

# Knowledge Base

## Information



## Plug-in utility for plotting nodal trajectories in Abaqus/Viewer

**Portfolio / Domain:** SIMULIA Abaqus Unified FEA / SIMULIA Abaqus Unified FEA  
**Product:** SIMULIA Abaqus/CAE

**QA Article:** QA0000008903e  
**Applicable Level:** 6.6  
**Last Update Date:** 08.09.2020  
**Rating:** 0.0  
**Views:** 370

### QUESTION

I would like to plot the trajectory of a node in my model as it moves through space. How can I do this?

### ANSWER

(The following applies to Abaqus/CAE Version 6.6 and higher)

An Abaqus/CAE plug-in for this task is attached to this Answer. The plug-in reads each frame in each step of the analysis output database and determines the position of the node of interest. From this information, the trace of the motion of the node is plotted to the screen.

To install the plug-in, save the attached archive file to one of the following directories:

*abaqus\_dir*\abaqus\_plugins where *abaqus\_dir* is the Abaqus parent directory

*home\_dir*\abaqus\_plugins where *home\_dir* is your home directory

*current\_dir*\abaqus\_plugins where *current\_dir* is the current directory

Note that if the abaqus\_plugins directory does not exist in the desired path, it must be created. The *plugin\_dir* directory can also be used, where *plugin\_dir* is a directory specified in the abaqus\_v6.env file by the environment variable **plugin\_central\_dir**. You can store plug-ins in a central location that can be accessed by all users at your site if the directory to which **plugin\_central\_dir** refers is mounted on a file system that all users can access. For example, `plugin_central_dir = r'\\fileServer\sharedDirectory'`

On Windows platforms, right click on the archive file and select **WinZip® Extract to here**. On Linux platforms, type **unzip plotNodeTrajectory.zip** at the command prompt.

#### Usage

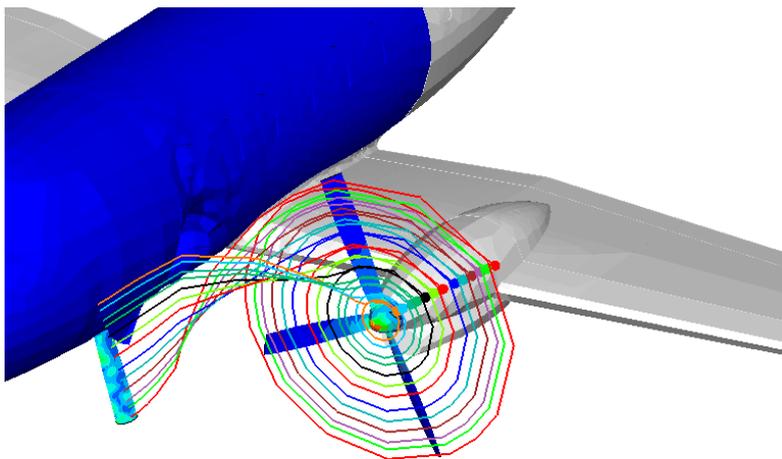
A menu item named **Plot Node Trajectory** will be available in the **Plug-ins** pull down menu from any module. Select **Plug-ins® Toolboxes® Plot Node Trajectory**. The following toolbox will appear:



Figure 1: Plot Node Trajectory Toolbox dialog

To plot the nodal trajectories for a displayed ODB model, click on the **Plot Trajectories** icon (the icon to the left) in the toolbox. You will be prompted to select nodes from the viewport. Pick the nodes of interest, and the path traversed by these nodes throughout the analysis will be animated in the viewport. The procedure can be repeated for as many nodes as desired and the previous trajectories are retained in the viewport. To clear the existing node trajectory plots from the viewport, click on the **Clear Trajectories** icon.

The following figure is included as an example of how the motion of the points on an aircraft propeller can be traced in a failure analysis:



#### Usage Notes

1. The plug-in requires nodal displacement field output from the output database.
2. The plug-in is designed to be used in the deformed plot mode, but can be used in the fast representation and undeformed plot modes as well.
3. All frames and all steps are used in creating the trajectory; individual steps and frames cannot be selected.
4. Picking a very large number of nodes from the viewport may slow down the performance of the plug-in.

Revision History

12 May 11	Release 2.1-2. Fixed multiple step end point bug
27 Jul 11	Release 2.1-3. Fixed deep copy issue

Disclaimer

The attachments to this article are subject to certain usage conditions. Please [click here](#) for details.

KEYWORDS **plug-in, plugin, python, customization, gui, trace, tracer, tracer particle, tracerparticle, plugin,**

ATTACHMENT

- [Answer\\_2589\\_Figure1a.png](#)
- [plotNodeTrajectory.zip](#)
- [Answer\\_2589\\_Figure6.png](#)

SUBSCRIBE TO CHANGES

RATING **On a scale of 1-5, how would you rate the technical content of the article?**  
Please rate this article...

LET US KNOW IF THIS ARTICLE NEEDS TO BE ENHANCED

- [UNCLEAR](#)
- [MISSING INFO](#)
- [DUPLICATE](#)
- [OUT OF DATE](#)
- [ERROR DETECTED](#)

[See Comments \(1\)](#)

MY FAVORITE CONTENT