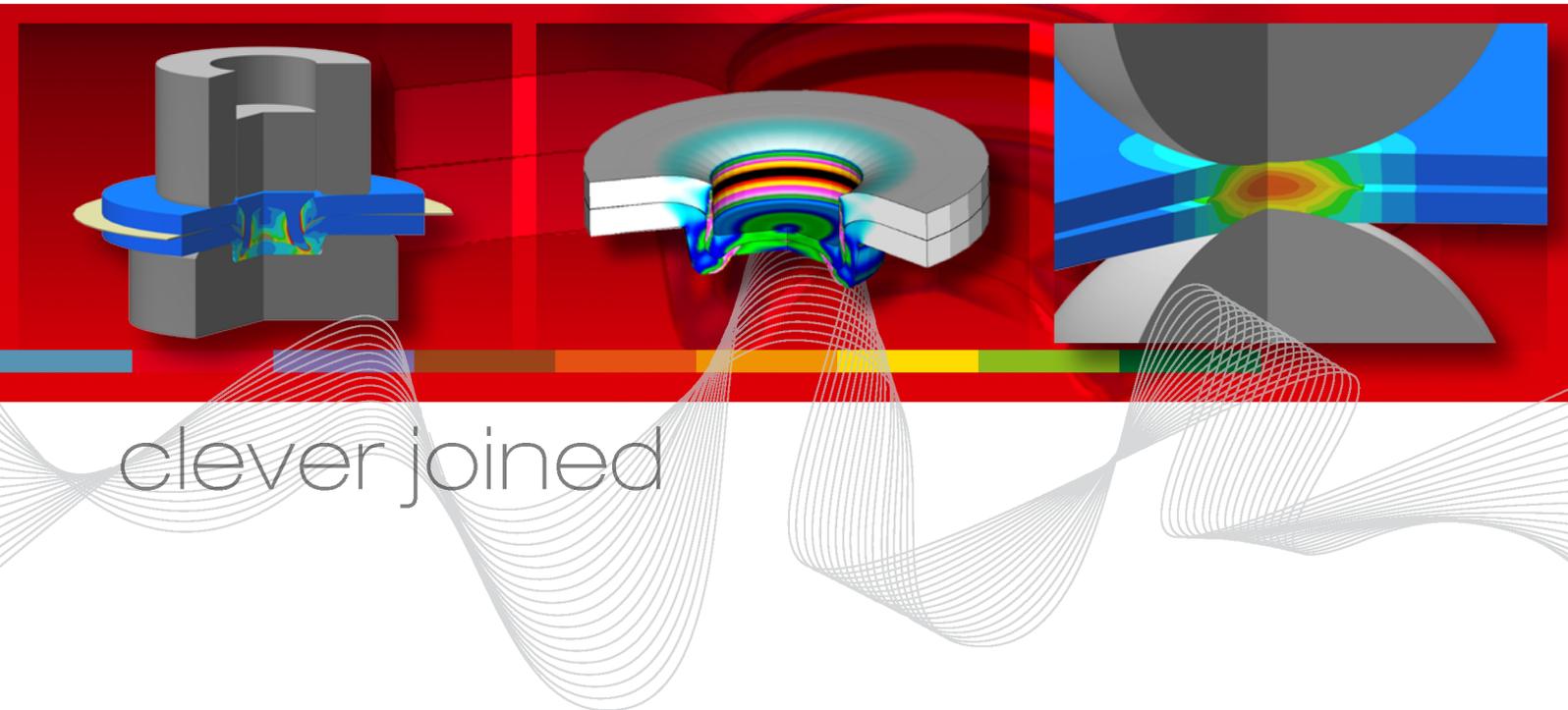


simufact joining optimizer



clever joined

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1

Installation guide



Before installing please read carefully the "Release notes" and "What's new". It contains additional information which is not documented in this booklet.



Please keep in mind that **administrative rights** are required for a successful installation!



Please keep in mind that Simufact Joining Optimizer supports 64-bit operating systems only.



Before starting the installation make sure that you have a valid **license file** for the products you like to install. The recommended steps of the installation are:

- 1) get a valid license file
- 2) install the license server (see notes below)
- 3) install Simufact Welding (described in this manual)

Step 2) "Installation of the license server" is not needed if you have a 'trial license' or an 'uncounted demo license' as these licenses do not need a license server. But it is needed for all other license types like 'commercial license', 'test license', 'partner license', 'academic license',

For network licenses the installation of the license server software is only needed on the machine used as license server, this means on the machine with the host-ID specified in the license file. This machine may or may not be used to run Simufact Welding, too. For nodelocked licenses the license server software and Simufact Welding are installed on the same machine.

The required license server software is "MSC Licensing", a FLEXlm based licensing software. Please see the "Release notes" for the required version of MSC Licensing. Typically several version of Simufact Welding can be used with a constant version of MSC Licensing. Thus there may be no need to update an existing MSC Licensing.

MSC Licensing is not shipped with Simufact Welding. It is available as separate download in the MSC Solution Download Center (SDC) where you have downloaded Simufact Welding. MSC Licensing is not installed by the Simufact Welding installer but has to be installed separately. For this please follow the instructions shipped with MSC Licensing. It is recommended to activate "Edit the advanced properties" during the installation and to remember the port number and host name of the license server shown.

The installation of a license server is also not needed if you have the license server software "MSC Licensing" already running for other MSC products on the machine licensed for Simufact Welding. In this case the license files for the different products need to be combined, see the appendix at the end of this document.

For more information about configuring and managing your licenses please see the appendix at the end of this document.

1.1. Installation using Windows™

1.1.1. Attended installation

The Simufact Joining Optimizer download package contains an easy-to-use installer: "Setup.exe". Double-click the executable to open a dialog that will guide you through the installation.

1.1.1.1. Choose the language

In the first step of the installation you can choose the language used during the installation. Select the language of your choice and click **Next**. Please note that this selection does not influence the language used in Simufact Joining Optimizer. The language used in Simufact Joining Optimizer can be chosen in the settings of Simufact Joining Optimizer.



Figure 1.1. Choose the language

1.1.1.2. License agreement

To continue the setup, you must confirm the copyright notice by selecting **OK**. If you do not accept the agreement, click **Cancel** to quit the setup.

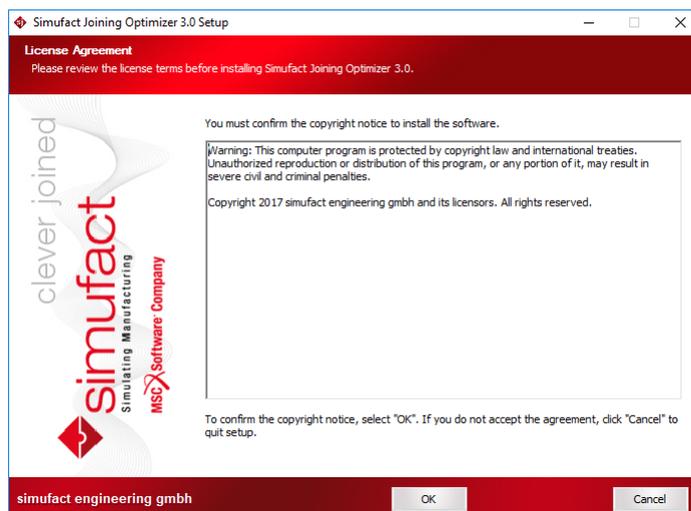


Figure 1.2. License agreement

1.1.1.3. Choose license location

The next action depends on the type of your license. You should have received a license file *before* running the setup or have a license server providing all necessary licenses. If you have a 'trail license' or an 'uncounted demo license' you need to specify the location of your license file you have received, for all other license types ('commercial license', 'test license', 'partner license', ...) you need to specify the location of you license server you should have set up. The location of the license is set in the system environment variable "MSC_LICENSE_FILE". On this page you can adapt the value of this variable.

- Set the location of the license file (for all 'demo licenses' or 'trial licenses')

Use the **Browse...** button to select the license file on your system.

The path and the name of the license part must not contain the special characters ";" and ":", otherwise the license will not be found. The length of the path and name must be shorter than 120 characters, otherwise all Simufact products will crash during at startup.

- Set the location of the license server (for all other licences)

For all counted license type you have to set the right value to connect to your MSC FLEXlm license server. This is typically something like 'portnumber@hostname'. If you already have specified this with a previous setup you will see in the 'Current value' field previous entered data. If that is correct, you do not have to change anything. If you do not have an MSC FLEXlm license server running on your system please install the MSC licensing. This is a separate program, so a separate download and setup is necessary for the MSC licensing.

If the value is not set correctly, you won't be able to start any Simufact program. If you're not sure what to do, consult your System Administrator. You can set the value also after the installation in the advanced system settings on your Windows™ system.

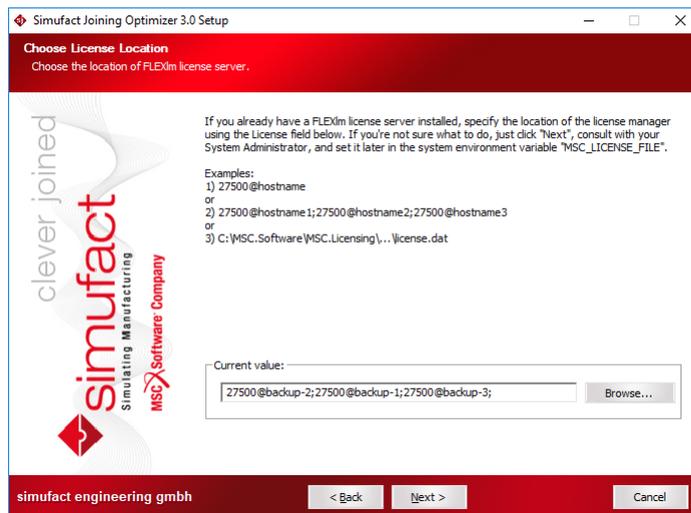


Figure 1.3. License location

1.1.1.4. Select target directory

After you have selected the components you want to install, you are asked to specify the location where you want to install the programs. If you have already installed an older version of Simufact Joining Optimizer or other programs, then the destination folder is automatically set to the last installation directory. In this case, you should not change the folder to prevent conflicts.

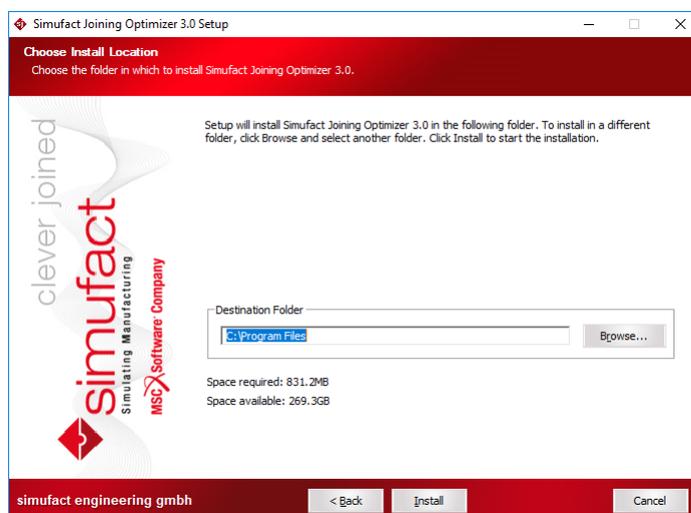


Figure 1.4. Installation location

You can select any folder on your computer. Spaces in the installation path are only supported if the optional additional 8.3 file names have been activated during the creation of the directory. If you see the following message, please select another installation directory.

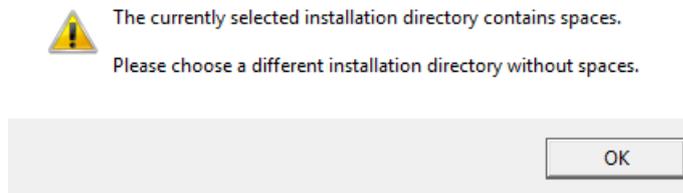


Figure 1.5. Spaces in installation path

If you want to change something, you can go back to your previous selections by clicking **Back**. Otherwise start the installation by clicking **Install**. By clicking **Cancel** you can quit the installation.

1.1.1.5. Choose components

You will be asked which Simufact products you want to install.

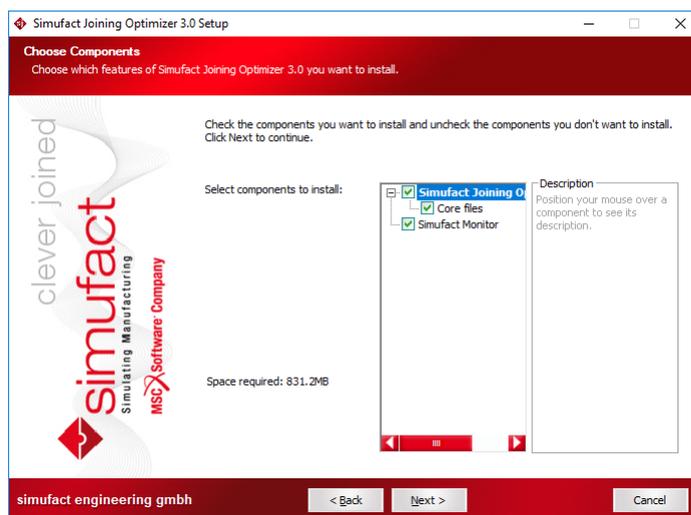


Figure 1.6. Choose components

By default, the following products are selected to be installed: Simufact Joining Optimizer and Simufact Monitor.

The remaining items are necessary and should not be deselected.

Removal of specific components is possible via the uninstall option in the windows control panel.

The current version of Simufact Joining Optimizer should not be used in parallel with older versions to avoid conflicts in the result database and the project. Please note that you cannot run in parallel different versions of the Simufact Monitor. Here we recommend using the latest version.

Additional programs or examples will not be installed if you deselect the corresponding option.

1.1.1.6. Confirming the installation

The installation is fully automatic – the completion bar will inform you about the installation progress. The installation cannot be canceled anymore at this point.

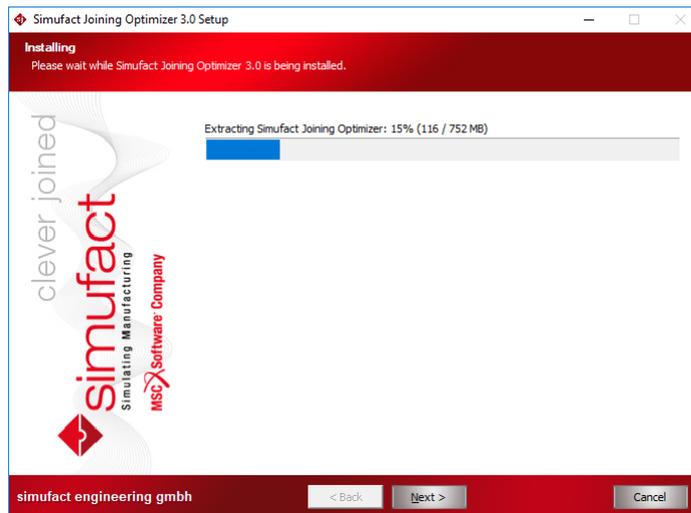


Figure 1.7. Installation progress

By default, the file extension sjproj is associated with Simufact Joining Optimizer. At the end of the installation you will be informed accordingly by the setup program.

If there are insufficient access rights during the installation or if individual files are blocked by other programs, or if simulations are running, a message appears and the installation for the listed programs will be aborted. Please make sure that no simulations are running.

1.1.1.7. Complete setup

At the end of the installation you will be informed accordingly by the setup program. You only have to press **Finish** to end the setup.

The installation setup closes and you can use the installed Simufact products.



Figure 1.8. Installation finished

1.1.1.8. Show the What's new document

In case you haven't actively deselected the option „Show What's new“, the document „What's New“ is shown after clicking „Finish“. It shows the fundamental program improvements. Enjoy reading!

1.1.2. Silent installation

In order to install the software without any user interaction, for example on multiple machines using a script, the setup supports a silent installation mode. To use the silent mode, please open a command line and type the name of the setup followed by "/S".

You must confirm the following copyright by adding /AcceptLicenseNotice=yes to install the software:

Warning: This computer program is protected by copyright law and international treaties. Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties. Copyright 2017 simufact engineering gmbh and its licensors. All rights reserved.

The following parameters are allowed:

Table 1.1. Allowed parameters

Accept license notice	/AcceptLicenseNotice=yes
Installation path	/D=c:\some folder
To install Simufact Joining Optimizer	/Joining=yes
To install Simufact Monitor	/Monitor=yes

If the installation path is not provided, C:\program files will be used by default. If the parameter for a program is not specified, it will not be installed. The system components and the Visual Studio™ Redistributable Packages will always be installed. Please note that the destination folder (for example C:\program files) must exist before the setup is started.

Examples:

- To install all programs to user dir:

```
setup.exe /S /AcceptLicenseNotice=yes /Joining=yes /Monitor=yes /D=C:\Users
\\Program Files
```

- To only install Simufact Joining Optimizer:

```
setup.exe /S /AcceptLicenseNotice=yes /Joining=yes
```

Normally the process setup.exe will return immediately if started from a script. You can circumvent that by starting it as follows:

```
start /WAIT setup.exe
```

with the options as given above.

A log file named setupSimufact.log will be created in your temporary directory (e.g. C:\Users \\AppData\Local\Temp) where the steps of the installation/uninstallation are recorded.

1.1.3. Uninstallation

You can use the Windows Control Panel to uninstall Simufact Joining Optimizer. Alternatively you can use the generated uninstaller "Uninstall Simufact Joining Optimizer 3.0.exe" located in the installation folder directly.

The uninstaller named supports a silent mode, too. For the silent mode start the uninstaller with the option "/S" using the command line. Please note that all programs installed before will be removed. There are no options to select certain programs.

Example:

```
"Uninstall Simufact Joining Optimizer 3.0.exe" /S
```

2

Support

You have now installed your new product **Simufact Joining Optimizer** successfully and can start building your simulation models.

For additional help on modeling simulations, please use the additional material from the help menus like the tutorial.

For further questions please contact your local Simufact representative, see

www.simufact.com

Enjoy optimizing your processes.

Your Simufact Team

Appendix A. MSC Licensing: Configuring and managing licenses



MSC Licensing, the FLEXlm based licensing software used for Simufact and MSC products, is shipped with its own documentation. A lot of additional information is available, too. This appendix is not intended to be a comprehensive information about MSC Licensing, only the most common tasks and situations when configuring and managing licenses are described and some more in depth topics are shortly mentioned. In case of deviations between this documentation and the MSC Licensing resp. FLEXlm documentation the later shall prevail.



The license system consists of a client, this is the Simufact application you want to run, and a server, that is the software service that provides the licences based on a license file. Additionally there are graphical and command line utilities for configuration and status information purposes.

A.1. Configuring the license client

The license client is configured only using the environment variable `MSC_LICENSE_FILE`. This variable tells the Simufact application where to look for the license. `MSC_LICENSE_FILE` is typically something like `'portnumber@hostname'` pointing to a license server, which applies to nodelocked licenses, too. Only for uncounted demo licenses or similar exceptions `MSC_LICENSE_FILE` directly point to the license file. `MSC_LICENSE_FILE` may be a list with multiple entries separated by ";" (Windows) or ":" (Linux). These entries are queried in the order given.

Please note that `MSC_LICENSE_FILE` may be a system wide environment variable - recommended in most cases - or a user specific environment variable.

The value of `MSC_LICENSE_FILE` is displayed in the settings dialog of the Simufact application under Licenses and in all cases of a license failure. Further more it can be reviewed using the means provided by our operation system. Frequently using the command line is simple and fast for this: `set` shows a list of all environment variables, `echo %MSC_LICENSE_FILE%` (Windows) resp. `echo $MSC_LICENSE_FILE` (Linux) display just this variable.

`MSC_LICENSE_FILE` can be set during the installation of your Simufact application (Windows only), but changing it afterwards is not supported within the Simufact applications or within MSC Licensing. Use the means provided by our operation system for this. On Windows this is typically in the system control panel under `system \ advanced settings`. Search the Windows help for "environment variable". On Linux use the initialisation files of your shell.

A.2. Firewall considerations

The license server of MSC Licensing uses two services: The FLEXlm main service called "lmgrd" and the vendor service called "MSC". Both use different ports. Thus if you have a firewall between license server and client, you need to open both ports. The port used by the main service is configured during the installation of MSC Licensing and is specified on the clients within the environment variable `MSC_LICENSE_FILE`. As default the port used by the vendor service is randomly chosen during startup. But it can be configured in the license file, which enables a constant firewall configuration.

To configure the port to be used by the vendor service, add `port=your_number` to the end of the `DAEMON` line in the top of the license file (see example blow) and restart the license server service either using the buttons provided in the graphically `MSC.Licensing Utility (LMTOOLS)` on the `Start/Stop/Reread` tab or using the means provided in the service control of your operating system.

The port to be used by the main service is given as last argument in the SERVER line in the top of the license file, thus it can be reviewed and changed there.



Resulting from this and other configurations there are differences between the license file as it is shipped to you and as it is used by the license server.

```
SERVER ING08 1813731e3d93 27500
DAEMON MSC C:\MSC.Software\MSC.Licensing\11.13\msc.exe port=27501
#
# MSC License Reference ID: WXYZ
#
# Simufact
#
FEATURE SF_FORM_GUI MSC 2018.0309 09-mar-2018 2 F92DAC800190 \
VENDOR_STRING=PID:10653 ISSUED=11-mar-2017 ck=103 \
```

A.3. Updating the license file

After a renewal of your maintenance or lease period and on other occasions you will receive an updated license file. Please note that you will typically not receive a new license file once a new release of your Simufact applications has been published. To update the license file used by your license server, follow the following steps:

1. Locate the used license file in the installation directory of MSC Licensing - typically `license.dat` in `C:\MSC.Software\MSC.Licensing\11.13` - and create a backup copy of it.
2. Stop the license server service, either using the button provided in the graphically MSC.Licensing Utility (LMTTOOLS) on the Start/Stop/Reread tab or using the means provided in the service control of your operating system.
3. Copy the received new license file `license.dat` into the installation directory of MSC Licensing replacing the old already existing file.
4. Manually edit the new `license.dat` as shown below. The automatic configurations done in the license file during the install of MSC Licensing have to be reproduced, potential manual configurations in the license file (for example for a firewall, see above) have to be reproduced, too.
5. Restart the license server service, either using the button provided in the graphically MSC.Licensing Utility (LMTTOOLS) on the Start/Stop/Reread tab or using the means provided in the service control of your operating system.

The top of a license file as it is shipped typically looks like:

```
SERVER this_host 1813731e3d93 27500
DAEMON MSC /your_path/msc
#
# MSC License Reference ID: WXYZ
#
# Simufact
#
FEATURE SF_FORM_GUI MSC 2018.0309 09-mar-2018 2 F92DAC800190 \
VENDOR_STRING=PID:10653 ISSUED=11-mar-2017 ck=103 \
```

If for example your license server machine has the IP-name `ING08`, you have chosen to use port `1700` for the main license service, you have installed in the default location and you have - which is

optionally - manually set a port for the vendor service, you have to edit the new license file to look like this:

```
SERVER ING08 1813731e3d93 1700
DAEMON MSC C:\MSC.Software\MSC.Licensing\11.13\msc.exe port=1701
#
# MSC License Reference ID: WXYZ
#
# Simufact
#
FEATURE SF_FORM_GUI MSC 2018.0309 09-mar-2018 2 F92DAC800190 \
      VENDOR_STRING=PID:10653 ISSUED=11-mar-2017 ck=103 \
```

Please note that the above modifications are an example which has to be adapted to your local settings. **It is recommend to review the old, working license file to check which adaptations are needed in the new license file.**

A.4. Combination with other MSC products

If you have licensed Simufact and other MSC products on the same license server, MSC Licensing is needed only once on this machine, actually it must only be used once on this machine. But you will receive separate license files for Simufact and other MSC products at separate times and from separate senders. You have to combine these license files for the usage by the license server.

The recommended method to do so is:

1. Install and configure MSC Licensing either for the Simufact application or for the MSC application in the normal way using only the corresponding license file. Test your installation.
2. Stop the license server service, either using the button provided in the graphically MSC.Licensing Utility (LMTOOLS) on the Start/Stop/Reread tab or using the means provided in the service control of your operating system.
3. Open the license file in the installation directory of MSC Licensing - typically `license.dat` in `C:\MSC.Software\MSC.Licensing\11.13` - with a text editor and copy all `FEATURE` lines of the 2nd license file into it. Additionally you may add some comment lines starting with `#` to separate the licenses for the different products. Please note that one `FEATURE` line typically consists of several lines of text. The `\` at the end of a line of text indicate that the `FEATURE` line continuous in the next line of text. Please take care to copy all `FEATURE` lines complete and unchanged. Do not copy the `SERVER` and the `DAEMON` line of the 2nd license file.
4. Restart the license server service, either using the button provided in the graphically MSC.Licensing Utility (LMTOOLS) on the Start/Stop/Reread tab or using the means provided in the service control of your operating system.

Once you receive an updated license file for one of your Simufact or MSC products, repeat the steps above, but do not add `FEATURE` lines during copying but replace the existing `FEATURE` lines with the updates lines. Frequently 1st deleting all `FEATURE` lines of a product in the license file in the installation directory and then copying the new lines will be a good approach.

As an alternative advanced users may configure and maintain separate license files for different products. See the tech article KB8021145 in the MSC SimCompanion Knowledge Portal for details.

A.5. Combination with 3rd party products

MSC Licensing is based on the FLEXlm license management software of Flexera Software (www.flexerasoftware.com). FLEXlm is widely used of a lot of applications of different software

vendors. Typically no special care is needed when running applications of different vendors that use the FLEXlm license management system. Conflicts are rare. Nevertheless here some hints about this.



Try to avoid the usage of the general FLEXlm environment variable `LM_LICENSE_FILE`. In rare conditions of license server and license client machines cross referencing each other for different applications this may result in conflicts including non-functionality. Use the vendor specific environment variables like `MSC_LICENSE_FILE`, `HPQ_LICENSE_FILE` or similar instead. If conflicts can not be solved with this, encapsulate the concerned license server and / or applications into their own environment.

If the same machine is used as license server for both, Simufact and MSC applications as well as for a 3rd party application that uses a FLEXlm based licensing system, we recommend to keep the installations separate and to run each vendors FLEXlm license server as a separate process on the same machine. The resources needed for this are very little. Keeping the installations separate simplifies the maintenance of the licenses and avoids conflicts, for example resulting from different required FLEXlm versions.

However, if desired, a common "lmgrd" main license service can be used. In this case the license files of all vendors would need to be combined including the required `DAEMON` and `VENDOR` lines as well as the other options that may be present. For more information, documentation and help for this option, please see the relevant FLEXlm resources. This is outside of the scope of the support of Simufact and MSC.

A.6. Restrictions

Within one license file each `FEATURE` can only be included once. Within one license file shipped to you all features will be of the same type (nodelocked or networking) and will have the same maintenance end date and the same expiry date. Furthermore a license file shipped to you may not include all your licensed features, but only the latest additions and changes. Thus, in case you purchase or lease additional Simufact products or modules during your maintenance or lease period, you will have to combine the new license file shipped to you and the already running licenses manually similar to the procedure explained in Section A.4 above.

In cases like a short term lease of additional simulation capacity or a test of the effectivity of for example more parallel options where the additional licenses expire before your regular license, you will probably receive a license file with `FEATURE` lines containing the sum of your licensed quantity, but expiring at the earliest date. In this case you first have to backup your used license file. Then you have to delete these features from your used license file and to add the new received `FEATURE` lines with the sum of your licensed quantity. After the expiry of the short term licenses you have to switch back to using your original backed-up license file.

Remember to stop and to start your license server service after each change of your license file.

A.7. Miscellaneous

- The license server service writes a log file, typically `C:\MSC.Software\MSC.Licensing\11.13\lmgrd.log`. This file does not only contain useful debugging information but shows `OUT:` and `IN:` messages of the license usage, too. This can be used to monitor the license usage.

For more advanced usage reporting Flexera Software offers extra-cost tools directly to end-users. This is outside of the scope of the support of Simufact and MSC.

- Network licenses can be served by redundant license servers where one out of three may be offline. A special license file is needed for this. If needed, please ask your local Simufact sales representative about this. Please note: While new license queries will be very stable in this configuration, long running license occupancies (like solver runs) may still show some instability when a license server

goes offline. See the tech article KB8020361 in the MSC SimCompanion Knowledge Portal for details how to configure this set-up.

- MSC Licensing is shipped with the powerful command line debugging tool `lmutil`. Check `lmutil -help` for the available options. Some typical tasks are:

`lmutil lmhostid` to get a list of valid host-IDs of the machine used. In rare circumstances this may deviate from the output of `getmac /v` or `ipconfig /all` (both on Windows) that are typically used when determining the host-ID before applying for a license.

`lmutil lmcksum -c license.dat` to check the syntax and the checksum of the license file, which is useful if issues due to the transmission or the editing of the license file are suspected.

`lmutil lmstat -a -c portnumber@hostname` to check the status of the license server and the vendor services including a list of license features that can be served. As the output may be bigger, you may want to redirect it to a file by adding `> status.txt` at the end of the command line.

`lmutil lmdiag -c portnumber@hostname -n > diag.txt` to review diagnostic information about all license features served including whether they can be checked out and reasons why they can not be checked out. As the output of this command is typically quite large, it is recommended to redirect it to a file.

- MSC Licensing offers a lot of advanced configurations. For example the access to network licenses can be restricted and controlled flexibly including reserving features for certain users. This is done using an additional option file. Please see the relevant FLEXlm resources. This is outside of the scope of the support of Simufact and MSC.