Gear AT
Installation Guide

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Content

Adams and related SW specification .......................................................................................... 4
Installing Gear AT ..................................................................................................................... 5
  1 Installing on Windows .......................................................................................................... 5
  2 Installing on Linux .............................................................................................................. 12
Licensing .................................................................................................................................. 16
Running Gear AT ...................................................................................................................... 17
  1 Launch Gear AT on Windows ............................................................................................. 17
  2 Launch Gear AT on Linux ................................................................................................... 17
  3 Loading Plugin .................................................................................................................... 18
  4 Getting Started with Gear AT ............................................................................................ 19
  5 Gear AT initialization .......................................................................................................... 19
Uninstalling the toolkit: .......................................................................................................... 22
  1 Uninstall Gear AT on Windows .......................................................................................... 22
  2 Uninstall Gear AT on Linux .............................................................................................. 23
Special hints: .......................................................................................................................... 25
  1 Previous installed versions of Gear AT ............................................................................... 25
Adams and related SW specification

The Gear AT is installed as plugin to Adams/View. The table below outlines the software specifications for Gear AT toolkit.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Adams version</th>
<th>Nastran version</th>
<th>Patran version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 7 64-bit</td>
<td>2017.0</td>
<td>2017.0</td>
<td>2017</td>
</tr>
<tr>
<td>Windows 10 64-bit</td>
<td>2017.1</td>
<td>2017.1</td>
<td>2017 (Classic)</td>
</tr>
<tr>
<td>SuSE 11 SP3 Linux Enterprise Server (Kernel 3.0.76-0.11)</td>
<td>2017.2</td>
<td>2018.1</td>
<td>2018 (Classic)</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 7.3 x64 (Kernel 3.10.0-514)</td>
<td>2018.0</td>
<td>2018.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2018.1</td>
<td>2019.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2019.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You need Nastran or Adams ViewFlex to compute tooth stiffness matrix and gear wheel body flexibility. In case you do not have Nastran installation, make sure you have valid Adams ViewFlex license available. On Linux there is no support of Nastran as FE preprocessor, hence Adams ViewFlex has to be used only. Please note that currently there are supported i8 versions of Nastran only.

Patran is optional for the flex tooth FE model revision.
Installing Gear AT

Following sections explain how to install Gear AT on Windows and Linux.

1 Installing on Windows

Open Windows Explorer, browse to your Gear AT file location and run (double click) the executable file Gearat-2019.0-win64.exe.

Updating

If an instance of current Gear AT version is already installed, remove the old instance first.

Select Finish to complete the process and run the Gearat-2019.0-win64.exe again.
Welcome page

Next screen shows the Welcome page. Select **I Accept** button to continue, or **Cancel** button to exit without installing.
Customer info

In the Customer Information window, enter your user and company name, and then select one of the following:

- **Anyone who uses this computer (all users)** - Anyone logged on to this machine can run Gear AT
- **Only for me** - A user must be logged on using the user name and password that was used at the time of installation.

Adams Version

In this step you choose one of the valid Adams versions, the list is based by the installed ones. If the list is empty, please cancel the installation of Gear AT and install the most recent Adams version first. Make sure you select the same Adams version during Bearing AT installation in case you plan to use both toolkits. The list of currently supported Adams versions is shown on the figure below.
Patran version

Next step is to make choice of Patran version if installed.

Eventually you can use arbitrary version of MSC.Apex. To make your preference of the FE mesh viewer, after the installation go to the Gear_AT_Install_Dir/gear_at_plg (as defined later during installation) and edit the value of the mesh_viewer variable in the gear_at_ini.cmd configuration file – for more information, please read section Gear AT initialization in chapter Running MSC.Gear AT.

Nastran version

Select prefered Nastran version to be used with Gear AT for FE preprocessing.
You can proceed with the installation of Gear AT without Nastran and install it later on but you have to set up NASTRAN_TOP_DIR environment variable manually. This variable should point to the Nastran installation directory, e.g. `c:\MSC.Software\MSC_Nastran\2018\`.

**Installation Folder**

In the install location window select the destination folder. This folder is referred to as `Gear_AT_Install_Dir` throughout this manual.
Review Settings

Confirm the installation settings and then select Next to begin the installation.

Completion

Before the Setup is complete you are prompted to create a desktop icon.
Setup completion window appears as shown below. Select **Finish**.
2 Installing on Linux

Go to the directory of the Gear AT installer location and open the terminal. Start the installation program Gear_AT_2019.0.0_linux64.bin. For example:

./Gear_AT_2019.0.0_linux64.bin

Installing

You will see a confirmation dialog box. Select Yes button to begin the installation.

Welcome page

Next screen shows the Welcome page. Select I Accept > button to continue, or Cancel button to exit without installing.
Destination Location

In the install location window select the destination folder. This folder is referred to as *Gear_AT_Install_Dir* throughout this manual. The default path is set to /msc/Gear_AT/2019_0

Review Settings

Confirm the installation settings and then select **Next** to begin the installation.
Adams Version

In this step specify Adams Version to be used with Gear AT. For example:

- 2017 for Adams 2017.0
- 2017.1 for Adams 2017.1
- 2017.2 for Adams 2017.2
- 2018 for Adams 2018.0
- 2018.1 for Adams 2018.1
- 2019 for Adams 2019.0

Adams Installation Path

Specify installation path to Adams version.
Completion

Setup completion window appears as shown below. Select **Finish**.
Licensing

Please copy the license features of Gear AT in your overall MSC license file.

In addition to a Gear AT license, access to the Adams ViewFlex and Adams Flex license is required. This provides access to the finite element meshing and calculation technology used in the pre-processing setup. The ViewFlex license is consumed only while pre-processing in Adams View. During analysis only the Gear AT license and Adams Flex license is consumed in case of Full Flex Gear modeling option in addition to the usual Adams Solver license.
Running Gear AT

Following section explains how to load the **Gear AT plugin** on Windows and Linux.

1. **Launch Gear AT on Windows**

Go to the Windows **Start** menu and Select **All Programs**. Go to **Gear AT 2019** folder and select **Gear AT 2019 icon**; this will launch Adam/View.

You can use the desktop icon

Or you can launch Gear AT via the context menu of the explorer in the working directory

2. **Launch Gear AT on Linux**

The Adams Toolbar is a starting point to using Adams products on Linux. Make sure to start Adams version which the Gear AT 2019 was installed to, thus assure that Gear AT plugin is compatible with Adams version. To learn how to start Adams on Linux read the **adams_20xx_doc_install.pdf** document provided with the Adams installation. The toolbar of Adams is shown below.
3 Loading Plugin

After Start Up from Adams/View open the plugin ribbon or go to **Tools -> Plugin Manager**. In the ribbon click on the Gear AT Button in the Gear AT tab.

This opens the Plugin Manager if the plugin is not loaded so far. Check the plugin checkbox **Gear AT**. Specify if you want it to start every time you start ADAMS/View or just for a single session by clicking on **Load at Startup**. The **Gear AT** menu will be available in the Adams toolbar and in the ribbon plugin tab.
4 Getting Started with Gear AT

To help you get familiar with Gear AT plugin we provide the Getting Started document along with example model and files in the installation folder. You can access Getting started document either from windows Start menu

or from Gear AT menu in Adams.

5 Gear AT initialization

If you load the plugin the Gear_AT_init.cmd file is automatically imported from the Gear_AT_Install_Dir/gear_at_plg directory. You can use this file to set your personal preferences like FE preprocessor, FE Mesh viewer, request activity, maximum number of gear elements, background color, solver settings or relative paths for property files or any other of your choice:
The file could be located in the:
- Plugin installation directory - *Gear_AT_Install_Dir/gear_at_plg*,
- Home directory,
- Working directory,

and is read in following that order.
Uninstalling the toolkit:

1. **Uninstall Gear AT on Windows**

To uninstall the toolkit, go to **Start > Control Panel > Programs and Features** select **Gear_AT 2019** and **Uninstall**.

Confirm the removal operation to finish the process.

Select **Finish** to complete installation.
Please note you have to remove NASTRAN_TOP_DIR environment variable manually after uninstalling Gear AT. Be aware that this variable is shared with the Bearing AT installation.

After uninstall the installation folder is cleaned up but left for previously installed versions of Gear AT. For instance, if the Gear_AT_Install_Dir was c:\MSC.Software\GEAR_AT\2019_0 there will remain following empty folder c:\MSC.Software\GEAR_AT after uninstallation.

2 Uninstall Gear AT on Linux

To uninstall Gear AT plugin go to Applications – MSC.Software – Gear AT 2019 – Uninstall Gear AT 2019

Or go to the Gear_AT_Install_Dir and execute uninstall program.

Confirm the removal operation to finish the process.

In case there is error message as shown below, please make sure the locations indicted are empty. Otherwise clean up the files manually.
A summary dialog box announces the completion of the uninstallation process. Selecting **Finish** will complete it.

After uninstall the installation folder is cleaned up but left for previously installed versions of Gear AT. For instance, if the *Gear_AT_Install_Dir* was */opt/msc/gear_at/2019_0* this empty folder will remain after uninstallation.
Special hints:

1 Previous installed versions of Gear AT

It is recommend to uninstall previous versions of Gear AT but not mandatory. You can handle multiple versions of Gear AT with the environment variable MSC_USER_PLUGIN_DIR.

Just set the path to the Gear AT installation of your choice. Be aware that you can set this environment as USER or as SYSTEM variable. Make sure that a path to a Gear AT Plugin is only set once.