Oasys Post Processing Update

March 2019





Oasys D3PLOT v16.0





Model Visualization





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Updat	e plot		
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0,	Ambient (%)	100	Flat
	40		Smooth
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3 : Off	0	Light 3 (%)	100
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		1 :	100
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Material Attributes

New in D3PLOT 16, the Material Attributes panel allows for a greater range of part-specific colour and lighting control.

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- D3PLOT		PRIMER Tur			Window dressing	Graticule		
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): Concrete Base (Side) (760 S Loadcell (1200 Solid(s), Matl 000: H3-50 HEAD - NULL SHELL



DEMO





















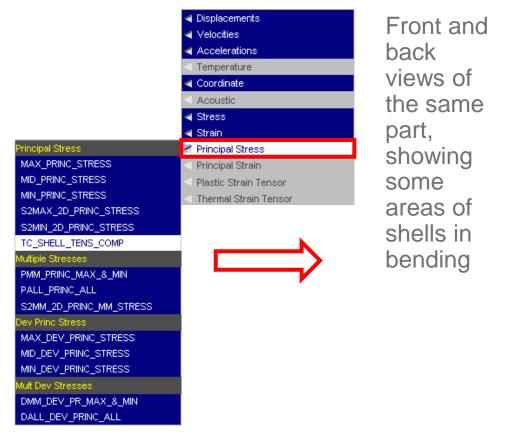


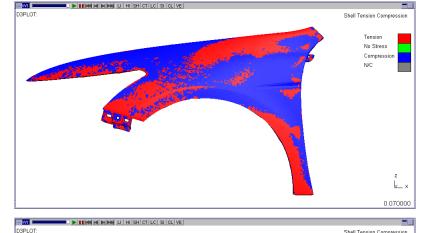
Data Components

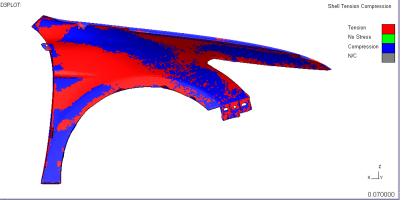




D3PLOT 16 can display a component that shows whether the surface of a shell that the user can see is in tension or compression. The contour colours on the top and bottom surface of the shell can be different colours, e.g. if the shell is in bending.



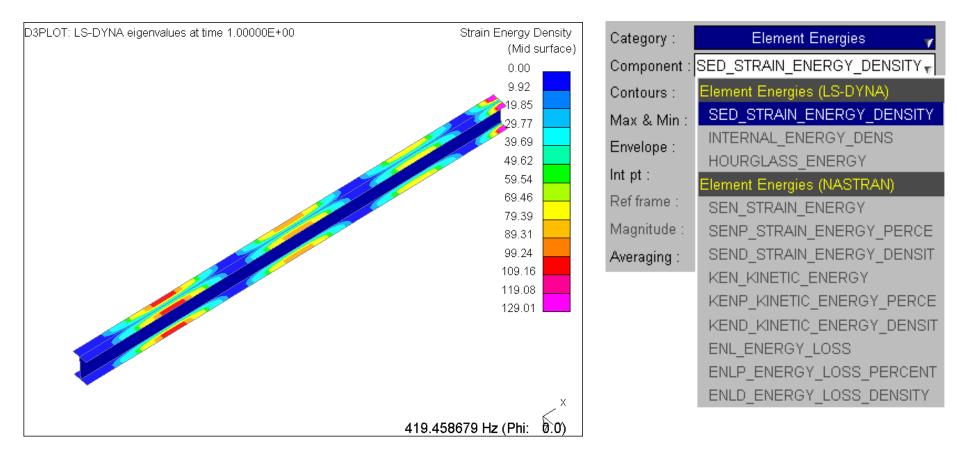








D3PLOT 16 can now read and display the Strain Energy Density values output to the "d3plot" and "d3eigv" files for Solids, Shells and Thick Shells by setting ISED on *DATABASE_EXTENT_BINARY_COMP.

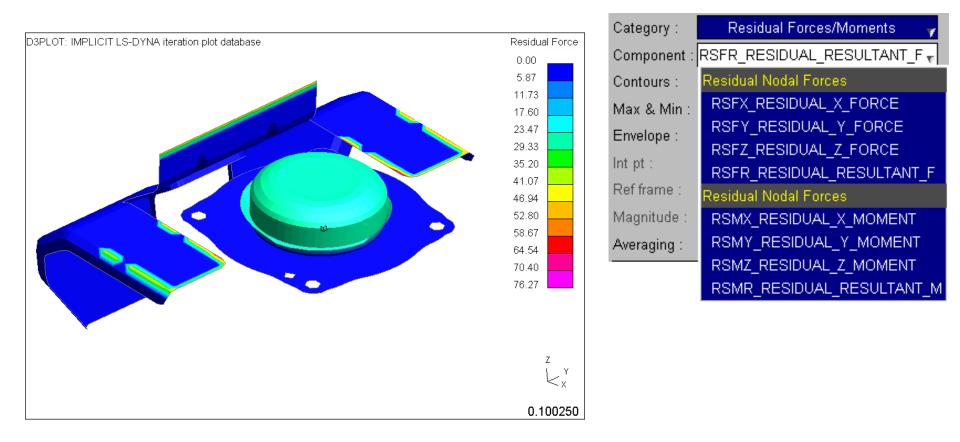






New Data Components – Residual Forces/Moments

D3PLOT 16 can now read and display the Residual Forces and Moments that can be written to the d3iter file by setting D3ITCTL=1 on *CONTROL_IMPLICIT_SOLUTION







ZTF - Displaying Loads

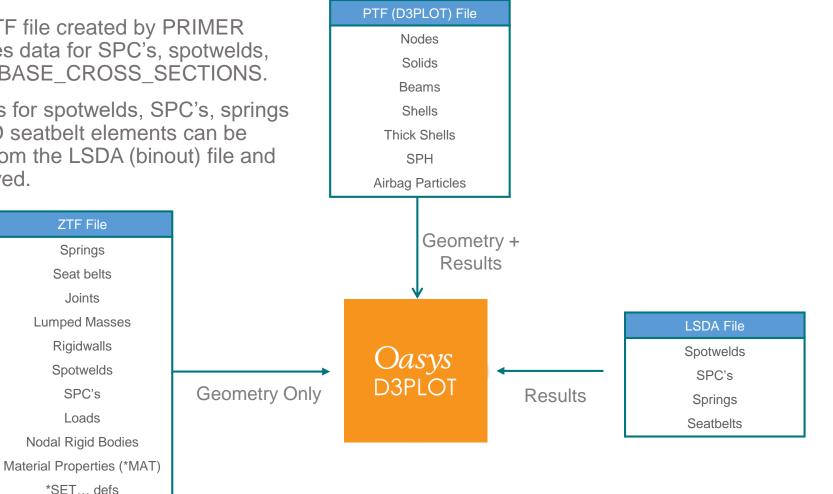




Data Read into D3PLOT

- The ZTF file created by PRIMER includes data for SPC's, spotwelds, *DATABASE CROSS SECTIONS.
- Results for spotwelds, SPC's, springs • and 1D seatbelt elements can be read from the LSDA (binout) file and displayed.

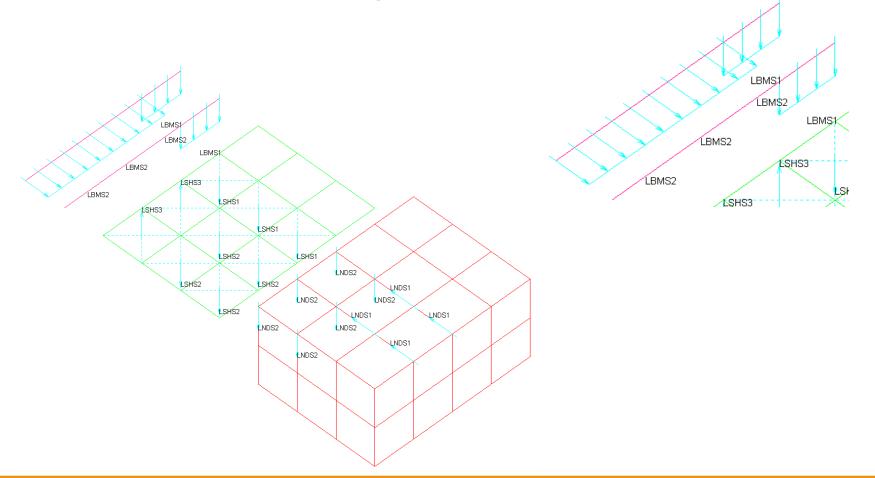
Composite ply angles







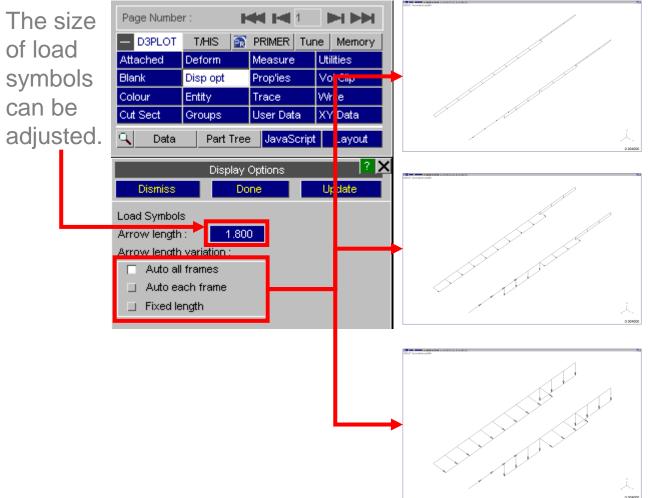
D3PLOT v16 introduces the ability to display loads on the model. Load information is transferred to D3PLOT via the ZTF file, so it is necessary to generate a ZTF file with PRIMER v16 for load plotting to be available.







The display of loads can be controlled in Disp opt >> Loads



Auto all frames – load symbols normalised to maximum value across all states – as you step through states loads will 'grow'.

> Auto each frame – load symbols normalised to maximum value in current state – shows distribution but not time variation.

Fixed length – load symbols all shown with fixed length.





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		NODE	
		SOLID	
		BEAM	
		SHELL	
		LOAD_NODE_POINT	
		LOAD_NODE_SET	
		LOAD_SHELL	
		LOAD_SHELL_SET	
		LOAD_SEGMENT	
		LOAD_SEGMENT_SET	
		LOAD_BEAM	
		LOAD_BEAM_SET	

Loads can be blanked via the Blanking menu or using Quick Pick

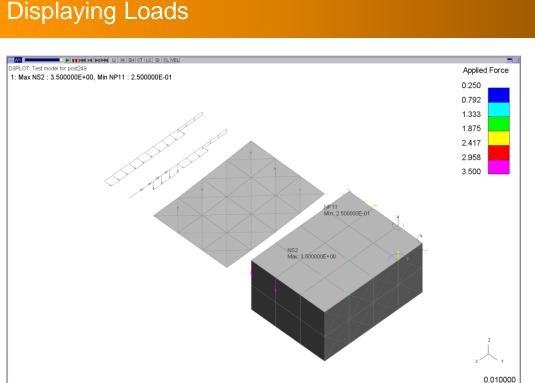
Parts (any) 🛛 🏷	Options	Þ	
	Parts	Þ	
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	Sets	Þ	
	Nodes		
	Solids		
	Beams		
	Shells		
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			*LOAD_SHELL_SET
			*LOAD_SEGMENT
			*LOAD_SEGMENT_SET
			*LOAD_BEAM
			*LOAD_BEAM_SET
			Explain this

Loads can be set to be shown only when the node or element they are applied to is visible, or to always be shown.

	Entity			? X
Lab Drn	Туре	Name	Lab	Drn
K K K K K K K K K	All Loads Attached Loads	3		
Database Rigidwall Node Restr Airbag Joint Spotweld X-Section Load Path ICFD CESE EM Stochastic MECH NRB Loads	All Loads NODE_POINT NODE_SET SHELL_SET SEGMENT SEGMENT_SET BEAM BEAM_SET		KLLL KL KL	KLLL KL KL



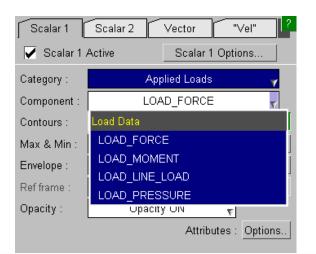




A new component category "Applied Loads" has been added. This contains four components:

- LOAD_FORCE (node loads DOF 1-4)
- LOAD_MOMENT (node loads DOF 5-8)
- LOAD_LINE_LOAD (beam loads)
- LOAD_PRESSURE (shell & segment loads)

Loads can be contoured in CT and SI plot modes







Load display has the following limitations:

- Only the following load types can be plotted:
 - LOAD_NODE_POINT / SET,
 - LOAD_BEAM(_SET),
 - LOAD_SHELL(_SET),
 - LOAD_SEGMENT(_SET).
- Loads defined with functions are not supported and will not be displayed.
- The information to display loads is new to the v16.0 ZTF file, so the ZTF file must be generated with v16.0 PRIMER.





Session Files





Session Files

D3PLOT 16.0 introduces the ability to save and restore 'sessions', permitting the user to quickly revert to the state they were at when they last exited D3PLOT. Sessions may be saved via either the File popup menu, the Utilities panel or the EXIT window.

File Window Tools Display Open new model Close model Rescan model Reread model Page setup Print Settings/Properties file	EXIT CP_EXIT (Keep CP File) SAVE_SESSION_EXIT CANCEL (Continue) Confirm EXIT: EXIT will tidy up and exit. CP_EXIT will save the current Checkpoint file and then exit. SAVE_SESSION_EXIT will save a D3PLOT session file with the name d3plot_ <date>_time>.dsf to a user-defined location (defaults to HOME) and exit. CANCEL will return to the programme.</date>	Page Number : Image: Number Image: Numbe
Seminos/Probentes hie Session file Write KEYWORD data Write Compressed PTF File Memory Status Command file	Auto-save	Modify title Give new title Failure options Deleted/failed elements Graphics Special graphics options Data components Data comp diagnostics Metal forming Forming Limit Plot Die closure Workpiece/Die Closure Visualisation Visualisation Output Settings file Save/Retrieve settings Session file Save/Retrieve session
Exit	Explicit session path and name Utilities ? Apply Close Save Session File File : my_path/d3plot001.dsf	External data Read "Blob Plot" data Shortcut keys Define shortcuts Compress Cutdown PTF/d3plot file Response Spectrum Combine modal analyses Coarsen Coarsen mesh Clamp data Clamp rogue values LC Combination Combine static loadcases Entity Names User defined names GSA Data Add results to .gwa file Streamlines Plot ICFD streamlines

Oasvs Ltd



DEMO





JavaScript





The following new functions have been added to the D3PLOT JavaScript API. Optional arguments are given in italics.

Function	Description
IsVisible(<i>type_code, item,</i> <i>window_id, state_id</i>)	 Returns JS_TRUE if the item is currently visible, otherwise it returns JS_FALSE. An entity is considered "visible" if the following conditions are all true: Not blanked, The visibility switch is ON for type 'type_code', Is not empty, if type is PART, The entity 'item' has not been deleted in the current state if the type is an element. Arguments: type_code (constant), item (integer), window_id (integer), optional state_id (integer).





Function	Description
Colour.RGB(<i>red, green, blue</i>)	Specify a colour by the RGB value with <i>red</i> , <i>green</i> and <i>blue</i> in the range 0-255.
Colour.COLOUR_CONSTANT	Specify a colour by the associated colour constant, which can be any of: DEFAULT, WHITE, GREY, BLACK, MAGENTA, RED_MAGENTA, RED, DARK_ORANGE, ORANGE, YELLOW, YELLOW_GREEN, GREEN, GREEN_CYAN, CYAN, LIGHT_BLUE, MEDIUM_BLUE, BLUE.





Preferences





The following preferences have been added to D3PLOT:

Preference	Description
d3plot*lode_param_tension_sig n	Can be set to POSITIVE or NEGATIVE to set the sign convention for the lode parameter for uniaxial tension. The default is NEGATIVE.
d3plot*session_auto_save	Can be set to ON to instruct D3PLOT to save a session on exit
d3plot*session_save_option	Can be set to one of HOME, DESKTOP or USER_DEFINED to define the save location for sessions during exit.
d3plot*session_save_dir	Can be set to a location of the user's choice and is applicable if d3plot*session_save_option is set to USER_DEFINED.





Oasys T/HIS v16.0





Curve Table





Curve Table

			Cur	ve Table				
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elect	All None	Clear All Fil	ter Options	3				
√ID	Label/Group Name	Model/File	Туре	Entity ID	Component	Style	* 1	
1	Pressure - Airbag 1	2	Airbag	1	Pressure			
2	Volume - Airbag 1	2	Airbag	1	Volume			
3	Internal energy - Airbag 1	2	Airbag	1	Internal energy			
4	Mass rate in - Airbag 1	2	Airbag	1	Mass rate in		\checkmark	
5	Mass rate out - Airbag 1	2	Airbag	1	Mass rate out	→	\checkmark	
1	Model_1	N/A	GROUP	100369	Resultant Force	— x —		
2	Model 2	2	GROUP	1	×	Mixed	\checkmark	



Multiple new features have been added to the curve table:

- Curve properties and injury values
- Writing to CSV and XLSX files
- Operating on curves
- Annotating curves with property values





V15

DEMO





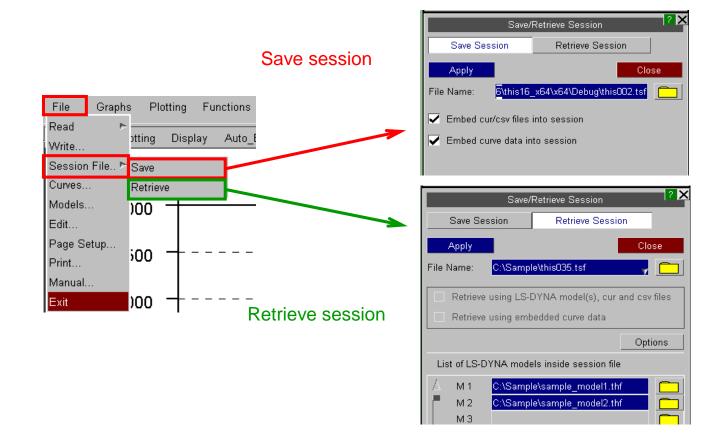
Session Files





T/HIS Session – Save and Retrieve

A T/HIS session can now be saved as a session file (.tsf), which can be read back in to restore the saved session.







DEMO





New Preferences





The following preferences have been added to T/HIS:

- 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"





- 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





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
- 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





Curve Operations





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

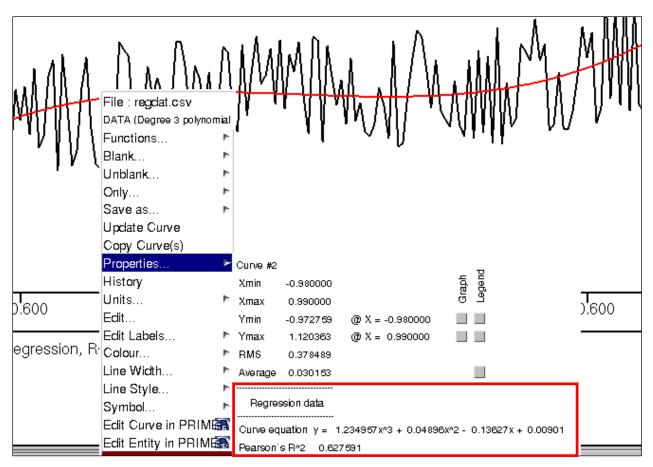
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COM	DIF	DIV (y)	$DIV\left(x\right)$	ENV	ERR	
INT	LSQ	MAP	MAX	MIN	MON	
MUL (y)	MUL (x)	NOR (y)	NOR (x)	ORDER	REC	
RES	REV	R-AVE	SMO	SQR	STRESS	
SUB (y)	SUB (x)	SUM	TRA	VEC	VEC(2D)	
WINDO	ZERO	dB	dBA	Octave	Regres	
Сору	Style fr	om Inpu	t to Outp	ut Curv	e	
 Copy Style from Input to Output Curve Linear Polynomial (degree 1-4) Logarithmic Exponential 						





Curve Operations - Regression

The equation of the output curve and Pearson's R² coefficient can be viewed by right-clicking on the curve and selecting Properties.

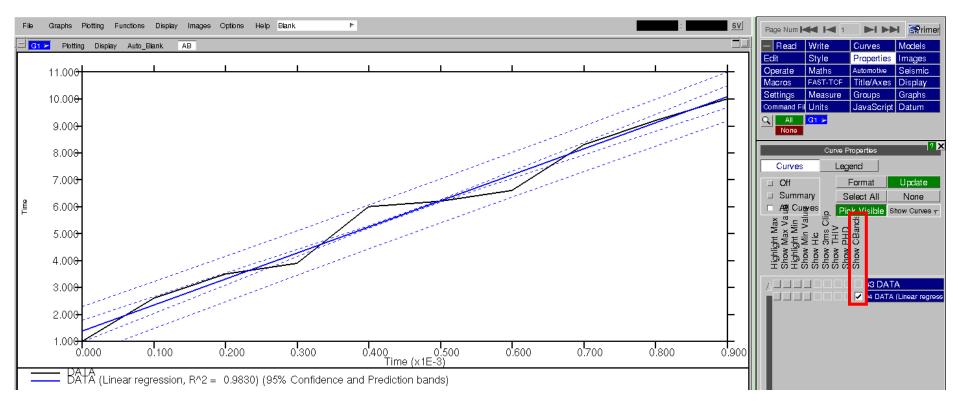






Curve Operations - Regression

In the case of linear regression, additional statistics are given in the properties popup. Additionally, for linear regression it is possible to display 95% confidence and prediction bands around the output curve. These are displayed by selecting the Properties menu in the top-right panel and then ticking Show CBands.







Antialiasing Curves





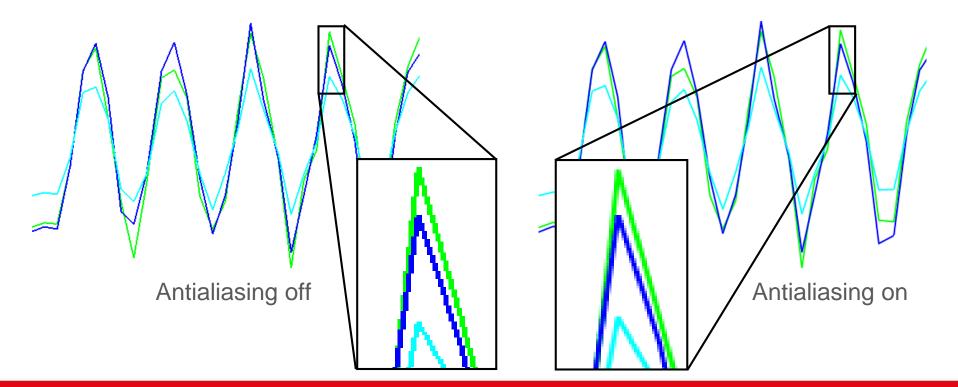
Antialiasing Curves

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

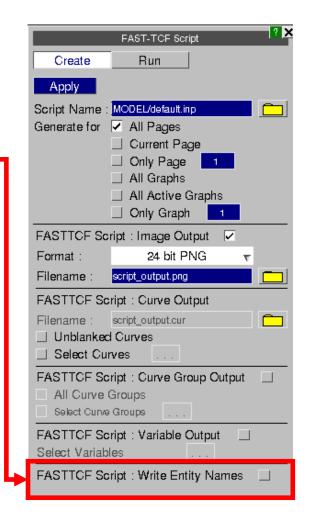








An option has been added to the FAST-TCF create panel, so that one can choose to write entity names (when they exist), in place of IDs, into any generated FAST-TCF script. These names will then be used to identify the entities when running the script.







🗄 default.inp 🔛

34 l a	ayout graph 1 legend format column	34	layout graph 1 legend format column
35 1 a	ayout graph 1 legend columns 2	35	layout graph 1 legend columns 2
36 #		36	ŧ
37 #	Read data from models and files	37	# Read data from models and files
38 🛊		38	ŧ
39 m	odel none	39	model none
40 m	odel 1	40	model 1
41 no	ode 9000044 acceleration z tag curve_1	41	node "Left Brake <u>Caliper</u> " acceleration m tag curve_1
42 #		42	+
43 #	Operations for unblanked curves	43	<pre># Operations for unblanked curves</pre>
44 🖸		44	ŧ
45 o j	peration mul curve_1 1 tag curve_2	45	operation mul curve_1 1 tag curve_2
46 #		46	ŧ
47 🛔	Delete working curves	47	# Delete working curves

	FAST-TCF Script	? ×
Create	Run	
Apply		
Script Name :	MODEL/default.inp	
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	Current Page	
	Only Page	
	All Graphs	
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	Only Graph	
FASTTCF Sc	ript : Image Output 🛛 🔽	
Format :	24 bit PNG 🛛 🔻	
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FASTTOF Sc	ript : Curve Output	
Filename :	script_output.cur	
📃 Unblanked	l Curves	
Select Cur	rves	
FASTTOF Sc	ript : Curve Group Output	
All Curve	Groups	
Select Curve	Groups	
FASTTOF Sc	ript : Variable Output	
Select Variab	les	
FASTTOF So	ript : Write Entity Names	
	•	



Oasys T/HIS



The following commands have been added to FAST-TCF:

Command	Arg	uments	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.





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. 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	
varr vara varf tab taba 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.	





JavaScript





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'.





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





New JavaScript Functions – Group Class

Function	Description
Group.xmin/xmax	Minimum/maximum X value over all curves in the group.
Group.ymin/ymax	Minimum/maximum Y value over all curves in the group.
Group.x_at_ymin/ymax	X value at minimum/maximum Y value over all curves in the group.
Group.crv_at_ymin/ymax	Curve number of the curve with the minimum/maximum Y value in the group.
Group.xminpos/yminpos	Minimum positive X value/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.





New JavaScript Functions – Read Class

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





Oasys REPORTER v16.0





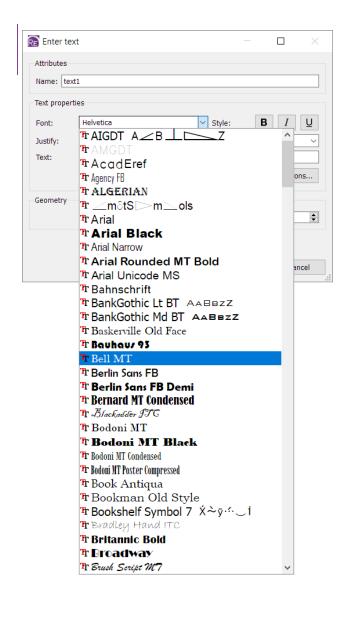
Fonts

Until now, REPORTER has only supported four fonts (with very basic add-on support for Chinese, Japanese and Korean fonts):

Courier Helvetica Times Σψμβολ (Symbol)

Version 16.0 offers support for many more fonts, giving you greater control over the look of your reports, and allowing you to create templates that match your organisation's branding.









Font Mapping

Customisable font mapping is provided to improve compatibility between users and operating systems. If another user shares a template with you that uses a font that is not installed on your system, suitable alternatives will be suggested in the Font Substitution dialog that appears when you open the template.

If you create templates on Windows but then run them in batch on a Linux server, font mapping will help preserve the look and style of your output.

For more details, see chapter 11 of the REPORTER 16.0 manual.

RE	Font Substitution			_		×
Г	Missing fonts/styles					
	The following font/style com	pinations are not available.	Please choose suitable rep	lacements:		
	Font	Style	Replacement	Bold	Italic	
	Forte	Normal	Forte	~ В	Ι	
	Fortissimo Unique	Normal	Arial	~ В	Ι	
	Preserve original fonts and	styles when saving this ten	nplate			
				ОК	Cancel	





Exporting Tables to Excel

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	B C	A I.02 B 5.00 C 8.79	Impact Point X Y A 1.02 78.45 B 5.00 83.92 C 8.79 79.61	Impact Point X Y Z A 1.02 78.45 -0.94 B 5.00 83.92 0.02 C 8.79 79.61 1.11

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Table and Autotable items can now be exported in Microsoft Excel format, complete with formatting (cell size, text alignment, font style, borders, colours, merged cells).

In the Table or Autotable dialog, check 'When generating save to XLSX file' and choose a filename.





Tables in the JavaScript API

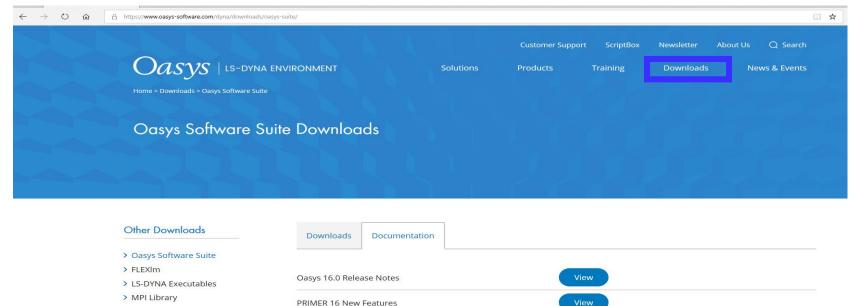
Various new functions have been added to the Item class of the JavaScript API to enable full control over Table and Autotable items. For example, it is now possible to:

- Insert/delete/resize rows/columns
- Merge/unmerge cells
- Get/set cell properties (e.g. text, alignment, font, colour, border width)
- Get/set cell conditions





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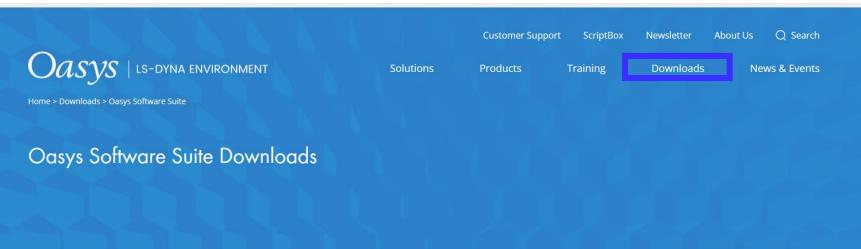


View

View View



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