

Automating Oasys PRIMER and Oasys D3PLOT using JavaScript

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Abstract

Oasys PRIMER and Oasys D3PLOT now contain JavaScript interpreters.

Adding a scripting engine allows the user to automate both pre and post processing tasks.

Extensions to the core JavaScript language allow the user to interact with the programs, create and/or manipulate data, create user interfaces, read and write files and extend the functionality of PRIMER and D3PLOT.


The syntax is quick and easy to learn.

There are several advantages in using scripts:


- *Quick turnaround – you do not have to wait for new version of PRIMER or D3PLOT*
- *You can keep your application confidential*
- *The script is under your control – you can do it yourself if you wish.*



This paper describes the scripting technology, outlines possible applications and gives demonstrations in Oasys PRIMER and Oasys D3PLOT.

Oasys PRIMER Scripting




- Oasys PRIMER now contains a JavaScript engine (core is the same as engine used in Oasys REPORTER).
- Scripts do not have to be compiled and the same script works on all platforms.
- JavaScript is a full-featured programming language syntactically similar to C, Java and Perl.
- Core features include variables, arrays, strings, objects, functions, regular expressions.
- Statements if, do, for, while, switch etc.
- Operators + - / * ++ -- && || etc (like C and Perl)
- Core functionality can easily be extended with new classes and methods.








Oasys PRIMER Scripting



- Extensions so far
 - LS-DYNA keywords
Beam, Curves, Discrete, Hourglass, Mass, Material, Node, NRB, Part, Section, Set, Shell, Solid, SPC
 - PRIMER entities
Blanking, Colour, Connections, Image, Model, View, Xrefs
 - Other
File (text file reading/writing)
Widget, Window (ability to create new user interfaces in PRIMER)
XMLParser (XML file reading)
Command line functions can be called from JavaScript

Scripts can be assigned to function keys

Oasys PRIMER Scripting




- Possible applications
 - Meshing
 - Complex geometrical transformation (e.g. morphing, airbag folding)
 - Translators
 - Custom menus/user interfaces
 - Processes/Workflow
 - Dummy/seat multi-position via command line
- Future development
 - Adding support for more LS-DYNA keywords
 - Interfacing with more functions in PRIMER
- User feedback needed:
 - What tasks could scripting help you with?
 - Which Primer keywords/functions will you need to access?
- We will provide example scripts and full documentation

Oasys PRIMER Scripting



- Advantages:
 - Quick turnaround – don't have to wait for new version of Primer
 - Can keep your application confidential
 - Under your control – can do it yourself if you wish.
- Demos:

Oasys D3PLOT Scripting



- Oasys D3PLOT also now contains a JavaScript engine (core is the same as engine used in Oasys PRIMER and so has the same File and GUI functions).
- Runs inside D3PLOT and links with it to extract data, and generate new data for plotting or output to text files.
- Special functions added by us to access data in the d3plot (ptf) files and store user-calculated data for plotting. Can also output to text file.
- Typical applications:
 - Calculate “margin against failure”
 - Code-based checking
 - User defined data
 - Extracting/combining data from many states
- We will provide example scripts and full documentation.

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D3PLOT		T/HIS	Memory
Blank	Coarsen	Colour	Cut Sect
Deform	Disp opt	Entity	Groups
Measure	Prop'ies	Trace no	User Data
Utilities	Vol Clip	Write	XY Data
Data	Part Tree	JavaScript	Layout



Javascript

Run script Check script

File:

Memory size: (MB) 8 ?

Assign script to function key: <none>

Contact Information

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