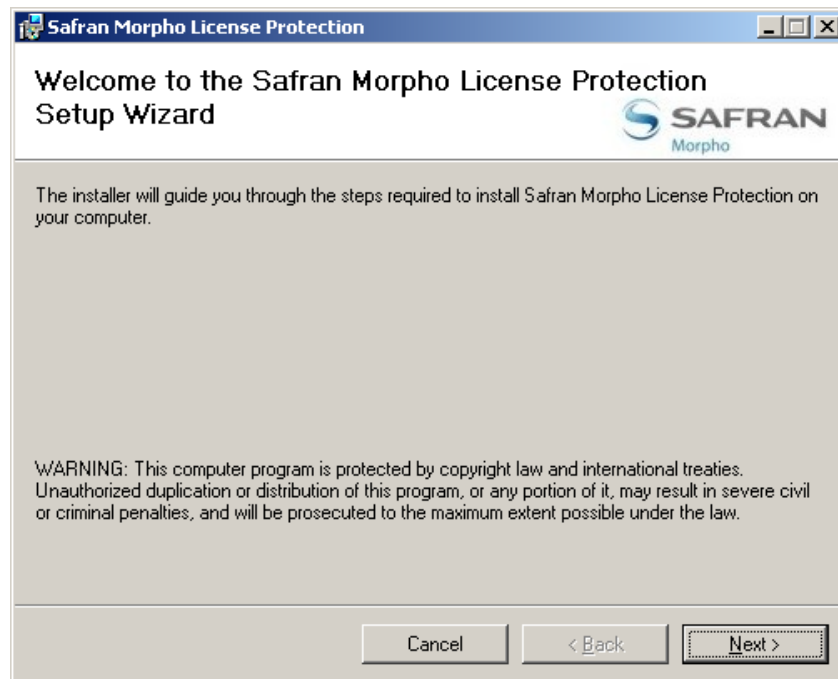
**Procedure:**

**VERY IMPORTANT: You should install this software (use Setup.exe) with Administrator rights (launch a command prompt as an administrator if you want to use MSI file) otherwise you should register manually service (see next chapter).**

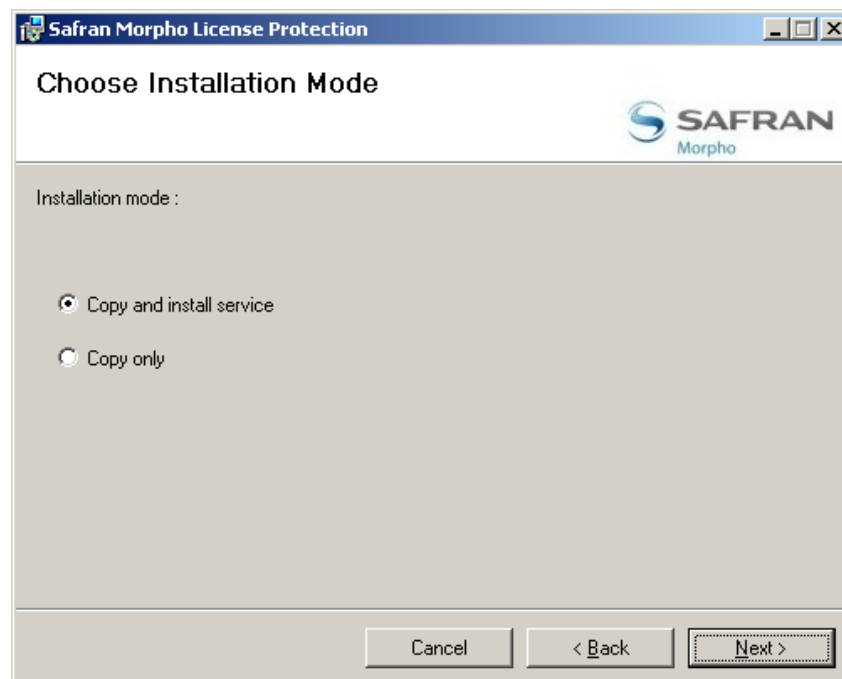
**If service is not registered no ID nor license will be displayed.**

Launch **SafranMorpho\_License\_Protection\_Installer.exe** with administrator rights (right click on mouse button and click on "**Run As Administrator**") if Vista or higher is used (**DO NOT launch SafranMorpho\_License\_Protection\_Installer.msi**) :

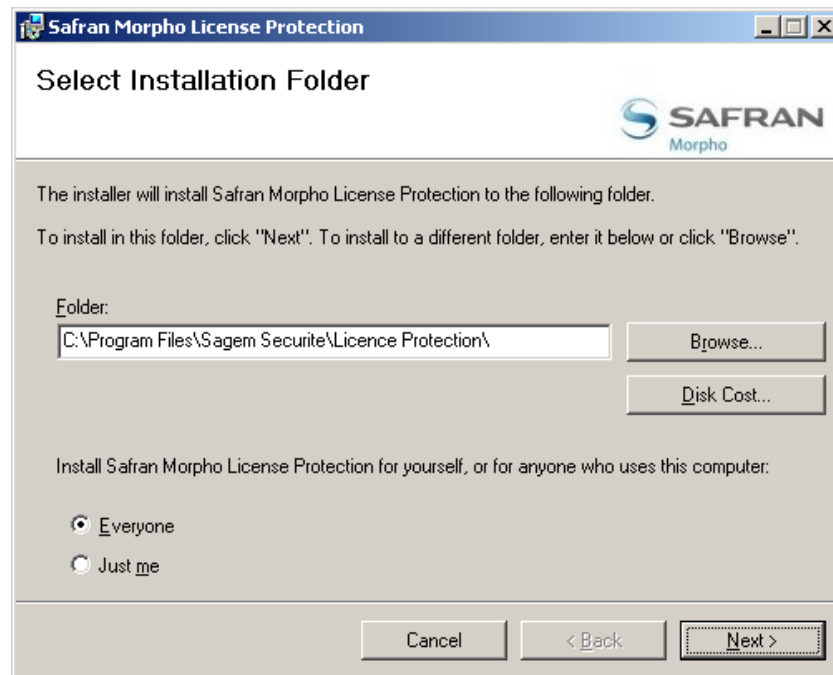
**1/** Welcome:



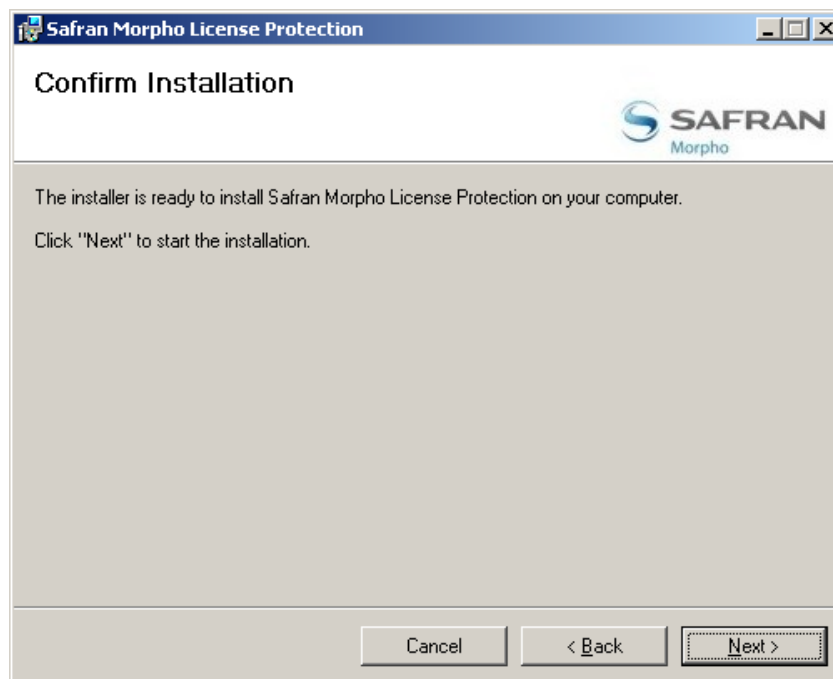
**2/** Choose installation mode. Unless there is an error during installation, choose **copy and install service**. If you choose copy only option, then license service will not be registered in Windows.



**3/** Installation folder:



#### 4/ Confirm installation:



If you perform an update from a previous version on Windows Vista or Windows Seven, an installation dialog box will be displayed to confirm that an executable will be replaced during next restart of system. Click on Continue button (same message will be displayed twice) or restart system.



### 2.2.1.2 Manual registering of Windows service

#### Prerequisites:

Installed version with copy only option.

#### Procedure:

- 1/ Open a command prompt (cmd.exe) and move to the directory in which you installed the service. You should be logged as an administrator or launch cmd as an Administrator.
- 2/ Install the service by executing the following command from the directory in which you installed the service: **SagemSecurite\_License\_Protection.exe -i**

### 2.2.1.3 Silent installation on Windows

You have 2 options to install this component silently.

- 1) Launch following command:

```
msiexec /i SafranMorpho_Licence_Protection_Installer.msi /quiet INSTALLMODE="Copy only"
```

You have to register Windows Service manually as described in previous paragraph.

- 2) Launch following command:

```
msiexec /i SafranMorpho_Licence_Protection_Installer.msi /quiet
```

But for Windows Vista or higher, you have to launch this command as an administrator (or have right to register a Windows Service).

### 2.2.2) Linux

#### Prerequisites:

You must be logged as root to install the protection. Ensure that there is no other protection daemon running before starting the installation (daemon is called SagemSecurite\_Licence\_daemon).

#### Different deliveries

There are several deliveries for installation:

- Linux x86 (32bits) with software license in standalone and network license mode
- Linux x86 (32bits) with network license mode only
- Linux x86 (32bits) with commuter license
- Linux x86\_64 (64bits) with software license in standalone and network license mode
- Linux x86\_64 (64bits) with network license mode only
- Linux x86\_64 (64bits) with commuter license

You can still use 32 bits version on 64 bits OS.

**IMPORTANT:** If you plan to use token license server, you have to install network only mode of software license. Otherwise if token license server goes down, tokens could be lost and could not be retrieved anymore without restarting service.

#### RPM installation procedure:

A rpm is now delivered with protection component. RPM's name is multiprotect-x.x.x-1.i686.rpm where x.x.x is protection version.

Uninstall previous version if already installed (use command *rpm -e multiprotect*)

Follow standard rpm installation :

*rpm -i multiprotect-x.x.x-1.i686.rpm*

A daemon is automatically created (adds an entry in /etc/inittab file) and respawn daemon automatically.

If you want to use SafeNet dongle, install drivers from drivers\SafeNetDongle directory or use script below.

We strongly recommend to use rpm installation on system where RPM is default package format (for Ubuntu, we recommend to use .deb installation package).

**Script installation procedure (different from RPM):**

We strongly recommend use of RPM installation.

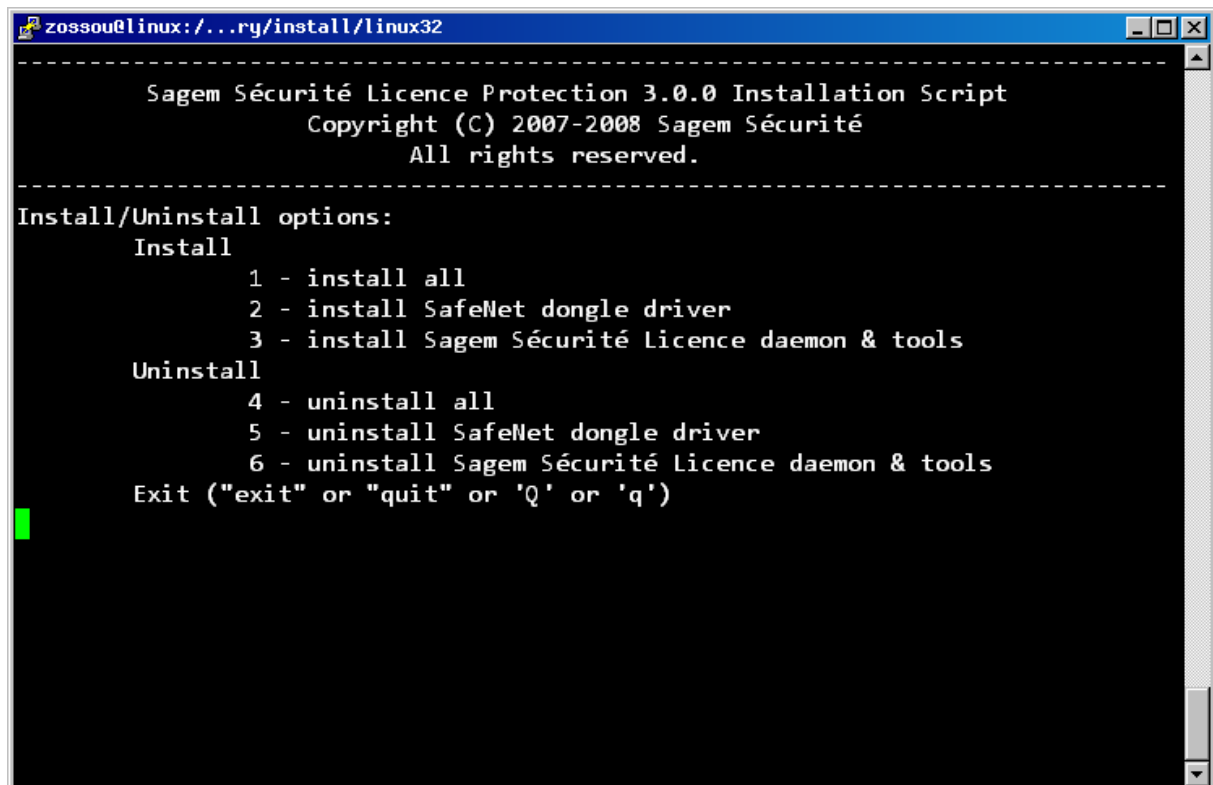
1/ Run the installation script: **./Install\_SagemSecurite\_Protection.sh**.

**RPM uninstallation procedure:**

To remove protection from rpm, launch following command in terminal console :

*rpm -e multiprotect-x.x.x-1.i686.rpm*

where x.x.x is protection version.



```
zossou@linux: /...ry/install/linux32
-----
Sagem Sécurité Licence Protection 3.0.0 Installation Script
Copyright (C) 2007-2008 Sagem Sécurité
All rights reserved.
-----
Install/Uninstall options:
  Install
    1 - install all
    2 - install SafeNet dongle driver
    3 - install Sagem Sécurité Licence daemon & tools
  Uninstall
    4 - uninstall all
    5 - uninstall SafeNet dongle driver
    6 - uninstall Sagem Sécurité Licence daemon & tools
Exit ("exit" or "quit" or 'Q' or 'q')
```

2/ If there is a previous version installed on the machine, uninstall it first by selecting the option **6**.

3/ If you need it install the SAFENET dongle drivers by choosing option **2**.

4/ Now install the protection by choosing option **3**.

**Debian installation procedure:**

A deb is now delivered with protection component. DEB's name is *multiprotect\_x.x.x\_i386.deb* where x.x.x is protection version.

Uninstall previous version if already installed (use command *dpkg -r multiprotect*)

Follow standard rpm installation :

```
dpkg -i multiprotect_x.x.x_i386.deb
```

A daemon is automatically created (adds an entry in upstart) and respawn daemon automatically.

### **Debian (Ubuntu) uninstallation procedure:**

To remove protection from dpkg, launch following command in terminal console :


```
dpkg -r multiprotect_x.x.x_i386.deb
```

where x.x.x is protection version.

### **Manual installation :**

If you want to do a manual install (like a RPM), you have to include every binary beginning with SagemSecurite prefix and also SafeNet dongle driver if you plan to use SafeNet dongle.

Then *SagemSecurite\_Licence\_daemon* must be started as root during boot. Others users could also be used but root user is our recommended option (validation of component is made with root user only).

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### 2.2.3) AIX

Obsolete version (does not exist anymore).

### 2.2.4) Android

To install on Android, you have to install 2 apk:

- *Morpho\_License\_Protection* apk which will install 'daemon'  
When this apk is installed, you have to click on Morpho License Protection icon to launch it the first time you install it or you can also restart your terminal
- *Morpho\_License\_Manager* apk which will display your terminal ID/available licenses and to install new licenses

Installation of APK may require that you enable installation of apk from unknown source if APK have not been signed by a trusted source. So you can temporarily enable this feature and disable it when installation is over. These 2 apks do not contain any unsafe element.

To install a license, it can be done in 3 ways:

- with a string
- a file which has been copied on terminal
- or we strongly recommend to use terminal camera to scan a 2D barcode (QR code) to install a new license

On MorphoTablet device only, CBM (single fingerprint sensor from Morpho) can be used to store/get licenses.

To get licenses from CBM, CBM has to be powered once at least and licenses will automatically be retrieved from this device.

If you plan to add licenses to CBM, then no fingerprint acquisition should be performed while performing this operation and CBM must be powered on.

## 3) Licenses

This section describes the licenses used by the service and the licenses generation procedure.

### 3.1) Licenses format

Morpho License Manager supports 2 file formats for the licenses:

- The hardware licenses format
- The software licenses format

### 3.1.1) The hardware licenses format

It is constructed as follows:

Hardware Serial	Licenses on the hardware	key	idProtection This id is optional (mandatory for MorphoTop only)
-----------------	--------------------------	-----	---

Description:

- **Hardware Serial:** It is the hardware identifier which is stored in the protection. It is specific to the hardware
- **Licenses on the hardware:** List of the licenses authorized by this protection separated by commas
- **Key:** a string generated from the serial and the licenses list
- **IdProtection :** a number to designate id of protection (mandatory for MorphoTop only)

The fig4 show the details about the format of the various license used in the service.

Examples:

For a SAFENET dongle:

32327 LIC1;LIC2 A98792371D46A4732A80

For a MSO:

008261344974-123AE360007 LIC1;LIC2 92644146FE7EAD75

For a MorphoDongle:

1122334455667788 LIC1;LIC2

E7A735E6934C10D2ACDBCA86EDBA06C685D415518BC6571B8F8F525DA669D92BE2710  
8FAD8E9369ACC0E8D31DA98642A592DFD653740AC0987C4EF4AA71F55F29320F30939  
8201D7

For a MORPHOTOP Dongle:

257894426-0123456789A LIC1;LIC2

2C4BF8476237342D143B744B93AFE05940E9036E9EB46E5A80 17

Protection	Serial Format
Morpho Dongle	16 characters: [0, 9] and [A, F] example: 1122334455667788
SafeNet Dongle	Up to 6 characters: [0, 9] Example: 12345
MSO	11 characters: [0, 9] and [A, Z] example: 0123456789A
	21 characters : [0, 9] and [A, Z] and - example: 257894426-0123456789A
MORPHOTOP	21 characters : [0, 9] and [A, Z] and - example: 257894426-0123456789A

fig4. Serial format by hardware

### 3.1.2) The machine-locked license format

Different information about the machine and the platform are used to generate a software license compatible with the software protection.

Each license is stored in a different line of file.

The licenses are stored in a readable way and you can see license names in this file.

Example (old license format) :

- **7 LIC1 1.0 LONG NORMAL STANDALONE EXCL INFINITE\_KEYS INFINITE\_KEYS 1 JAN 2004 NEVER SLM\_CODE CL\_ND\_LCK 4AE84010 5 Ni NO\_CHK\_TAMPER Ni ZA68IUR2S0**
- **7 LIC2 1.0 LONG NORMAL STANDALONE EXCL INFINITE\_KEYS INFINITE\_KEYS 1 JAN 2004 NEVER SLM\_CODE CL\_ND\_LCK 4AE84010 5 Ni NO\_CHK\_TAMPER Ni 161SDZX078**

In this file, there are 2 important items :

- LIC1 and LIC2 are license names
- 4AE84010 is your lock-code associated with your computer (lock-code : 10-4AE84 in this file)

Example 2(new license format) :

- **14 LIC1 1.0 LONG NORMAL STANDALONE EXCL INFINITE\_KEYS INFINITE\_KEYS 1 JAN 2006 NEVER SLM\_CODE CL\_ND\_LCK \*1N7WS6JUW3NCWN92010 5 Ni zqNFV4JcGs9bVN3CuhTwVFDC8,tpTPxiZm0SdRAk2C3p79Oyed2TB0dKBcbWqK,:fv**
- **14 LIC2 1.0 LONG NORMAL STANDALONE EXCL INFINITE\_KEYS INFINITE\_KEYS 1 JAN 2006 NEVER SLM\_CODE CL\_ND\_LCK \*1N7WS6JUW3NCWN92010 5 Ni ,wn1uBrlxSw,jHcKZ7TvV8Qv,YkFUcWqaTJyX2jkvd3ziJaGr29iGkCFXiQLQuS73,**

In this file, there are 2 important items:

- **LIC1** and **LIC2** are license names
- **\*1N7WS6JUW3NCWN92010** is your lock-code associated with your computer (lock-code : 2010-\*1N7WS6JUW3NCWN9 in this file)

### 3.1.3) How do I check the available Licenses?

To check the availability of the licenses, just open the manager. It will automatically detect the available licenses (you will have a detailed description of licenses by device).

#### 3.1.3.1 Windows

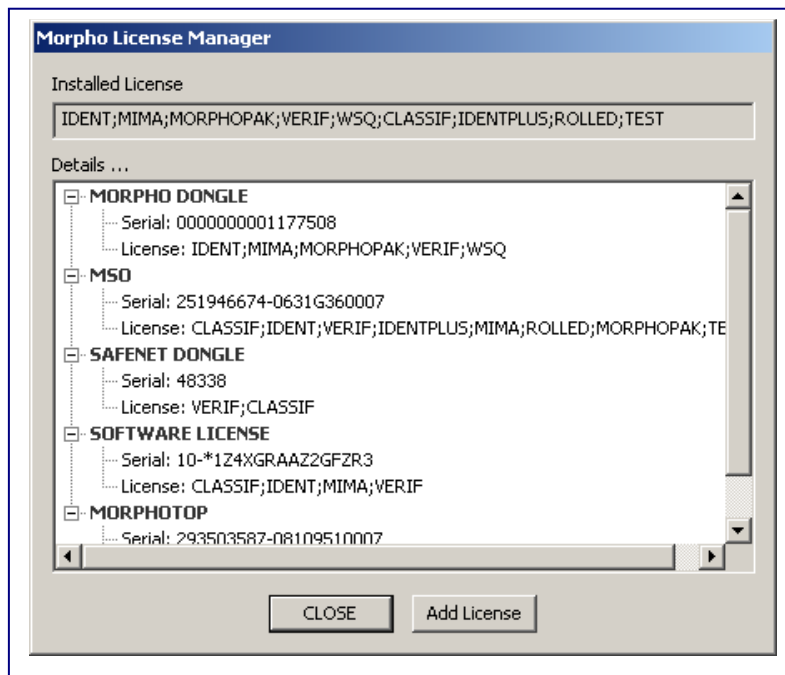


fig5. Windows License Manager (GUI version)

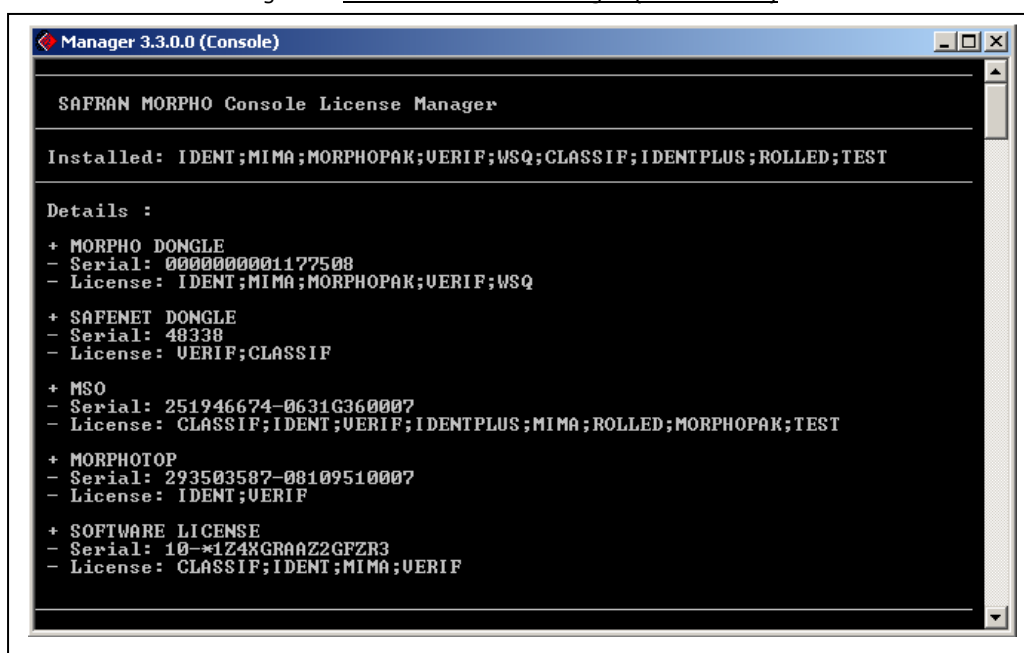
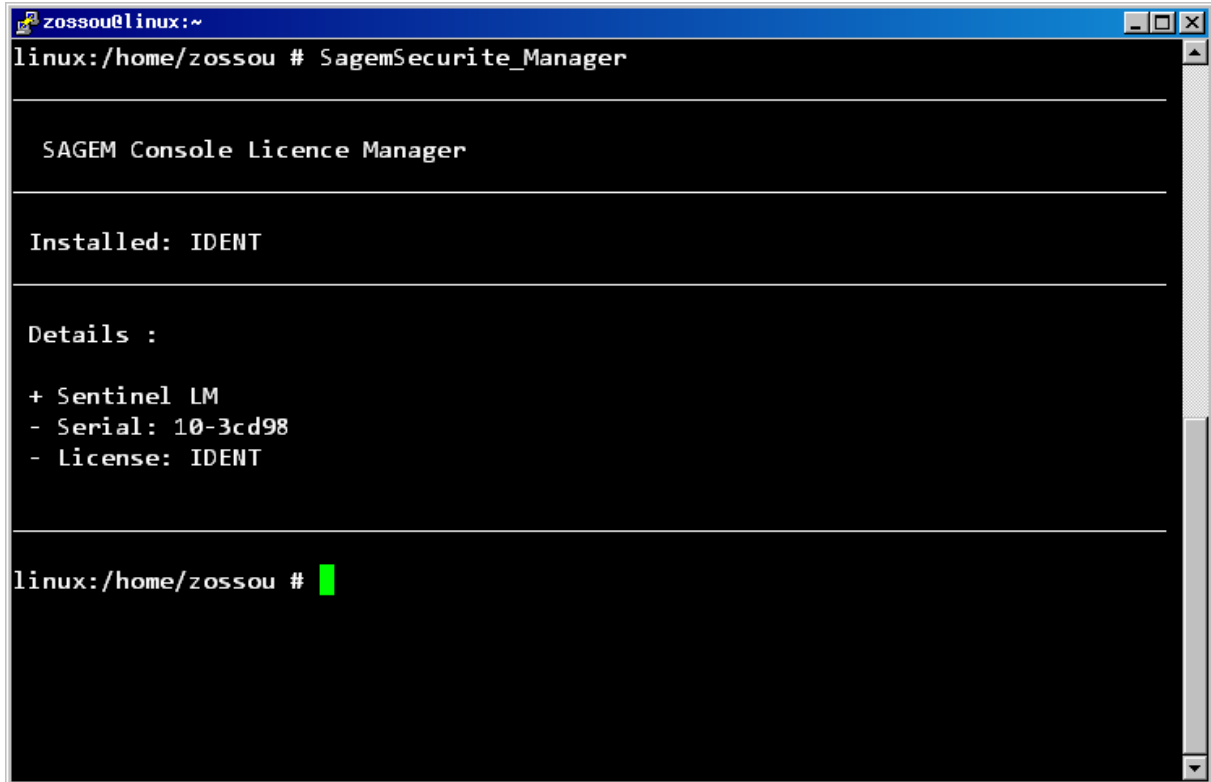


fig6. Windows License Manager (Console version)

### 3.1.3.2 Linux

Execute the following command from a terminal:

#### **SagemSecurite\_Manager**



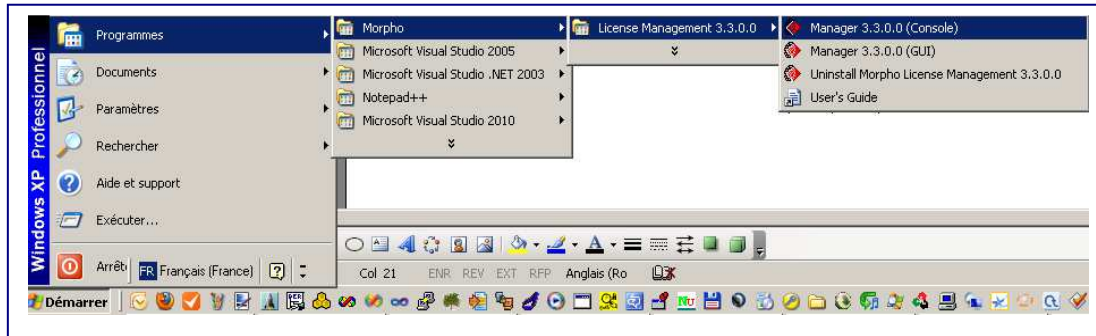
```
zossou@linux:~  
linux:/home/zossou # SagemSecurite_Manager  
  
SAGEM Console Licence Manager  
  
Installed: IDENT  
  
Details :  
+ Sentinel LM  
- Serial: 10-3cd98  
- License: IDENT  
  
linux:/home/zossou #
```

### 3.1.4) How do I install new licenses?

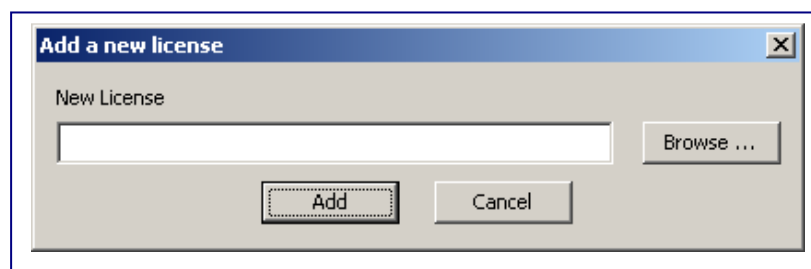
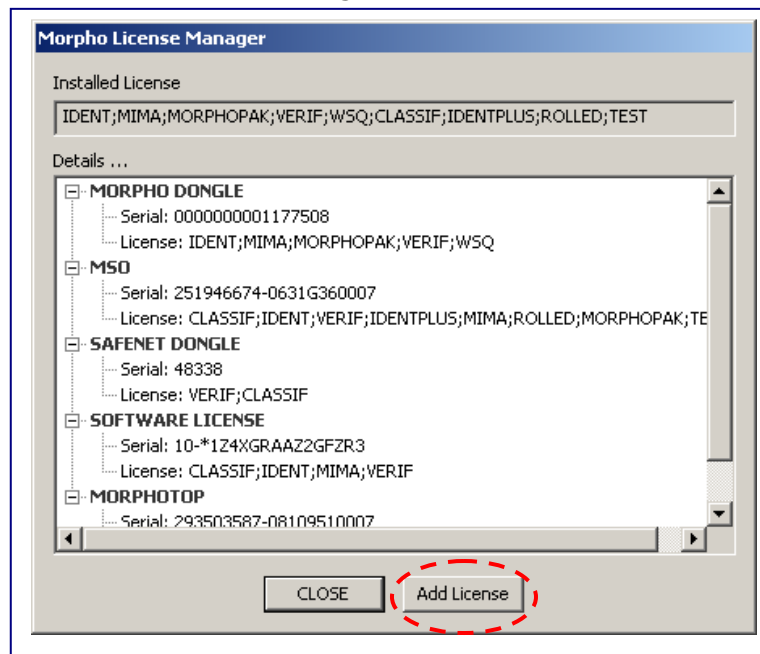
#### 3.1.4.1 Windows with GUI

On windows, you must use the GUI version of the manager to install a license.

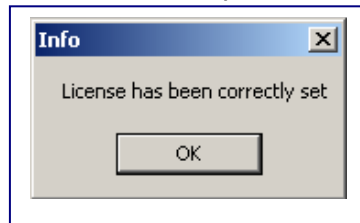
1/ Open the manager from *Start Menu* Button:



2/ Then access to the 'Add License' dialog box :



3/ Click the browse button then an open file dialog appear. Choose the license file that you want to install and it is automatically added to the device.



To install a standalone machine-locked license, you can also copy license file called *lservrc* in *c:\licences* folder (this folder is created by this service).

If you want to change this folder location, you have to create a *system* environment variable (do not create a *user* environment variable) called **LSDEFAULTDIR** and set folder where license file will be copied (you must generally restart your computer to have this modification set).

To create a system environment variable, follow 3 steps procedure:

- 1) In *system properties* (*Advanced* tab), click on *environment variables*. A shortcut to open system properties is Windows key (on keyboard) + Pause.
- 2) Create a **system** environment variable (and not a **user** environment variable) by clicking on *New* button located just above *OK* button (and not one in user variables).
- 3) In system environment creation window, set name of variable to *LSDEFAULTDIR* and set a path (for example *c:\licences*) where *lservrc* file will be copied.

This folder must exist and have enough read/write permission (SYSTEM permission) so that a license can be read/write by service called Sagem License Service.

Warning : On Vista systems and above, directory such as *Program Files* or *Windows* are not directory where user data can be copied.

### 3.1.4.2 Windows without GUI

In a Windows console, you can launch *SagemSecurite\_AddLicense.exe*.

Its usage is :

- *SagemSecurite\_AddLicense* SerialNumber License Key  
Launch this tool with generated license
- *SagemSecurite\_AddLicense* File

*SagemSecurite\_AddLicense* works with all licenses.

If file has more than one license in file, then each license which is valid for this computer is automatically added.

Example :

*SagemSecurite\_AddLicense lservrc*

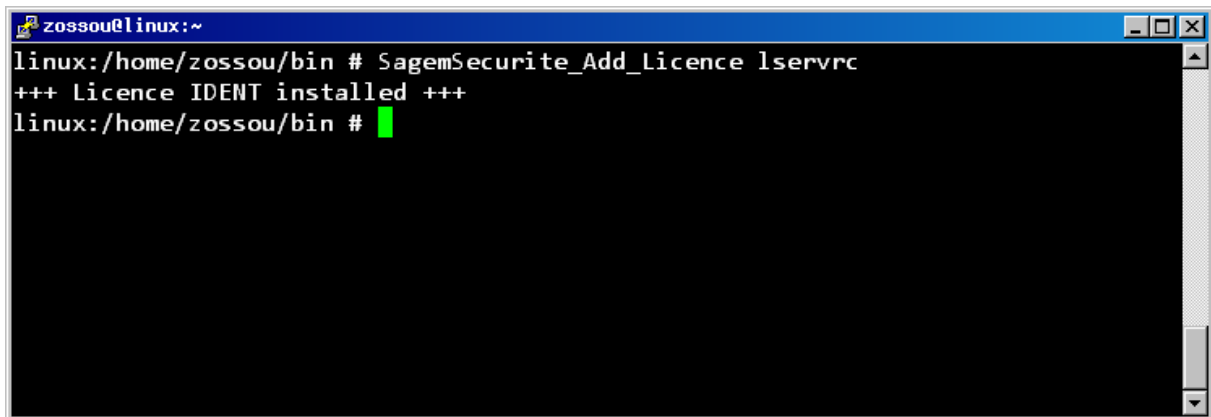
*SagemSecurite\_AddLicense 32327 LIC1;LIC2 A98792371D46A4732A80*

### 3.1.4.3 Linux

On Linux, execute the following statement:

**SagemSecurite\_Add\_Licence** *LicenseFile*.

*LicenseFile* is the name of the file containing the license to add.



```
zossou@linux:~  
linux:/home/zossou/bin # SagemSecurite_Add_Licence lservrc  
+++ Licence IDENT installed +++  
linux:/home/zossou/bin #
```

To install a machine standalone license file (called lservrc), you can also copy lservrc file in *SagemSecurite\_Licence\_daemon* directory and license will be automatically installed (you should wait for at least 30 seconds to show licenses).

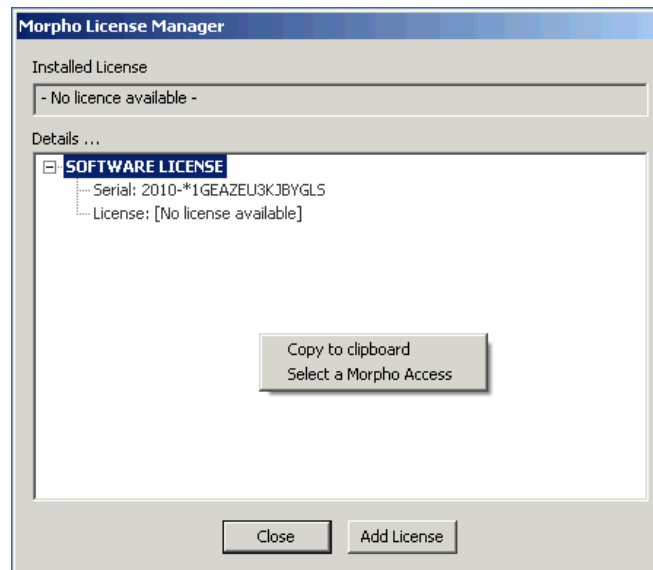
## 4) How do I view/add license in MorphoAccess on Windows

### 4.1) How to select a MorphoAccess

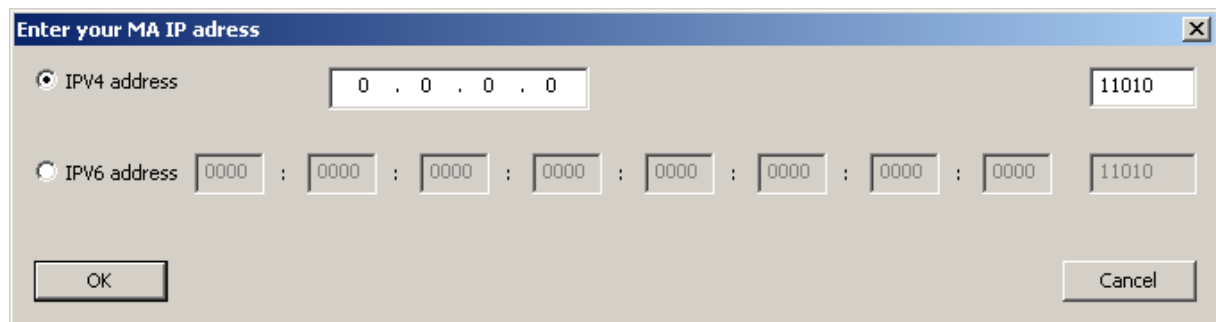
To communicate with a MorphoAccess, you have to know its IP address (IPV4 or IPV6).

You can first check that MorphoAccess is reachable by using *ping* command.

On License Manager GUI, right click on button and click on *Select a MorphoAccess*



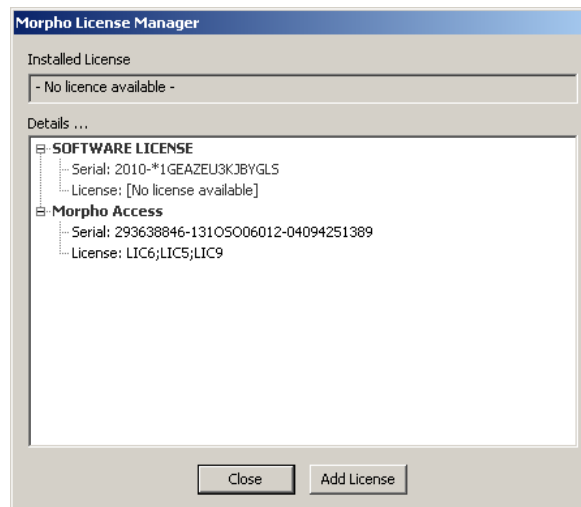
Then a dialog box is displayed to select your MorphoAccess :



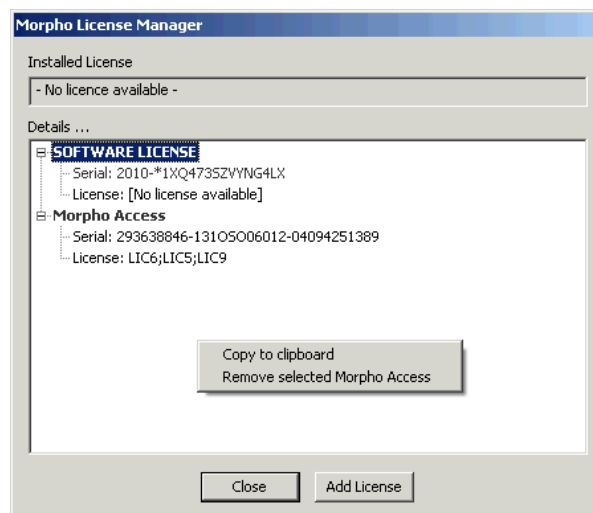
You have to choose IP address of MorphoAccess (IPV6/IPV6), then fill IP value and port number (default port is 11010).

Then click on OK button and communication with MA will be done. If MorphoAccess is not reachable, this operation can take up to 30s.

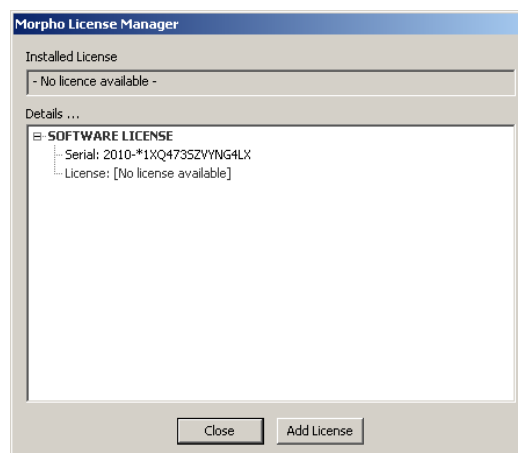
Once communication with MorphoAccess is OK, its ID and licenses are displayed in main window.



Once you have finished to use a MorphoAccess, you can select another MorphoAccess by clicking on right mouse button and then click on left mouse button on *Remove selected MorphoAccess*.



Selected MorphoAccess will not be used anymore.



## 4.2) How do I add license in MorphoAccess

Once you have selected a MorphoAccess, you can add licenses as described in chapter 3.1.4.

### **VERY IMPORTANT:**

Once you have added license in MorphoAccess Sigma, you should reboot it (see paragraph ) or unplug (unpower) it at least 30s later (do not unplug it immediately after license installation). Otherwise, license in MASigma might not be available after next reboot.

## 5) How do I know which Morpho License Manager version is installed?

### 5.1) Windows

Open a command prompt and move to the service installation directory. Then execute the following command:

**SagemSecurite\_License\_Protection.exe -v**

### 5.2) Linux

Just execute the following command from a terminal:

**/usr/sbin/SagemSecurite\_Licence\_daemon -v**

## 6) Configuration to communicate with a machine-locked remote server

To use this configuration, you have to install on at least one remote machine a token server which can distribute tokens to machines.

This token server is not part of standard delivery of Morpho License Manager.

Create a file named **slm\_conf** in the directory of the service (edit this file in a text editor). This file contains 3 elements:

- **serverSoft:** 0 (disabled, default value) or 1 (enabled)
- **remoteLicence:** List of licenses to ask to remote server. The licenses must be separated by semicolons
- **licenceServer:** the names of the remote servers (2 servers must be set in this field) to interrogate separated by a colon. You can specify the name or the IP address of the servers.

If you add a # character at the beginning of a line, this line is considered as a comment.

Example 1:

Here, we will talk to a redundant license server pool (made of 3 servers) and try to get LICENSE1, LICENSE2 and LICENSE3 from this pool of server.

*# Enable remote soft server*

*serverSoft=1*

*# License list to check on servers*

*remoteLicence=LICENSE1;LICENSE2;LICENSE3*

*# Servers*

*licenceServer=tokenserver1~ tokenserver2~ tokenserver3*

Example 2:

Here, we will talk to a single token license server pool and try to get LICENSE1, and LICENSE3 from this server.

*# Enable remote soft server*

*serverSoft=1*

*# License list to check on servers*

*remoteLicence=LICENSE1; LICENSE3*

*# Servers*

*licenceServer=tokenserver1*

## **7) Disable use of MorphoTop as hardware token on Windows**


Protection uses version 12.3.3 of MorphoTop SDK to get licenses inside MorphoTop. If an older component (acquisition component) uses a previous version of this SDK, there will be an incompatibility between license manager and acquisition component.

To avoid any compatibility problem between protection and MorphoTop acquisition component, MorphoTop license check can be disabled.

To disable MorphoTop, you should create a file called **app\_conf** in installation directory (by default: *C:\Program Files\Sagem Securite\Licence Protection*). Edit this file in a text editor (like notepad for example).

Add following line to **app\_conf** file and save file.

*useMTop=0*

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Restart protection service and MorphoTop will not be used as hardware token.

## 8) Enable use of MorphoDongle on Linux

To enable MorphoDongle on Linux (look at previous paragraph for compatible Linux distributions), you have to:

- Create an file **app\_conf** in */usr/sbin/SagemSecurite* directory (default installation directory). This file is a text file.
- Add following line to **app\_conf** file and save file

*useMorphoDongle=1*

Restart protection service and MorphoDongle will not be used as hardware token.

## 9) Disable compatibility with previous client

On Windows, there is one protocol which can be disabled.

On Linux, 2 old protocols can be disabled.

To disable 22x protocol, you have to:

- Create a file *app\_conf* where daemon/Windows Service binary is located (by default */usr/sbin/SagemSecurite* on Linux and *Program Files\Sagem Securite\Licence Protection* on Windows)
- Add following line to this file  
*enable\_22x\_compatibility=0*
- Restart daemon (restart using common daemon command or kill daemon) or Windows Service (restart in Services Management window)

On Linux, you can also disable 3x protocol (used in version up to 3.2.3 except 3.2.1.1) by adding line to *app\_conf* file.

- *enable\_3x\_compatibility=0*

## 10) When licenses and identifier of protection are available

On Windows, these 2 elements are available as soon as Windows Service ("Sagem Securite License Protection") is started.

On Linux, these 2 elements are available 5s after daemon is started (this is due to software license which requires element which are not always available at startup).

## 11) Enable use of MorphoTop on Linux

To enable MorphoDongle on Linux (look at previous paragraph for compatible Linux distributions), you have to:

- Create an file **app\_conf** in */usr/sbin/SagemSecurite* directory (default installation directory). This file is a text file.
- Add following line to **app\_conf** file and save file

*useMTop=1*

Restart protection service and MorphoTop will be used as hardware token.

## **12) Description of commuter mode + network**

To have a more detailed overview of network mode, read following document: TOKEN LICENSE SERVER INSTALLATION which is delivered with token license server.

## **13) Troubleshooting**

### **13.1) Standalone software license and firewire IEEE 1394 on Windows**

If your PC has a IEEE 1394 (firewire) interface and if you plan to use software standalone license, then to generate standalone software license for this computer, you have to:

- Disable FireWire (IEEE1394) interface (in device manager)
- Wait at least 30s and get id of standalone software license (this id will not be dependent of your IEEE1394 interface)
- Then, enable your FireWire (IEEE 1394 interface)

If you do not disable IEEE1394 interface, then next time you reboot your computer, your license might not be valid anymore.

### **13.2) Standalone software license and bonding Ethernet interface**

If you plan to use bonding Ethernet interface, we recommend you to lock your software standalone license to one of these two Ethernet card. Look at chapter 12.6).

### **13.3) Standalone software license with laptop computer**

On some laptop computer, Ethernet interface is disabled if no cable is plugged. This could lead to change in you standalone software id. In energy saving panel (or in BIOS), disable automatic Ethernet interface disabling if no cable is plugged (could change from computer to computer)

### **13.4) Standalone software license on Linux and usb0 management console**

If you have a management console on Linux using usb0 interface, we recommend you to perform same action that with FireWire 1394 on Windows.

- Disable usb0 interface (with command `ifconfig usb0 down`)
- Wait at least 30s and get id of standalone software license (this id will not be dependent of your usb0 interface)
- Enable your usb0 interface (command `ifconfig usb0 up`)

If you do not disable usb0 interface, then next time you reboot your computer, your license might not be valid anymore.

### **13.5) Standalone software license and Virtual Machine**

Standalone Software license is no longer compatible with Virtual Machine (tested VMWare and VirtualBox). Use a token license server in this case (requires at least one physical computer to install token server).

### **13.6) Software licence with more than one Ethernet Card**

To enable locking to multiple Ethernet card on a server computer, you have to :

- Create a file *app\_conf* where daemon/Windows Service binary is located (by default */usr/sbin/SagemSecurite* on Linux and *Program Files\Sagem Securite\Licence Protection* on Windows)
- Add following line to *app\_conf* file:  
`lockMultipleCards=1`
- Restart daemon (restart using common daemon command or kill daemon) or Windows Service (restart in Services Management window)

Then, if you have multiple Ethernet card (up to 6 supported), your id will have following format : 2010-\*xxxxxxxxxxxxxxxx, 2010-\*yyyyyyyyyyyyyyyy i.e. 2 standard id separated by a comma.

If one of these 2 ethernet card is no longer available, then license will still be valid.

### **13.7) Multiprotect < 3.3.2 and Vista + Seven**

Morpho License was not DEP compliant (Data Execution Prevention) up to version 3.3.2.

Look at previous user's guide to know how to disable this OS feature.

### **13.8) 2.2.x client for Windows & Linux issues**

With client 2.2.x and checking license very heavily, some license check will fail (both on Windows and Linux). This issue occurs with all version of Windows Service/Daemon.

### **13.9) Software license have been installed successfully but are no longer valid**

If you set your computer time before 01/01/2006 then software license will no longer be valid. Set valid time on your computer and restart service.

### **13.10) Software license is not valid on a VM machine**

Standalone software license are no longer valid on VM. If you plan to use standalone software license then you should use standalone token server.

### **13.11) Best practice for standalone license installation**

Disable every elements which can have a MAC address and keep only MAC address you want to attach your license to.

Then,

- 1) Ask for generation
- 2) Install licenses
- 3) Enable every elements which have a MAC address

Your licenses will always be locked to your computer without any risk of license disappearing because locked to an invalid element.

### **13.12) Reboot MASigma terminal**

On main screen or MASigma, click on unlock icon located in bottom left side of screen (red square in following image).



Then enter passport (default password is "12345" and should have been changed) and click on validation button on screen.



If default password has been used, terminal will warn you to change it. Click on validation button (and change default password as indicated in MASigma user's guide). Then you can click on Reboot icon and terminal will ask to confirm reboot. Click on validation button and MASigma will reboot safely.



### 13.13) ID of software license has following format : 2004-

**\*XXXXXXXXXXXXXXXXXX**

If you have this kind of ID, then your network is disabled. Enable at least one Ethernet interface.

### 13.14) Change of ID on Android

If you reset (factory reset) your terminal, then ID of your terminal will probably change.

### 13.15) Does not see any license if token license server wants to be used

This issue occurs if configuration file has not been filled or if there is an error in configuration file. Check slm\_conf configuration file.

**13.16) Add software license success but did not see any license**

First check if your computer has not a current date before 01/01/2006.

Then, if you are on a Virtual Machine (VM), standalone software license are not enabled on VM.

**13.17) A software license which has been installed is not valid after a reboot**

On many computers, we use some MAC address as a locking criterion. If MAC address which has been used for locking change, then previous license is not valid and another locking code is displayed.

To be sure to be locked to a fixed and immutable MAC address, disable every virtual device which can provide a MAC address and use this locking code.

This issue can also be linked with issues described in chapter 13.1 or 13.3

**13.18) Cannot retrieve a network license or a commuter license**

You first have to use administration tools provided with network license installation to check if license are available. Then you have to check that your firewall does not block UDP port 5093 (to do this test, you can temporarily disable your firewall if enabled and check if license retrieval succeed, then reenable your firewall and add new rules to open this udp port)