SIEMENS

Simcenter Amesim and System Architect 2020.1

Installation manual

How to contact us

www.siemens.com/plm/simcenter-amesim	Web site
www.siemens.com/gtac	Technical support
See here for e-mail addresses for your local office: https://www.plm.automation.siemens.com/en_us/about_us/contact/product-contacts.shtml#lms	Sales, pricing and general information

Simcenter Amesim™ software User's Guides

Contents

1. Simcenter Amesim and System Architect installation instructions

This section contains information necessary to install the **Simcenter Amesim™ software** and **Simcenter System Architect**; you should read it before you begin the installation process.

Once **Simcenter Amesim and System Architect** is installed, you must set up its license manager (Reprise License Manager) in order to be able to start it. For more information, please refer to *The license manager installation instructions*.

Basic knowledge of the Operating System of your machine is required for the installation but also and above all for the setup of the license manager. Please ask for the assistance of your local system administrator if needed.

The **Simcenter Amesim and System Architect** can be downloaded from the GTAC website.

It is also available as a DVD on demand. This media contains:

- The **Simcenter Amesim and System Architect** applications set.
- Related utility files, such as the license manager (RLM).
- Any program options, libraries and solutions you purchased.
- Demonstration models and libraries.
- Documentation in PDF and HTML formats.

1.1 Before you start

Before installing **Simcenter Amesim and System Architect**, you must have a valid license file from **Siemens**. The license file includes licenses for all the applications and libraries in the **Simcenter Amesim and System Architect** family for which you are licensed.

In addition to this license file, you must have an activation key to start the setup application. This activation key is composed of 25 characters.

The license file is not supplied on the DVD, it is specific to each computer. Both your license file and your activation key are usually supplied by e-mail. If you already have them, you can proceed with the installation. If you do not have them, please contact your local **Siemens** representative: see the *How to contact Siemens* section at the beginning of this document.

For any request, please have ready, or include in your e-mail, the following items:

- Your License Contract Number if you have already used a previous version of **Simcenter Amesim**.

- The hostname and hostid of the server (or servers) on which you will execute the RLM license manager. For a node-locked license and/or a stand-alone workstation, this is the hostname and hostid of your workstation. For a floating license, this is your server hostid(s) and hostname(s), not your client workstation information.

A utility is provided on your installation media to get the required hostname and hostid information:

- **Under Windows**

  A command file named **hostids.bat** and two executables called **rlmhostid.exe** and **lmshostid.exe** are supplied in the *data/LicensingTools* folder. Copy these files to a temporary folder and execute the command **hostids.bat**. This command will create a file named *hostids.txt* which will contain the data used for establishing the license file.

- **Under Linux**

  An executable named **rlmhostid** is supplied in the *data/LicensingTools/lnx* directory. Copy this file to a temporary directory and execute it: this command will display the data used for establishing the license file.

Just run this utility on your server(s) and copy the output information into your e-mail. Please refer to the section *License management* for more details. Send this data to your local **Siemens** office with the signed license agreement.

> Warning:
>
> You will not be able to go through the installation procedure of **Simcenter Amesim** without your activation key.

1.2 Requirements

The **Simcenter Amesim and System Architect** software is ordinarily installed on a single file system. This can be an individual user's computer in case of a stand-alone workstation, or a central file server for networked installations.

Multiple different versions of **Simcenter Amesim** can be installed on the same server, possibly for heterogeneous platforms (Windows® / Linux®). All of these versions can access the same license file using a common license server.

All machines that are to use **Simcenter Amesim** must be able to access the installation folder.

Note:

On Windows only: If you have an older version of **Simcenter Amesim** on your PC and you still want to be able to use this version, you should install the current **Simcenter Amesim** version in a different folder, and use the batch files supplied (such as *RunAMESimTemplate.bat*) in the *misc* subfolder of the installation folder to run the old version.

1.2.1 License agreement

The *Terms of Use* available on the Siemens website must be respected to use **Simcenter Amesim**: https://www.plm.automation.siemens.com/global/en/legal/

1.2.2 Hardware and software requirements

<table>
<tr><th>Hardware/Software</th><th>Windows</th><th>Linux</th></tr>
<tr><td>Processor</td><td colspan="2">64-bit Intel® or compatible processors (AMD).</td></tr>
<tr><td>RAM</td><td colspan="2">4 GB.</td></tr>
<tr><td>Disk space</td><td colspan="2">18 GB.</td></tr>
<tr><td rowspan="3">Operating systems</td><td colspan="2">Only 64-bit operating systems are supported.</td></tr>
<tr><td>Windows 10
Windows Server 2016
Windows Server 2019</td><td>RedHat Enterprise 7.0
SUSE 12.0
Ubuntu 14.04</td></tr>
<tr><td colspan="2">Note:

Simcenter System Architect and Teamcenter integration is only supported on Windows 10.</td></tr>
<tr><td rowspan="2">Compiler

(for Simcenter Amesim and Submodel Editor)</td><td>MinGW GCC 4.2.1 (32-bit) (supplied with Simcenter Amesim)
MinGW GCC 5.3 (64-bit) (supplied with Simcenter Amesim)
Intel C/C++ (12.1 or above)
Microsoft Visual C++ (versions 2010 up to 2019)</td><td>GNU GCC (4.8 or above)
Intel C/C++ (12.1 or above)</td></tr>
<tr><td colspan="2">Refer to Compiler setup to get more information on compiler setup.</td></tr>
</table>

Hardware/Software	Windows	Linux
Graphics	No specific graphic card is required for basic usage. A graphic card and driver that support OpenGL 2.0 or above is recommended for 3D features (e.g. Animation, CAD import, ...). **Simcenter System Architect** requires the following screen resolution: • Minimum screen resolution: 1280x1024 • Screen magnification: 100%	
Networking	A properly functioning TCP/IP networking (for floating licenses/remote simulation). See *License management* and *TCP Port usage for simulation management*.	
License server	RLM license server or FlexNet Publisher (supplied with **Simcenter Amesim**).	

Warning:

On some recent Linux distributions (Ubuntu versions higher than 16 for example) the *libpng* package can sometimes no longer be available in the official package repositories of the distribution. To resolve this problem, you must manually install *libpng12*. For example for Ubuntu versions higher than 16, you can download the official package from the official mirror on the internet and install it with the following command (this example is valid for Ubuntu/Debian):

```
wget -q -O /tmp/libpng12.deb http://mirrors.kernel.org/ubuntu/pool/
main/libp/libpng/libpng12-0_1.2.54-1ubuntu1_amd64.deb \

  && sudo dpkg -i /tmp/libpng12.deb \

  && rm /tmp/libpng12.deb
```

This script downloads the package (`wget`), installs the package manually (`dpkg -i`), and removes the temporary package afterwards.

Note:

Simcenter System Architect requires the **Visual C++ 2015 x64** redistributable to be installed on the system.

1.2.2.1 Limitations

Windows

The Microsoft Visual C++ compiler is not supplied on the DVD, you have to install it independently. Express editions of the Microsoft Visual C++ compiler are free. **Simcenter Amesim** is compatible with Microsoft Visual C++ 2015 and higher.

Linux

> Note:
>
> **Simcenter System Architect** and **Teamcenter** are not available on Linux.
>
> In **Simcenter Amesim** 2020.1 RedHat 6.x is no longer supported. The minimal version supported is RedHat 7.x.

In case of compatibility questions with your platforms and/or operating system versions, please contact your local **Siemens** Technical Support (see the *How to contact Siemens* section at the beginning of this document).

To use the **Simcenter Amesim** API in C under Linux, you need a GCC compiler version 4.8.5 or higher.

Under Linux, the **CAD Import Data Exchange** option requires gcc version 6.1 or higher to be installed. Please contact our support team for more information and any assistance on this topic.

1.2.2.2 Linux prerequisites

Here is the list of required packages you need to install on two examples of Linux distributions:

RedHat EL 7.x 64-bit	Ubuntu 14 64-bit
glibc.i686	libc6:i386
zlib.i686	zlib1g:i386
	libx11-6:i386
libXrender.i686	libxrender1:i386
libXext.i386	libxext6::i386
libXrandr.i686	libxrandr2:i386
mesa-libGLU.i686	libglu1-mesa:i386

RedHat EL 7.x 64-bit	Ubuntu 14 64-bit
openssl.i686	
	libgssapi-krb5-2:i386
readline.i686	libreadline5:i386
	libncursesw5:i386
xterm.x86_64	xterm
glibc-devel.i686	gcc-multilib
libstdc++-devel.i386	g++-multilib
gcc-c++.x86_64	g++
fontconfig.i686	libfontconfig1 :i386
freetype.i686	libfreetype6 :i386
libpng.i686	libpng12-0 :i386
libpng.x86_64	libpng12-0
libXScrnSaver.x86_64	libxss1
libgfortran.x86_64	libgfortran3
libgfortran.i686	libgfortran3:i386

Note:

Depending on your Linux version, package names and extensions can vary (for example i686 instead of i386).

Other Linux distributions may also require the following packages:

- Openssl-libs.i686
- libpng12.i386 and libpng12.x86_64 (e.g.: RedHat EL 7.x)

Note:

On **Linux**, the Modelica compiler requires **GCC** version 4.8.2 or higher, as well as the same version of the **libgfortran** package.

1.2.2.3 Java requirements

The following capabilities need a 64-bit Java Runtime environment (JRE 8u51 or higher):

- The use of Modelica blocks in a **Simcenter Amesim** simulation.
- **Simcenter System Architect**.
- Connection between **Simcenter Amesim** and **Simcenter Sysdm** or **Teamcenter**:
  JRE_HOME environment variable: If the Java Runtime Environment (JRE) is not yet installed, install this JRE. After installation, the *JRE_HOME* variable will be set to the installed JRE path. If it is not set, please create it and set it with the value of the JRE installation folder.

Note:

On **Linux**, *$JRE_HOME/lib/amd64/server* must be added to the **LD_LIBRARY_PATH** in order to be able to add Modelica blocks.

1.2.2.4 Teamcenter and Simcenter Sysdm connection

If you are connecting with the **Simcenter Sysdm** repository, you need an **RMI SSL** certificate. Create a "certs" directory in the MLM/config directory. You need to get the Truststore (*sysdmtruststore.ks*) and *security.policy* file and place it in the "certs" directory.

Simcenter Amesim 2020.1 is compatible with the following version of **Teamcenter**:

- Teamcenter: Tc12.2
- Teamcenter Mechatronics (TcME): 4.2.1 64 - bit is required for both server and client.
- Active Workspace (AW): 4.2

Note:

Teamcenter is compatible with Windows 10.

1.2.3 TCP Port usage for simulation management

In **Simcenter Amesim**, simulation management is distributed among several different processes which might run on different machines. In order to communicate with each other, these processes need to

bind to TCP ports. Here is the list of the TCP ports used by default in **Simcenter Amesim**, and their role within the full **Simcenter Amesim** workflow:

- The **Simcenter Amesim** GUI and the Circuit API bind to the first available port in the range [45000; 45099]. If none is available, they will not be able to start.

- Performing local simulation requires usage of simulation management processes that are automatically triggered by **Simcenter Amesim** (one per local **Simcenter Amesim** session). By default these processes will try to bind to the first available port in the range [40000; 40999]. If none is available to start, the related **Simcenter Amesim** session will not be able to use the local host for computing purposes.

- In order to process simulations, **Simcenter Amesim** also needs to start a simulation service (one per ongoing run, or one per core used when dealing with parallel batches/Design Exploration). Note that **Simcenter Amesim** reuses existing simulation services for new tasks once previous ones have completed, allowing for resource usage optimization. These simulation services will try to bind to the first available port in the range [40001; 41000]. If none is available, the simulation will not be performed.

The last two statements also stand for any simulation processed from Batch jobs, Design Exploration jobs and jobs submitted through the Circuit API environment.

If you encounter any problems with these default port settings, please contact your **Simcenter Amesim** support.

1.3 The interactive installation procedure

This is the common method for installing **Simcenter Amesim**, the user is guided through all steps with wizard pages to configure the installation.

> Note:
>
> - Make sure that no anti-virus program is running during the installation process since this, for **Simcenter Amesim** (and other software), has proven to result in a faulty installation. After the installation is complete you should of course turn on the virus protection again.
>
> - **Simcenter Amesim and System Architect** are supplied on two DVDs. The second DVD contains the 32-bit compiler binaries (for Windows only), and all the demos for the Platform, Library and Solutions documentation. If you do not install these demos, links from the **Help** to these demos will be broken. You can however install these demos later on by manually launching the *setup_win.bat* or *setup_lnx.sh* scripts directly from the second DVD. Nonetheless, we strongly advise you to run the full installation procedure (including the second DVD) to ensure that demos in our documentation are fully functional and accessible to users. See *Installing secondary media* for details.

During the **Simcenter Amesim and System Architect** installation, there will be a sequence of dialog boxes displayed; we will show some of them in this document with some comments on what to choose in each of them. The default options have been selected so that they suit the majority of installations.

To navigate forwards or backwards in this sequence of dialog boxes, you need to press respectively the **Next** or **Back** buttons.

There is another way for advanced user to install **Simcenter Amesim and System Architect** in silent mode using scripts. For more details, refer to section *The Installation procedure using scripts*.

Under Windows:

1. Log in as Administrator.

2. Place or mount the DVD containing the **Simcenter Amesim and System Architect** ISO into the drive.

3. The auto-run configuration should start the setup automatically and the **Welcome** page should appear. If not, start the *setup_win.bat* file located in the root folder of the DVD.

Under Linux:

1. Login as root.

2. Place the DVD containing the **Simcenter Amesim and System Architect** ISO into the drive.

3. If necessary, mount the DVD drive on your system as described in section *TCP Port usage for simulation management*.

4. Move to the DVDROMDIR where DVDROMDIR refers to the DVD drive mount point: `cd DVDROMDIR`

5. Run the DVD installation script. Use either the upper-case or lower-case version as appropriate for your platform (you can use the **ls** command to see the file name on your system): **./setup_lnx.sh AMEHOME**

   The **AMEHOME** argument is the chosen installation directory (also known as $AME). The installation script is self-explanatory and will ask for which optional libraries you want to install.

6. If you want to add extra libraries after the initial installation, just re-run the installation command.

7. Log out.

1.3.1 Choose Product

The first screen prompts you to choose the product you wish to install:

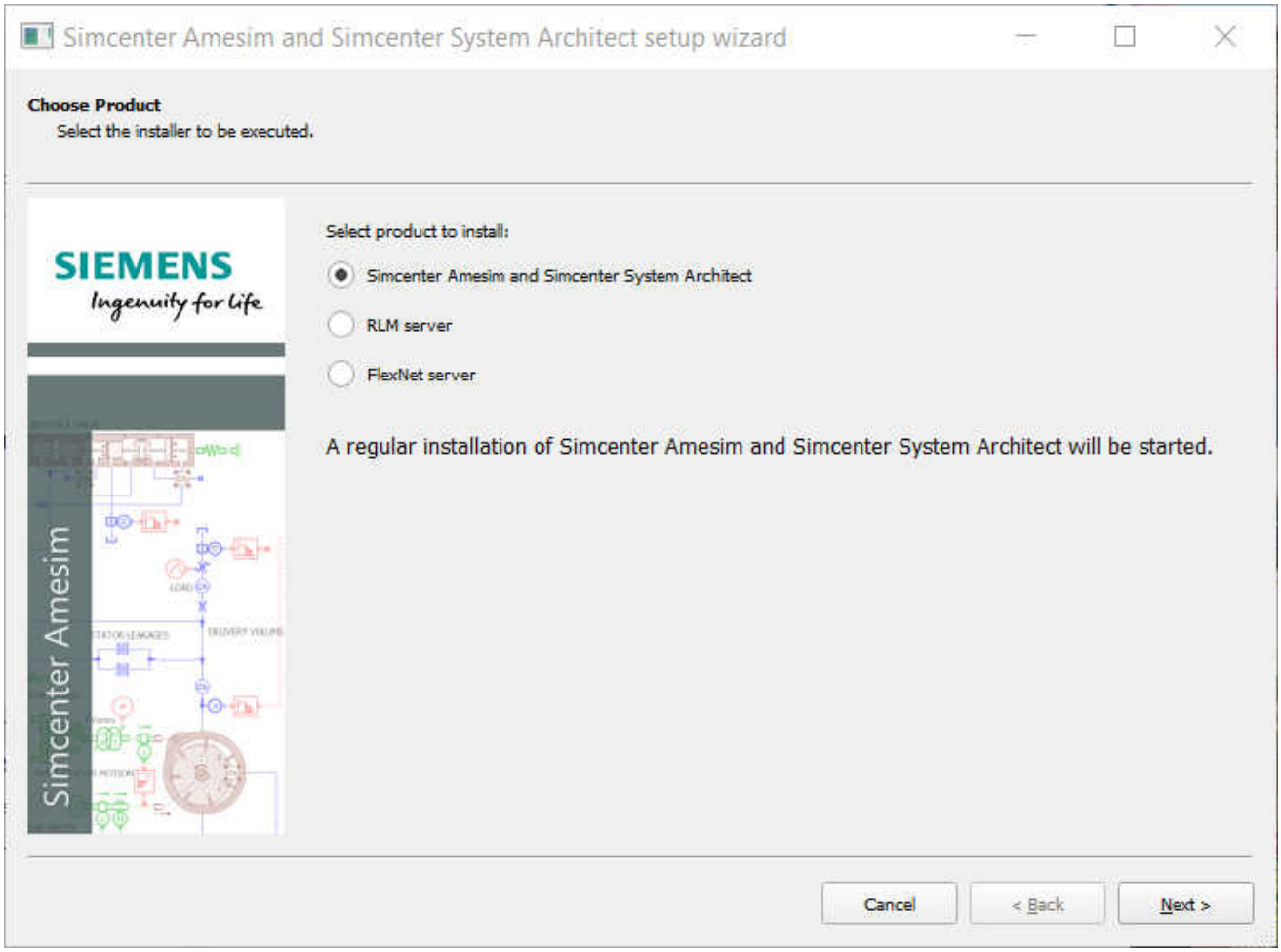


Figure 1-1. Choose product

- **Simcenter Amesim and System Architect**
- RLM Server
- FlexNet server

Select the product you require and click **Next**.

1.3.2 Release

The next screen provides information on the release and recommendations prior to installing the software.

1.3.3 Customer information

Here you are invited to specify:

- the user name,
- the organization name,
- the activation key (provided with the license file)

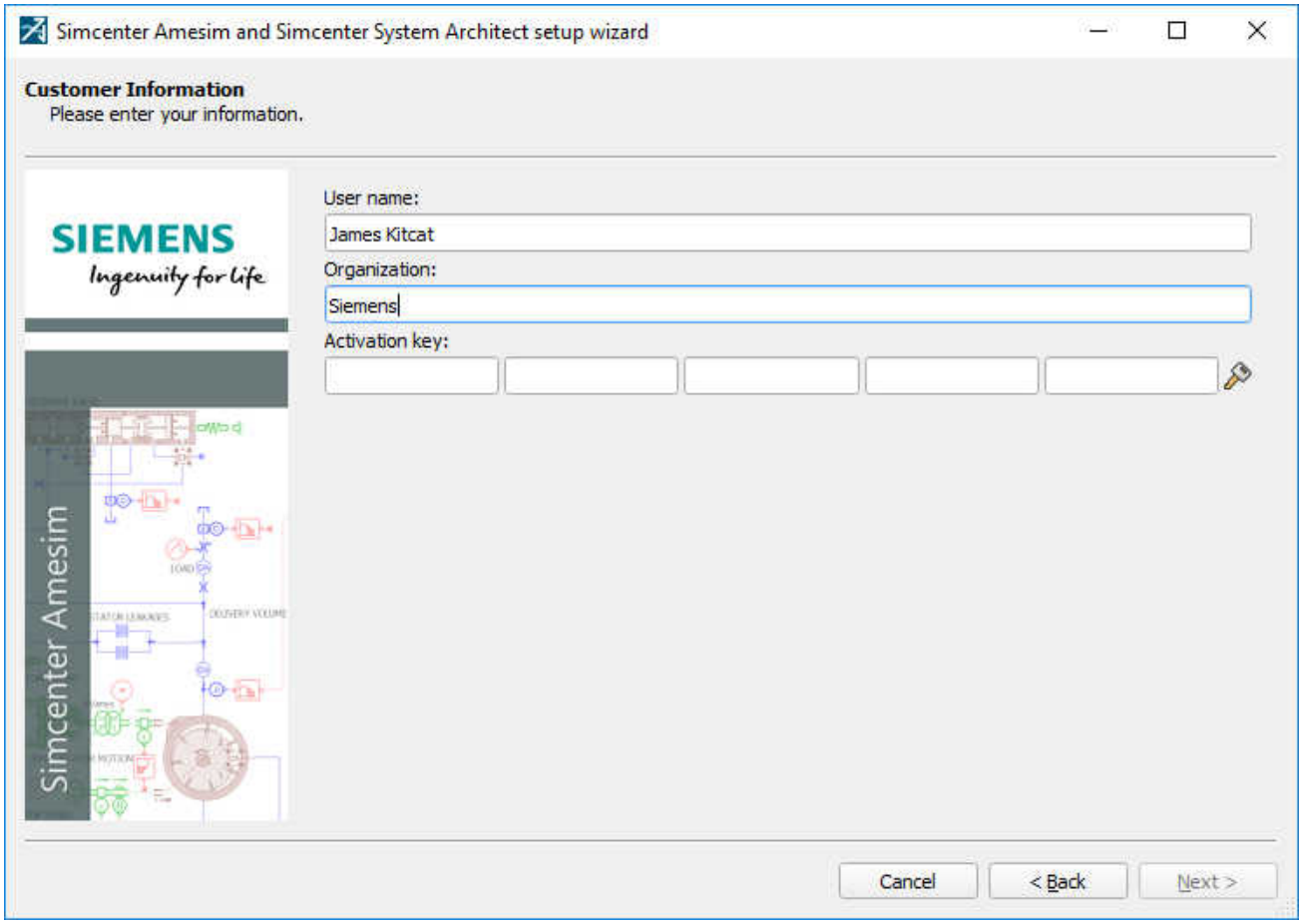


Figure 1-2. Customer information

1.3.4 Predefined installation types

You have the choice between two installation types: **Simcenter Amesim and System Architect** and **Run**.

- Select **Simcenter Amesim and System Architect** to perform a full installation of both **Simcenter Amesim** and **Simcenter System Architect**. You will be able to select which elements of **Simcenter Amesim** and **Simcenter System Architect** to install in subsequent steps.
- Select **Run** to install only the **Simcenter Amesim Run** application of the **Simcenter Amesim** product.

If you selected the **Simcenter Amesim and System Architect** installation you get an extra page through which you can select which parts of the product you want to install. There are some dependencies between some features, not all parts can be installed independently.

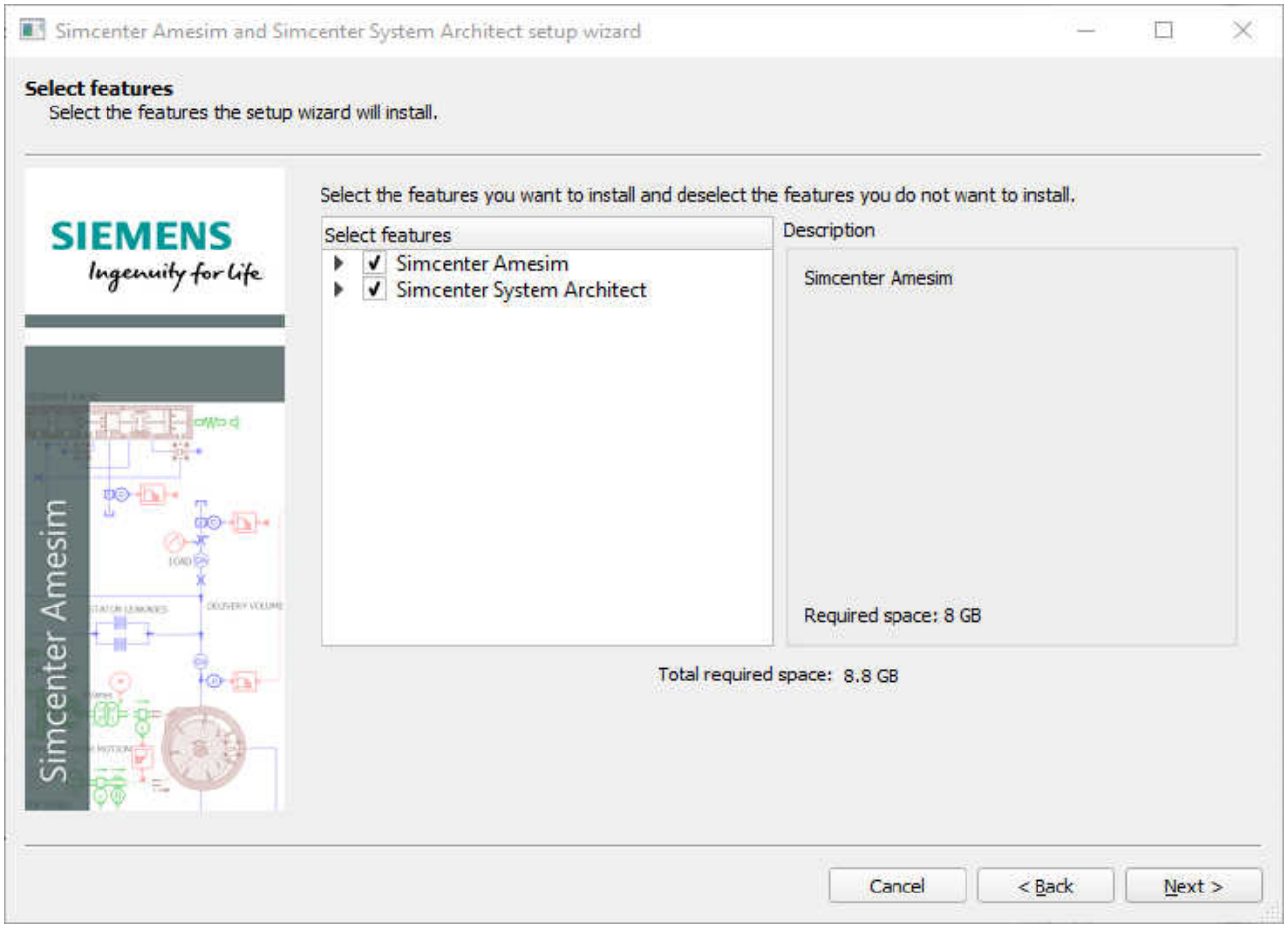


Figure 1-3. Feature selection

1.3.5 Installation folder

With the following dialog box you select where you want **Simcenter Amesim** to be installed.

> Note:
>
> Under Windows only, this folder can contain blank characters (such as *C:\Program Files*). This is not permitted under Linux.

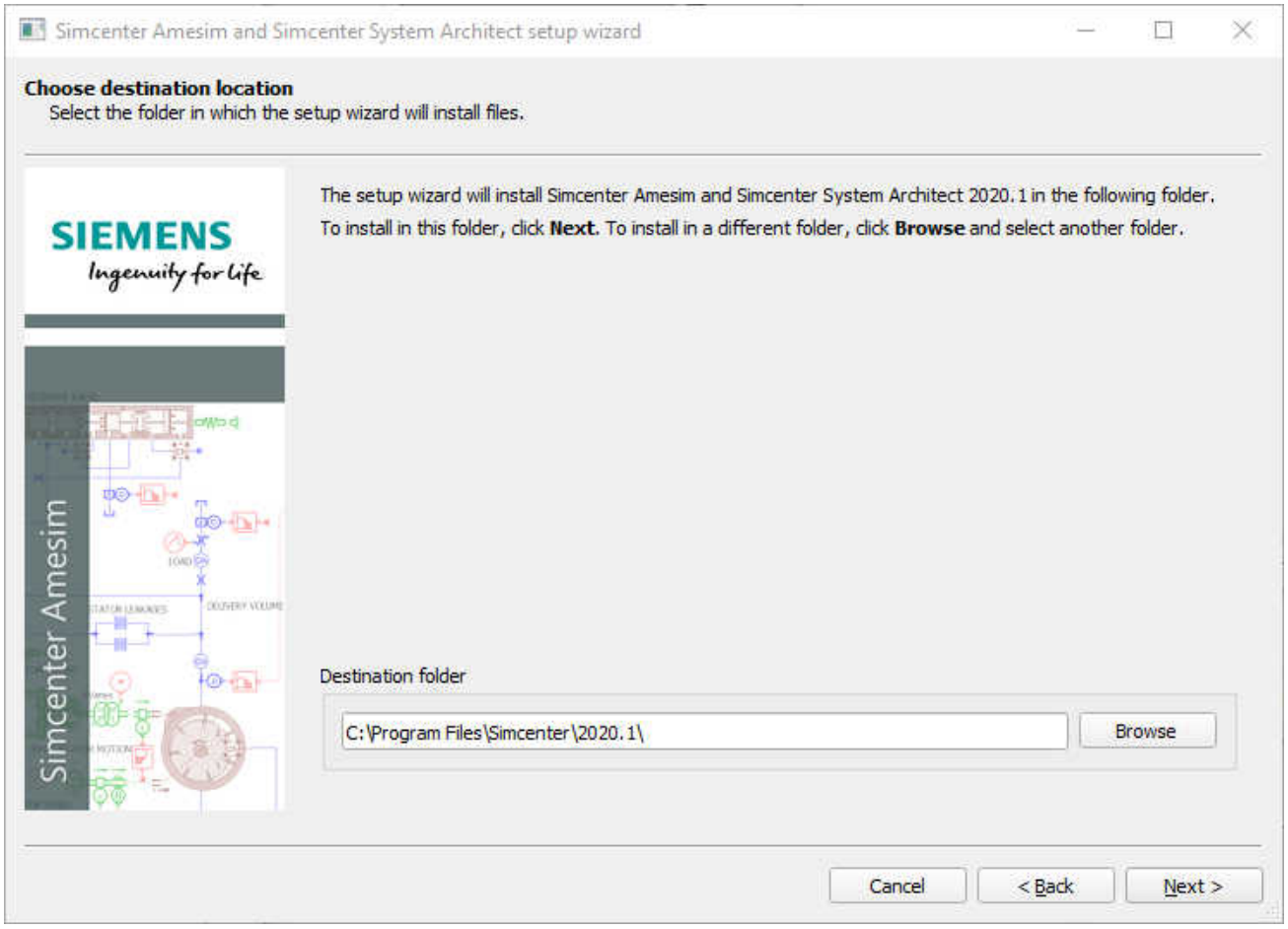
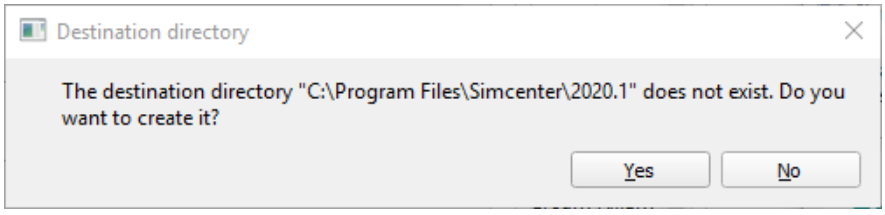


Figure 1-4. Setting the destination folder

Note:

You will be prompted to create the destination directory if it does not already exist.



Click **Next** to continue the installation.

1.3.6 Check list

This is the last step before the installation starts. Look at the settings and make sure that they suit your needs.

The installation starts when you press the **Install** button.

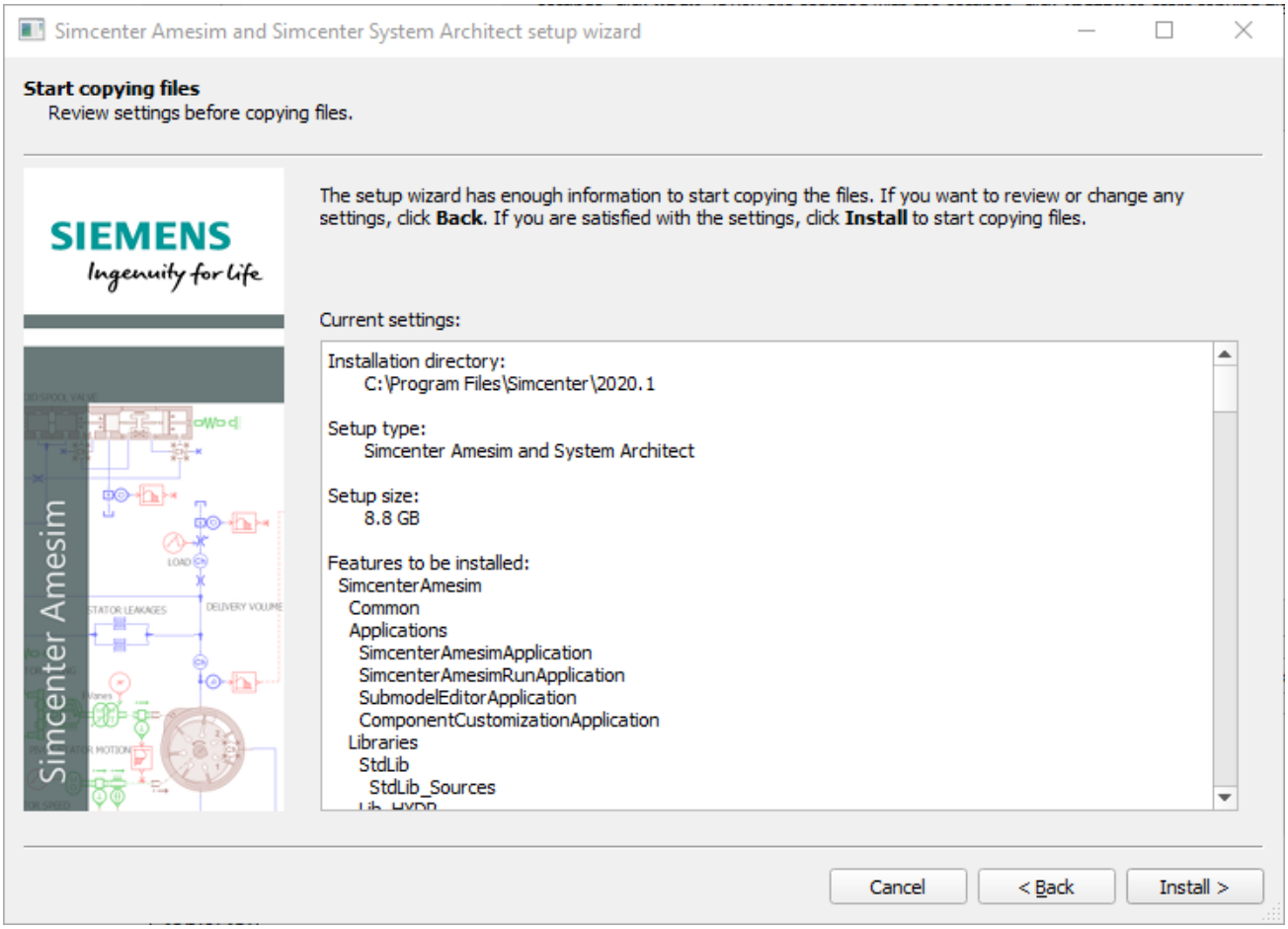


Figure 1-5. Last check before we start

1.3.7 Check system settings (Windows only)

A special page for Windows is displayed to show the situation of the installed compilers detected by the setup and checks on environment variables.

For compilers, we recommend you to use the GNU GCC which is supplied with **Simcenter Amesim**. If the Microsoft Visual C++ compiler is not installed, GNU GCC will be the only one used by **Simcenter Amesim** and **Submodel Editor**. However, any later installation of Visual Studio compilers will be taken into account automatically; you will not need to reinstall **Simcenter Amesim**.

If you want to use the **Simcenter Amesim**/Simulink interface, you must use Microsoft Visual C++. To use the Microsoft Visual C++ compiler, it is necessary to buy it and install it independently.

By using **Submodel Editor**, it is possible to compile submodel code written in Fortran. To compile this code, you can either use g77 which is supplied with GNU GCC or the Microsoft Visual Fortran compiler. In this last case, it is necessary to buy it and install it independently.

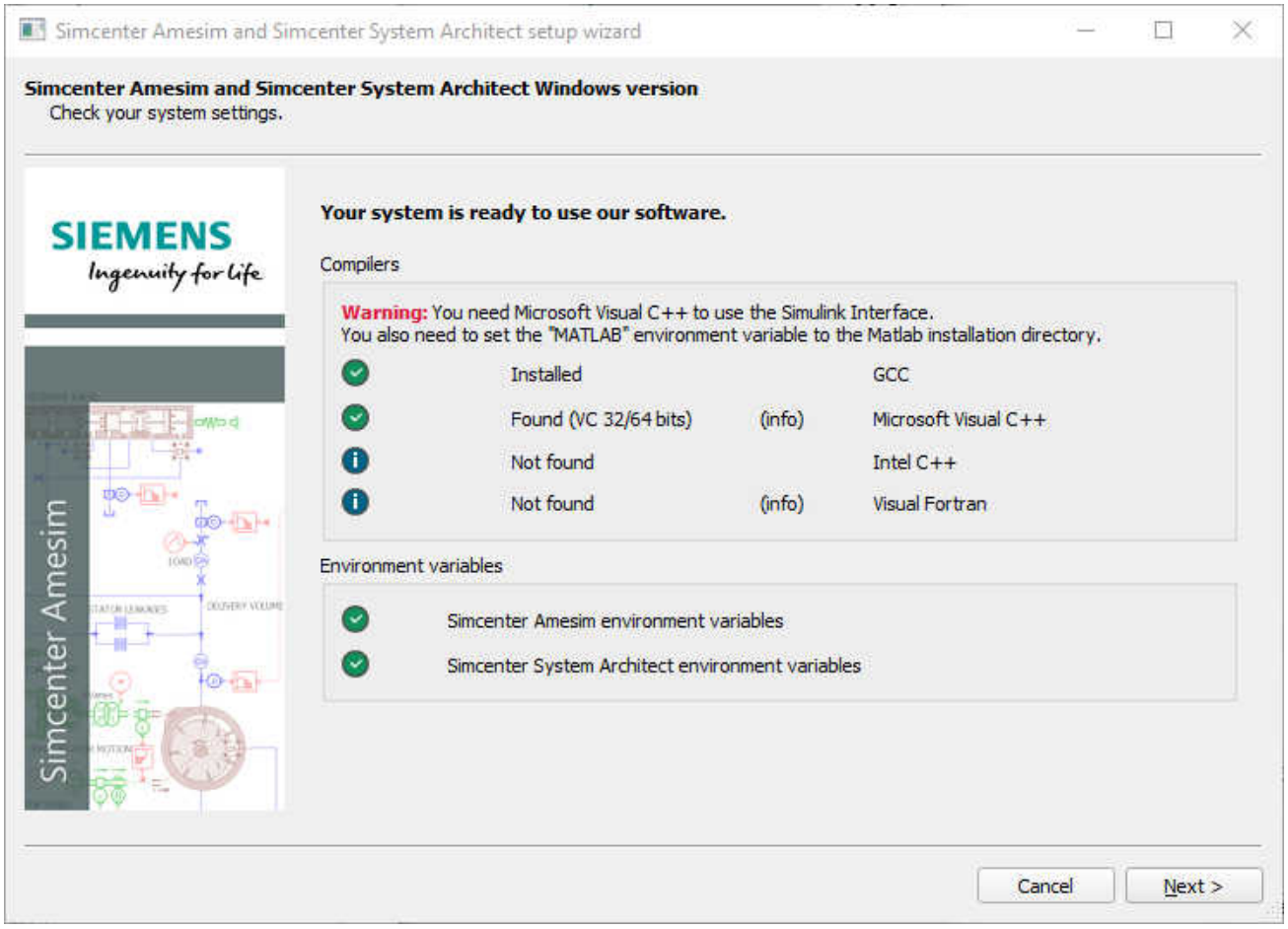


Figure 1-6. Installation summary

Click **Next** to continue the installation.

1.3.8 Setting application environment under Windows

A few additional settings are required for the Windows environment:

- Specifying which application must be used by default for .ame files
  If you have chosen to install both **Simcenter Amesim** and **Simcenter Amesim Run** you must specify which software must be started by default when double-clicking on a model file from the Windows Explorer. If you plan to use both applications we recommend that you set **Simcenter Amesim** as the default program to launch.

- Adding shortcuts
  You can choose to add shortcuts to the **Start** menu and to the desktop.

- Defining the default working folder
  You can choose the default working folder for **Simcenter Amesim**, this will determine where it will start.

Note:

Under Windows only, folder names can contain blank characters (such as *C:\My Work*). This is not permitted under Linux.

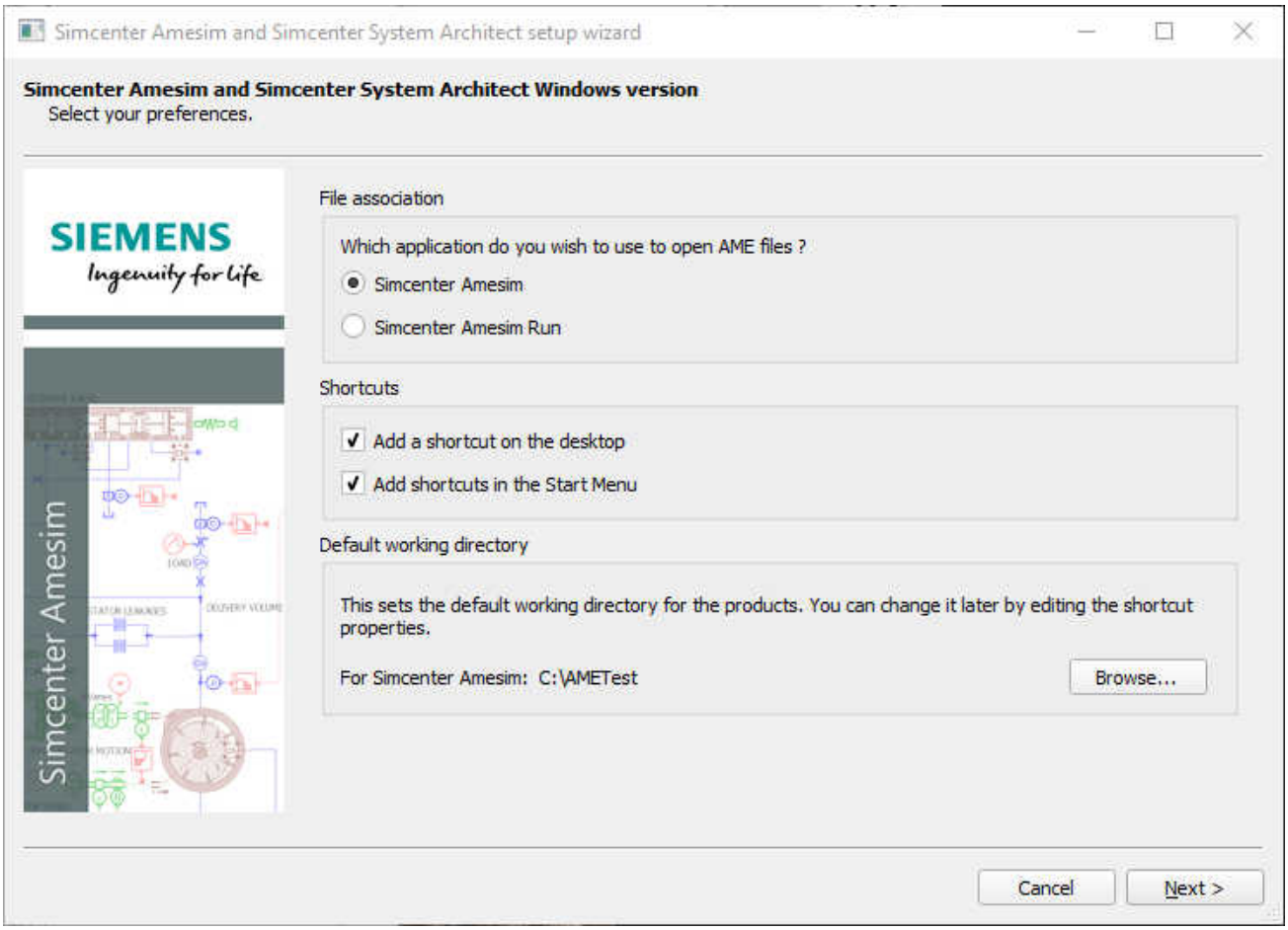


Figure 1-7. Settings for Windows environment

1.3.9 Licensing details

Simcenter Amesim and its components are protected by one of two license manager applications: **RLM** or **FlexNet Publisher**, the installation process will install all the files needed for these tools. However, the license file and the activation key are provided by **Siemens** separately. Select the radio button corresponding to your license type.

If you already have the license file, you can use the *Specify license file* field to browse to the folder where it is stored. At the end of the installation process, this file will be copied from this folder to the *Common/licensing* subfolder of the installation folder.

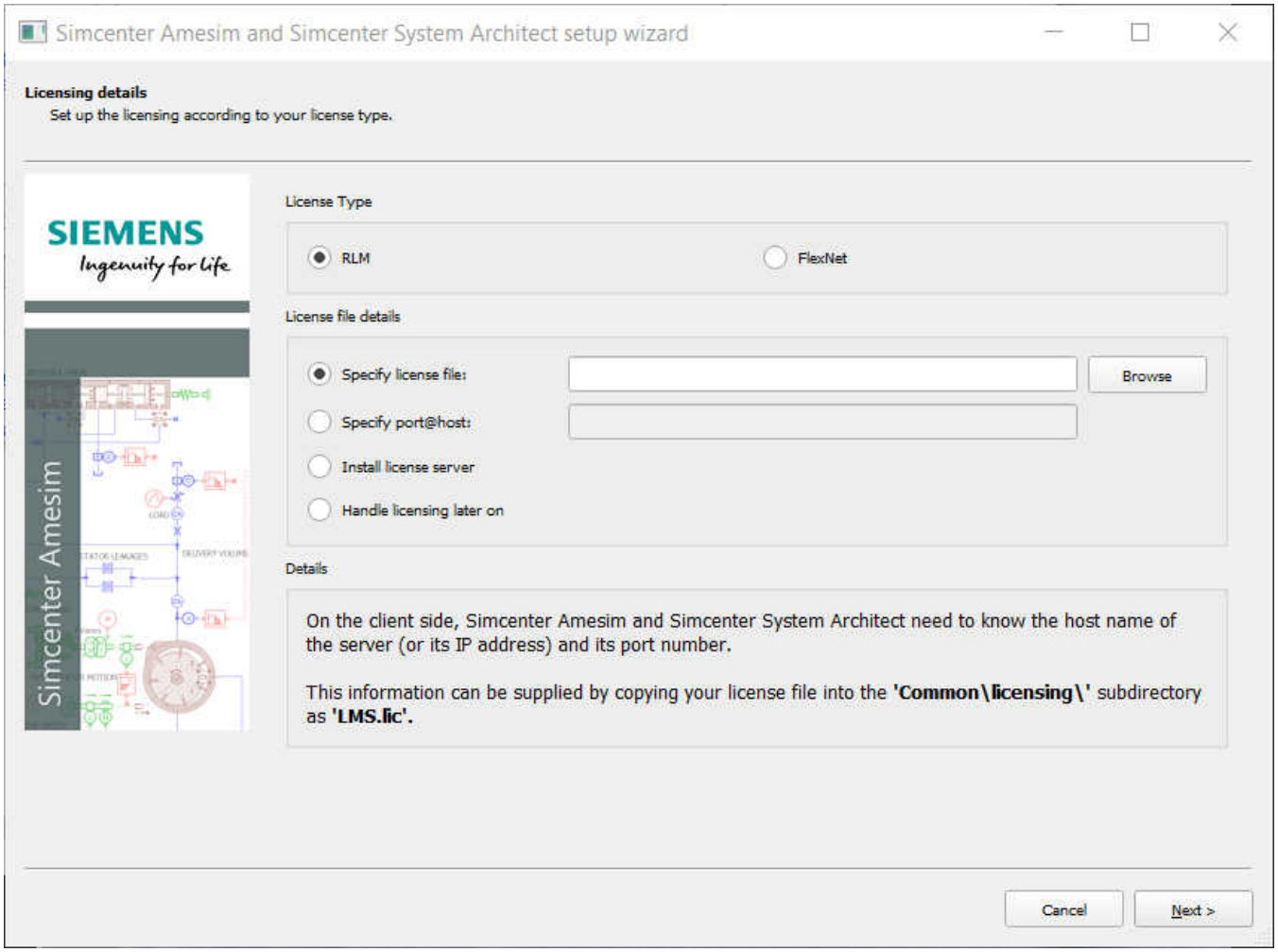


Figure 1-8. Licensing details

If you do not have the license file and/or the activation key, please ask your local **Siemens** representative to provide you with what you need (see *Before you start*).

> Note:
>
> If you have no license file yet, you can leave the input field for the license file blank and select the *Handle licensing later on* radio button to continue the installation. In this case, you will have to complete the license installation as explained in the *License management* section.

Click **Next** to continue the installation.

1.3.10 Installing STAR-CCM+

When you click **Next**, you will be prompted to install STAR-CCM+. If you want to install this software, select the checkbox and click **Next**.

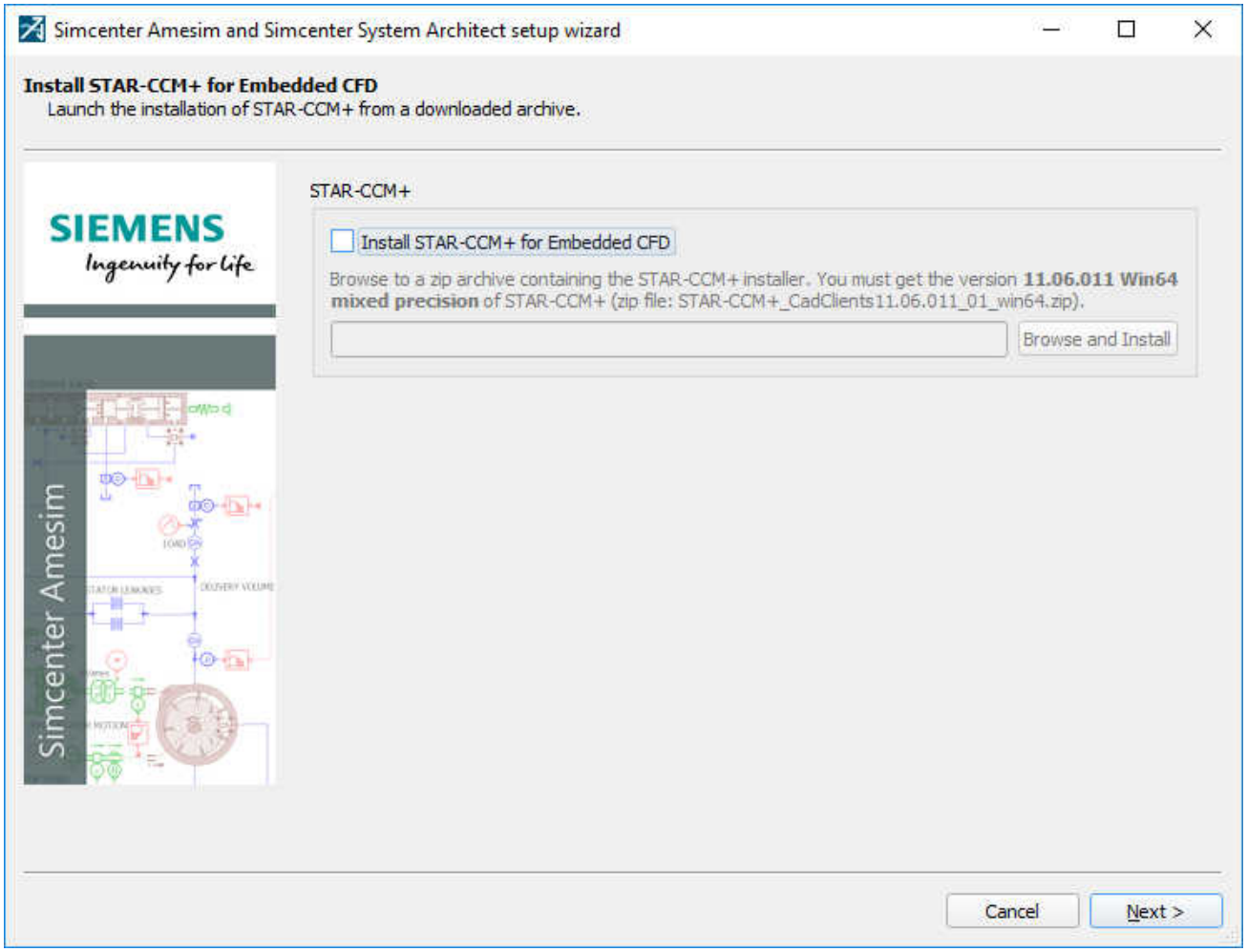


Figure 1-9. Installing STAR-CCM+

1.3.11 Installing secondary media

Once you complete the installation of **Simcenter Amesim** and **Simcenter System Architect**, you will be prompted to install the 32-bit supported libraries and demos contained on the second DVD.

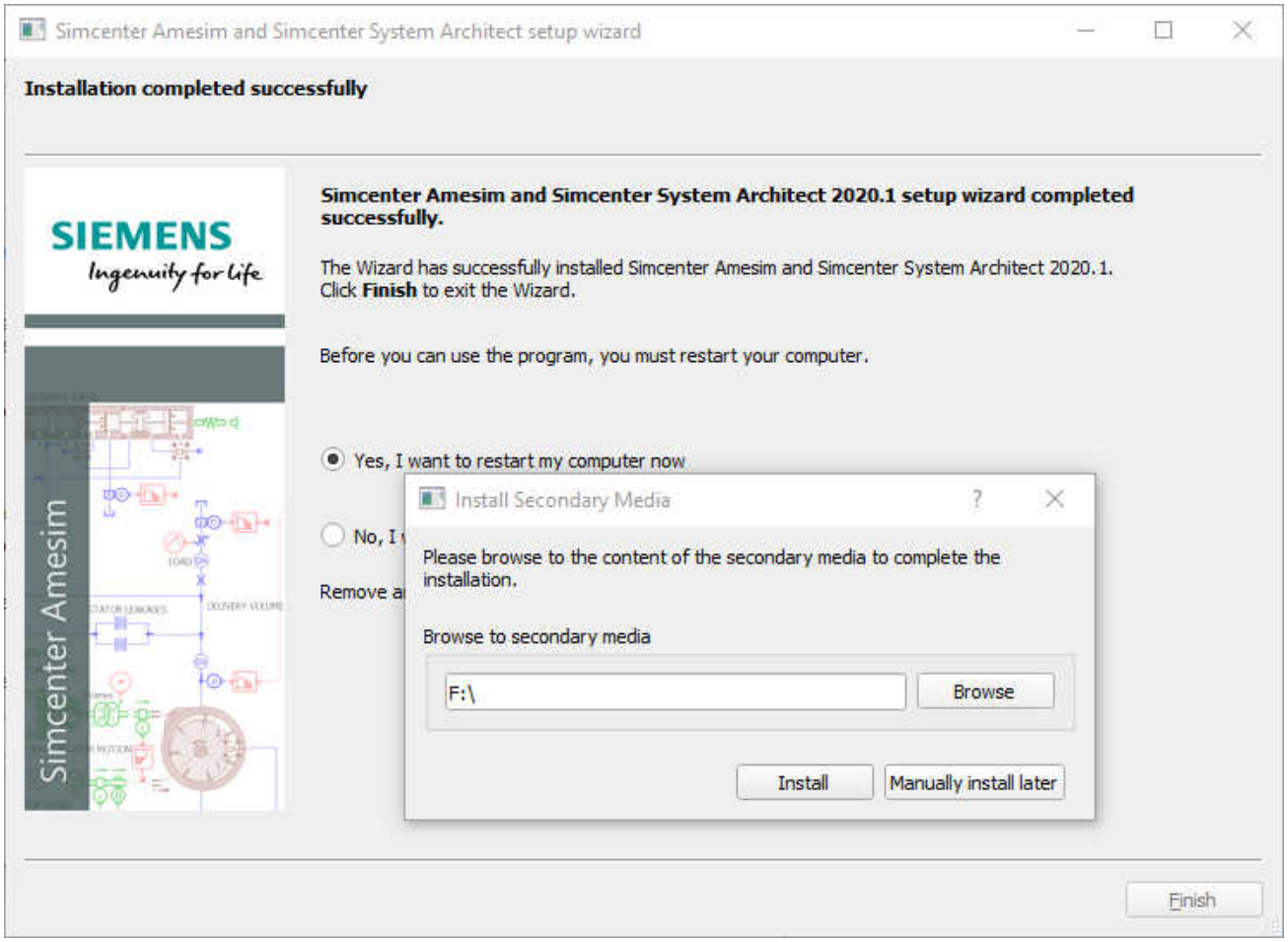


Figure 1-10. Installing Secondary Media

To complete this step, insert the second DVD in your drive and click **Install**. You can decide to skip this step by clicking **Manually install later**, but until you install the demos, links from the **Help** will be broken. Moreover, if you plan to use 32-bit compilers, you must also install their binaries from the second DVD.

> Note:
>
> If the two DVDs have been mounted side-by-side, the secondary media will be automatically detected. If auto-detection fails, you can use the **Browse** button to locate the Demo installation DVD.

When you click **Install**, the second **Simcenter Amesim setup wizard opens**:

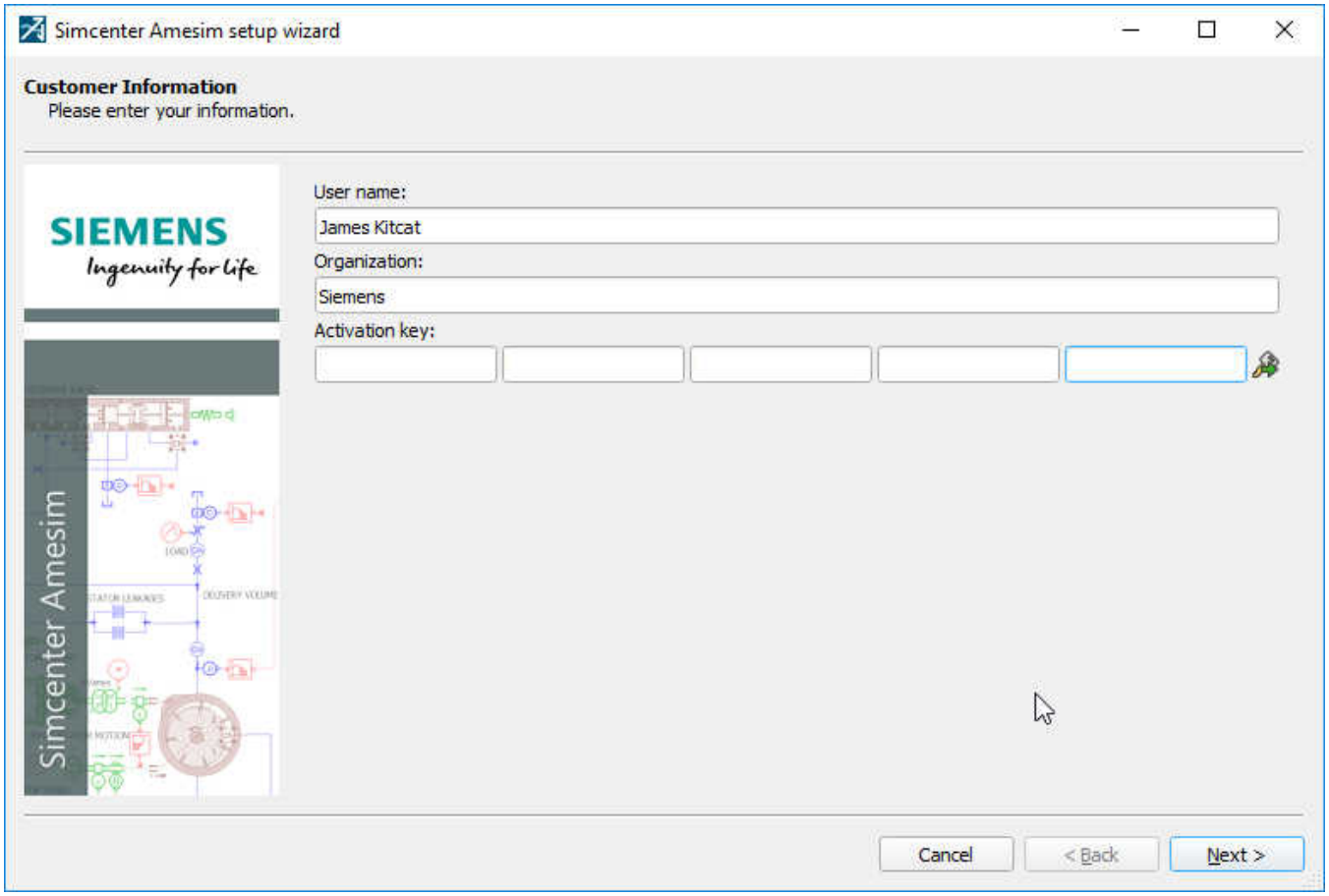


Figure 1-11. Second setup wizard

Enter your activation key and click **Next**. The next screen summarizes the setup for the demos and the 32 bit supported libraries to install:

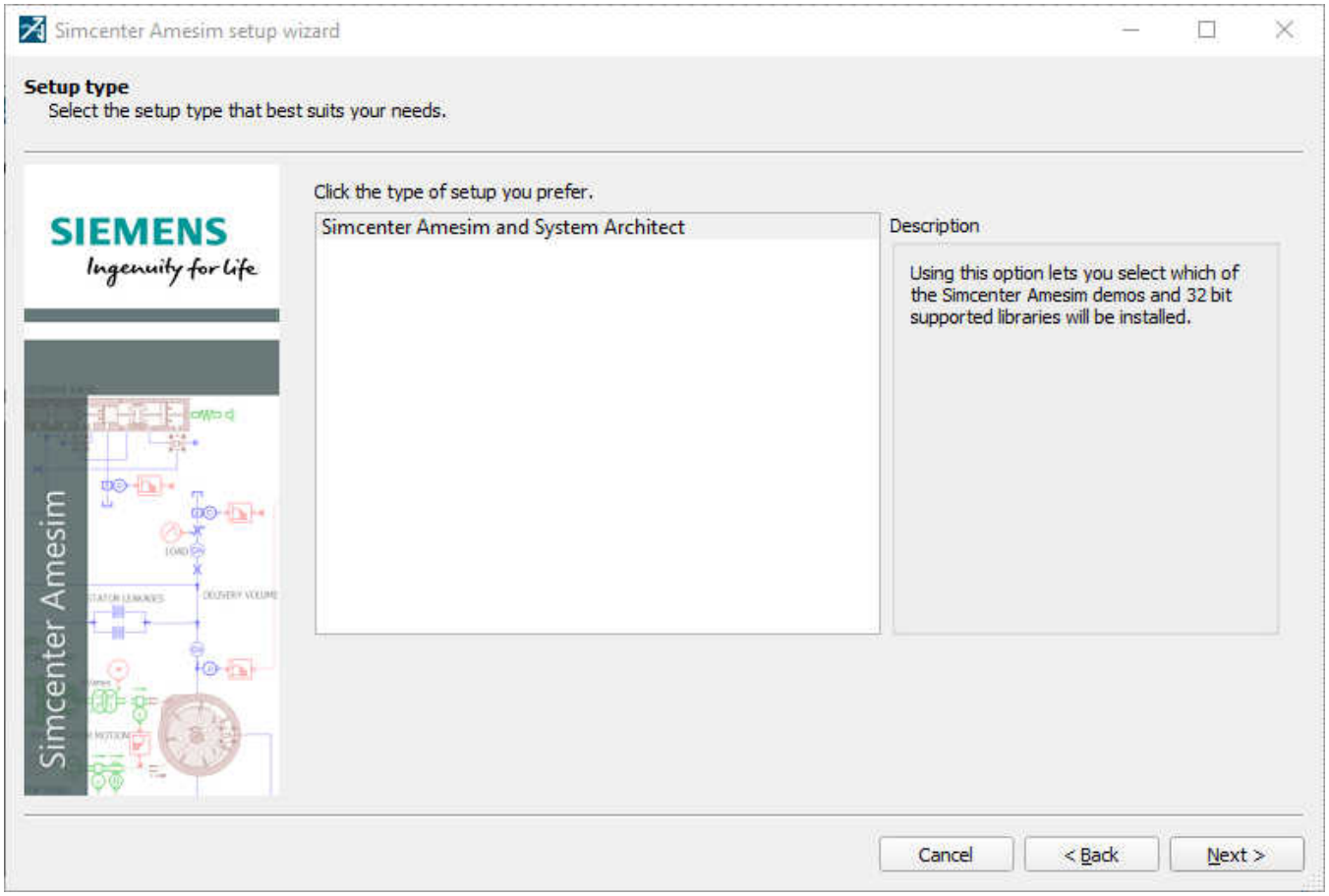


Figure 1-12. Setup type

Click **Next**. The next screen allows you to select the applications, compilers, tools and demos you wish to install.

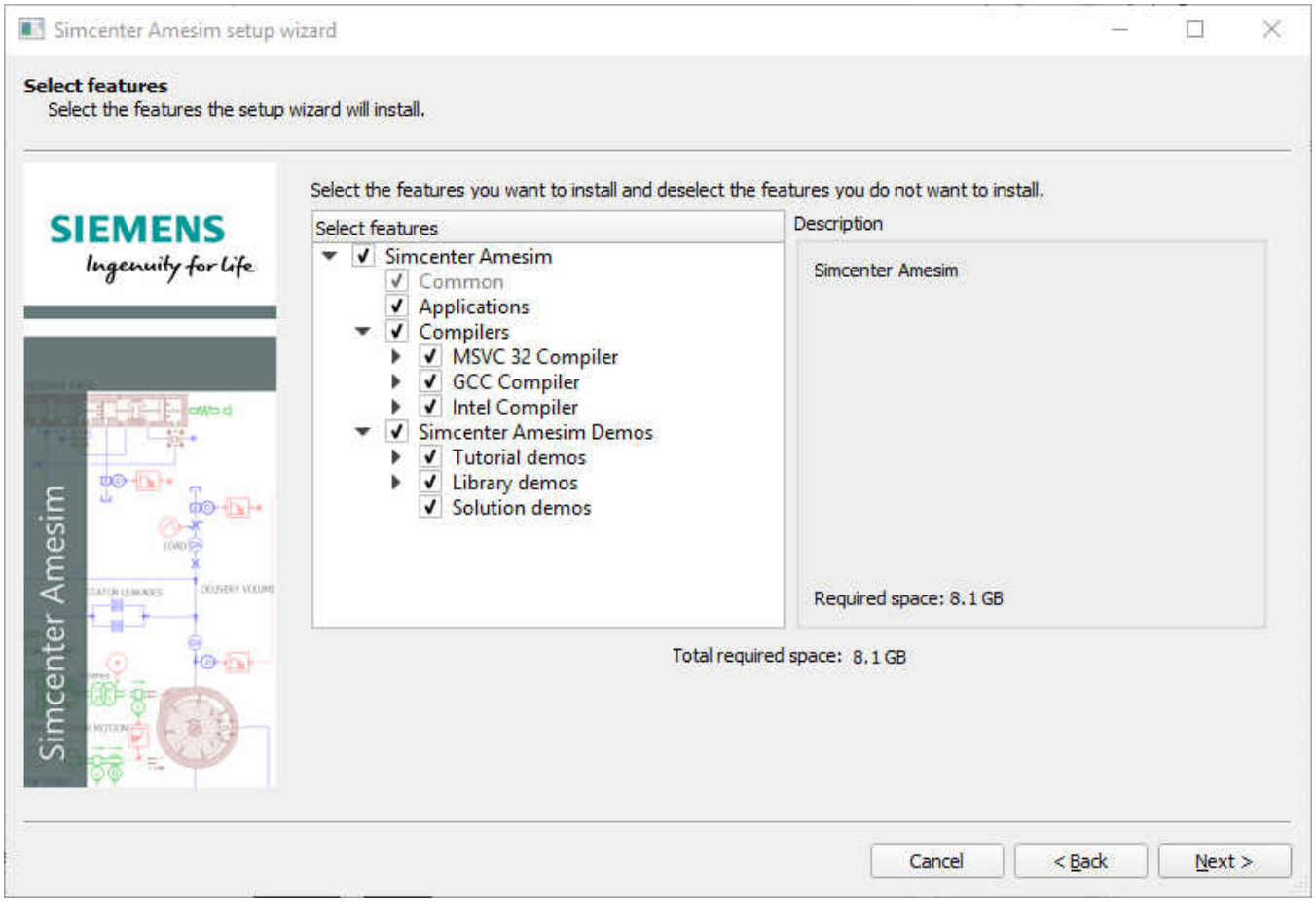
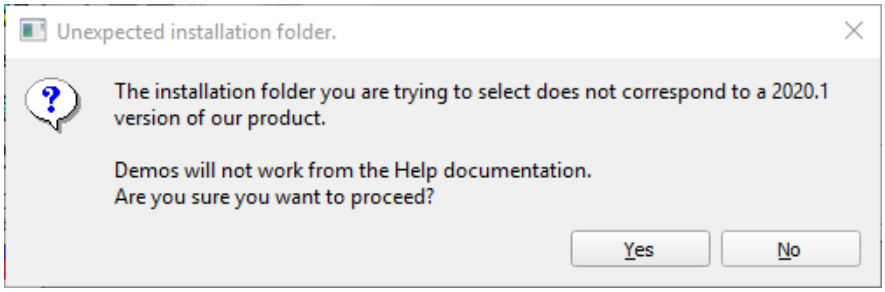


Figure 1-13. Feature selection

On the next screen you can accept the default installation folder, or click **Browse** to define your own destination folder.

Warning:

If you select a non-standard destination folder for your demos, the links to open demos from the **Help** will be broken.



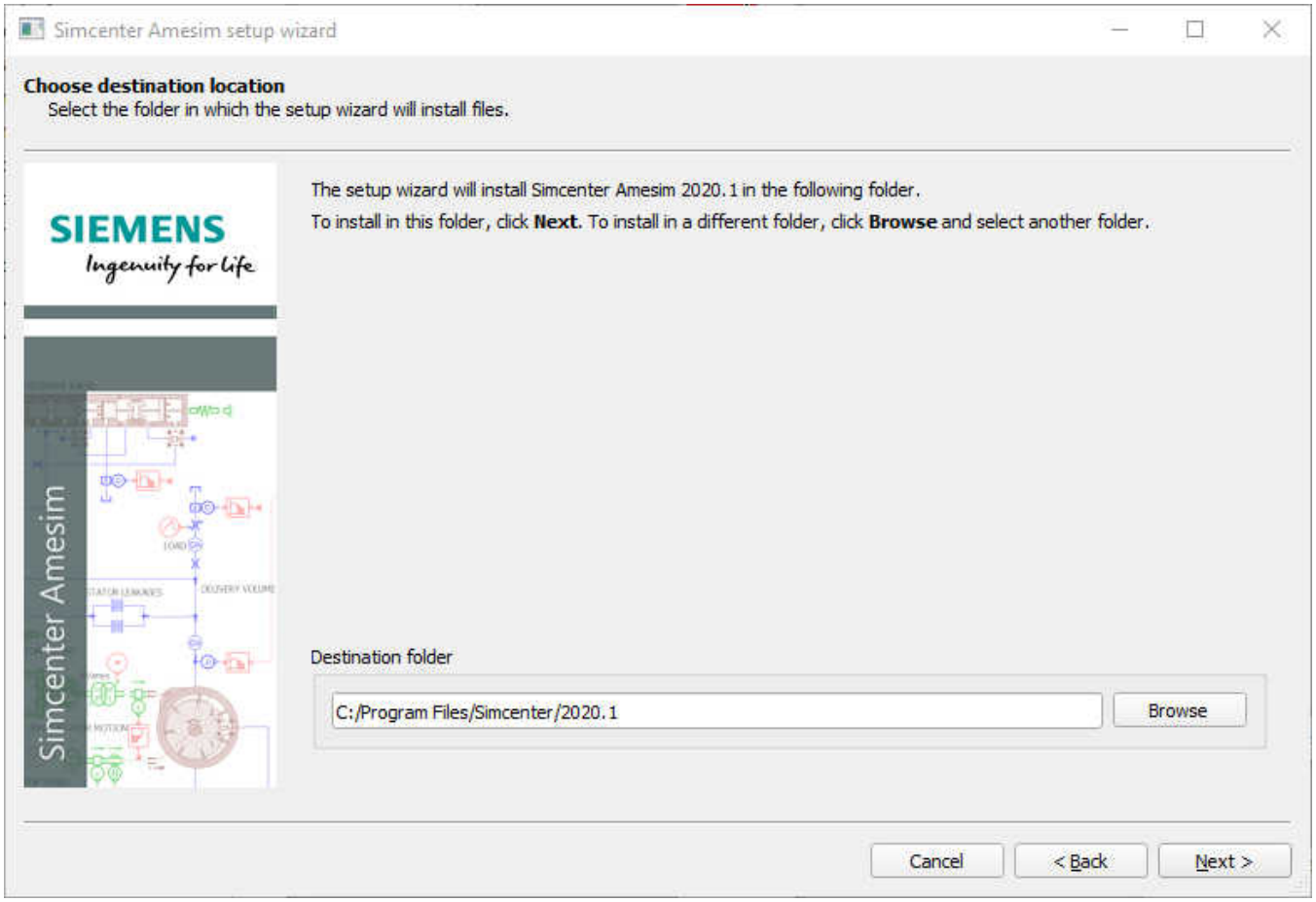


Figure 1-14. Selecting the destination folder

Once you have made your selection, click **Next**. An installation summary is displayed.

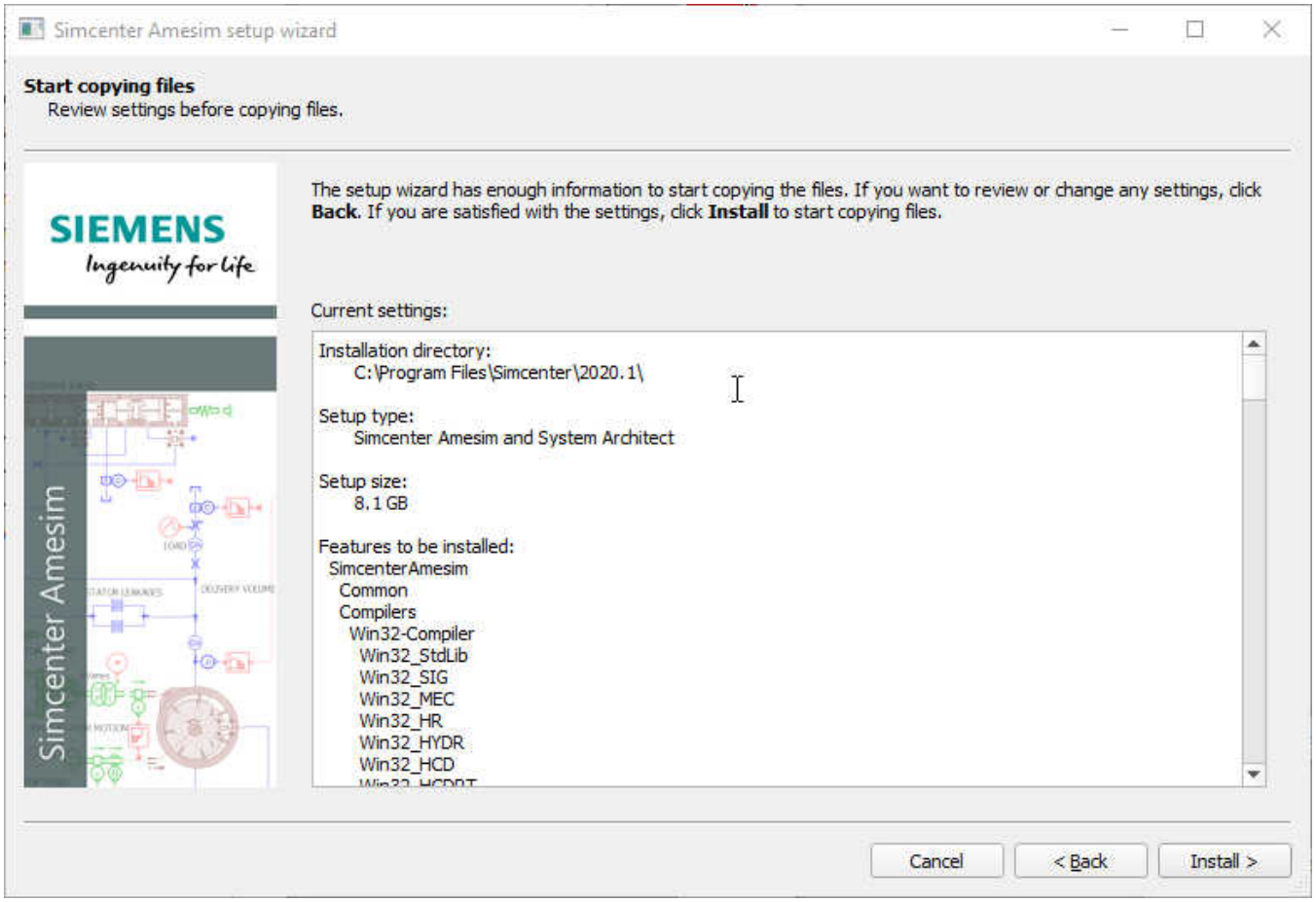


Figure 1-15. Installation summary

Click **Install**. The features and demos are installed to the selected directory:

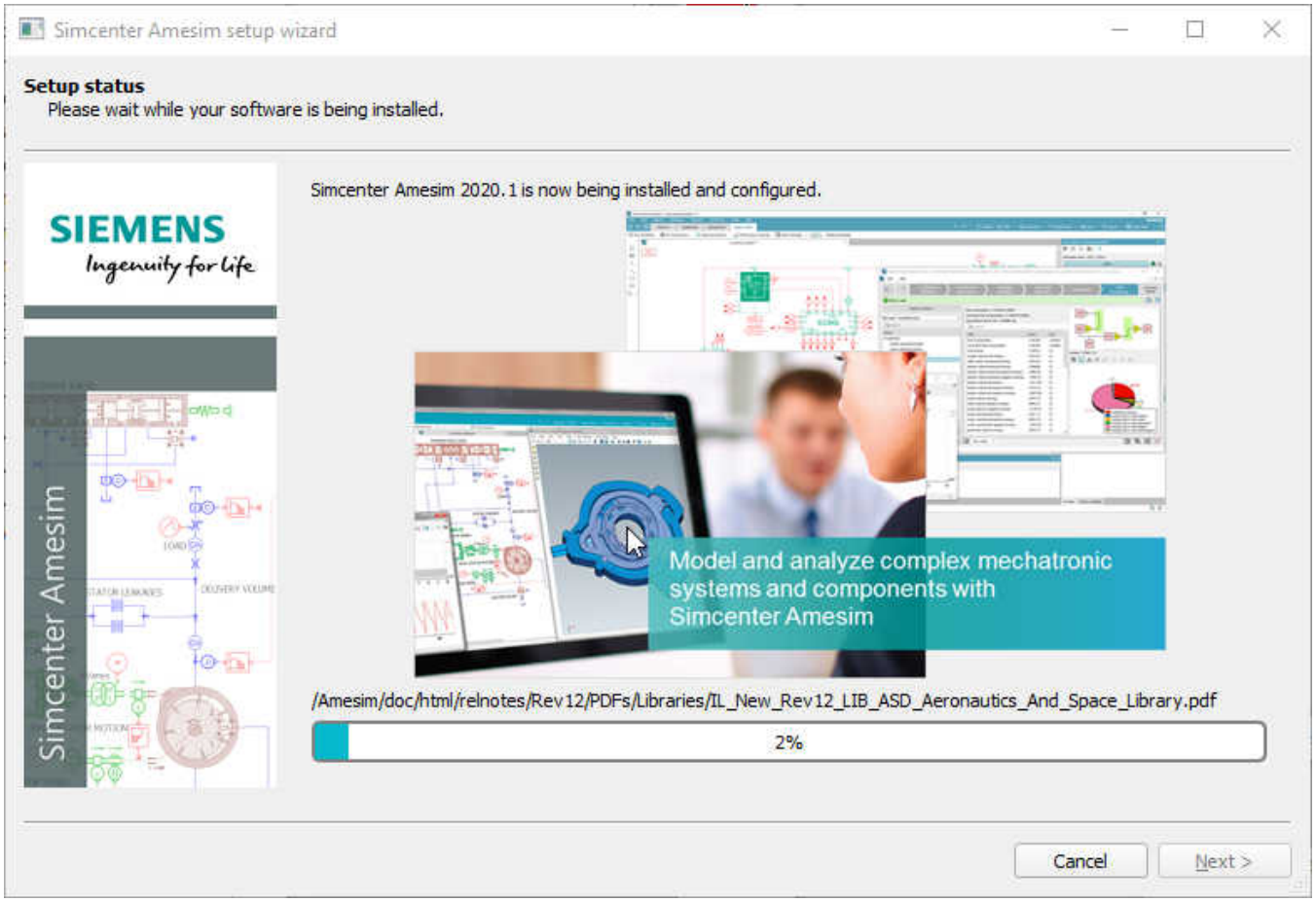


Figure 1-16. Features and demo installation

When the process is completed, you will be prompted to restart your computer.

1.3.12 Setting environment variables under Linux

Warning:

This crucial part of the installation procedure is specific to Linux versions of **Simcenter Amesim**.

In order to run any applications of the **Simcenter Amesim** suite under Linux, you need to define an environment variable named *AME* and set it to the **Simcenter Amesim** installation directory.

You also need to add the $AME environment variable to your command search path. The following instructions explain how to get this done automatically each time you log in to your machine.

1. If you use the C shell
   You may put the following lines in the .cshrc file of your home directory:

```
setenv AME AMEHOME
set path=($AME $path)
```

Replace `AMEHOME` by the name of the **Simcenter Amesim** installation directory and check these two lines are placed after any other set path command lines in the file.

2. If you use the Bourne shell
   You may put the following lines in the .profile file of your home directory:

```
AME=AMEHOME
export AME
PATH=$AME:$PATH
export PATH
```

   Replace `AMEHOME` by the name of the **Simcenter Amesim** installation directory and check these lines are placed after any other set path command lines in the file.

Once you have modified your .cshrc or .profile file, you have to log out and log in again so that the changes take effect. If you use the C shell, you can run the following command from a terminal window to avoid the login/logout process:

```
source ~/.cshrc
```

When these environment variables are set properly, the **Simcenter Amesim** applications can be started by typing **AMESim**, **AMESet**, **AMECustom**... as appropriate.

1.3.13 Setting Simcenter System Architect environment variables

- *SYSSYN* environment variable: This is set when the **Simcenter System Architect** installation is completed. If it is not set, please create it and set it with the value of the **Simcenter System Architect** installation folder.

- *HMS* environment variable: This variable must be created and set to `%SYSSYN%/win64`.

1.3.14 Completing the installation

Once you have completed all the previous steps the final screen prompts you to restart your computer.

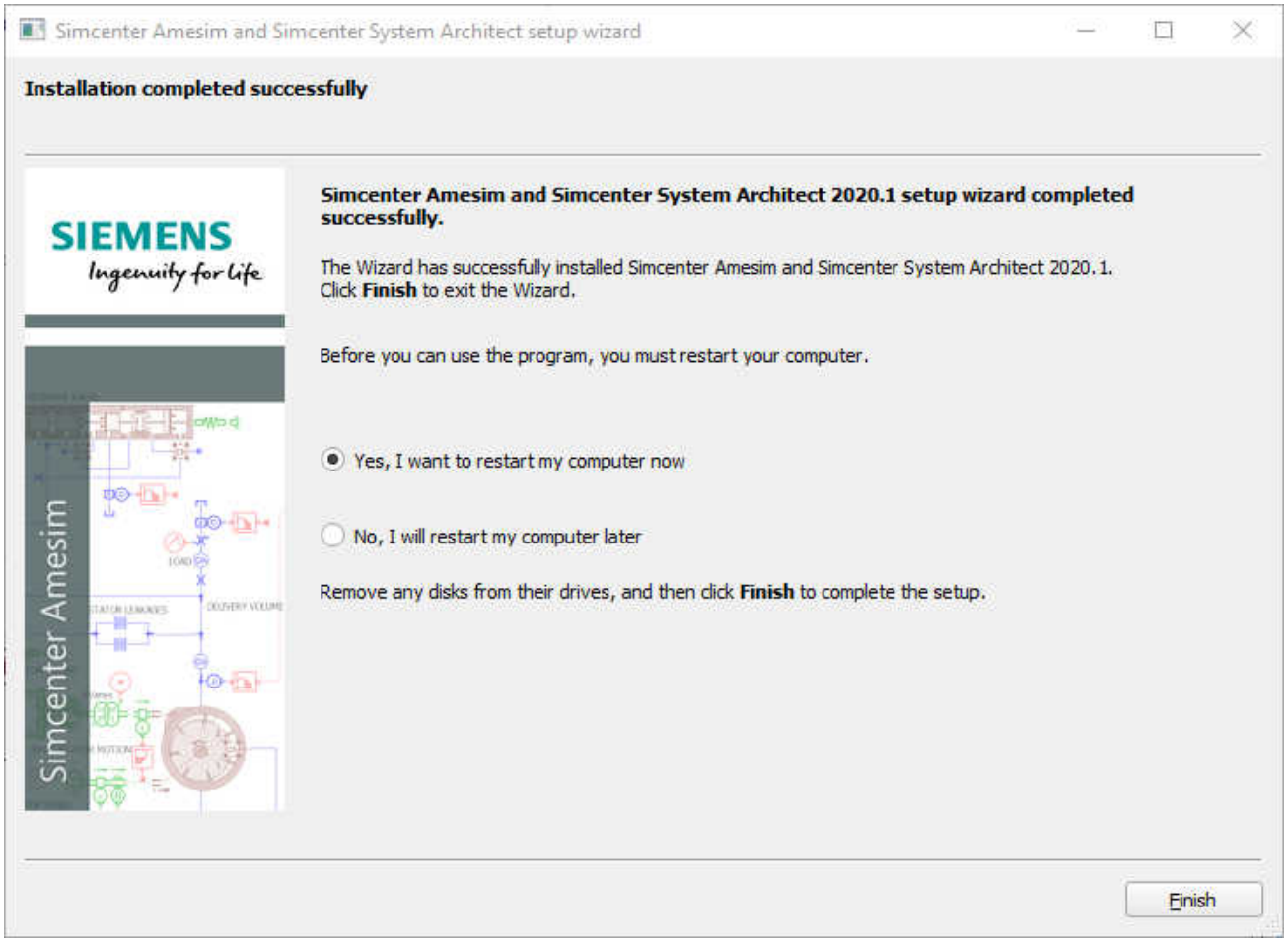


Figure 1-17. Completing the installation

You can either restart immediately by clicking *Finish*, or select the *No, I will restart my computer later* radio button.

1.4 The Installation procedure using scripts

Simcenter Amesim can be installed using a script to avoid any interactions with the user (silent mode). This is particularly interesting for network installations. To start this type of installation, it is necessary to prepare a configuration file containing options for the installation.

In the **Simcenter Amesim** installation media, there is an example of this file called *install_config.dat*. Copy this file locally and update the relevant fields as required:

```
USER_NAME=user_name_of_the_owner
COMPANY_NAME=Siemens Industry Software
CD_KEY=replace_this_label_with_your_activation_key
SETUP_TYPE=Full
DESTINATION_DIRECTORY=C:\APPS\Simcenter\v2020.1
WORKING_DIRECTORY=C:\AMETest
```

```
PLATFORM=windows
FILE_ASSOCIATION_TO_AMESIM=yes
SHORTCUT_ON_DESKTOP=yes
SHORTCUT_IN_START_MENU=yes
```

This is an example for Windows. For Linux, keywords `FILE_ASSOCIATION`, `SHORTCUT_ON_DESKTOP` and `SHORTCUT_IN_START_MENU` should be removed.

Some information about each keyword:

`USER_NAME`: user name

`COMPANY_NAME`: name of the company

`CD_KEY`: activation key to activate the installation

`SETUP_TYPE`: setup type like Full, Run and others special setup types. Custom type is not configurable for scriptable installation

`DESTINATION_DIRECTORY`: full path for the location of the **Simcenter Amesim** installation folder

`WORKING_DIRECTORY`: default working folder

`PLATFORM`: define the platform(s) to install: Windows, Linux

For Windows only:

`FILE_ASSOCIATION_TO_AMESIM`: to associate .ame files to the **Simcenter Amesim** products (**Open**, **Explode** and **Purge** actions)

`SHORTCUT_ON_DESKTOP`: add a shortcut on the desktop to start **Simcenter Amesim**

`SHORTCUT_IN_START_MENU`: add shortcuts into the **Start** menu to start main applications, documentation and the license administration tools

To start the installation, log in as Administrator and execute the following command:

Under Windows

```
setup_win.bat -s name_of_config_file
```

Under Linux

```
setup_lnx.sh -s name_of_config_file
```

An example of installation script for **Windows** is provided on the DVD: **install_script.bat**.

1.5 Setting up you license management

At this stage you have installed **Simcenter Amesim**. In order to be able to run it, you must ensure a license manager is available. If no license manager has been set up, you must install one as explained in *The license manager installation instructions* section.

2. The license manager installation instructions

Simcenter Amesim 2020.1 licenses are managed by one of two license managers:

- Reprise License Manager (RLM)
- FlexNet Publisher

Both use a license file which identifies the host machine and the expiry date of each feature available. **Simcenter Amesim** is supplied with its own versions of these license managers. It is not recommended to use a different version.

2.1 The license file and license daemon

A licensing daemon is supplied with the License manager for is supplied with **Simcenter Amesim** 2020.1:

- for RLM it is called **LMS**
- for FlexNet Publisher it is called **UGS**

To use **Simcenter Amesim**, you must have a valid license file. This license file includes all the features you are allowed to use. The license file is named as follows:

- for RLM: **LMS_HOSTNAME_HOSTID.lic**
- for FlexNet: **UGS_HOSTNAME_HOSTID.lic**

See the section *Before you start* for more details.

You must first have received a license file from your local **Siemens** office; this file must be renamed as **LMS.lic** for RLM or **UGS.lic** (for FlexNet Publisher) and copied into the *Common/licensing* subfolder of the installation.

Simcenter Amesim is licensed on a per-computer or a per-user basis. Depending on the type of license you have, there are two possibilities:

1. You have a node-locked license (no access to a license server):
   FlexNet Publisher or RLM must be configured locally on your machine (see instructions below)

2. You have a floating license (access to a license server):
   On the server specified in the license file: FlexNet Publisher or RLM must be installed and configured (see instructions below).

On every client machine accessing the server: no installation or configuration of the license manager is required, only a copy of the license file (renamed as **UGS.lic** or **LMS.lic**) is required in the *Common/licensing* subfolder of the installation. Alternatively the *SPLM_LICENSE_SERVER* or *LMS_LICENSE* environment variable can be used in this case along with the SC1D_LICENSING_TYPE variable. Please refer to the section *Licensing environment variable* for more information.

2.1.1 Installing the RLM License Manager Under Windows

To install the license manager, you must run the **RLMLicenseServer.exe** utility which is located in the *Common\licensing\install* folder of your installation directory. The Welcome screen for installing RLM appears.

You just need to click **Next** and the **Destination Folder Location** screen opens.

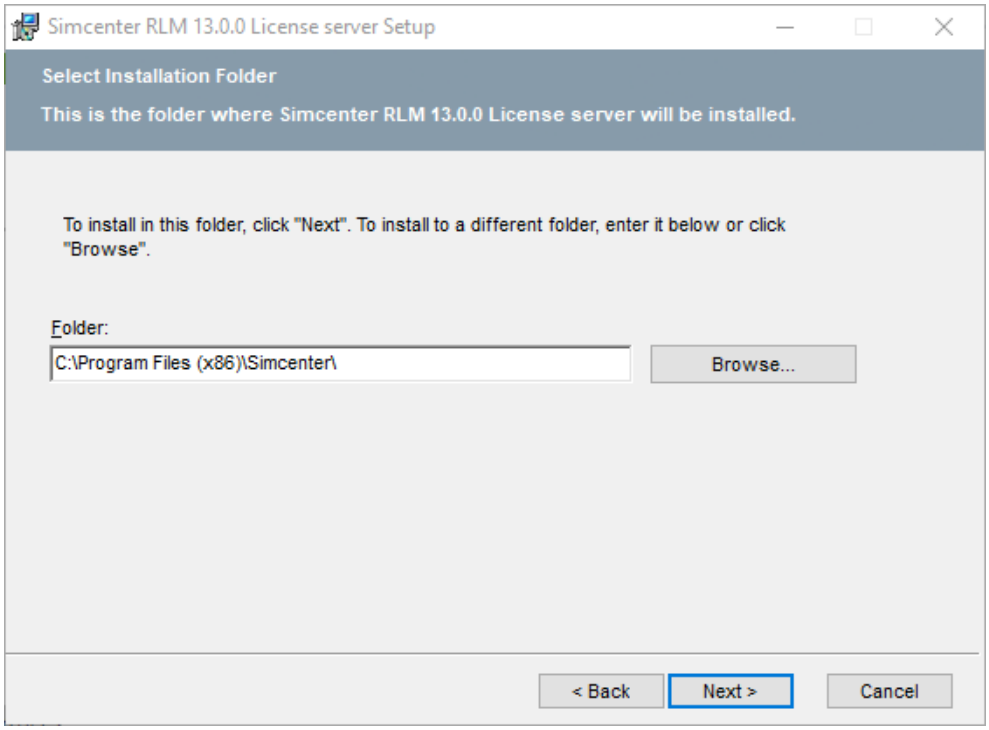


Figure 2-1. Installation folder

A default destination path is filled in. If there is a need to, it can be changed. The path in the picture might be different depending on the operating system you are working on.

Click **Next** to open the **License File Location** screen.

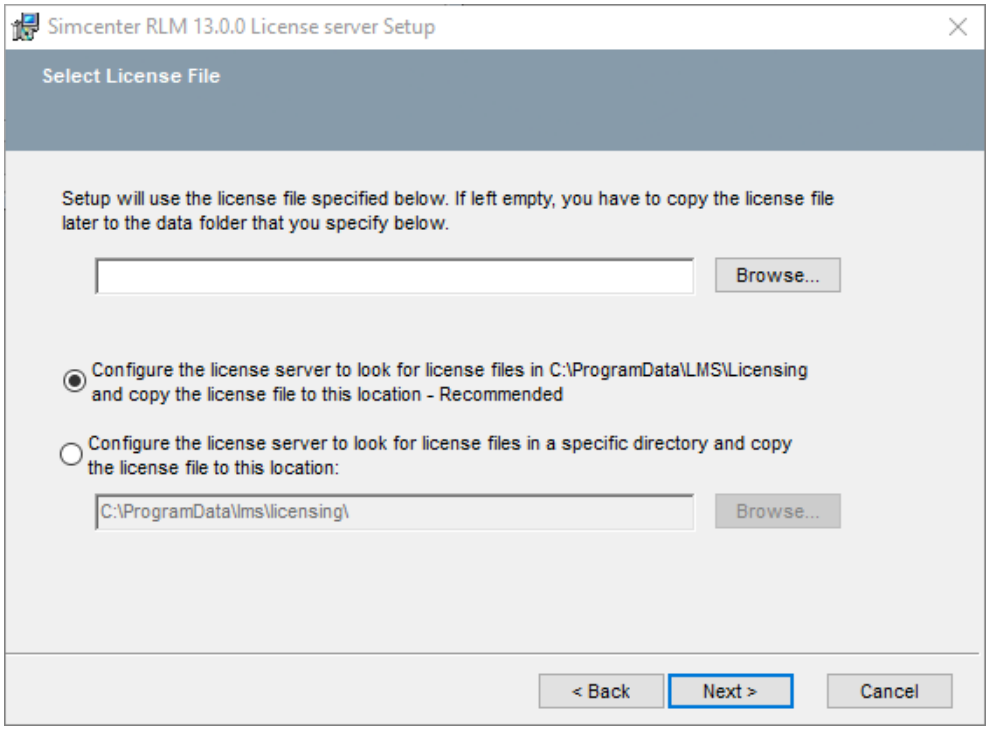


Figure 2-2. License file

With the upper part of this dialog box, you have the ability to select the license file that will be used by the license server. The installer will copy the license file to the location specified in the lower field of the dialog box.

The destination folder of the license file can be set with two possible options:

- The default location to store the license file is the folder *{Common application data}/LMS/Licensing*. The folder *{Common application data}* can be different depending on the OS. On Windows 7, the license file will be stored in the folder *C:\ProgramData\LMS\Licensing*.

- Alternatively, you can override the default location, and browse to any other existing folders.

> Note:
>
> If you have no license file yet, you can leave the input field for the license file blank. The installer will point to the selected destination folder and once you retrieve the license file, you can copy it into this folder manually. To easily retrieve this folder, the installer creates a shortcut to access it from the *Start > LMS RLM License Server > LMS license* folder menu.

Click **Next** to continue, this opens the **Options** screen.

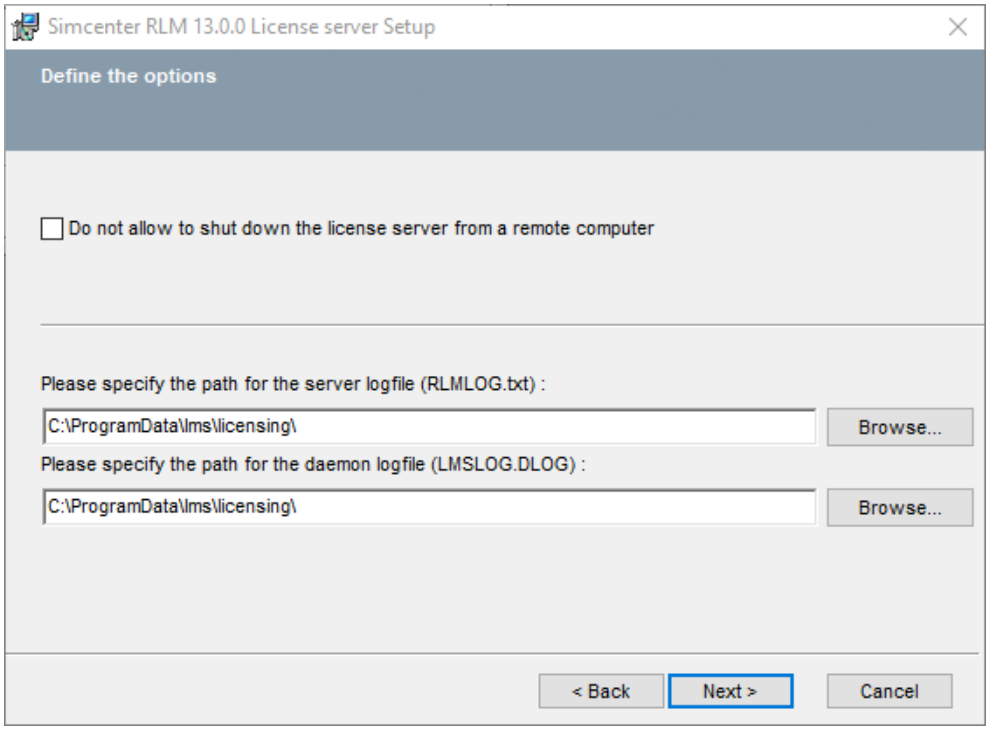


Figure 2-3. Options

From the RLM web-interface or from command lines (see *License administration tools (RLM)* for more details), it is possible to shut down the license server. The check box can be selected to disable this possibility.

You can also define the places where the log files of both the server (**rlm.exe**) and the daemon (**lms.exe**) are stored.

Click **Next** to continue, this opens the **Dongle driver** screen.

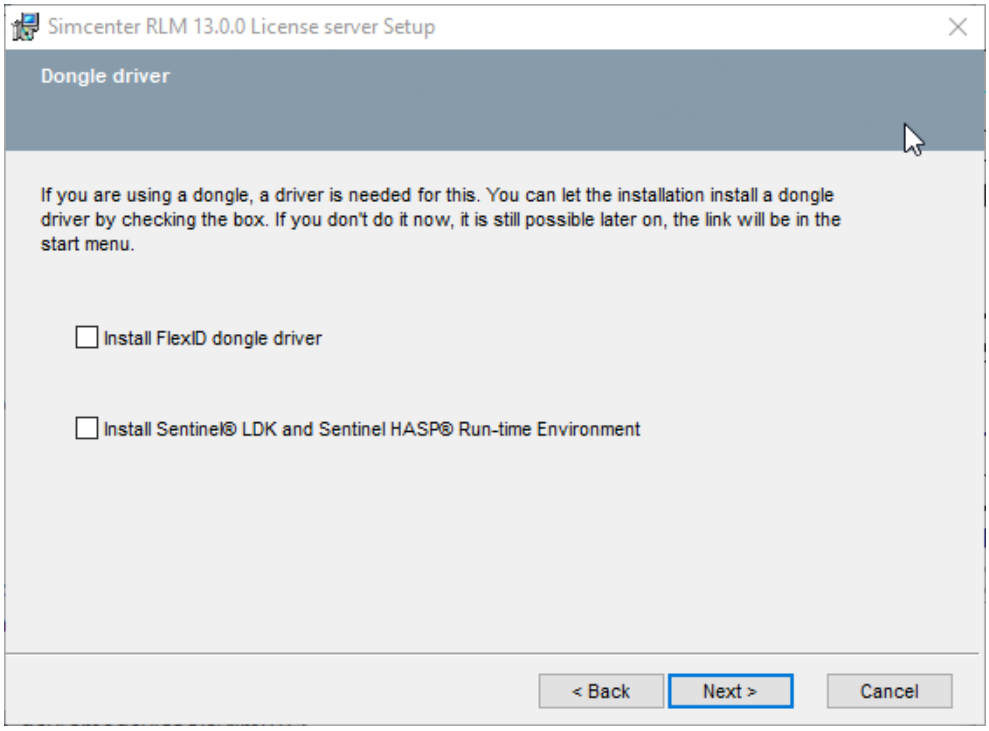


Figure 2-4. Dongle driver

Selecting the check box will launch the FlexNet installation package for dongles. With this, you will have support for recent dongles. Although the installation is based on RLM, we keep supporting FlexNet dongles.

Click **Next** to continue, this opens the **Firewall settings** screen.

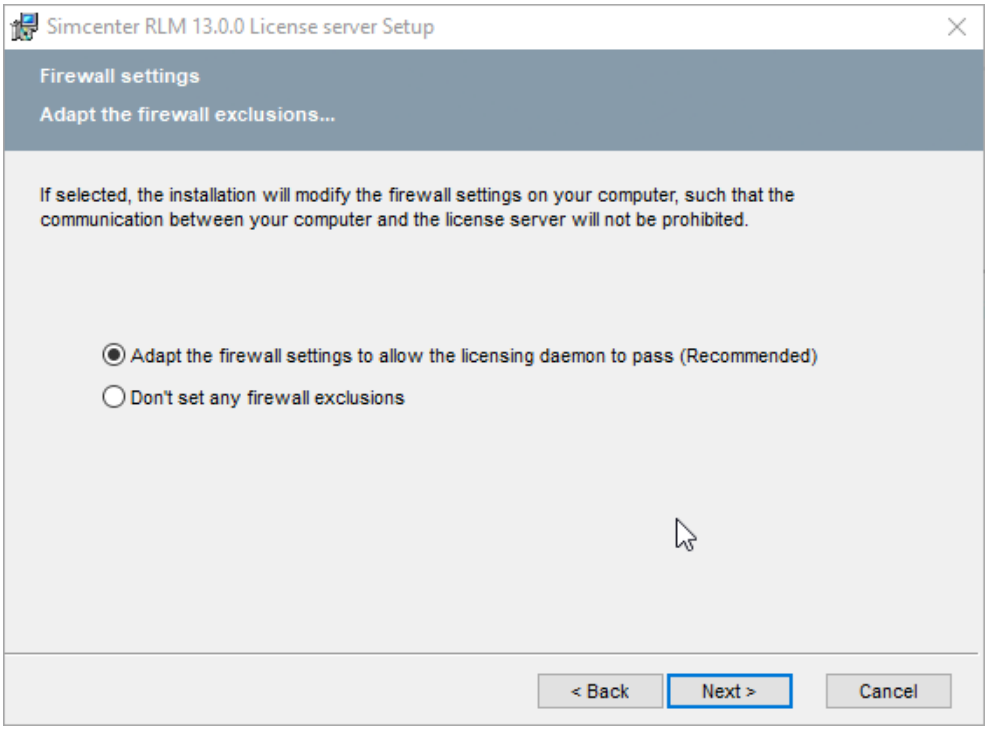


Figure 2-5. Firewall

Selecting the first radio button will alter the firewall settings on your computer. The daemon will be allowed to pass the firewall for domain, home/work and public.

Click **Next** to continue, this opens the **Ready to install** screen.

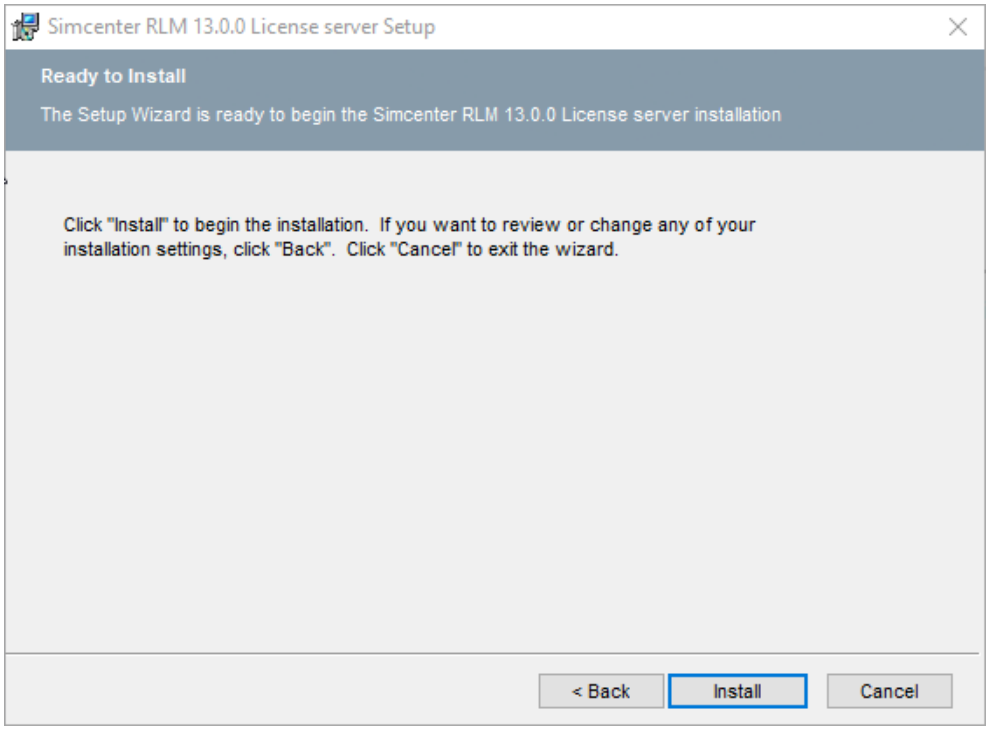


Figure 2-6. Installation

Click **Install** to start the installation. A status screen shows progress of the installation process. At the end of the process, you will see a screen indicating that the installation is complete. Click **Finish** to complete the license server installation. You do not need to reboot your machine.

2.1.2 Installing the RLM License Manager Under Linux

Warning:

Please note that dongles are not supported under Linux.

Before you can start any **Simcenter Amesim** application, you must place a copy of the license file (renamed as *LMS.lic*) in the *Common/licensing* subfolder of the installation folder, and the license manager daemon must be started by the command: **lmstart**.

The **lmstart** script is in the *Common/licensing* folder. You can check the *Common/licensing/lmslm_hostname.log* file to check that the license server is running correctly.

Note:

There is no part of RLM, vendor daemon or application that requires root permissions. In fact, it is recommended that you do NOT run the license server (**rlm**) as root, since root processes can introduce security risks. If **rlm** is started as root, as in a system boot script, it is recommended that you use the **/bin/su** command to run **rlm** as a non-privileged user. You will have to ensure that the vendor daemons listed in the license file have *execute* permissions for the username. The path to the vendor daemon in the license file is listed on the `ISV` line.

To ensure that the license manager daemon starts at boot time, add the following startup command to a boot script on your system as described hereafter (as one line):

```
/bin/su username -c "umask 022; AMEHOME/Common/licensing/lnx/rlm -c
 AMEHOME/Common/licensing/LMS.lic -l AMEHOME/Common/licensing/amelm.log"
```

where *username* is a non-privileged user and *AMEHOME* the installation directory.

2.1.3 Installing the FlexNet License Manager under windows

To install the license manager you must run the **SPLMLicenseServer_<version_number>_win_setup.exe** utility which is located in the *Common \licensing\install* folder of your installation directory. Select the language you require and click **OK**. The Welcome screen for installing FlexNet Publisher appears. You just need to click **Next** and the **Destination folder location** screen opens.

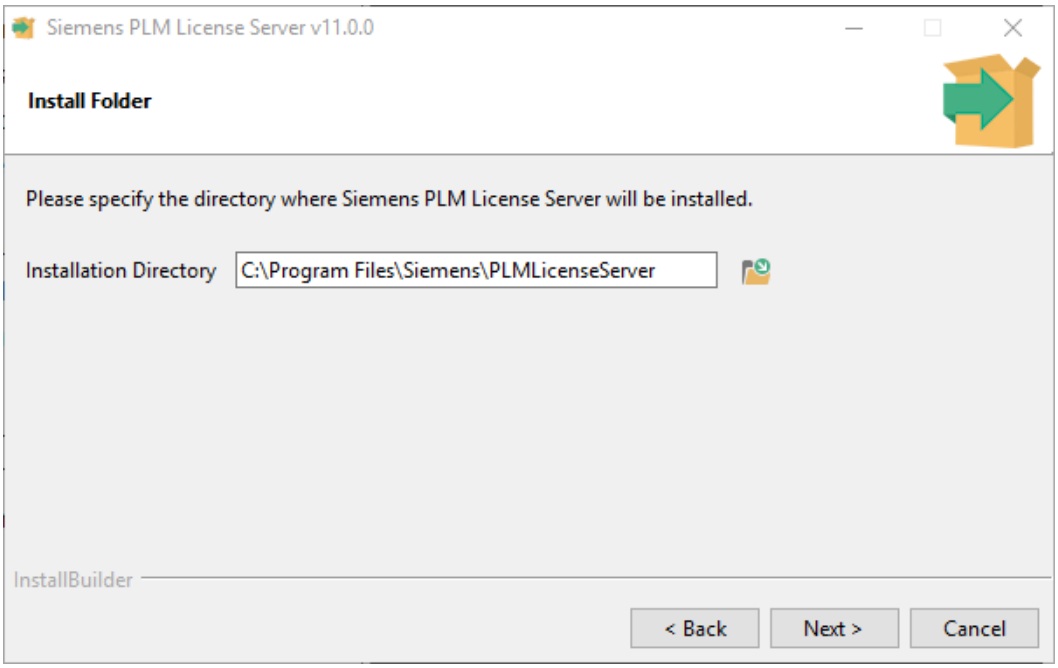


Figure 2-7. Installation folder

A default destination path is filled in. If necessary you can change this path. The path may vary according to your operating system.

Click Next to open the **License File Location** screen.

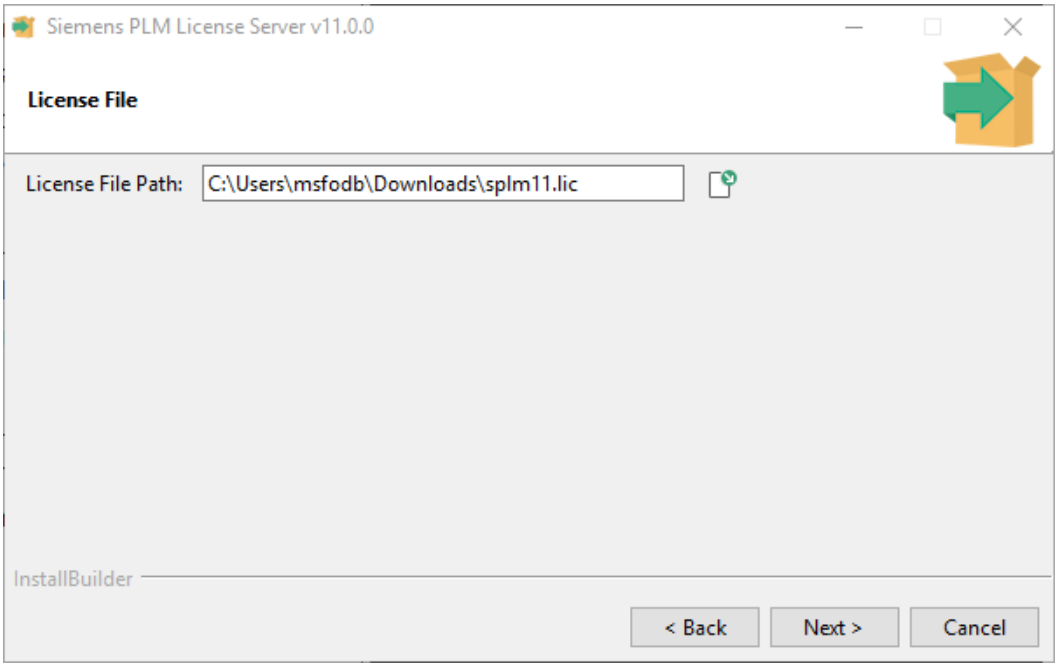


Figure 2-8. License file

You can click the browse button to locate the license file that will be used by the license server. You can use the default folder or specify a different location.

Click **Next** to continue the procedure. The **Pre-Installation summary** opens:

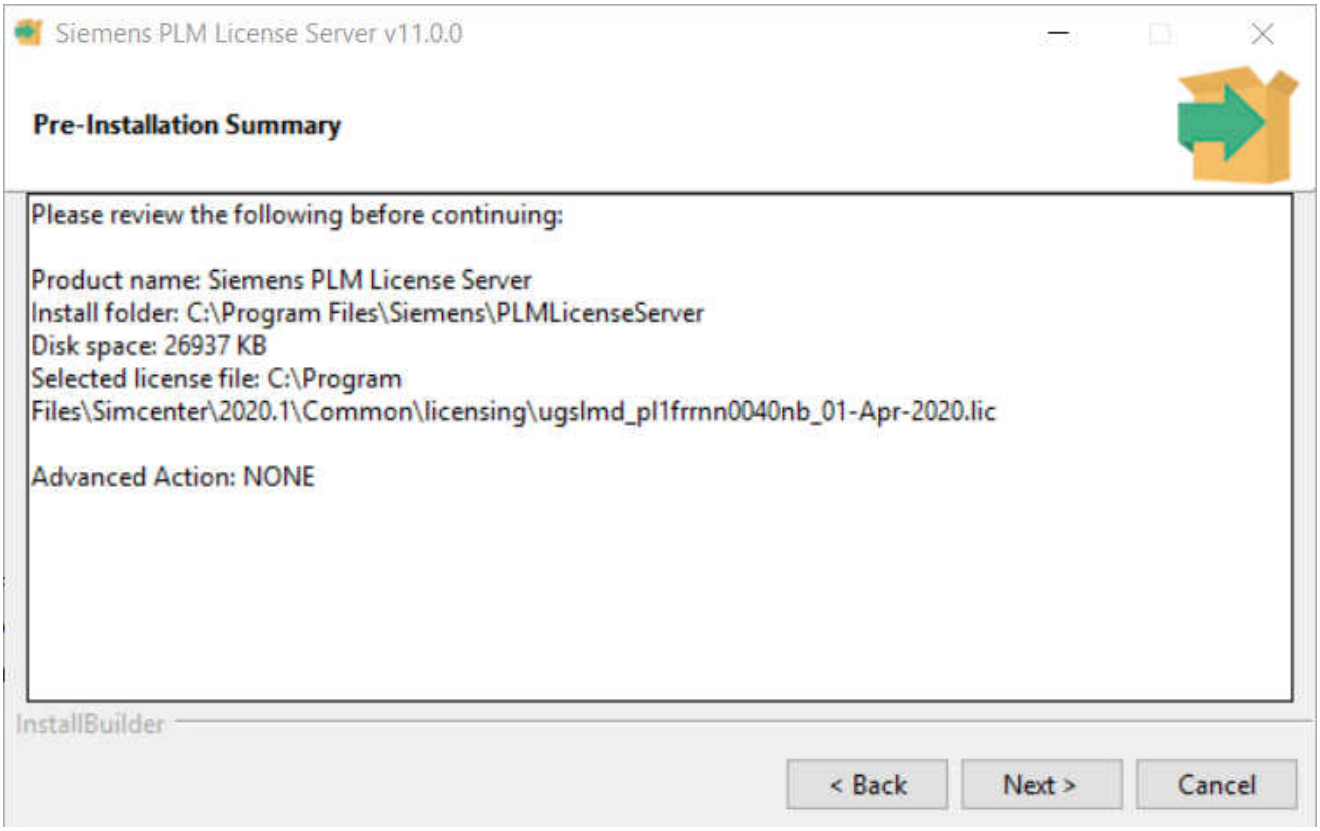


Figure 2-9. Pre-installation summary

Click **Next** to continue the installation.

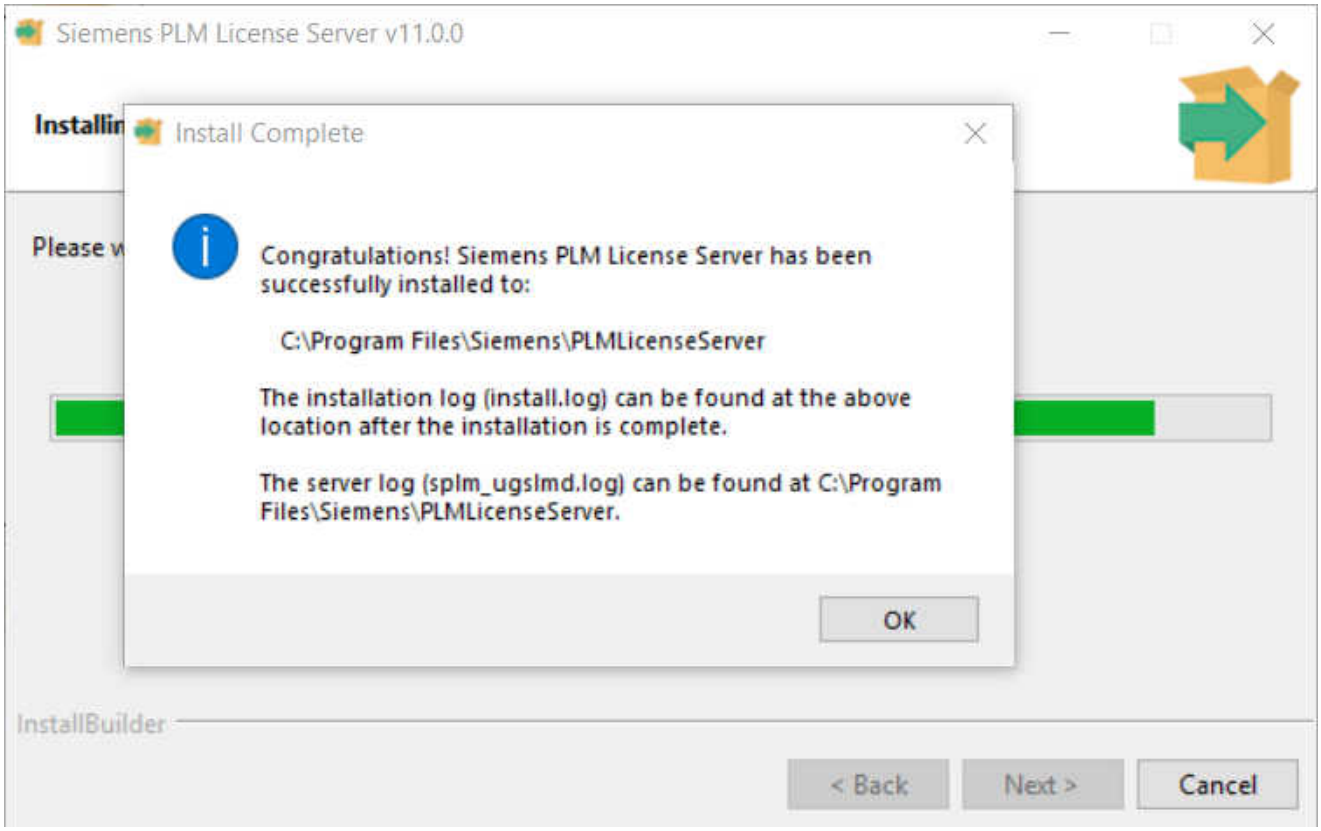


Figure 2-10. Installation completion

Click **OK** to close the installer.

2.1.4 Installing the FlexNet License Manager under Linux

1. Log in as Administrator.
2. Run the **SPLMLicenseServer_<version_number>_linux_setup.bin** file.

   The **Language Selection** window appears.

Figure 2-11. Language selection

3. Select the language you require and click **OK**.

The **Welcome** screen for installing FlexNet Publisher appears:

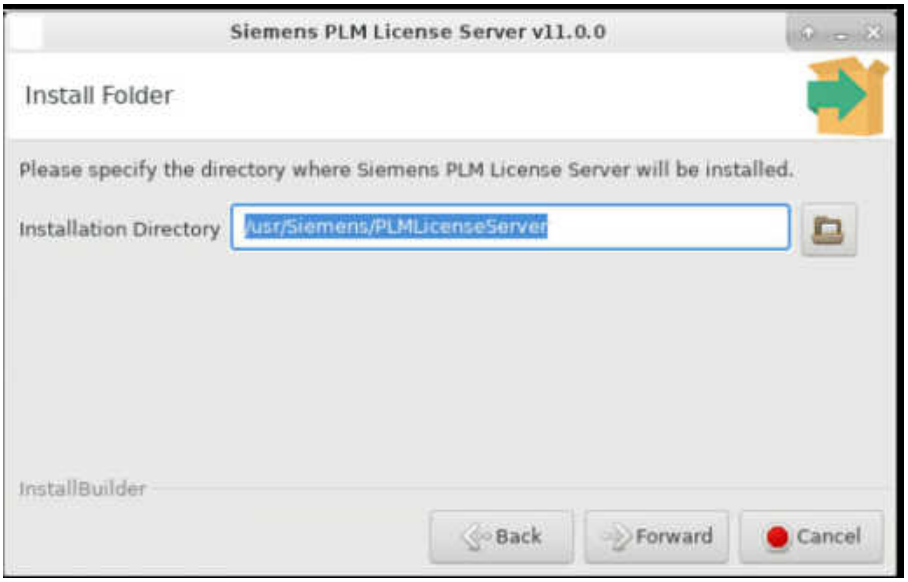


Figure 2-12. Welcome screen

4. Click **Forward**.

The **Install Folder** screen opens.

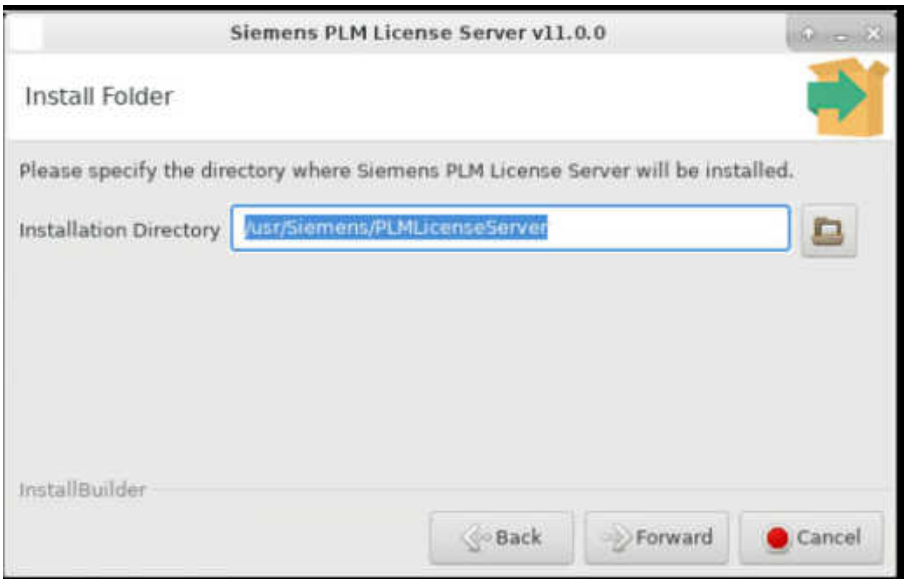


Figure 2-13. Install folder

A default destination path is provided. You can modify this installation folder if required by clicking the browse button to define a different location.

5. Click **Forward**.

The **License File** screen opens.

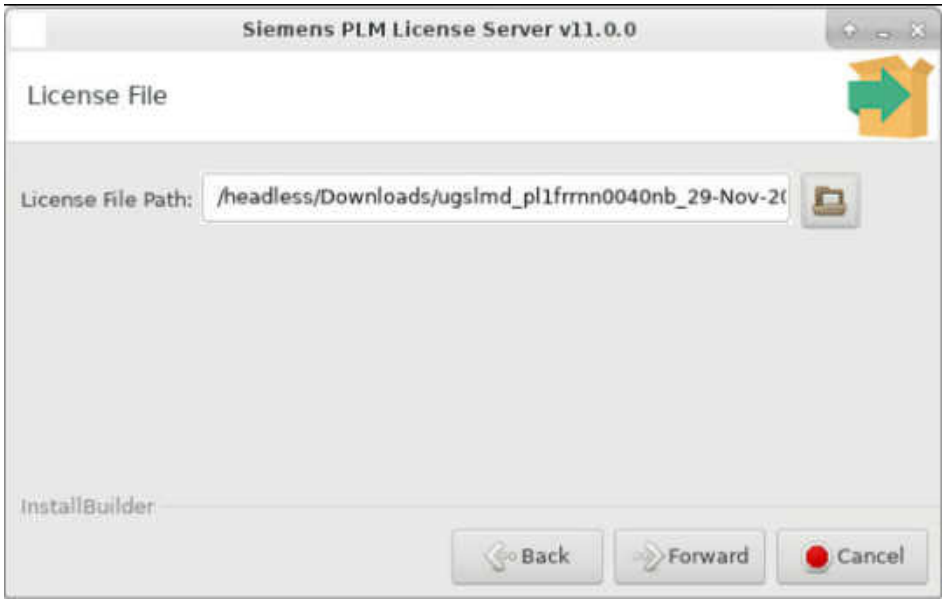


Figure 2-14. License file screen

Here you can browse to select the license file that will be used by the license server. The destination folder of the license file can be set with two possible options:

6. Click **Forward**.

   Enter the username under which you will run the server:

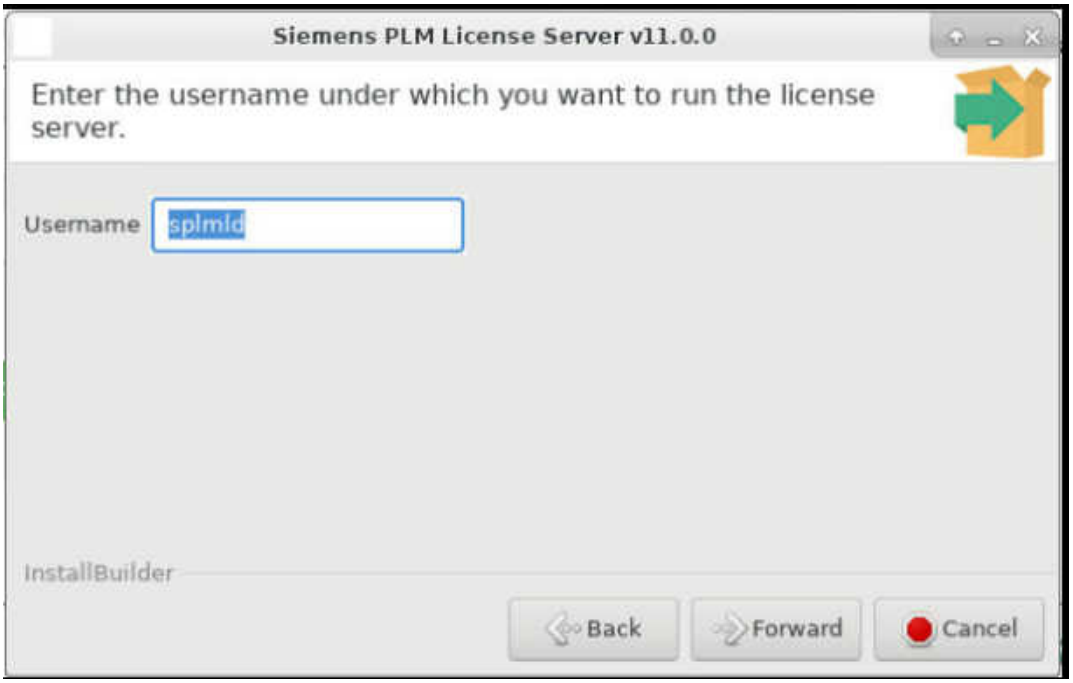


Figure 2-15. Enter the user name

7. Click **Forward**.

   The **Pre-installation summary** opens:

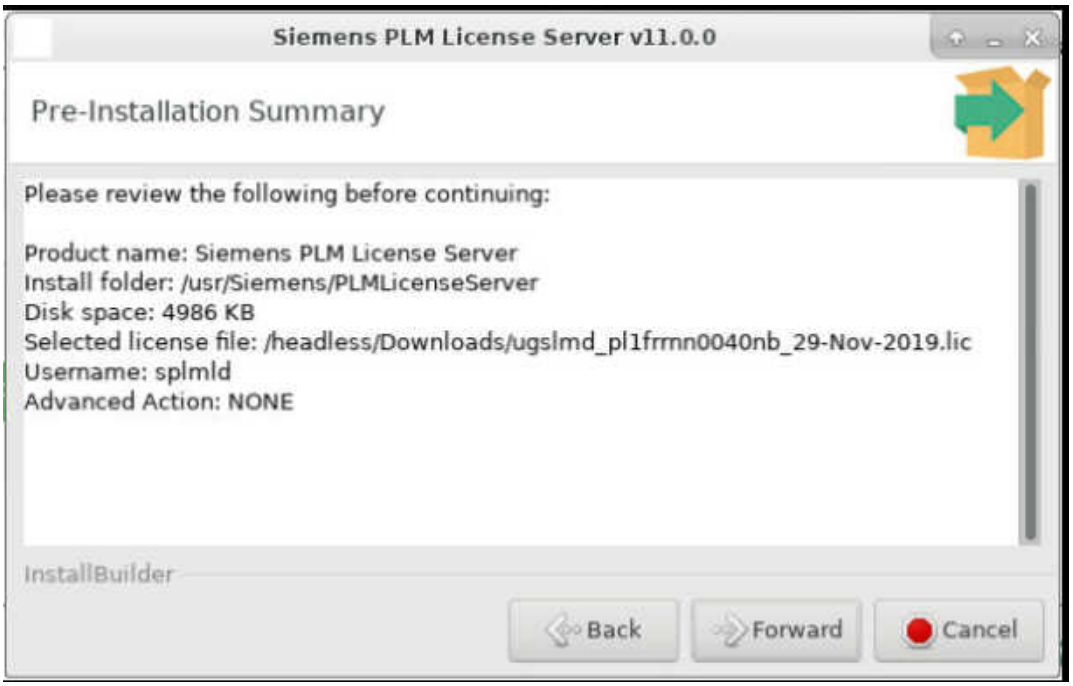


Figure 2-16. Pre-installation summary

8. Click **Forward**.

The installation begins. A status screen shows the progress of the installation:

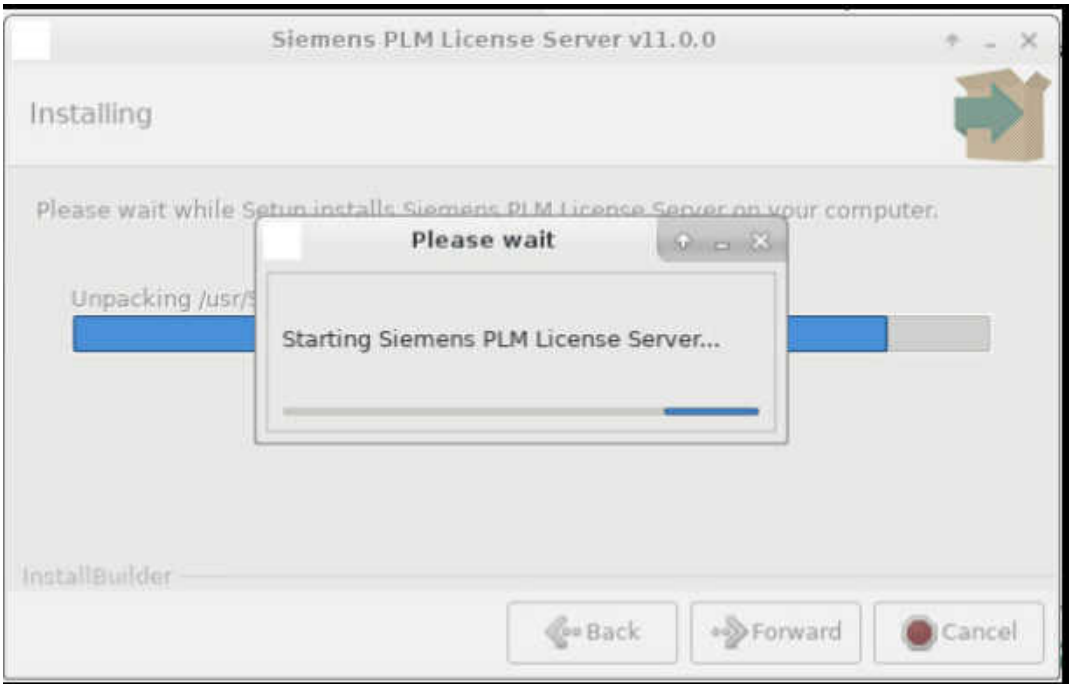


Figure 2-17. Installation progress

At the end of the process, you will see a screen indicating that the installation is complete:

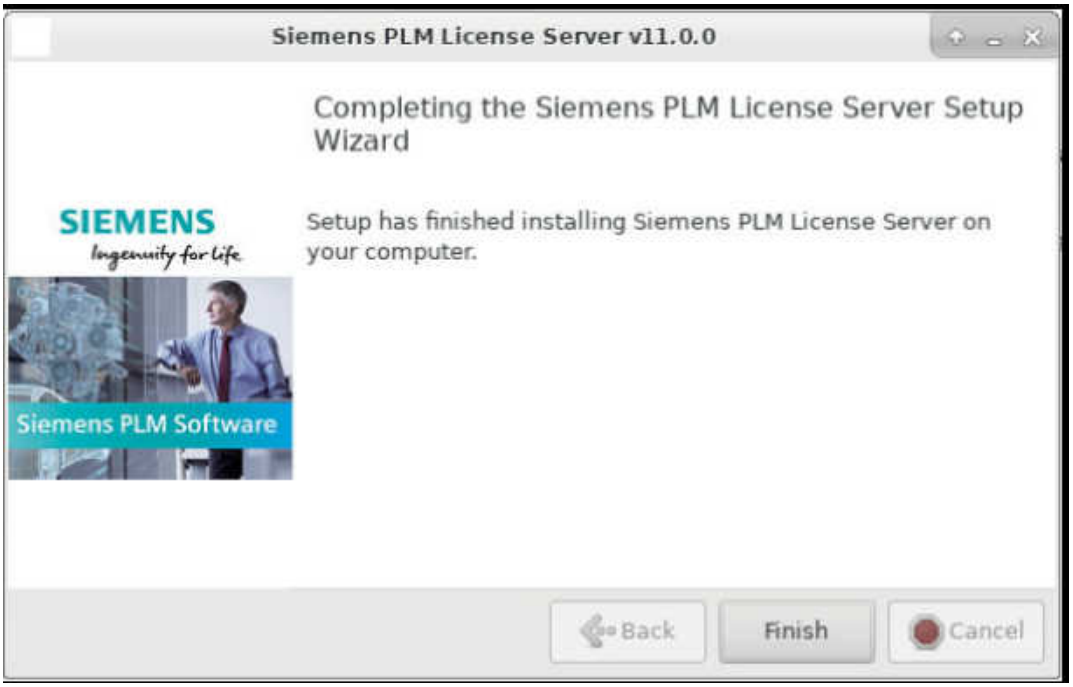


Figure 2-18. Installation complete

9. Click **Finish** to complete the license server installation. You do not need to reboot your machine.

3. License management

Simcenter Amesim uses one of two License managers to manage per-computer or per-user licensing:

- RLM license manager from **Reprise Software**
- FlexNet Publisher from **Flexera**

The mechanism is based on a client-server configuration. The server setup is described in *The license manager installation instructions* section.

On the client side, **Simcenter Amesim** needs to know the host name of the server (or its IP address) and its port number. This information can be supplied as follows:

- **RLM**
  - by copying your **LMS.lic** into the *Common\licensing* folder of the installation directory (for example: *C:\Program Files\Simcenter\2020\Common\licensing\LMS.lic*), or,
  - by setting an *LMS_LICENSE* environment variable as described in the *Licensing environment variable* section. This will override the LMS.lic of all other installed versions of **Simcenter Amesim**.This means that all **Simcenter Amesim** installations using RLM will use the LMS_LICENSE environment variable.
- **FlexNet Publisher**
  - by copying your *UGS.lic* into the *Common\licensing* folder of the installation directory (for example: *C:\Program Files\Simcenter\2020\Common\licensing\UGS.lic*)
  - by setting an *SPLM_LICENSE_SERVER* environment variable as described in the *Licensing environment variable* section. This will override the UGS.lic of all other installed versions of **Simcenter Amesim**.This means that all **Simcenter Amesim** installations using FlexNet Publisher will use the SPLM_LICENSE_SERVER environment variable.

Warning:

In both cases, the SC1D_LICENSING_TYPE variable value must be set to `rlm` (for RLM) or `ugs` (for FlexNet Publisher). If the value is not set (or is set incorrectly, for example containing a typographical error), **Simcenter Amesim** will use RLM licensing.

3.1 Understanding the license file

The license file (**LMS.lic** or **UGS.lic**) contains configuration information:

- **RLM**:

- A `HOST` line which specifies the license server daemon.
- An `ISV` line which specifies the vendor daemon.
- A series of `LICENSE` lines, which define your licenses for the **Simcenter Amesim** products, optional libraries and tools you have purchased.

- **FlexNet Publisher**:
  - A `SERVER` line which specifies the license server
  - A `VENDOR` line which specifies the vendor daemon
  - A series of `INCREMENT` lines which define your licenses for **Simcenter Amesim** products, optional libraries and tools you have purchased.

> Warning:
>
> Any time you make changes to the license file, you must reread the license file or restart the license daemons. The web-server application can be used for this. For more information, please refer to the section *License administration tools (RLM)*.

For a complete description of the license file, please refer to the *License File* section of the RLM End-User Manual (*RLM_License_Administration.pdf*) which can be found in the *EndUser* subfolder of the *Common/licensing* folder, or for FlexNet Publisher, refer to the license file format section of the **SPLM Licensing User Guide** which can be found here: **Common Licensing Toolkit**.

3.2 Licensing environment variable

> Note:
>
> This explanation here applies for both RLM (LMS_LICENSE environment variable) and UGS (SPLM_LICENSE_SERVER environment variable).

By default, **Simcenter Amesim** will use the information from the license file (named **LMS.lic** for RLM or **UGS.lic** for FlexNet Publisher) located in the *Common/licensing* subfolder of its installation folder. However, you can set an environment variable to specify one or several license file(s) or host name(s). For the **lms** daemon, this variable must be named *LMS_LICENSE*, and it can be set to the following values:

- A list of full paths to license files (including the name of the license files), these are separated by a colon (:) on Linux or a semicolon (;) on Windows.
- A list of `port@host` where `port` and `host` are the TCP/IP port number and the host name from the `HOST` line in the license file. Alternatively, use the shortcut specification, `@host`, if the license file

`HOST` line uses the default TCP/IP port (5053). A list of several `port@host` can be used for a server redundant configuration.
For example: `port1@host1:port2@host2`, or `port1@host1;port2@host2`
For example: `@MY_LIC_SERVER` (for a standard installation) or `5053@MY_LIC_SERVER`

For the SPLM_LICENSE_SERVER variable, it can be set to the following values:

- A list of full paths to license files (including the name of the license files), these are separated by a colon (:) on Linux or a semicolon (;) on Windows.

- A list of `port@host` where `port` and `host` are the TCP/IP port number and the host name from the `HOST` line in the license file. Alternatively, use the shortcut specification, `@host`, if the license file `HOST` line uses the default TCP/IP port (28000). A list of several `port@host` can be used for a server redundant configuration.
  For example: `port1@host1:port2@host2`, or `port1@host1;port2@host2`
  For example: `@MY_LIC_SERVER` (for a standard installation) or `28000@MY_LIC_SERVER`

Warning:

In both cases, the SC1D_LICENSING_TYPE variable value must be set to `rlm` (for RLM) or `ugs` (for FlexNet Publisher). If the value is not set (or is set incorrectly, for example containing a typographical error), **Simcenter Amesim** will use RLM licensing.

Note:

You can create a list containing both `port@host` and full license path files. When several license files or hostnames are set, **Simcenter Amesim** licenses are first taken from the first license or hostname of the list.

3.3 License administration tools (RLM)

RLM daemons must be running on a server node in order to run a **Simcenter Amesim** product. All the files required to run RLM are supplied in the *<installation directory>\Common\licensing* folder.

For example:

- Windows: *C:\Program Files\Simcenter\v2020\Common\licensing*.

- Linux: */opt/amesim/v2020/Common/licensing*.

This includes:

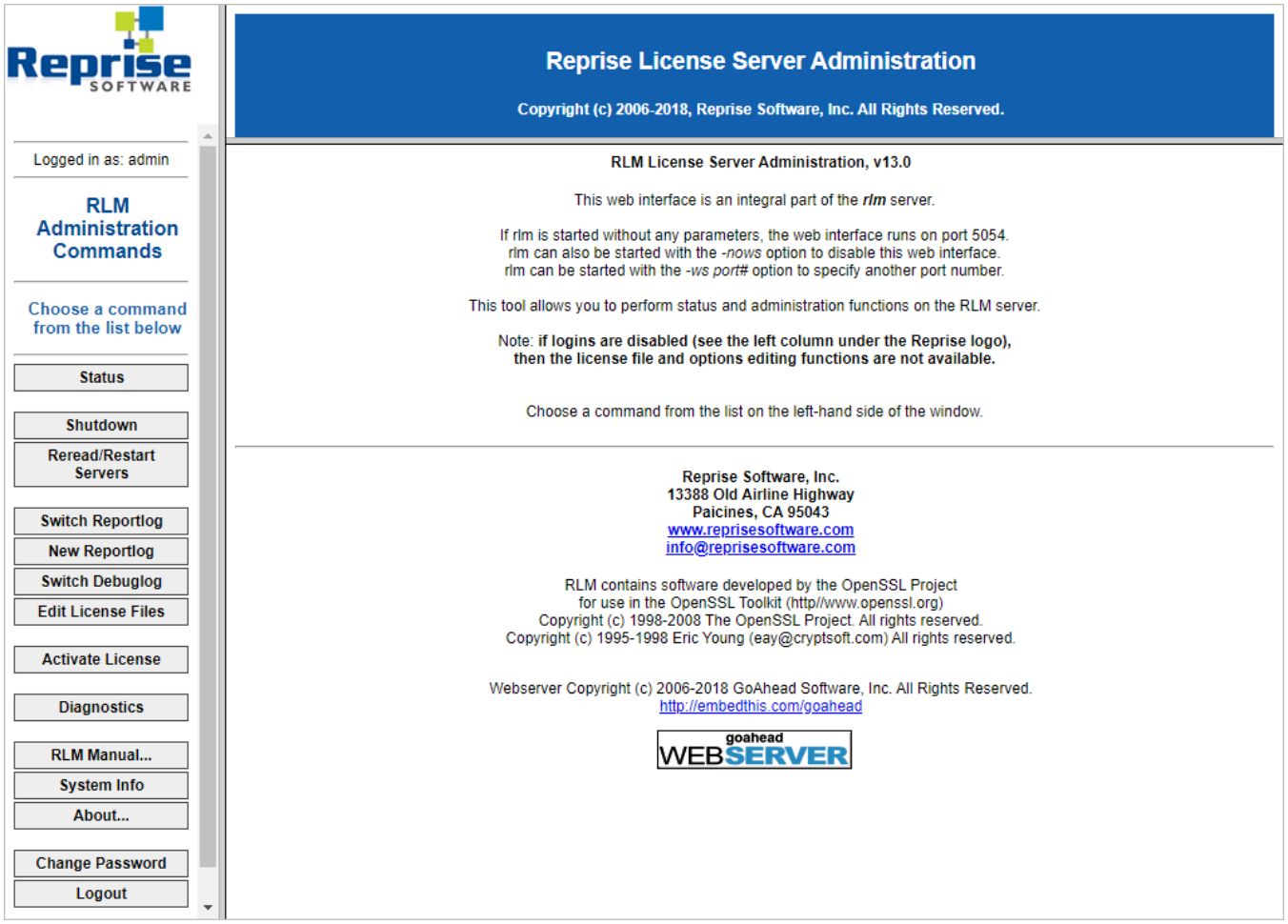
- the RLM license file (*LMS.lic*),

- the RLM daemon (**rlm**),

- the **LMS** daemon (**lms**),
- and a set of RLM utilities.

> Note:
>
> The complete RLM End-User Manual is provided in the **RLM_License_Administration.pdf** manual located in the **EndUser** subfolder of the *Common/licensing* folder. You will find the answers of all your questions about RLM in this documentation.

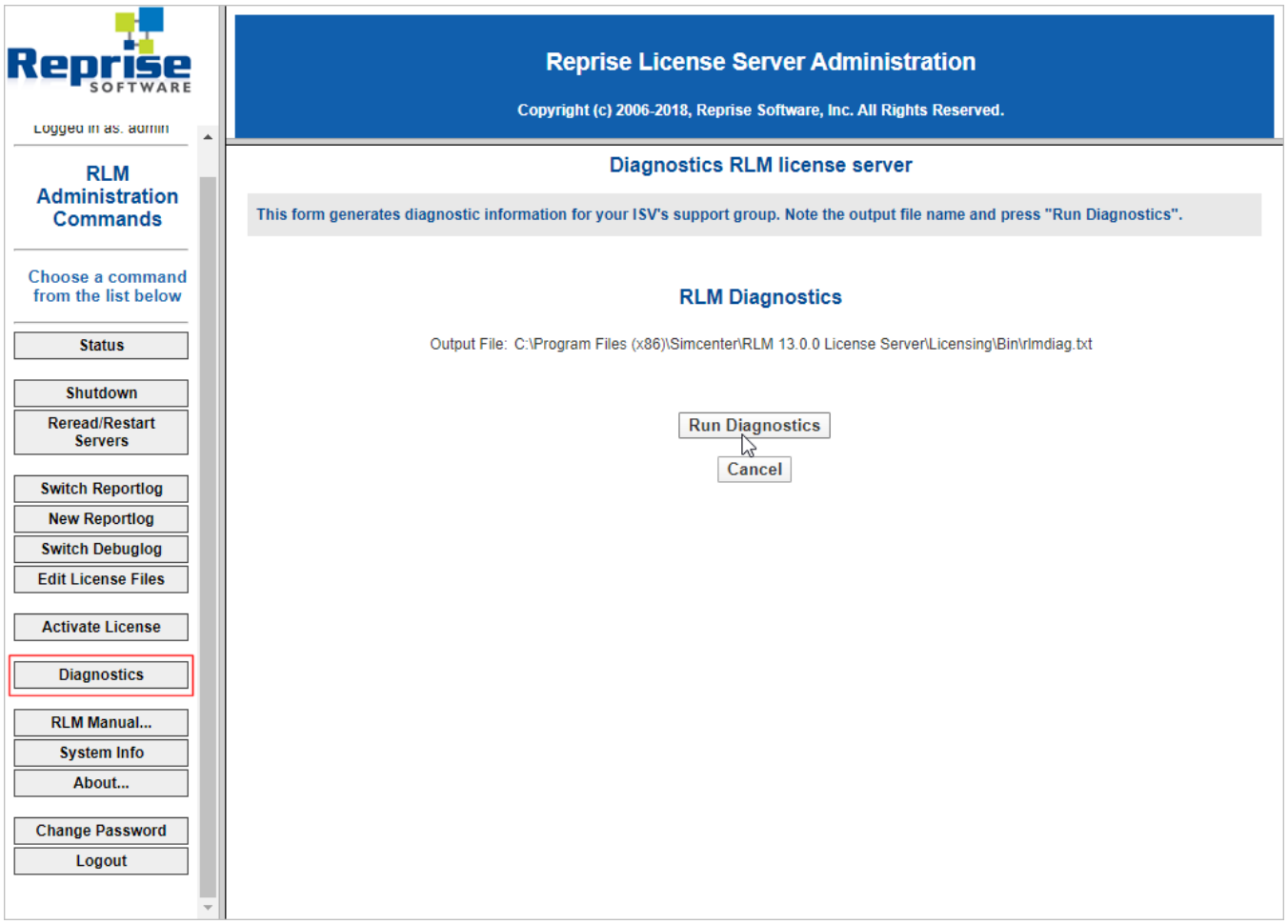
RLM also provides tools to manage the administration of the license server:



- There is a built-in web-server application to monitor the activity and manage the license server, by default the address is *http://server_name:5054*
- Since RLM 12.2, it is necessary to connect to this page using a login and password. If you have not set up any specific password yet, the default login is 'admin' with no password. For more details about setting up the RLM password, please consult the **RLM_License_Administration.pdf** manual located in the **EndUser** subfolder of the *Common/licensing* folder.

- There are command line utilities such as **rlmutil** which provide the same facility as the web-server, but from a command prompt/terminal window.

- There is a built-in diagnostics tool which generates reports with all information regarding the license server: version information, license file, relevant environment variables, debug log... This will be the first source of information for troubleshooting.



For a complete description of the license administration tools, please consult the **RLM_License_Administration.pdf** manual located in the **EndUser** subfolder of the *Common/licensing* folder.

3.4 Updating the licensing server

3.4.1 Updating the licensing server from a previous version

If your licensing server is older than the required version, the behavior of the licensing server may be unpredictable. You must always use the version supplied with the most recent **Simcenter Amesim** release.

For **RLM**, you must first uninstall the previous version:

- Stop the RLM service (RLM and **LMS** daemon).
- If the upgrade is on **Windows**, remove the RLM service (using the 'SC delete RLM' command as an administrator).
- Uninstall RLM.

You can then install the new version through the installer (see *The license manager installation instructions*).

For **FlexNet Publisher**, simply uninstall the previous version of the Siemens PLM License Server and install the new one.

3.4.2 Updating your license file

RLM

When you receive a new license file, you only need to update your license server:

- Replace the existing license file. Connect to the web server, and click the **Status** button:
  On this page, consult the **license files** entry to find the license file to update.
- Restart the license server.
  - Connect to the server web page, and click the **Shutdown** button.
  - Click **Reread/Restart** button.

> Note:
>
> No update is required on the client side unless you have changed the server name or port number used.

FlexNet Publisher

To replace the Siemens PLM Licensing file, run the licensing installer for the currently-installed version and select the option **Replace License File**. The installer puts the old license file inside the **license_backup** folder.

> Note:
>
> If the license file is for a new version of the application program, you should install the new license server software.

3.5 Creating a local options file

You can instruct the RLM license manager to:

- Reserve one or more licenses for a user, group of users, or host.
- Reserve one or more licenses for users or groups logging in from a specific host.
- Specify the users, groups of users, or hosts that have permission to access one or more products.
- Etc.

> Note:
>
> The *licensing* folder contains a template (named lms.opt) which contains the following command: **TIMEOUTALL 900**
>
> All options files must contain at least this command.

To use these options, you or your users can create local options files. For a complete description of the options files, please consult the **RLM_License_Administration.pdf** manual located in the **EndUser** subfolder of the *Common/licensing* folder.

> Note:
>
> The same options file feature with the same type of capabilities exists for FlexNet Publisher. See section 13 Managing the Options file in the **FlexNet Publisher documentation**.

3.6 Dongle configuration

> Warning:
>
> Please note that dongles are not supported under Linux.

In order to use a dongle-based license, the following procedure must be used:

1. Install the dongle driver. You must first have installed the RLM License Manager. Open the Windows **Start** menu and run one of the following dongle installers (depending on the dongle type you purchased):

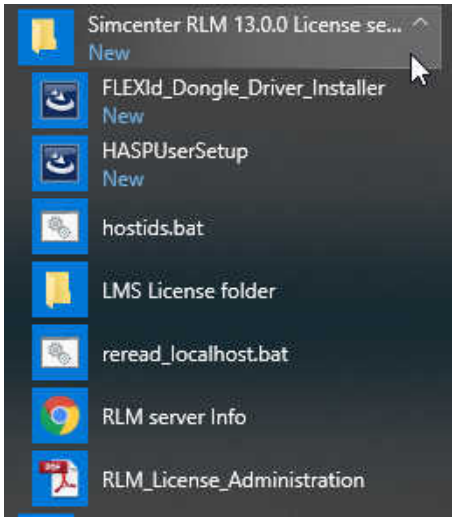


Figure 3-1. Dongle installation

2. Connect the dongle.

3. Configure your license as described previously.

> Note:
>
> You may need to modify the hostname on the `HOST` line in the license file to `THIS_HOST`.

4. Compiler setup

Simcenter Amesim and **Submodel Editor** need to use a compiler to build model executables or submodel objects.

Simcenter Amesim is only able to generate C code and consequently only needs a C compiler.

Submodel Editor can, in addition, manage also Fortran code for submodels.

While using **Simcenter Amesim** and **Submodel Editor**, you can choose the compiler you want to use from the **Preferences** dialog box.

> Note:
>
> You can get the Visual Express compiler from **Microsoft**.
>
> You can get the Intel compiler from **Intel**.

4.1 32-bit Compilers on Windows

The following 32-bit compilers are supported on Windows:

- GNU GCC,
- Microsoft Visual C ++,
- Intel C++.

If you plan to use only the GNU GCC compiler, no other configuration is needed since it is provided in the **Simcenter Amesim** distribution.

4.1.1 Intel C compiler 12 (32 and 64-bit)

A similar procedure must be applied with the **iclvars.bat** command file located by default in the *C:\Program Files (x86)\Intel\Compiler\C++\10.0.027\IA32\Bin* folder or *C:\Program Files (x86)\Intel \Compiler\C++\10.0.027\EM64T\Bin* folder.

4.1.2 Intel Visual Fortran

A similar procedure must be applied with the **ifortvars.bat** command file located by default in *C:\Program Files (x86)\Intel\Compiler\Fortran\10.0.027\IA32\Bin* folder.

4.2 Linux

You must check whether you have access to a C compiler and optionally a Fortran compiler. When you type:

- `which cc`, or,
- `which gcc`

you should see the full path name of the executable **cc** (or **gcc**). Otherwise, you need to include the path for the C compiler in your .cshrc or .profile file. The same applies to the Fortran compiler with **f77** or **g77**.

5. Running previous version models

Please note that when you open a system created using an old version (prior to **Simcenter Amesim** 2020.1), the software will detect that it is an old system and lead you through a compulsory **Model update assistant** process. A new executable will be created when you switch to **Simulation** mode and as you save it, the whole model will be converted to the **Simcenter Amesim** 2020.1 format.

It is important to remember that **Simcenter Amesim** 2020.1 models cannot be read by previous versions of the software.

6. Uninstalling Simcenter Amesim

Before uninstalling **Simcenter Amesim**, you must first:

- Log in as Administrator or root as required.
- Stop any **Simcenter Amesim** application currently running.
- Stop any **Simcenter System Architect** application currently running.
- Stop the RLM or FlexNet Publisher server if it is running locally.
- Stop your antivirus.

To uninstall **Simcenter Amesim**, use one of the following procedures:

Under Windows

- Use the *AMEUninstall.bat* file located in the *Common* folder.

or

- Start the *setup_win.bat* file on the installation media.

Under Linux

- Use the *AMEUninstall.sh* script located in the *Common* folder. This is the only method.

When you launch the uninstallation facility from the DVD under **Windows**, you obtain the dialog box shown below. Select the **Uninstall** option and click the **Next** button.

When you use the *uninstall.bat* or the *AMEUninstall.sh* script under **Linux**, you obtain the dialog box shown below.

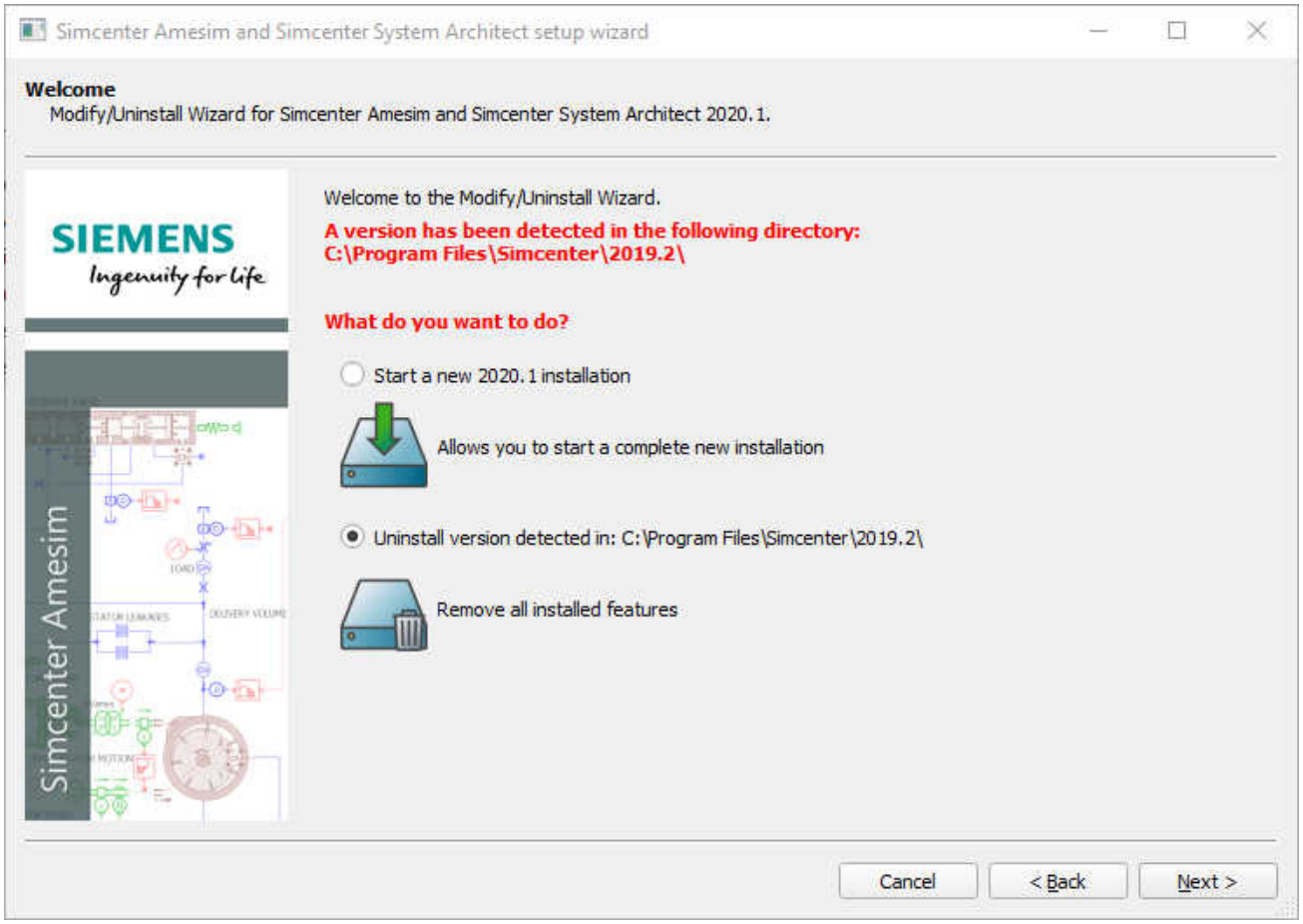


Figure 6-1. Uninstalling Simcenter Amesim under Windows – Setup Wizard (from DVD)

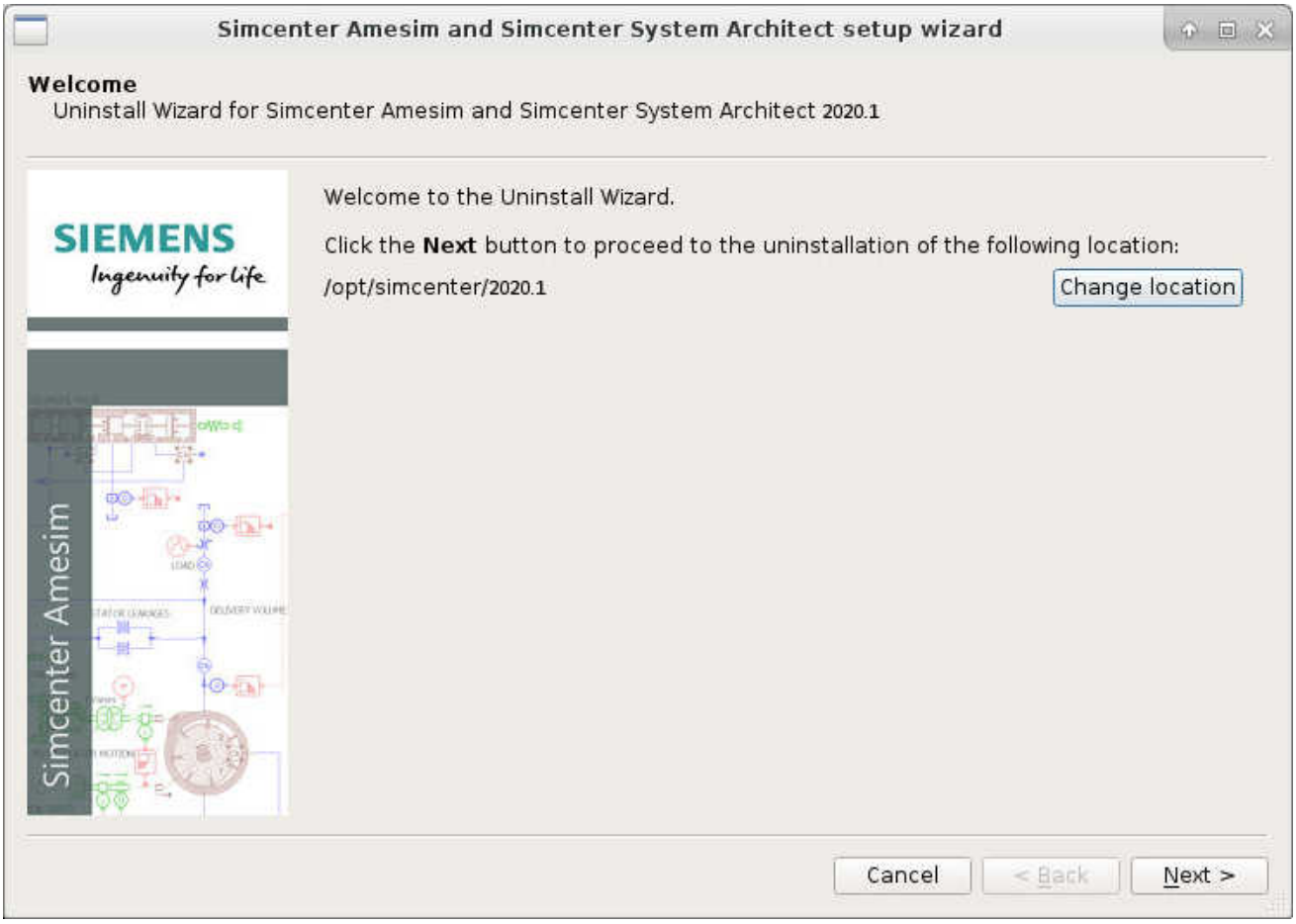


Figure 6-2. Uninstalling Simcenter Amesim under Linux

> Note:
>
> At the end of the uninstall procedure, some folders and/or files may remain. You will be asked if you want to keep them or delete them.

If you want to uninstall a different version of **Simcenter Amesim**, you can click the **Change location** button, and then browse to select the version you want to uninstall. If there are any other **Simcenter Amesim** installations detected, the wizard provides the option to set any one of these installations as the primary **Simcenter Amesim**.

Uninstalling Simcenter System Architect —

To uninstall **Simcenter System Architect**, run the *AMEUninstall.bat* file located in *%AME%*.

7. Current platform support

Below, you will find the list of platforms with their Operating Systems supported by **Simcenter Amesim** for current versions.

7.1 Simcenter System Architect

Simcenter System Architect is a 64-bit application, and is only supported on Windows 10 64-bit.

7.2 Simcenter Amesim

	Simcenter Amesim product releases are available and supported on this platform. You can get technical support for this platform through the standard support mechanisms.
	Simcenter Amesim product releases are available on this platform but no technical support is officially available.
	New **Simcenter Amesim** product releases are no longer available on this platform. Technical support will be provided as defined in the maintenance contract, depending on version used and current version.

	Feb. 2015	Jun. 2016	Dec. 2017	Oct. 2018	April 2019	Oct. 2019	April. 2020
Platform/Simcenter Amesim version	**14**	**15**	**16**	**17**	**2019.1**	**2019.2**	**2020.1**
Windows 64-bit							
Windows 10							
Windows 8							
Windows 7							
Windows Vista							
Windows XP							

Note:

Up to and including **LMS Imagine.Lab** 15.2, **Simcenter Amesim** is not a native 64-bit application, but can be run with 32-bit compatibility packages. Please refer to section *Linux prerequisites* for more details.

As of **Simcenter Amesim** 16, the product is a 64-bit application, and is no longer compatible with 32-bit machines. Consequently, the Circuit API is only available for 64-bit machines.

Models generated with **Simcenter Amesim** can be compiled using a Linux 64-bit compiler.

As of **Simcenter Amesim** 2020.1, models can no longer be compiled using a 32-bit compiler on Linux.

Note:

In **Simcenter Amesim** 2020.1, RedHat Enterprise Linux (RHEL) 6.x is no longer supported. The minimal version supported is RedHat Enterprise Linux 7.x.

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