

Oasys Post-Processing:

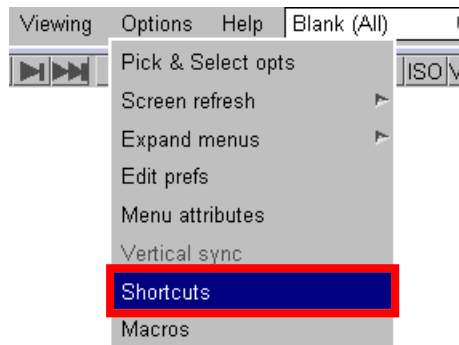
Did you know?...

- Shortcuts
- Quick Find
- Integration with PRIMER
- Undocking Menus
- User Defined Components
- Material Extra Data
- FAST-TCF
- Curve Table
- Curve History

Shortcuts

Shortcuts

- Commonly used panels and actions can be accessed through pre-programmed shortcuts.
- Shortcuts are customisable and can be saved to different keys.
- Javascripts and command files can be assigned to shortcut keys too.
- The shortcut keys can be customised in the shortcuts menu accessed through Options.



Shortcuts

Save setup in home oa_pref file

Javascrpts and Command Files can be assigned to keys

Note: Upper and lower case can be different if the user wants (default is not case sensitive)

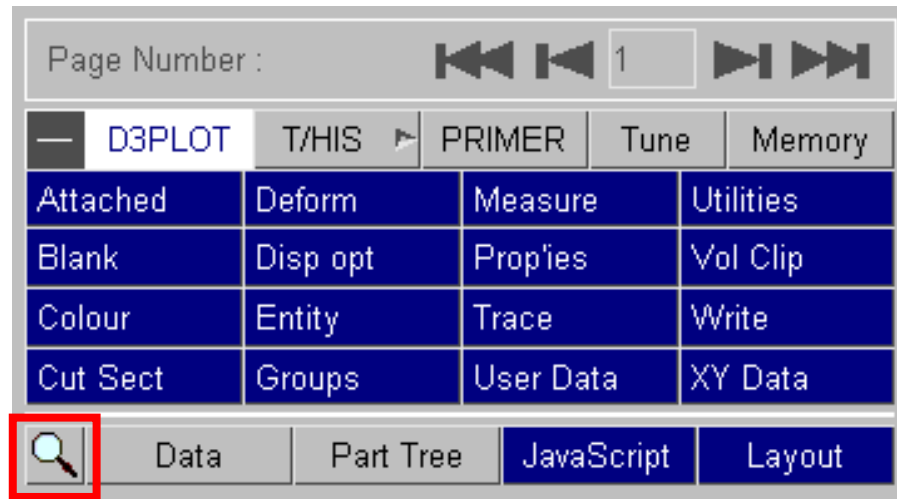
These functions can be set from the pop-up menu

Function	Key	Command File
Export view	0	Clear
+XY view	1	Command files...
+YZ view	2	Javascrpts...
+XZ view	3	Restart Quick Pick
+ISO view	4	Autoscale
		Zoom
		Zoom in
		Zoom out
		Blanking menu
		Unblank all
		Reverse all blanking
		Cut sections menu
		Drag cut plane
		Cut plane node pick
		Coarsen menu
		Colour menu
		Compress PTF menu
		Data components menu
		Deform menu
		Die Closure menu
		Display Options
		Entities menu
		External Data menu
		Failure Options menu
		Groups menu
		Write Image File
		Read Image File
		Javascript menu
		Layout menu
		Lighting menu
		Measure menu
		Part Tree
		Preferences menu
		Properties menu
		Settings File menu
		Shortcut menu
		Target Marker menu
		Trace Nodes menu
		User defined components menu
		Utilities menu
		View menu
		Visualisation menu
		Volume Clip menu
		Write menu
		Read Watermark
		XY Data menu
		Hidden Line Plot
		Line mode plot
		Shaded Plot
		Shaded Contour Plot
		Continuous Tone plot
		Line Contour plot
		Vector plot
		Cloud plot
		ISO Surface plot
		Beam plot
		Principal plot
		Cycle through no/free/all overlay
		+XY view
		+YZ view
		+XZ view
		+ISO view
		-XY view
		-YZ view
		-XZ view
		-ISO view
		Export view
		Lock toggle
		Centre toggle
		Cycle View Back
		Cycle View Fwd
		Open Window
		Iconise/De-iconise
		Close All
		Toggle animation on/off

Quick Find

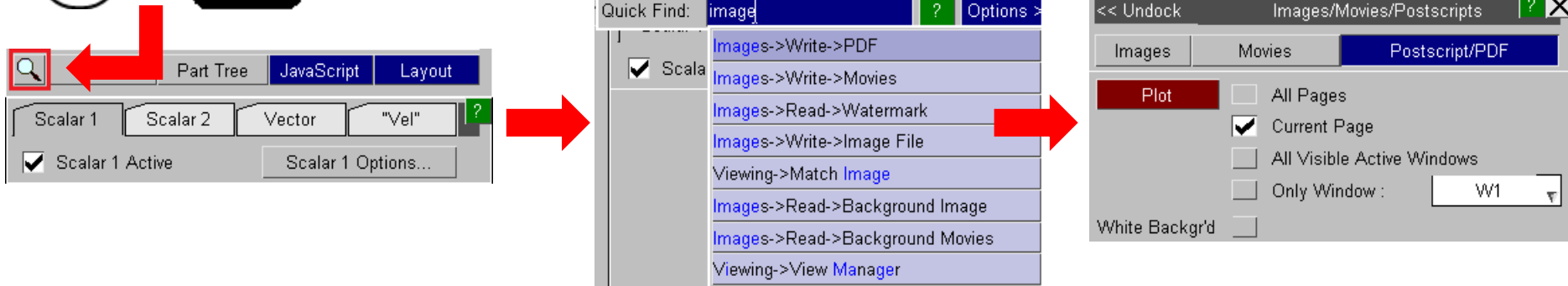
Quick Find

Quick Find is a quick way of searching for and accessing functionality in D3PLOT and T/HIS (and PRIMER). It is accessed with shortcut key '#' or by pressing the magnifying glass below the Tools Menu.



Quick Find

Typing in the textbox brings up a list of found items that match the entered text. Items in the list can be selected by clicking on them or by using the up and down arrow keys and pressing enter. The selected item will then perform the task, e.g. open a menu.



Quick Find

A 'fuzzy' matching method is used to match the entered text with the searchable items. It judges that something has matched when the characters of the entered text appear in the same order as the item that can be searched for.

For example if you type 'mptp' then 'Tools->Measure->Part To Part' would be a match, but 'Tools->Measure->Point Angle' wouldn't because the final 'p' doesn't match. (Note that the search is case insensitive).



Additionally, if the entered search pattern contains spaces and the characters do not all match in the same order then D3PLOT will look to see if the words can be swapped to find a match.

For example 'back image' would find 'Image->Background' even though the words do not appear in that order.

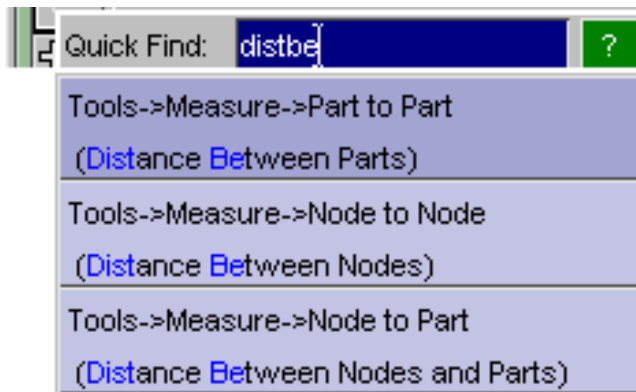
This hopefully makes it easier to find items as you do not need to know the precise search term.

The found items are listed in order of how closely they match the entered text so items that more closely match appear nearer the top of the list. It determines this by assigning a score to each match, with higher scores given to items that contain consecutively matched characters and if the characters appear at the start of words.

Quick Find

The default search term associated with a menu item is the trail of menus/buttons you would need to manually open/press, e.g. to get to measure part to part you would need to go to Tools, then Measure then Part to Part, hence the search term 'Tools->Measure->Part to Part'.

In addition, some menus have alternative search terms associated with them. For example Measure Part to Part can also be found from the alternative text 'Distance Between Parts':



This can be useful for cases where you don't know or can't remember under which menu some functionality lives.

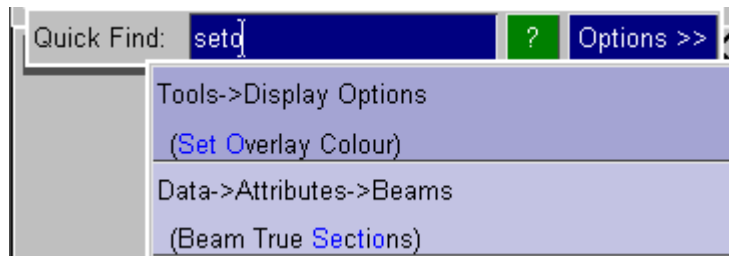
Note that the alternative text appears in brackets under the default search term so you can see how you would get to the menu manually.

If you can't find menus that you know exist in D3PLOT it is likely that you are using different terminology to what we expect. If so, please contact Oasys Ltd and we can add alternative text based on what you are entering as your search text.

Quick Find

Alternative text associated with a menu may also describe some of the features on a menu. For example the overlay colour of elements is set in the Display Options menus, but if you didn't know this it would be hard to find.

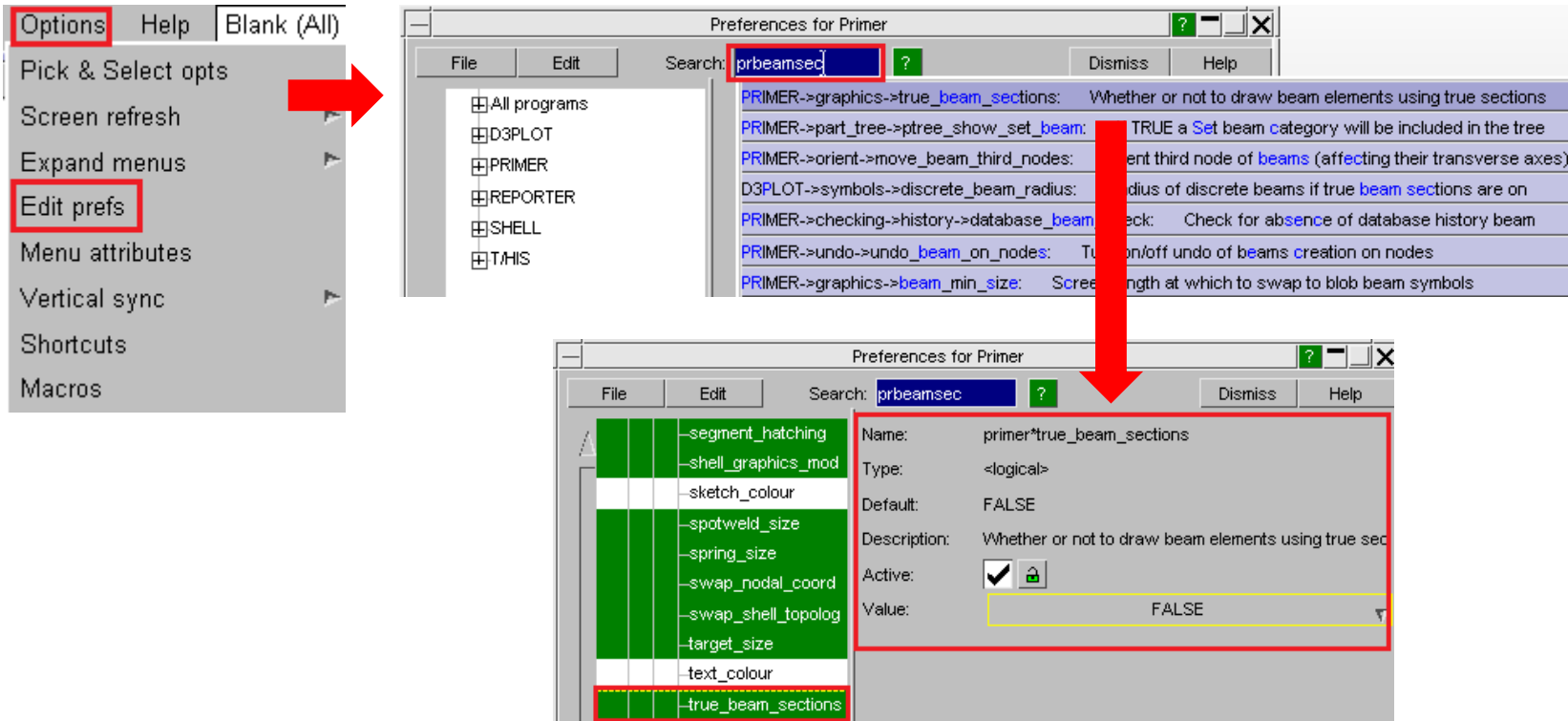
In this case the alternative text 'Set Overlay Colour' is associated with this menu:



As you can see the alternative text 'Beam True Sections' is also associated with this menu as the switch to select this option is also on the Display Options menu.

Quick Find

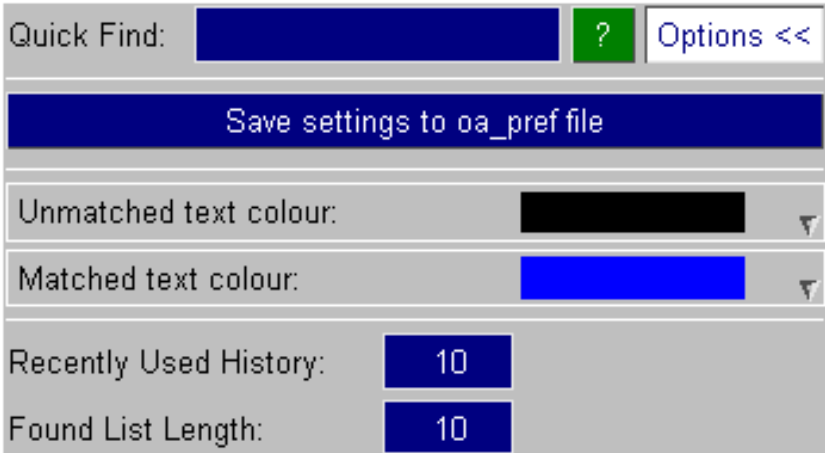
In addition to the main Quick Find button in D3PLOT the Preferences Editor now also contains a search facility to help find preferences.



This works using the same 'fuzzy' matching method as the main Quick Find menu. The search terms contain the name of the program, the name of the nodes on the tree, the preference name and the description of it.

Quick Find

There are a few options that can be set to alter how Quick Find works. These can be accessed by pressing the 'Options >>' button:



Save the settings to the oa_pref file.

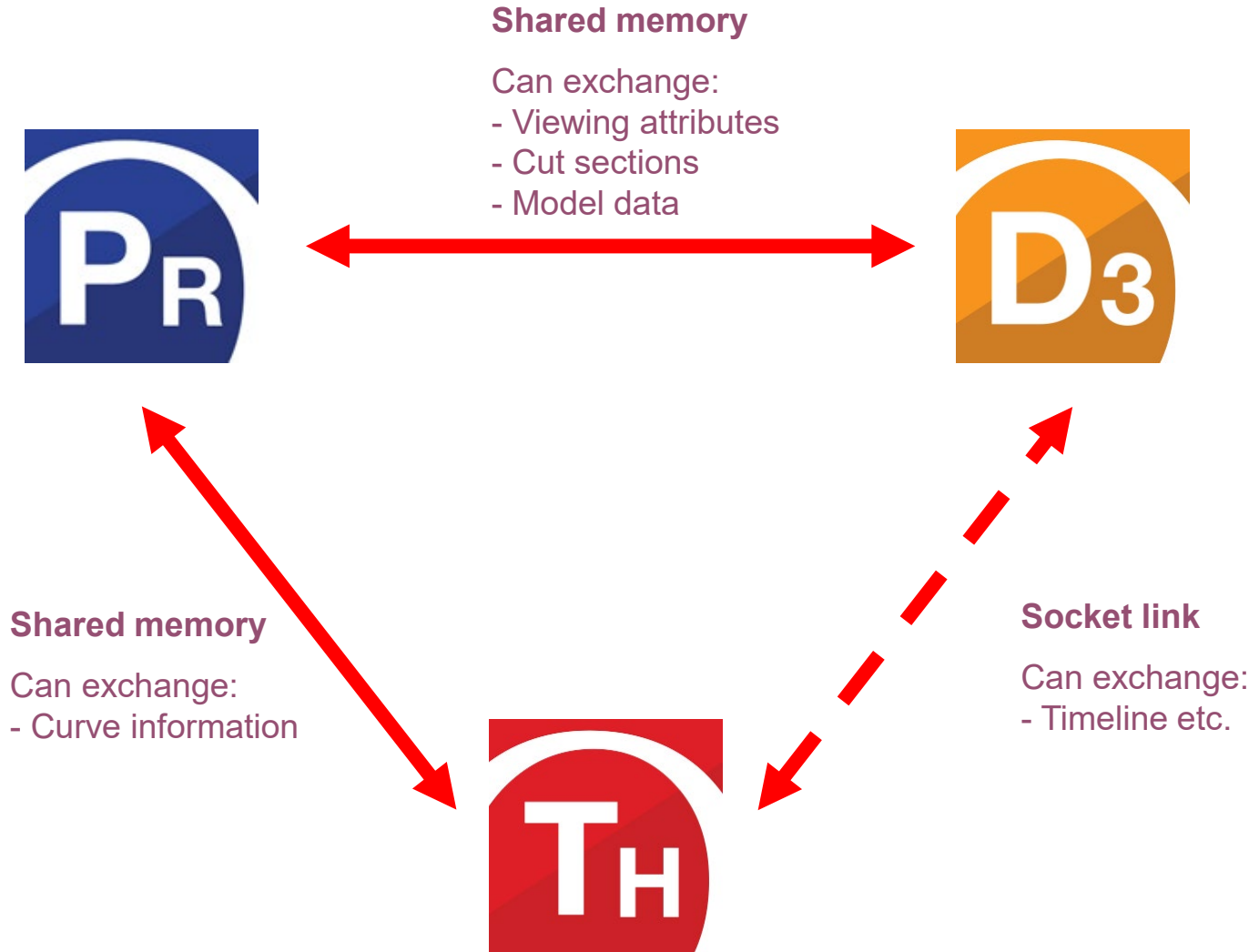
Set the text colours.

Recently selected items are saved by D3PLOT and appear higher in the list of available options. By default the last ten selected items are saved, but this can be changed here. To turn it off set it to zero.

The number of found items displayed in the list can also be changed here.

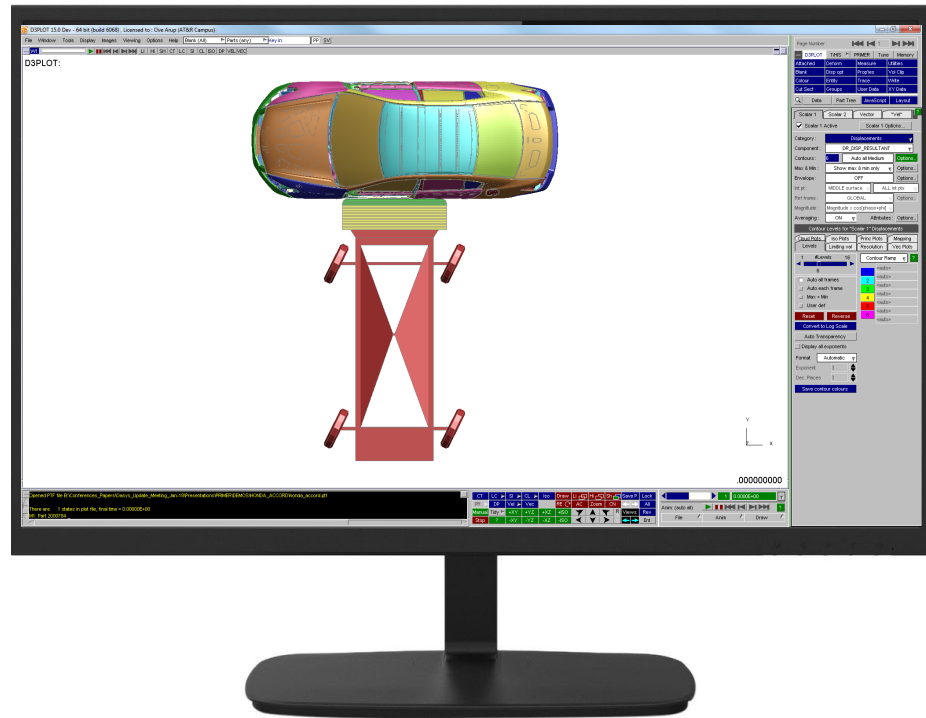
Integration of Packages

- With the Oasys products you would traditionally look at LS-DYNA input files and output files separately.
- It is often desirable to access both sets of information at the same time, for example:
 - With output results, wanting to look at material properties for a part that has failed.
 - In the input model, wanting to look at spotweld failure of a current analysis when deciding how to change your spotweld configuration.
- The ZTF file (written by PRIMER) allows some model information to be transferred to D3PLOT to aid this.
- In V15 there is also an ability to open one piece of software from another with the contents linked to allow easy access to both sets of information.



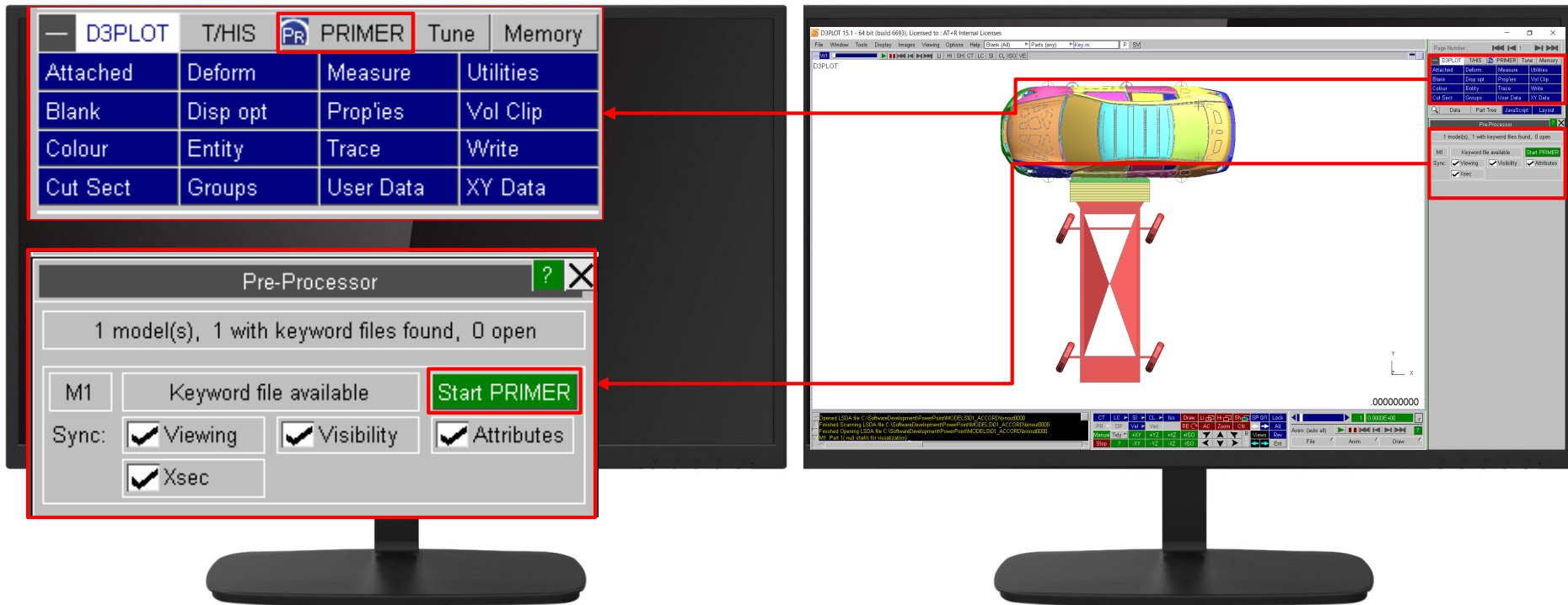
Pre-Post Integration - Example

- You are working in D3PLOT – you want to view input information related to your model



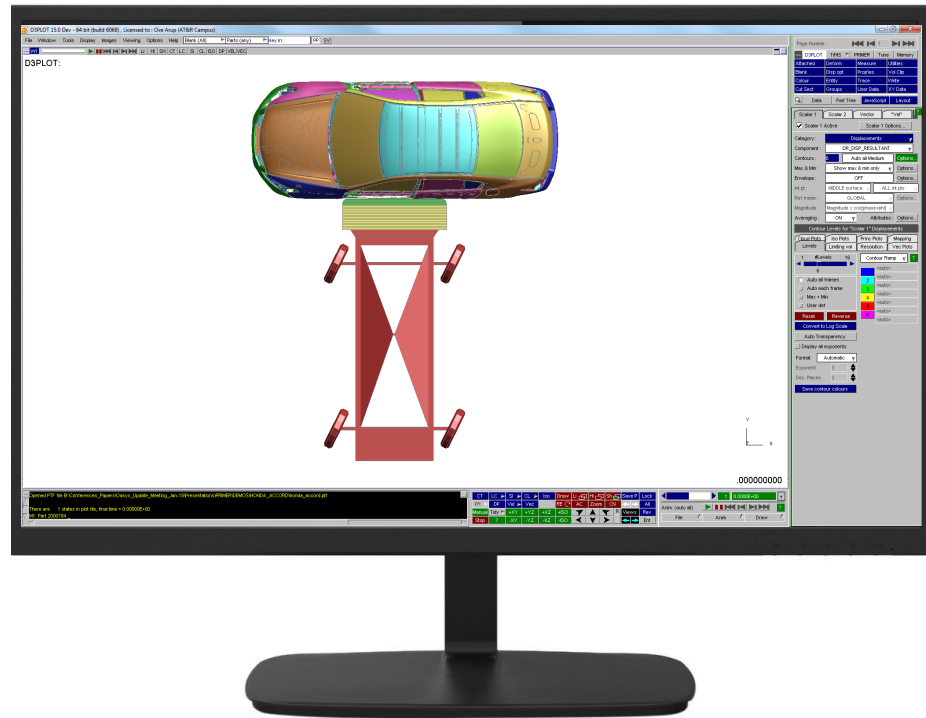
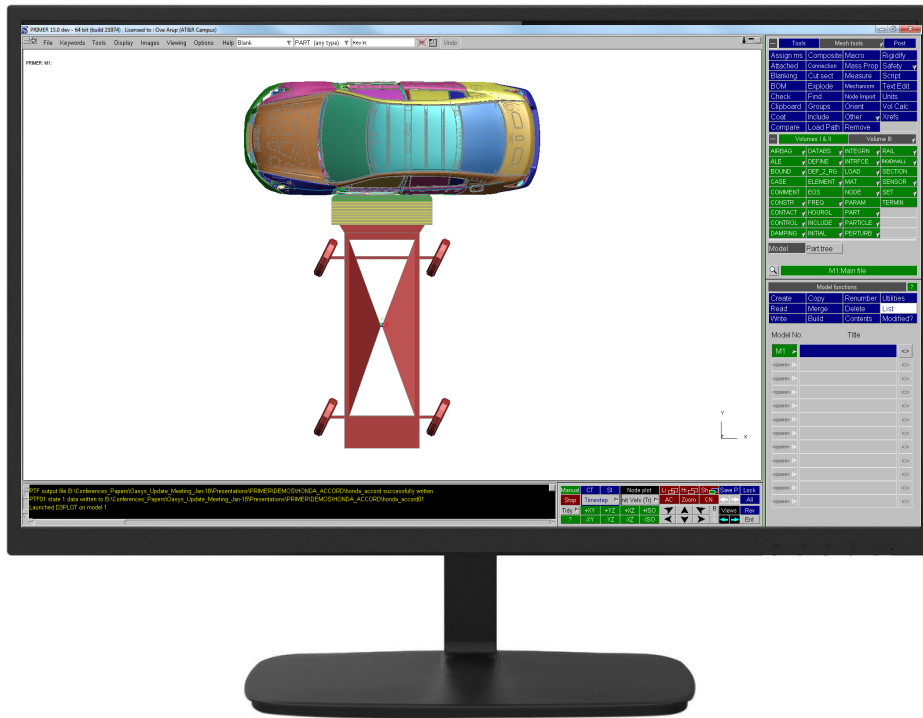
Pre-Post Integration - Example

- New “PRIMER” button allows you to launch PRIMER from D3PLOT (T/HIS is similar).
- You can also launch D3PLOT or T/HIS from PRIMER.



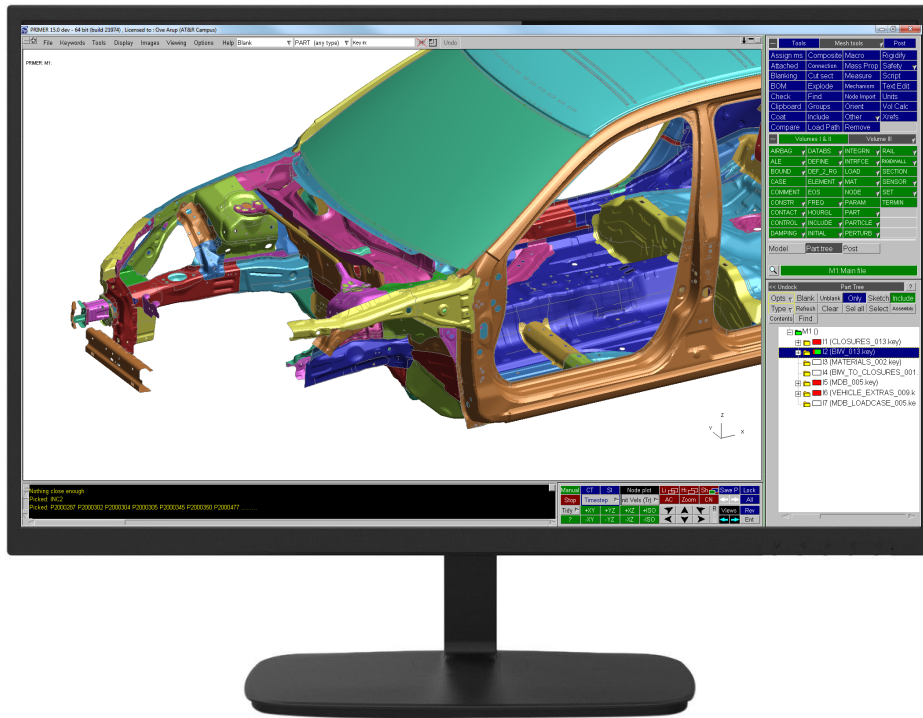
Pre-Post Integration - Example

- PRIMER opens and automatically reads keyword file – view and blanking status are matched.
- This link works best on multiple monitors.



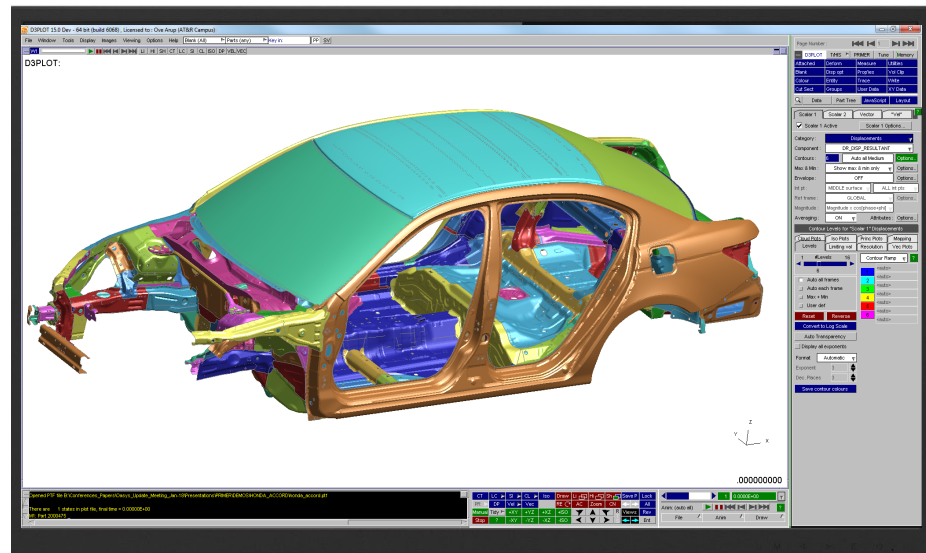
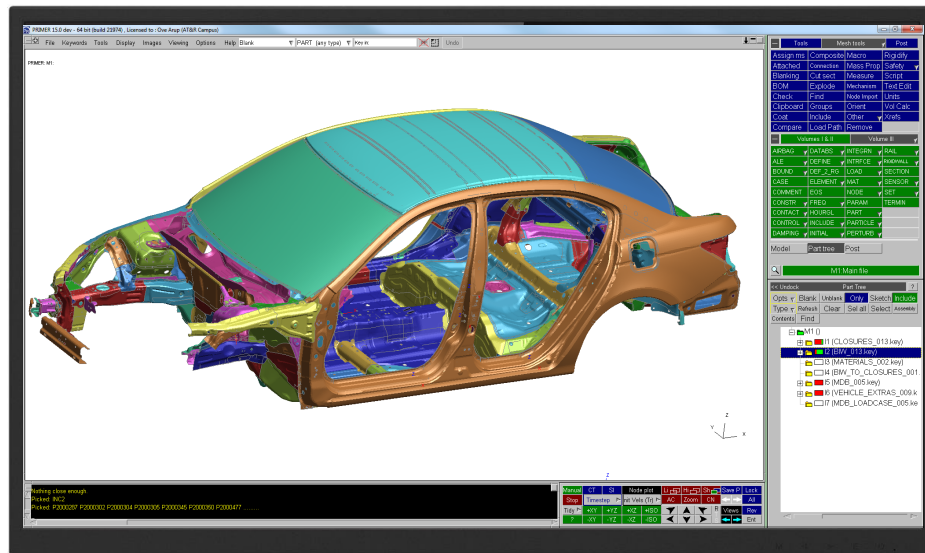
Pre-Post Integration - Example

- Blanking is automatically synced across the link



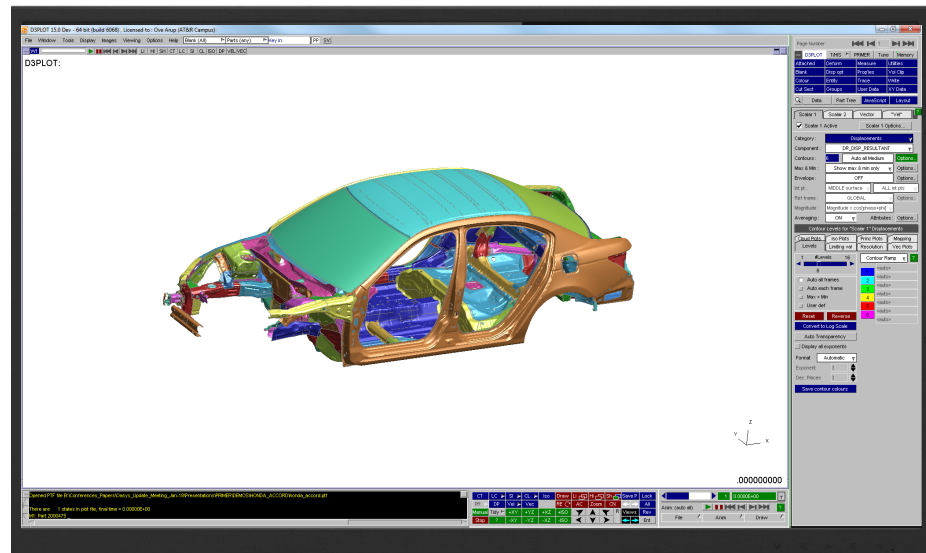
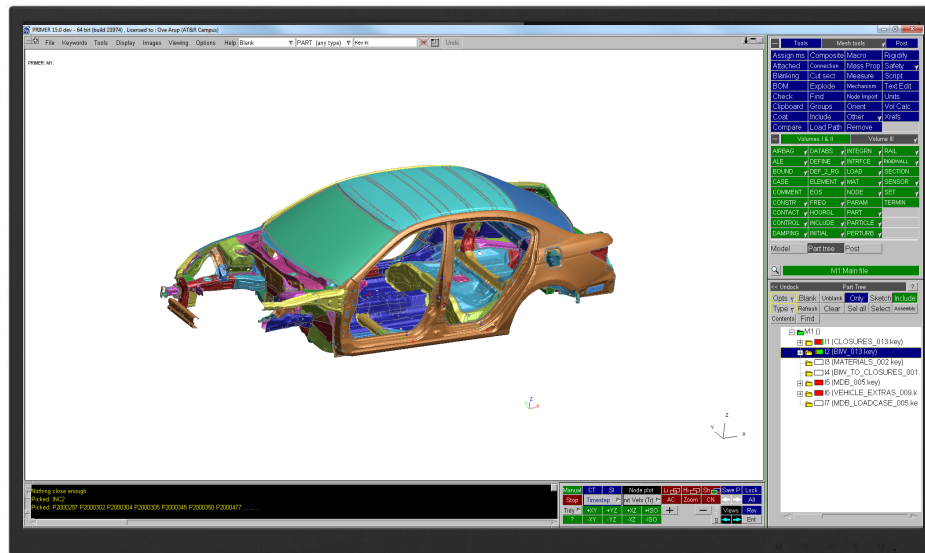
Pre-Post Integration - Example

- Dynamic rotation/translation/zooming is automatically synced across programs.



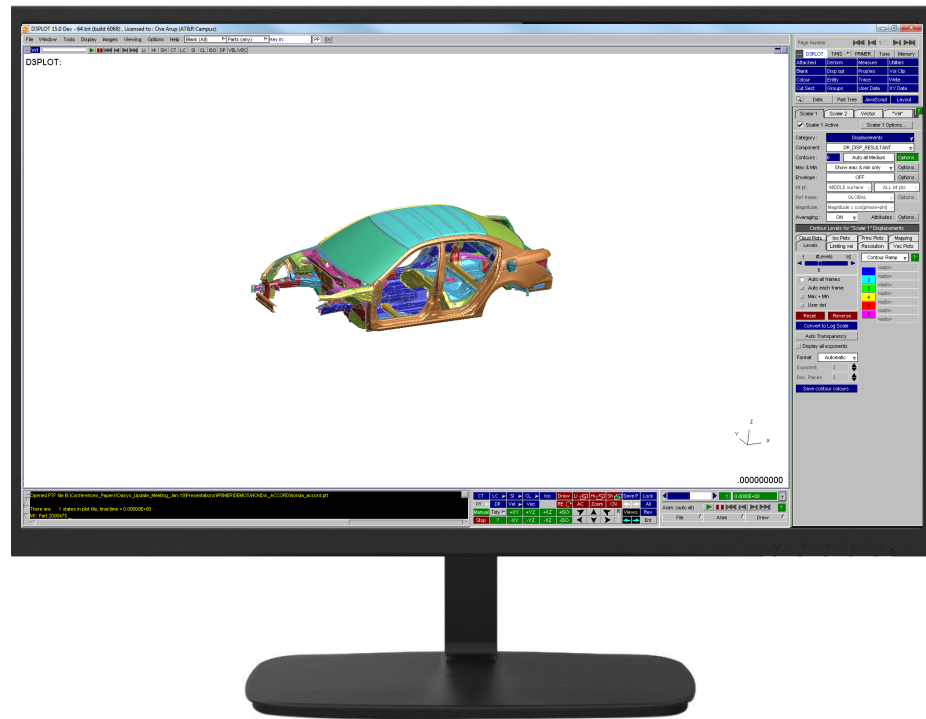
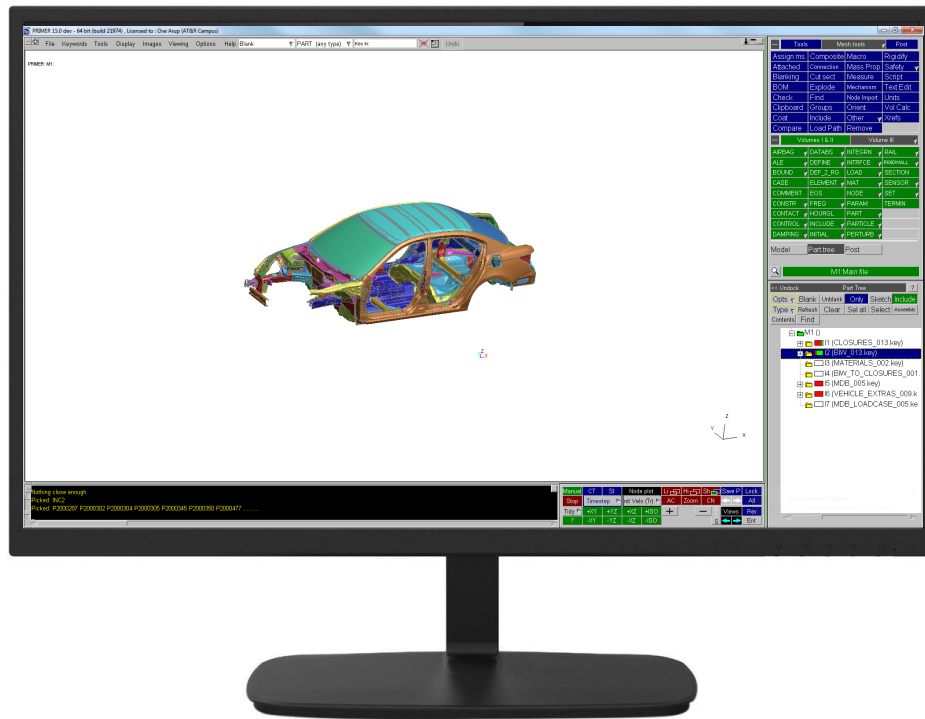
Pre-Post Integration - Example

- Dynamic rotation/translation/zooming is automatically synced across programs.



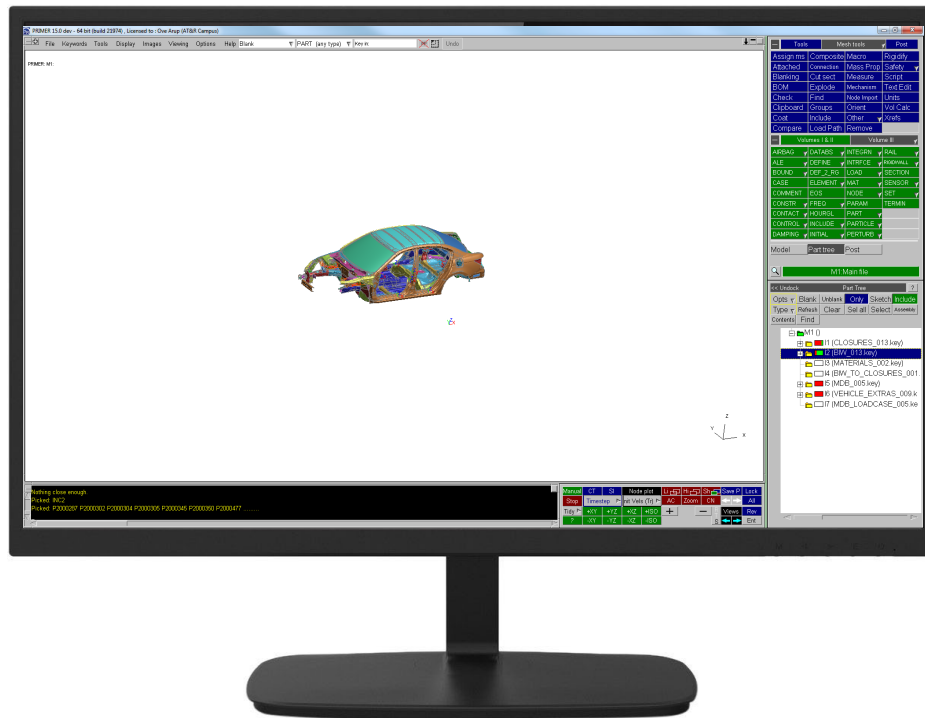
Pre-Post Integration - Example

- Dynamic rotation/translation/zooming is automatically synced across programs.



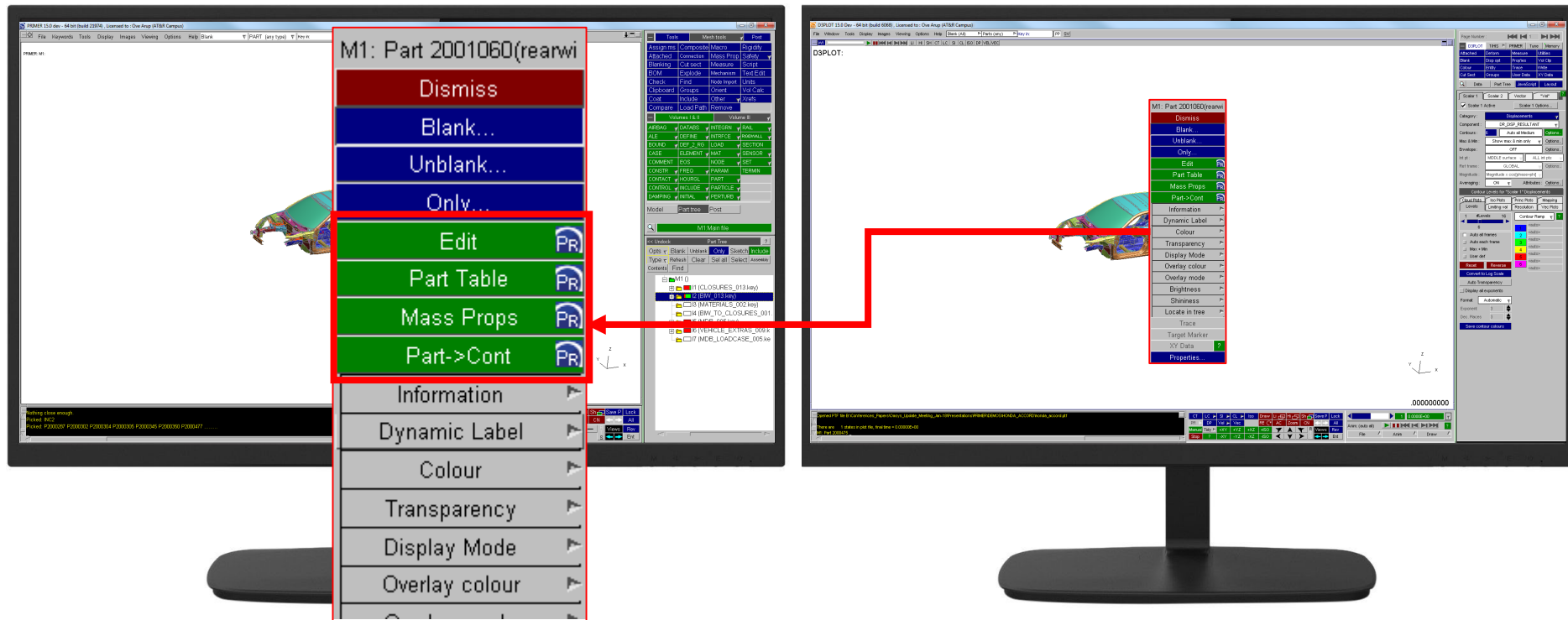
Pre-Post Integration - Example

- Dynamic rotation/translation/zooming is automatically synced across programs.



Pre-Post Integration - Example

- Some PRIMER functionality can be launched from D3PLOT by right-clicking on entities in D3PLOT



Undocking Menus

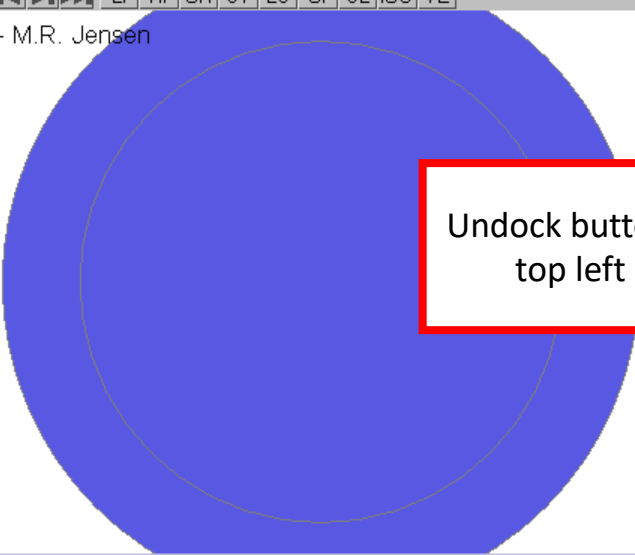
- D3PLOT and T/HIS allows some menus to be 'undocked' from the main window and they appear in their own floating window.
- Undocked menus can then be repositioned by the user so they are instantly accessible at any time without reselecting in the Main Menu Options area.
- When D3PLOT and T/HIS are in linked mode the T/HIS window can be undocked from the D3PLOT window. This is particularly useful with a multiple monitor setup as D3PLOT and T/HIS can each be displayed on a different monitor.
- D3PLOT and T/HIS save the status and position of undocked menus at the end of each session and restore the configuration when next started.

D3PLOT: File Window Tools Display Images Viewing Options Help Blank (All) Parts (any) Key in: P SV

T/HIS: File Graphs Plotting Functions Display Images Options Help Blank

W1 LI HI SH CT LC SI CL ISO VE

D3PLOT: Hydroforming of tubes - M.R. Jensen



Y X
0.00000000

G1 Dock Plotting Display Auto_Blank AB

Undock button located in the top left of the menu

Page Number: 1

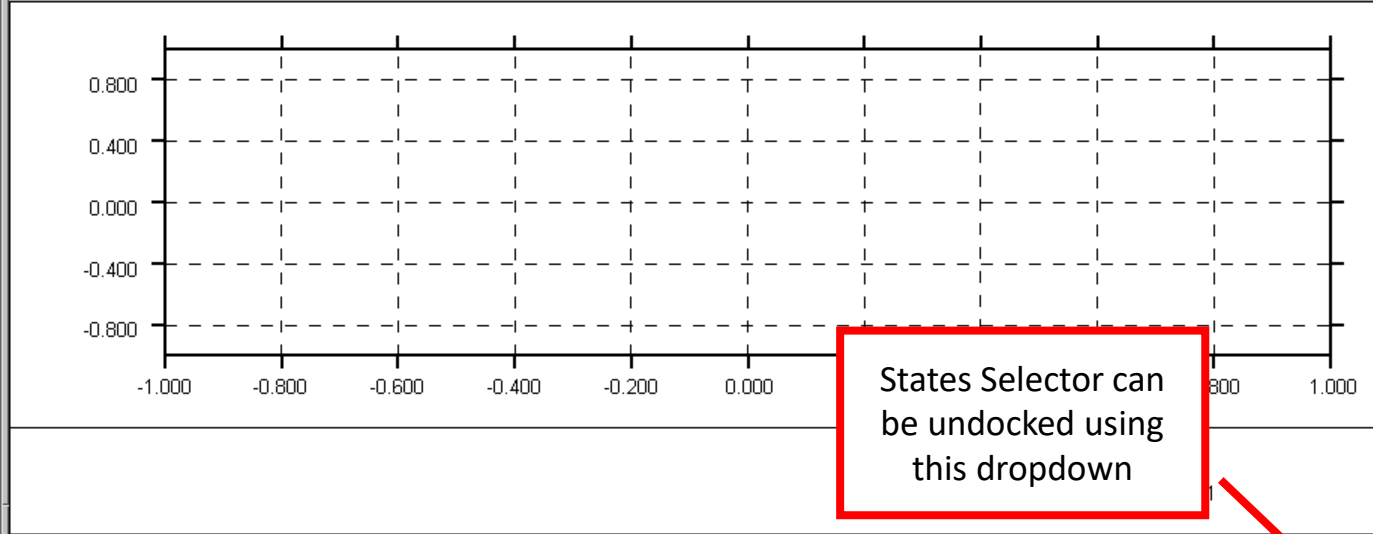
D3PLOT	T/HIS	PRIMER	Tune	Memory
Attached	Deform	Measure	Utilities	
Blank	Disp opt	Prop'ies	Vol Clip	
Colour	Entity	Trace	Write	
Cut Sect	Groups	User Data	XY Data	

Data Part Tree JavaScript Layout

<< Undock Properties ?

Save...	Reload...	Columns...
Reset...	Colour..	Lighting..
Update	Contours..	Overlay..
	Transpar..	Entity...

Object Type	Switches Ent	Lab	Display Mode	Colour Tr
Model	n/a	n/a	Current	Det
Part	n/a	OFF	Current	Det
Node	OFF	OFF	Current	Det
Shell	ON	OFF	Current	Det



States Selector can be undocked using this dropdown

CT	LC	SI	CL	Iso	Draw	Li	Hi	Sh	Save P	Lock
PR	DP	Vel	Vec		RE	AC	Zoom	CN		All
Manual	Tidy	+XY	+YZ	+XZ	+ISO					Views
Stop	?	-XY	-YZ	-XZ	-ISO					Ent

Anim: (auto all) 1 0.0000E+00

File Anim Draw

Undock
V14 Layout

D3PLOT: File Window Tools Display Images Viewing Options Help Blank (All) Parts (any) Key in: P SV

T/HIS: File Graphs Plotting Functions Display Images Options Help Blank

W1

Undocked menu in floating window that can now be repositioned where convenient

Properties

Properties Dock >>

Save... Reload... Columns...

Reset... Colour.. Lighting..

Update Contours.. Overlay..

Transpar.. Entity...

Object Type	Switches Ent	Lab	Display Mode	----- Object -----	----- Overlay -----
				ColourTrans Bright Shine	Colour Mode
Model	n/a	n/a	Current	Del: 0 90 30	Cur: Curr
Part	n/a	OFF	Current	Del: 0 90 30	Cur: Curr
Node	OFF	OFF	Current	Del: 0 90 30	Cur: Curr
Shell	ON	OFF	Current	Del: 0 90 30	Cur: Curr

Y X

Dock button located in the top of the menu

Page Number: 1

D3PLOT T/HIS PRIMER Tune Memory

Attached Deform Measure Utilities

Vol Clip Write

XY Data

Script Layout

DF / Raytrace

Images Movies Postscript/PDF Ray Trace

Capture

All Pages

Current Page

All Visible Active Windows

Only Window: W1

White Backgr'd

Filename: ent\Models\tube\d3plot001.jpg

Format: JPG (24 bit)

Info Image quality Explain

90

States Selector

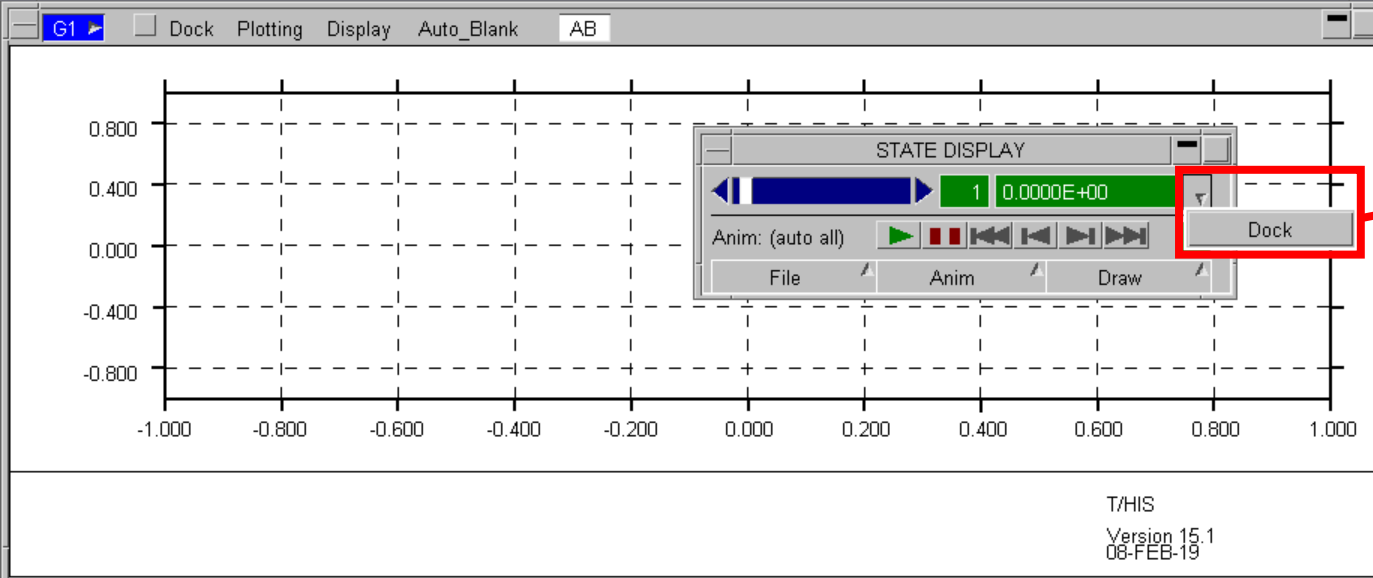
1 0.0000E+00

Anim: (auto all)

File Anim Draw

Dock

States Selector can be docked using this dropdown



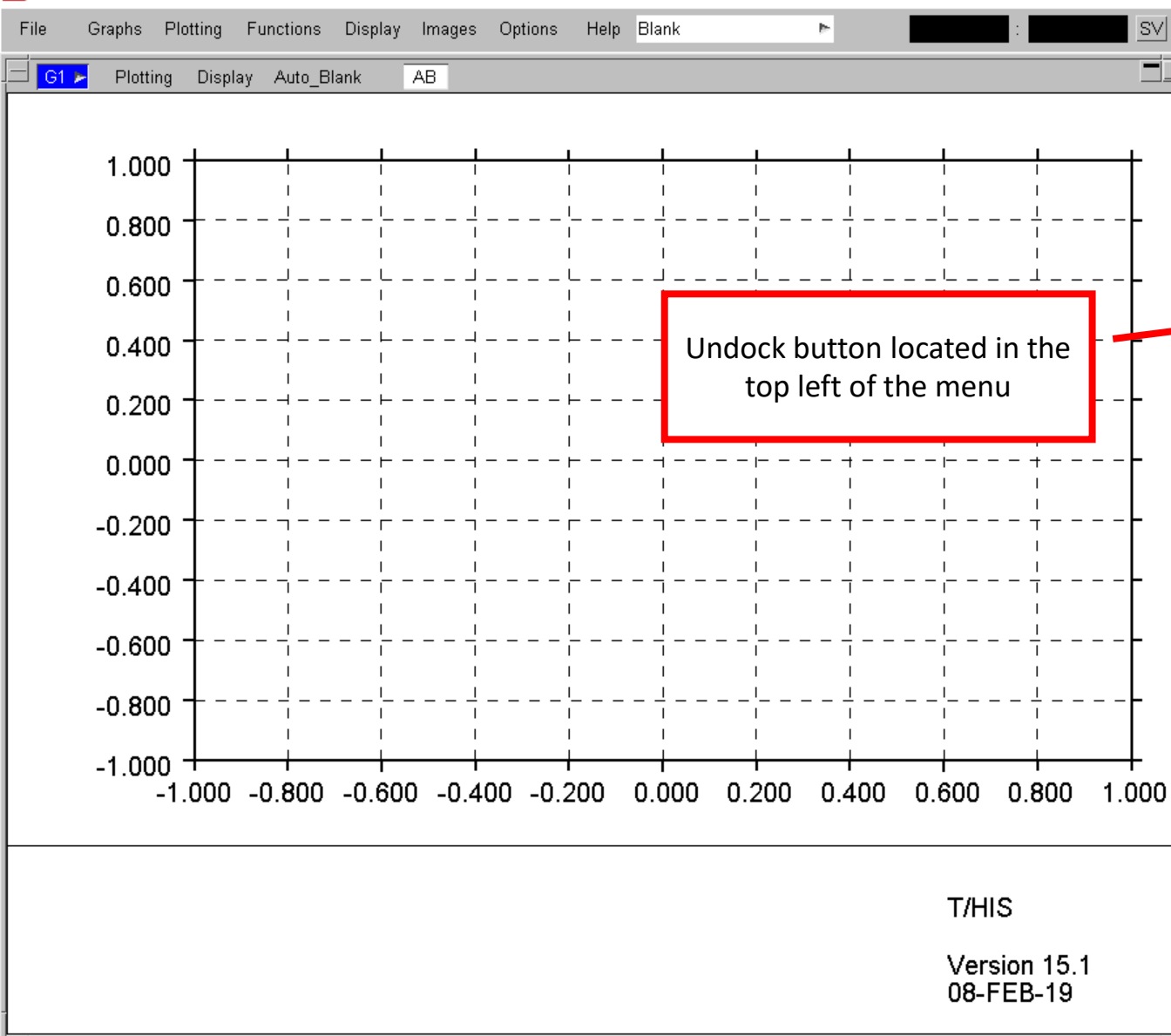
[... State 20 : 9.49991e-01]

There are 22 states in plot file THF >>> (H for Help)

T/HIS DIALOGUE

T/HIS >

CT	LC	SI	CL	Iso	Draw	Li	Hi	Sh	Save P	Lock
PR	DP	Vel	Vec		RE	AC	Zoom	CN	← →	All
Manual	Tidy	+XY	+YZ	+XZ	+ISO				Views	Rev
Stop	?	-XY	-YZ	-XZ	-ISO				← →	Ent



Undock button located in the top left of the menu

Page : 1 PRIMER

Read	Write	Curves	Models
Edit	Style	Properties	Images
Operate	Maths	Automotive	Seismic
Macros	FAST-TCF	Title/Axes	Display
Settings	Measure	Groups	Graphs
Command Fil	Units	JavaScript	Datum

All G1
None

<< Undock Read Data

LS-DYNA	Groups	Keyword	T/HIS Curve
Bulk Data	Keyboard	CSV	Screen
ISO	LS-PREPOST	DIAdem	NASTRAN
CURVOUT			

Open : Single Model
Filename :
 Extract curves to match model : 1
 Overwrite existing curves
 Copy curve styles Use default styles
 Set styles Colour Width Style Symbol
Copy Copy Copy Copy
Model Unit System : Undefined

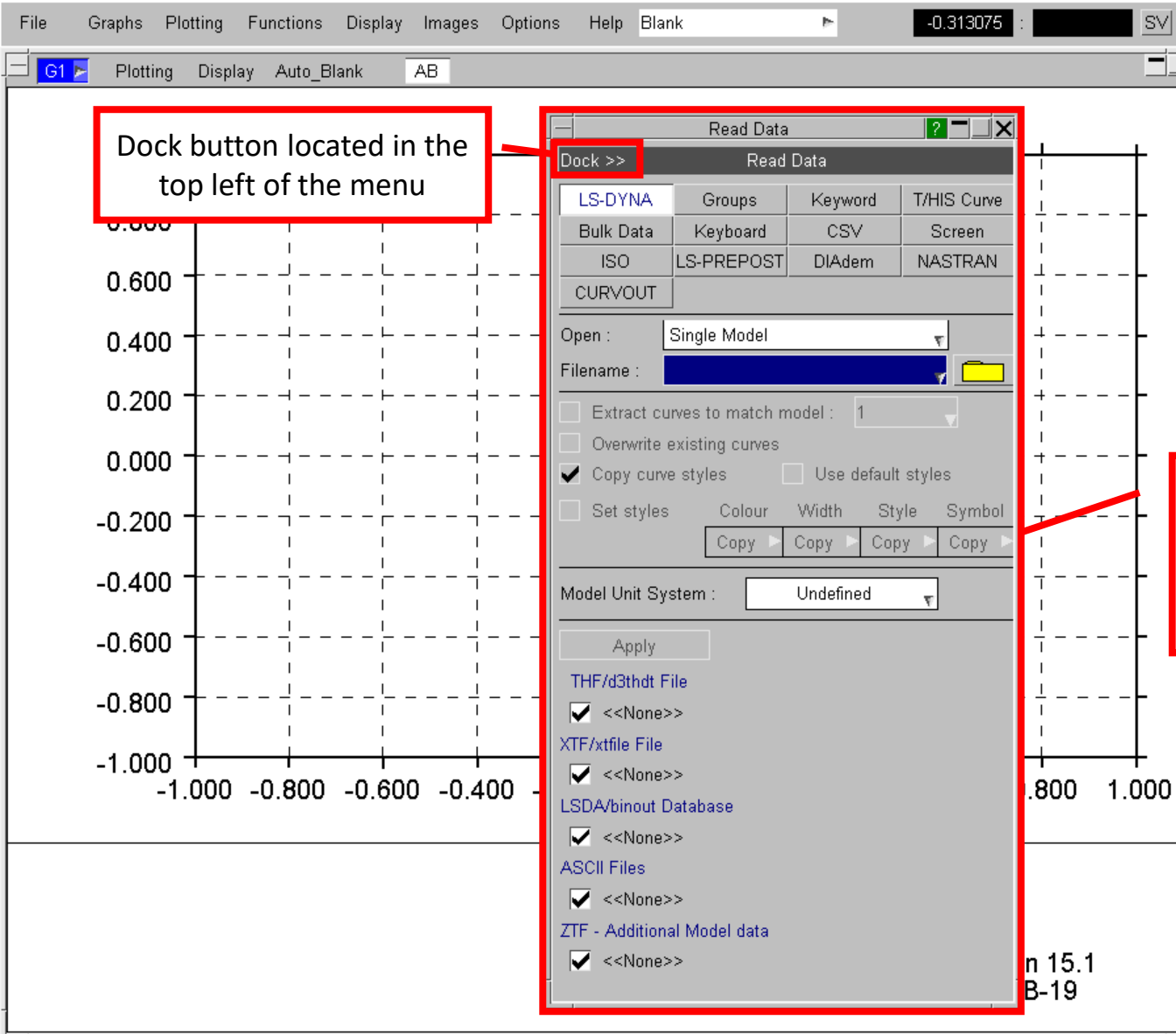
- Apply
- THF/d3thdt File
 <<None>>
 - XTF/xtfile File
 <<None>>
 - LSDA/binout Database
 <<None>>
 - ASCII Files
 <<None>>
 - ZTF - Additional Model data
 <<None>>

DIALOGUE

T/HIS >

Global Commands

Plot	Point	Clear
Zoom	Autoscale	Centre
Manual	Stop	Tidy



Dock button located in the top left of the menu

Read Data

Dock >>

LS-DYNA	Groups	Keyword	T/HIS Curve
Bulk Data	Keyboard	CSV	Screen
ISO	LS-PREPOST	DIAdem	NASTRAN
CURVOUT			

Open : Single Model

Filename : []

Extract curves to match model : 1

Overwrite existing curves

Copy curve styles Use default styles

Set styles

Colour	Width	Style	Symbol
Copy	Copy	Copy	Copy

Model Unit System : Undefined

Apply

THF/d3thdt File

<<None>>

XTF/xtfile File

<<None>>

LSDA/binout Database

<<None>>

ASCII Files

<<None>>

ZTF - Additional Model data

<<None>>

Page : 1 PRIMER

Read	Write	Curves	Models
Edit	Style	Properties	Images
Operate	Maths	Automotive	Seismic
Macros	FAST-TCF	Title/Axes	Display
Settings	Measure	Groups	Graphs
Command Fil	Units	JavaScript	Datum

All G1 None

Undock Curve Manager

Blank...	Condense	Summary	List
Delete...	Table		Scan
Labels...	Curve Range : - +		Select

Curve ID

Undocked menu in floating window that can now be repositioned where convenient

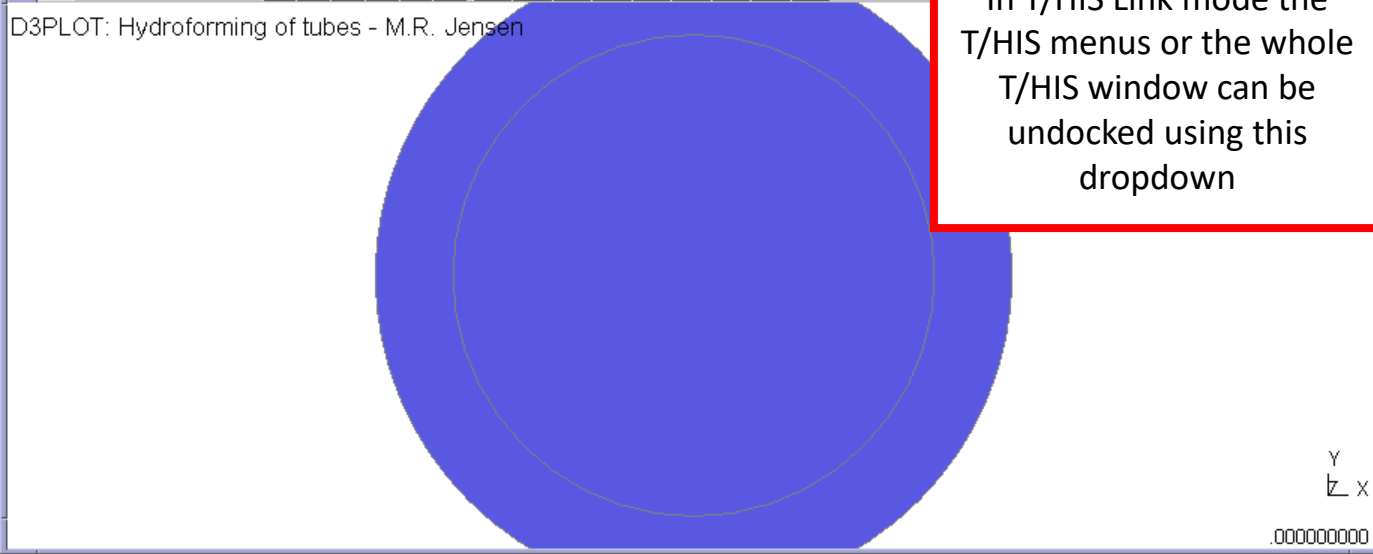
- 4 > [Symbol]
- 5 > [Symbol]
- 6 > [Symbol]
- 7 > [Symbol]
- 8 > [Symbol]
- 9 > [Symbol]
- 10 > [Symbol]
- 11 > [Symbol]
- 12 > [Symbol]
- 13 > [Symbol]
- 14 > [Symbol]
- 15 > [Symbol]
- 16 > [Symbol]
- 17 > [Symbol]
- 18 > [Symbol]

DIALOGUE

T/HIS >

Global Commands

Plot	Point	Clear
Zoom	Autoscale	Centre
Manual	Stop	Tidy

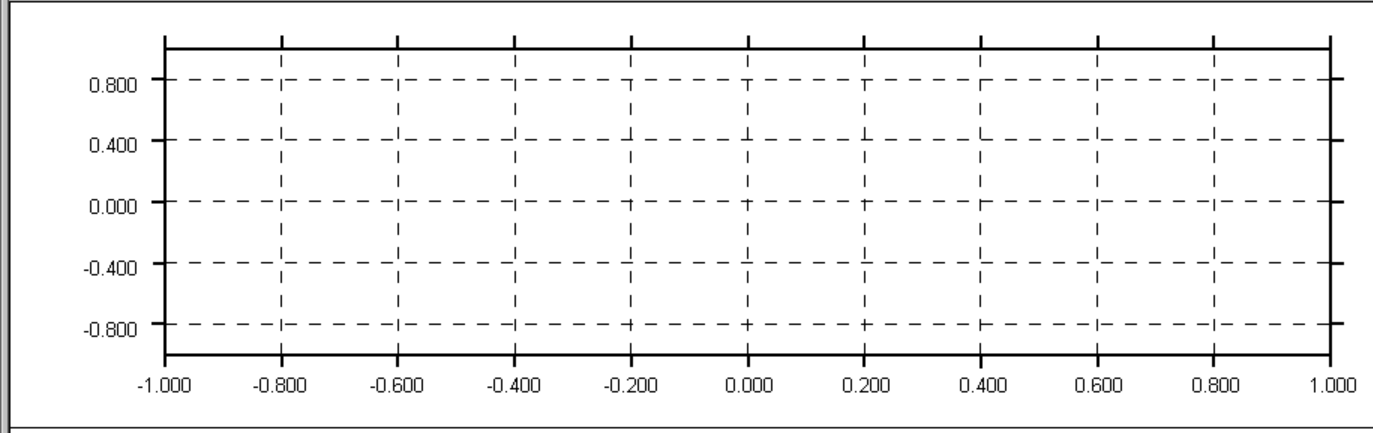


In T/HIS Link mode the T/HIS menus or the whole T/HIS window can be undocked using this dropdown

Page: 1 PRIMER

D3PLOT		T/HIS		Undock T/HIS
Read	Write	Curve	Undo	Undock All
Edit	Style	Property	Undo	Undock Menus
Operate	Maths	Automatic	Colours	
Macros	FAST-TCF	Title/Axes	Display	
Settings	Measure	Groups	Graphs	
Command Fil	Units	JavaScript	Datum	

All G1 None



T/HIS
Version 15.1
08-FEB-19

<< Undock Read Data ?

LS-DYNA	Groups	Keyword	T/HIS Curve
Bulk Data	Keyboard	CSV	Screen
ISO	LS-PREPOS	DIAdem	NASTRAN
CURVOUT			
Global	Parts	Part Groups	Nodes
Solids	Beams	Shells	Tk Shells
Stonewalls	Springs	Airbags	Contacts
Geo Contacts	Seatbelts	Retractors	Sliprings
Reactions	Joints	X Sections	Subsystems
Rigid Bodies	Spotwelds	SPCs	Boundarys
FSIs	SPHs	Tracers	Pulleys
ICFD	CESE	EM	PBLAST
Pres Tubes	Bearings		

Select Models New Model Reread Model

Output curve: % (highest+1) ...

Key in: Apply

Plot	Point	Clear	Timeline	W1
Zoom	Autoscale	Centre	Type	Sibling
Manual	Stop	Tidy	Parent	W1

Display Label Locate... Position Bottom Left

Anim: (auto all) 1 0.0000E+00

File Anim Draw

D3PLOT: Hydroforming of tubes - M.R. Jensen

Undock Menu just undocks the T/HIS menu panel to a floating window

T/HIS Menus

Page: 1 PRIMER

Dock T/HIS

Read	Write	Curves	Models
Edit	Style	Properties	Images
Operate	Maths	Automotive	Seismic
Macros	FAST-TCF	Title/Axes	Display
Settings	Measure	Groups	Graphs
Command Fil	Units	JavaScript	Datum

All G1 None

<< Undock Read Data

LS-DYNA	Groups	Keyword	T/HIS Curve
Bulk Data	Keyboard	CSV	Screen
ISO	LS-PREPOS	DIAdem	NASTRAN
CURVOUT			
Global	Parts	Part Groups	Nodes
Solids	Beams	Shells	Tk Shells
Stonewalls	Springs	Airbags	Contacts
Geo Contacts	Seatbelts	Retractors	Sliprings
Reactions	Joints	X Sections	Subsystems
Rigid Bodies	Spotwelds	SPCs	Boundarys
FSIs	SPHs	Tracers	Pulleys
ICFD	CESE	EM	PBLAST
Pres Tubes	Bearings		

Select Models New Model Reread Model

Output curve: % (highest+1)

Key in:

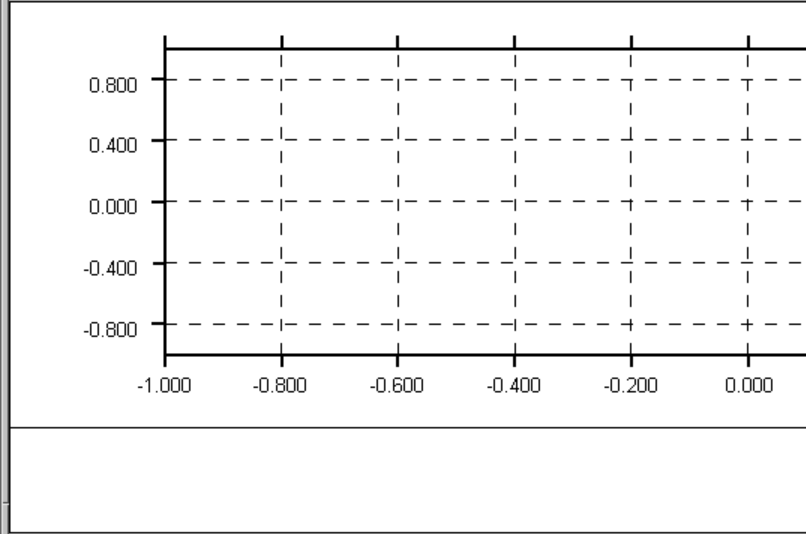
Plot Point Clear Timeline W1 ?

Zoom Autoscale Centre Type Sibling

Manual Stop Tidy Parent W1

Displ Label Locate... Position Bottom Left

T/HIS menus can be redocked using this button



CT LC SI CL Iso Draw Li Hi Sh Save P L

PR DP Vel Vec RE AC Zoom CN All

Manual Tidy +XY +YZ +XZ +ISO Views Rev

Stop ? -XY -YZ -XZ -ISO Ent

Page Number: 1

D3PLOT T/HIS PRIMER Tune Memory

JavaScript Layout

<< Undock Properties

Save... Reload... Columns...

Reset... Colour... Lighting...

Update Contours... Overlay...

Transpar... Entity...

Object Type	Switches Ent	Lab	Display Mode	Colour Tr
Model	n/a	n/a	Current	Det
Part	n/a	OFF	Current	Det
Node	OFF	OFF	Current	Det
Shell	ON	OFF	Current	Det

Anim: (auto all)

File Anim Draw

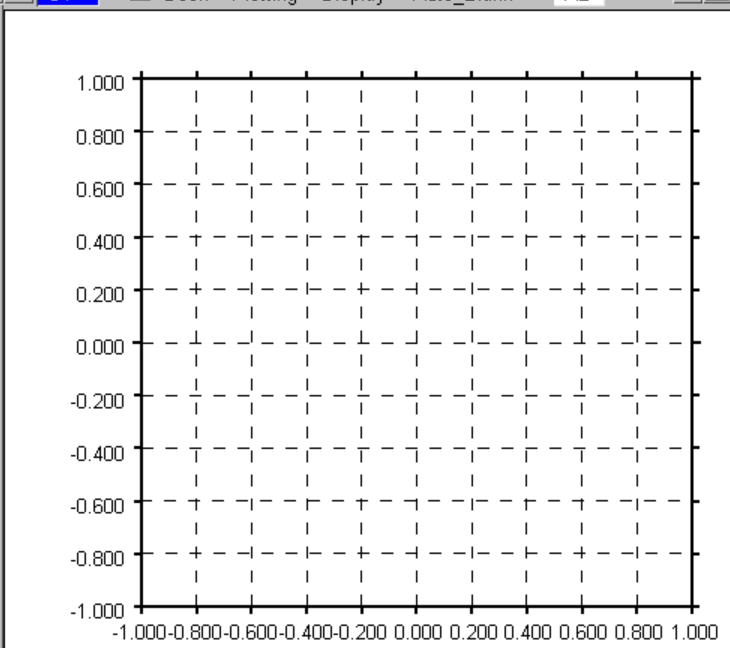
D3PLOT: File Window Tools Display Images Viewing Options Help Blank (All) Parts (any) Key in: P SV

W1

T/HIS Session

T/HIS: File Graphs Plotting Functions Display Images Options

G1 Dock Plotting Display Auto_Blank AB



T/HIS
Version 15.1
08-FEB-19

Plot Point Clear Timeline W1 ?
Zoom Autoscale Centre Type Sibling ▶
Manual Stop Tidy Parent W1 ▶
Display Label Locate... Position Bottom Left ▶

Page: 1 PRIMER

Dock T/HIS

Read	Write	Curves	Models
Edit	Style	Properties	Images
Operate	Maths	Automotive	Seismic
Macros	FAST-TCF	Title/Axes	Display
Settings	Measure	Groups	Graphs
Command Fil	Units	JavaScript	Datum

All G1 ▶
None

<< Undock Read Data ? X

LS-DYNA	Groups	Keyword	T/HIS Curve
Bulk Data	Keyboard	CSV	Screen
ISO	LS-PREPOS	DIADEM	NASTRAN
CURVOUT			

Global	Parts	Part Groups	Nodes
Solids	Beams	Shells	Tk Shells
Stonewalls	Springs	Airbags	Contacts
Geo Contacts	Seatbelts	Retractors	Sliprings
Reactions	Joints	X Sections	Subsystems
Rigid Bodies	Spotwelds	SPCs	Boundarys
FSIs	SPHs	Tracers	Pulleys
ICFD	CESE	EM	PBLAST
Pres Tubes	Bearings		

Select Models New Model Reread Model

Output curve: % (highest+1) ...

Key in: Apply

T/HIS window can be redocked using this button

Undock All undocks the whole linked T/HIS window into a floating window, which is particularly handy for multiple monitors

CT LC SI CL Iso Draw Li Hi Sh Save P Lock
PR DP Vel Vec RE AC Zoom CN All
Manual Tidy +XY +YZ +XZ +ISO Views Rev
Stop ? -XY -YZ -XZ -ISO Ent

Anim: (auto all) 1 0.0000E+00 ?

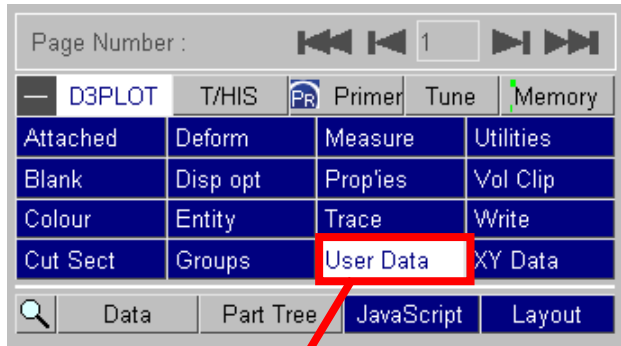
File Anim Draw

- D3PLOT menus that can be undocked are:
 - Images Menu
 - Part Tree
 - Properties Menu
 - States Selector
- T/HIS menus that can be undocked are:
 - Operate, Maths, Automotive and Seismic Menus
 - Curve Manager
 - Read Menu
- Undocked status and window positions are saved between sessions by default. Saving positions can be switched off by setting the preferences `d3plot*save_window_positions` and `this*save_window_positions` to `FALSE`.

User Defined Components

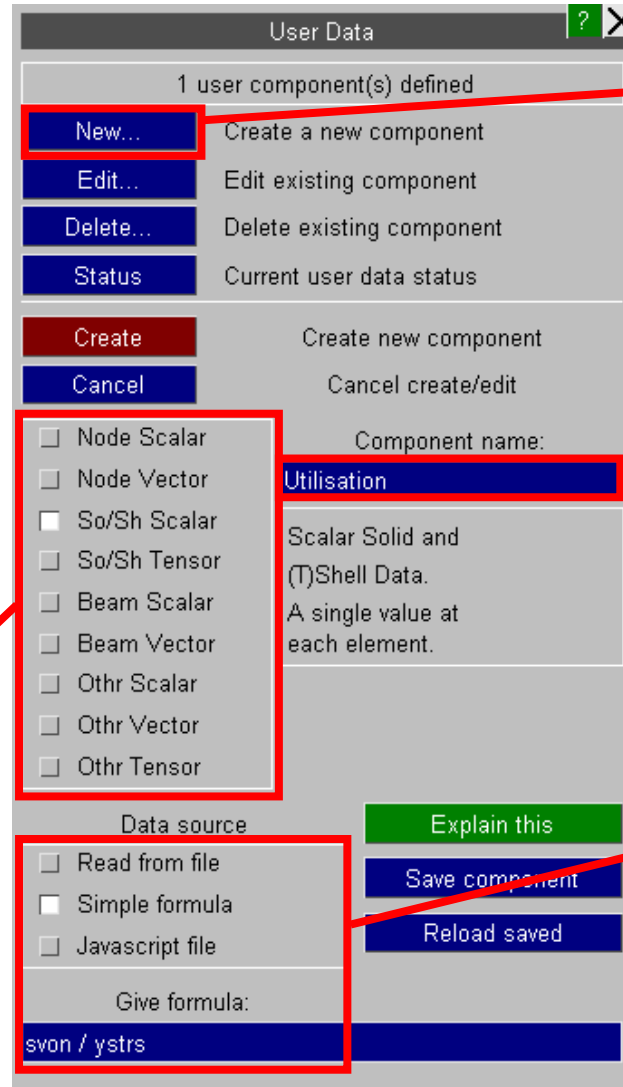
- User Defined Components allow components derived from data read into D3PLOT to be calculated and contoured
- The components can be read from file, defined using a formula or calculated by a JavaScript file

D3PLOT User Defined Components



1. Select "User Data" from "Tools Menu"

3. In this example we are creating a single value for each shell / solid element, but various types of component can be created

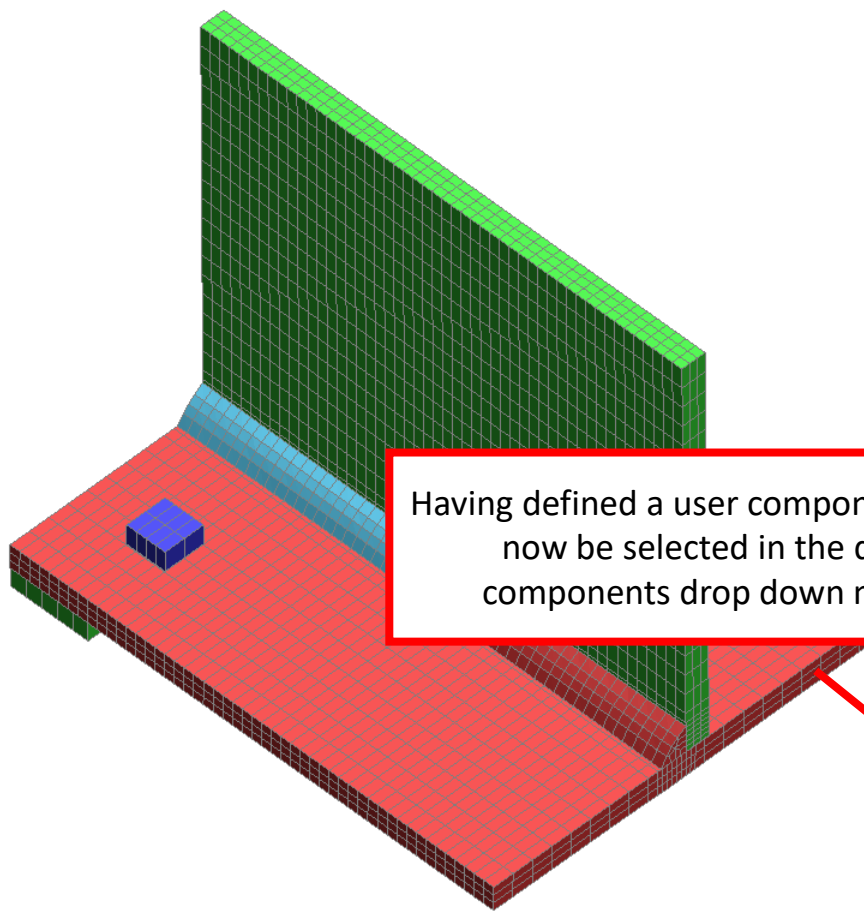


2. Select "New" in the "User Data" panel

4. We can name the component meaningfully

5. In this example we are defining the component with a simple formula (svon = von Mises Stress, ystrs = yield stress)

D3PLOT: Tjoint



Having defined a user component it can now be selected in the data components drop down menu

Page Number

D3PLOT

Attached

Blank

Colour

Cut Sect

Data

Scalar 1

Scalar 1

Category :

Component :

Contours :

Max & Min :

Envelope :

Int pt :

Ref frame :

Magnitude :

Averaging :

Contour Levels

Cloud Plots

Levels

1 #Levels

6

Auto all

Auto each

Max + Min

User defined

Reset

Convert to

Auto Transfer

Display all

Format

Exponent

Dec. Places

Displacements

Velocities

Accelerations

Temperature

Coordinate

Acoustic

Stress

Strain

Principal Stress

Principal Strain

Plastic Strain Tensor

Thermal Strain Tensor

Shell Resultants

Beam Basic

Beam Resultant

Beam Integrated

Beam Energy

Fatigue

Extra

ALE

SPH

Airbag Particles

Discrete Spheres

Springs

Rigidwalls

Seatbelts

Spotwelds

SPCs

X Sections

Load Paths

Contacts

Interface

Incompressible Flow (ICFD)

Compressible Flow (CESE)

Electromagnetic (EMAG)

Stochastic

Mechanical

Geometry

Part Data

Element Energies

Miscellaneous

User Defined

Metal Forming

Material Properties

User Solid/Shell Scalar Data

Utilisation

X

Y

30.243000

There are 91 states in plot file, final time = 5.00000E+03
Updated user component Utilisation
[Selected GLOBAL TSX_DIRECT_STRAIN]

CT LC SI CL Iso Draw Li Hi Sh Save P Lock

PR DP Vel Vec RE AC Zoom CN All

Manual Tidy +XY +YZ +XZ +ISO

Stop ? -XY -YZ -XZ -ISO

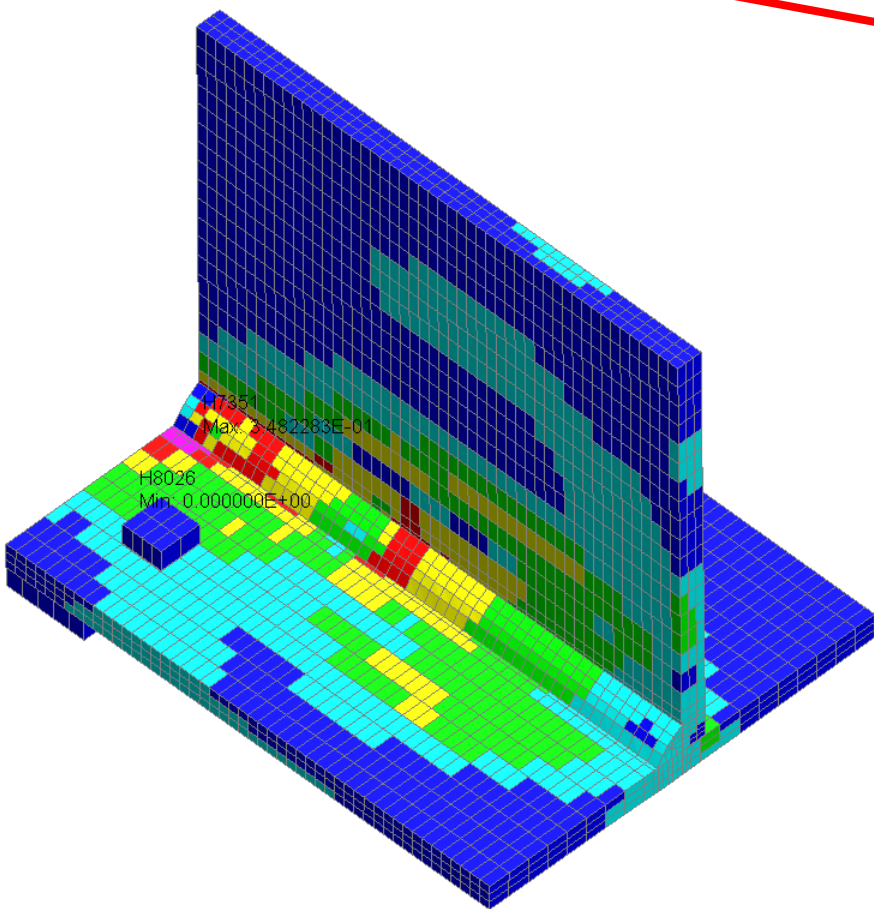
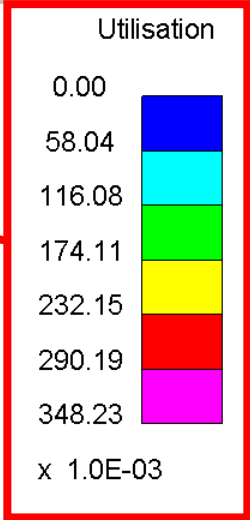
Views Rev Ent

Anim: (auto all) [Play] [Stop] [Home] [Previous] [Next] [End] ?

File Anim Draw

D3PLOT: Tjoint
1: Max H7351 : 3.482283E-01, Min H8026 : 0.000000E+00

User component is contoured.



H7351
Max: 3.482283E-01
H8026
Min: 0.000000E+00

Z
Y
X
30.243000

Page Number : 1

D3PLOT	T/HIS	PRIMER	Tune	Memory
Attached	Deform	Measure	Utilities	
Blank	Disp opt	Prop'ies	Vol Clip	
Colour	Entity	Trace	Write	
Cut Sect	Groups	User Data	XY Data	

Data Part Tree JavaScript Layout

Scalar 1 Scalar 2 Vector "Vel"

Scalar 1 Active Scalar 1 Options...

Category : User Defined

Component : Utilisation

Contours : 6 Auto all Medium Options...

Max & Min : Show max & min only Options...

Envelope : OFF Options...

Int pt : MIDDLE surface ALL int pts

Ref frame : GLOBAL Options...

Magnitude : Magnitude x cos[phase+phi]

Averaging : OFF Attributes : Options...

Contour Levels for "Scalar 1" User Defined

Cloud Plots	Iso Plots	Princ Plots	Mapping
Levels	Limiting val	Resolution	Vec Plots

Off Limiting switch

0.290190 Lowerbound value

0.348228 Upperbound value

Action for excluded Auto bands range

<input type="checkbox"/> Omit	<input type="checkbox"/> Temp max + min
<input type="checkbox"/> Outline	<input type="checkbox"/> Full data range
<input type="checkbox"/> Draw in black	<input type="checkbox"/> Clamp to limits

Updated user component Utilisation
[Selected GLOBAL TSX_DIRECT_STRAIN]
[Selected Utilisation]

CT	LC	SI	CL	Iso	Draw	Li	Hi	Sh	Save P	Lock
PR	DP	Vel	Vec	RE	AC	Zoom	CN	All		
Manual	Tidy	+XY	+YZ	+XZ	+ISO			Views	Rev	
Stop	?	-XY	-YZ	-XZ	-ISO			Ent		

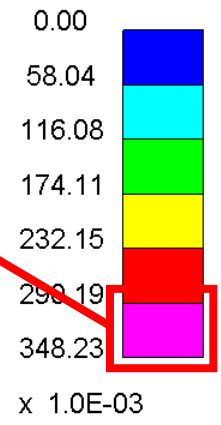
Anim: (auto all) 60 3.0243E+01

File Anim Draw

Limiting Values

D3PLOT: Tjoint
 1: Max H7351 : 3.482283E-01, Min H6152 : 2.902887E-01

Utilisation



Click on contour band to isolate elements with data values in that band.



This turns on limiting switch and sets lower bound and upper bound values equal to contour band.

Set "Action for excluded" to "Outline" or "Draw in black" to show outline of model around contoured elements.

Page Number : 1

D3PLOT	T/HIS	PRIMER	Tune	Memory
Attached	Deform	Measure	Utilities	
Blank	Disp opt	Prop'ies	Vol Clip	
Colour	Entity	Trace	Write	
Cut Sect	Groups	User Data	XY Data	

Data Part Tree JavaScript Layout

Scalar 1 Scalar 2 Vector "Vel"

Scalar 1 Active Scalar 1 Options...

Category : User Defined

Component : Utilisation

Contours : 6 Auto all Medium Options...

Max & Min : Show max & min only Options...

Envelope : OFF Options...

Int pt : MIDDLE surface ALL int pts

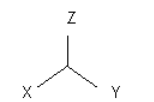
Ref frame : GLOBAL Options...

Magnitude : Magnitude x cos[phase+phi]

Averaging : OFF Attributes : Options...

Contour Levels for "Scalar 1" User Defined

Clouds	Levels	Limiting val	Resolution	Mapping	Vec Plots
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
On Limiting switch					
0.290190 Lowerbound value					
0.348228 Upperbound value					
Action for excluded			Auto bands range		
<input type="checkbox"/> Omit	<input type="checkbox"/> Outline	<input type="checkbox"/> Draw in black	<input type="checkbox"/> Temp max + min	<input type="checkbox"/> Full data range	<input type="checkbox"/> Clamp to limits



30.243000

Updated user component Utilisation
 [Selected GLOBAL TSX_DIRECT_STRAIN]
 [Selected Utilisation]

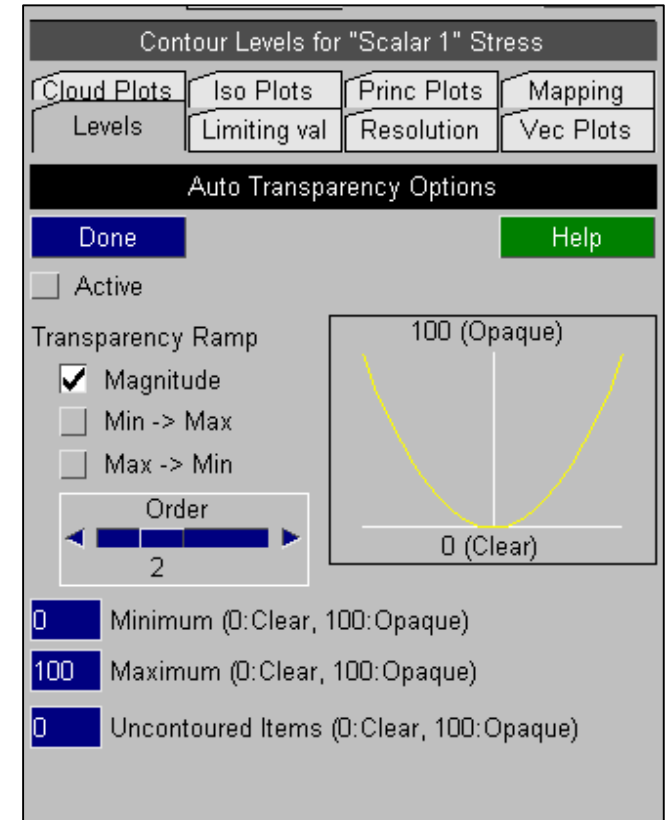
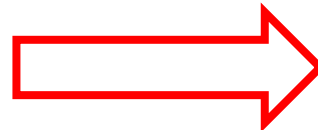
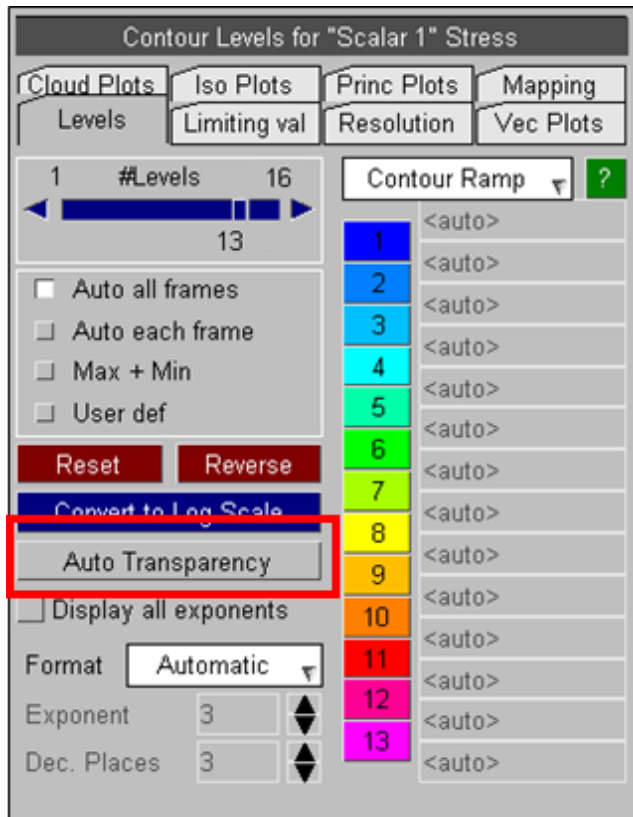
CT LC SI CL Iso Draw Li Hi Sh Save P Lock
 PR DP Vel Vec REC AC Zoom CN All
 Manual Tidy +XY +YZ +XZ +ISO R Views Rev
 Stop ? -XY -YZ -XZ -ISO Ent

60 3.0243E+01
 Anim: (auto all) File Anim Draw

Automatic Transparency

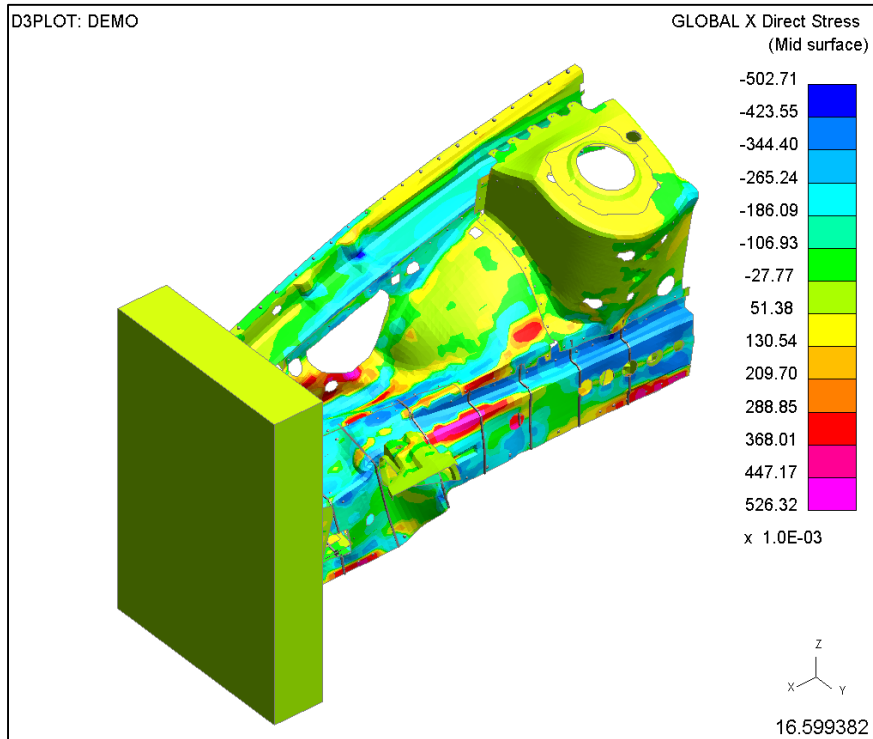
Contouring – Automatic Transparency

The “Levels” sub-menu within the Data Component menu contains an “Automatic transparency” option.

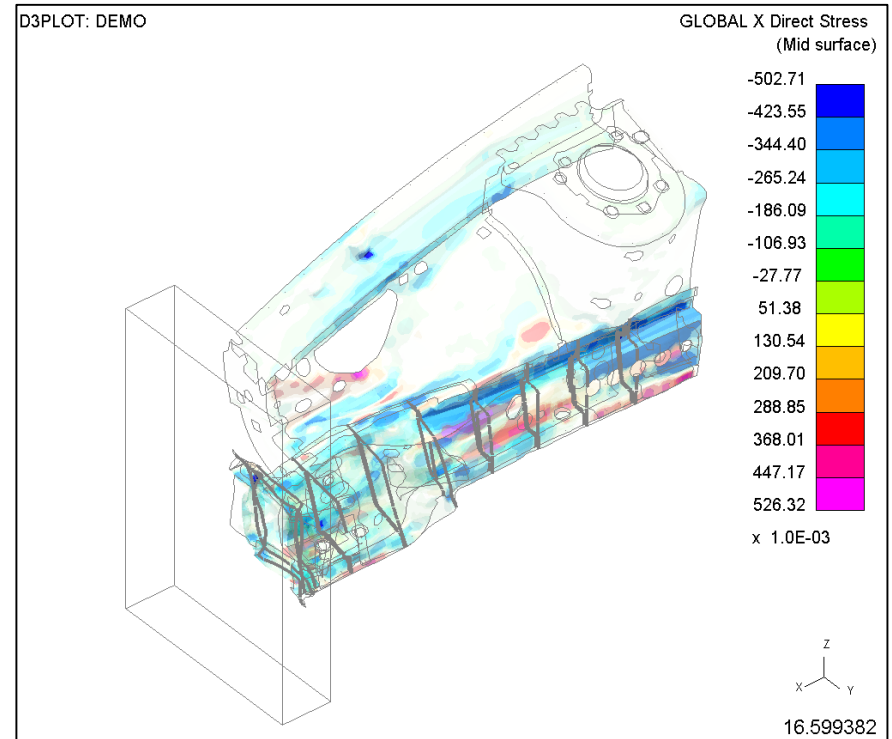


Contouring – Automatic Transparency

This option can be used to automatically adjust the transparency of entities in CT, SI and CL plots based on their data values.

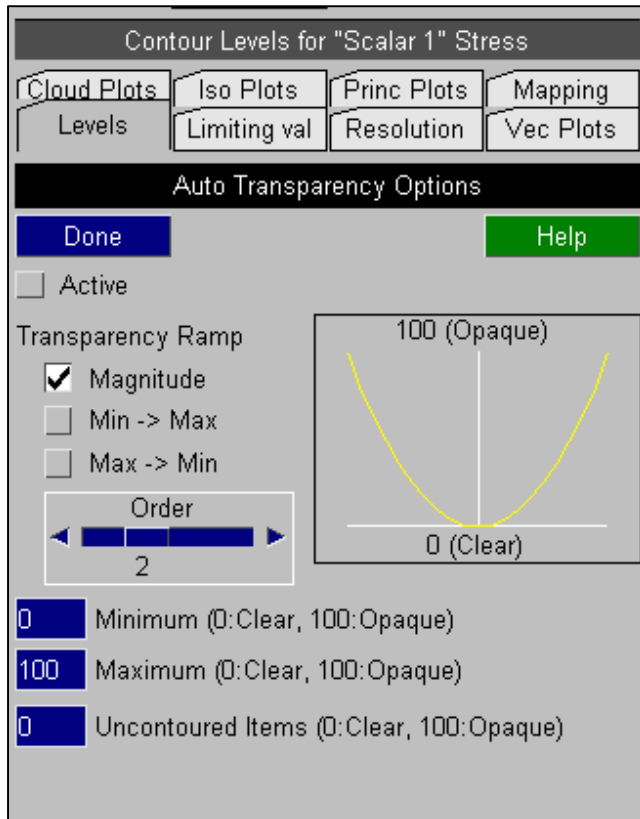


SI plot



SI plot + default Automatic transparency

Contouring – Automatic Transparency



The transparency levels can either vary with the magnitude of the data values or they can increase/decrease as values go from low to high.

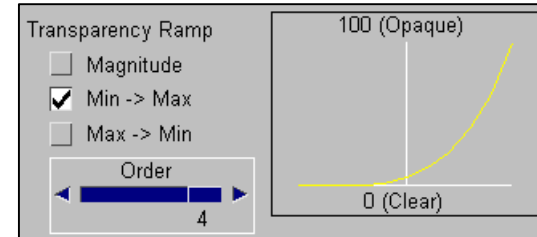
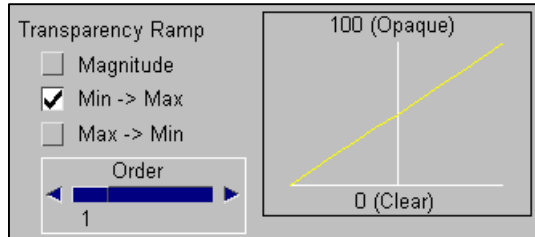
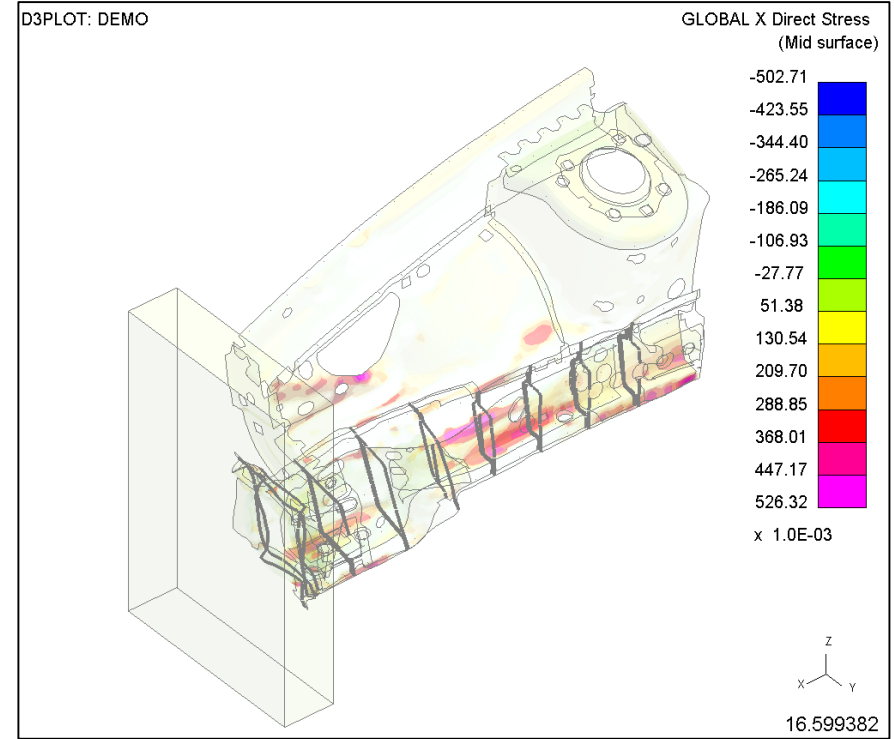
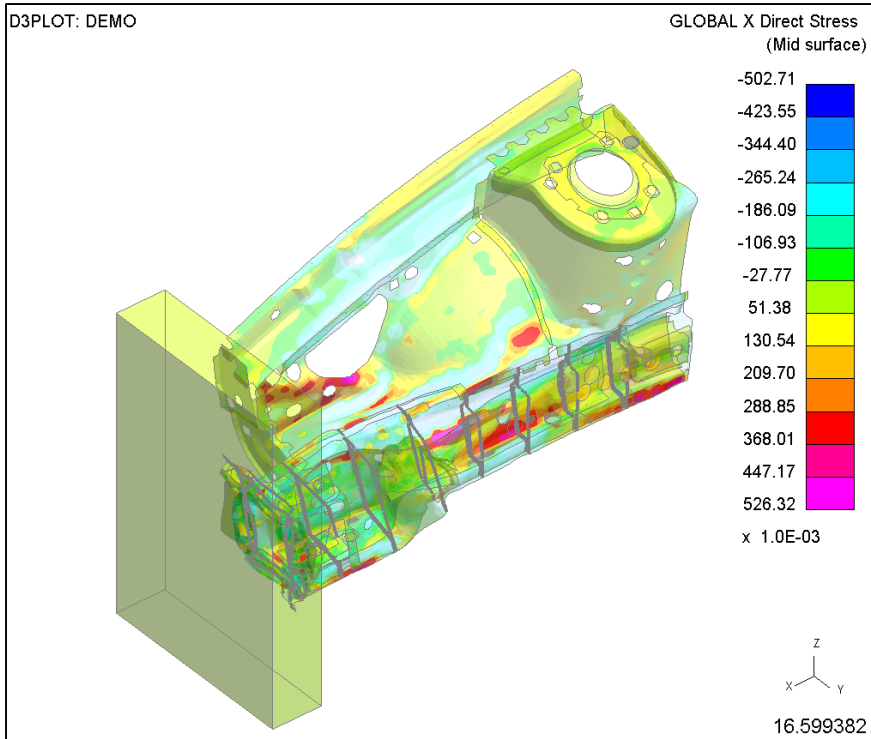
The shape of the transparency ramp can also vary from linear with X (order 1) to proportional to X^2 , X^3 , or X^4 so that as the order increased the transparency is biased towards the larger values.

By default the transparency is scaled between 0 (clear) and 100 (opaque) but both the higher and lower limits can be modified.

The transparency applied to items that are not be contoured can also be controlled.

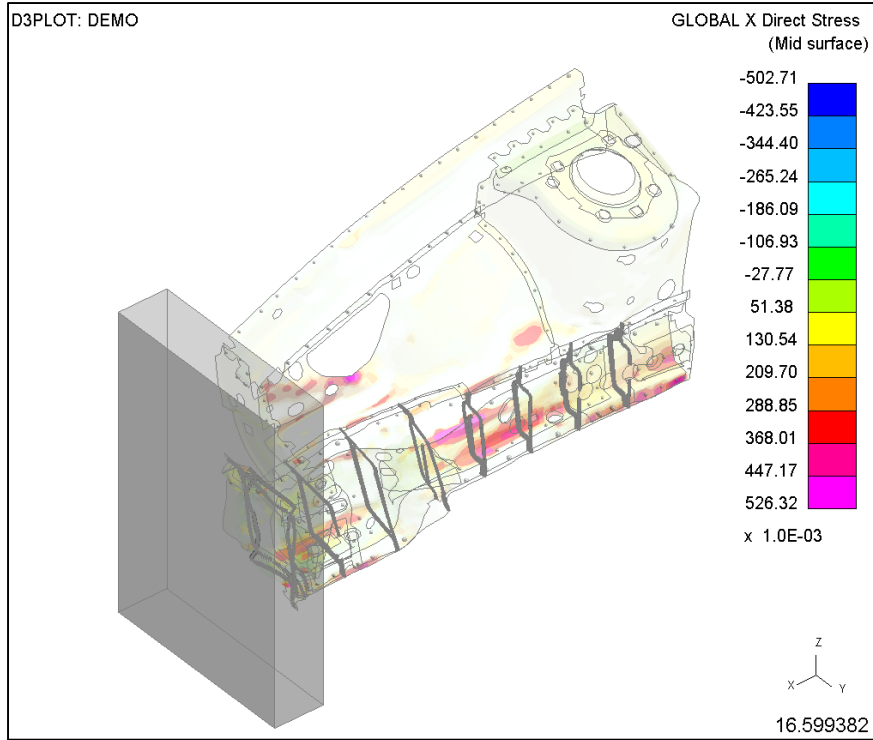
Contouring – Automatic Transparency

Transparency Ramp Options :

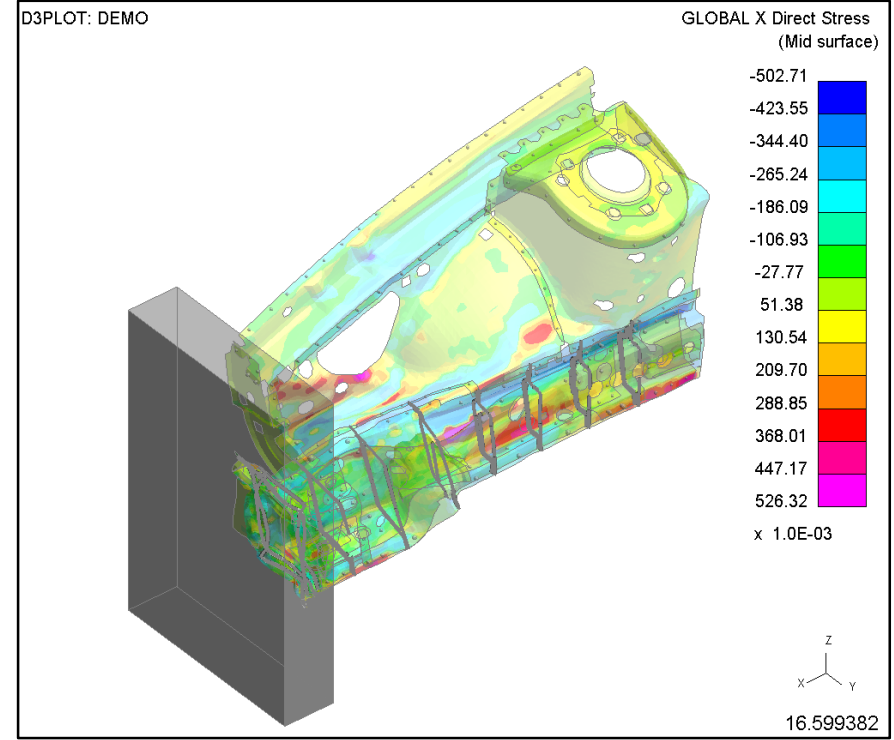


Contouring – Automatic Transparency

Transparency Range and Uncontoured Items



- 0 Minimum (0:Clear, 100:Opaque)
- 100 Maximum (0:Clear, 100:Opaque)
- 50 Uncontoured Items (0:Clear, 100:Opaque)



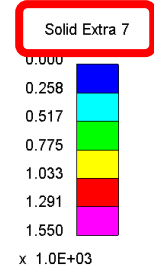
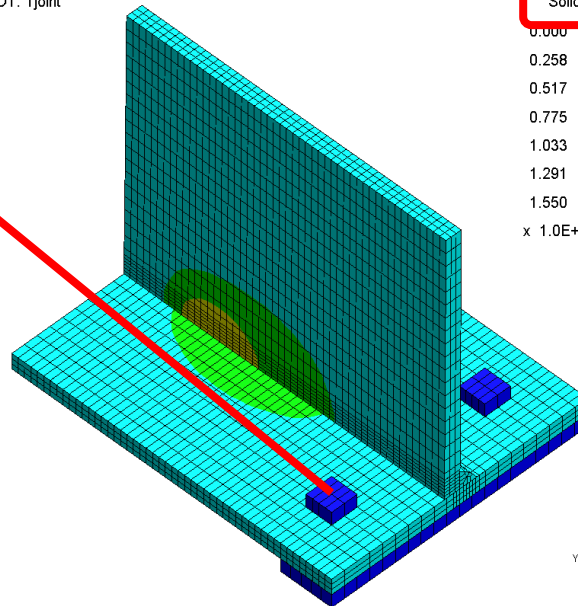
- 30 Minimum (0:Clear, 100:Opaque)
- 100 Maximum (0:Clear, 100:Opaque)
- 80 Uncontoured Items (0:Clear, 100:Opaque)

Material Extra Data

Extra variables written to PTF file for some materials by setting NEIPH or NEIPS on *DATABASE_EXTENT_BINARY. D3PLOT supports these with some limitations.

D3PLOT: Tjoint

Elements of material (rigid) that does not output extra variable are contoured with 0.0



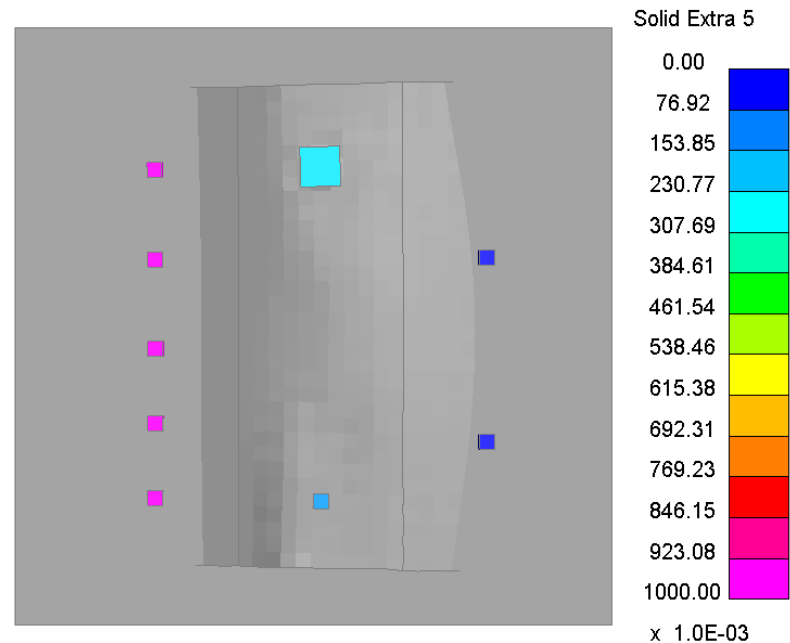
Component name is generic (Solid Extra 7)

20.151094

Extra variables written to PTF file for some materials by setting NEIPH or NEIPS on *DATABASE_EXTENT_BINARY. D3PLOT supports these with some limitations.

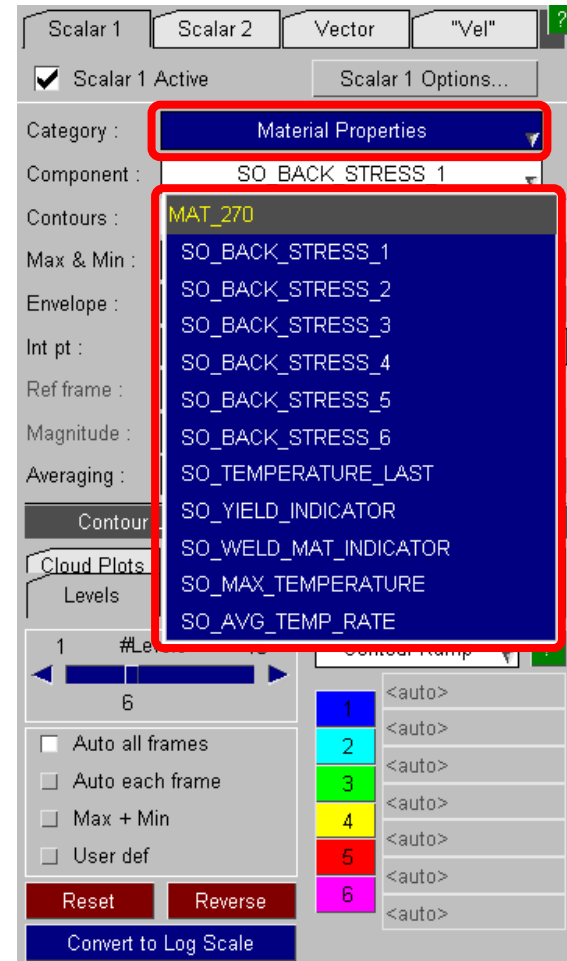
Different variables on same plot can be confusing. For example plot on right shows Solid Extra 5 for 3 different materials:

- Current Yield Stress for MAT_024 (cyan)
- Deformation Gradient for MAT_002 (pink)
- Back Stress for MAT_003 (blue)



Support for extra variables enhanced in D3PLOT v15.

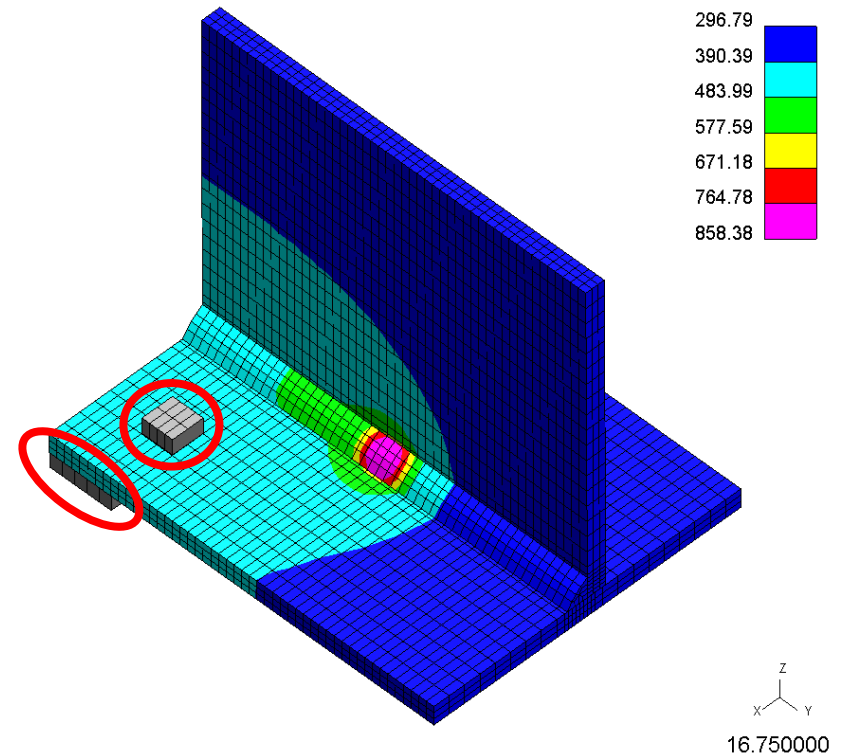
1. New “Material Properties” category with descriptive component names for extra variables, organised by material and element type if applicable



Support for extra variables enhanced in D3PLOT v15.

1. New “Material Properties” category with descriptive component names for extra variables, organised by material and element type if applicable
2. Elements that do not write selected extra variable are not contoured
3. Only elements of material corresponding to selected component are contoured

D3PLOT: Tjoint



D3PLOT requires additional information to support “Material Properties” contouring:

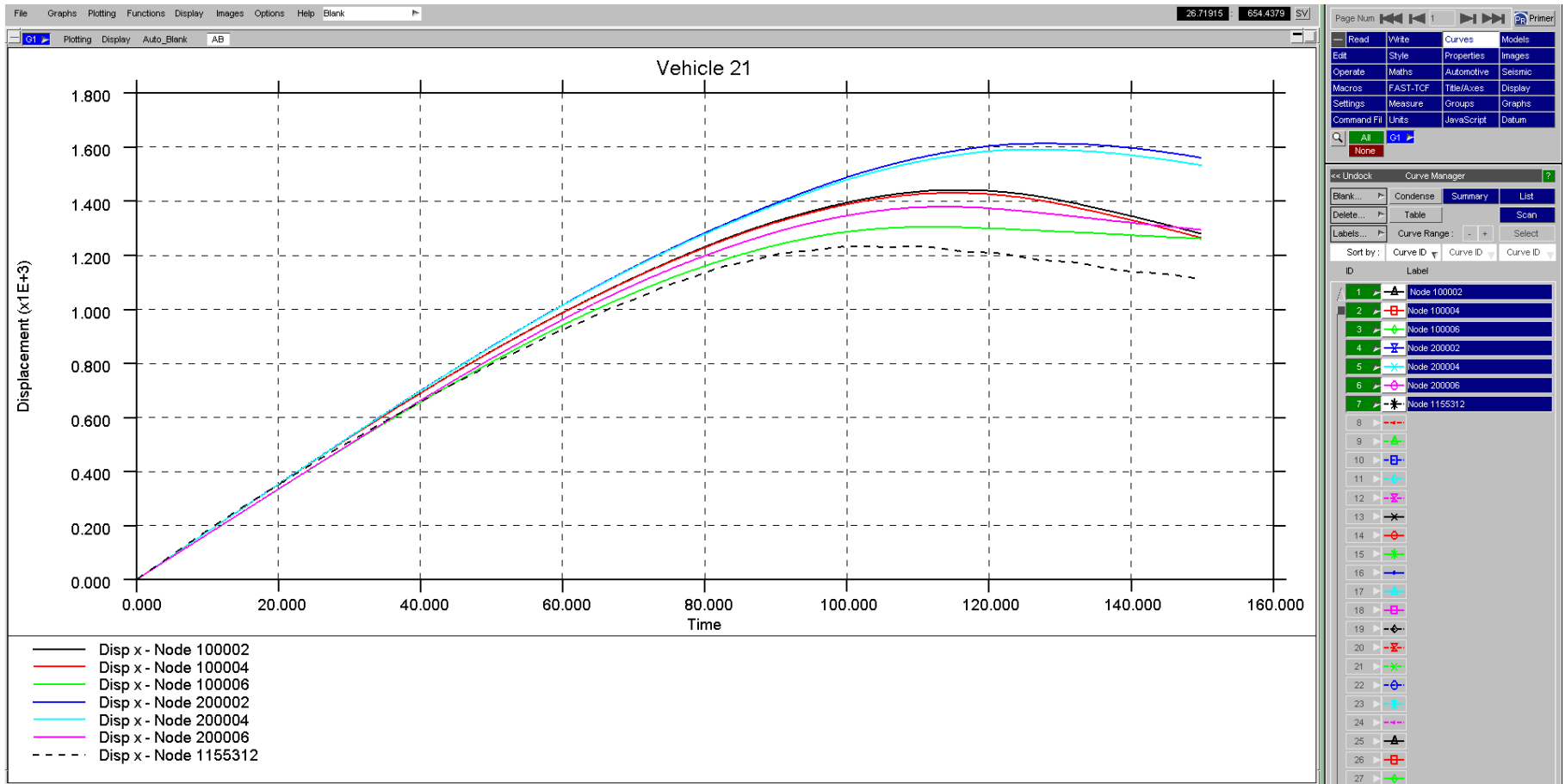
1. ZTF file provides link between parts and materials, so ZTF file is required
2. A new pre-populated CSV file (mat_prop.csv) provides material extra variable information – this can be edited by the user to allow new materials to be added or existing component names to be modified

FAST-TCF

- FAST-TCF is a scripting language for T/HIS for use with automatic post-processing. The FAST-TCF input file can be automatically generated by T/HIS with a few clicks.
- A FAST-TCF script contains all of the commands to setup and position multiple graphs, read in data, perform curve operations and generate output.
- It is a quick way to reproduce plots for similar models.
- FAST-TCF scripts can be recorded by T/HIS and can be manually edited.
- They can be used in batch mode to automatically post-process results.

T/HIS FAST-TCF Creating Scripts


Creating a FAST-TCF script firstly requires creating the plot, formatting the plot as required: curve names, titles, axis, etc.



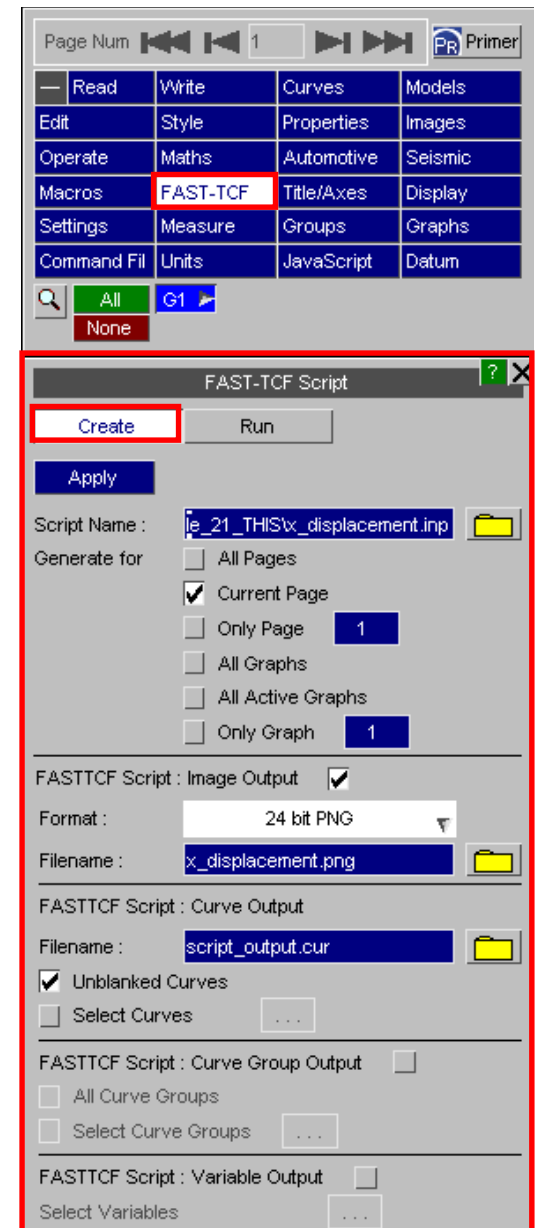
T/HIS FAST-TCF Creating Scripts

To access the FAST-TCF menu, click the 'FAST-TCF' button. Within the 'FAST-TCF Script' menu, ensure that the 'Create' menu is displayed, by clicking the 'Create' button.

Select the options required, which include: page/graph selection for the FAST-TCF script, Image Output, Curve Output, Curve Group Output and Variable Output.

The FAST-TCF script name can be entered/edited in the 'Script Name' text box and the file location can be chosen using the  icon.

The script is saved as a *.inp file.



T/HIS FAST-TCF Play-Back

First, read in results from a model you want to play the script on.

Saved scripts can be played back in the 'Run' menu within the 'FAST-TCF Script' menu. To play back FAST-TCF scripts, firstly read in a model (the model which the script is based on).

The script can be accessed by either typing in the name of the script in the 'Script Name' text box or searching for the *.inp file using the folder icon.

The script can be played in full or stepped through line by line.

FAST-TCF Script.

Feedback in interpreter window.

Page Num 1

Read	Write	Curves	Models
Edit	Style	Properties	Images
Operate	Maths	Automotive	Seismic
Macros	FAST-TCF	Title/Axes	Display
Settings	Measure	Groups	Graphs
Command Fil	Units	JavaScript	Datum

FAST-TCF Script

Create Run

Script Name : le_21_THIS\displacement.inp

Reread Model Mapping

Auto confirm menus Blank existing curves

10 Maximum number of errors

Play Step End

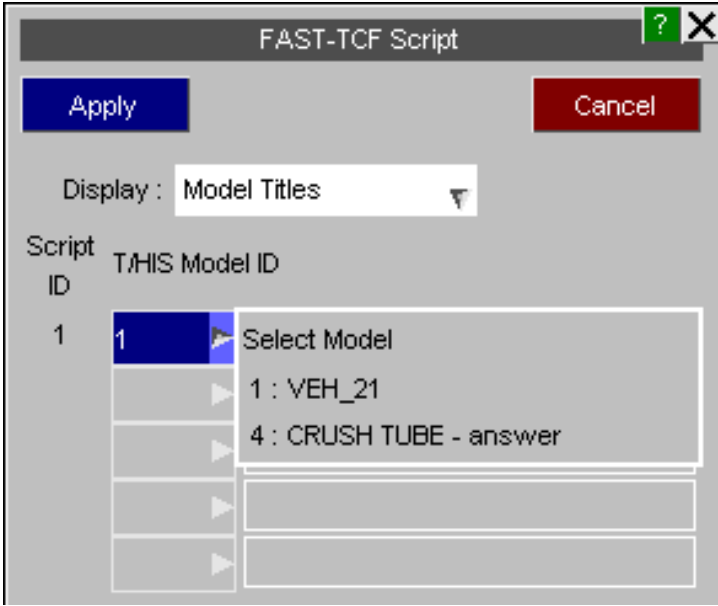
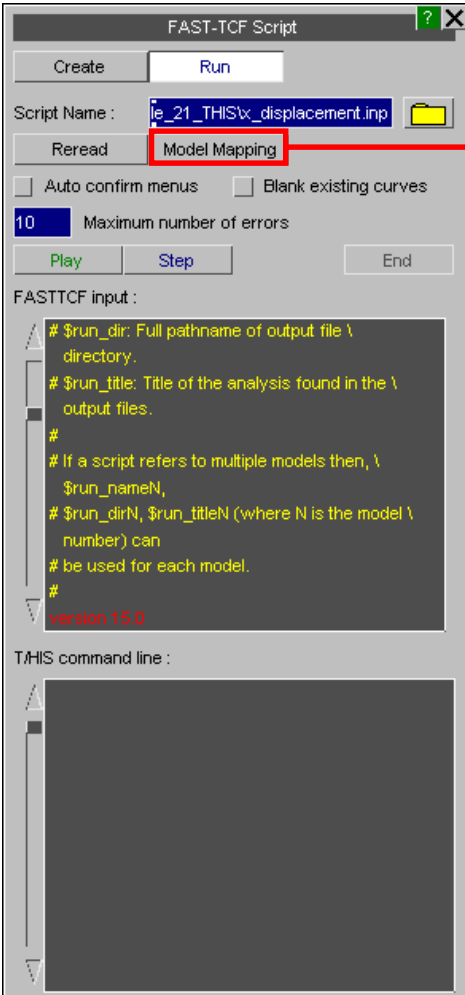
FASTTCF input :

```
# $run_dir: Full pathname of output file \
directory.
# $run_title: Title of the analysis found in the \
output files.
#
# If a script refers to multiple models then, \
$run_nameN,
# $run_dirN, $run_titleN (where N is the model \
number) can
# be used for each model.
#
version: 1.0.0
```

THIS command line :

T/HIS FAST-TCF Model Mapping

If the script is used to process multiple models, the 'Model Mapping' option can be used to define which model in T/HIS corresponds to which model in the script.



- FAST-TCF supports almost 100% of T/HIS commands. All of the available commands can be found in section 7 of the T/HIS manual. Below are some common ones.
- Multiple data selection by range including tags 'first', 'last' and 'all':

e.g. *sect 100:last force z_dir*

- Read data from multiple models:

e.g. *Model 1 or Model all*

- Other examples of reading multiple entities:

Node 89,90,100000 accel z tag acc z

Nodes 89, 90 and 100000. Z acceleration, all curves tagged as 'acc z'. Can be referred to in later slides.

Read & Operate on Multiple Curves

- Tags can be used to identify curves for operations. Example of curves with the same tag:

```
Sect 100:last force z_dir tag sec_fz
```

The z-force on cross sections 100 to (last) will be extracted. All curves will be given the same tag, "sec_fz".

```
Oper mul sec_fz 0.001 tag sec_fzkN
```

All curves with the tag "sec_fz" will be multiplied by 0.001; the resulting curves will all be given the same tag, "sec_fzkN".

- Use of wild-card (*) to generate and identify tags:

```
Sect 100:last force z_dir tag sec_fz*
```

The z-force on cross sections 100 to (last) will be extracted. Curves will be given tags "sec_fz1", "sec_fz2", etc.

```
Oper mul sec_fz* 0.001 tag sec_fzkN*
```

All curves with the tag "sec_fz*" (where * can be any alphanumeric characters) will be multiplied by 0.001; the resulting curves will be given tags "sec_fzkN1", "sec_fzkN2", etc.

- Using the entity ID in automatically-generated tags (## command):

```
Sect 100:last force z_dir tag sec_fz##
```

Curves will be given tags "sec_fz100", "sec_fz101", etc, according to the ID of the entity whose data is shown in the curve.

```
Oper mul sec_fz* 0.001 tag sec_fzkN##
```

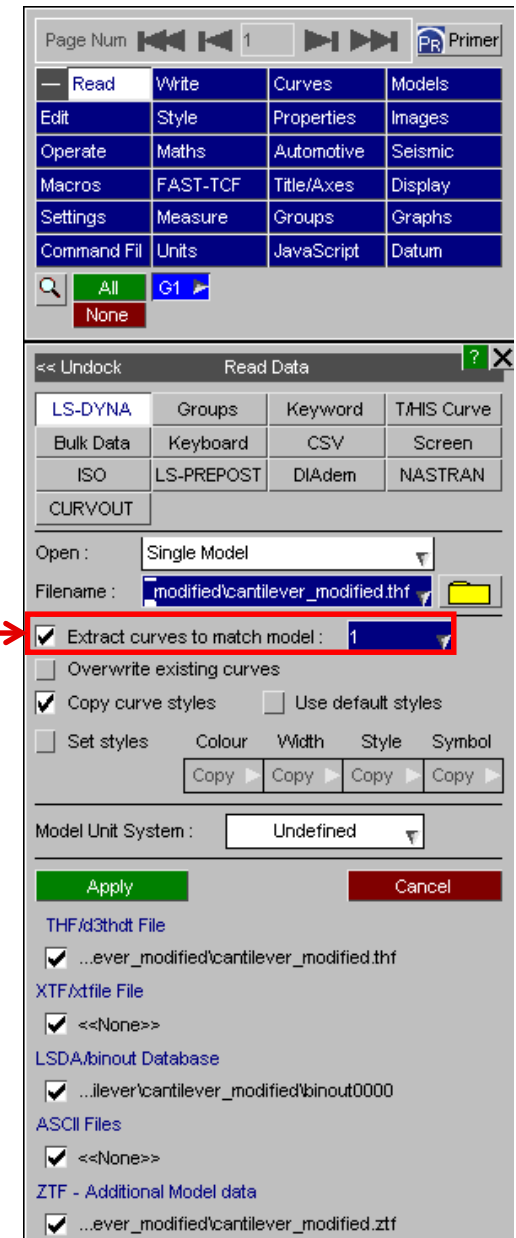
During the operation, the entity ID from the original curve (e.g. sec_fz100) will be used to form the tag of the output curve (e.g. sec_fzkN100)

Reading LS-DYNA Results

If you have read in a model and created some curves, T/HIS allows the user to read a new model and repeat all previous commands without having to record a FAST-TCF script.

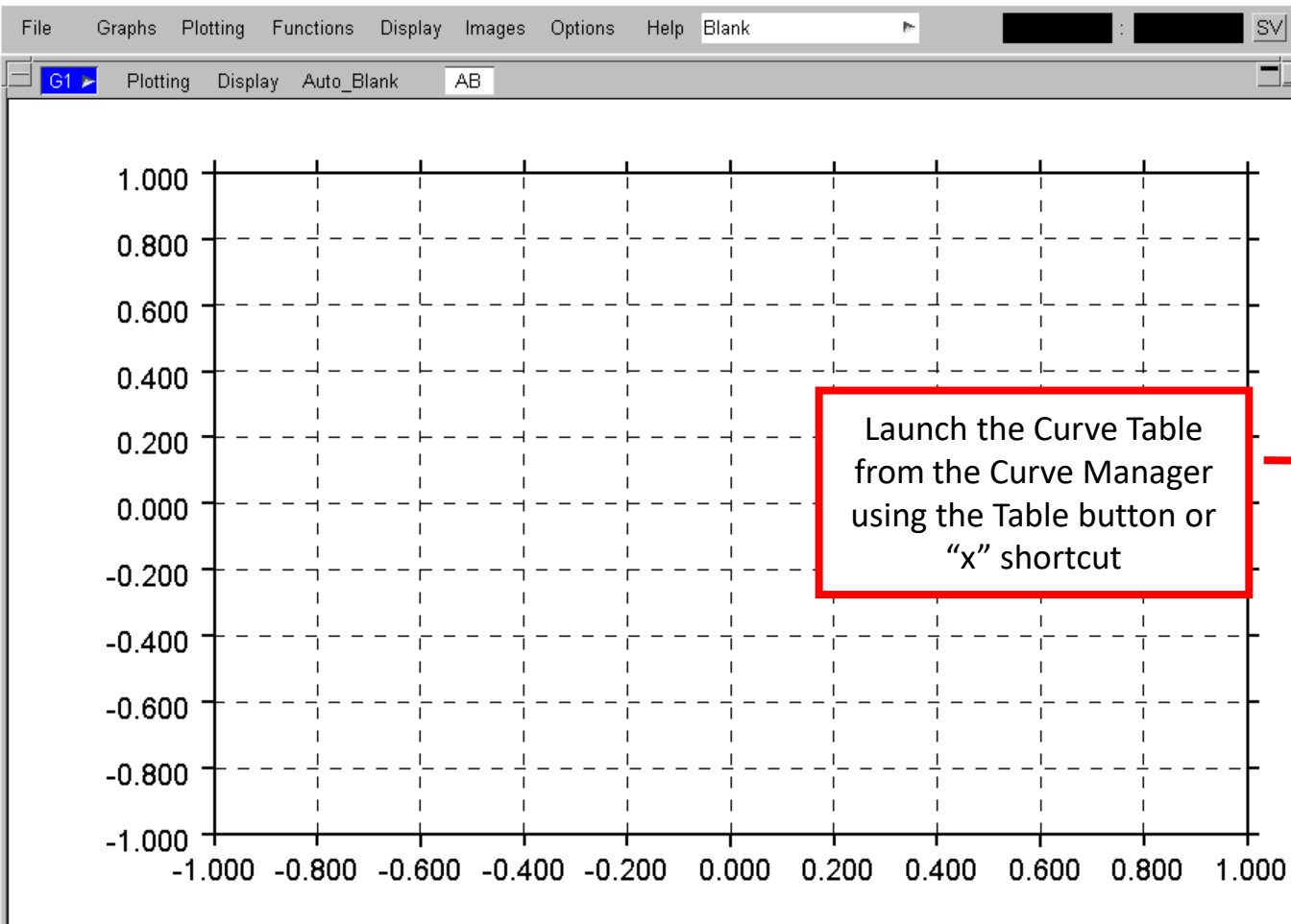
This can be useful when quickly comparing different model results.

When reading in a new model, the 'Extract curves to match model' option, effectively runs a FAST-TCF script on the new model.



Curve Table

- The T/HIS Curve Table provides easy access to a range of functionality to manipulate curves:
 - Filter and sort data
 - Change the style, colour and blanking status of curves



Launch the Curve Table
from the Curve Manager
using the Table button or
"x" shortcut

Page: 1 PRIMER

Read	Write	Curves	Models
Edit	Style	Properties	Images
Operate	Maths	Automotive	Seismic
Macros	FAST-TCF	Title/Axes	Display
Settings	Measure	Groups	Graphs
Command Fil	Units	JavaScript	Datum

All G1
None

<< Undock Curve Manager ?

Blank...	Condense	Summary	List
Delete	Table		Scan
Labels...	Curve Range :	- +	Select

Sort by : Curve ID Curve ID Curve ID

ID	Label
1	(M2) : Accel mag - Node 1101147
2	(M2) : Accel mag - Node 1155312
3	(M2) : Accel mag - Node 2640659 : (a
4	(M2) : Resultant Force - Spring 10036
5	(M2) : Resultant Force - Spring 10036
6	(M2) : Resultant Force - Spring 10036
7	(M3) : Disp mag - Node 5112002 : (R
8	(M3) : Disp mag - Node 5112010 : (Co
9	(M3) : Disp mag - Node 5112019 : (R
10	(M3) : Disp mag - Node 5112034 : (Le
11	(M3) : Disp mag - Node 5112042 : (Le
12	(M3) : Disp mag - Node 5112050 : (Le
13	(M3) : Disp mag - Node 5112058 : (Le
14	(M3) : Disp mag - Node 5112066 : (M
15	
16	
17	
18	

T/HIS
Version 15.1
08-FEB-19

DIALOGUE

(Written [Disp mag - Node 5112042 : (Left sill at rear door)] to curve #11
(Written [Disp mag - Node 5112050 : (Left lower b-pillar)] to curve #12
(Written [Disp mag - Node 5112058 : (Left middle b-pillar)] to curve #13
(Written [Disp mag - Node 5112066 : (MDB Middle)] to curve #14

Global Commands ?

Plot	Point	Clear
Zoom	Autoscale	Centre
Manual	Stop	Tidy

File Graphs Plotting Functions Display Images Options Help Blank

G1 Plotting Display Auto_Blank AB

G2 Plotting Display Auto_Blank AB

Page: 1 PRIMER

Read	Write	Curves	Models
Edit	Style	Properties	Images
Operate	Maths	Automotive	Seismic

Curve Table

Dismiss View... Update Filter by: Model... Label... Type... Component... Clear All Filter Options

Select: All None

ID	Label/Group Name	Directory	Model/File	Type	Entity ID	Component	Style
1	I.E. - Whole Model	C:\SoftwareDevelopment\	1	Model		I.E.	
2	I.E. - Whole Model			Model			
3	I.E. - Whole Model			Model			
4	X force - Node 1002			SPC			
5	Y force - Node 1002			SPC			
6	Z force - Node 1002			SPC			
7	Force Magnitude - Node 1002			SPC			
8	X force - Node 1002	C:\SoftwareDevelopment\	2	SPC	1002	X force	
9	Y force - Node 1002	C:\SoftwareDevelopment\	2	SPC	1002	Y force	
10	Z force - Node 1002	C:\SoftwareDevelopment\	2	SPC	1002	Z force	
11	Force Magnitude - Node 1002	C:\SoftwareDevelopment\	2	SPC	1002	Force Magnitude	
12	X force - Node 873	C:\SoftwareDevelopment\	3	SPC	873	X force	
13	Y force - Node 873	C:\SoftwareDevelopment\	3	SPC	873	Y force	
14	Z force - Node 873	C:\SoftwareDevelopment\	3	SPC	873	Z force	
15	Force Magnitude - Node 873	C:\SoftwareDevelopment\	3	SPC	873	Force Magnitude	
1	Model_1	C:\SoftwareDevelopment\	1	GROUP	*	*	Mixed
2	Model_2	C:\SoftwareDevelopment\	2	GROUP	*	*	Mixed
3	Model_3	C:\SoftwareDevelopment\	3	GROUP	*	*	Mixed

Rows can be sorted by clicking on the column header

Columns can be moved by dragging and dropping to a new position

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DIALOGUE

(Written [X force - Node 873] to curve #12
(Written [Y force - Node 873] to curve #13
(Written [Z force - Node 873] to curve #14
(Written [Force Magnitude - Node 873] to curve #15

Global Commands

Plot	Point	Clear
Zoom	Autoscale	Centre
Manual	Stop	Tidy

11	(M2) : Force Magnitude - Node 1002
12	(M3) : X force - Node 873
13	(M3) : Y force - Node 873
14	(M3) : Z force - Node 873
15	(M3) : Force Magnitude - Node 873
16	
17	
18	

File Graphs Plotting Functions Display Images Options Help Blank

G1 Plotting Display Auto_Blank AB

G2 Plotting Display Auto_Blank AB

Page: 1 PRIMER

Read	Write	Curves	Models
Edit	Style	Properties	Images
Operate	Maths	Automotive	Seismic

Curve Table

Dismiss View... Update Filter by: Model... Label... Type... Component... Clear All Filter Options

Select: All None

ID	Label/Group Name	Model/File	Directory	Type	Entity ID	Component	Style	1	2	3	4
1	I.E. - Whole Model	1	C:\SoftwareDevelopment\	Model		I.E.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	I.E. - Whole Model					I.E.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	I.E. - Whole Model					I.E.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	X force - Node 1002				1002	X force		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Y force - Node 1002				1002	Y force		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Z force - Node 1002				1002	Z force		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	Force Magnitude - Node 1002				1002	Force Magnitude		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	X force - Node 1002				1002	X force		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	Y force - Node 1002				1002	Y force		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	Z force - Node 1002	2	C:\SoftwareDevelopment\	SPC	1002	Z force		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	Force Magnitude - Node 1002	2	C:\SoftwareDevelopment\	SPC	1002	Force Magnitude		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	X force - Node 873	3	C:\SoftwareDevelopment\	SPC	873	X force		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13	Y force - Node 873	3	C:\SoftwareDevelopment\	SPC	873	Y force		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14	Z force - Node 873	3	C:\SoftwareDevelopment\	SPC	873	Z force		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15	Force Magnitude - Node 873	3	C:\SoftwareDevelopment\	SPC	873	Force Magnitude		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Model_1	1	C:\SoftwareDevelopment\	GROUP	*	*	Mixed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Model_2	2	C:\SoftwareDevelopment\	GROUP	*	*	Mixed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Model_3	3	C:\SoftwareDevelopment\	GROUP	*	*	Mixed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Graphs can be populated by ticking and unticking each curve or group. Each column corresponds to a graph in the T/HIS window.

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DIALOGUE

(Written [X force - Node 873] to curve #12
(Written [Y force - Node 873] to curve #13
(Written [Z force - Node 873] to curve #14
(Written [Force Magnitude - Node 873] to curve #15

Global Commands

Plot	Point	Clear
Zoom	Autoscale	Centre
Manual	Stop	Tidy

11		(M2) : Force Magnitude - Node 1002
12		(M3) : X force - Node 873
13		(M3) : Y force - Node 873
14		(M3) : Z force - Node 873
15		(M3) : Force Magnitude - Node 873
16		
17		
18		

File Graphs Plotting Functions Display Images Options Help Blank

G1 Plotting Display Auto_Blank AB

G2 Plotting Display Auto_Blank AB

Crank Design A

600.000

100.000

Curve Table

Dismiss View... Update Filter by: Model... Label... Type... Component...

Select: All None

ID	Label/Group Name	Model	Label	Type	Component	Filter
1	I.E. - Whole Model	1	I.E.	Model	I.E.	<input checked="" type="checkbox"/>
3	I.E. - Whole Model	3	C:\SoftwareDevelopment\	Model	I.E.	<input type="checkbox"/>
4	X force	1	C:\SoftwareDevelopment\	SPC	1002	X force
5	Y force	1	C:\SoftwareDevelopment\	SPC	1002	Y force
6	Z force	1	C:\SoftwareDevelopment\	SPC	1002	Z force
7	Force Magnitude	1	C:\SoftwareDevelopment\	SPC	1002	Force Magnitude
12	X force - Node 873	3	C:\SoftwareDevelopment\	SPC	873	X force
13	Y force - Node 873	3	C:\SoftwareDevelopment\	SPC	873	Y force
14	Z force - Node 873	3	C:\SoftwareDevelopment\	SPC	873	Z force
15	Force Magnitude - Node 873	3	C:\SoftwareDevelopment\	SPC	873	Force Magnitude
1	Model_1	1	C:\SoftwareDevelopment\	GROUP	*	Mixed
2	Model_2	2	C:\SoftwareDevelopment\	GROUP	*	Mixed
3	Model_3	3	C:\SoftwareDevelopment\	GROUP	*	Mixed

Filter by Model

Dismiss Select: All None

Model 1 Model 2 Model 3

Curves can be filtered using the different options on the table

Page: 1 PRIMER

Read	Write	Curves	Models
Edit	Style	Properties	Images
Operate	Maths	Automotive	Seismic

* 1 2 3 4

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Time

(M2) : X force - Node 100

(M2) : Y force - Node 10

(M2) : Z force - Node 100

(M2) : Force Magnitude -

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Time

(M3) : X force - Node 873

(M3) : Y force - Node 87

(M3) : Z force - Node 873

(M3) : Force Magnitude -

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11		(M2) : Force Magnitude - Node 1002
12		(M3) : X force - Node 873
13		(M3) : Y force - Node 873
14		(M3) : Z force - Node 873
15		(M3) : Force Magnitude - Node 873
16		
17		
18		

DIALOGUE

(Written [X force - Node 873] to curve #12

(Written [Y force - Node 873] to curve #13

(Written [Z force - Node 873] to curve #14

(Written [Force Magnitude - Node 873] to curve #15

Global Commands

Plot	Point	Clear
Zoom	Autoscale	Centre
Manual	Stop	Tidy



Read	Write	Curves	Models
Edit	Style	Properties	Images
Operate	Maths	Automotive	Seismic

Curve Table

Dismiss View... Update Filter by: Model... Label... Type... Component...

Select: Select Columns Display Show Models By ?

ID
 Label/Group Name
 Model/File
 Type
 Entity ID
 Component
 Style
 Directory

All Items
 Group By Model/File
 Group Common Items

Curves and Group
 Curves Only
 Groups Only

Model number
 Directory
 THF File
 User Defined

Save to pref Dismiss

ID	Type	Model	Label	Style	1	2	3	4
14	SPC	873	Z force	△	✓	✓		
15	SPC	873	Force Magnitude	◇	✓	✓		
1	GROUP	*	*	×	✓		✓	
2	GROUP	*	*	×	✓		✓	
3	GROUP	*	*	×	✓		✓	

User can select which columns are displayed and change how the data is displayed in the table

Time

(M2) : X force - Node 100
 (M2) : Y force - Node 10
 (M2) : Z force - Node 100
 (M2) : Force Magnitude -

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Time

(M3) : X force - Node 873
 (M3) : Y force - Node 87
 (M3) : Z force - Node 873
 (M3) : Force Magnitude -

T/HIS
Version 15.1
08-FEB-19

11	◇	(M2) : Force Magnitude - Node 1002
12	×	(M3) : X force - Node 873
13	×	(M3) : Y force - Node 873
14	△	(M3) : Z force - Node 873
15	◇	(M3) : Force Magnitude - Node 873
16	—	
17	△	
18	◇	

DIALOGUE

(Written [X force - Node 873] to curve #12
 (Written [Y force - Node 873] to curve #13
 (Written [Z force - Node 873] to curve #14
 (Written [Force Magnitude - Node 873] to curve #15

Global Commands

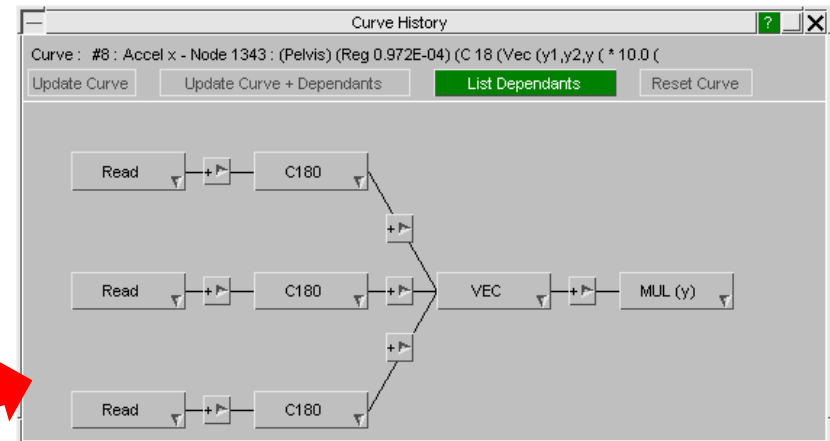
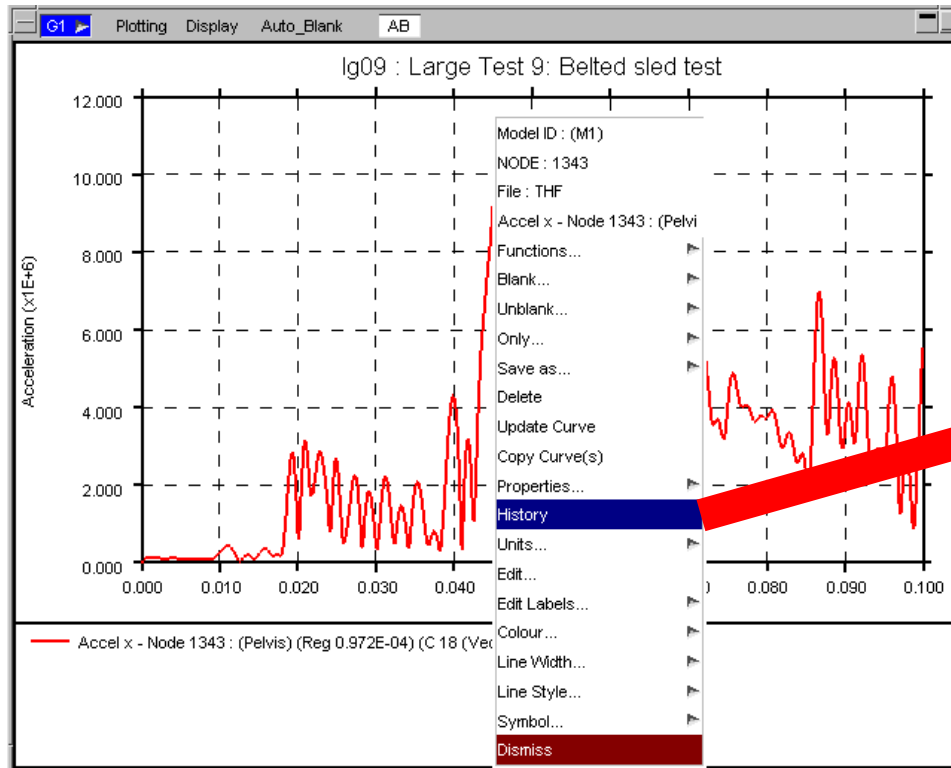
Plot	Point	Clear
Zoom	Autoscale	Centre
Manual	Stop	Tidy

Curve History

- Curve history allows you to look at the sequence of operations that have been carried out to generate a particular curve.
- Also allows the operations to be modified and the curve regenerated to reflect these modifications.

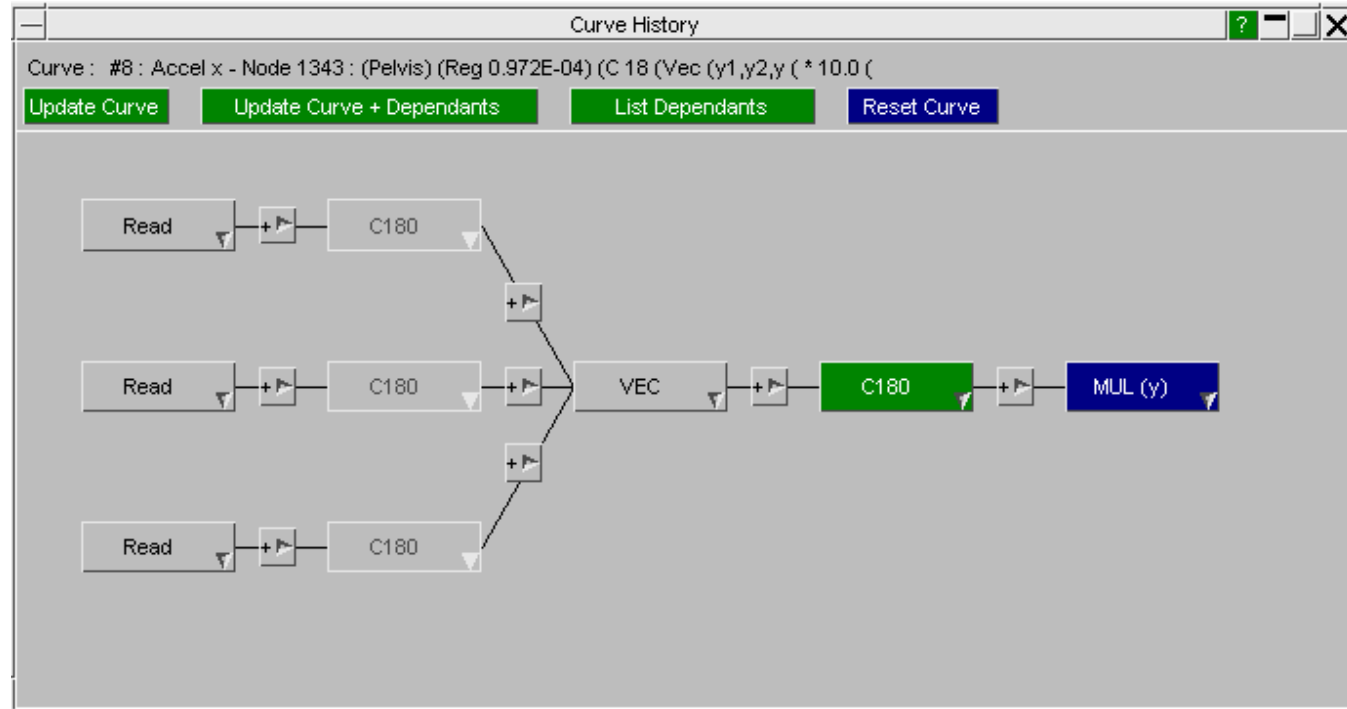
Curve History

If a curve has been created in T/HIS by combining multiple curve operations then you can view the curve history and modify it by right clicking on the curve and selecting “History”.



Curve History

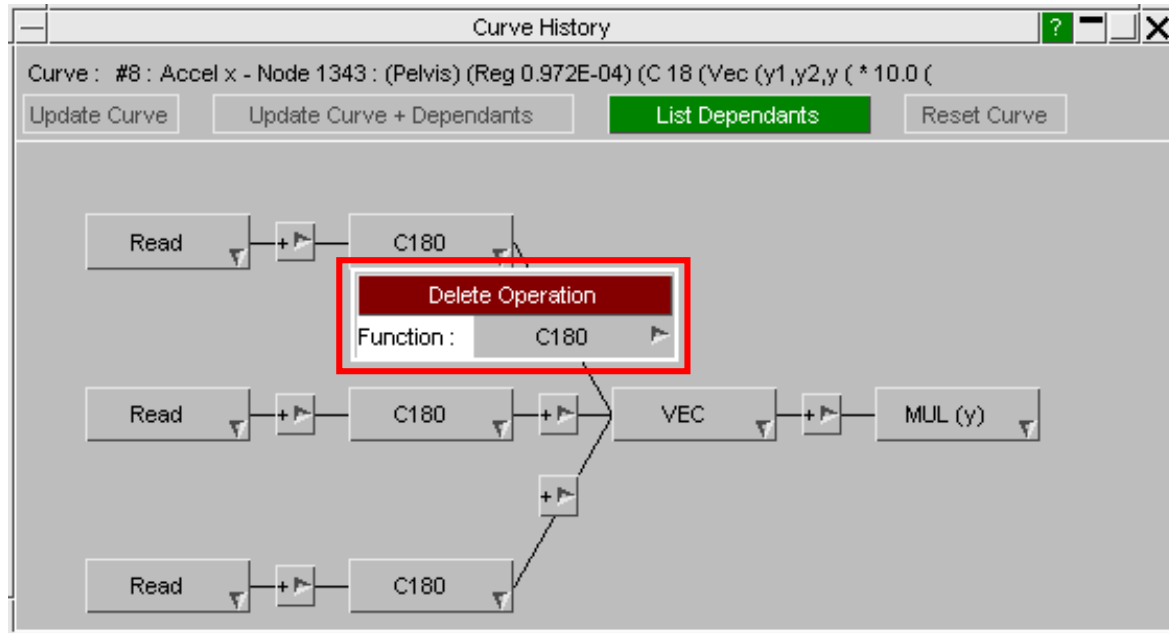
From Version 15 onwards the button colours within the curve history window are colour coded.



-  Unmodified
-  Deleted
-  Inserted
-  Modified

Curve History

In Version 15 onwards, in addition to modifying and adding new operations, an existing curve operation that has a single curve input and generates a single curve output can be removed by right-clicking on the function in the curve history window and selecting delete.

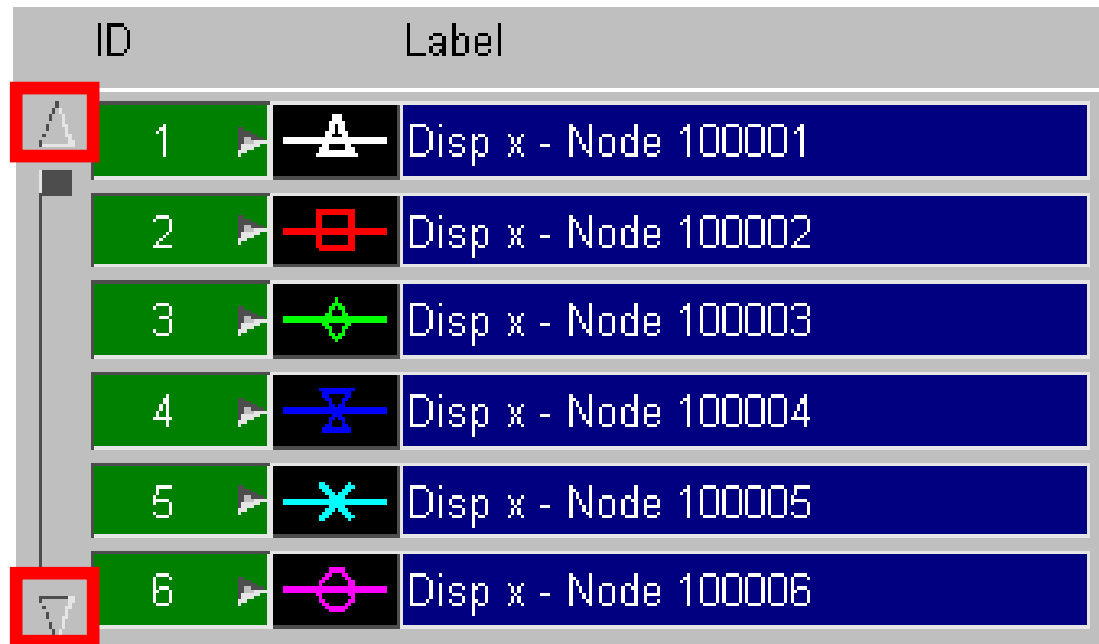


Quick List Scrolling

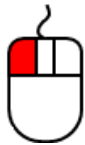
Quick List Scrolling

On some menus, you might be dealing with hundreds of listed items. One such menu is the Curve Manager in T/HIS.

Instead of using the scroll wheel, you can use the left, middle and right mouse buttons on the scrollbar arrow icons. This will move the list by 1, 10 and 100 items respectively.



Quick List Scrolling



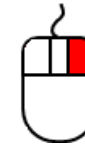
1 item

ID	Label
2	Disp x - Node 100002
3	Disp x - Node 100003
4	Disp x - Node 100004
5	Disp x - Node 100005
6	Disp x - Node 100006
7	Disp x - Node 100007
8	Disp x - Node 200001
9	Disp x - Node 200002
10	Disp x - Node 200003
11	Disp x - Node 200004
12	Disp x - Node 200005
13	Disp x - Node 200006
14	Disp x - Node 200007
15	Disp x - Node 1101147
16	Disp x - Node 1155312



10 items

ID	Label
11	Disp x - Node 200004
12	Disp x - Node 200005
13	Disp x - Node 200006
14	Disp x - Node 200007
15	Disp x - Node 1101147
16	Disp x - Node 1155312
17	Disp x - Node 2640659 : (accelerom
18	Disp y - Node 100001
19	Disp y - Node 100002
20	Disp y - Node 100003
21	Disp y - Node 100004
22	Disp y - Node 100005
23	Disp y - Node 100006
24	Disp y - Node 100007
25	Disp y - Node 200001



100 items

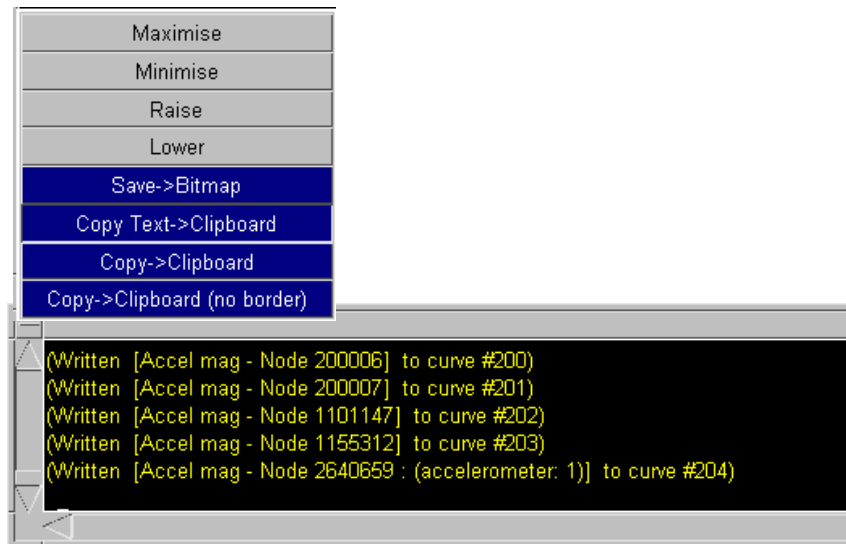
ID	Label
101	Vel y - Node 1155312
102	Vel y - Node 2640659 : (accelerome
103	Vel z - Node 100001
104	Vel z - Node 100002
105	Vel z - Node 100003
106	Vel z - Node 100004
107	Vel z - Node 100005
108	Vel z - Node 100006
109	Vel z - Node 100007
110	Vel z - Node 200001
111	Vel z - Node 200002
112	Vel z - Node 200003
113	Vel z - Node 200004
114	Vel z - Node 200005
115	Vel z - Node 200006

Undocked Panel Button

Undocked Panel Button

At the top-left corner of each undocked panel, there's a button which lets you save the panel as a bitmap or copy the image to your clipboard. You are also able to Maximise, Minimise, Restore and bring the panel forwards or backwards of other panels (using Raise and Lower).

A handy addition to this is the option to copy all of the text within the Dialogue box to the clipboard. This can be useful to extract any messages that get generated.



ARUP

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