Installation guide

GRIF software suite

GRIF | GRaphical Interface for reliability Forecasting

A technology of TotalEnergies

TotalEnergies

Abstract

This document describes the procedures for installing *GRIF 2024.17*, and its license system.

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1. Installing GRIF software suite

1.1. Requirements

Minimum configuration required for installing GRIF:

- Supported operating systems (64-bit):
  - Microsoft Windows 10, Windows 11;
  - Linux: Ubuntu 22_04 and 24_04, Debian 12, both with OpenJDK17 installed;
- 4 GB available RAM;
- 1 GB of storage on the installation disk.

1.2. Downloading the software

The commercial version of GRIF includes all the modules. You can download it here: https://grif.totalenergies.com/en/services/customer-service/telecharger-grif

Please download the 64bits Windows version.

1.3. Using an installer (*.msi on Windows)

⚠ Some antivirus (McAfee for example) considers GRIF software as malicious and by consequence doesn't execute it. In this case, deactivate your anti-virus software to be able to execute the GRIF software.

Once you'll have downloaded the software, install it following the instructions below:

- Double click on the software installer **GRIF 2024.17.xx-Install64.exe**;
- Follow the instructions and accept the license agreement to continue;
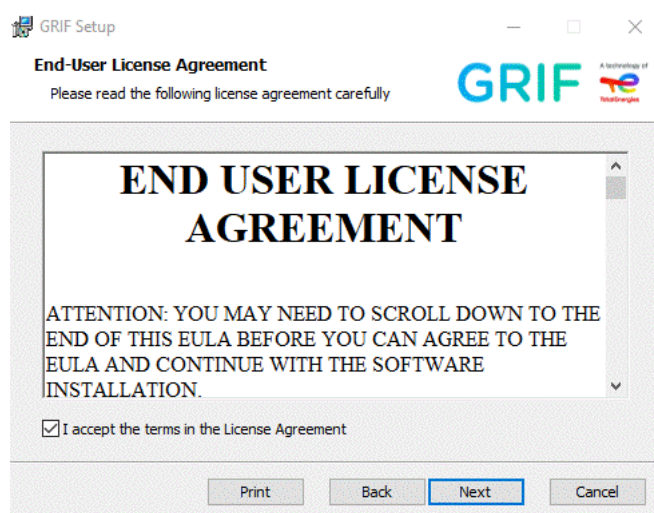
- Choose the package that will be installed:

By default, all the packages are selected. Once the software is installed, the modules can be run:

- In Windows start menu (type the name of a module to find it quickly).
- In the installation folder, inside the folder with the name of the corresponding package.
- Using GRIF.exe launcher located in the installation folder (see Section 1.5, "GRIF launcher presentation").
- Thanks to icons that are added on your desktop (if you asked for).

⚠️ You won't be allowed to use the software until a valid license is installed and configured.

1.4. Installing without an installer (on Windows and Linux)

After having downloaded the file, extract the entire zip into a local folder of your PC. It must NOT be unzipped:

- In a network drive.
- In a synchronized folder.
- In any folder where security rules may delete mandatory files (.exe, .dll, .lib, .bin ...).

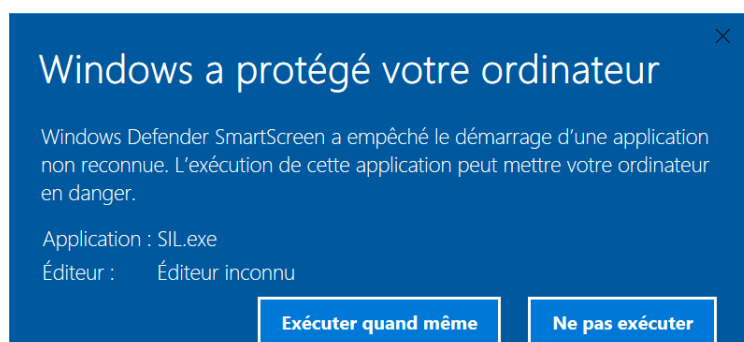Once the software is unzipped, the modules can be run:

- Using GRIF.exe launcher located in the installation folder (see Section 1.5, "GRIF launcher presentation").

- In the installation folder (Windows only), inside the folder with the name of the corresponding package (Windows only).

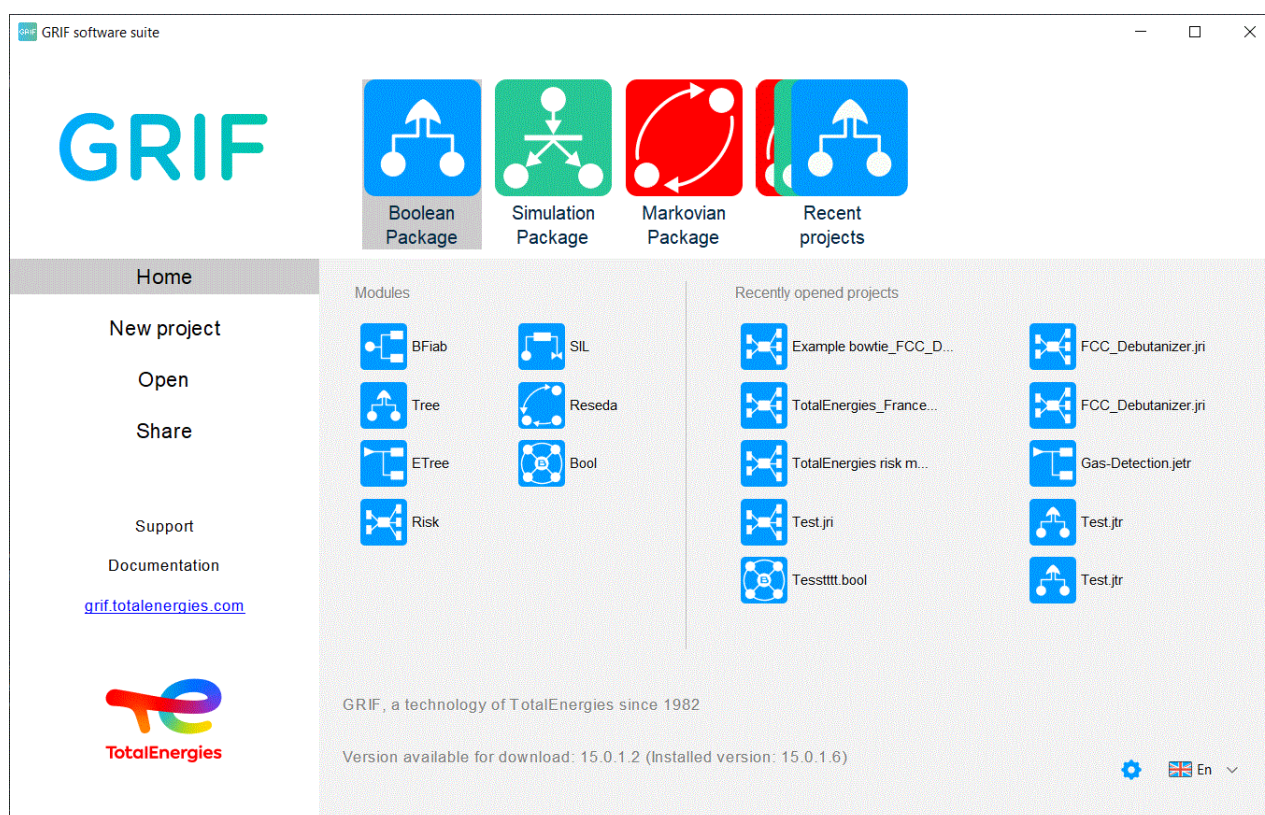| Nom	Modifié le	Type
BFiab.exe	30/03/2023 11:47	Application
BFiab.l4j.ini	30/03/2023 11:47	Paramètres de co...
Bool.exe	30/03/2023 11:47	Application
Bool.l4j.ini	30/03/2023 11:47	Paramètres de co...
ETree.exe	30/03/2023 11:47	Application
ETree.l4j.ini	30/03/2023 11:47	Paramètres de co...
Reseda.exe	30/03/2023 11:47	Application
Reseda.l4j.ini	30/03/2023 11:47	Paramètres de co...
Risk.exe	30/03/2023 11:47	Application
Risk.l4j.ini	30/03/2023 11:47	Paramètres de co...
SIL.exe	30/03/2023 11:47	Application
SIL.l4j.ini	30/03/2023 11:47	Paramètres de co...
Tree.exe	30/03/2023 11:47	Application
Tree.l4j.ini	30/03/2023 11:47	Paramètres de co...

- In the installation folder, inside the Bin folder (Linux), starting the <module>.sh in the "module" folder.

Depending on the operating system and the anti-virus software installed, an error message might be displayed (click OK), such as the one below:

Windows a protégé votre ordinateur

Windows Defender SmartScreen a empêché le démarrage d'une application non reconnue. L'exécution de cette application peut mettre votre ordinateur en danger.

Application : SIL.exe
Éditeur :   Éditeur inconnu

[Exécuter quand même]   [Ne pas exécuter]

1.5. GRIF launcher presentation

GRIF launcher GRIF is in the installation root.

GRIF launcher GRIF is divided into several parts:

- "Home": this part present all available GRIF modules and enables to launch them by clicking on module icon. This part also lists recently opened projects.
- "New project": this part enables to create a new project of any GRIF module by clicking on its icon.
- "Open": opens either the last modified files or any other GRIF file with the "Browse" button.
- "Share": select a GRIF project and share it by email.
- "Support": click on support to send any questions on GRIF software to SATODEV. the default e-mail software opens automatically and enables to send any question to "software.maintenance@satodev.fr".
- "Documentation": it opens GRIF documentations. The following screen opens:
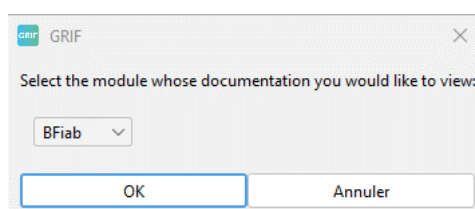
The selection of the documentation is made by scrolling the drop-down menu containing all available modules. The selected documentation will be then opened with your default HTML reader.

- "grif.totalenergies.com": redirects GRIF website.
- "Version": this part at the bottom displays the current installed version and the last version available on GRIF website.
- "Configuration" : at the bottom right, this part enables to handle licenses and configure network and memory. This part is detailed in chapter Section 1.6, "Finalizing the installation".
- "Language" to modify GRIF language (possible values are French and English).

1.6. Finalizing the installation

Some additional steps may be required before using the software.

1.6.1. License connection setup

In order to be operational, the software needs to have access to a valid license. You must configure the way GRIF access to the license. There are 2 kinds of licenses:

- local licenses, stored in a green (or black) USB dongle that must be plugged in your PC before starting GRIF;
- network licences, stored on a server that will broadcast licences/tokens to any PC asking for it.

The license access can be configured at the bottom right of the GRIF launcher.
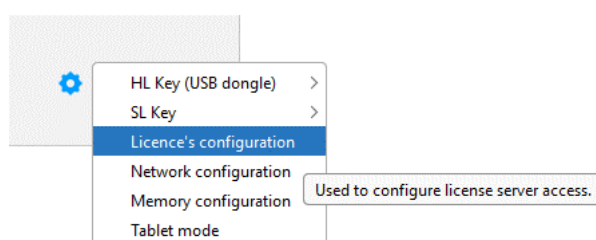
A window will be displayed for license configuration.
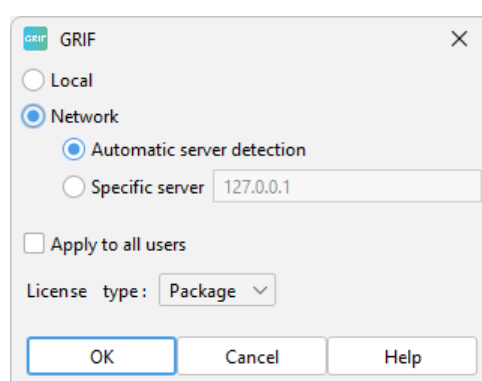
Please select**Local** if you use a green or black local USB dongle, or **Network** if your company installed a Sentinel license server (for server installation please see Section 3.2, "Install the Sentinel License Server"). When using a **Network** license we advise you to specify the IP address or the name of the server, because the **Automatic** mode will only work if the server is on the same LAN. Of course, communication between the user's PC and the server must be allowed (the sentinel system uses port 1947).

A module can be unlocked thanks to a module license or a license of the package containing the module. According to the type of license bought by your company, you have to select **Package** or **Module** for the licence type. Most of the sold licenses of GRIF are package licenses, so it is the default value.

1.6.2. Memory configuration

GRIF is a scientific calculation software that may require a significant amount of memory to do calculations and/or store results in memory. The boolean package uses the Albizia calculation engine (internal to GRIF) which requires a large amount of memory when the models exceed 1000 elements. In the simulation package you may also need a lot of memory to generate the final Petri network model (Petro, BStoK, Flex modules) even if the calculations are performed by the MOCA-RP engine which is an executable that is external to GRIF.

This is why a correct memory setting used is essential for some calculations. Configuration of the license access can be done at the bottom right of the launcher and is divided into 2 parts.
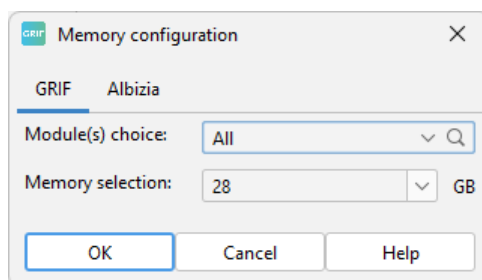
The **GRIF** part is used to configure the maximum amount of memory usable by GRIF. We recommend setting a value lower than the amount of memory available before GRIF start. By default, when the choice of modules is "all", the memory configuration will be applied to all modules. You can select a module and specify a different amount of memory if only this module requires a large amount of memory.

The **Albizia** part is used to configure the internal memory management of the Albizia processing library. The configuration will apply to Albizia regardless of the Boolean package module used. It is therefore essential that the selected value is lower than the memory configuration of the module. The external part is only to be used in special cases where Albizia is launched in a different GRIF process in order not to block GRIF in case of memory problem.

1.6.3. Network proxy configuration

GRIF may need to connect to the internet to check for updates, send bug reports or send usage statistics (anonymous). This is why it is recommended to indicate the address and possibly the login/password of your proxy server if your PC does not have direct access to the internet.

1.6.4. Tablet mode

If GRIF is installed on a tablet without keyboard (for a presentation for example), you can select the **Tablet mode**. In tablet mode, any click on an active button correspond to a double click.

2. Drivers of USB dongle

If you use network licenses, this chapter does not apply to you.

There are 2 versions for USB dongles:

- Sentinel LDK driverless keys (since 2014): This new key model does not require any driver installation. A red light inside the USB dongle should turn on after a few seconds after plugging in.

In some very rare cases, the red light does not turn on because of incompatible Sentinel drivers (version before 2014 installed on the PC). In this case follow the procedure below.

- Clé Sentinel Hasp SRM (avant 2014):

This key model requires manual driver installation. Drivers are in the <répertoire d'installation>/bin/key/win folder Please run `sentinel-runtime.bat`. Administrator rights will be requested, then a message will indicate the success of the installation. The dongle driver installs the Sentinel system, so you can check that the USB dongle is detected and that it contains the right licenses by logging into the "Admin Control Center" interface (see Section 3.4, "Installation check").

3. Using network licenses

3.1. Functioning

In this chapter we will detail the use of network licenses.

The network licensing system operates as follows:

- Your company must have a Sentinel license server for license management (from Thalès) whose installation is described in Section 3.2, "Install the Sentinel License Server".

- Your company must have N network/floating licenses that allow N concurrent users. These licenses are stored either on a red USB dongle connected to the server, or permanently attached to the server with SL licenses).

- GRIF can be installed on an unlimited number of PCs in your company worldwide.

- GRIF must be configured to access the license server Section 1.6.1, "License connection setup".

- At startup, GRIF checks the availability of the license and starts normally if it finds a license, it displays an error message otherwise.

3.2. Install the Sentinel License Server

The procedure is to be performed on a server that will be accessible by all PCs on which GRIF is installed. If you do not have a specific server, it is possible to use a client computer as a license server. It is not necessary to have a GRIF installation on the server.

On the server, you must install Sentinel License Manager. To do so, you must obtain the files either by downloading them from: https://download.grif.totalenergies.com/public/SENTINEL/Sentinel9.15.8-Licences-Utils-Srv.zip [https://download.grif.totalenergies.com/public/SENTINEL/Sentinel9.15.8-Licences-Utils-Srv.zip] or by retrieving them in a GRIF installation in the bin/key directory.

3.2.1. Installing on Windows Server 2016, 2019, 2022 et Windows 10,11

In the win directory, run `sentinel-runtime.bat`, administrator rights are required. A confirmation message of successful installation should be displayed after a few tens of seconds. When the installation is complete, it is essential to take the dll `haspvlib_89115.dll` from the SL directory and copy it to the `%CommonProgramFiles(x86)%\Aladdin Shared\HASP\` directory. You must then restart the **Sentinel LDK License Manager (hasplms)** service.

3.2.2. Installation Linux

Whether for Debian and its derivatives or RedHat and its derivatives, a specific online help is available in HTML format.
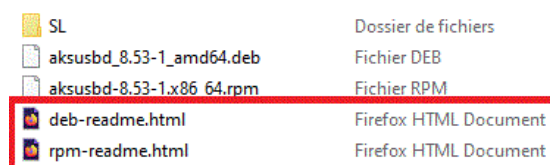
On Debian, unpack the archive and type the following command: dpkg -i aksusbd_xxx_amd64.deb

On RedHat, unpack the archive and type the following command: rpm -U aksusbd-xxx.x86_64.rpm

Then, you must copy the haspvlib_89115.so file (that you will found in the zip) into /var/hasplm and restart the hasplmd service.

3.2.3. Network Licenses

If you have a red USB network dongle (Sentinel HL NET), simply plug it in a USB port of the server. Your server is now operational.

If you have chosen to use Sentinel SL (SoftKey) licenses without a USB dongle, you will need to follow the procedure for generating a server-specific SL license (cf. Section 3.3, "SL license generation").

3.3. SL license generation

This section only deals with SL licenses, if you have an HL license (with USB dongle) please go to Section 3.4, "Installation check".

SL licenses have the advantage of not requiring a USB dongle, they are associated directly with the server. But in order for SATODEV to generate the license associated with your server, you must generate your server fingerprint file. If used in a virtual machine, the fingerprint is specific to the VM + host set, this means that if the VM is moved from host the license will no longer be valid.

Please access the Sentinel Admin Control Center with your browser at http://localhost:1947/ . In the "Sentinel Keys" menu, you must have a line with vendor code **89115** and a **Fingerprint**.
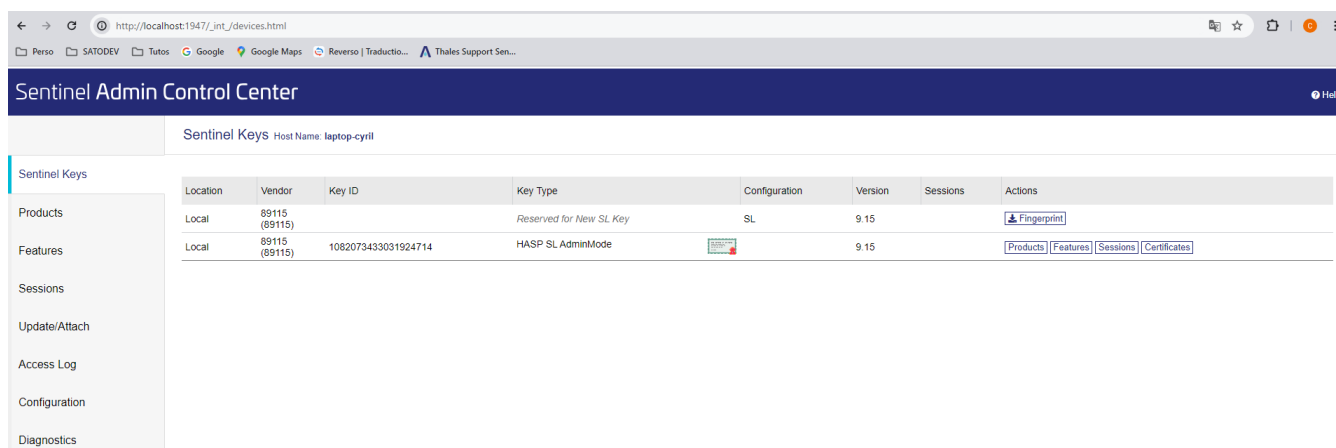
Please click on **Fingerprint** button to download your fingerprint and send it to contact@satodev.fr.

Be careful, in case an SL license of another software is already installed on the server, it is necessary to have the server ID which is downloadable from the server at this address: http://localhost:1947/_int_/download/my.id or, in the "Admin Control Center" admin interface, go to the Diagnostics -> Create ID File menu. Please provide this ID file to SATODEV.

In case of error, as indicated in the README file in bin/key/SL directory, you may have forgotten to c opy the dll haspvlib_89115.dll in %CommonProgramFiles(x86)% Aladdin Shared HASP .

Upon receipt of your fingerprint, SATODEV will send you a license file (*.v2c), which you can apply in the **Update/Attach** menu.
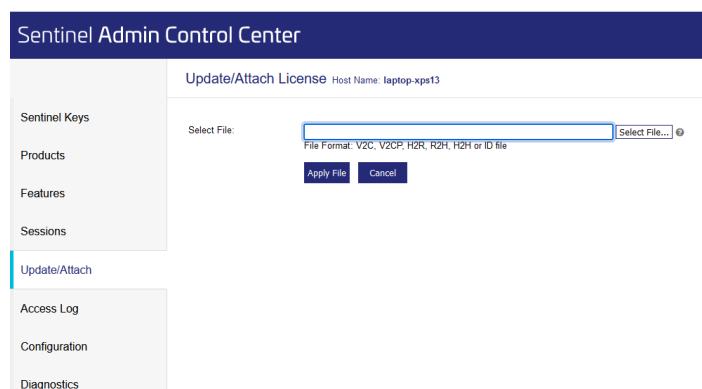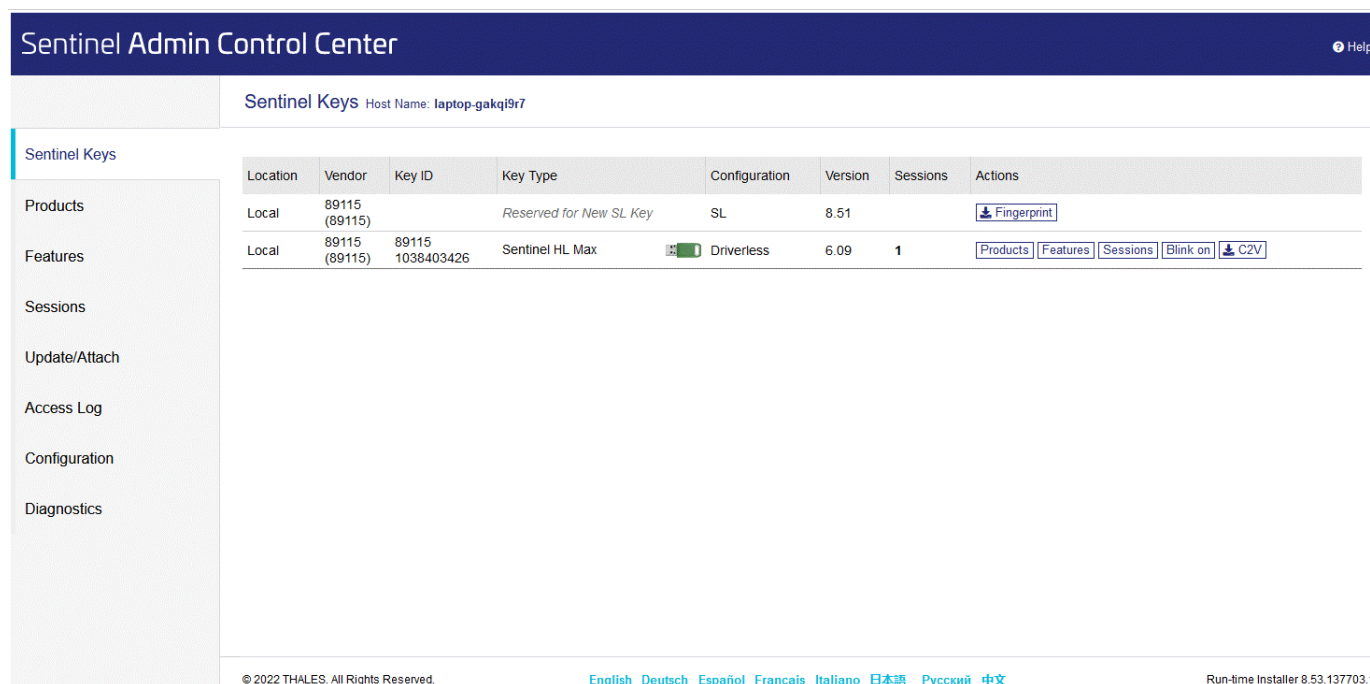
3.4. Installation check

To ensure that the server is installed, simply connect with a browser on the server port 1947:

- either from the server itself: http://localhost:1947
- or from a client: http://serveraddress:1947, remote access only works if remote access has been previously authorized in the configuration interface of the Admin Control Center (in local connection): Menu Configuration/ Allow Remote Access to ACC.

The server configuration interface is shown below.

If nothing appears, please restart the license server installation procedure.

For more information about the license manager (verification of licenses, monitoring of sessions, definition of authorized users ...), a **Help** button located at the top right will open the online help. You can also consult the Sentine de Thalès documentation here: https://docs.sentinel.thalesgroup.com/ldk/LDKdocs/SPNL/LDK_SLnP_Guide/Distributing/Admin_Control_Center/100-Admin_Control_Center.htm

3.5. Configuration of user's workstations

When the license manager is installed on your server, you must configure the client workstations. This step is done via the GRIF launcher (Section 1.6.1, "License connection setup").

This configuration step generates a setup.ini file in <user directory>/GRIF/<version>. You can reuse this file to facilitate deployment.

Please consider modifying your routers and firewalls to allow communication on ports 1947 (UDP and TCP). For information, when starting a GRIF module, the hasp configuration file will be created : `<user directory>/AppData/Local/SafeNet Sentinel/Sentinel LDK/hasp_89115.ini`

3.6. Software deployment

There are 2 ways to deploy GRIF silently on client workstations. Silent installation is possible via Microsoft?s Intune/EndPointManager tools using the MSI file. You can also deploy the portable version by simply copying the files of portable version.

In both cases it will be necessary to configure the access to the licenses. To do this, you need to create a setup.ini file (or reuse a file already generated) and copy it into ><user directory>/GRIF/<version>. You can also drop this

file in ><user directory>/Bin/GRIF-Launcher/ so drop this file in the <installation directory, it will then be used as the default for all users.

The following changes must be made:

```
Options.Netkey=true
Options.NetIpAuto=false
Options.NetIp=127.0.0.1
```

Which means:

1. **True** if using network license ; **False** if standalone (green dongle)
2. **True** if the license server is automatically detected on the local network (not recommended)
3. Enter the name or IP address of the license server

4. Transfer a sentinel SL license

This chapter is only for the specific case where you would like to move an SL (Soft Lock) network license from one server to another. If you have an HL (Hard Lock) license on a USB dongle, the following procedure is unnecessary, simply unplug the dongle and plug it into the new server. Of course, the machine that will receive the license must have a sentinel license server installed following the procedure described in chapter Section 3.2, "Install the Sentinel License Server".

4.1. Before we start

In order to be able to transfer an active Sentinel SL license key from one computer to another, you need to have access to both computers. These do not need to be connected to each other. You will also not be able to transfer the license when it has expired or has the "Cloned" status.

GRIF SL license keys can be installed on Windows or Linux systems.

4.2. Basic principle

Sentinel SL license keys use a fingerprint collected from the computer to prevent unauthorized copying. To be able to transfer a Sentinel SL license key to a new computer we need to provide a fingerprint of the new computer to the license manager on the old computer. The license manager on the old computer will then disable/remove the license on the old computer and generate a H2H (host to host) file that can be used to install the license on the new computer.

4.3. Tasks to be performed

- Installing the license server on the new computer
- Get a fingerprint of the new computer (.id)
- Create a host to host transfer file (.H2H)
- Install license on the new computer

4.3.1. Installing the license server on the new computer

This procedure is described in chapter Section 3.2, "Install the Sentinel License Server".
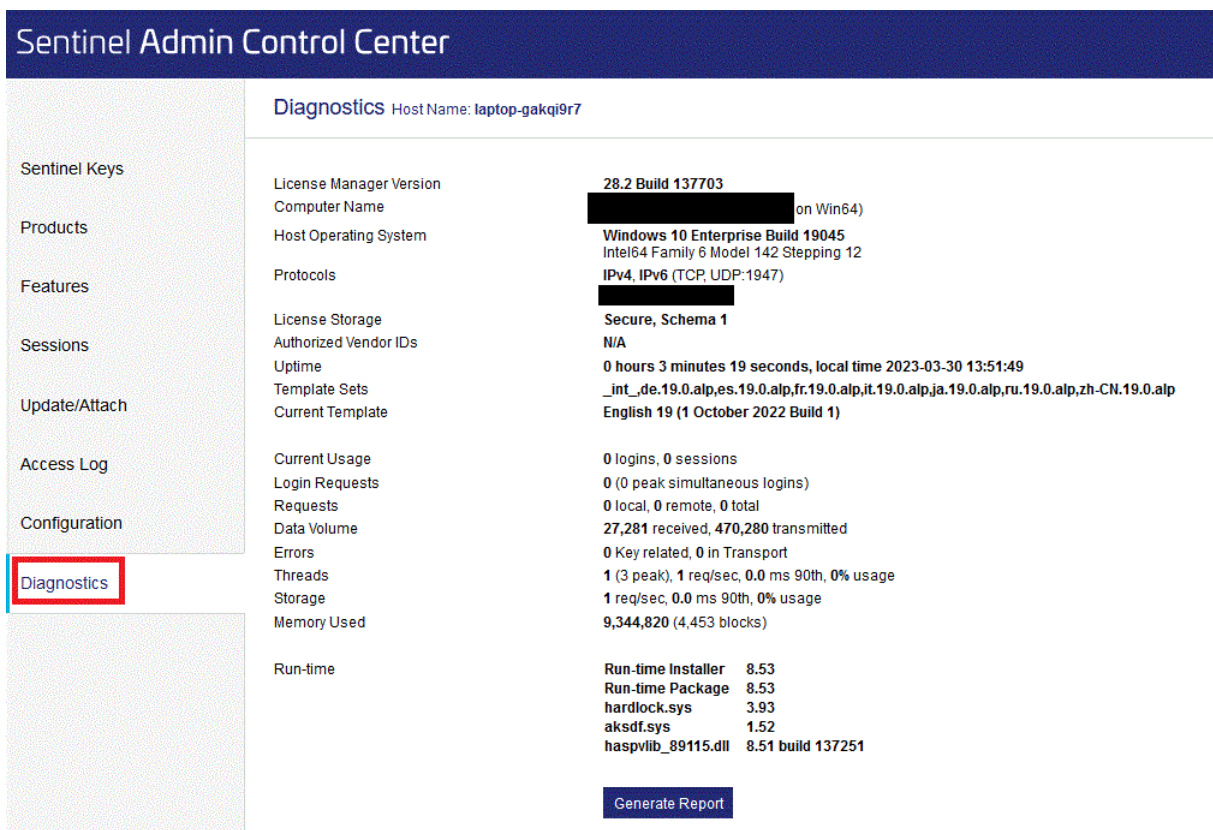
> Do not forget the part concerning the installation of the specific dll.

Theoretically at this stage, there should be no visible license for the SATODEV provider. In order to check this, open the ACC (Admin Control Center) in a browser (http://localhost:1947). Open the **Sentinel Keys** tab and validate that there is no license for Vendor ID 89115. This unique identifier is the one assigned to SATODEV.

4.3.2. Get a fingerprint of the new computer

To obtain the fingerprint of the new computer, the simplest solution is to directly use the graphical interface of the license server.


From the administration interface of the new server, open the **Diagnostics** tab, then click on the **Create ID File** button

4.3.3. Create a host to host transfer file (.h2h)

Now that we have a fingerprint of the new computer, it's time to generate a Host-to-Host Transfer (.H2H) file on the old computer. Here again 2 alternatives are possible, you can if your old computer is under Windows use the utility Sentinel_RUS_89115.exe than you will find in Bin/Key folder of a GRIF installation. If your old computer is under linux, you will have to go through GRIF.

4.3.3.1. Solution with GRIF

This solution requires a version of GRIF >= 2022.5 able to open a GRIF module and configure to use the old license server.
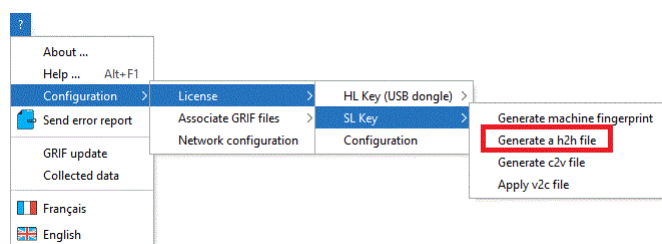
From one of the GRIF modules, open the menus **Configuration/License/SL Key/Generate h2h...**. A confirmation window then opens and indicates the license number used which will be transferred. After validation, select the

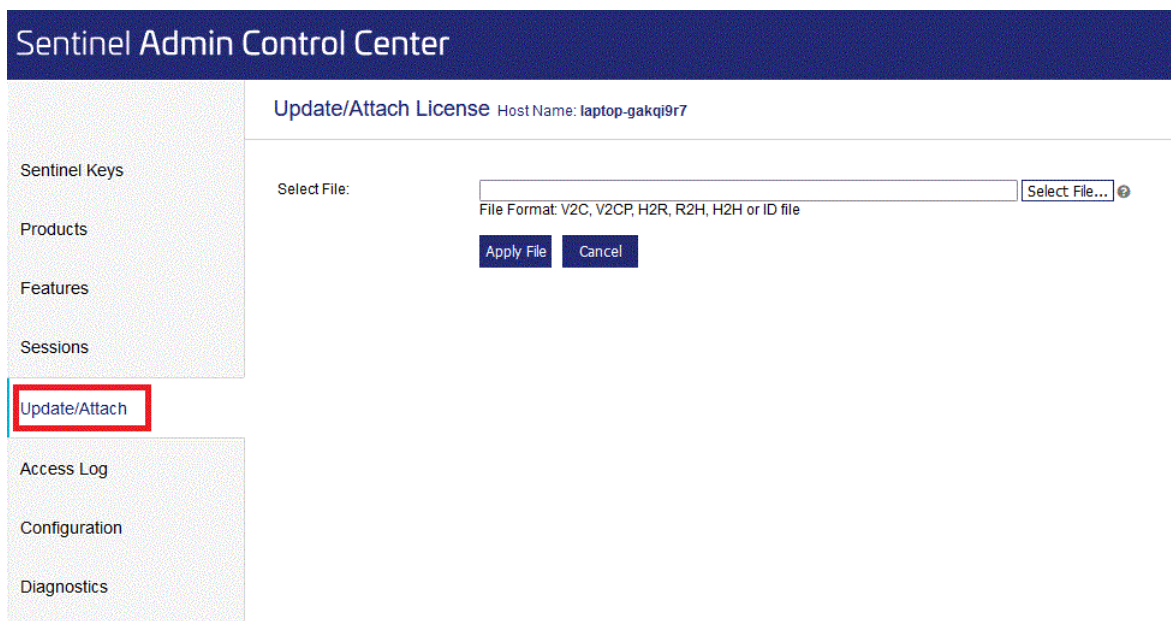fingerprint .id file created in the previous step. Finally select a path to save the .h2h file that will be generated. This results in another dialog box that displays the location of the host-to-host transfer file. In your old license server http://localhost:1947/_int_/products.html you can see that the licensed products are no longer available on the old computer. You must now close GRIF which, in the absence of a license, risks no longer functioning correctly.

4.3.3.2. Solution with HASP RUS utility (windows only)
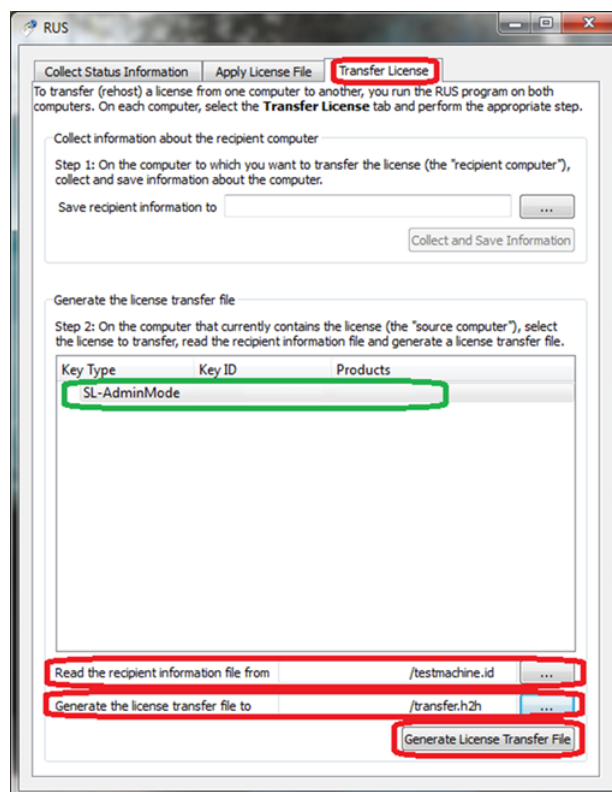
From the old computer, in the HASP RUS utility, navigate to the **Transfer License** tab. You will see the license key listed in the **Generate the license transfer file** section. If you see multiple keys, select the one you want to move. In the **Read the recipient information file from** box, select the fingerprint file (.id) created on the new computer. In the **Generate the license transfer file to** area, specify the name of the new .h2h file to generate. Click on **Generate License Transfer File** There will be a dialog to confirm the license transfer. Click Yes.
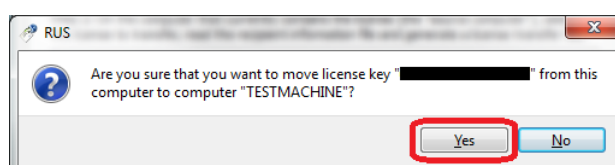
This results in another dialog box that displays the location of the host-to-host transfer file.
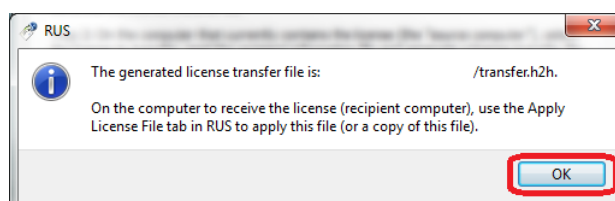
In Sentinel Admin Control Center http://localhost:1947/_int_/products.html you can see that the licensed products are no longer available on the old computer.

4.3.4. Install license on the new computer

Now that we have the host-to-host (.H2H) file with the license details we can install this on the new computer.

From the administration interface of the new server, open the **Update/Attach** tab, Then select your h2h file with the **Parcourir...** button then click the **Apply File** button. Now the license transfer is complete. We perform a final check to confirm that the license is available. Navigate to **Sentinel Keys**, as you can see, the product license is now available.

5. Updating the license (with or without USB dongle)

If you buy new GRIF packages, you will have to update your license to be able to use the new GRIF licenses that you bought.

⚠️ The procedure has to be conducted on the workstation where the license is installed.

There are 2 steps to the update: the information regarding the current license is sent to SATODEV and then the application of the new information sent back/returned by SATODEV.

5.1. Sending license information to SATODEV

5.1.1. Via GRIF

This paragraph must be used when USB dongle in pluged in the PC where GRIF installed. If you have a license serveur, we advise you to use the web interface "Admin Control Center" from the license server.

In the bar menu of one of the GRIF modules, click **?** and then select **License**.
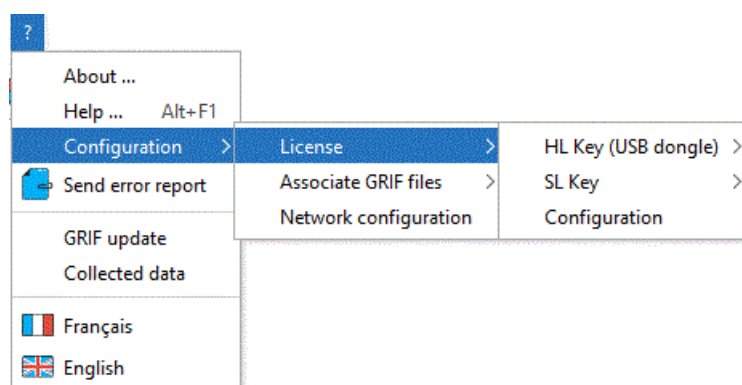
Choose the license type (hardware means with USB dongle and software without USB dongle) and click **Générez c2v**.

Save the generated file.
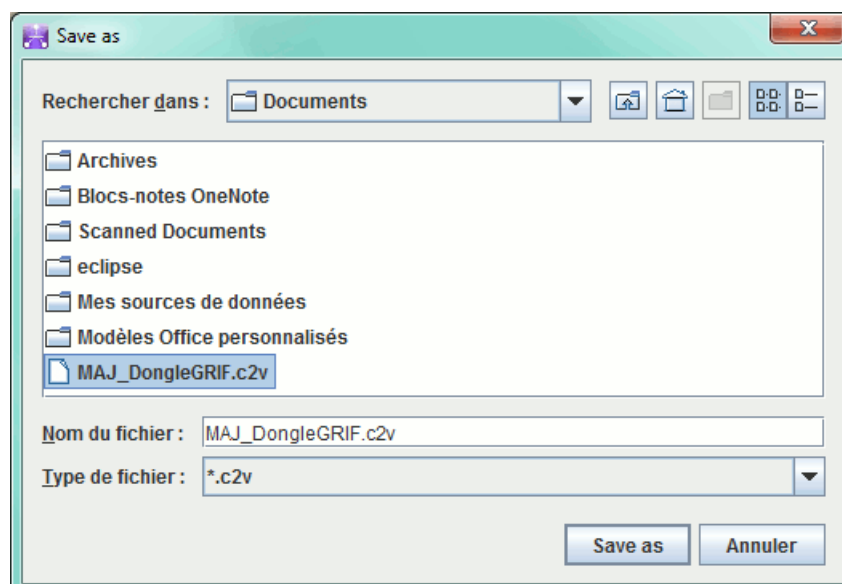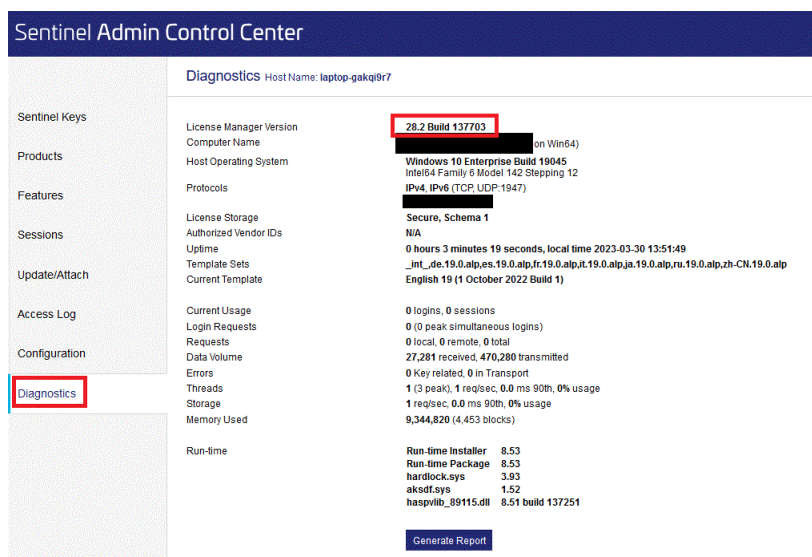
Email the c2v file to **contact[AT]satodev.fr** and you will receive a return file for updating the software

5.1.2. From the license server

License information can be generated directly from the license server.

To do so, the license server must be installed, if it is not yet installed, please run sentinel-runtime.bat (you can download this file from https://download.grif.totalenergies.com//public/COM/GRIF2023/Sentinel-Licenses-Utils-2023.zip).

Go to http://localhost:1947 and check the version of the license manager in the **Diagnostics** menu. It should be Sentinel License Manager 28.2 ot newer.

You can generate the information file in the Admin Control Center interface by clicking on the button **C2V**.

To enable the C2V button, in the **configuration** menu check the box **Generate C2V file for HASP key** and then click on **submit**.

5.2. Updating the dongle

5.2.1. Via GRIF software

SATODEV will return a file with the following name format:
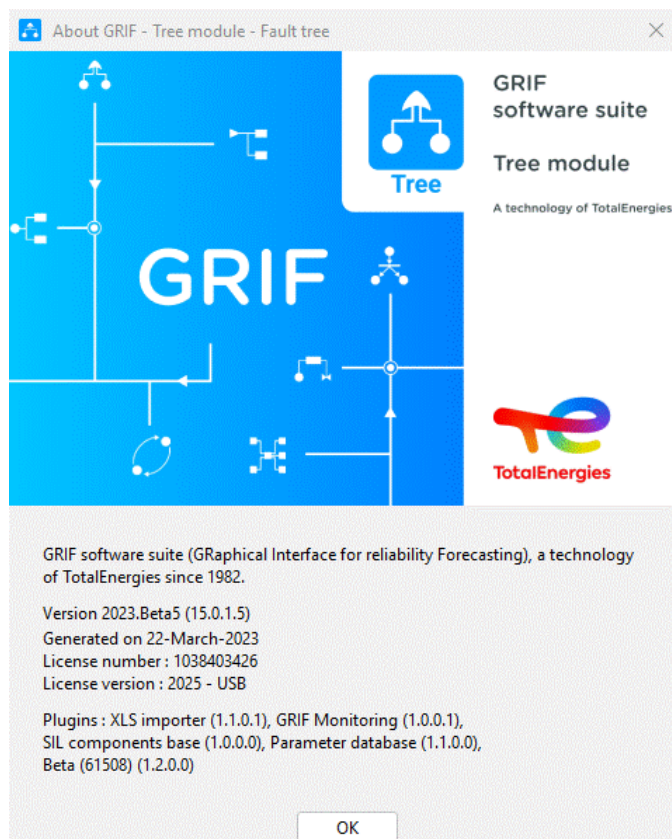
To apply this update open the GRIF module, and then under the **?** menu select **License - Hardware (or Software) license - Apply v2c**.

Open the file returned by SATODEV.
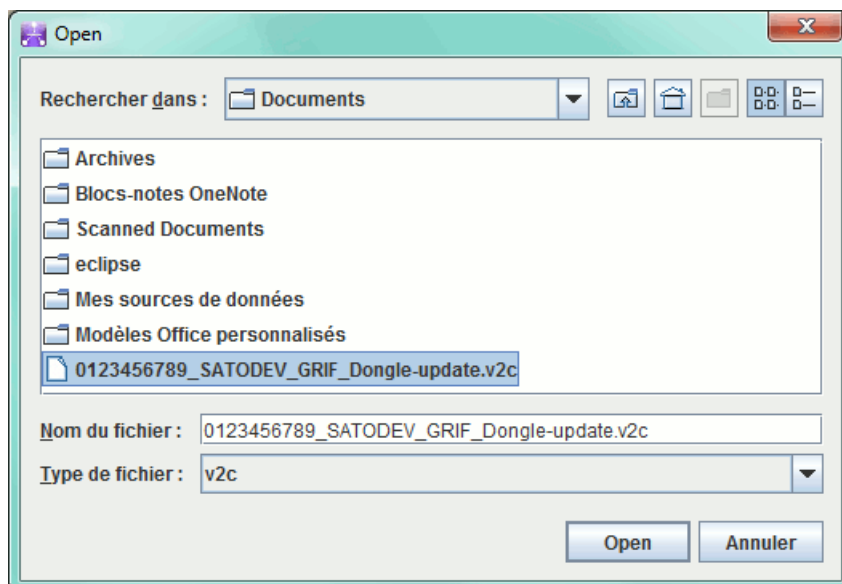
The update takes several seconds and the following message is displayed when the update is completed: UPDATE SUCCESSFUL.

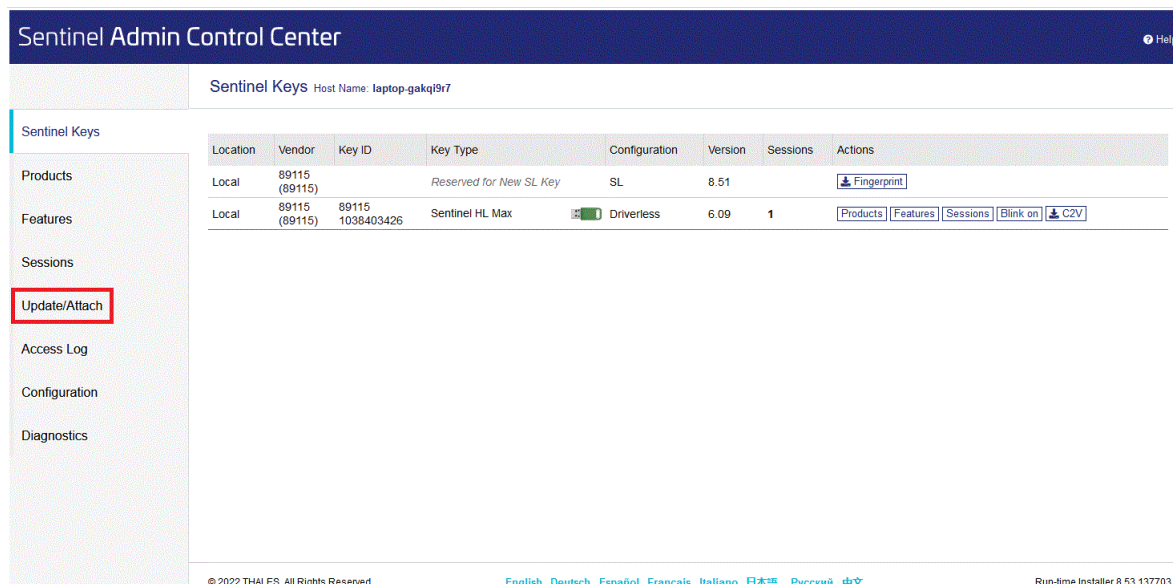You can then use GRIF and check the update in the **? - About...** menu.

5.2.2. From license server

To apply v2c file, go on http://localhost:1947.

Then, in the **Update/Attach** menu and select **Choose a file** to search v2c file send by SATODEV.

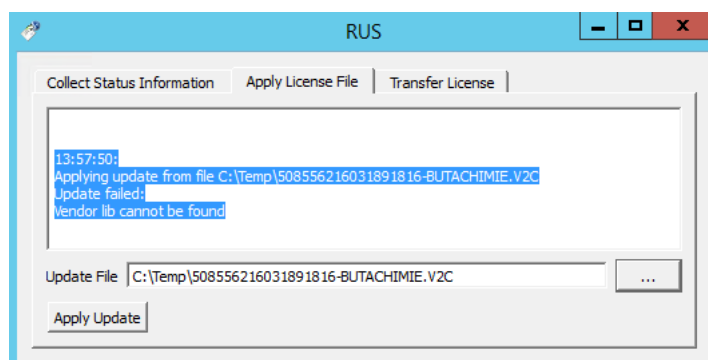Select your file and click on **Apply file**.

This procedure is valid as well for USB standalone dongle (green) that server dongle (red).

6. What if?

6.1. ... an error message shows after applying the v2c

When applying the v2c file, the following error message may appear:

You forgot to copy the dll during the serveur installation process.

6.2. ... a "clone detected" error is displayed

If before the transfer the virtual workstation has been cloned, despite the restriction, the following message will appear in GRIF:

In this case, please contact SATODEV.

6.3. ... during update, error 50 occurs
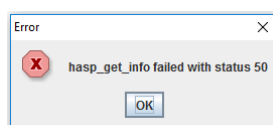
This error message means that no USB key is detected.

2 reasons:

- You have not installed the USB protected drivers;
- USB key is not connected to the computer that you are updating.

6.4. ... an out of memory message is displayed

As any computation software, GRIF needs a memory. Please increase memory in GRIF luncher settings (see Section 1.6.2, "Memory configuration").

6.5. ... StackOverFlow message is displayed with comput_rec method

Like any scientific computation software, GRIF sometimes performs recursive calculations. It can happen on very big models that the recursion exceeds the limits accepted by default by Java.

For the 64-bit version, if you run the software with a ".bat" or a ".sh", it is sometimes necessary to increase the maximum value of the execution stack size To do this, it is possible to modify the JAVA_XSS value in the GRIF-Commons.bat (for windows) or .sh (for linux) which is located in the "installation directory"/Bin/GRIF-Launcher/. This will only impact the software if it is launched from a .bat (or .sh for Linux) with the module name. Since version 2022.15, the value is automatically set to 8 mega on 64bit versions. Increasing this value to 16 mega may solve some stack size problems, but it will have to be done on a machine with at least 64GB of RAM and having set the GRIF memory to 32G

Under windows, for the launching with the exe files, the parameter setting is done in the "module".l4j.ini file as explained for the memory size. This "module".l4j.ini file should contain: `-Xss16m` to use a battery size of 16 mega.

6.6. ... GRIF doesn't detect all CPU of my server

GRIF uses Java to detect the number of CPU at start. With dual socket servers, Windows server starts Java on only N CPU of one socket. So you can use only half of computer power. The way to solve this issue is to modify the .ini file. It is in "installation directory"/bin/module/module.ini" if you never stared GRIF, or in "user home"/ GRIF/"version"/"module" when you did. In this .ini file you can specify Compute$CPUDetected=n with "n" the number of CPU you want to use.

6.7. ... Sentinel License Manager version is too old

The license server used is too old, you must install the last version.

7. How to contact SATODEV in case of problem

When the message **Contact your retailer** appears, first respect the following procedure:

1. When problem is due to the software, the email contact is `<software.maintenance@satodev.fr>`

2. Please specify the version you use (see "?" / "About").

3. Send error logs files which correspond to the last manipulations made with the software. To send it, you just have to go the menu **? - Send errors logs**. The software opens automatically your e-mail box with the address of SATODEV
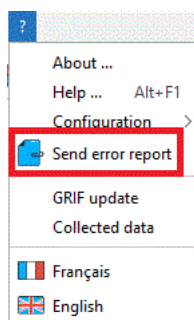
> It is also possible to find these files in the following folder `C:\Users\UserName\GRIF \2024\Module\log`

4. If it is possible, please join the model file. In this case, you can use **Send by mail** feature in the menu **File** and moove the model enclosed in the previous mail.

> To respect the model confidentiality, it is possible to anonymise the model thanks to the function **Anonymise** in **File** menu. Caution, this manipulation is irreversible.

5. Finally, in the e-mail, describe how the problem happened, and give us your phone-number so we can have a phone call if needed.