Design Studio for Genesis

A Graphical User Interface
for the ***GENESIS***
Structural Analysis and Optimization Software

New Features and Enhancements

Version 12.0

December 2010

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1 Introduction

This document describes the enhancements and new features available in Design Studio for Genesis 12.0.

Enhancement Summary

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- Find Filter Highlighting
- Empty List Prompts
- Input Extension Preference
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- Genesis 12.0 Compatibility
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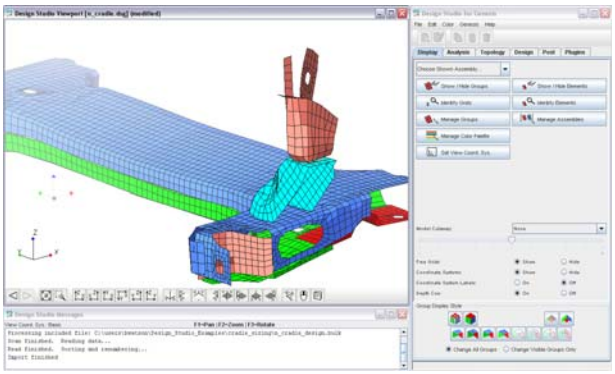
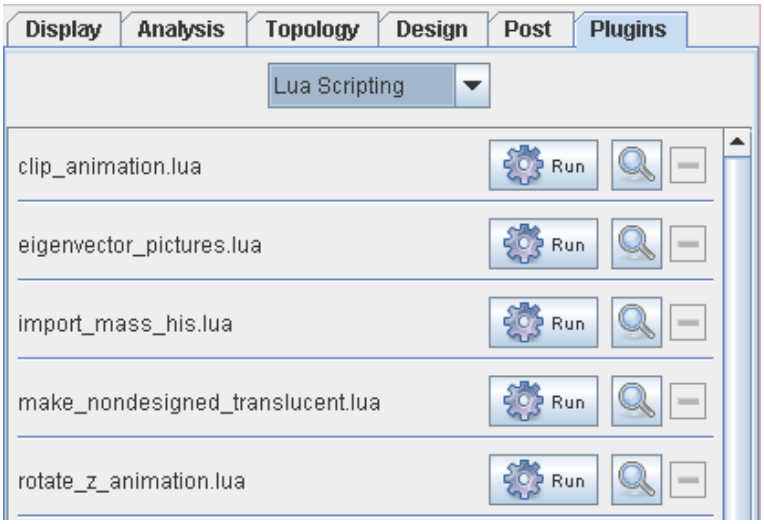
- Frequency Response X-Y Popup
- Result Comments

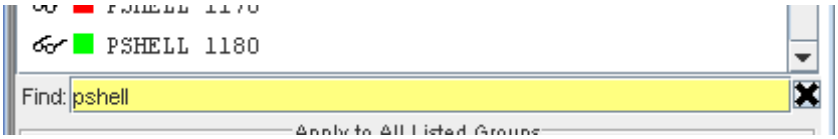


2 General Enhancements

1. Lua Scripting Plugin. Design Studio now includes a standard plugin to add a scripting capability using the Lua programming language (www.lua.org). Many repetitive tasks can be automated by writing simple scripts. Examples scripts are included to demonstrate the capabilities of scripts, as well as add several useful functions.

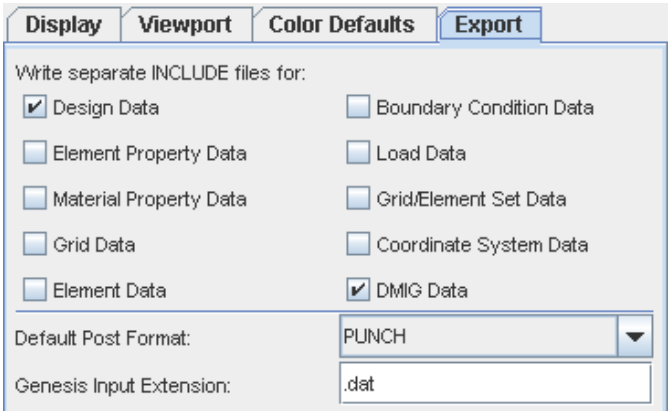


2. Find Filter Highlighting. Now the background of the **Find:** filter box below each list changes color to give visual feedback that the filter is active.



3. Empty List Prompts: Now empty lists show a (non-selectable) item indicating how to add new items to the list.

4. Input Extension Preference. Now users can select a different preferred extension for Genesis input files. The preferred extension will be used when exporting input data, and as a file filter when selecting a file to import.



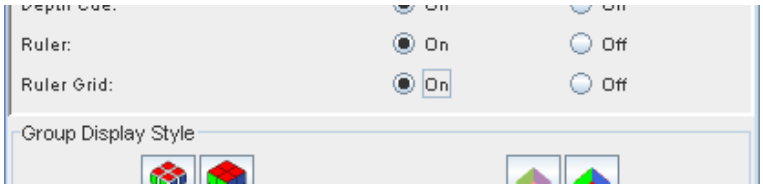
5. New Image File Defaults. When saving image files or animations, the option to set the background to white is now selected by default. In addition, the default filename is now set so as to be unique with respect to existing files.

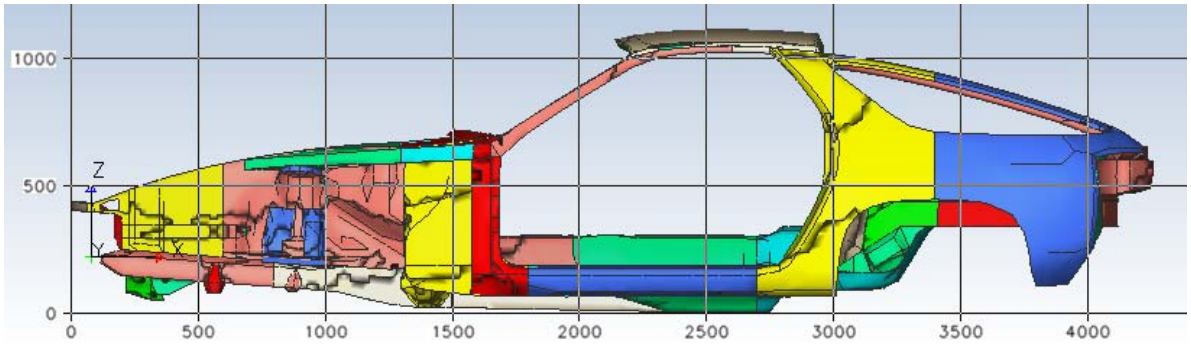
6. Genesis 12.0 Compatibility. Design Studio has been enhanced to handle all of the new capabilities of Genesis 12.0. New features in Genesis 12.0 include: CTRIA6 and CQUAD8 elements, nonlinear CGAP/PGAP/NLPARM data, UFDISP/UFVELO/UFACCE responses for topology, TSELECT data, DSHIFT data, UXY/UYZ/UZX/UXYZ symmetry types, HIS and RST executive control data.

7. New Examples. There are 13 new step-by-step example problems in the Design Studio Examples manual. The new problems illustrate new capabilities of Genesis. In addition, several of the older examples have been revised to reflect enhancements in Design Studio.

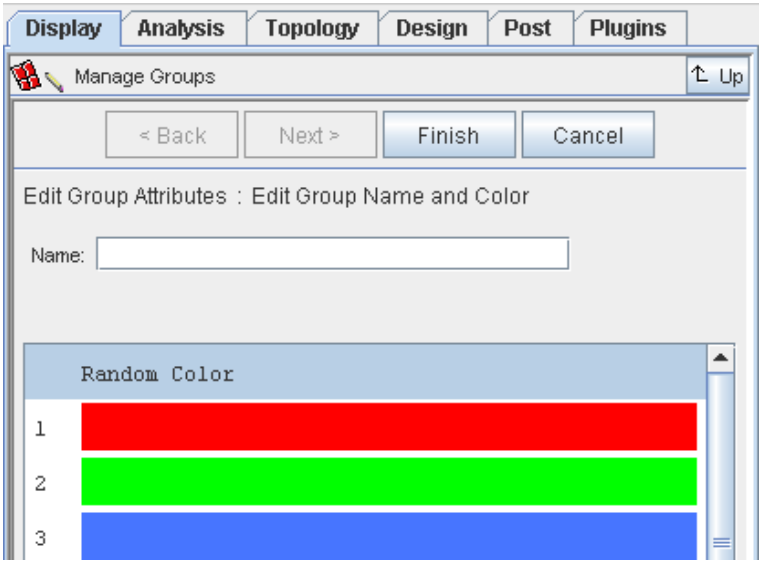
3 Display Enhancements

1. New Viewport Ruler. There is a new option to display a ruler with an optional grid on top of the viewport window. The ruler scale can give a quick indication of the size of model parts.





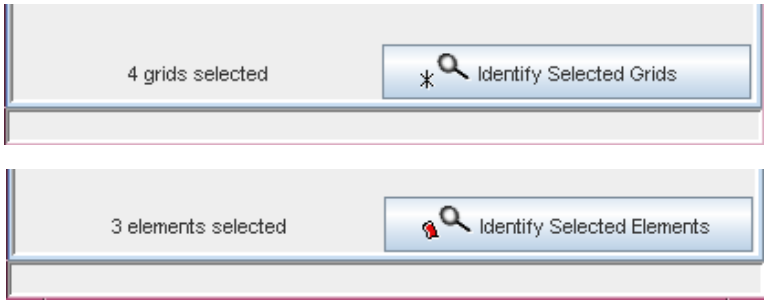
2. New Group Color Option. Now, when editing the group color for multiple groups, there is an option for **Random Color** in the colors list. This option will assign different colors to different groups as an easy way of differentiating groups.



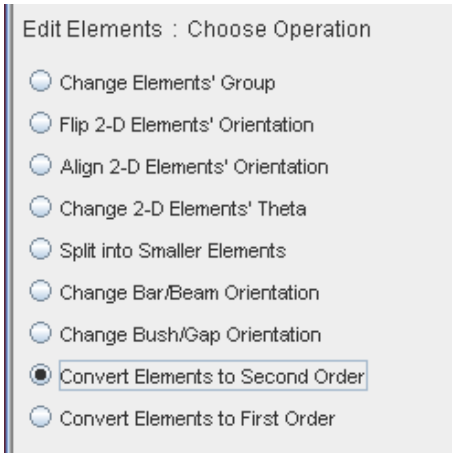
3. Mouse Wheel Zoom. Now a mouse wheel can be used to zoom the model scale.

4 New Analysis Preprocessing

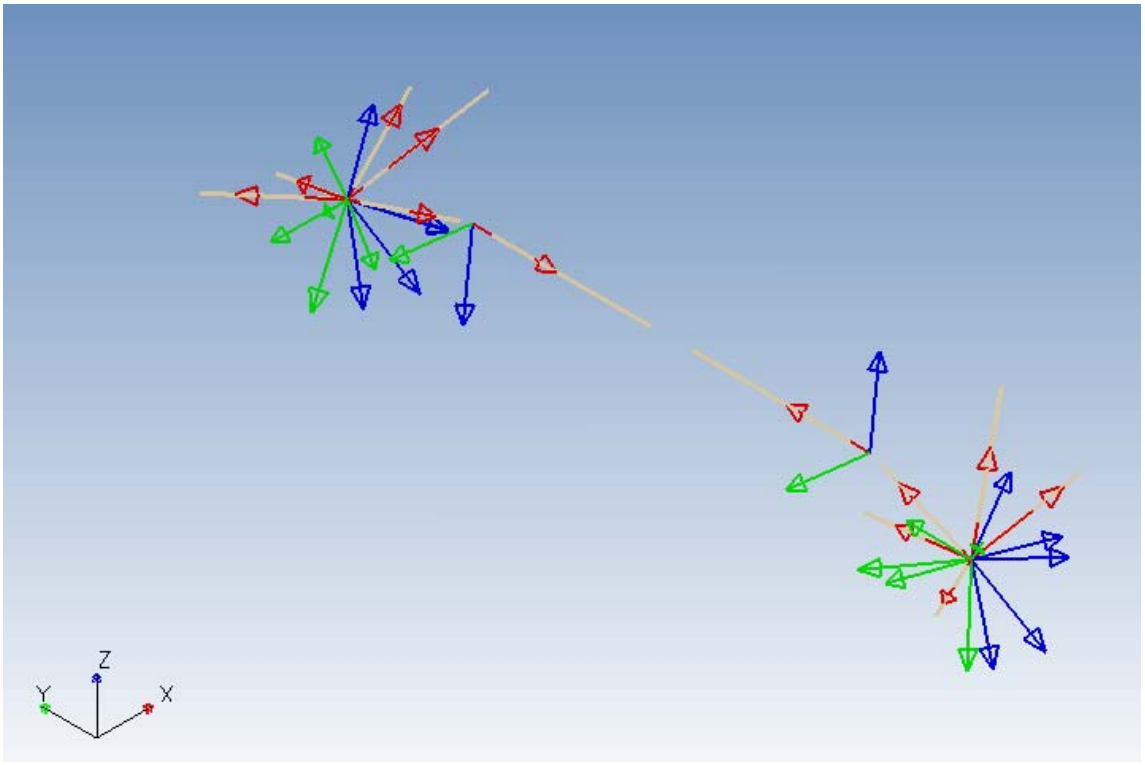
1. New Identify Buttons. Previously, the only feedback for the selected grids and elements was highlighting the selected items in the viewport window. However, it could be difficult to determine exactly which grids or elements were selected. Now every grid and element selection panel has an **Identify Selected Grids** or **Identify Selected Elements** button. This button will list the first 10 selected items to the messages window, with an option to continue listing selected items.



2. Convert Element Order. Now first order shell and solid elements can be converted to second order elements (midside grids will be created at edge midpoints). In addition, second order elements can be converted to first order.

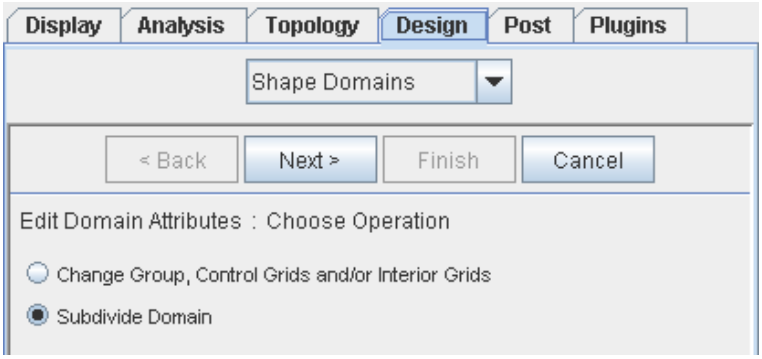


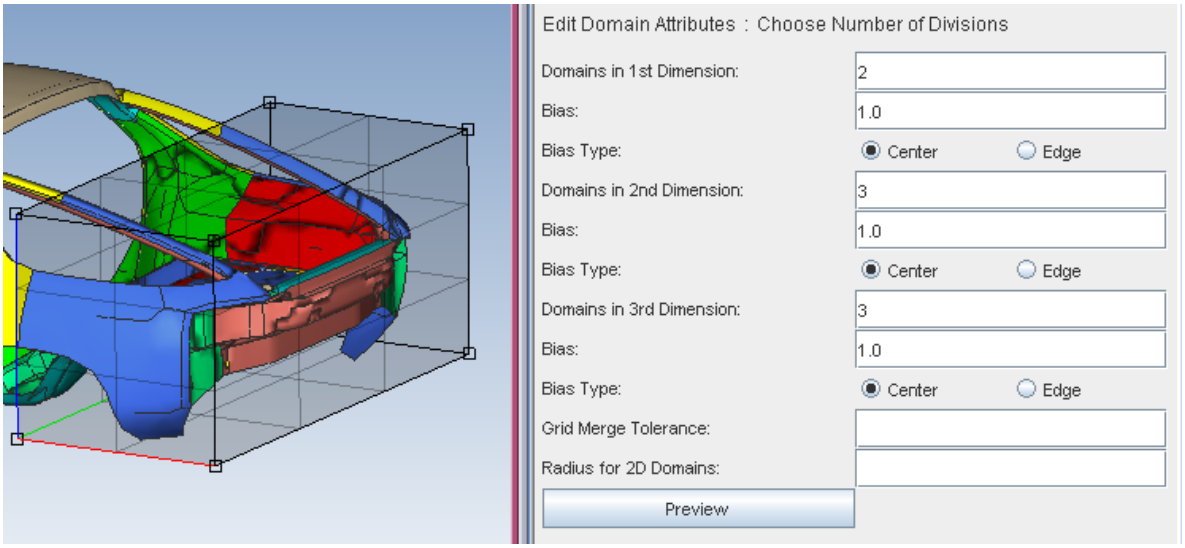
3. 1-D Element Orientation. Now the orientation of Bar, Beam, Bush and Gap elements can be visualized and edited. Red arrows represent the element x-axis. Green arrows show the element y-axis. Blue arrows show the element z-axis.



5 New Design Preprocessing

1. Subdivide Existing Domains. Now existing domains can be modified to subdivide them into smaller domains.



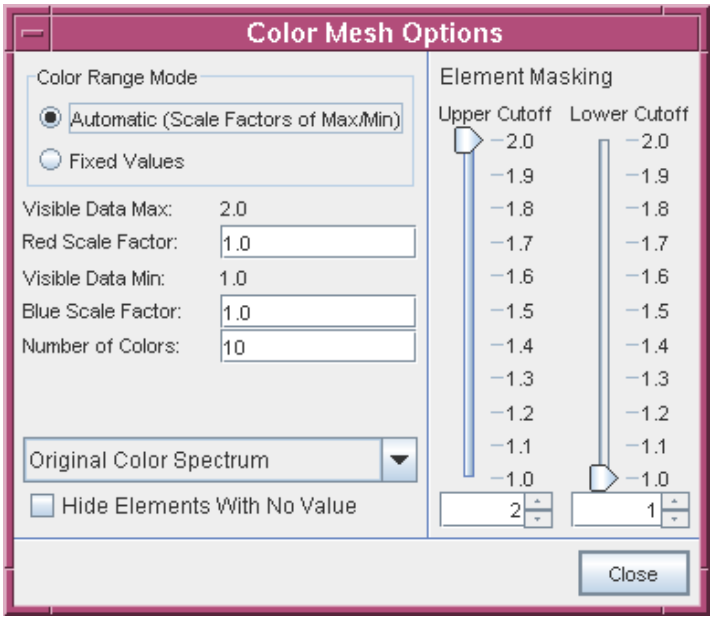


2. New Domain Creation Option. Now domains that are just large enough to cover an entire group (or selection of groups) can be automatically created. The new domain can be aligned with the view coordinate system or with the current screen view orientation.

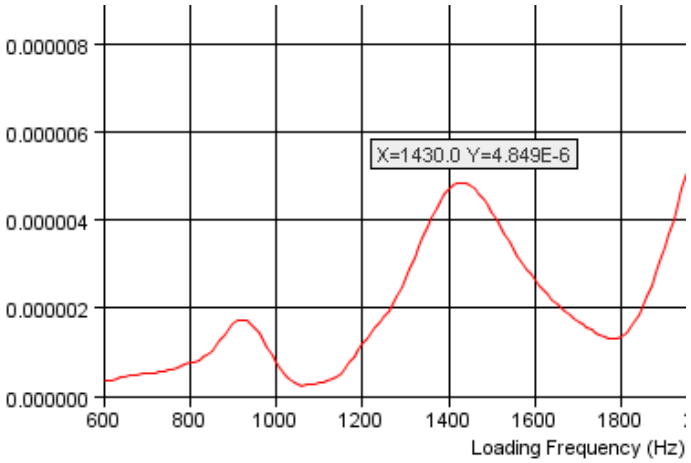
3. New Data Deletion Option. Now all design data or topology data can be easily deleted with the press of a single button.

6 New Postprocessing Capabilities

1. Fine-grained Controls. Now the color mesh and isosuface mesh cutoff controls have a type-in box to set exact values for the cutoff. The type-in box also has up/down arrows to change the value in 1% increments. In addition, there are now controls to specify scale factors of the data minimum/maximum for use when setting the color range of color mesh plots.



2. Frequency Response X-Y Popup. Now exact x-y values can be easily determined on frequency response charts simply by holding the mouse cursor on a point on a curve.



3. Result Comments. Now result sets in lists can be distinguished by a user specified comment. The comment is initialized to the name of the file from which the result set was imported. The comment can be edited or deleted in the **Manage Result Sets** page.

4. Arbitrary X-Y Curve Data. Design Studio can now import x-y curve data for frequency response plots from a text file with space, tab or comma separated x and y values. Such data could be used, for example, to add a constraint bound curve to a frequency response plot.

7 Compatibility with Design Studio for Genesis Version 11.0

Design Studio database files (*.dsg) written with version 11.0 are compatible with version 12.0. However, database files written with version 12.0 are not compatible with previous versions.