

ACTRAN 2024.1 Productline Installation

Hexagon AB and/or its subsidiaries

www.hexagon.com

April 9, 2024

Hexagon
Axis Park Louvain-la-Neuve
9 rue Emile Francqui
B-1435 Mont-Saint-Guibert
Belgium

Tel: +32 10 45 12 26
Fax: +32 10 45 46 26

Worldwide Web

hexagon.com

Support

<https://simcompanion.hexagon.com/>

Disclaimer and Notices

This documentation, as well as the software described in it, is furnished under license and may be used only in accordance with the terms of such license.

Hexagon reserves the right to make changes in specifications and other information contained in this document without prior notice.

The concepts, methods, and examples presented in this text are for illustrative and educational purposes only, and are not intended to be exhaustive or to apply to any particular engineering problem or design. Hexagon assumes no liability or responsibility to any person or company for direct or indirect damages resulting from the use of any information contained herein. User Documentation: Copyright © 2024 Hexagon AB and/or its subsidiaries. All rights reserved.

This notice shall be marked on any reproduction of this documentation, in whole or in part. Any reproduction or distribution of this document, in whole or in part, without the prior written consent of Hexagon is prohibited.

This software may contain certain third-party software that is protected by copyright and licensed from third party licensors. Additional terms and conditions and/or notices may apply for certain third party software. Such additional third party software terms and conditions and/or notices may be set forth in documentation and/or at <http://www.mssoftware.com/thirdpartysoftware> (or successor website designated by Hexagon from time to time).

The Hexagon logo, Hexagon, MSC, Actran are trademarks or registered trademarks of Hexagon AB and/or its subsidiaries in the United States and/or other countries. All other trademarks are the property of their respective owners.

ACTRAN Installation

1.1 Supported platforms and 's Lifecycle

Hexagon is committed to providing the ACTRAN community with releases on the most suitable and popular platforms for numerical simulation. Hexagon constantly monitors the market and evaluate the customers needs in order to remove old-fashion platforms from the supported list and add new ones that are the most relevant.

In this framework, ACTRAN has been compiled and tested on several platforms. The list of the supported platforms is available in the platform definition document, available at:

<https://hexagon.com/support-success/manufacturing-intelligence/design-engineering-support/platform-support>.

Please contact Hexagon if your platform is not in the list.

Remarks:

- "Windows N" is not supported.
- Supported GPUs: NVIDIA Tesla P100, V100 and A100.
- OpenGL is needed to use the Actran graphical interfaces.

Installing and using ACTRAN graphical user interfaces (ActranVI, PLTViewer, WaterfallViewer and WorkflowManager) on linux operating systems require to have the following packages:

- xcb-util-image

- xcb-util-wm
- xcb-util-keysyms
- xcb-util-renderutil
- xcb-util-cursor
- libxkbcommon-x11

1.1.1 Hexagon's lifecycle

In order to rationalize the portfolio of platforms, a Product Lifecycle Management (PLM) has been set-up. A dedicated platform evolves in time from the BeginOfSales status to successively the EndOfSales, the EndOfLife and finally the EndOfSupport status.

1.1.2 BeginOfSales

A platform supporting ACTRAN is at BeginOfSales when we provide an external release built on this platform.

1.1.3 EndOfSales

At any point in time, any supported platform can be decided to be at its EndOfSales. This may happen when a platform is unpopular or if the vendor of the platform marked the platform to be at its EndOfSales. From this point onward, we target to perform one last major release of ACTRAN on this platform. Afterwards, this platform reaches its EndOfLife.

1.1.4 EndOfLife

At that time, a last minor release of ACTRAN is performed. Bug-fixes on this platform may be provided until its EndOfSupport, depending on their origin.

1.1.5 EndOfSupport

At this point, no support at all will be provided anymore on this platform. The time between EndOfLife and EndOfSupport is maximally one year.

1.2 Online download of ACTRAN

ACTRAN can be downloaded from the <https://mscsoftware.flexnetoperations.com> website.

1.2.1 Windows platforms

Simply launch the graphical installer and follow the given instructions.

Windows Firewall may block some MPI features on all public and private networks. In case of a *Windows Security Alert* pop-pup appears, please allow access to the needed processes to communicate on these networks.

1.2.2 Unix/Linux platforms

Execute the installer in a prompt and follow the given instructions.

1.3 Setting up the ACTRAN licensing server

The ACTRAN usage is controlled by FLEXnet. The set up of a minimal FLEXnet server is described here. It is however strongly advised to contact your organization's FLEXnet manager, who will be able to set up the server in compliance with your local rules related to licensing management.

The MSC licensing tool can be downloaded from the <https://mscsoftware.flexnetoperations.com> website.

To setup the ACTRAN licensing, execute the installer downloaded and follow the given instructions.

To obtain a valid license file for this server, please contact the Hexagon Support Team.

1.4 Advanced - Parallel version

Please refer to <https://hexagon.com/support-success/manufacturing-intelligence/design-engineering-support/platform-support> for more details about:

- the MPI libraries used within the parallel ACTRAN version;
- the supported interconnects.

The selected standard is *IntelMPI*. This version is entirely integrated within the ACTRAN productline.

1.5 Installation Directory

In the installation directory, besides the folders related to the different Actran releases, two other folders are available.

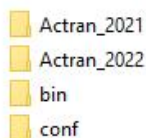


Figure 1.1: Bin and conf folders

The bin folder contains the script launched in background by Actran when executing the application. The script must not be modified in any case. The conf folder contains two files the user can edit. The user can have a look to the `actran.in.template` which specifies the syntax to follow in the `actran.ini` file. This last one contains the default version that will be executed when launching the application. It can also contains the path to the license file which will be used in case the `MSC_LICENSE_FILE` environment variable can not be specified due to user rights.

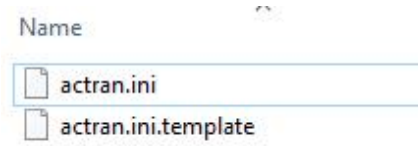


Figure 1.2: Conf folder

Productline Installation: ACTRAN Release 2024.1

2.1 Preliminary Note

This document contains all relevant instructions regarding the ACTRAN software installation. Following this procedure ensures that you will easily have a working installation. Furthermore, this is the most efficient way for the Hexagon Support Team to help you solving any issue. It is thus strongly advised to strictly follow the guidelines below step by step. However, in some special occasions, the guidelines cannot be followed (specific parallel installation, etc). In these situations, you can contact the Hexagon Support that will help you to choose the best option.

2.2 Supported Platforms

Actran has been compiled and tested for several platforms. Platforms are defined by the processor, the operating system, the runtime environment, etc. A Productline is a set of executables and libraries that correspond to a specific version of Actran for a specific platform.

Refer to the platform definitions document available here (<https://hexagon.com/support-success/manufacturing-intelligence/design-engineering-support/platform-support>) to know which platforms are supported. Please contact Hexagon Support if your environment is not in this list.

2.3 Download Actran

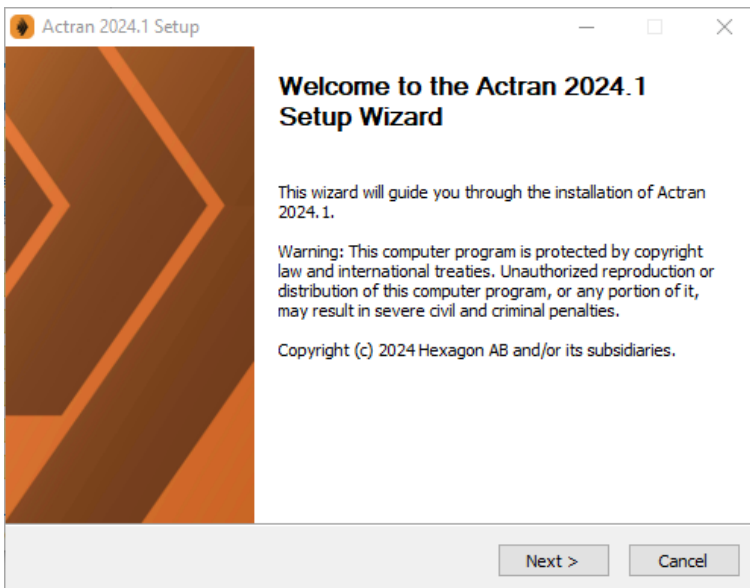
The installers related to the different platforms can be downloaded from the MSC Download center (<https://mscsoftware.flexnetoperations.com/>)

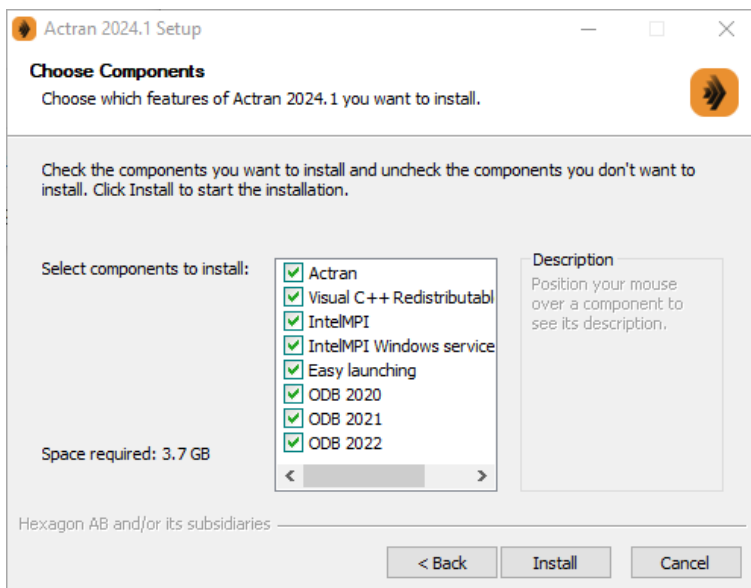
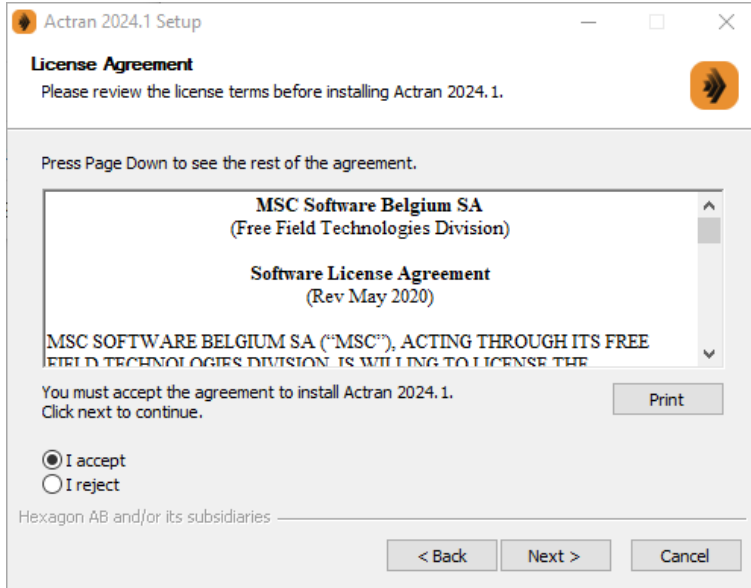
2.4 Installation on Windows Platforms

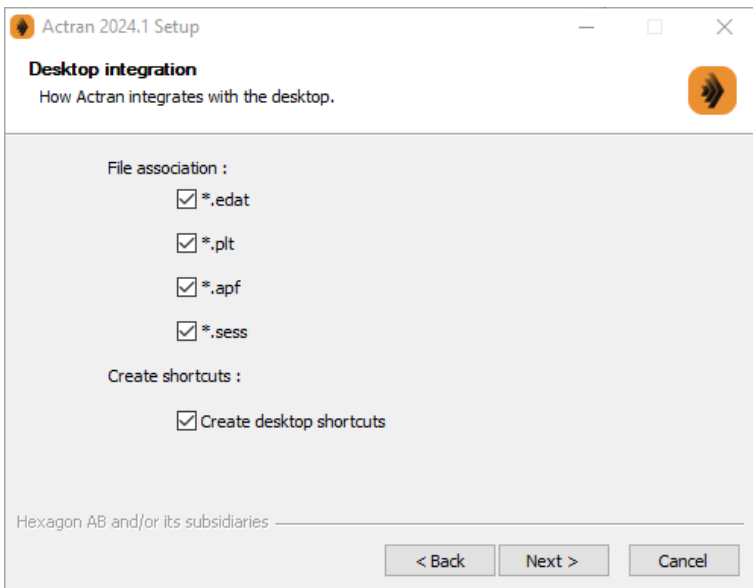
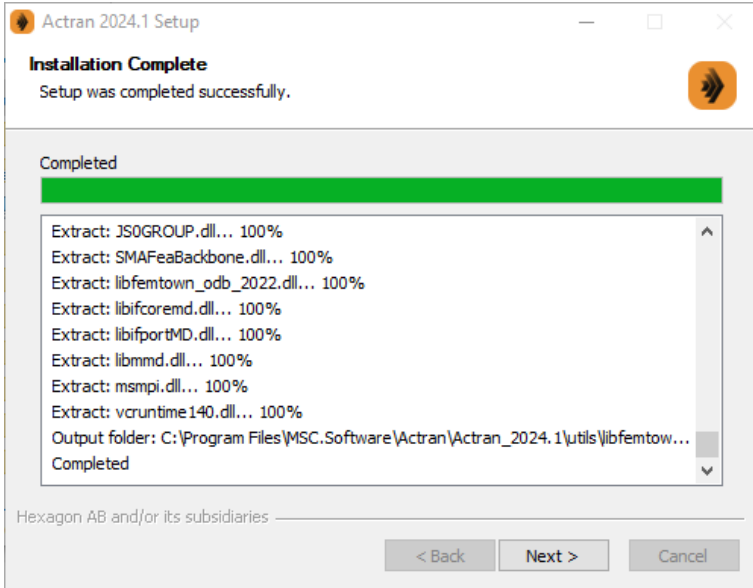
To set up Actran, please launch the .exe installer and follow the instructions.

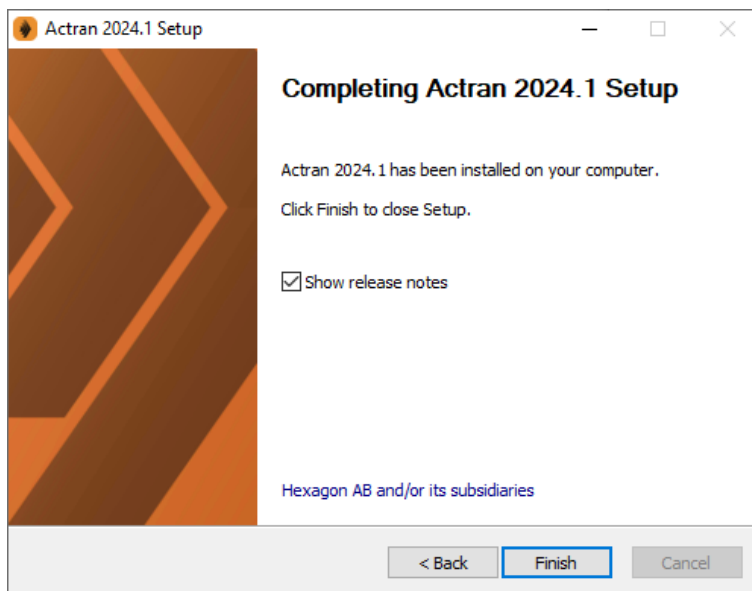
During the first installation of any Actran product, the installer defines the environment variable %ACTRAN_PATH% based on the installation directory. For next installations, the installer will automatically install the productline into the existing ACTRAN_PATH directory. The %ACTRAN_PATH% will be automatically added to the environment variable %PATH%.

Warning: Windows Firewall may block some features of intelmpi pmi_proxy.exe on all public and private networks. If a Windows Security Alert pop-up appears, please press the button Allow access to allow pmi_proxy.exe to communicate on these networks.









2.5 Installation on Linux Platforms

To set up Actran, please launch the `.run` installer and follow the instructions. As an example, the installer related to the platform `linux-libc212-x86-64` can be launched in a terminal using the following command:

```
sh linux-libc212-x86-64_Actran_2024.1.run
```

```

verifying archive integrity... 100% Done.
Uncompressing Actran_2023 100%

Warning: This computer program is protected by copyright law and international treaties. Unauthorized c
it in severe civil and criminal penalties.
Copyright © 2022 Hexagon AB and/or its subsidiaries. All rights reserved.

Press 'Return' to continue...

Detecting prerequisites
linux           [ yes ]
x86_64         [ yes ]
libc-2.17      [ yes ] (2.17)

Detecting architecture on host begui-hpc-main.eu.hexagonmetrology.com
Intel Scalable (2nd Gen) Bronze/Silver/Gold/Platinum (Cascade Lake B1/L1/R1) (Skylake), 14nm (GenuineIn
tel)
max sse sse2 sse3 sse3_1 sse4_1 sse4_2 avx avx2 avx512_3dnow

Displaying license
Press 'Return' to continue...

```

Figure 2.1: Before launching the installation process, the installer automatically detects prerequisites

```

... by confirmed facsimile transmission. Notices shall be effective upon receipt. If notice is sent to a
... it shall be directed to the attention of the Legal Department.
14.9 Customer acknowledges and agrees that any and all consulting services performed or to be performe
d by MSC for Customer are independent of Customer's purchase and use of the Software licenses. Customer f
urther agrees that payment for Software licensed hereunder is in no way dependent or in any other way ass
ociated with the commencement, completion or delivery of consulting services.
14.10 The English language version of this Agreement is legally binding in case of any inconsistencies
between the English version and any translations. Do you agree with the above terms?
Type "accept" to continue or "reject" to cancel the installation: accept

```

Figure 2.2: You should accept the FFT agreements by typing `accept` to continue the installation

```

ACTRAN_PATH environment variable not set
enter the installation path:

```

Figure 2.3: The suggested installation path can be accepted or rejected by typing another installation path

```

Installing Actran_2023
ACTRAN_PATH environment variable set, using existing installation directory /opt/fft/actran_product
install the c++ runtime library in /opt/fft/actran_product? [Y/n]

```

Figure 2.4: If not provided, the `ACTRAN_PATH` can be specified directly during the installation. For later installations, the installer will automatically install the productline into the existing `ACTRAN_PATH` directory

At the end of the installation, an embedded version of Intel MPI for parallel

computations will be installed. This embedded version can be directly used for parallel computations after proper sourcing of the productline.

2.6 Licensing

The MSC licensing tool can be downloaded from the MSC Download center (<https://mscsoftware.flexnetoperations.com/>). To setup the licensing, execute the installer downloaded and follow the given instructions.

2.7 Productline Tree

After the installation, the productline can be seen in the ACTRAN_PATH directory.

First of all, the ACTRAN_PATH directory contains:

- The bin directory which contains the script launched in background by ACTRAN when executing the application.
- The conf directory which contains the configuration file for initialization. This file can be edited by the user.
- The productline directory described below.

The productline directory contains the following:

- The bin directory contains all the executables and shell scripts callable by the user;
- The doc directory contains all the ACTRAN User's guides;
- The etc directory contains the sourcing shell script (backward compatibility with versions prior to ACTRAN 2021);
- The lib directory contains all the required runtime libraries;
- The mpi directory contains the embedded version of Intel MPI;
- The user directory contains user defined data such as the materials library;
- The utils directory contains the odb2act utility;
- All the other subdirectories are used to launch at least one of the previous callable files (executables, shell scripts, Python scripts, etc).

For releases prior to ACTRAN 2021, the productline tree is the following:

- A sourcing shell script which has the name of the productline (`actran_2020`) and comes with each productline. It is placed at the top level of the tree.
- The only other object at the top level of the tree is the root directory containing the productline itself (`Actran_2020`). The name of this directory is very important and cannot be modified (see afterwards).

-
- Inside the root directory of the productline, the bin directory contains all the executables and shell scripts callable by the user;
 - Inside the root directory of the productline, the doc directory contains all the Actran User's guides;
 - Inside the root directory of the productline, the lib directory contains all the required runtime libraries;
 - Inside the root directory of the productline, the mpi directory contains the embedded version of Intel MPI;
 - Inside the root directory of the productline, the user directory contains user defined data such as the materials library;
 - Inside the root directory of the productline, the utils directory contains the odb2act utility;
 - All the other subdirectories are used to launch at least one of the previous callable files (executables, shell scripts, Python scripts, etc).



Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications. Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon develops and supports Actran, a powerful software suite for acoustic, vibro-acoustic and aero-acoustic modeling. Actran contains a wide set of acoustic features making it the solution of choice for customers as diverse as top car manufacturers and their suppliers, the largest civil and military aircraft and aircraft engine manufacturers, leading producers of loudspeakers and other audio devices, consultants, universities and research centers. <https://hexagon.com/solutions/acoustic-simulation>

Hexagon's Manufacturing Intelligence division provides solutions that utilize data from design and engineering, production and metrology to make manufacturing smarter. For more information, visit hexagonmi.com.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 20,000 employees in 50 countries and net sales of approximately 3.8bn EUR. Learn more at hexagon.com and follow us [@HexagonAB](https://twitter.com/HexagonAB).

