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T/HIS 16.0 - Contents

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Curve Table

Curve Table

Curve properties and injury values can now be displayed in the curve table. The tab buttons can be used to swap between the curve property columns and the graph blanking buttons.

The whole curve table can be written out to either a .csv or .xlsx file.

The curve table can be set to auto-resize in order to fit in all the columns whenever more are added.

The columns can be reordered by dragging column headers. Columns can also be hidden by right-clicking the headers.

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Curve Table

The set of columns displayed in the table can be customized in the 'View' popup.

The displayed curve properties or injury values can be shown or hidden as a group using the tick-boxes in the view popup, without changing which are selected.
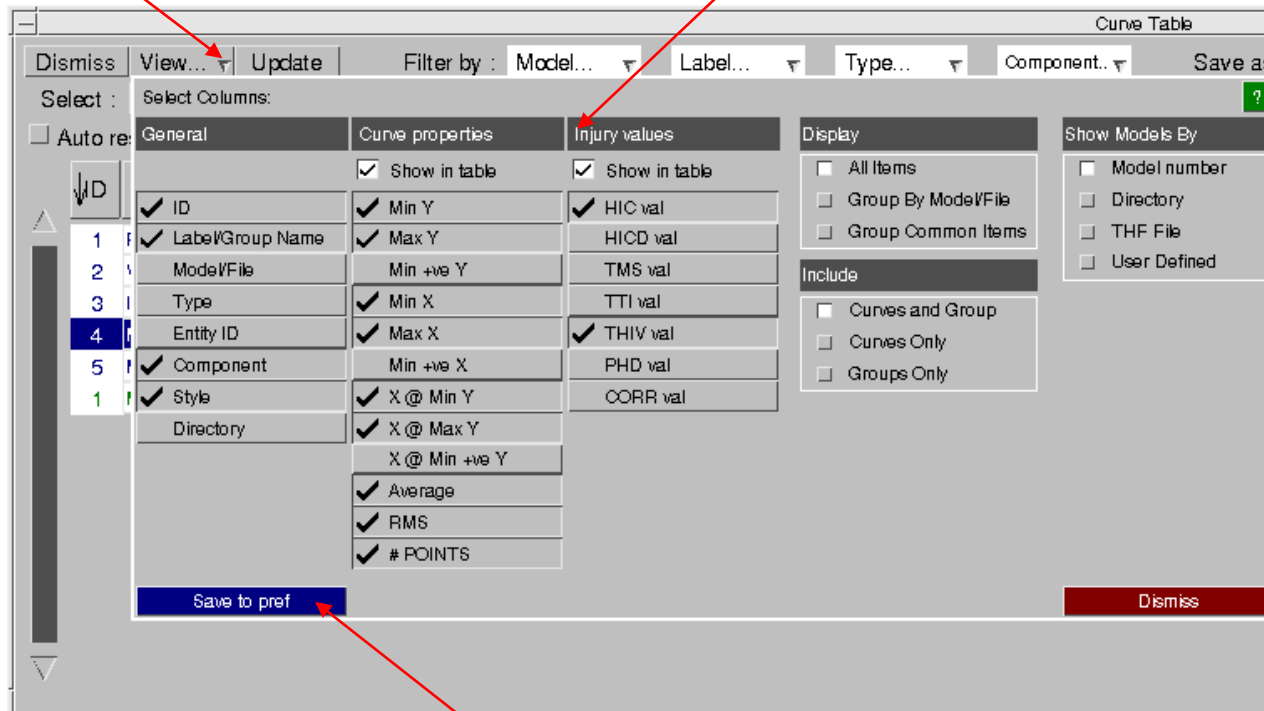
The choice of displayed columns can be saved to preferences.

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Curve Table

Curves can be annotated with a property or injury value by right-clicking the value in the curve table and selecting 'Annotate'.

Options for customising annotations can be found in the 'Annotation options' popup. The options include the format of the displayed value, whether to highlight the relevant point on the curve and the ability to add either an automatic or user-defined label to the annotation.

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Curve Table

Curves can be operated on by right-clicking them in the curve table and selecting 'Functions…'. then choosing the desired operation.

Operations and annotations can be applied to multiple curves at the same time by selecting multiple curves in the table using SHIFT or CTRL before right-clicking.

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New Data Types

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New Read Data

The following data is now read by T/HIS:

- **SPC set IDs**   SPC nodes can be given an optional set ID. This is now read from ASCII and LSDA files, allowing force data to be summed within a set and output as a single curve. Force data can also be summed over all SPCs in the model.

- **curvout**   Both ASCII curvout files and curvout data in LSDA binout files can now be read by T/HIS, with the curves treated as entities so they can be individually selected via the read menu.

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New Data Components

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New Data Components

The following data is now read by T/HIS:

- **BOUNDARY**   Discrete_Nodal_Loads -   X/Y/Z/Magnitude Moments (MX/MY/MZ/MM)

  Velocity_Nodal_Loads -   X/Y/Z/Magnitude Moments (MX/MY/MZ/MM)

- **AIRBAG**   Airbag Data -   Mass flow via fabric   (MAF)
  Mass flow via vent   (MAV)

  Part Data -   Blocked area   (BA)
  Leakage   (LK)

- **GLOBAL**   Lumped Kinetic Energy (LKE) – If IERODE = 1 is set on the *CONTROL_OUTPUT card, then non-structural kinetic energy is written out. In ASCII matsum files, this data is stored in artificial parts 0 and -1, which is summed together to form the LKE data component in T/HIS. In LSDA binout files, the data already appears summed together as lumped_kinetic_energy.

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Curve Operations

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Curve Operations - Y2-Axis Output Curves

If all the input curves for any standard, mathematical, automotive or seismic operation are plotted on the Y2-axis, then the output curve(s) will also be plotted on the Y2-axis.

Curve Operations - Regression

The Regres operation applies least squares regression to fit data with either a linear, polynomial (degree 1-4), logarithmic or exponential curve.

Logarithmic regression cannot be applied to data which contains non-positive x-values and exponential regression cannot be applied to data which contains non-positive y-values.

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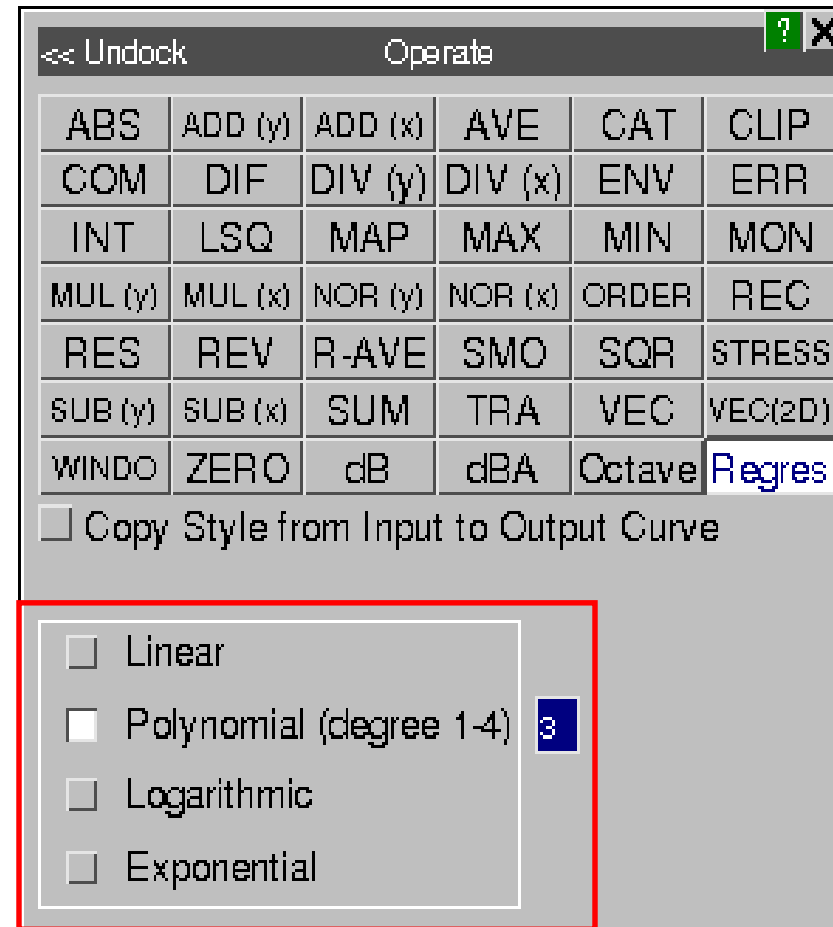
Curve Operations - Regression

The equation of the output curve and Pearson's R^2 coefficient can be viewed by right-clicking on the curve and selecting Properties.

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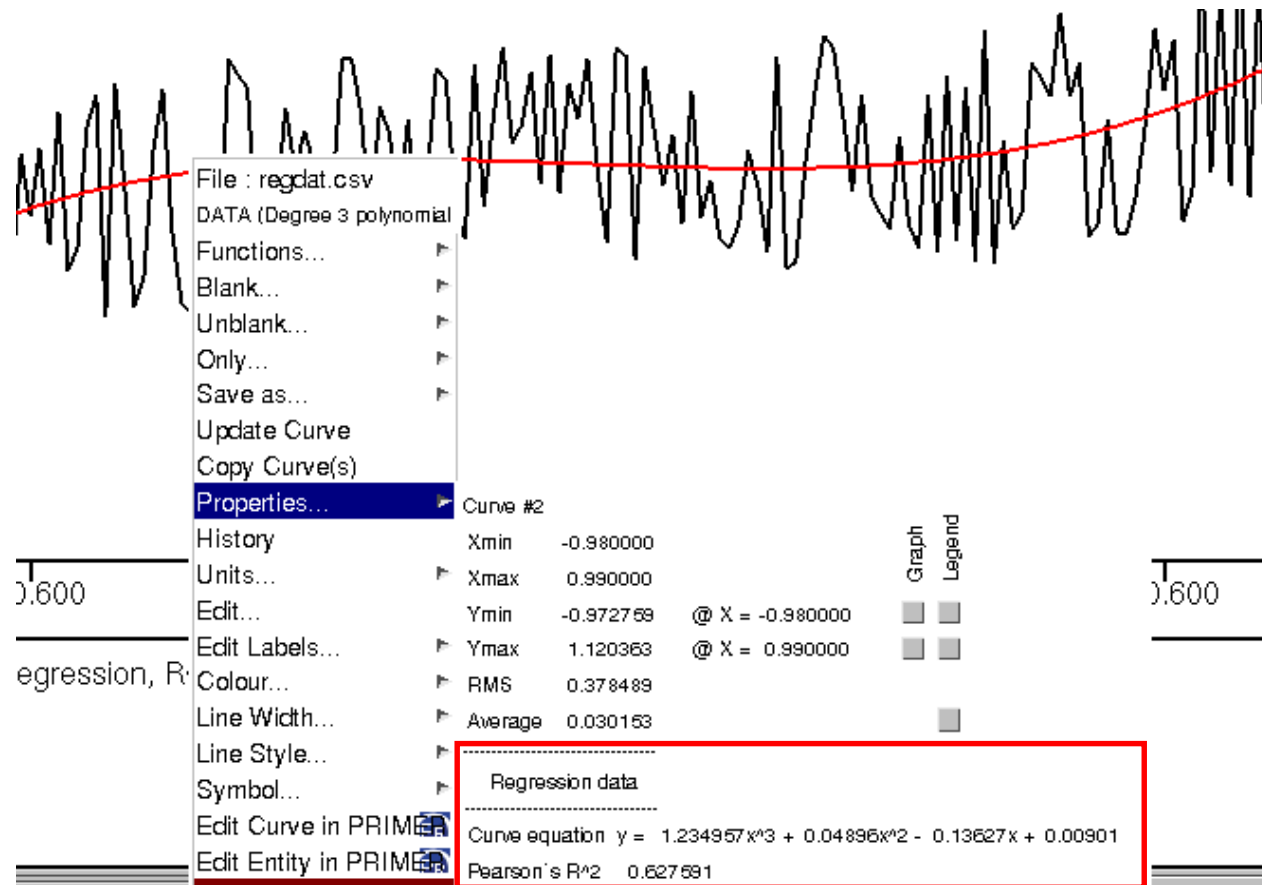
Curve Operations - Regression

In the case of linear regression, the standard deviation of the gradient, intercept and y-values are also displayed in the properties pop-up. Additionally, for linear regression it is possible to display 95% confidence and prediction bands around the output curve. These give 95% confidence intervals at each x-value for the choice of best y-value and for predicting a new y-value respectively. These are displayed by selecting the Properties menu in the top-right panel and then ticking Show CBands.
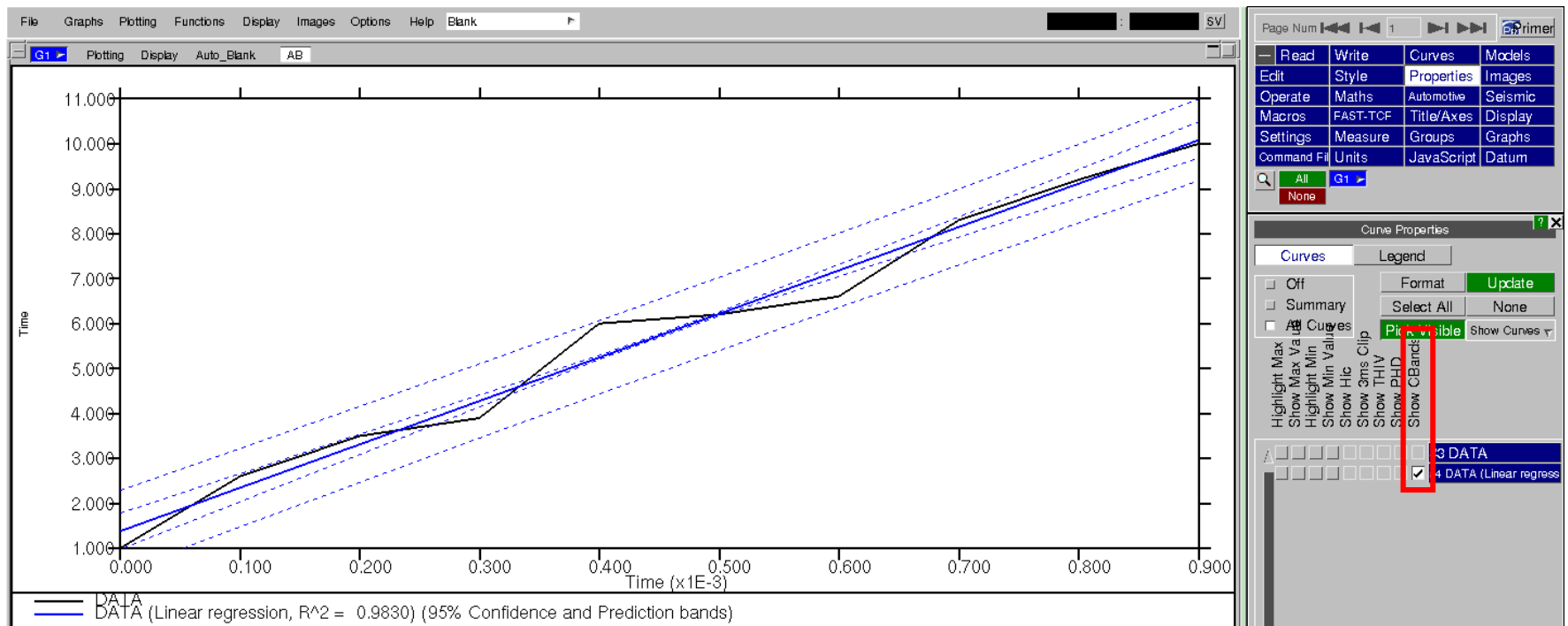
D3PLOT → T/HIS Link

Timeline

Timelines are now available for Data vs Data XY curves as generated from D3PLOT.
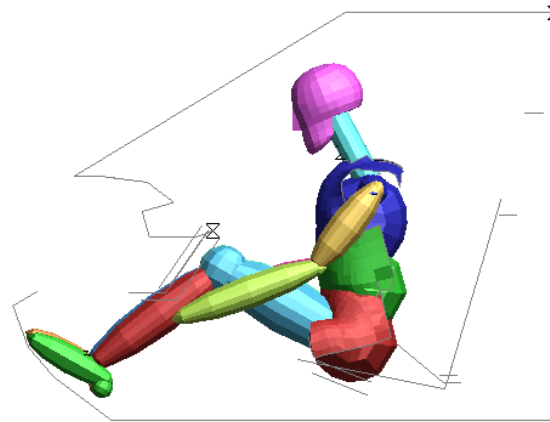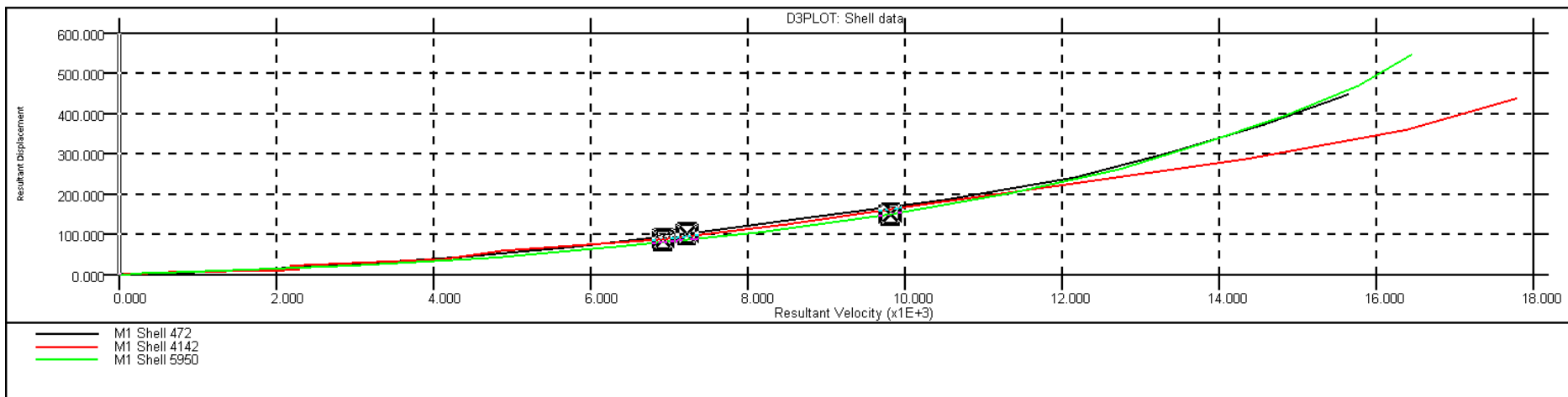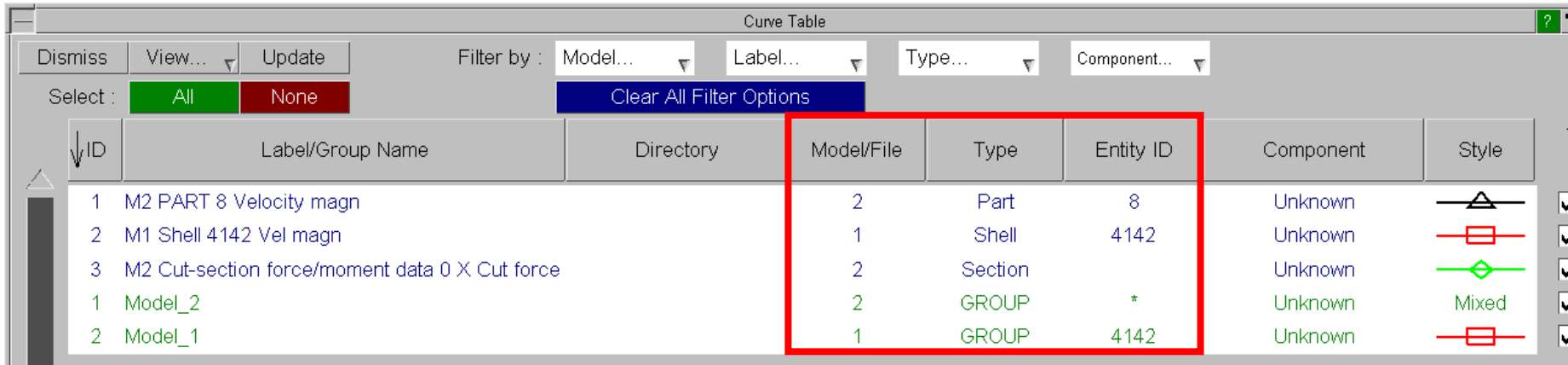
D3PLOT → T/HIS: Additional Curve Information

Model number, entity type and entity label information is now available for curves transferred as XY data from D3PLOT->THIS. This information is available for entity types that carry externally relevant labels and can be used for filtering, blanking etc.

Curves for cut-sections now also include model number information.

Curve and Legend Appearance

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Antialiasing Curves

Curves are now antialiased by default in T/HIS, which gives them a smoother look. This can be turned on and off via:

   Display -> Use Antialised Lines

There is also a preference that can be used to turn this on or off by default:

   this*line_antialias: ON/OFF

Antialiasing off

Antialiasing on

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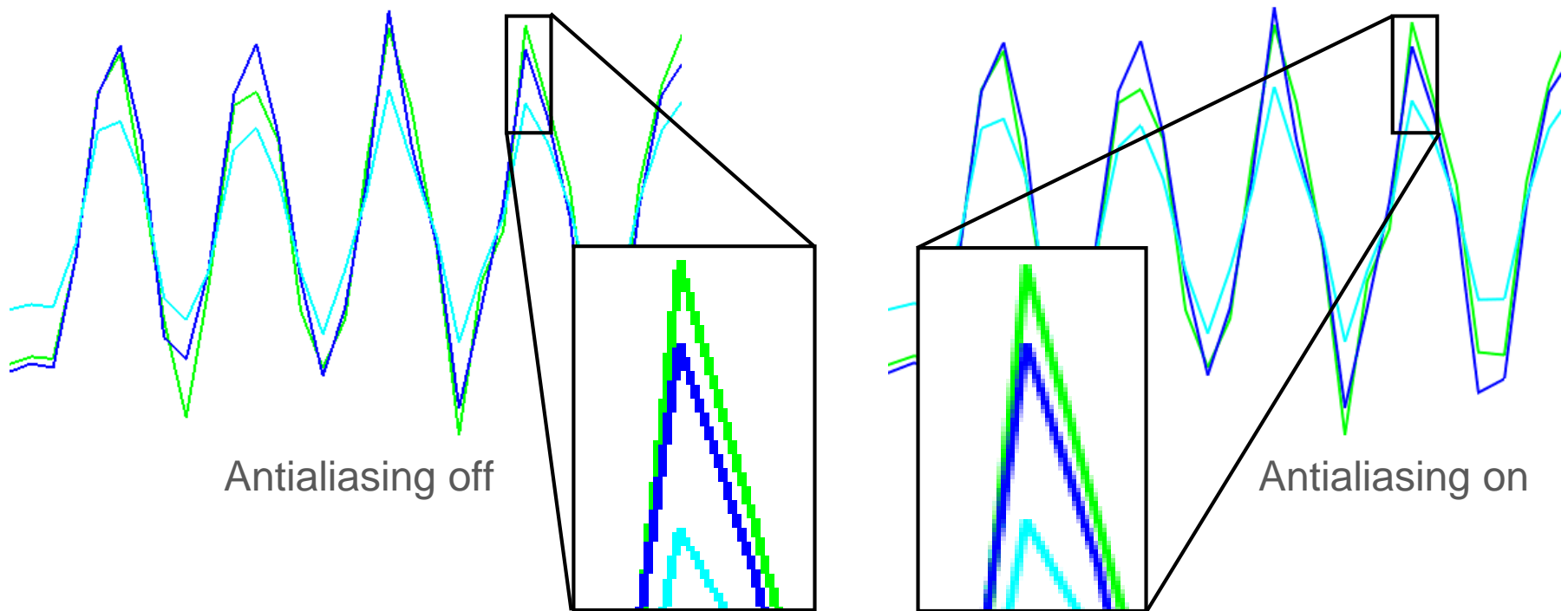
Line Widths

There are now more available line widths in T/HIS. Any pixel width 1-10 can now be chosen, expanding on the set of previous widths FINE (width 1), NORMAL (width 2), BOLD (width 4) and HEAVY (width 8).

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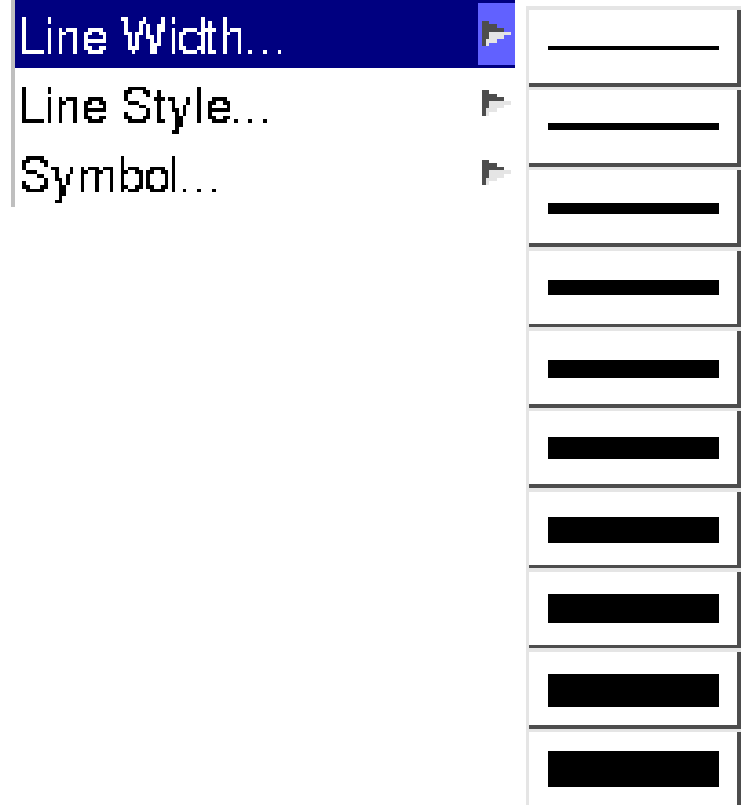
Legend Text Colour

There is now an option to set the legend label text to have the same colour as the curve which it represents.

Before:

— Time Step - Whole Model
— K.E. - Whole Model
— I.E. - Whole Model
— Spring/Damper Energy - Whole Model
— HG.E. - Whole Model

After:

— Time Step - Whole Model
— K.E. - Whole Model
— I.E. - Whole Model
— Spring/Damper Energy - Whole Model
— HG.E. - Whole Model

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Block Moving Curves

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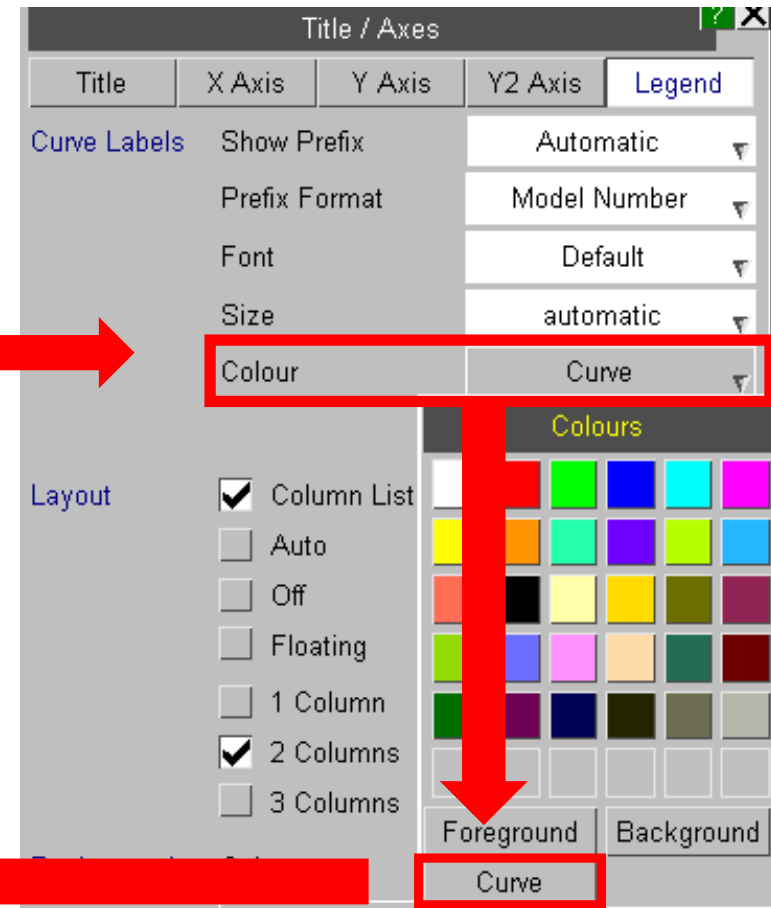
Block Moving Curves
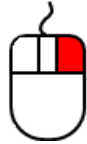
In Version 16, there is now the capability to move multiple curves in the Curve Manager.
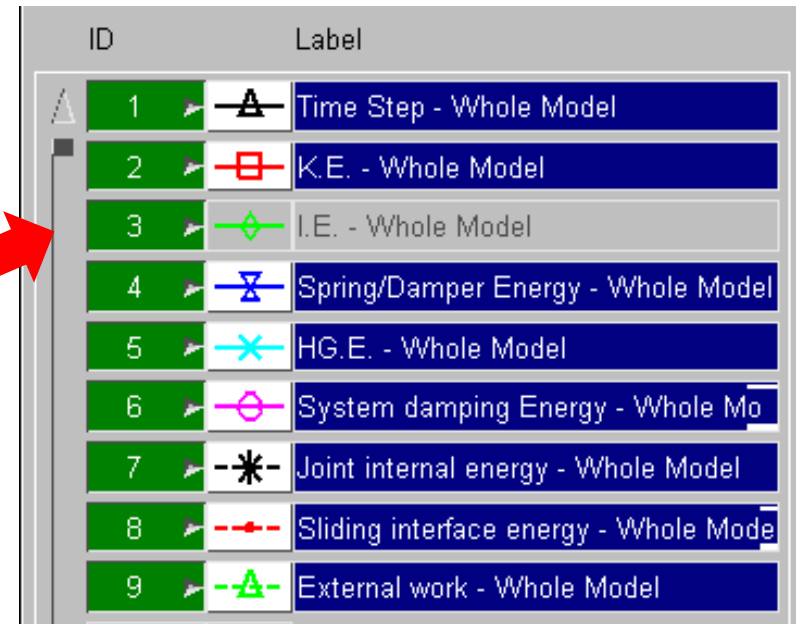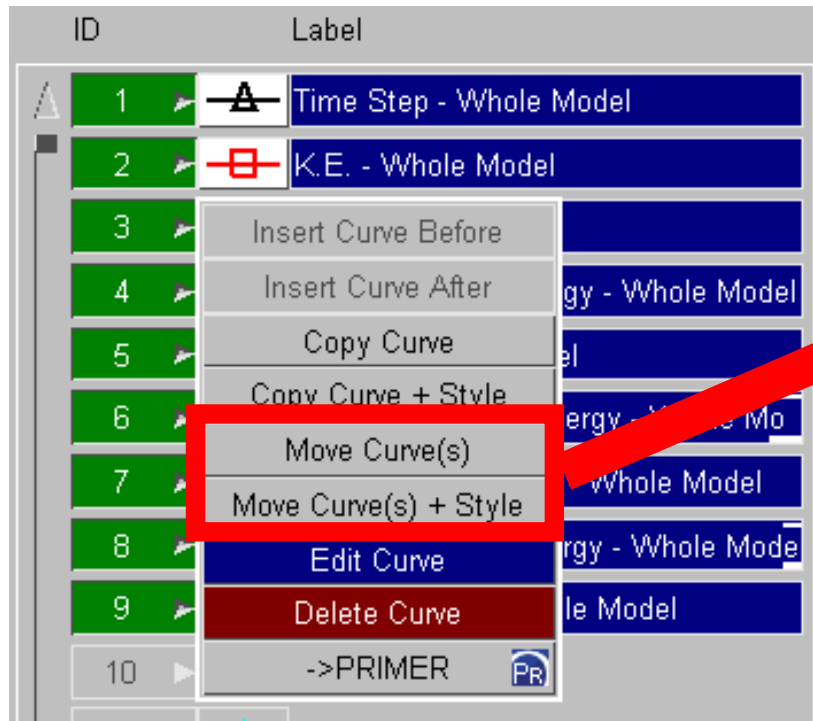
Moving now puts the curve into an inactive, "Move Pending" state to be inserted.

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Block Moving Curves

SHIFT + 🖱 **+ Move Curve**

CTRL + 🖱 **+ Move Curve**

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Block Moving Curves

"Insert After" example:

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Block Move Curves

Cancelling the move

Right clicking on one of the curves that is pending to be moved will give you an option to cancel the move on only the selected curve, or every curve.

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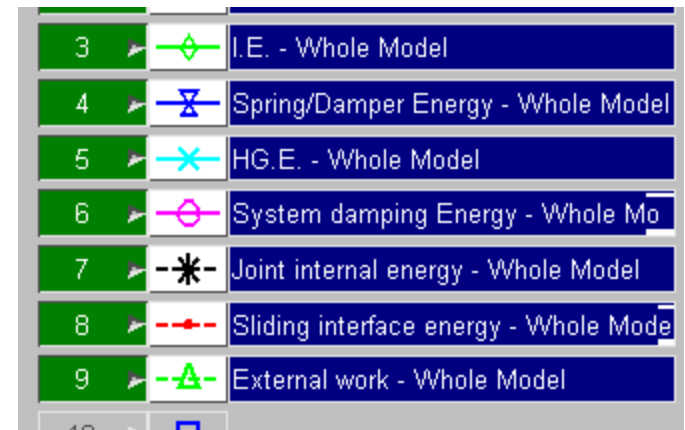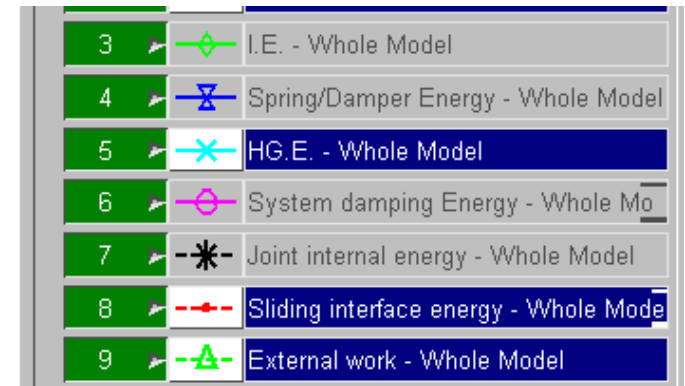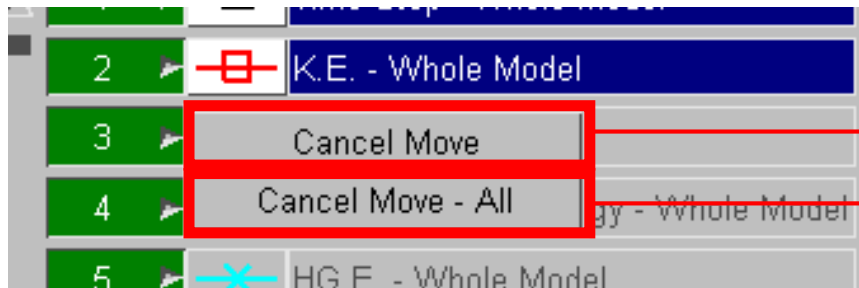
Session Files

T/HIS Session – Save and Retrieve

Session save and retrieve saves the current T/HIS session as a session file (.tsf) onto the disk, which can be read back in to retrieve the saved T/HIS session. This can be done using the save/retrieve session panel, which can be set to appear every time T/HIS starts by using a new preference. On Windows, a session can be retrieved by simply double-clicking on it.

Save session

Retrieve session

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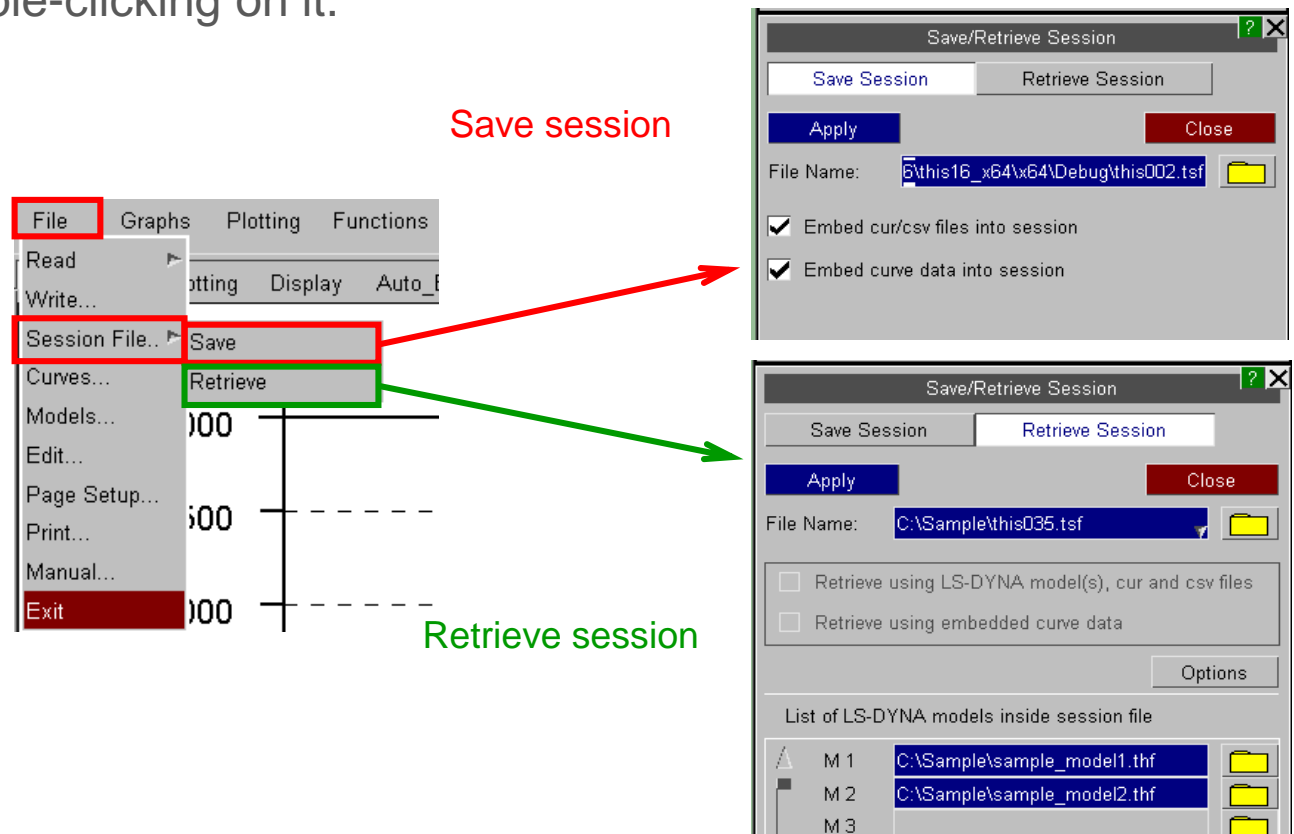
T/HIS Session - Save

A session can be saved from the EXIT information panel. It can also be saved unconditionally upon exit to a user-defined location using new preferences.

INFORMATION

| EXIT | CP_EXIT (Keep CP File) | SAVE SESSION | CANCEL (Continue) |

```
Confirm EXIT:      EXIT   will tidy up and exit;
                   CP_EXIT will save the current Checkpoint file
                           and then exit.
              SAVE SESSION  Saves the T/His session file with name
                           this_<DATE>_<TIME>.tsf to HOME location.
                   CANCEL  will return to the programme.
```
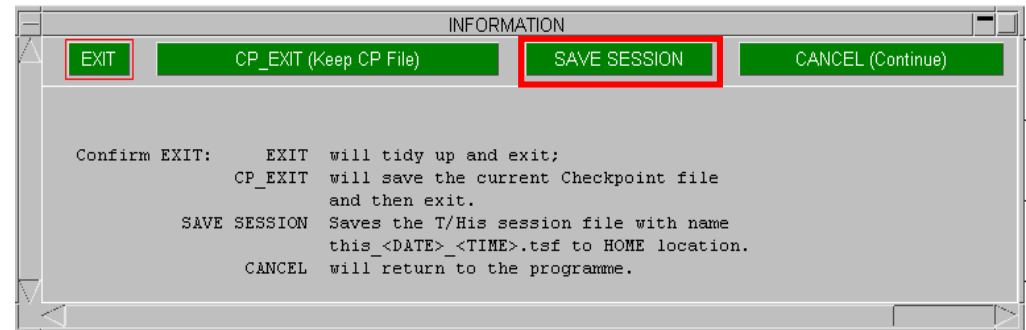
Any .cur or .csv files that were used to create the curves in a session can be embedded into the session file. The session file with embedded .cur/.csv files no longer depends on these files and the session can be retrieved even if these files are deleted or lost. This option can be turned-on always, by using a new preference.

Save/Retrieve Session

| Save Session | Retrieve Session |

Apply   Close

File Name: 6\this16_x64\x64\Debug\this002.tsf

☑ Embed cur/csv files into session

☑ Embed curve data into session

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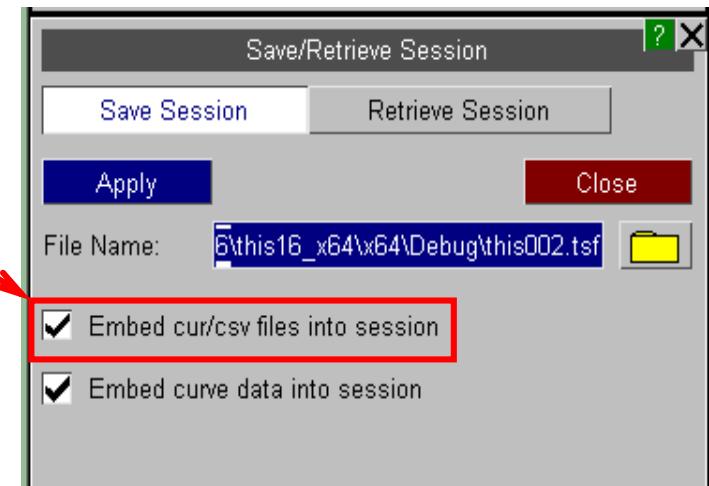
T/HIS Session - Save

The XY coordinate data for each curve in a session can be embedded into the session file. A session file with embedded curve data can be retrieved even if the model files are missing. Sessions retrieved using embedded curve data lose information such as curve IDs and graph properties. This option can be turned-on always, by using the new preference.

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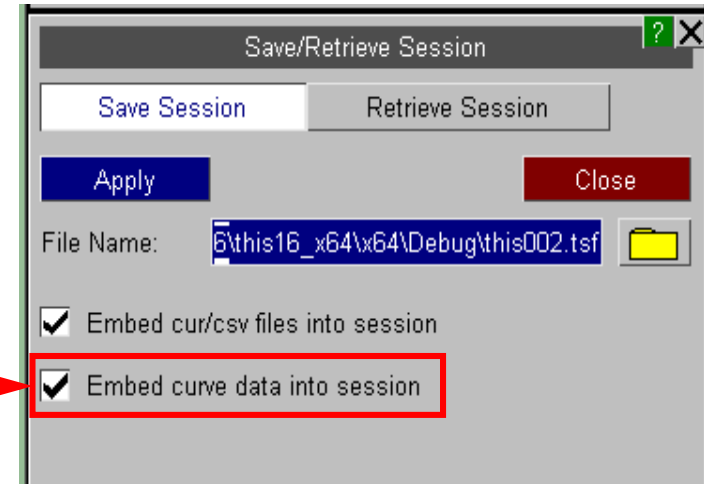
T/HIS Session - Retrieve

Retrieving a session file which does not contain embedded curve data

The 'Options' button will be available if the current T/HIS session already contains curve(s) or model(s).
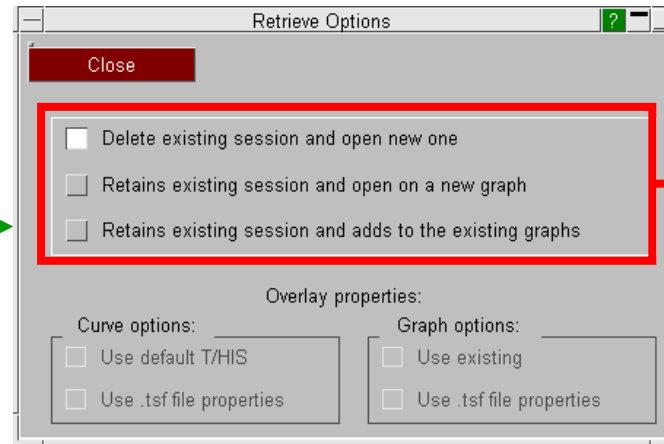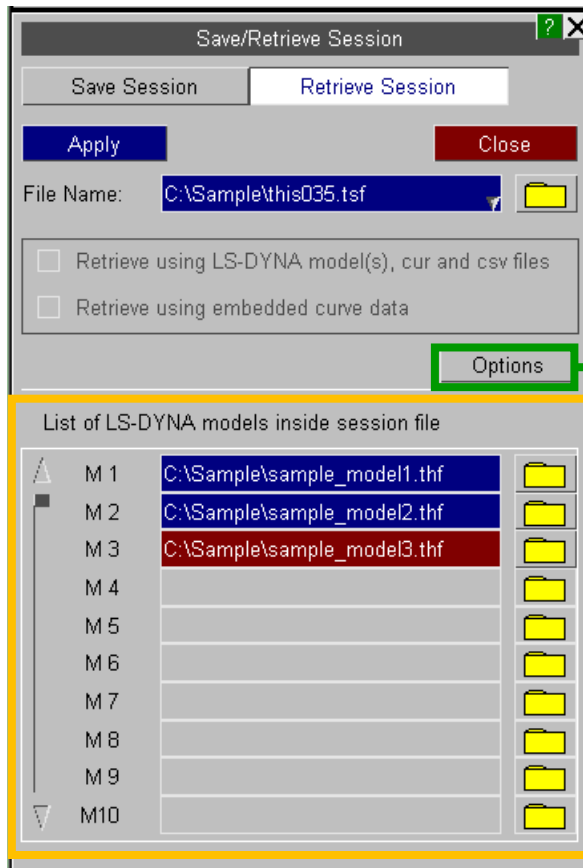
These options can be used to control how the new session is going to be opened when T/HIS already contains curve(s) or model(s).

List of all the LS-DYNA models that have been used by the session. Blue/red background colors indicate if T/HIS can/can't find the LS-DYNA models used by the session. Path of the LS-DYNA models can be changed/updated manually or by using file selection browser.

T/HIS Session - Retrieve

Retrieve Options

Close

☐ Delete existing session and open new one

☐ Retains existing session and open on a new graph

☐ Retains existing session and adds to the existing graphs

Overlay properties:

Curve options:
☐ Use default T/HIS
☐ Use .tsf file properties

Graph options:
☐ Use existing
☐ Use .tsf file properties
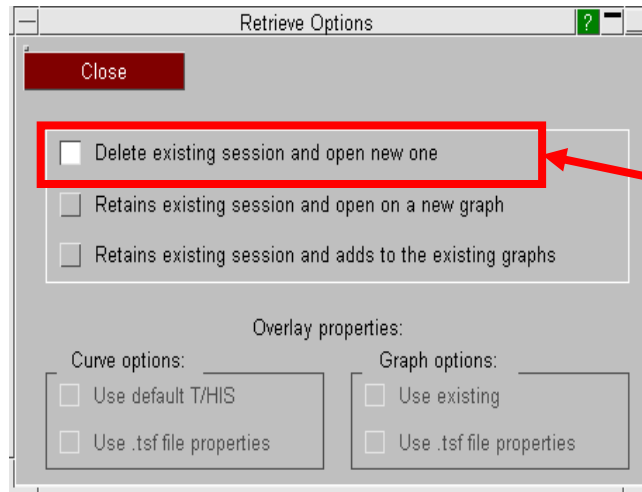
This option deletes the current existing session and opens the selected session file as a fresh new T/HIS session.

Current existing T/HIS session
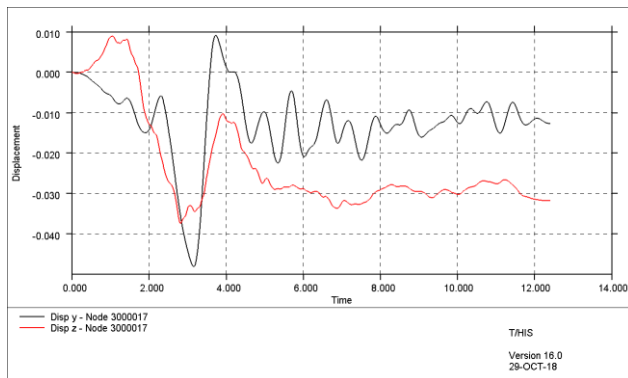
Curve(s) inside session file

T/HIS session after opening the session file

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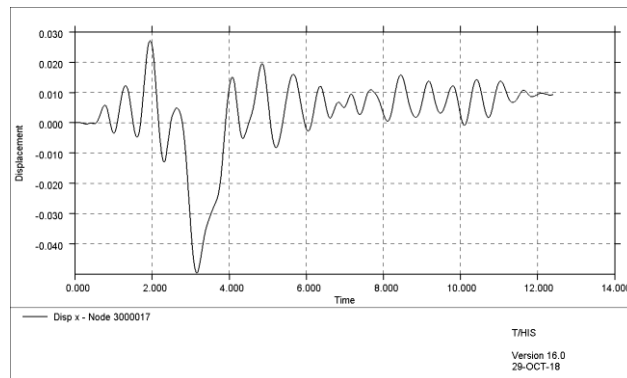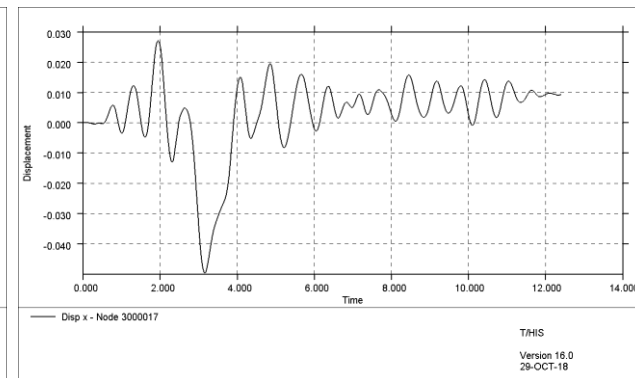
T/HIS Session - Retrieve
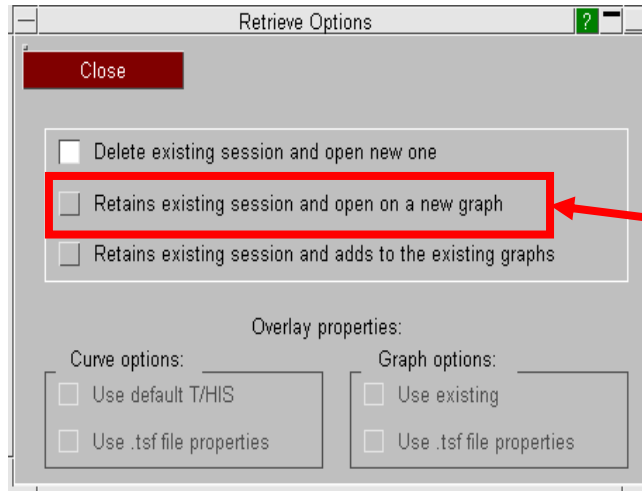
This option retains the current existing session as it is and the graphs from the session file will start from the highest available graph ID. Total number of graphs in the combined session is limited to 32.

Current existing T/HIS session

Curve(s) inside session file

T/HIS session after opening the session file

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T/HIS Session - Retrieve

Retrieve Options

Close

- ☐ Delete existing session and open new one
- ☐ Retains existing session and open on a new graph
- ☐ **Retains existing session and adds to the existing graphs**

Overlay properties:

Curve options:
- ☐ Use default T/HIS
- ☐ Use .tsf file properties

Graph options:
- ☐ Use existing
- ☐ Use .tsf file properties
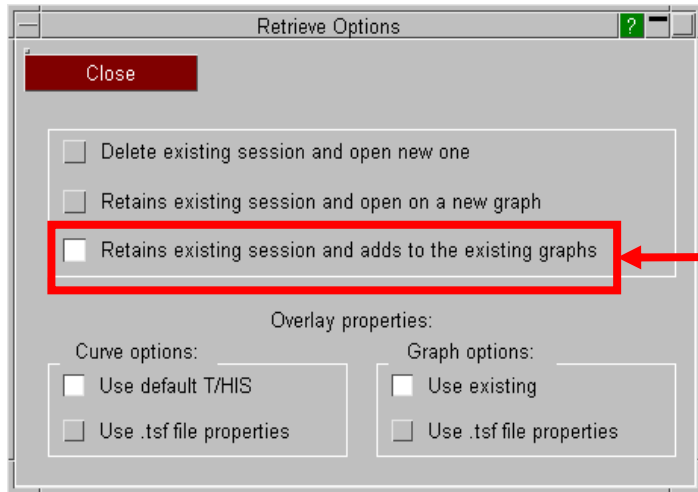
This option retains the current existing session as it is and the curves from session file will be added to their corresponding graph in the current session.

The overlay options becomes activated.

Current existing T/HIS session
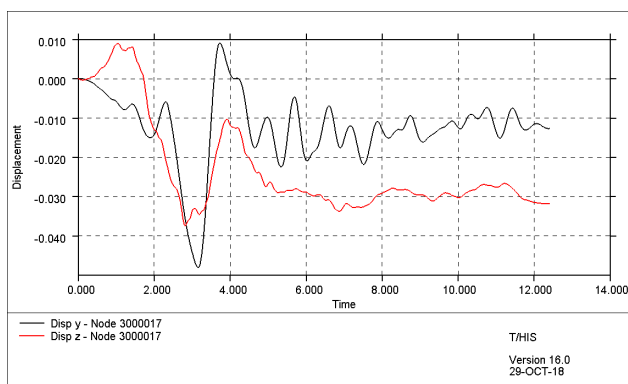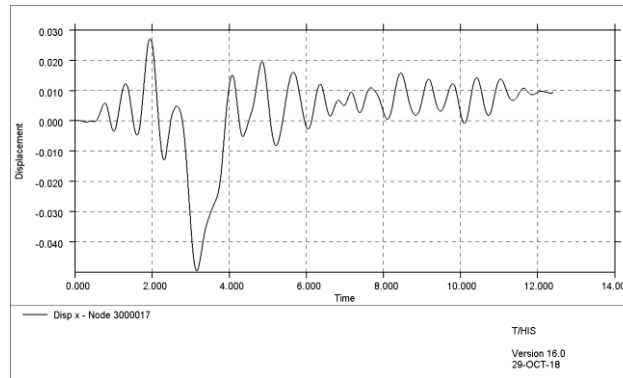
Curve(s) inside session file

T/HIS session after opening the session file

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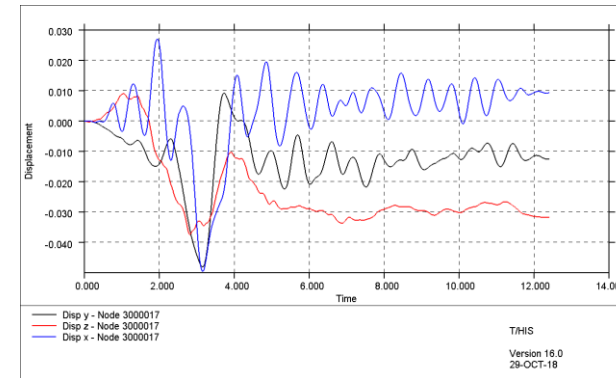
T/HIS Session - Retrieve

Retrieving a session file with embedded curve data:

The option to select Retrieve using embedded curve data becomes available.

Options button will be deactivated if 'Retrieve using embedded curve data' is selected

This option retrieves all the curves even when the LS-DYNA model files required for session are missing/lost. However, the session retrieved using embedded curve XY data loses certain curve and graph properties.

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Images

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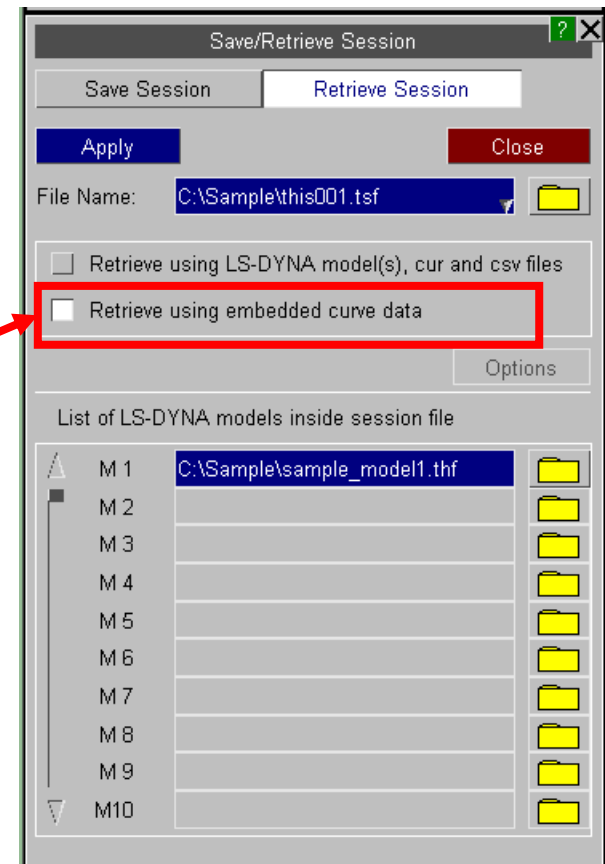
Images

T/HIS 16 introduces the following changes to the handling of output image filenames:

- If an explicit filename is typed in or selected for one image type, say JPEG, that new filename and path will then become a seed for every image type, with the appropriate extension (.jpg, .png) and a unique increment <nnn> added.

- Attempting to save an image with the wrong extension, for example saving a BMP with a .gif filename, will result in the filename being corrected and a warning issued. Filenames ending in .image will not be corrected.

- If a user-chosen filename exists, clicking the 'NEW_FILE' option will now append a unique 3 digit increment <nnn> to the same name to generate a new filename.

- A sub-folder (one level only) can now be automatically created as a part of image creation, simply by writing the folder name into the file path.

- All of the above also applies to movie files (AVI, MPEG and animated GIF) and to postscript files (PS and PDF), although the handling of filenames for images, movies, and postscript files is kept separate.

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New Preferences

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New Preferences

The following preferences have been added to T/HIS:

- **hic_time_window**

  Set default time window for HIC automotive function.
  float value

- **hic_scale_factor**

  Set default scale factor for HIC automotive function.
  float value

- **ctable_show_*propertyname***

  Show or hide each individual curve property or injury value column by default. Replace ***propertyname*** with any of:
  miny, maxy, minposy, minx, maxx, minposx, xatminy, xatmaxy,
  xatminposy, average, rms, points, hic, hicd, tms, tti, thiv, phd, corr.
  TRUE/FALSE

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New Preferences

- **ctable_injuryvals_on**   Show the injury value columns chosen by the above preferences in the curve table by default.
TRUE/FALSE

- **ctable_properties_on**   Show curve property columns chosen by the above preferences in the curve table by default.
TRUE/FALSE

- **auto_hide**   Auto-hides the graph toolbar. By default it is FALSE.
TRUE/FALSE

- **session_auto_save**   Saves a session unconditionally on exit. By default T/HIS does not save session on exit.
ON/OFF

- **session_save_option**   Sets the location for auto saving of session on exit.
By default will be saved to OA_HOME.
HOME/USER_DEFINED/DESKTOP

- **session_save_dir**   Defines the user-defined location for auto save on exit.
string "pathname"

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New Preferences

- **session_embed_cur/csv_files**   Embed the cur and csv files used into the session file. By default cur/csv files are not embedded into session file.
ON/OFF

- **session_embed_curve_data**   Embed the curve data into the session file. This can help in retrieving a session even when LS-DYNA results are missing. By default curve data is not embedded into session files.
ON/OFF

- **show_session_retrieve_on_start**   A pop-up panel to retrieve T/HIS session file pops-up every time T/HIS is started. This panel does not appear by default.
ON/OFF

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New Preferences

- **drive_n** Mapping from Windows drive "n" to a unix path, where n is any drive from [a-z] i.e. drive_a, drive_q etc..
  This can be used with the "oasys*" prefix as the preference is now common between PRIMER, D3PLOT and T/HIS.
  string "pathname"

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FAST-TCF

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FAST-TCF

An option has been added to the FAST-TCF create panel, so that one can choose to write entity names (when they exist), in place of IDs, into any generated FAST-TCF script. These names will then be used to identify the entities when running the script.

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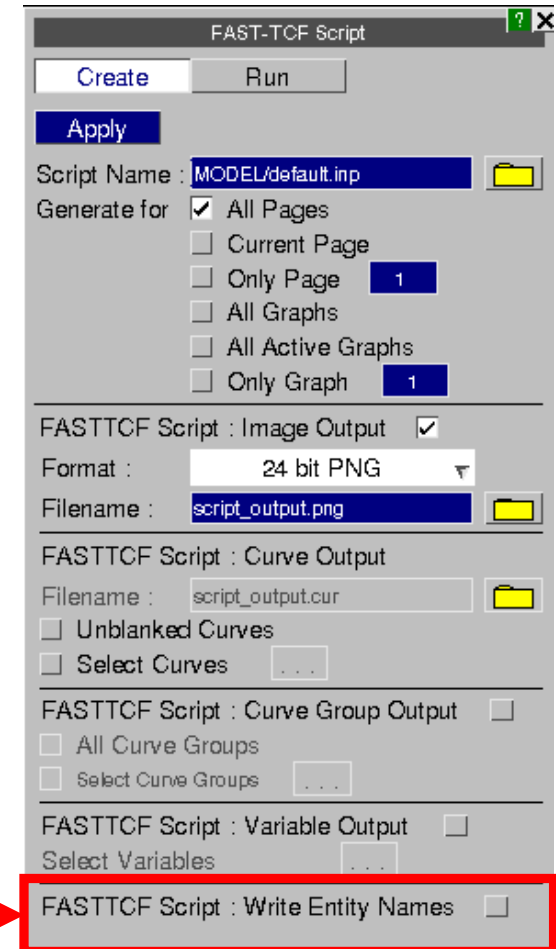
FAST-TCF

The following commands have been added to FAST-TCF:

Command	Arguments	Description
colour	n RRGGBB	Set the n-th user-defined colour (up to 6) using a 6-digit hexadecimal to specify the RGB values.
colour_rgb	n R G B	Set the n-th user-defined colour (up to 6) using three integers in the range 0-255 to specify the RGB values.
y_min, ymax, y2_min, y2_max	auto_vis	Set the minimum/maximum value on the y/y2-axis to the automatic value based on the currently visible section of the x-axis. Similar to 'Y' shortcut key.

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FAST-TCF

Command	Arguments	Description
y_ranges	auto auto_vis y_auto y_auto_vis y2_auto y2_auto_vis	Set the minimum and maximum values simultaneously on either the y-axis, the y2-axis or both together. These can be set either to the automatic values based on the whole x-axis or just on the visible portion.
varr vara varf tab ⎤ taba ⎬ VAR_NAME all tabc tabcr ⎦	all_minx all_maxx all_miny all_maxy all_xatmin all_xatmax all_catmin all_catmax	New variables for properties relating to all curves. These give the min/max x, min/max y, x value at min/max y and curve number at min/max y respectively, each of which is calculated over all curves.

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FAST-TCF

Command	Arguments	Description
tag recent	curve_tag	Tag the most recently created/edited curve.
tag highest	curve_tag	Tag the curve with the current highest ID.
layout graphs all toolbar	autohide	Autohide the graph toolbar.
layout graphs all toolbar	show	Sets the graph toolbar always visible.

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JavaScript

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New JavaScript Functions – Global Class

The following functions have been added to the T/HIS JavaScript API.

Function	Description
GetCurrentDirectory()	Returns the current working directory.
GetInstallDirectory()	Returns the value of the OA_INSTALL environment variable, or, if this doesn't exist, the directory in which the current executable is installed.
GetStartInDirectory()	Returns the directory passed in by the -start_in command line argument, or, if this wasn't used, the directory from which the executable was run.
GetPreferenceValue(*program_name, preference_name*)	Get the value of preference_name for program_name from any of OA_ADMIN, OA_INSTALL or OA_HOME oa_pref files.
SetCurrentDirectory(*pathname*)	Sets the current working directory to the directory specified by the string 'pathname'.

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New JavaScript Functions – Page Class

Function	Description
Page.ReturnActivePage()	Returns the current active page in T/HIS.
Page.SetActivePage(*page*)	Sets the current active page to *page*, or gives an error if this page does not exist.
Page.AddGraph(*page*, *graph*, *copy_settings*, *n_graphs*)	Adds graph number *graph* to page *page.* If *graph* = 0, then create a new graph and copy settings from graph number *copy_settings.* If *graph* = 0 then *n_graphs* specifies the number of new graphs to create and add to *page.*
Page.ReturnGraphs(*page*)	Returns an array of JavaScript Graph objects, containing all the graphs on page *page.*

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New JavaScript Functions – Page Class

Function	Description
Page.RemoveGraph(*page, graph, graph_start, graph_end*)	Removes graph *graph* from page *page.* If *graph* = 0, remove graphs with graph numbers between *graph_start* and *graph_end,* or just remove the highest ID graph if these are not specified.
Page.Layout(*page, layout, n_x, n_y*)	Sets the layout of page *page* to the layout given by the specifier *layout*, which can be any of "wide", "tall", "cascade", "1x1", "2x2", "3x3", "xy". If *layout* = "xy", then n_x and n_y give the number of graphs in the x- and y-directions respectively. If *page* = 0, the layout is set on all graphs individually. If *page* = -1, the layout is set globally, as in the 'Graphs' panel.

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New JavaScript Functions – Group Class

Function	Description
Group.xmin	Minimum X value over all curves in the group.
Group.xmax	Maximum X value over all curves in the group.
Group.ymin	Minimum Y value over all curves in the group.
Group.ymax	Maximum Y value over all curves in the group.
Group.x_at_ymin	X value at minimum Y value over all curves in the group.
Group.x_at_ymax	X value at maximum Y value over all curves in the group.

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New JavaScript Functions – Group Class

Function	Description
Group.crv_at_ymin	Curve number of the curve with the minimum Y value in the group.
Group.crv_at_ymax	Curve number of the curve with the maximum Y value in the group.
Group.xminpos	Minimum positive X value over all curves in the group.
Group.yminpos	Minimum positive Y value over all curves in the group.
Group.x_at_yminpos	X value at minimum positive Y value over all curves in the group.

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New JavaScript Functions – Graph Class

Function	Description
Graph.Total()	Returns the total number of graphs.
Graph.GetFromID(*graph*)	Returns the graph object for a given graph number.
Graph.DeleteFromID(*graph*)	Deletes the graph with the given graph number.
Graph.GetNumCurves()	Returns the number of curves present on the graph.
Graph.GetAllCurveIDs()	Returns an array containing the curve IDs of all curves present on the graph.
Graph.AddCurveID(*id*)	Adds the curve with the given ID to the graph.
Graph.RemoveCurveID(*id*)	Removes the curve with the given ID from the graph.

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New JavaScript Functions – Graph Class

Function	Description
Graph.GetAllPageIDs()	Returns an array containing the page numbers of all pages that contain the graph.
Graph.AddToPage(*page*)	Adds the graph to the page with the specified page number.
Graph.RemoveFromPage(*page*)	Removes the graph from the page with the specified page number.
Graph.Delete()	Deletes the graph.
Graph.id	Graph ID.
Graph.title	Graph title.
Graph.show_xlabel/ylabel/y2label	Shows graph x/y/y2-axis label.

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New JavaScript Functions – Graph Class

Function	Description
Graph.xlabel/ylabel/y2label	x/y/y2-axis label.
Graph.auto_xlabel/ylabel/y2label	Turn on to set label for the x-axis automatically and turn off to define the label for the x-axis manually using the property xlabel. Can take either Graph.ON or Graph.OFF.
Graph.xlabel/ylabel/y2label_font	Font for the x/y/y2-axis label. Can take either Graph.FONT_DEFAULT, Graph.FONT_HELVETICA_MEDIUM, Graph.FONT_HELVETICA_BOLD, Graph.FONT_TIMES_MEDIUM, Graph.FONT_TIMES_BOLD, Graph.FONT_COURIER_MEDIUM or Graph.FONT_COURIER_BOLD.

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New JavaScript Functions – Graph Class

Function	Description
Graph.xlabel/ylabel/y2label_size	Font size for the x/y/y2-axis label. Can take either Graph.FONT_SIZE_AUTO, Graph.FONT_SIZE_8, Graph.FONT_SIZE_10, Graph.FONT_SIZE_12, Graph.FONT_SIZE_14, Graph.FONT_SIZE_18 or Graph.FONT_SIZE_24.
Graph.xlabel/ylabel/y2label_colour	Colour of x/y/y2-axis label.
Graph.xmin/ymin/y2min	Minimum value of x/y/y2-axis range.
Graph.xmax/ymax/y2max	Maximum value of x/y/y2-axis range.

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New JavaScript Functions – Graph Class

Function	Description
Graph.auto_xmin/ymin/y2min	Can take either Graph.ON or Graph.OFF. Graph.ON will set the minimum value for the x/y/y2-axis range automatically and Graph.OFF will use the property xmin/ymin/y2min value as the minimum value for the x/y/y2-axis range.
Graph.auto_xmax/ymax/y2max	Can take either Graph.ON or Graph.OFF. Graph.ON will set the maximum value for the x/y/2-axis range automatically and Graph.OFF will use the property xmax/ymax/y2max value as the maximum value for the x/y/y2-axis range.
Graph.x/y/y2_axis_type	Defines x/y/y2-axis type i.e. linear or logarithmic.

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New JavaScript Functions – Graph Class

Function	Description
Graph.x/y/y2_unit_format	Defines the format for the x/y/y2-axis units. Can take either Graph.AXIS_UNITS_AUTO, Graph.AXIS_UNITS_SCIENTIFIC or Graph.AXIS_UNITS_GENERAL.
Graph.x/y/y2_unit_decimals	Defines the number decimals in the x/y/y2-axis units.
Graph.x/y/y2_unit_font	Font for the x/y/y2-axis units. Can take either Graph.FONT_DEFAULT, Graph.FONT_HELVETICA_MEDIUM, Graph.FONT_HELVETICA_BOLD, Graph.FONT_TIMES_MEDIUM, Graph.FONT_TIMES_BOLD, Graph.FONT_COURIER_MEDIUM or Graph.FONT_COURIER_BOLD.

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New JavaScript Functions – Graph Class

Function	Description
Graph.x/y/y2_unit_size	Font size for the x/y/y2-axis units. Can take either Graph.FONT_SIZE_AUTO, Graph.FONT_SIZE_8, Graph.FONT_SIZE_10, Graph.FONT_SIZE_12, Graph.FONT_SIZE_14, Graph.FONT_SIZE_18 or Graph.FONT_SIZE_24.
Graph.x/y/y2_unit_colour	Colour of x/y/y2-axis units.
Graph.add_x/y/y2_units	Shows x/y/y2-axis units. It can take either Graph.ON or Graph.OFF.

New JavaScript Functions – Graph Class

Function	Description
Graph.active	If the graph is active or inactive. Can take Graph.YES or Graph.NO.
Graph.grid	To turn on/off the grid. Can take Graph.GRID_ON or Graph.GRID_OFF.
Graph.foreground_colour	Graph foreground colour.
Graph.background_colour	Graph background colour.
Graph.legend_layout	Defines the legend layout type. Can take Graph.LEGEND_COLUMN_LIST, Graph.LEGEND_AUTO, Graph.LEGEND_OFF or Graph.LEGEND_FLOATING.

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New JavaScript Functions – Graph Class

Function	Description
Graph.num_legend_columns	Number of columns of curve labels in legends. Can take Graph.LEGEND_1_COLUMN, Graph.LEGEND_2_COLUMN or Graph.LEGEND_3_COLUMN.
Graph.legend_font	Font for the curve labels in the legend. Can take either Graph.FONT_DEFAULT, Graph.FONT_HELVETICA_MEDIUM, Graph.FONT_HELVETICA_BOLD, Graph.FONT_TIMES_MEDIUM, Graph.FONT_TIMES_BOLD, Graph.FONT_COURIER_MEDIUM or Graph.FONT_COURIER_BOLD.

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New JavaScript Functions – Graph Class

Function	Description
Graph.legend_font_size	Font size for the curve labels in the legend. Can take either Graph.FONT_SIZE_AUTO, Graph.FONT_SIZE_8, Graph.FONT_SIZE_10, Graph.FONT_SIZE_12, Graph.FONT_SIZE_14, Graph.FONT_SIZE_18 or Graph.FONT_SIZE_24.
Graph.legend_font_colour	Font colour for the curve labels in the legend.
Graph.legend_background_colour	Background colour for the legend area.
Graph.legend_background_trans	Transparency of the legend area. The value should lie between 0 and 100.

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New JavaScript Functions – Graph Class

Function	Description
Graph.legend_show_user_lines	Visibility of the user lines when Graph.LEGEND_COLUMN_LIST is selected for legend layout type. Can take either Graph.ON or Graph.OFF.
Graph.legend_user_line_n	n-th user-defined line for the legend area, where 6 lines can be defined by setting $n = 1,…,6$.
Graph.legend_user_line_n_size	Font size for user defined line $n, n = 1,…,6$. Can take either Graph.FONT_SIZE_AUTO, Graph.FONT_SIZE_8, Graph.FONT_SIZE_10, Graph.FONT_SIZE_12, Graph.FONT_SIZE_14, Graph.FONT_SIZE_18 or Graph.FONT_SIZE_24.

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New JavaScript Functions – Graph Class

Function	Description
Graph.legend_user_line_font	Font for the user defined lines in the legend. Can take either Graph.FONT_DEFAULT, Graph.FONT_HELVETICA_MEDIUM, Graph.FONT_HELVETICA_BOLD, Graph.FONT_TIMES_MEDIUM, Graph.FONT_TIMES_BOLD, Graph.FONT_COURIER_MEDIUM or Graph.FONT_COURIER_BOLD.
Graph.legend_prefix_format	Format of the prefix that is being included in the curve label of the legend. Can take either Graph.PREFIX_MODEL_NUMBER, Graph.DIR, Graph.PREFIX_THF or Graph.PREFIX_USER_DEFINED.

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New JavaScript Functions – Graph Class

Function	Description
Graph.legend_show_prefix	Include the prefix in the curve label of the legend. Can take either Graph.PREFIX_AUTO, Graph.PREFIX_ON or Graph.PREFIX_OFF.

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New JavaScript Functions – Read Class

Function	Description
Read.CSV(*filename, file_type, sep_opt, curve_label_row, axis_label_row, x_vals_col, x_start, x_int)*	Reads a CSV file named *filename* into T/HIS. The filetype can be specified, either 1 for XYXY or 2 for XYYY. The separator used in the file can be specified, either 0 for comma, 1 for space or 2 for tab. The rows containing the curve labels and axis labels can also be specified. Respectively, these are 1 and 2 by default. Either the column containing the x-values or a user defined start value and interval between points can be defined for the x-axis.
Read.Cur(*filename*)	Reads a .cur file named *filename* into T/HIS.

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New JavaScript Functions – Read Class

Function	Description
Read.Key(*filename*)	Reads a Keyword file named *filename* into T/HIS.
Read.ISO(*filename*, *format*)	Reads an ISO file named *filename* into T/HIS. Multiple channels can be read in by giving an ISO index file and specifying *format* = 0, 1 or no argument. A single channel file can be read in by giving the name of the channel file and specifying *format* = 2.
Read.LSPP(*filename*, *format*)	Reads an LS-PREPOST file named *filename* into T/HIS. A curve file can be read by specifying *format* = 0,1 or no argument. An XY pairs file can be read by specifying *format* = 2.

New JavaScript Functions – Read Class

Function	Description
Read.Bulk(*filename*)	Reads a Bulk data file named *filename* into T/HIS.
Read.DIAdem(*filename*, *x_channel*, *x_start*, *x_interval*, *show_names*, *filter*)	Reads a DIAdem file named *filename* into T/HIS. A channel from which to take the x-axis values can be specified in *x_channel,* alternatively the x-axis values can be generated by specifying a start value *x_start* and an interval between points *x_interval.* Either channel names or channel comments can be shown by specifying *show_names* = 0 or 1 respectively. A filter string can be provided in *filter,* which will filter either the channel names or comments and only channels that contain the filter string will be read into T/HIS. This can be used to read individual channels.

New JavaScript Functions – Include Class

Function	Description
Include.NATIVE	Use the native directory separators.
Include.UNIX	Use unix directory separators.
Include.WINDOWS	Use windows directory separators.

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New JavaScript Functions – Other

Function	Description
Curve.Component()	Returns the string used to call GetDataFlagged() for the data component used to plot the curve. For example SPC_FX for SPC X-force.
LineWidth.Wn	Line width of a curve set to n for any n from 1-10.
Colour.RGB(*red, green, blue*)	Specify a colour by the RGB value with *red*, *green* and *blue* in the range 0-255. This can be used to colour JavaScript widgets, but not curves, lines or text in T/HIS.

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New JavaScript Functions - Other

Function	Description
File.DriveMapFilename(*filename, format*)	Changes a filename or directory name to the correct format for a specific operating system using the directory mapping (from the drive_n preferences) "format" can be any of the three Include constants below.

Licensing 16.0

Licenses for multiple programs

A PRIMER server license can be extended to be used by the post software. Short-term trial licenses for the post software are also available. Please contact your local distributor.

Situation	License details
Extend PRIMER server licenses to work with D3PLOT and T/HIS.	primer + primer_post server license An individual using PRIMER and D3PLOT on their machine will use two PRIMER licenses. An individual using PRIMER, D3PLOT and T/HIS will also use two PRIMER licenses. In this instance, D3PLOT and T/HIS share a PRIMER license. D3PLOT and T/HIS can be prevented from using PRIMER licenses by setting the following preference in the oa_pref file. oasys*post_uses_primer = FALSE

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Licenses for multiple programs (trial access)

Situation	License
PRIMER with trial access to D3PLOT and T/HIS for server licenses.	primer + post_trial server license An individual can use PRIMER, D3PLOT and T/HIS simultaneously on their machine. Doing so will use one 'primer' server license and one 'post_trial' server license. Once the trial license expires, only PRIMER can be accessed.
PRIMER with trial access to D3PLOT and T/HIS for node-locked licenses.	primer + post_trial node-locked license You can use PRIMER, D3PLOT and T/HIS simultaneously on your machine. Once the trial license expires, only PRIMER can be accessed.
D3PLOT with trial access to T/HIS. This will enable you to use the T/HIS link.	d3plot + post_trial You can use D3PLOT and T/HIS simultaneously on your machine. Once the trial license expires, only D3PLOT can be accessed.

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Licenses for single or multiple programs

You can buy server or node locked licenses which allow access to all programs in the Oasys Suite.

It is also possible to buy server or node locked licenses for individual programs.

Program	License required
PRIMER	primer
D3PLOT	d3plot
T/HIS	this
D3PLOT and T/HIS link	d3plot + this
REPORTER	reporter*
All programs in the Oasys Suite	primer, d3plot, this + reporter

*REPORTER is also able to run without the reporter license. In this situation the software checks for any available Oasys license and then releases it again.

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Restricted-use licenses for all programs

We provide restricted-use licenses free of charge through our website www.arup.com/dyna for certain domain names, for example for students at UK Universities.

These licenses can also be sold commercially by a local distributor.

Similar licenses are available restricted to a different number of nodes or curves.

Program	License
All programs in the Oasys Suite, restricted to models with less than 10,000 nodes (PRIMER and D3PLOT) and 12 curves (T/HIS).	primer, d3plot and this licenses restricted

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REPORTER

If you have licenses for any of our programs, you are licensed to use REPORTER to interact with that program.

For example, if you have a "primer" license, you can use PRIMER, or use REPORTER to create reports with PRIMER objects in them.

SHELL

The Oasys SHELL can be used without a license.

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FAQs

Using the extended PRIMER license

1. License check-out priority - When customer has both the extended PRIMER license (primer + primer_post) and D3PLOT license (d3plot), which license will be checked out first when running D3PLOT?

    D3PLOT will always look for a D3PLOT license first. If no D3PLOT licenses are available, it will then try and use a PRIMER license. If D3PLOT uses a PRIMER license then by default a window is displayed warning the user that they are using a PRIMER license.

2. Can a user on one machine have a unlimited number of PRIMER sessions with one primer license (as was previously the case)?

    This hasn't changed if they are running versions 16 or 15. In versions 16 or 15 if a user runs multiple copies of PRIMER on the same machine then they all share a single license.

    If a user runs version 14 and either version 16 or 15 at the same time then they will count as 2 separate licenses.

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3. Can you let me know how to prevent D3PLOT and T/HIS using a PRIMER license?

To disable license sharing the following preference can be set:

`d3plot*post_uses_primer:` FALSE
   (disables D3PLOT from using a PRIMER license)

`this*post_uses_primer:` FALSE
   (disables T/HIS from using a PRIMER license)

`oasys*post_uses_primer:` FALSE
   (disables D3PLOT and T/HIS from using a PRIMER license)

4. How many extended PRIMER licenses does an individual use?

D3PLOT (or T/HIS) using a PRIMER license is counted separately to a user running PRIMER so an individual on one terminal, running the following combinations of program uses these licenses:

1)	*1 x PRIMER only*	*:*	*1 primer license*
2)	*2 x PRIMER*	*:*	*1 primer license*
3)	*PRIMER + D3PLOT*	*:*	*2 primer licenses*
4)	*2 x PRIMER + 2 x D3PLOT*	*:*	*2 primer licenses*
5)	*PRIMER + T/HIS*	*:*	*2 primer licenses*
6)	*PRIMER + T/HIS + D3PLOT*	*:*	*2 primer licenses (D3PLOT and T/HIS share)*

Changing from FLEXlm to LMX licensing

We are planning to discontinue the use of FLEXlm licensing in our software from version 17.0 onwards. We will instead use LMX licensing. Support for LMX licenses is included in our Oasys suite versions 15.x and 16.x software. The table shows which Oasys suite versions work with each license type.

LMX licenses will be available later in the year for testing purposes.

Oasys Suite version	FLEXlm licensing	LMX licensing
14.x and earlier	✓	✕
15.x and 16.x	✓	✓
17.x onwards	✕	✓

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