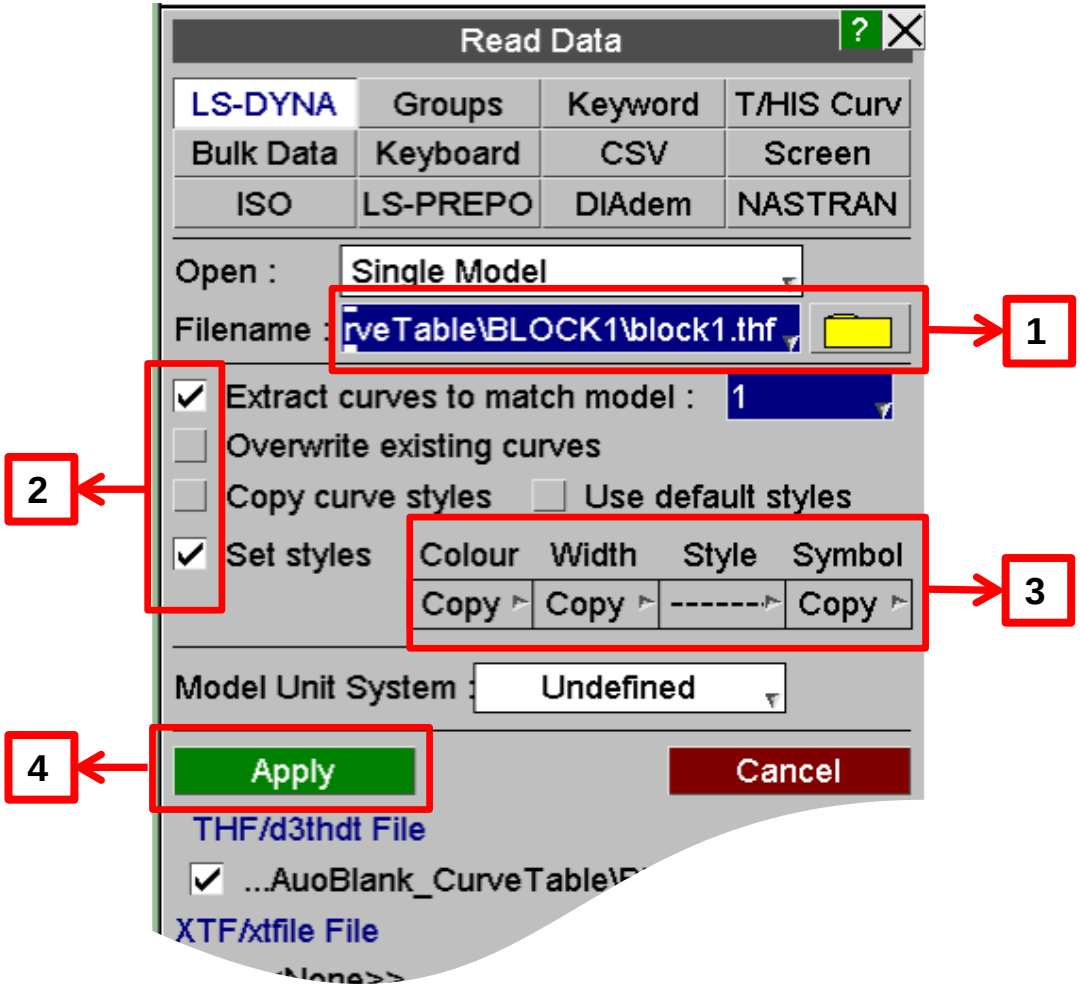
T/HIS Top-tips

EXTRACTING CURVES TO MATCH MODEL

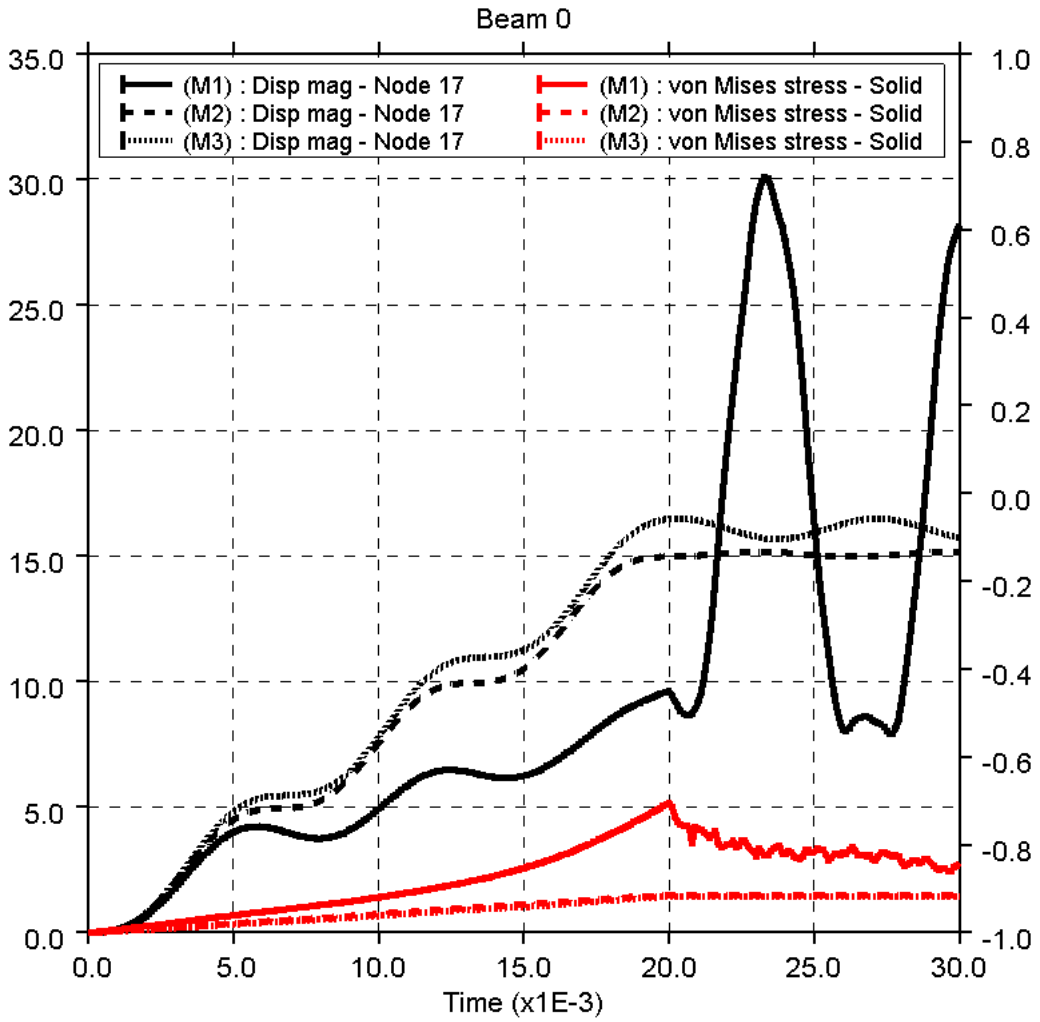
Extract curves to match model



- After reading in a model and picking the curves you wish to plot, click on New Model. You can then read in results from other runs and plot the same variables by following these steps.

- The set styles option allows the user to define the properties of the next set of curves.

Extract curves to match model



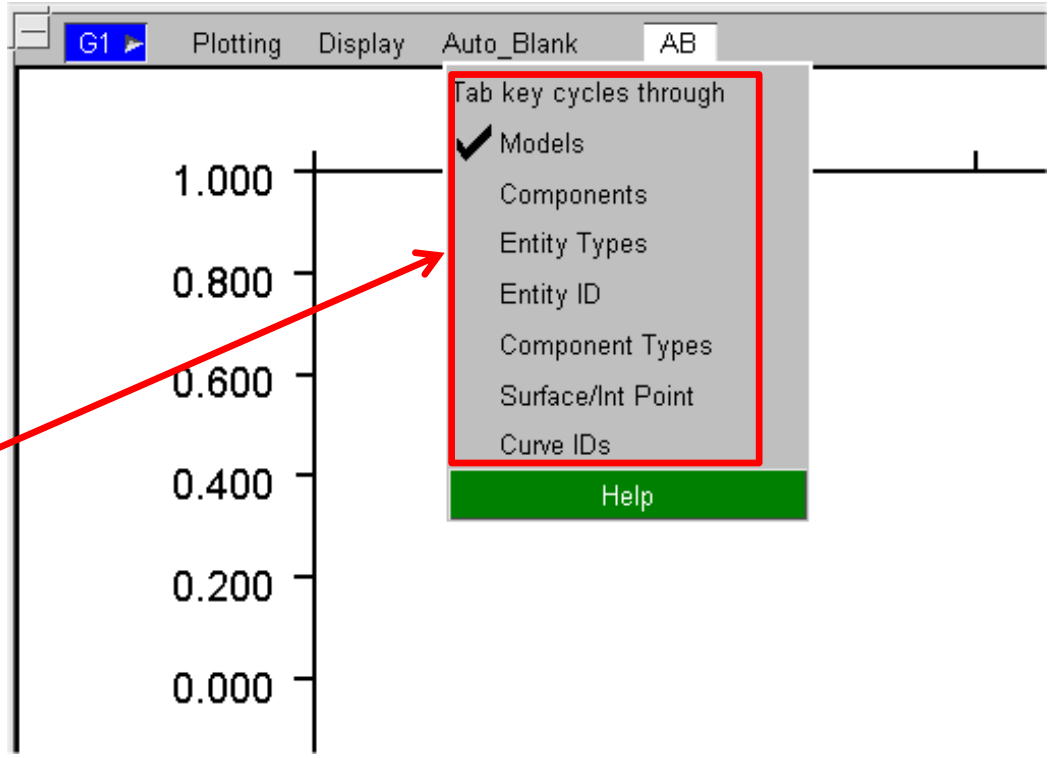
- The result is a set of curves comparing the same results for different model runs.
- Each has its own line style as set in step 3.

AUTO-BLANK

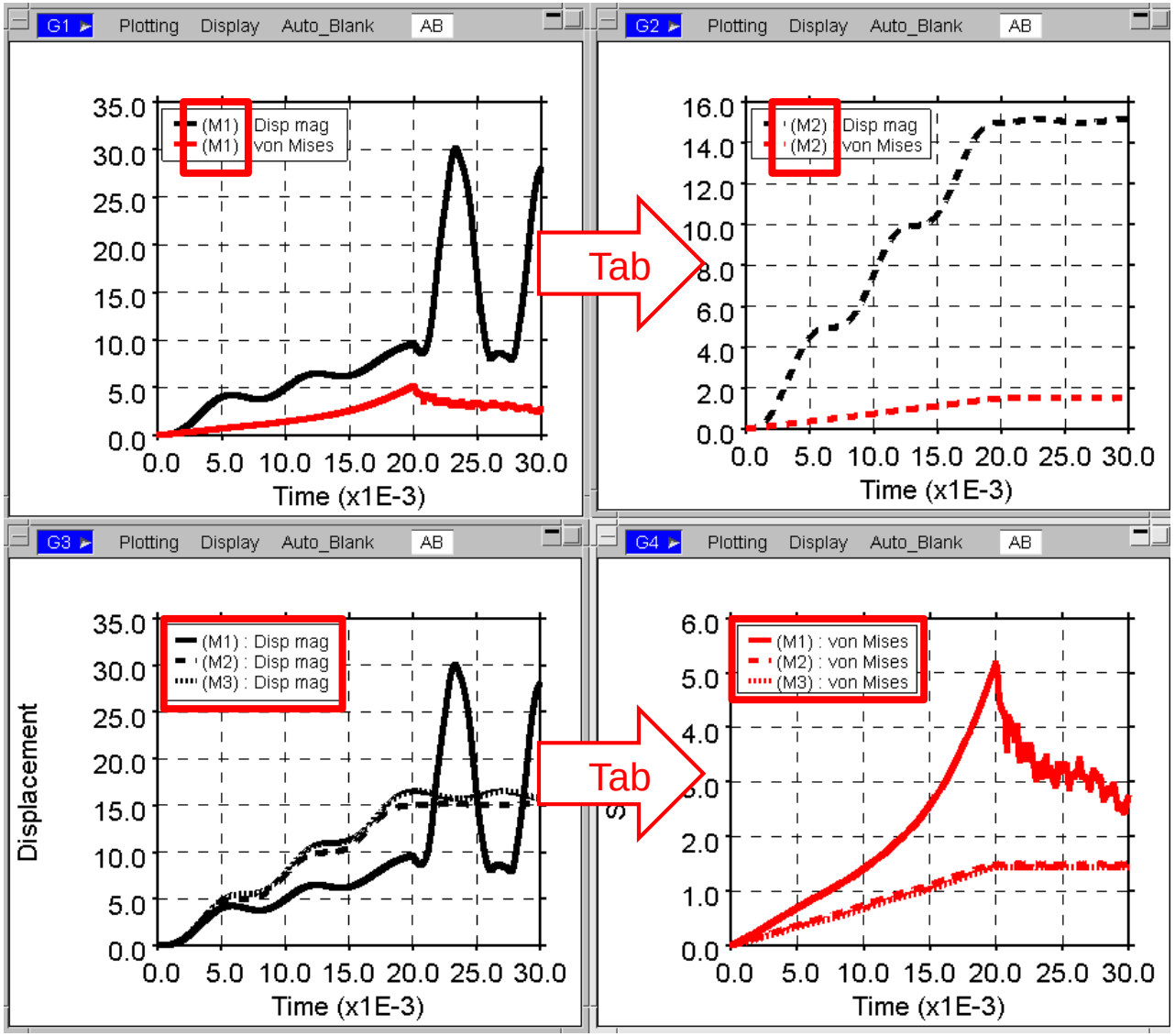
Auto Blank

- The Auto Blank menu controls the variable which the Tab key cycles through.

- Pressing the tab key will change the blanking of curves according to the criterion selected in the popup menu.



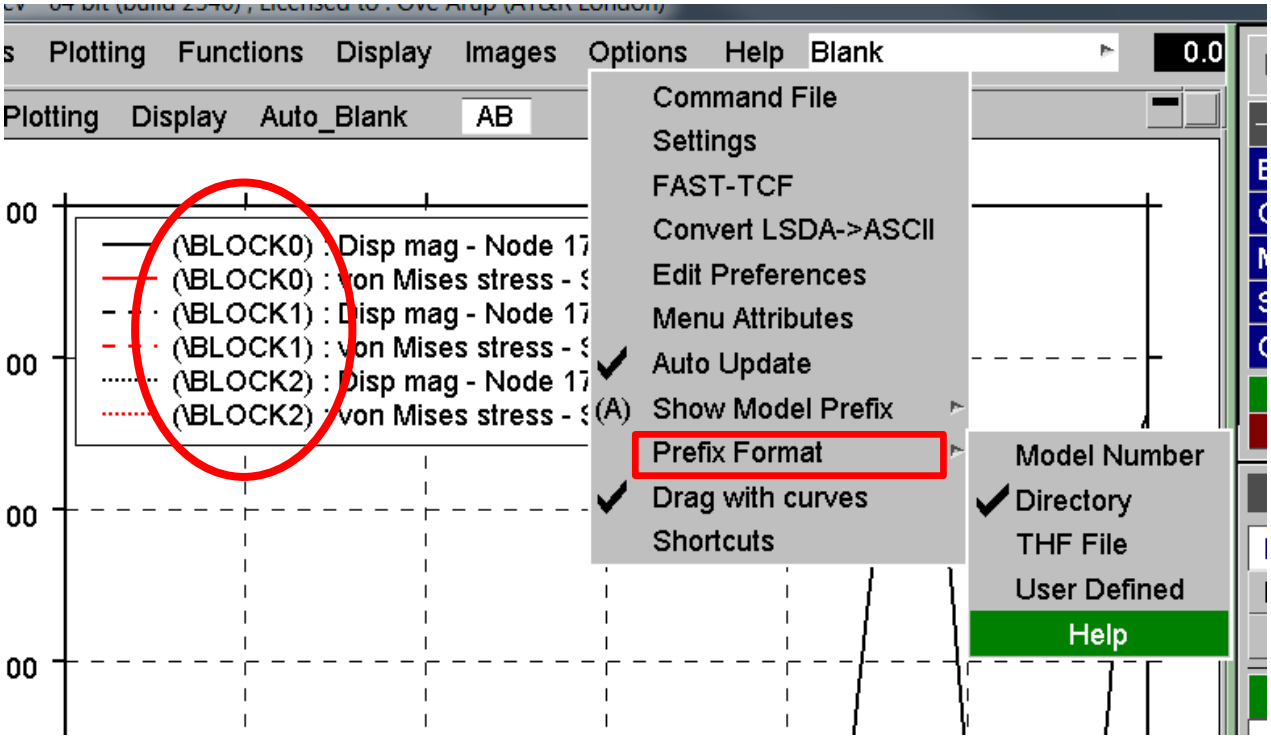
Auto Blank



- E.g. use Tab key to cycle between Models and Components.

CHANGING MODEL PREFIX

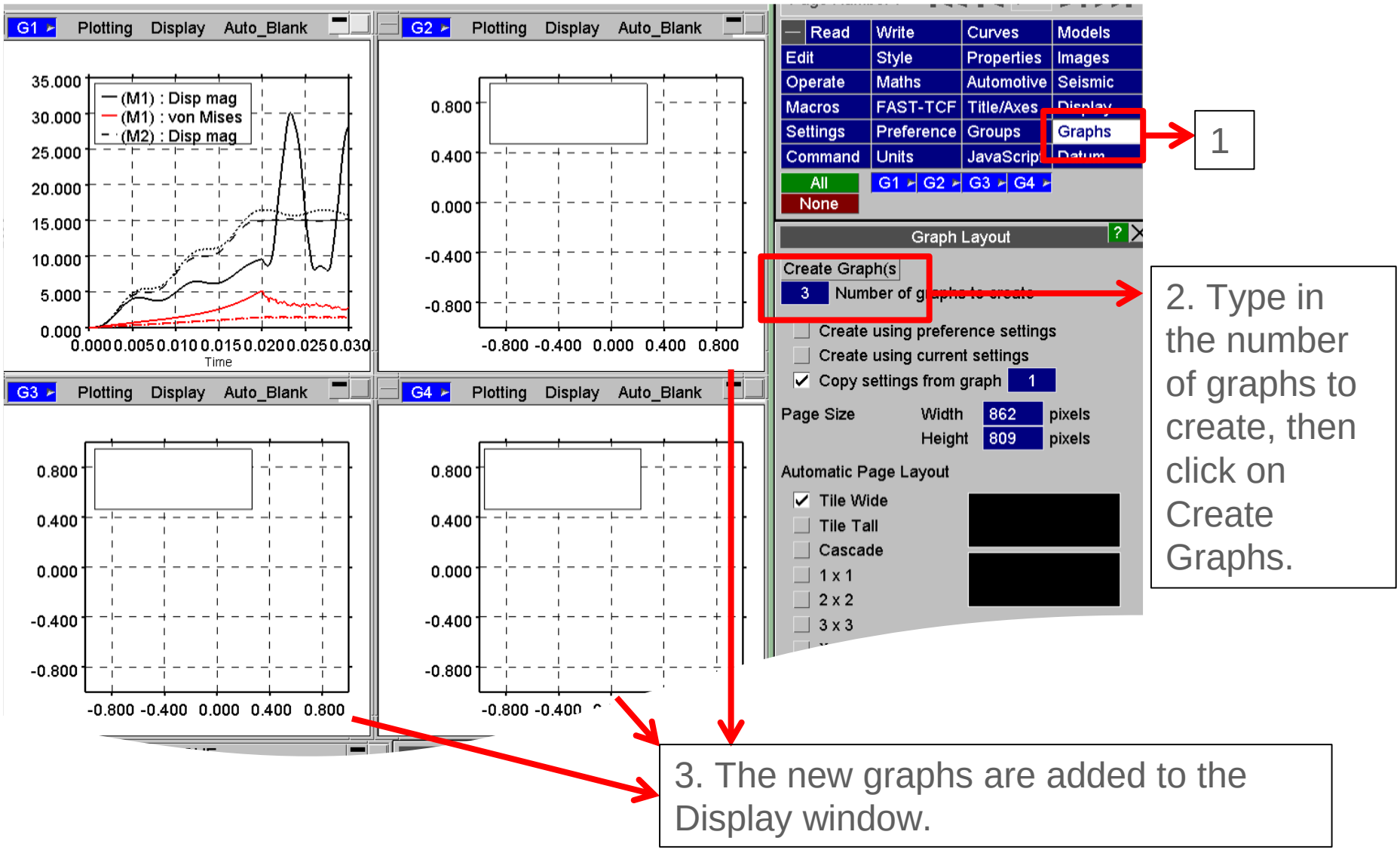
Changing Model Prefix



- Under Options -> Prefix Format the user can change the prefix from the default (Model Number) to the directory, the filename, or add a custom name.
- This makes it easier to differentiate between each curve.

CREATING MORE GRAPHS

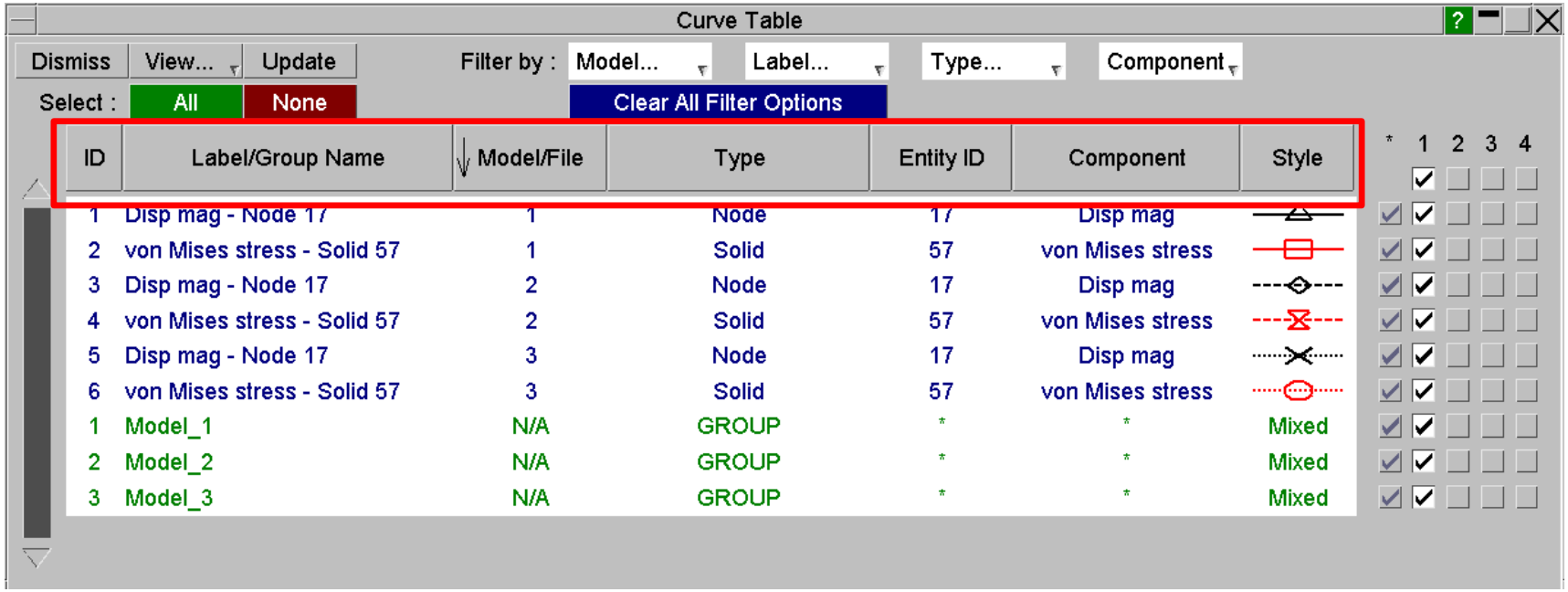
Create More Graphs



CURVE MANAGEMENT

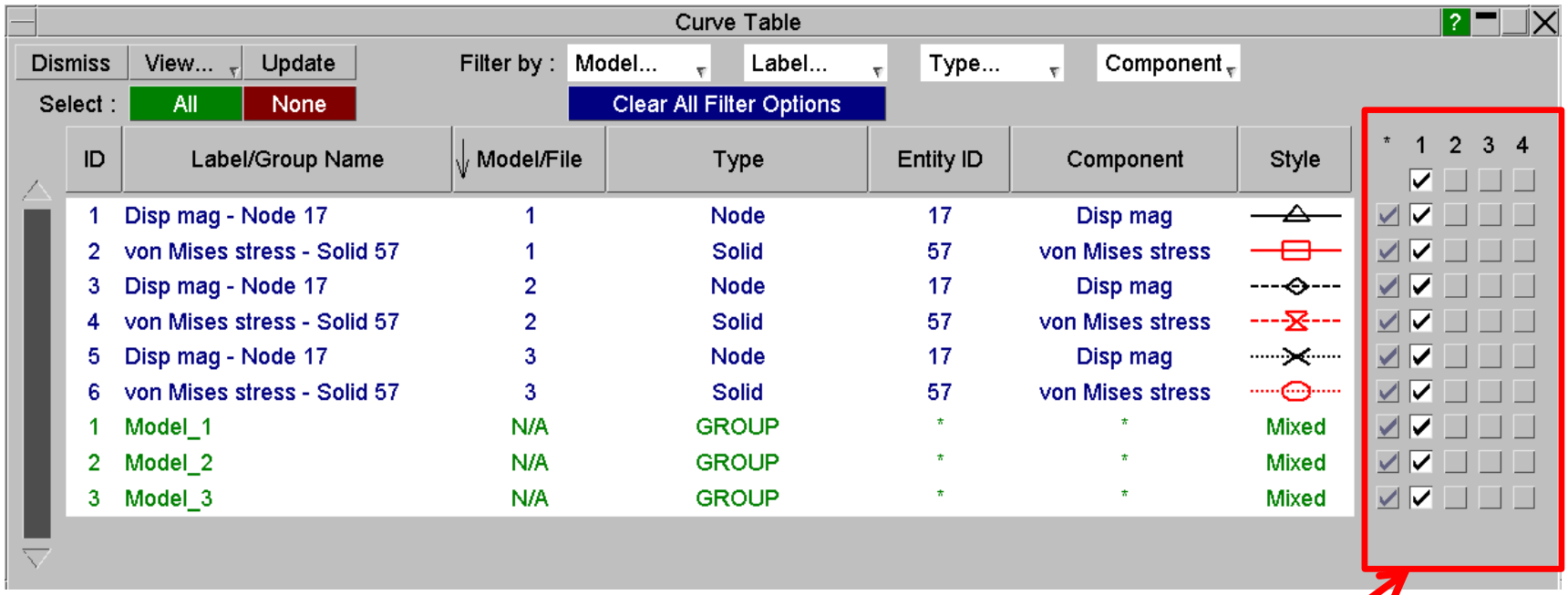
Curve Table

- The curve table can be accessed from the Curve Manager by clicking on “Table”:



- Rows can be sorted by clicking on the column headers.
- Columns can be moved to different positions in the table by dragging column header to the desired position.

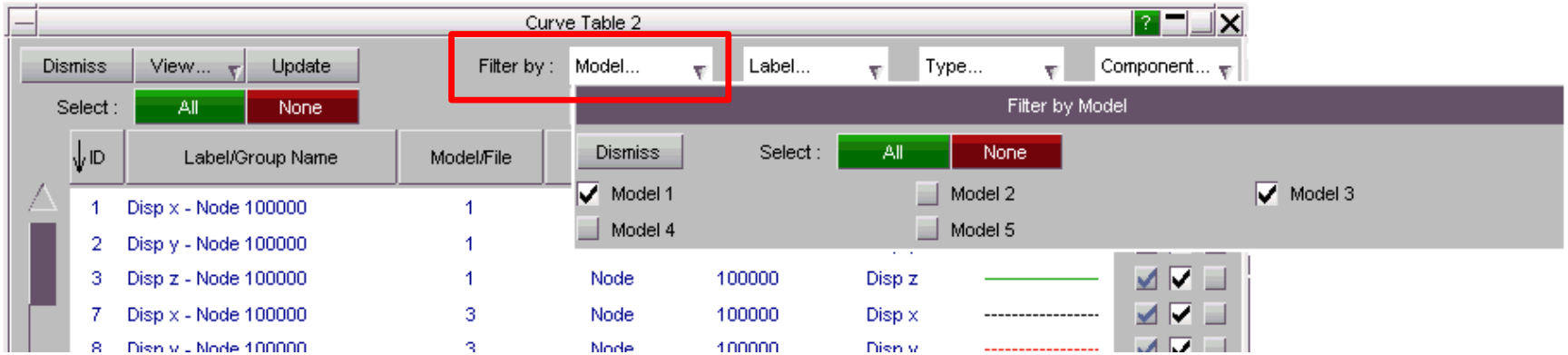
Curve Table



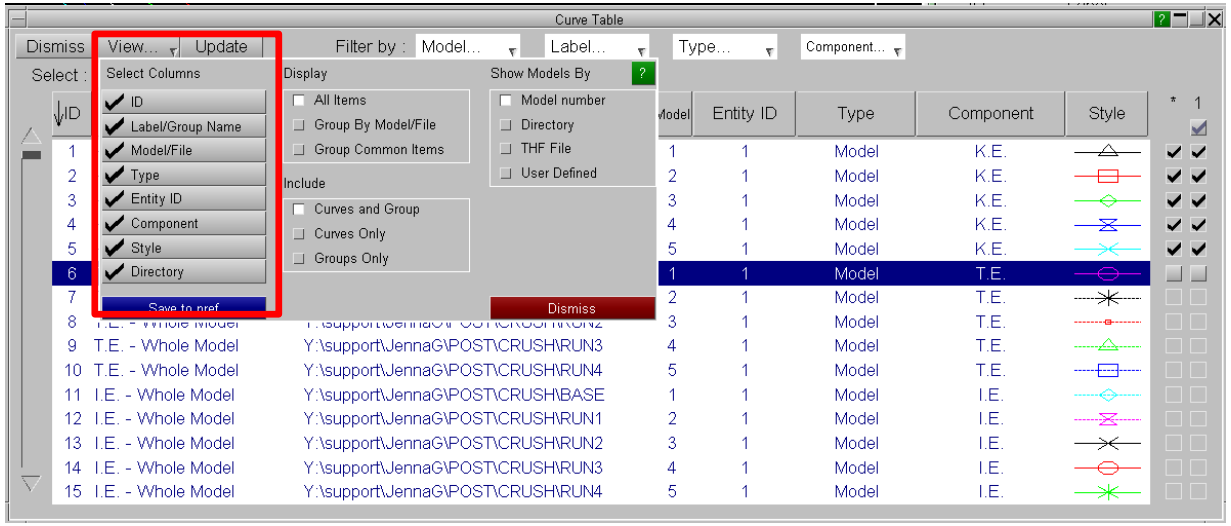
- Graphs can be populated by ticking and un-ticking each curve or group in the right hand side menu.
- Each column represents a graph in the T/HIS window.

Curve Table

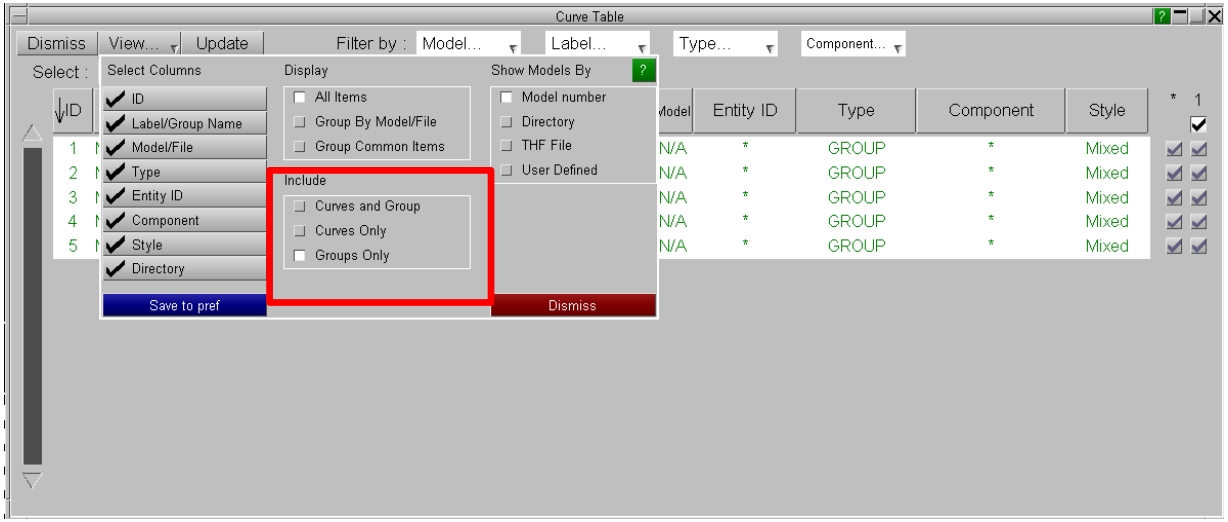
- The contents can be filtered using different options



- The user can select which columns should be displayed in the table. For example, you can choose to view directory.

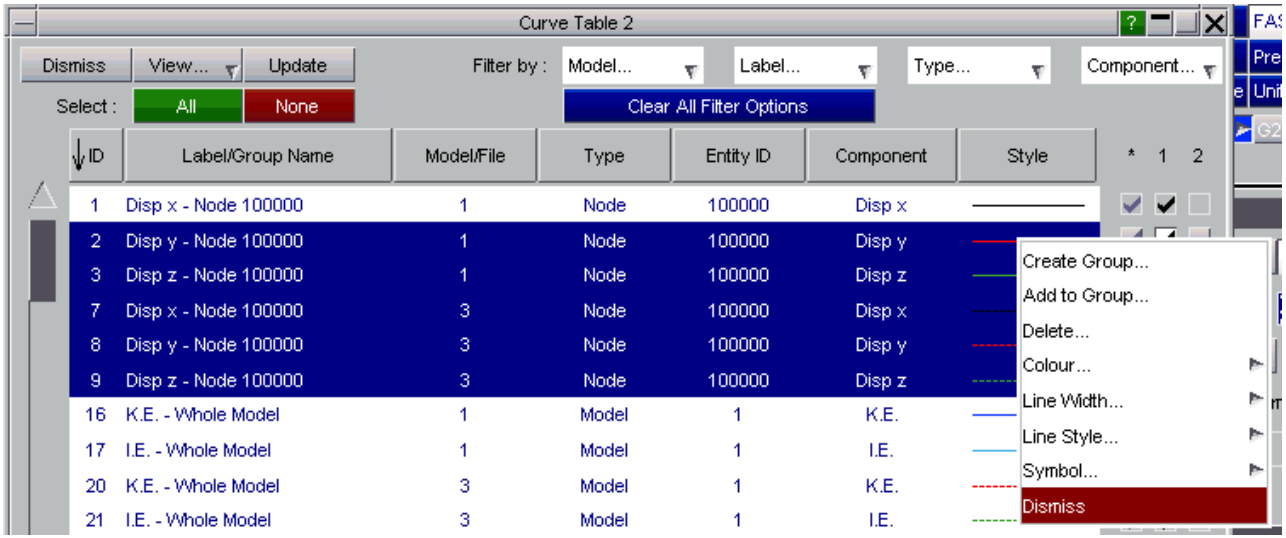


Curve Table



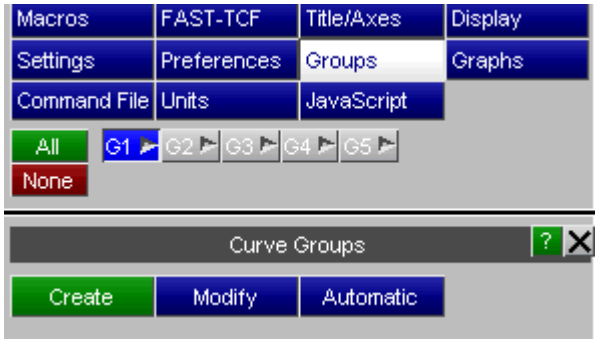
- T/HIS automatically includes Curves and Groups to the curve table by default. It is now possible to select ‘Curves Only’ and ‘Groups Only’.
- These options can also be saved to preferences.

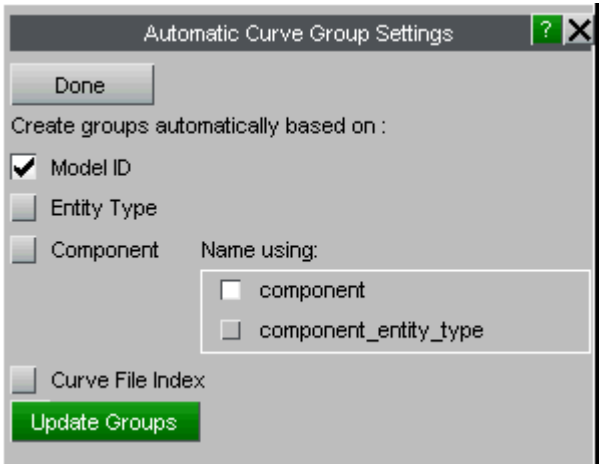
- Curves can be deleted, grouped or modified once selected in the table.



Automatic Curve Groups

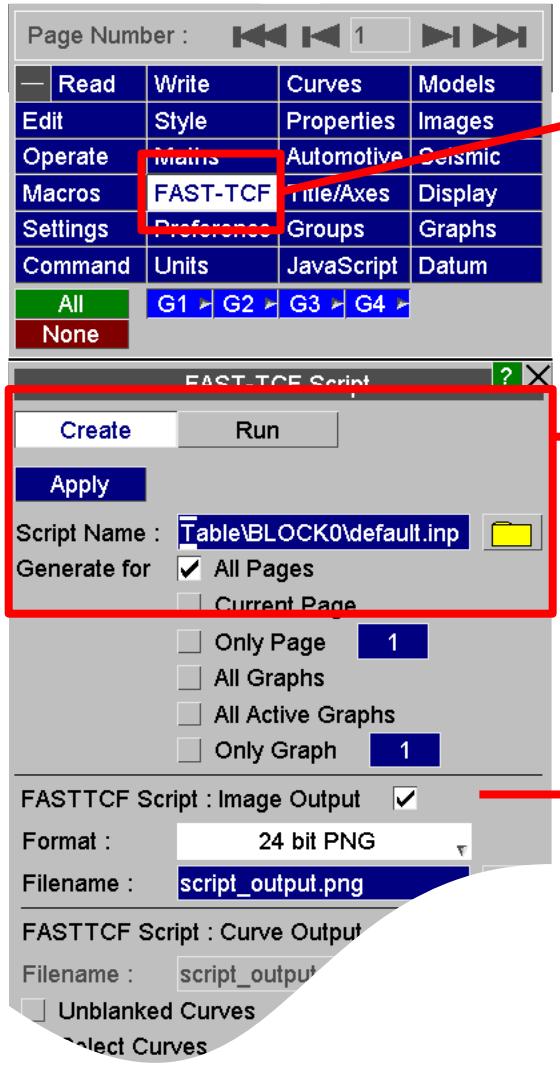
- The Curve Groups menu contains an option to control the creation of automatic curve groups. These groups can then be used to select curves used in operations or to control the blanking and unblanking of curves.
- By default T/HIS will automatically create a curve group for each model and place any curves from that model in the group.
- Groups can also be created based on
  - Entity Type
  - Component
  - Index in curve file
- Groups can be created after curves have been read in by using “Update Groups”
- Preference options can be used to set the default groups that are created.





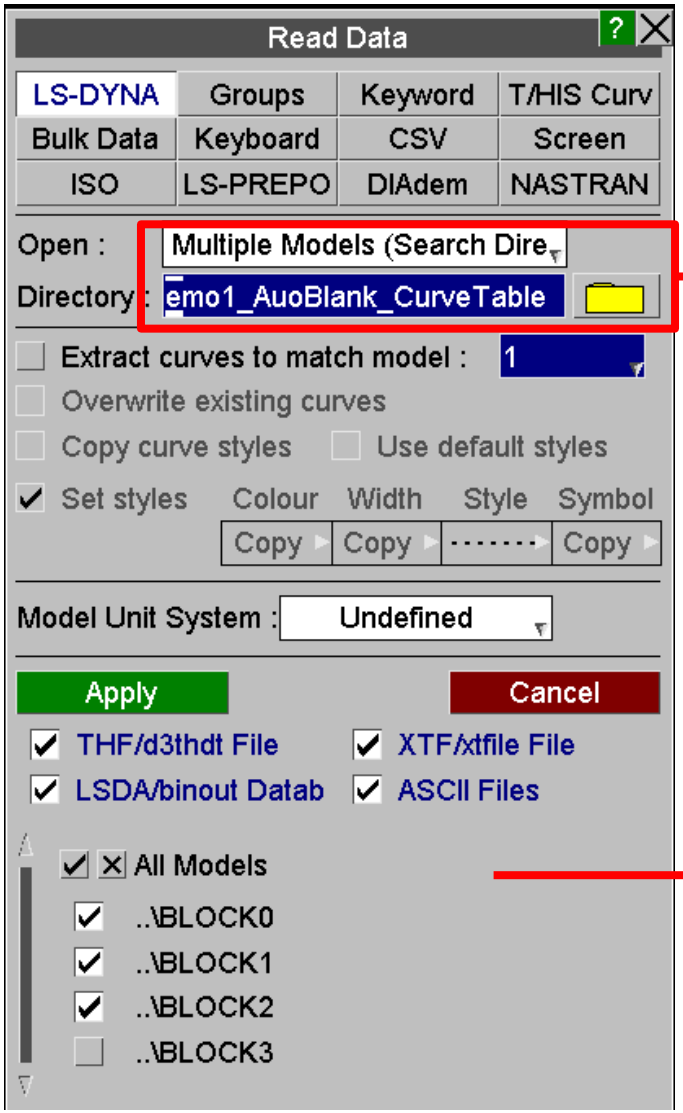
FAST-TCF & MULTIPLE MODELS

FAST-TCF

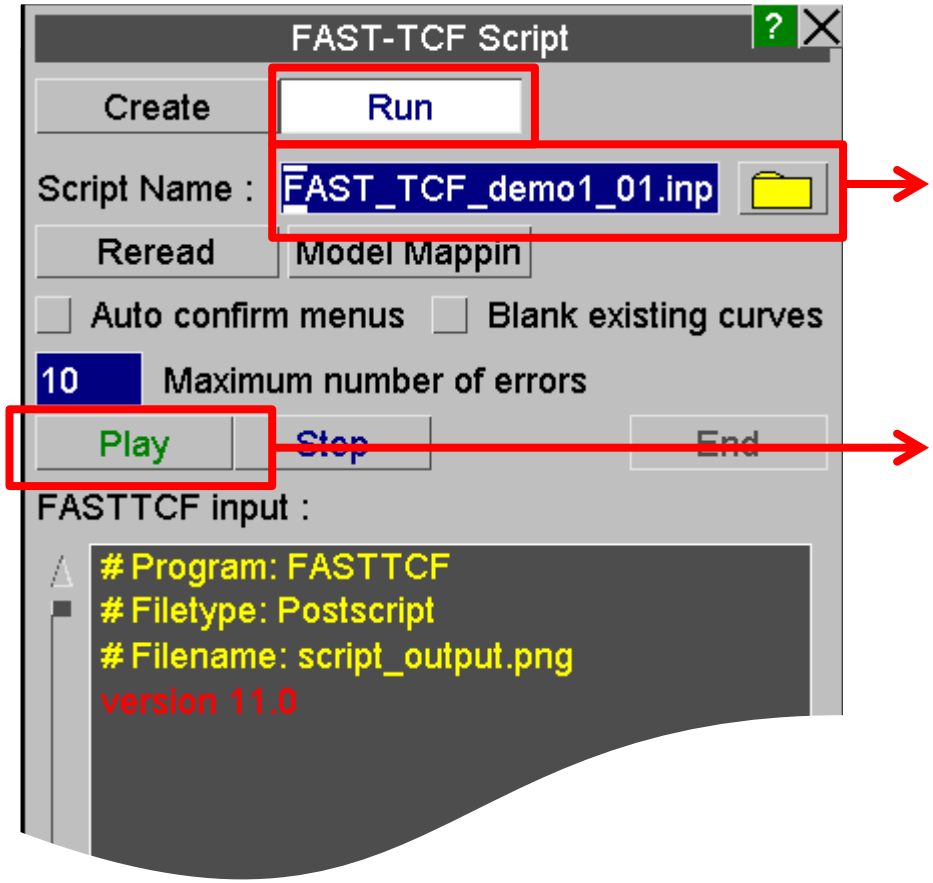


- FAST-TCF creates a .inp file which allows the user to regenerate all curves.
- Press Create and give the script a name, then press apply.
- Other options can be set in order to generate image files with the results from the script.

Opening Multiple Models.



- Open a new session of T/HIS.
- In the READ menu, it is possible to open several models at once by selecting “Multiple Models (Search Directory)” in the drop down menu. Then searching for the directory that contains all the models you wish to open.
- Then select the models needed. In the example above only 3 models are in use so Block 3 is not selected.

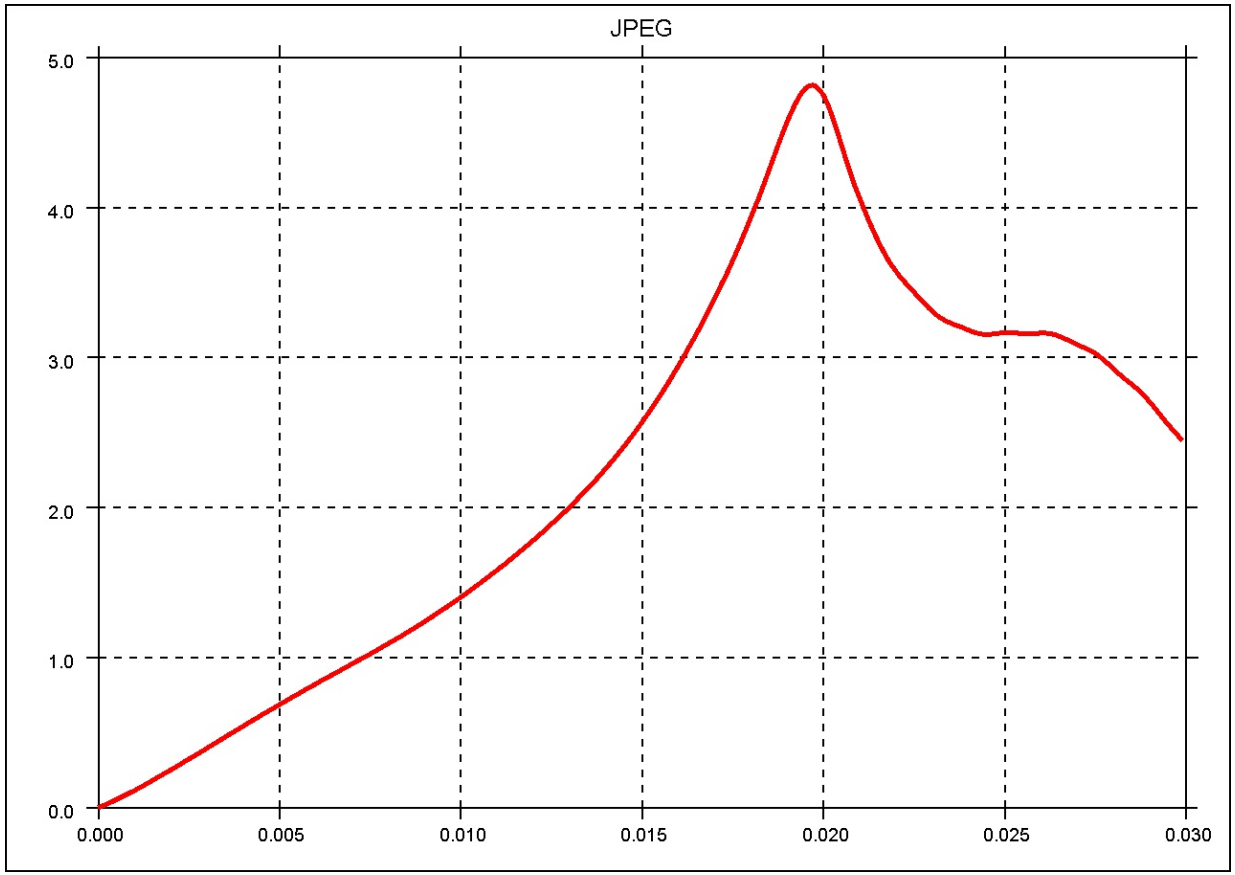


- Click on “Run” and then select the .inp script you saved in the previous step.
- Press Play and watch T/HIS regenerate all the curves as before!

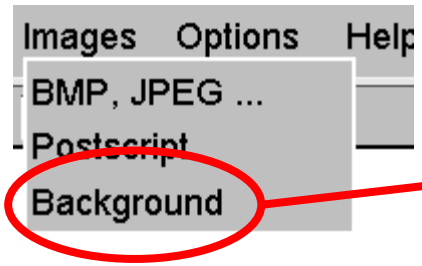
DIGITIZING CURVES

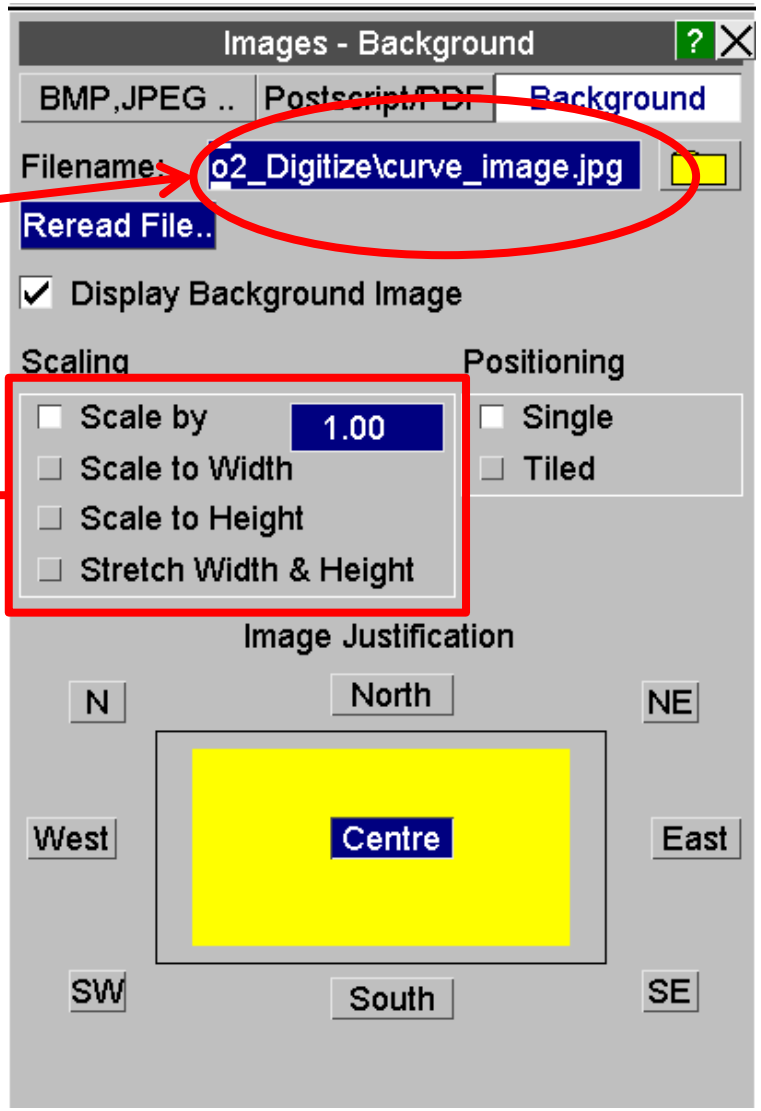
T/HIS

Image File:



- It is possible to digitize a curve taken from a image file (like the one to the left) by using T/HIS “Background” and “Read->Screen” options.

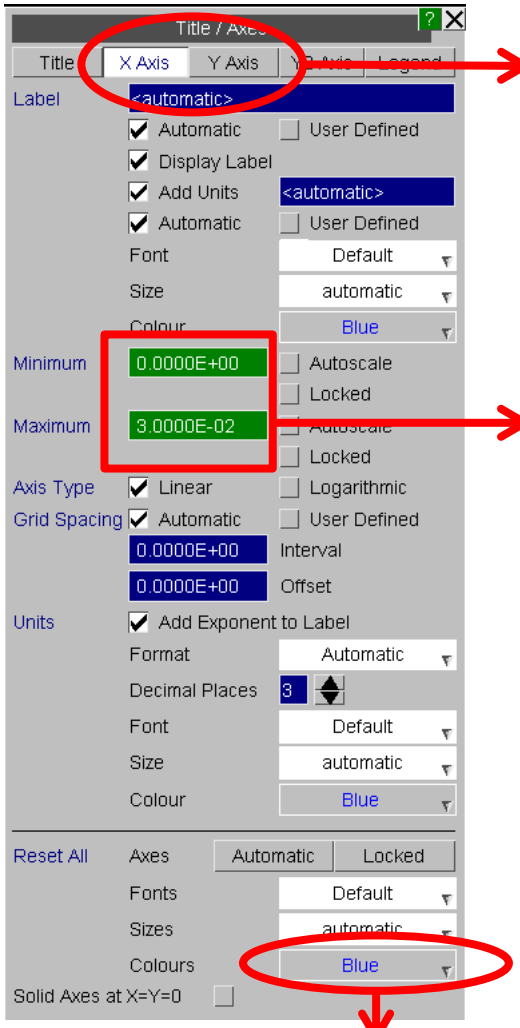




- Pick the curve that is to be Digitized as the background.

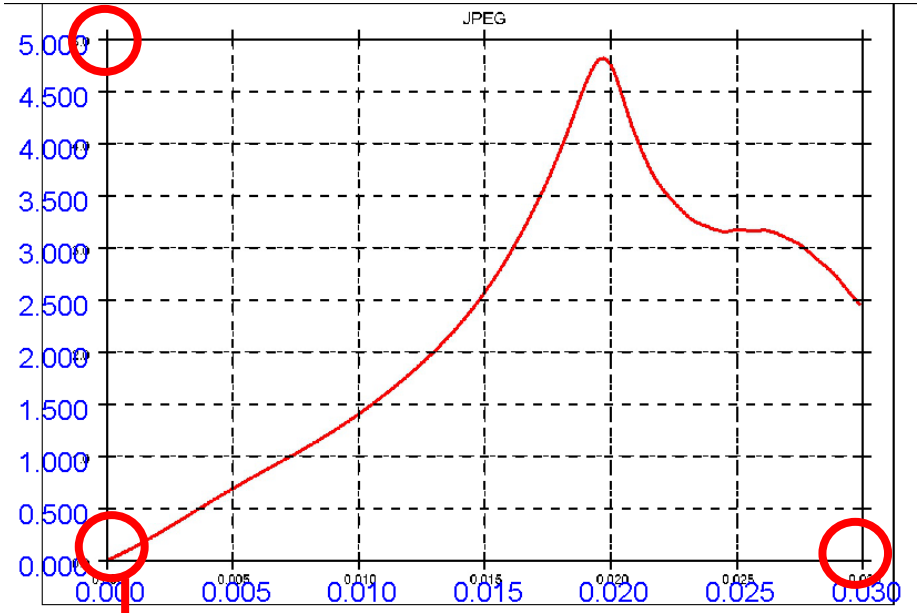
- Use the scaling options to make sure the figure is visible in the T/HIS display area.

Digitizing Curves



1. Go to Title/Axes then X Axis. (Repeat for Y Axis).

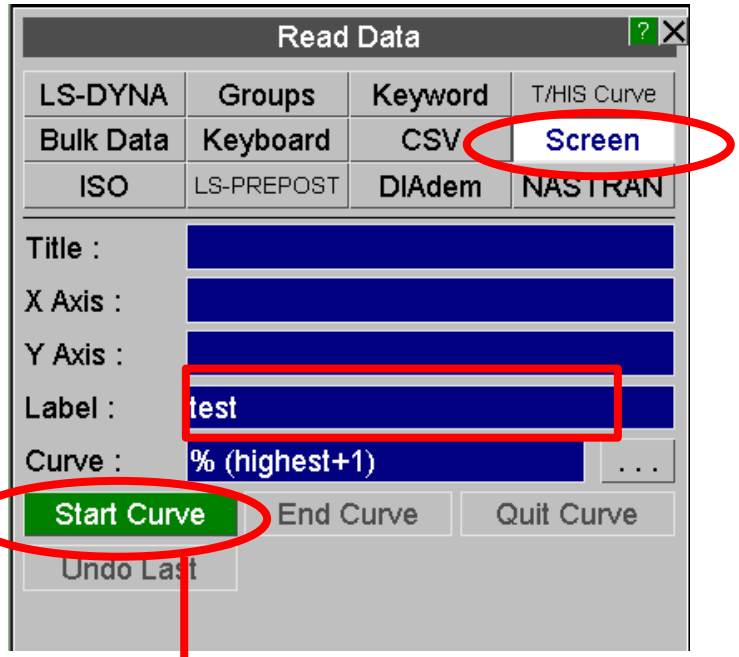
2. Match the axis range to those in the Image.



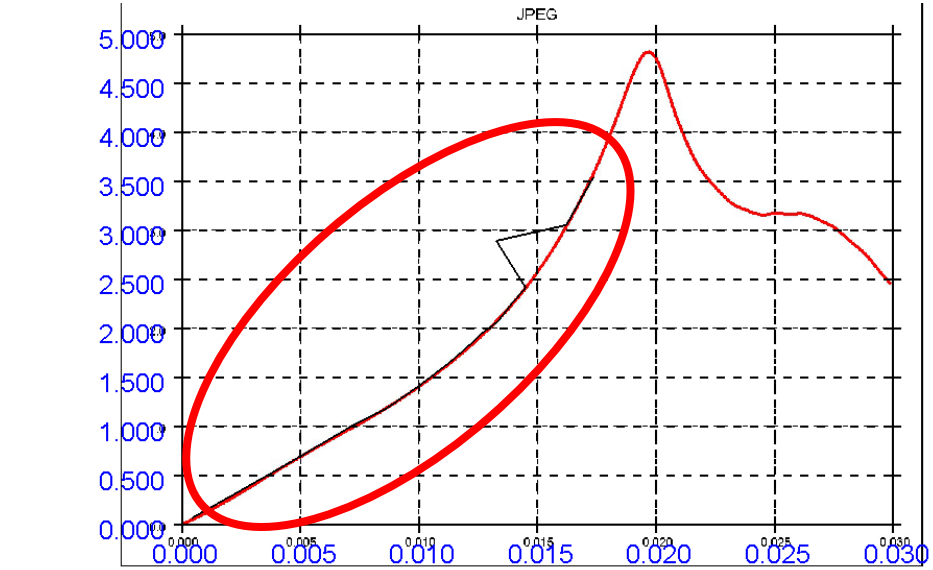
5. With the cursor move the location of the T/HIS axis to match those of the background image.

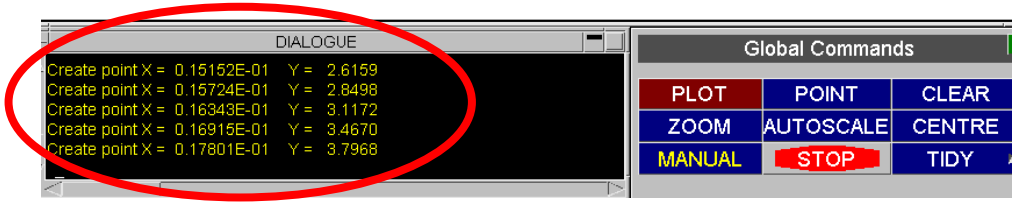
3. Make both axis a distinctive colour.

Digitizing Curves



- Using the Screen option in the Read menu, give your curve a Label and click on Start Curve.



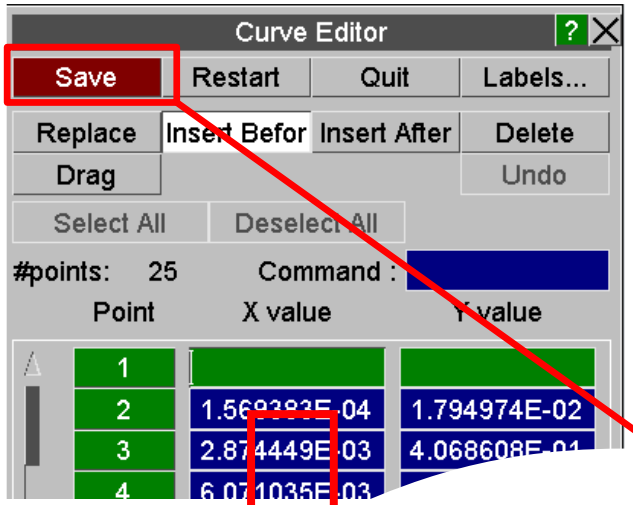


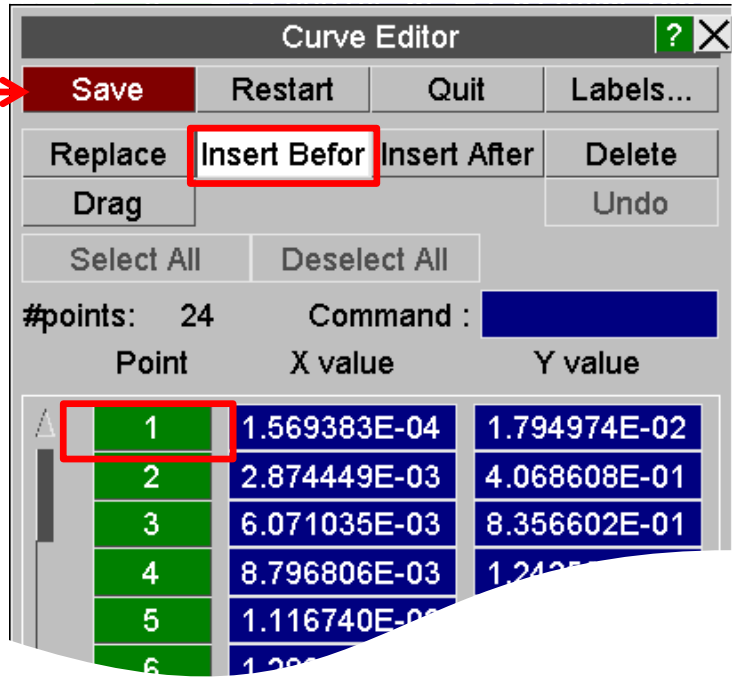
- Click on points inside the axis (along the curve), T/HIS creates these points in as a new curve. When done, click on End Curve in the Read menu. If a mistake is made it's possible to click on Undo Last to remove the point.

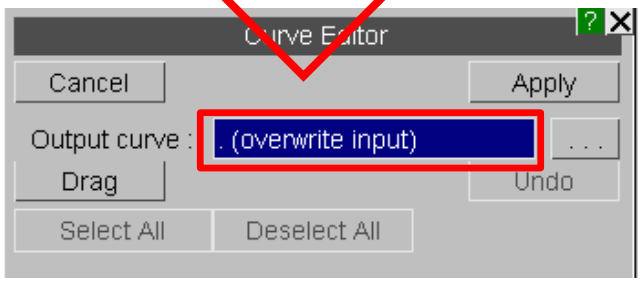
EDITING CURVES

EDIT – Adding Points

1. To add the (0,0) point, select “Insert Before” and then click on the first point. This will create a new line and shift all the other points down.





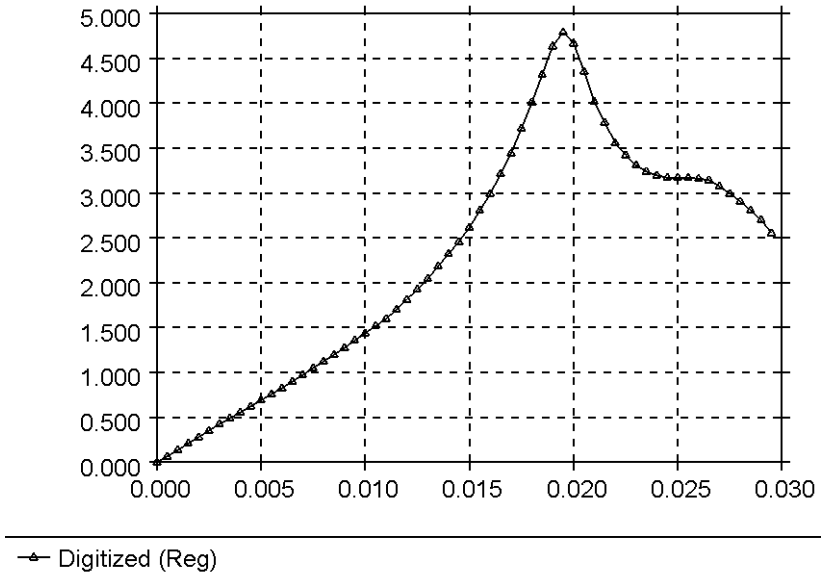


2. After inserting the new points click on “Save” and Output the curve to “Overwrite input” so that it is not saved as a new curve (or type “.” and enter in the text box).
3. Remember to click on Apply.

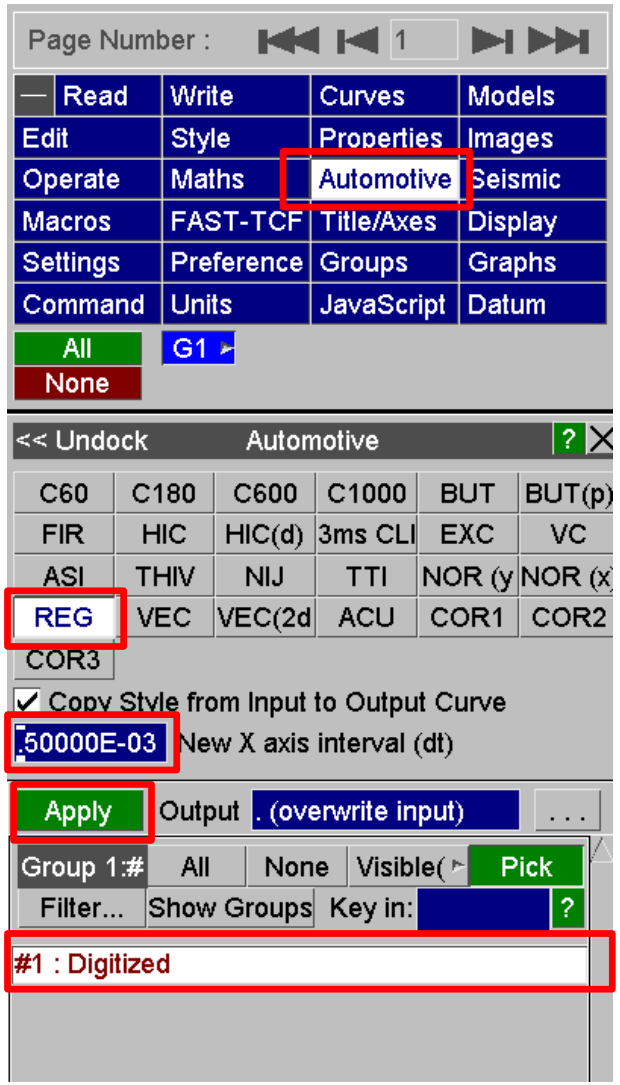
Regularize Curve

When picking points on the screen it is likely they are not evenly distributed.

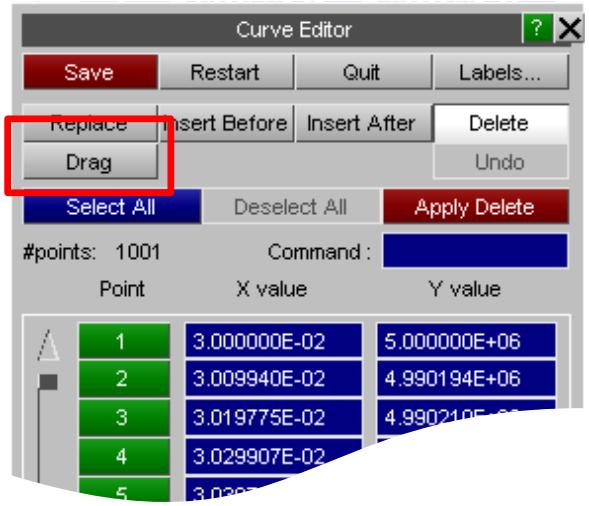
1. In order to regularize the curve use the “Automotive” function “REG”.
2. Set the desired interval for points in the x-axis
3. Pick the curve to be Regularized.
4. Press Apply.



The old points are deleted and new ones are evenly distributed along the x-axis.

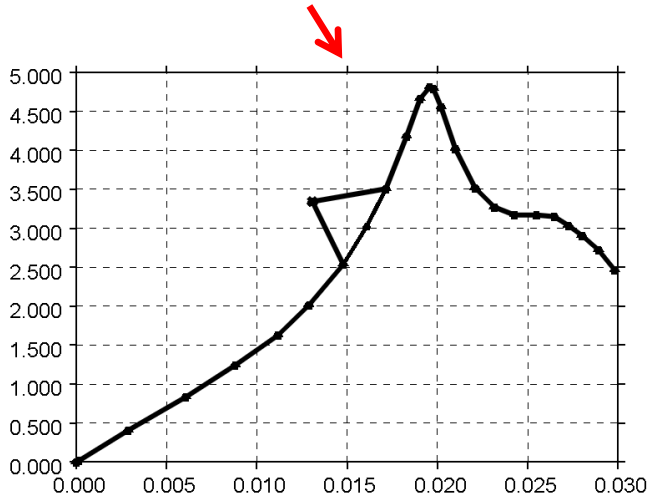


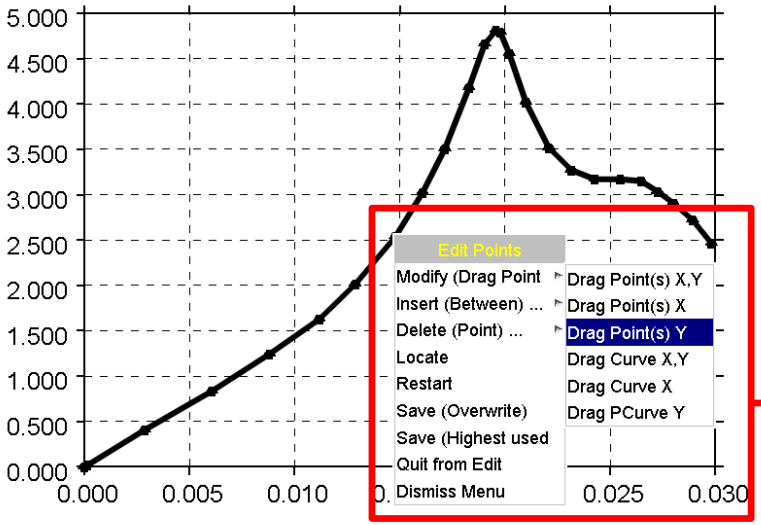
EDIT – Drag Points



The Edit menu has an option to “Drag” points manually.

1. Click on “Drag” and with the right-hand button select the points to be moved.
2. Move the points to their new location. It’s then possible to “Undo”, “Restart” or “Save” the new curve.



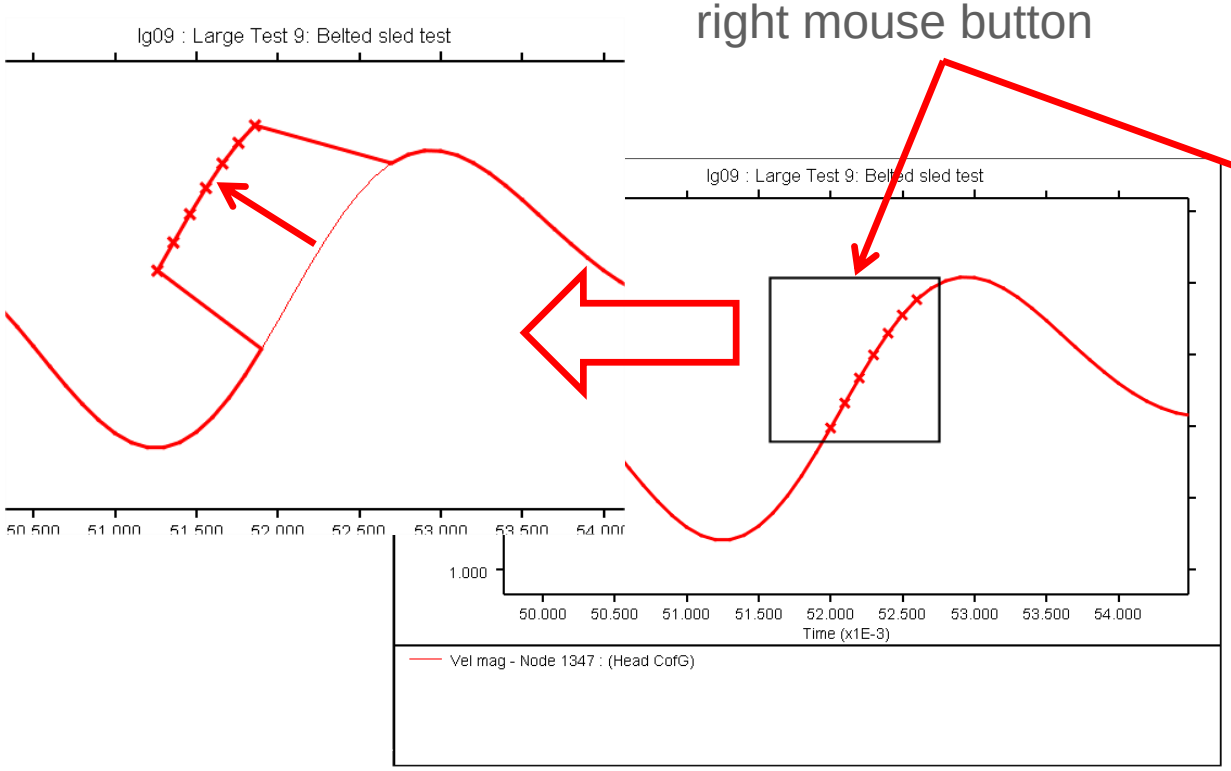


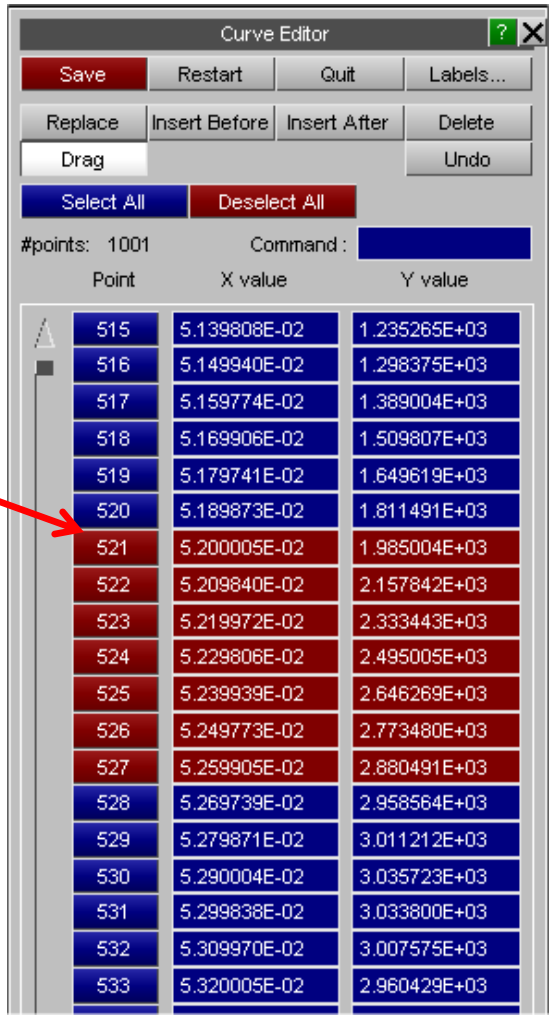
Right-clicking on the points also brings up a menu to specify the direction of dragging, such as only in the Y-direction.

EDIT – Dragging Multiple Points

Multiple curve points can now be selected and dragged in one operation.

Points can be selected in the menu or by dragging out an area using the right mouse button

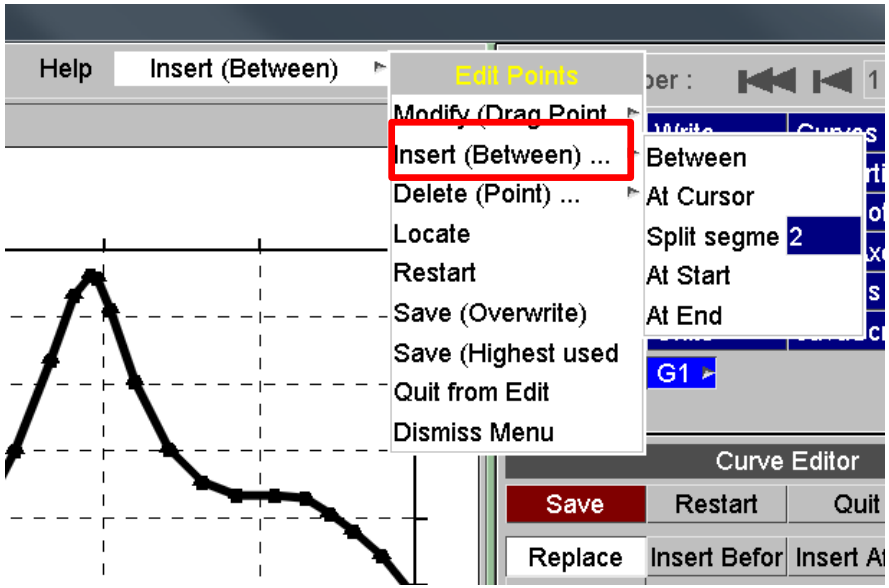




Insert Points – Quick Pick Menu

A quick way of inserting new points into a curve is using the Quick Pick Menu. In the drop down list select Insert, then pick one of the five options:

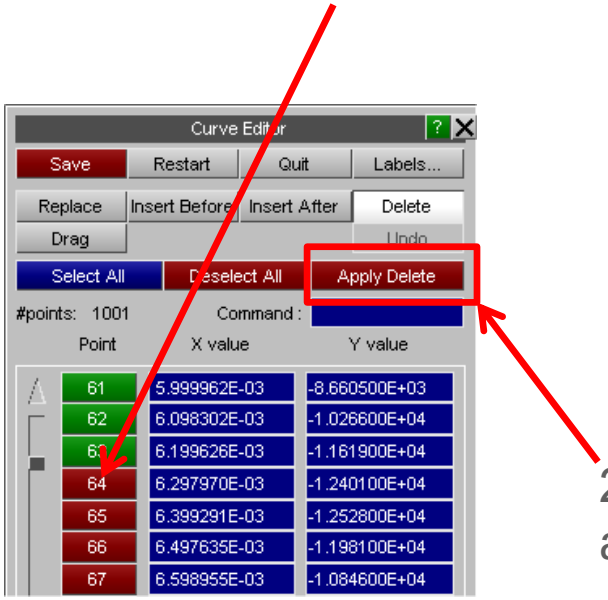
1. Between: Click on the screen and T/his will insert a point as close to where the cursor is, but within the curve.
2. At Cursor: T/his will insert a point wherever the cursor is.
3. Split Segme: T/his will split a segment of the curve in as many parts as specified by the user.
4. At Start.
5. At End.



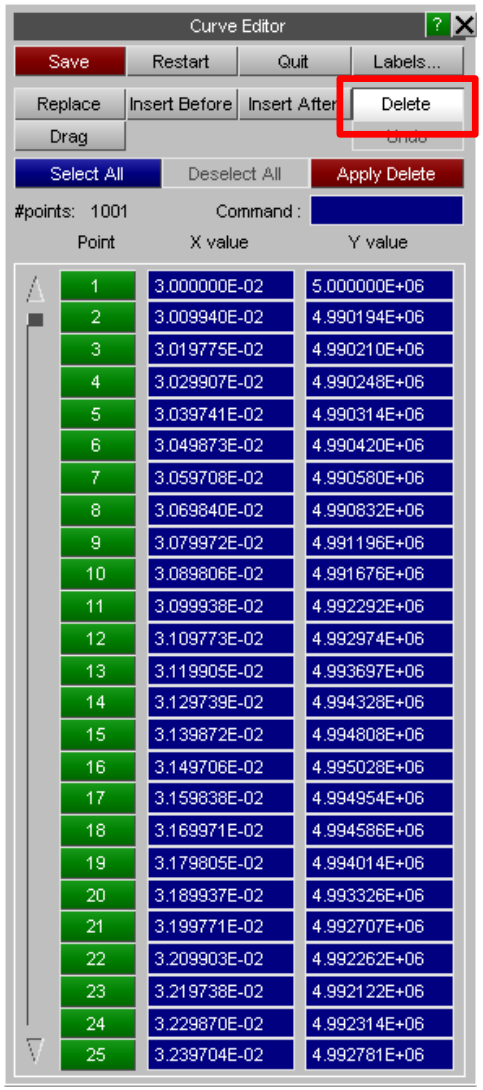
EDIT – Deleting Points

Deleting curve points within the EDIT menu has been modified so that multiple points can be selected and then deleted.

1) As points are selected they are highlighted in red and marked on the screen

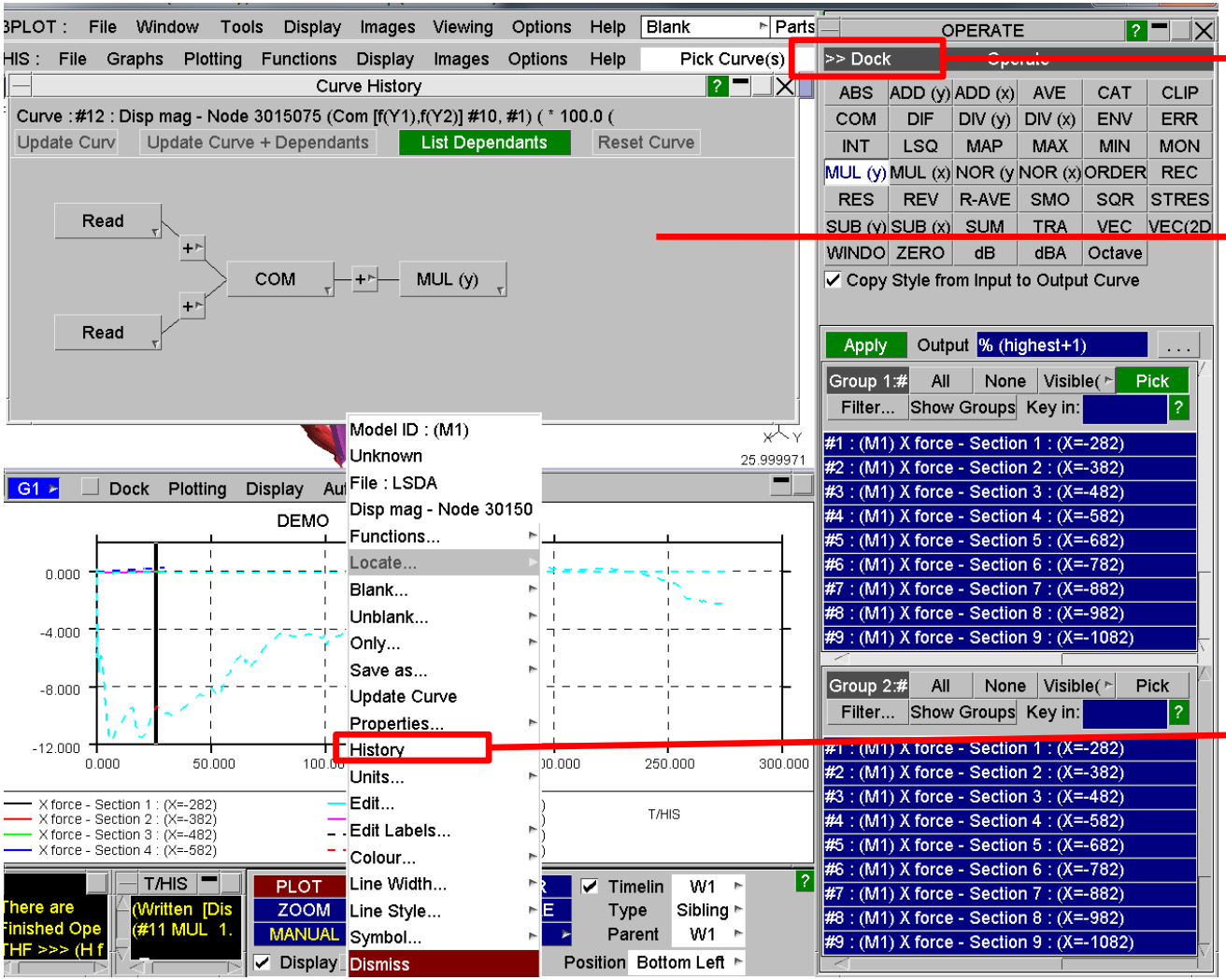


2) Select “Apply Delete” to actually delete the points



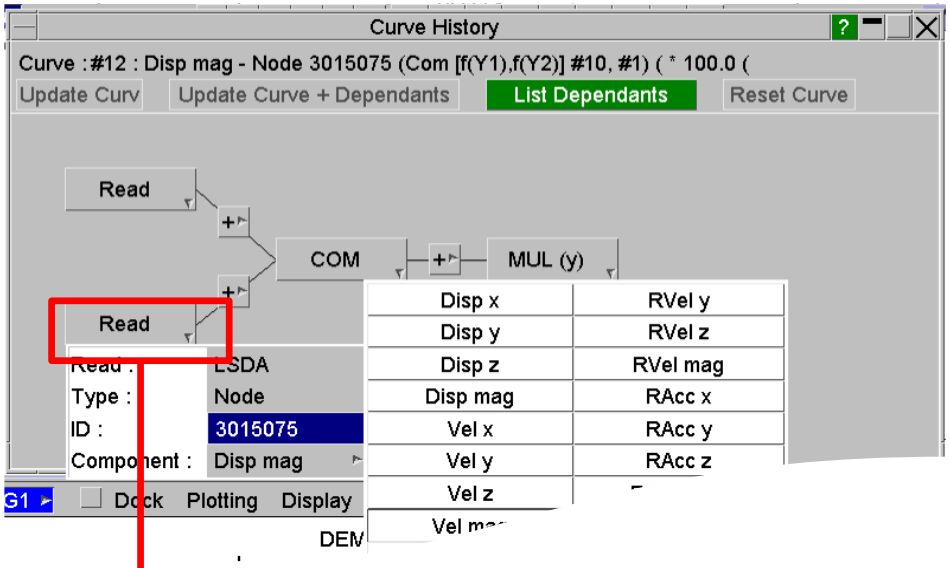
CURVE HISTORY

T/HIS – Curve History



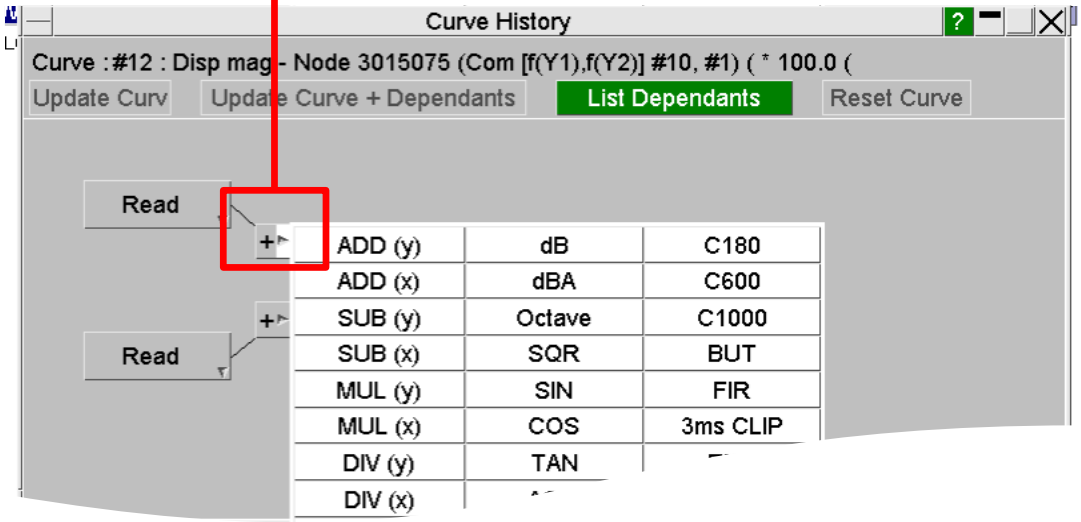
- Dock/Undock Menus
- Curve History Panel allows user to see/change operations on curves. Just right click on operation (eg.“COM”) and change operation.
- Bring up “History” of curves by right clicking on the curve in display area.

T/HIS – Curve History



- Its also possible to change the Curve used in the operation to a different variable.

- Operators can be added in between existing steps.

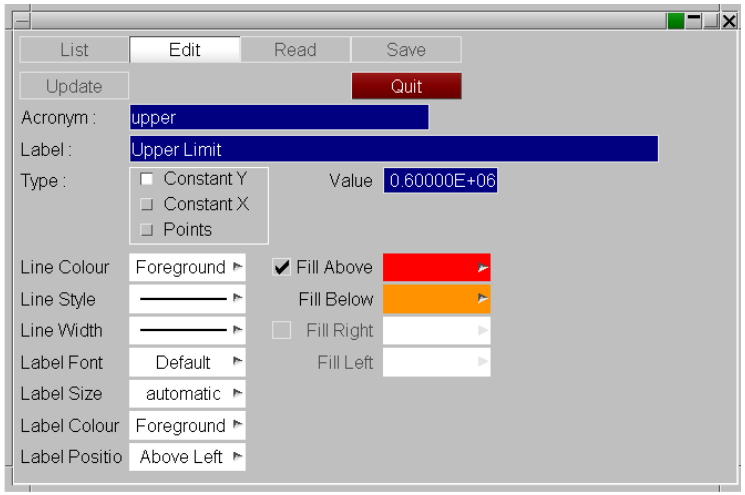


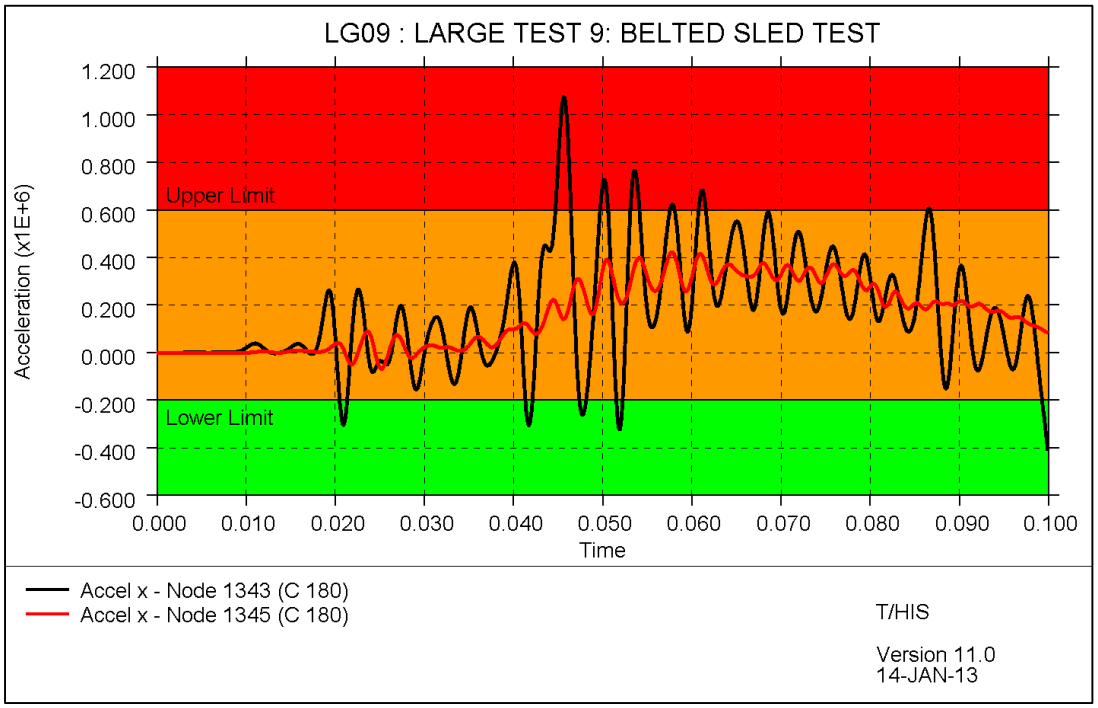
DATUM LINES

Datum Lines

Datum lines can be added to graphs to show limits and reference curves.

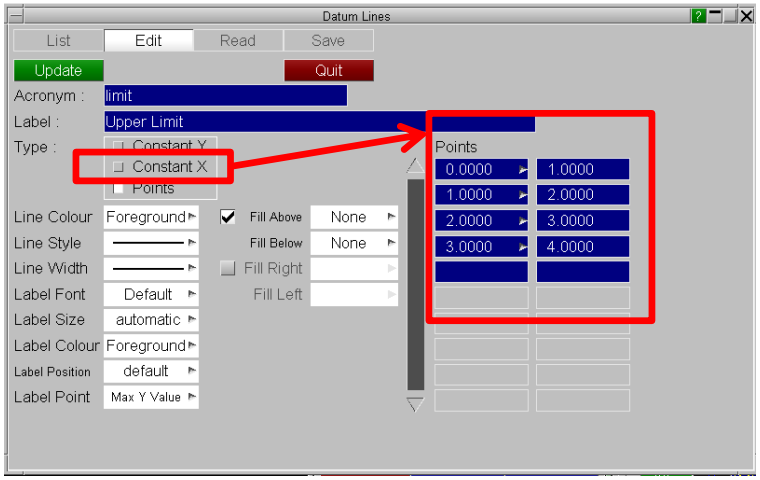
- Constant X or Y values
- Curves of X,Y points
- Shade between lines by filling above and below the lines
- Change the individual features of the lines and labels

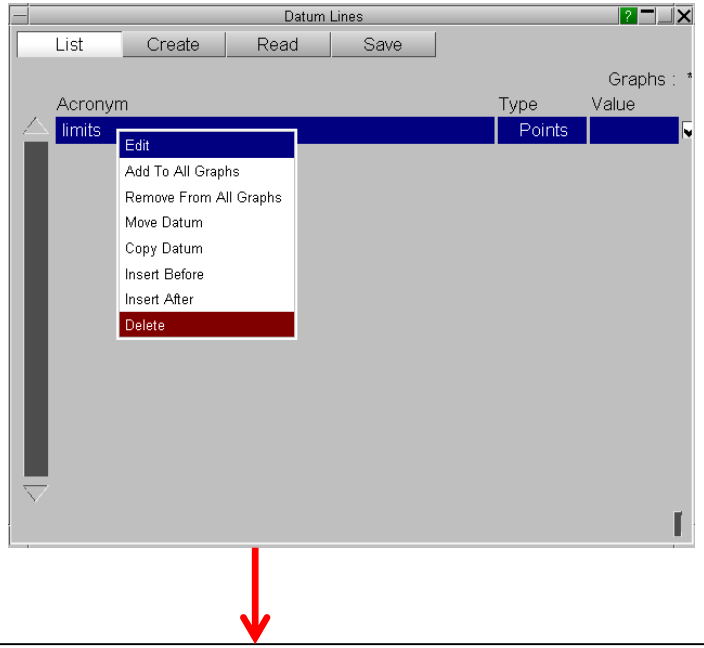




Datum Lines

- Datum Lines can also be created from a list of Points:





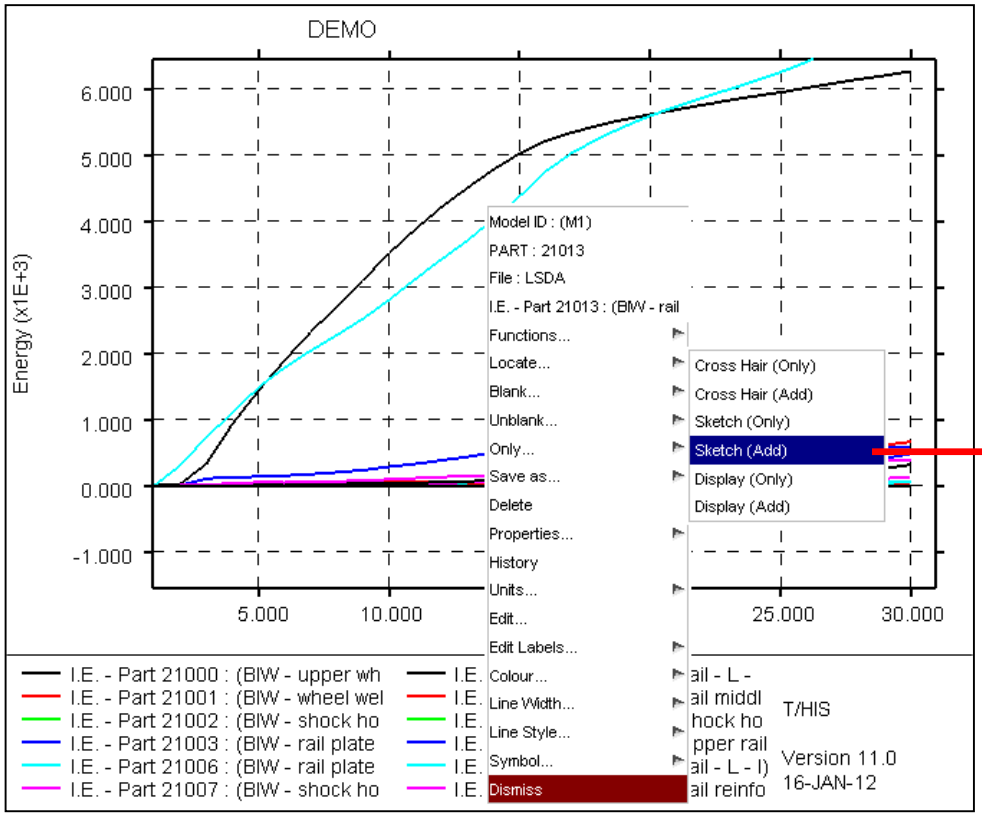
- It is also possible to “Save” Datum Lines to a .dtm file and “Read” it in in another T/his session.

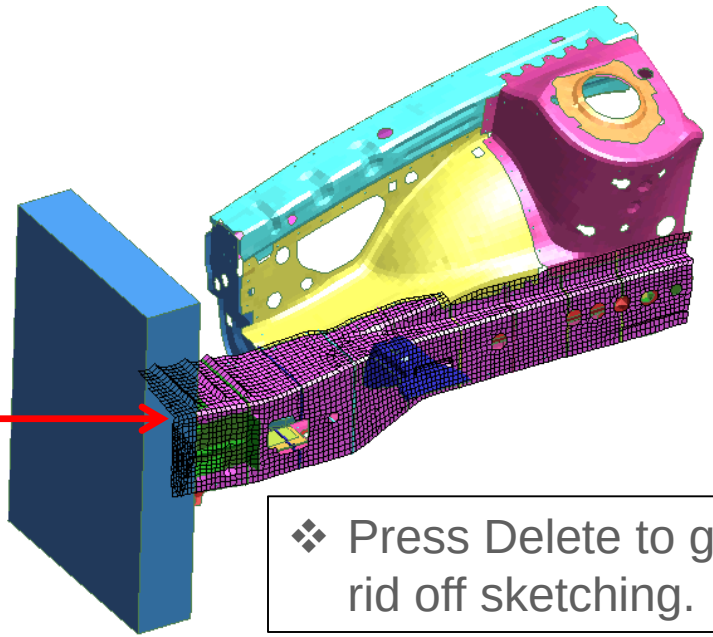
- It is possible to edit each Datum Line in the list. Right-click the individual line and click edit.

❖ If a graph contains multiple Datum lines then they are plotted in the order they are defined. Care should be taken when using the fill options so that you don’t obscure other Datum line definitions.

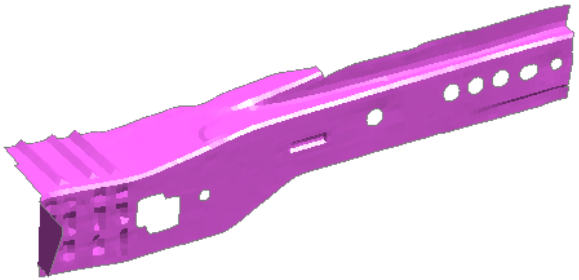
SHORTCUTS & QUICK PICK

D3PLOT > T/HIS Link - Locate



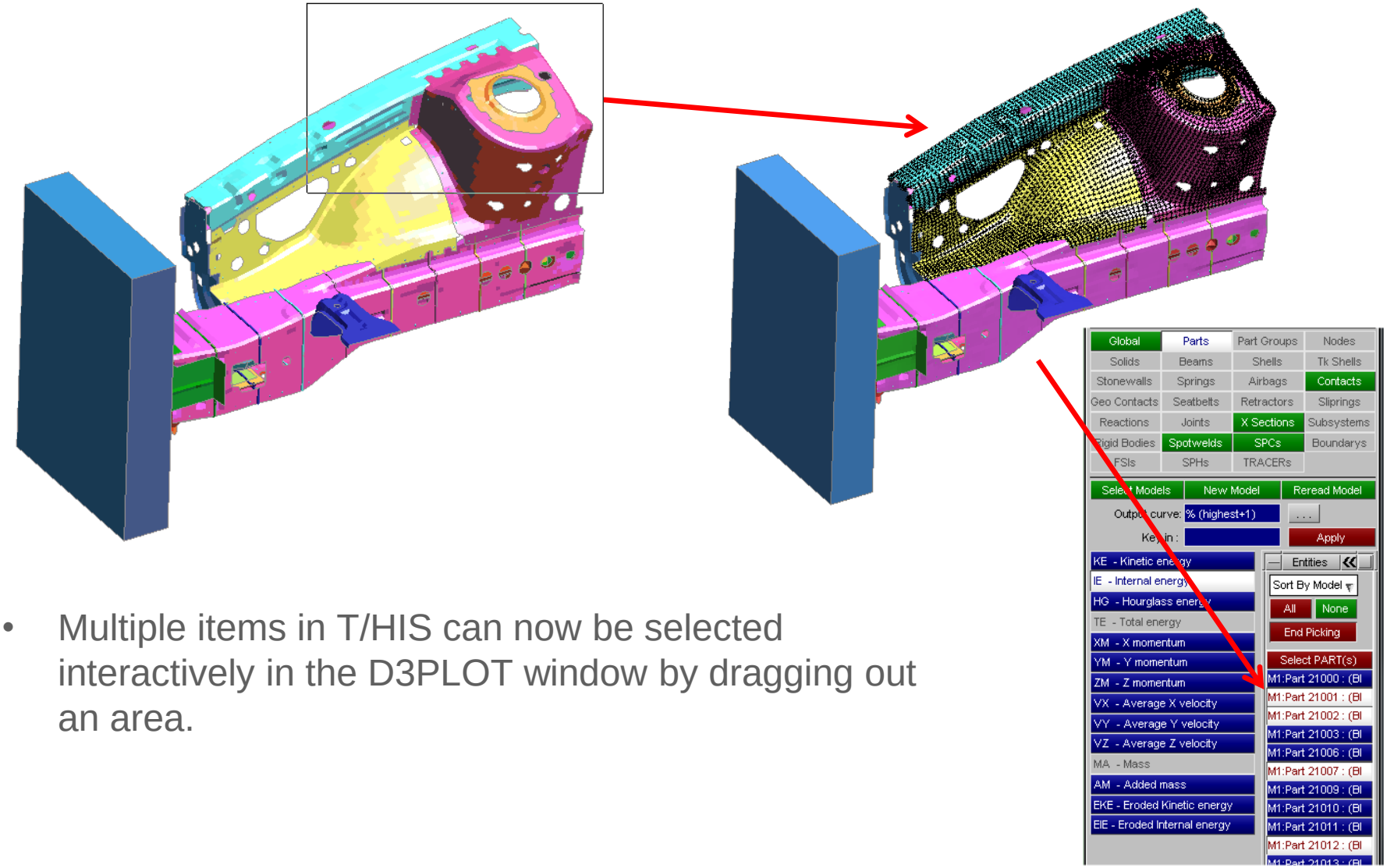


❖ Press Delete to get rid off sketching.



- Locate option in the T/HIS Quick Pick menu now offers options to Sketch items.
- Alternatively “Display” can be used to display just the selected item.

D3PLOT > T/HIS Link – Pick Parts

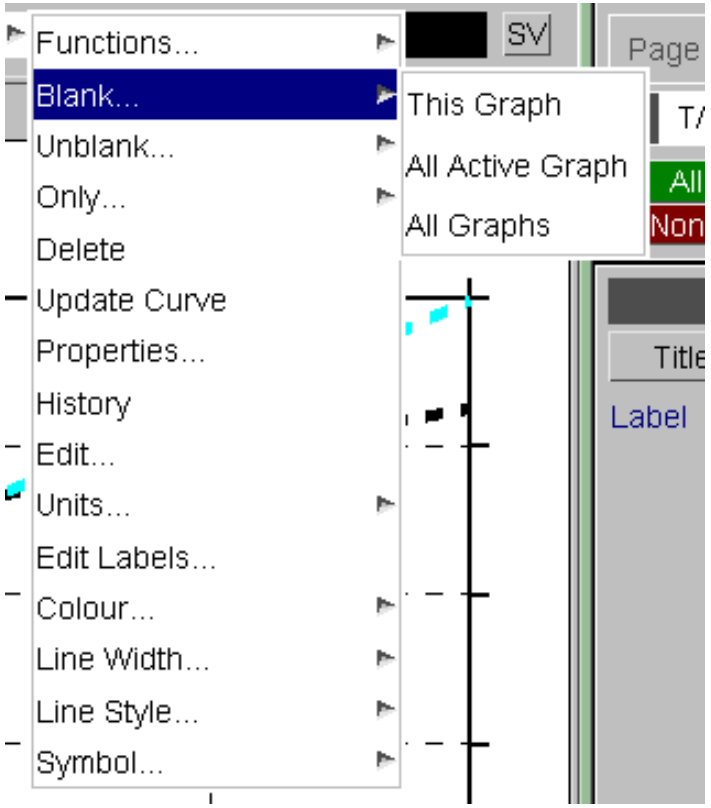


- Multiple items in T/HIS can now be selected interactively in the D3PLOT window by dragging out an area.

Shortcuts - Blanking

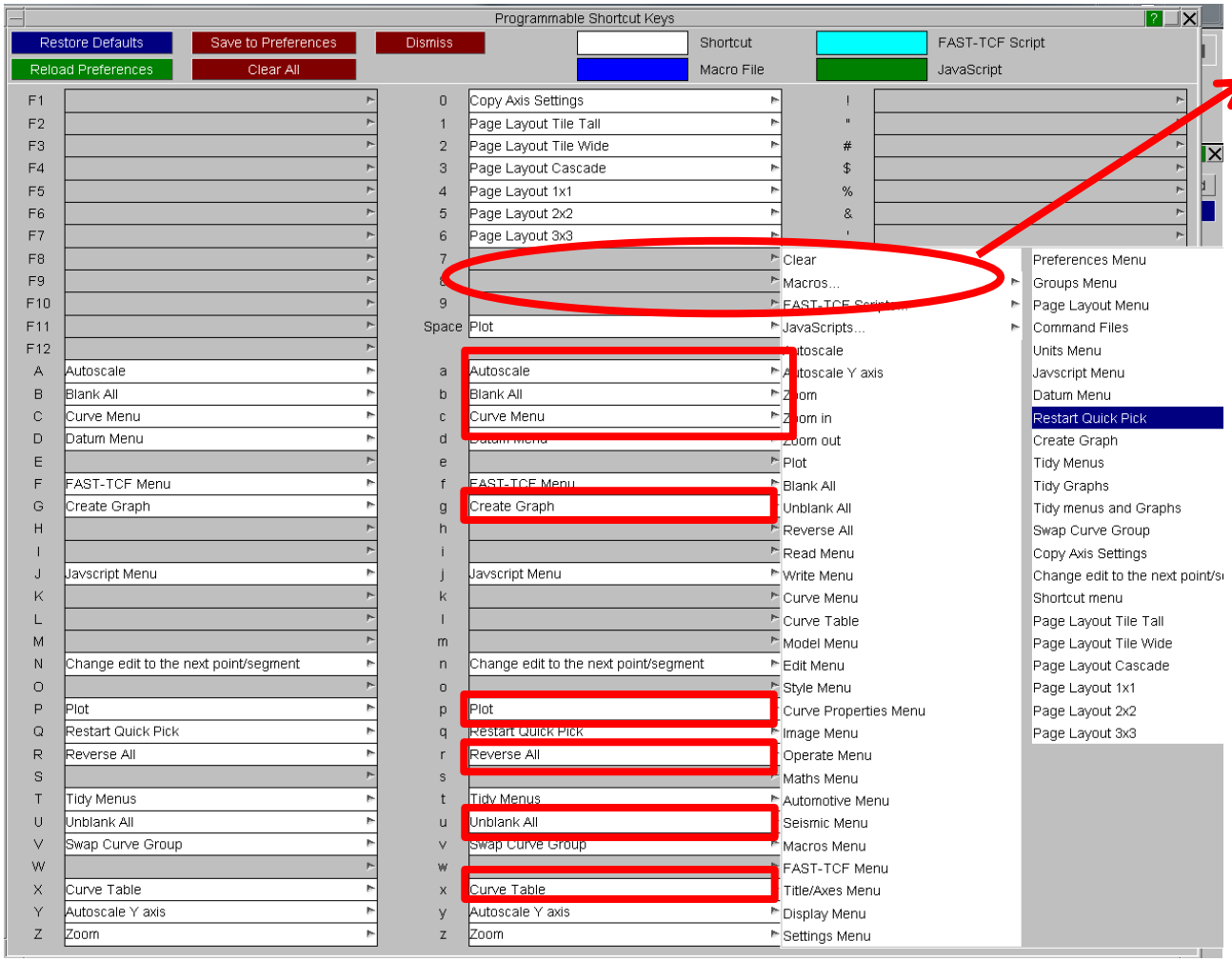
There are many ways to Blank on T/HIS:

- By clicking on any curve on the graph when the “Quick Pick” option is set to Blank.
- By clicking on one of the lines in the legend (also with “Quick Pick” set to Blank).
- The letter “b” blanks all the curves.
- The letter “u” un-blanks all the curves.



Shortcuts - Customizing

Go to “Options” -> “Shortcuts” to open the Programmable Shortcuts Menu.

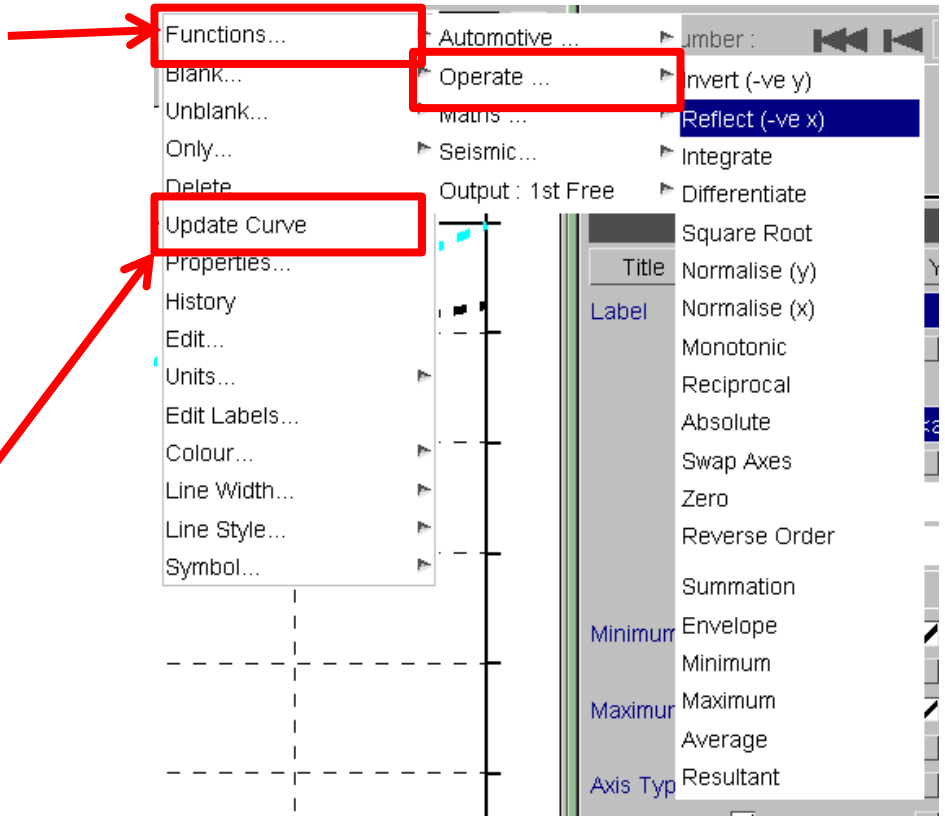


- Use one of the free keys to add your own custom shortcuts.
- Some of the most useful shortcuts are:
  - “a” – Autoscale
  - “b” – Blank All
  - “c” – Curve Menu
  - “g” – Create Graph
  - “p” and Space Bar – to plot, i.e. refresh screen
  - “r” – Reverse All
  - “u” – Unblank All
  - “x” – Curve Table

Shortcuts – Quick Pick Menu

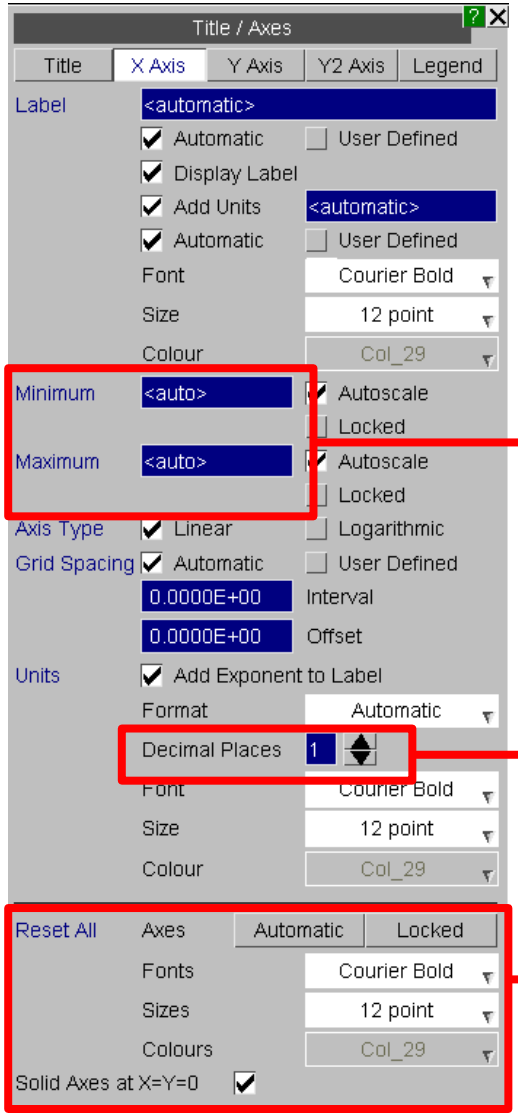
- Other useful shortcuts in the “Quick Pick” Menu are found under Functions->Operate. It is possible to select Invert or Reflect, etc. and click on a curve to create a new one.

- The “Update Curve” option is useful when a model is still running and results are changing. This will update the curve selected with any new data.

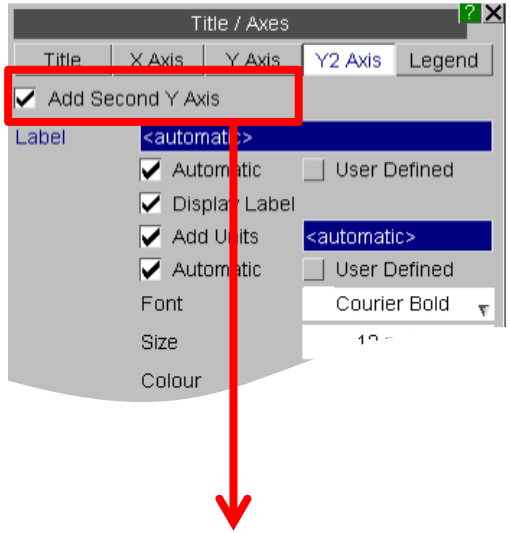


GRAPH SETTINGS

Graph Settings – Title/Axes

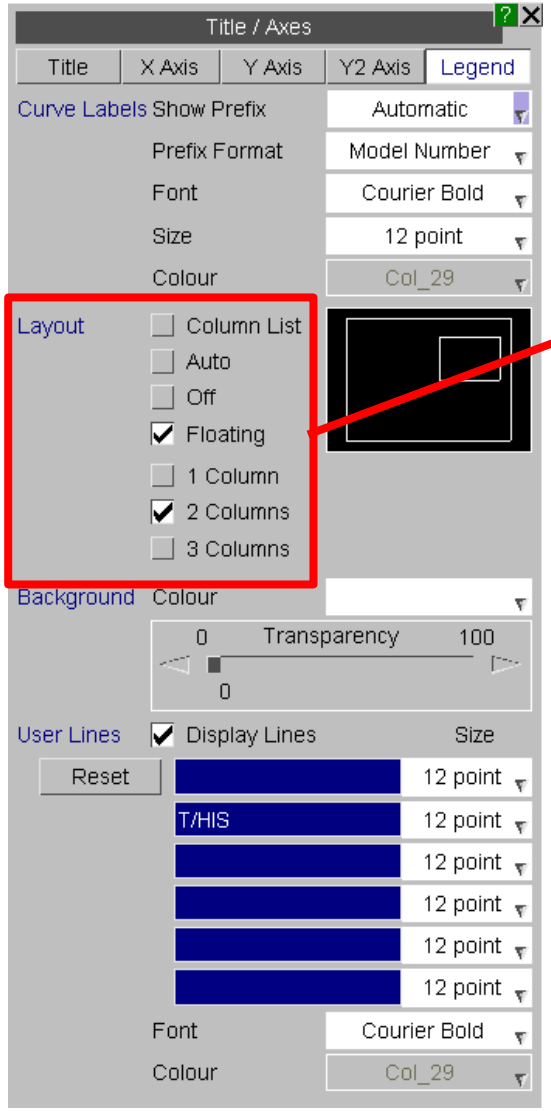


- The Title/Axes menu allows the user to change the display settings for the graphs.
- As mentioned before, it is possible to set the range for each axis.
- It is also possible to set the amount of decimal places shown on the graph.
- The Reset All section allows the user to set the Fonts, Sizes and Colours for all axes.



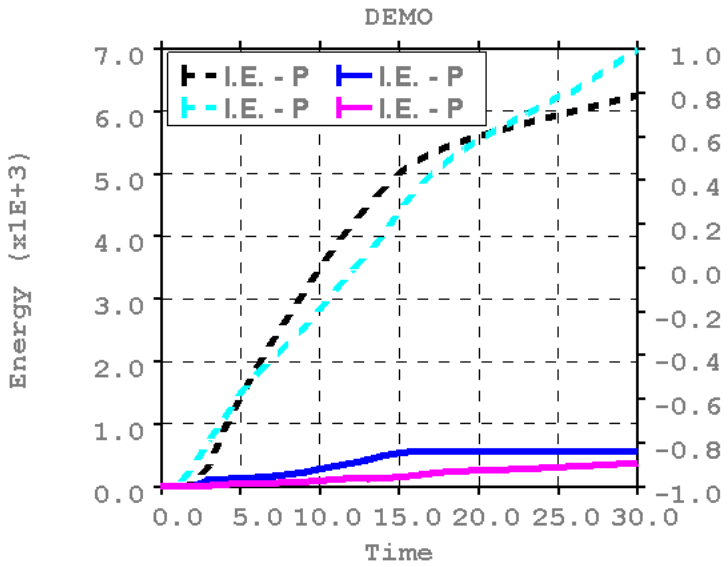
A second Y-axis can be added by ticking this option in the Y2 Axis menu.

Graph Settings – Legend

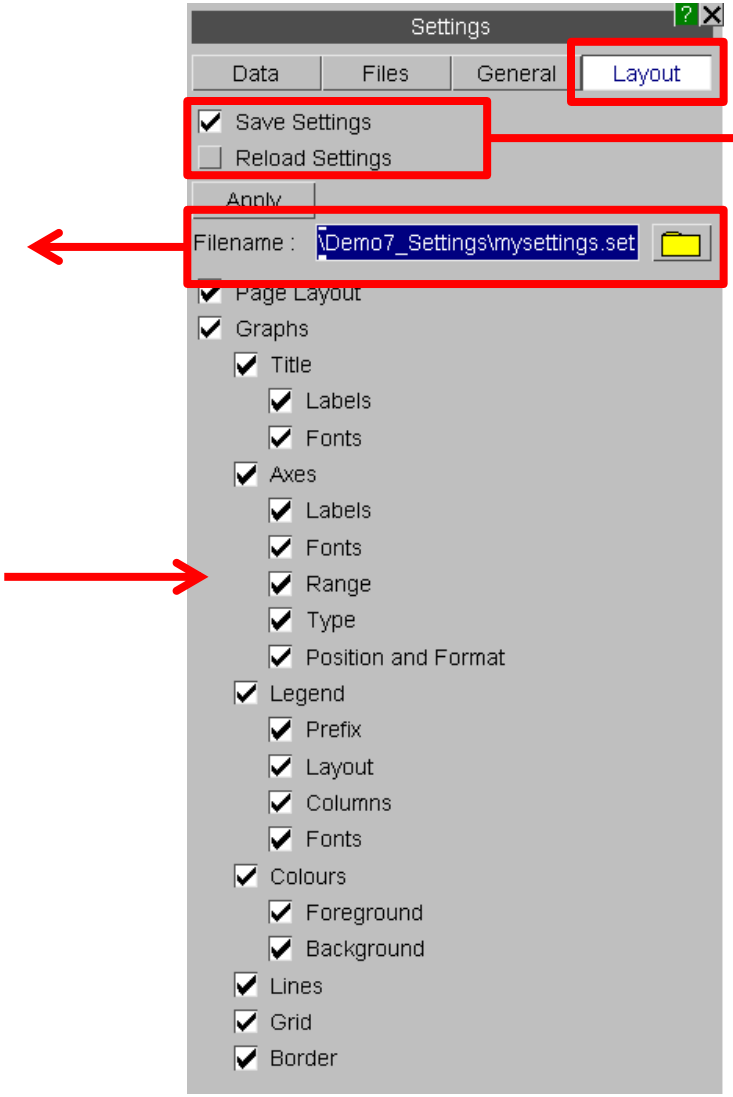


- The Legend menu allows the user to define the location and number of columns in the legend.
- The floating legend can be moved and re-sized manually to the desired location.

The resulting plot.



Graph Settings – Saving Settings



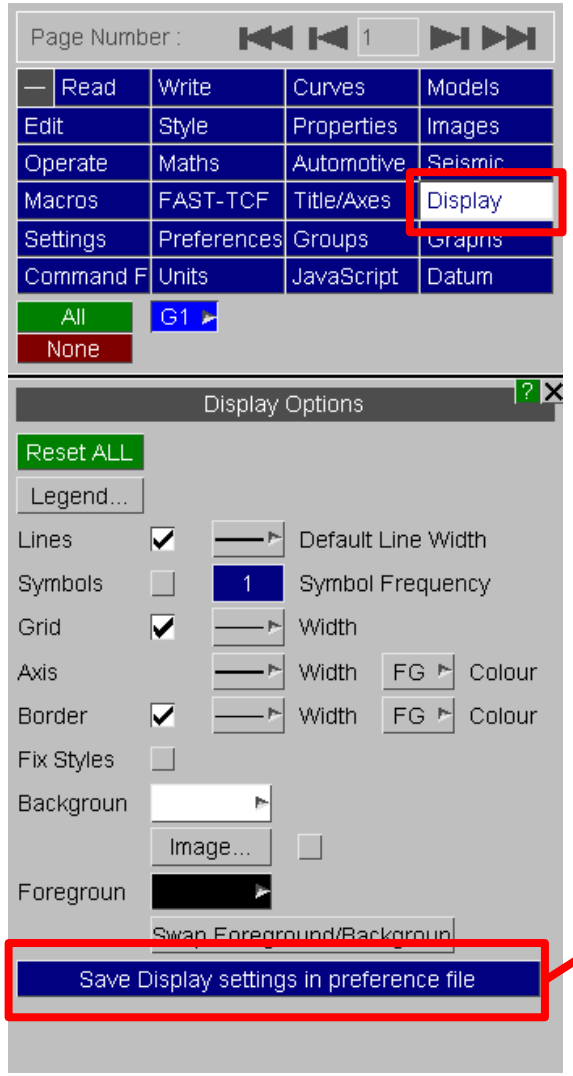
1. In Settings -> Layout it is possible to save your current settings or reload a pre-saved settings file.

2. Select a directory and file name for the settings file to save, or find the one to reload.

3. Pick the properties that should be saved in your settings file.

4. **Remember to press APPLY when done.**

Graph Settings – Saving Settings



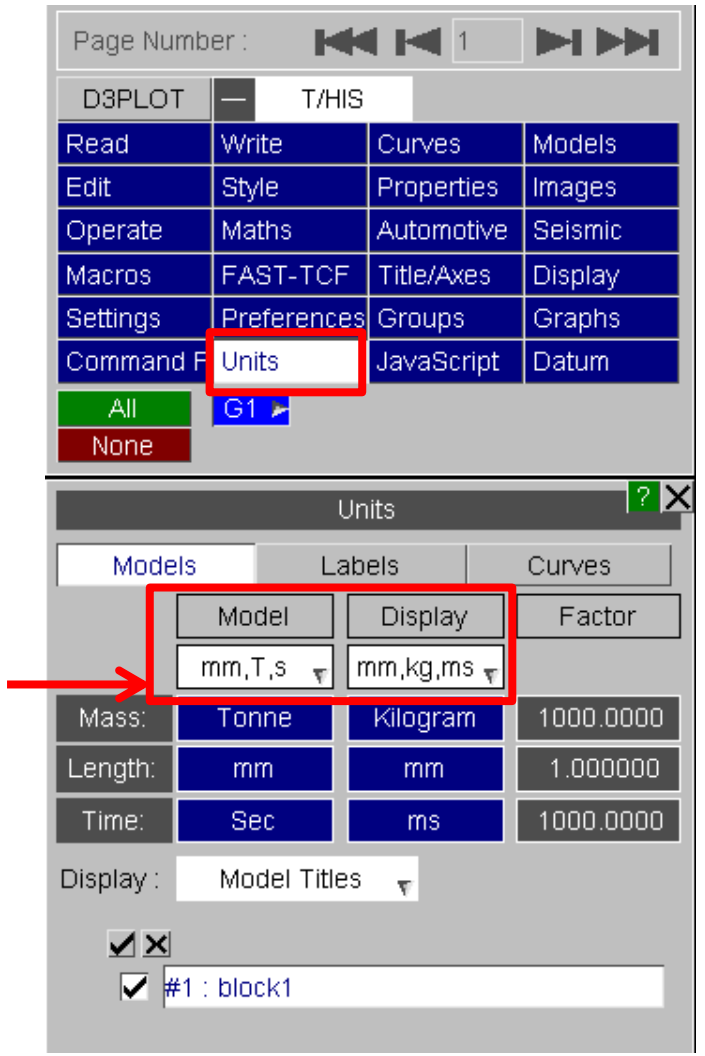
- If the Graph settings are your preference for all projects you can also save the settings to the oa_pref file by pressing the “Save Display settings in preference file” button at the bottom of the Display menu.

UNITS

Units

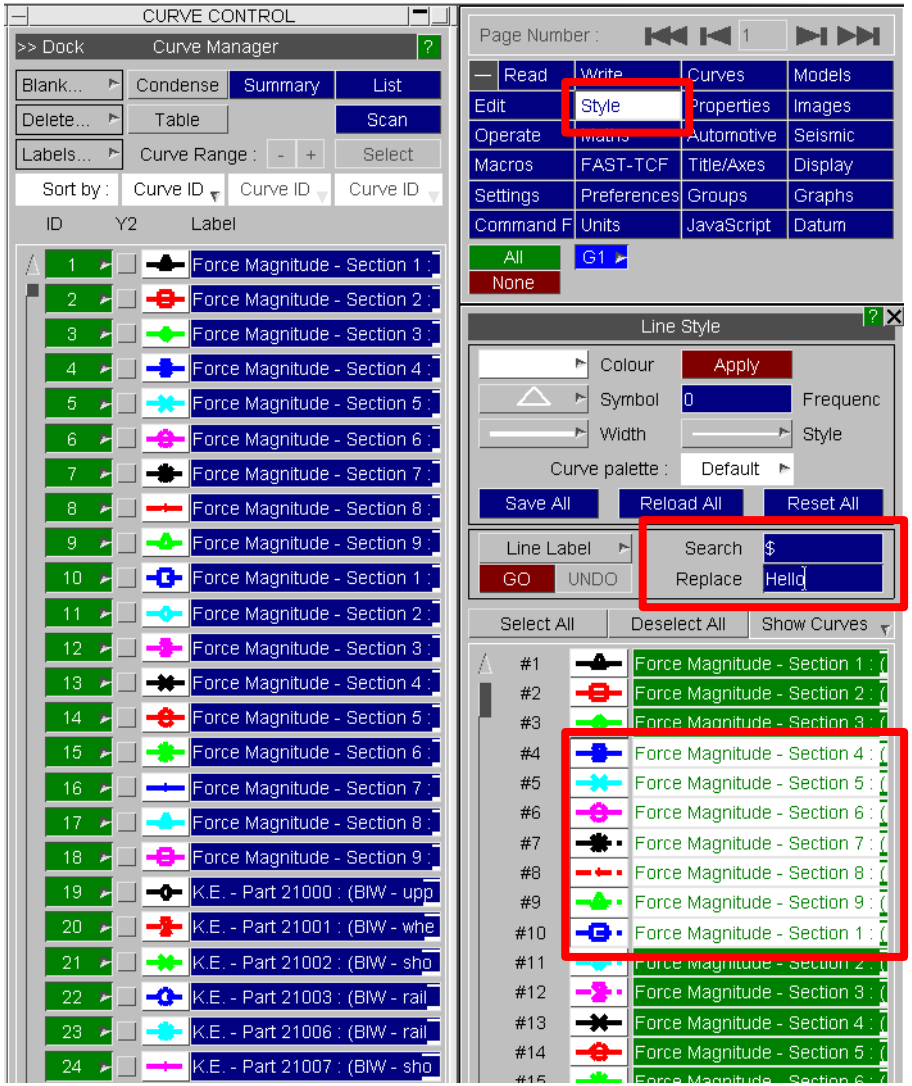
- In a linked session of D3Plot and T/HIS the Units menu allows the user to plot results with different units. (Note: If data was loaded from a .cur file the user must specify the units of each axis in Units->Curves, see section 5.22.3 of the T/HIS manual for more details).

- If the original model was defined in: mm, T, s and curves are to plotted in: mm, kg, ms, it is possible to automatically convert the T/HIS curves to the new set of units.



LINE STYLE

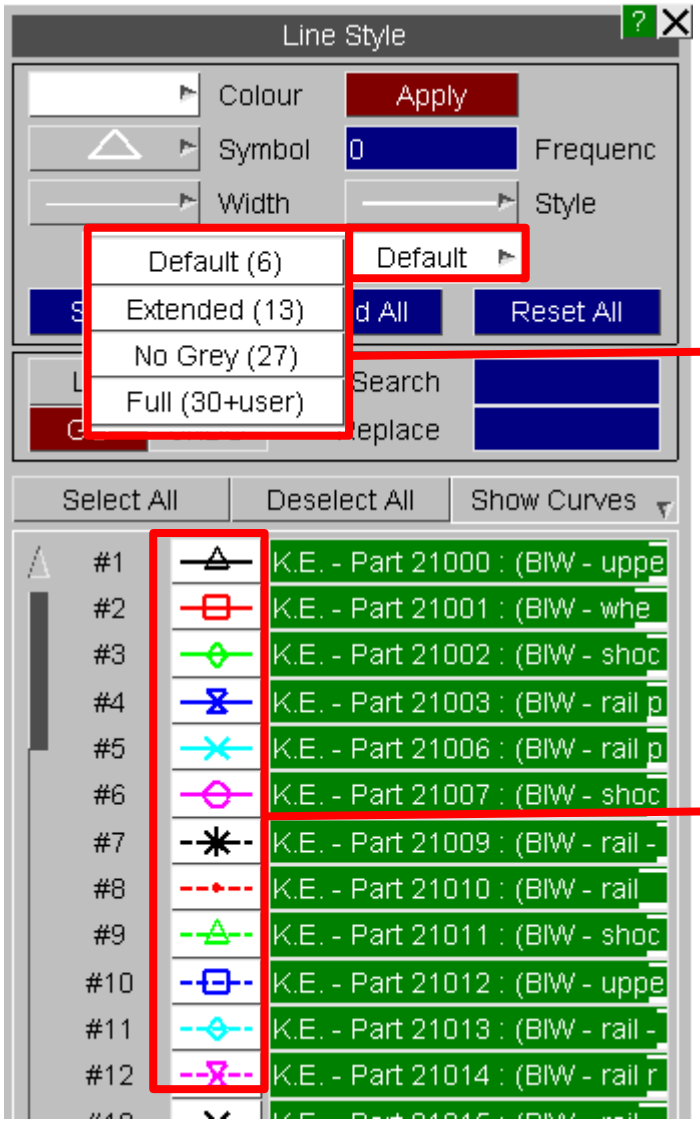
Style Menu



1. Undock the Curve Manager, select the Style Menu.
2. Select curves to be re-styled.
3. In the Search box type “$”. This will append text to the end of the label.
4. In the Replace box type in the text to be appended.
5. Press GO.

- It is possible to type a word in the Search box, such as Magnitude and T/HIS will replace any instance of it with your text.
- Use “^” in the Search box to append text to the beginning of the label.

Colour Palette

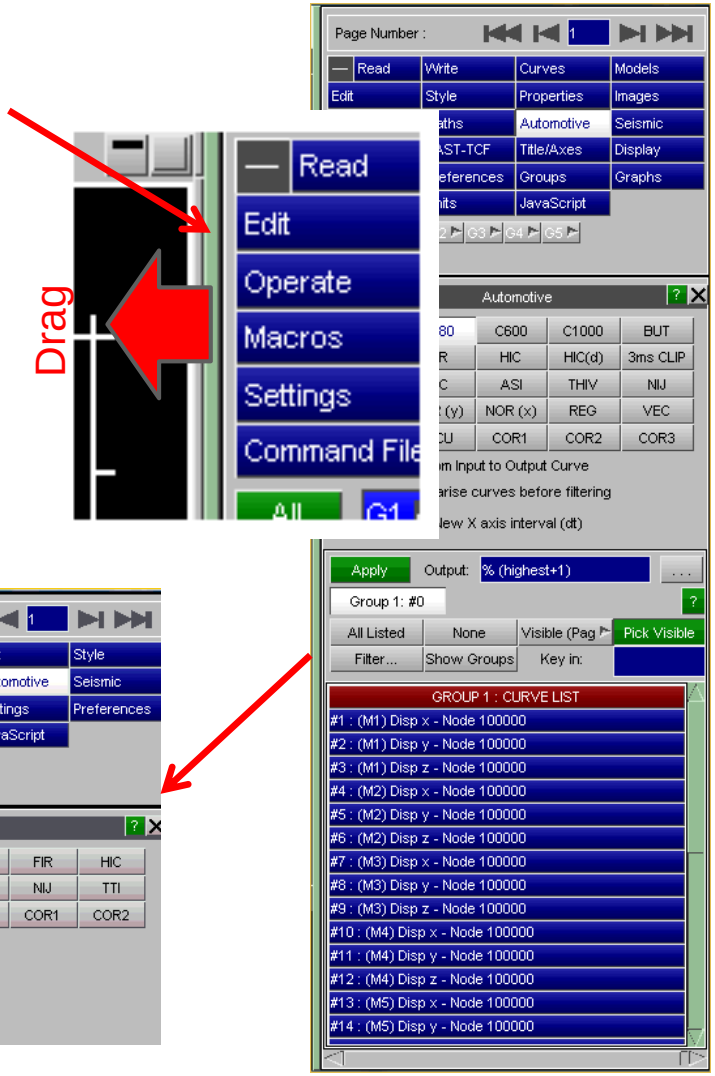


- By default T/HIS uses 6 colours for all the curves in any given Graph.
- The number of colours used can be increased in the Style Menu by clicking on the “Curve Palette” drop down menu. Then, choosing one of the three other options available.
- Six repeating colours over all curves (Default).

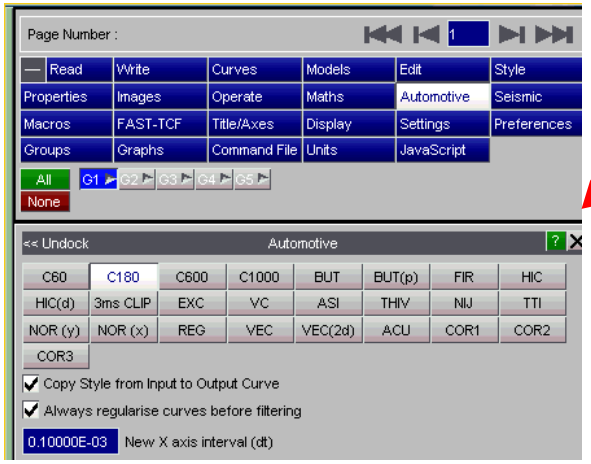
ERGONOMICS

Resizing Right Hand Menu

- The width of the right hand menu bar can be adjusted by clicking on the green vertical bar and dragging – e.g. used to reveal longer curve IDs in the Curve Manager.



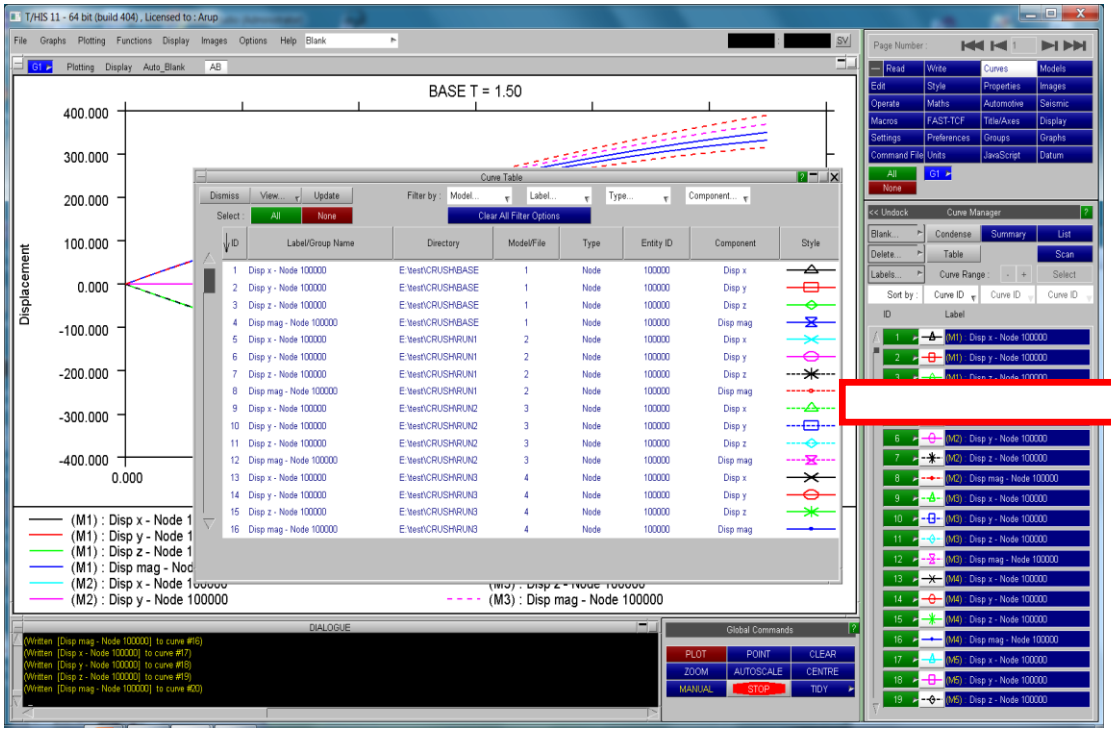
- Adjusting the width of the main menu also reformats the Operate, Maths, Automotive and Seismic menus and allows more curves to be displayed.

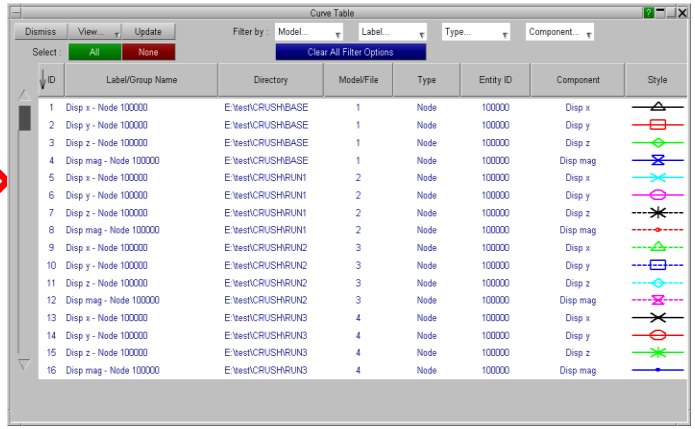


Ergonomics

Floating menus can be dragged outside the main T/HIS window.

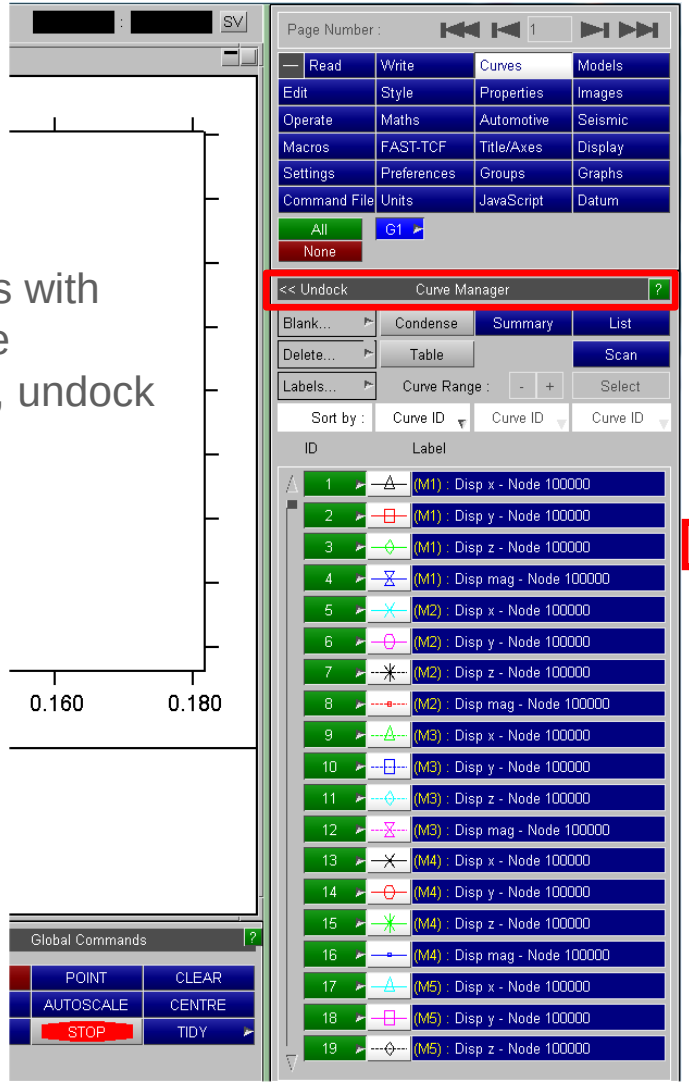
Useful with wide-screen or dual-screen monitors.

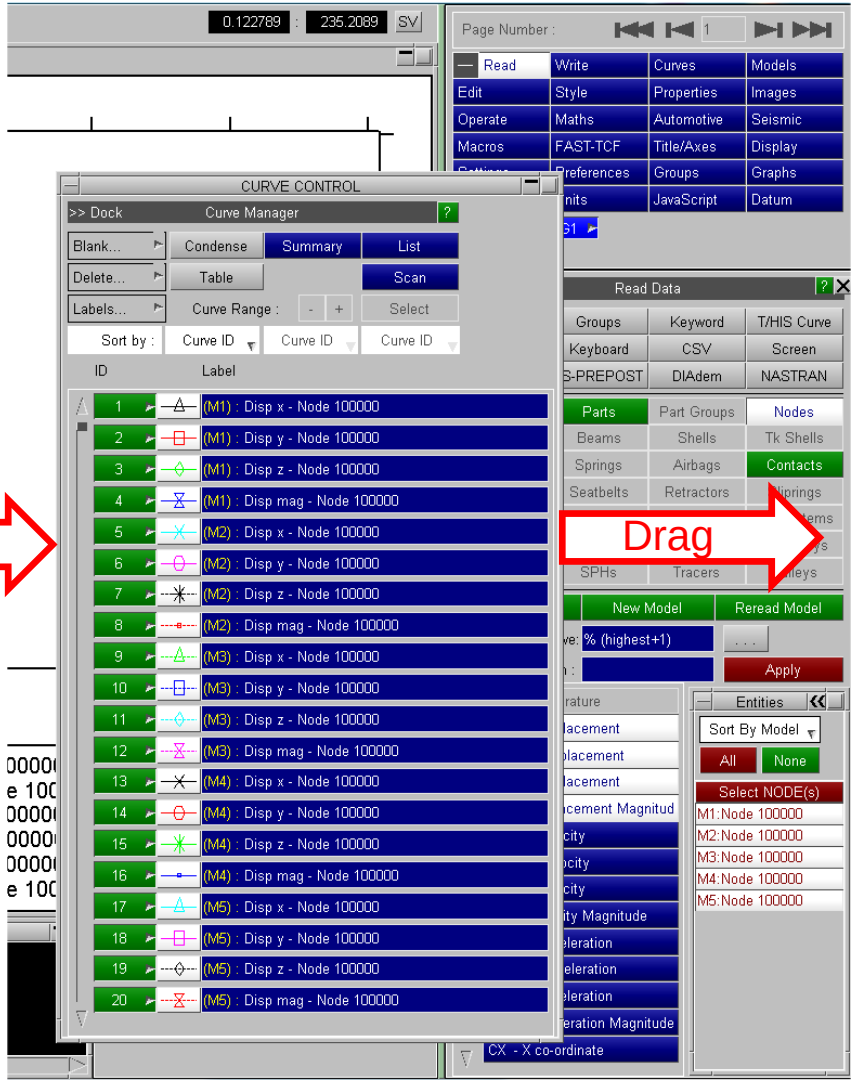




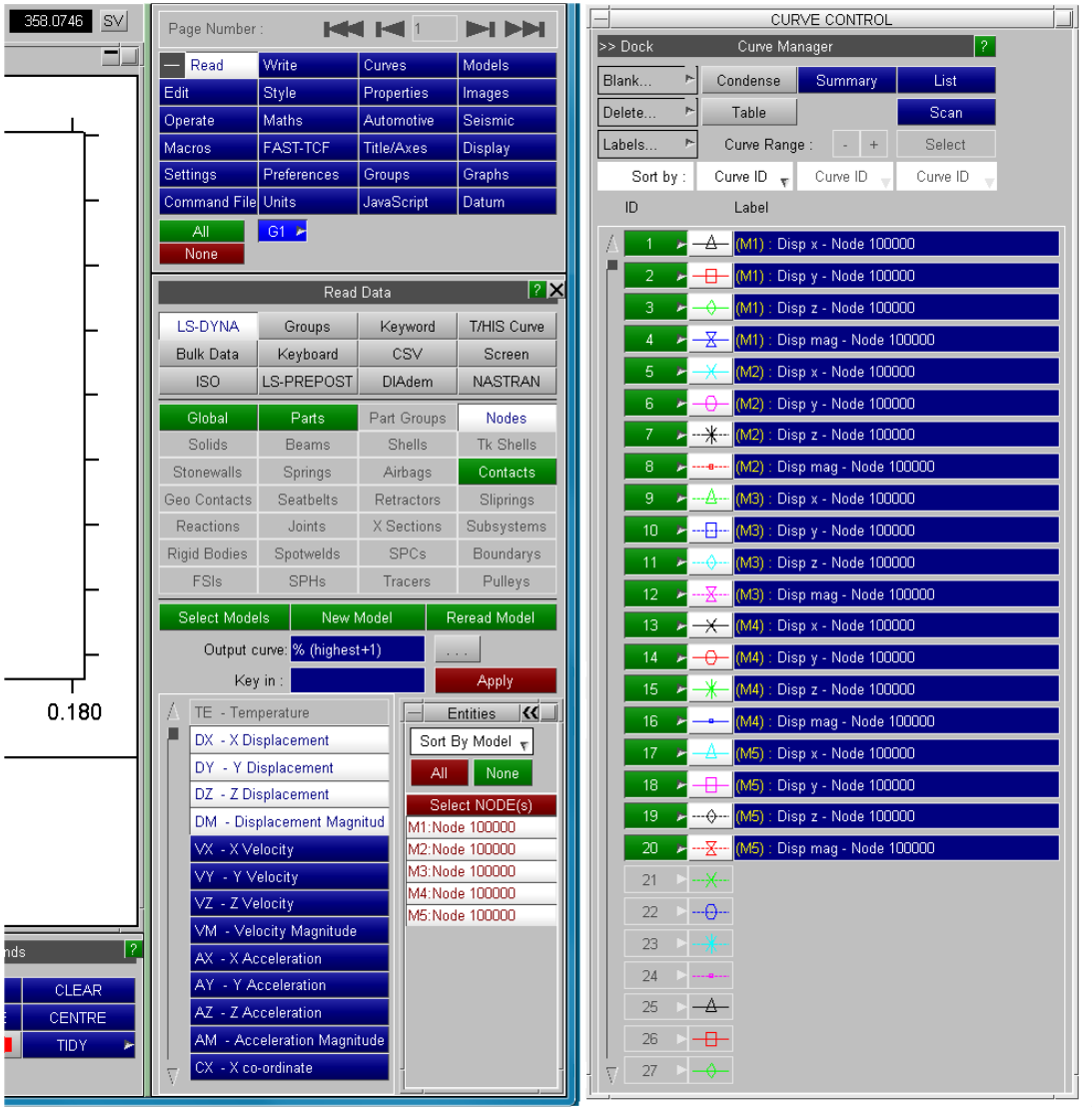
Ergonomics

To do this with the Curve Manager, undock it first





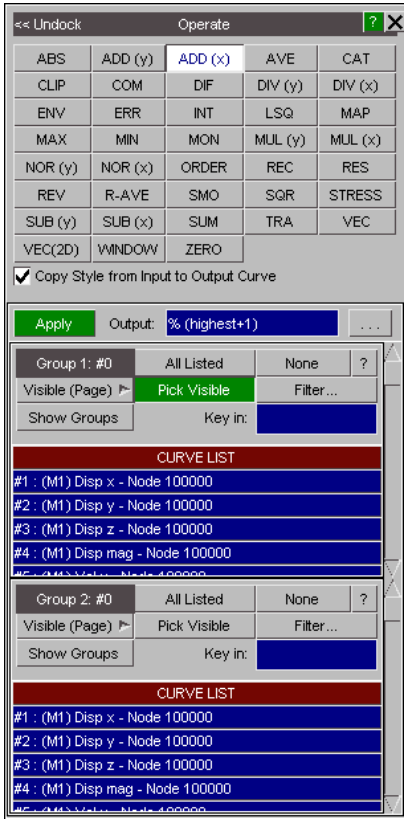
Ergonomics



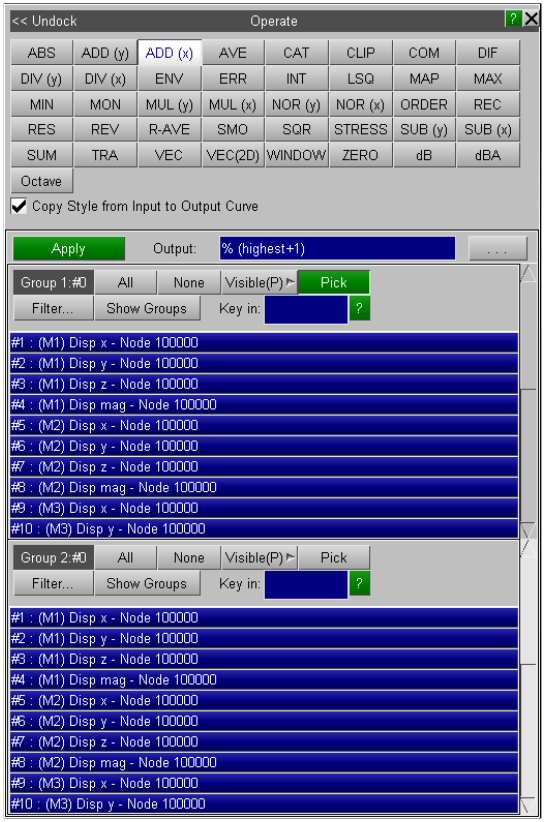
Now the Curve Manager is always available without obscuring other menus

Ergonomics

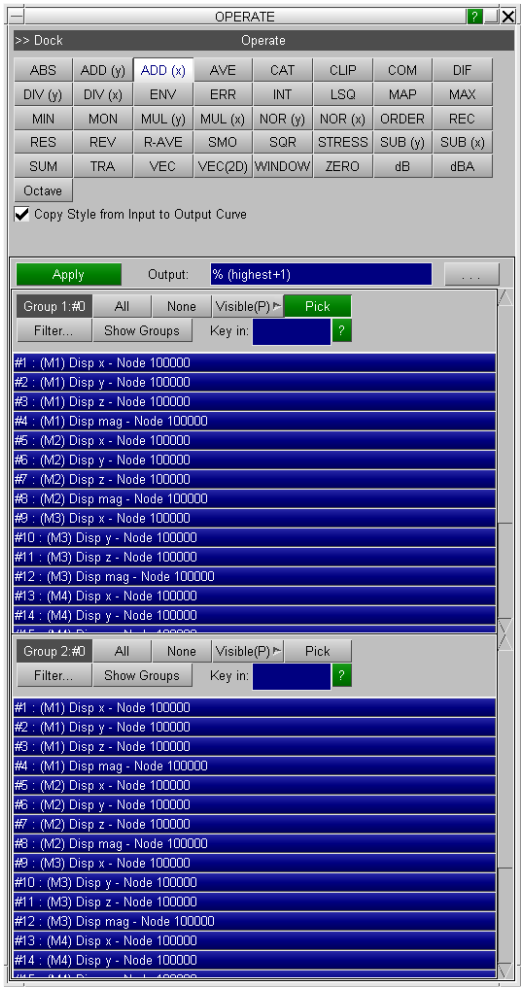
V10



V11 + Wide Menu



V11 + Desktop Menu



- More curves can be displayed in curve operation menus.