Altair

HyperWorks

Altair HyperGraph 3D 2019 Tutorials

HG3D-3000: Defining Line Plots

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HG3D-3000: Defining Line Plots

In this tutorial, you will learn how to:

- Create line plots from a file
- Create line plots using a math expression

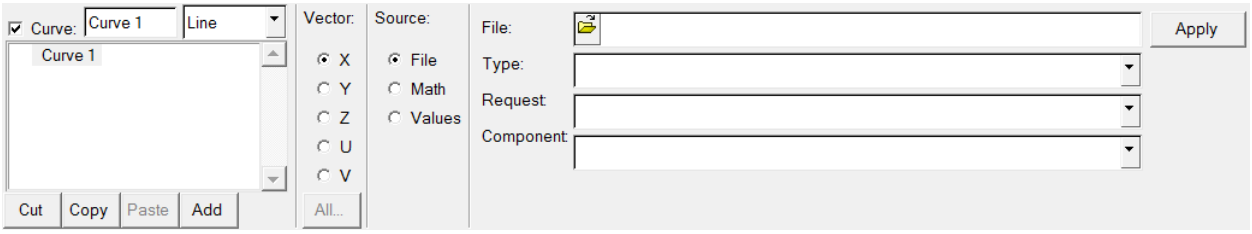
Tools

The **Define Curves** panel can be accessed one of the following ways:

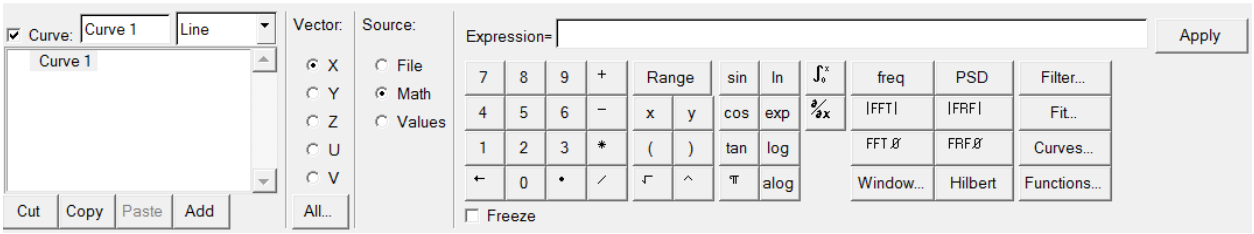
- From the toolbar, click the ***Define Curves*** icon,  .

Or

- From the menu bar, select ***Curves > Define Curves***



The **Define Curves** panel enables you to edit existing curves and create new ones. New data can be selected from a source file, mathematically defined using the program's curve calculator, or entered as values. The options in the panel change depending on which source is selected. If the source chosen is ***Math***, the panel looks as shown below:



The **Curve** list displays the names of all curves in the active window. Curves can be renamed, added, cut, copied, and *pasted* using the curve list controls.

Exercise: Defining Line Plots.

Step 1: Creating a line plot from a file

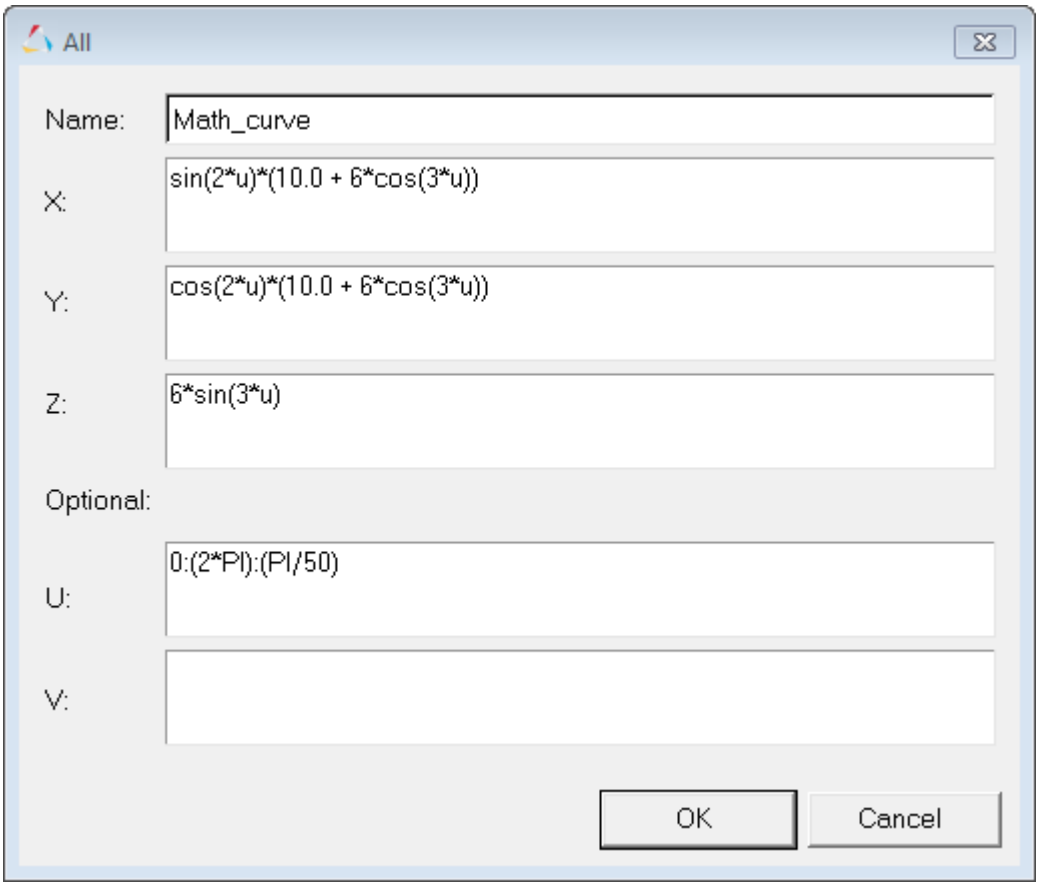
1. Go to the **Define Curves** panel,  .
2. Click ***Add*** under the **Curve** list.

   A curve labeled **Curve 1** is added to the list.
3. Rename **Curve 1** to `Line Curve 1` and press ENTER.

   The new name is now displayed in the list and in the legend.
4. Under **Vector**, select ***X***.
5. Set the **Source** type as ***File***.
6. From the `dyna` folder, select the file `nodout`.
7. Ensure ***X*** is selected for the vector.
   - For **Type**, select ***Time***.
   - For **Request**, select ***Time***.
   - For **Component**, select ***Time***.
8. Under ***Vector***, select ***Y***.
   - For **Type**, select ***Node Data***.
   - For **Request**, select ***Nodal Point 26742***.
   - For **Component**, select ***Resultant Displacement***.
9. Under ***Vector***, select ***Z***.
   - For **Type**, select ***Node Data***.
   - For **Request**, select ***Nodal Point 26742***.
   - For **Component**, ***Resultant Displacement***.
10. Click ***Apply***.
11. Click ***Add*** under the curve list to add another curve.
12. Repeat steps 4 to 10 choosing ***Nodal Point 26766*** as the **Y** and **Z Request** and ***Resultant Displacement*** as the **Component**.
13. (Optional) ***Plot*** for other **Requests** and **Components**.

Step 2: Create a line plot from a math expression.

1. Click the ***Add Page*** icon,  , to add a page or press the SHIFT and F3 keys.
2. Click ***Add*** under the curve list. A curve labeled **Curve1** is added to the list.
3. Rename the curve to `Math_curve`.
4. The new name is now displayed in the list and in the legend.
5. For **Source**, select ***Math***.
6. Under **Vector**, click ***All***.
7. Set **X** to `sin(2*u)*(10.0 + 6*cos(3*u))`.
8. Set **Y** to `cos(2*u)*(10.0 + 6*cos(3*u))`.
9. Set **Z** to `6*sin(3*u)`.
10. Set **U** to `0:(2*PI):(PI/50)`.



11. Click ***OK*** to close the dialog.
12. Click ***Apply*** to create the plot.