Design Studio for Genesis

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

New Features and Enhancements

Version 10.1

December 2008

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1 Introduction

This document describes the new features available in Design Studio for Genesis 10.1.

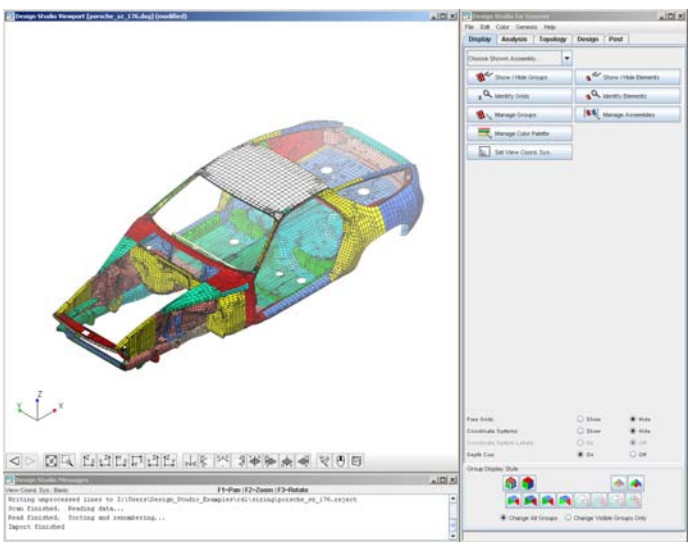
Enhancement Summary

- Interface to all new features Genesis 10.1
- List find filter
- Group list find filter
- Selective import of PUNCH/OUTPUT2 results
- Import CBUSH dynamic forces
- Edit boundary conditions on multiple loadcases

New Documentation

A new **Design Studio How-To** manual that gives step-by-step instuctions for how to perform many common tasks with Design Studio is now available.

A new **Design Studio Examples** manual that provides step-by-step instructions for some of the less-frequently-used capablilities of Design Studio is available. The Analysis portion demonstrates how to create simple finite element models from scratch. The Design portion demonstrates how to solve several special-case optimization problems using Design Studio and Genesis.

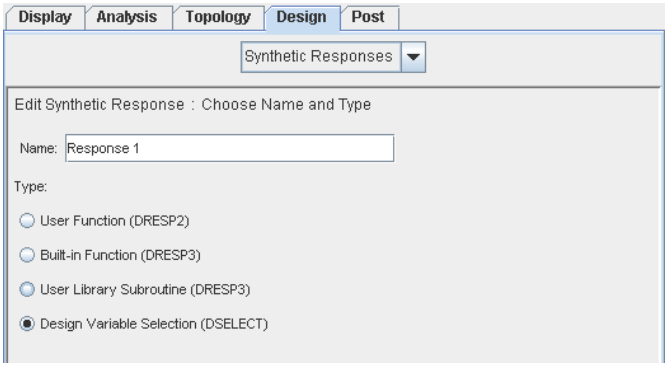


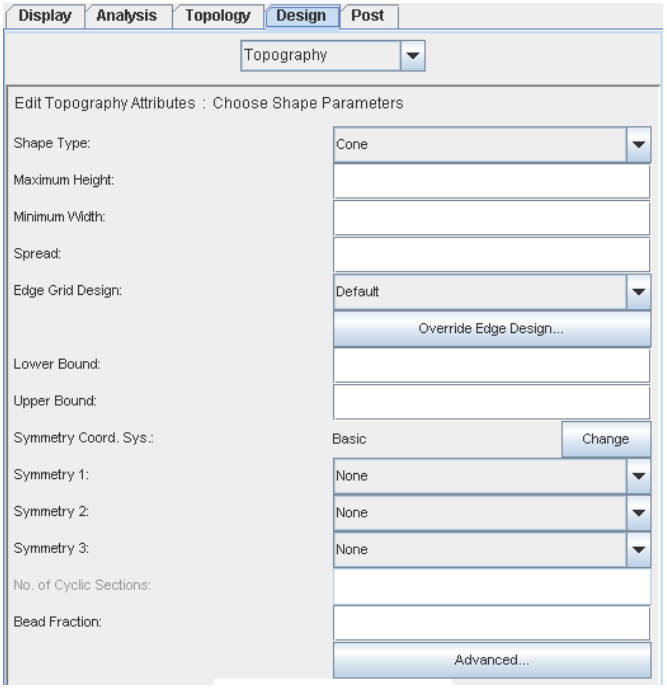
2 New Design Preprocessing

1. Data for the new DSELECT Genesis design feature can be created and edited. This feature allows for the selection of an optimized subset from a list of design variables. The selected variables will be moved to their upper bounds, while the remaining will move to their lower bounds.

2. BEADFR data for topography regions can be created and edited. This new information allows for constraints on the fraction of grids allowed to move in topography.

3. RMSDISP, RMSVELO and RMSACCE responses from random frequency response analysis can be created and edited.



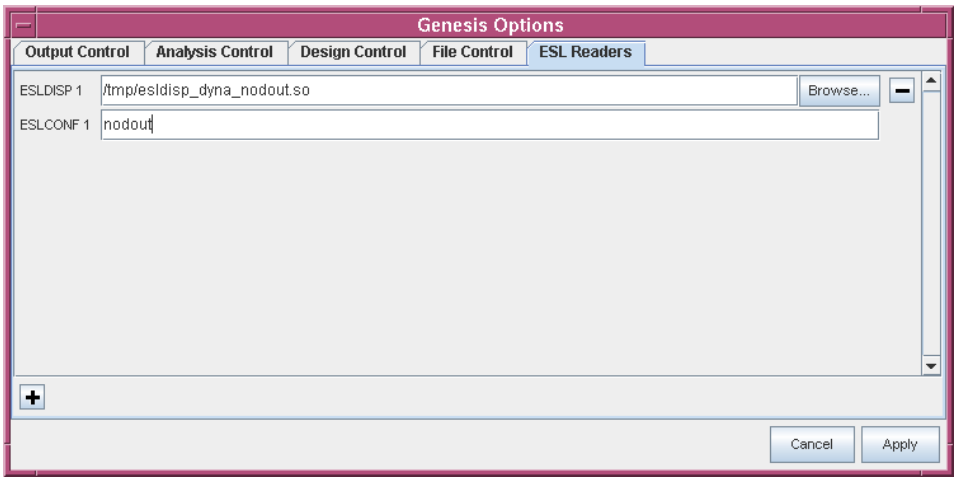


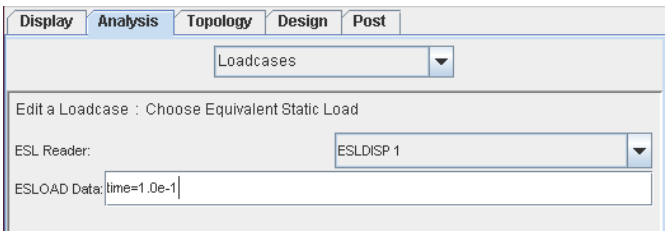
3 New Analysis Preprocessing

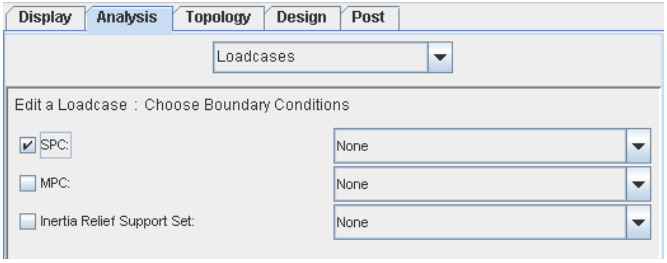
1. Equivalent Static Load libraries (ESL Readers) can be specified. These readers are plug-in modules that support the equivalent static load method by reading displacements from third-party analysis codes.

2. Static loadcases that use loads from the equivalent static load method can be created and edited.

3. Boundary conditions can be selected and changed for multiple loadcases simultaneously.



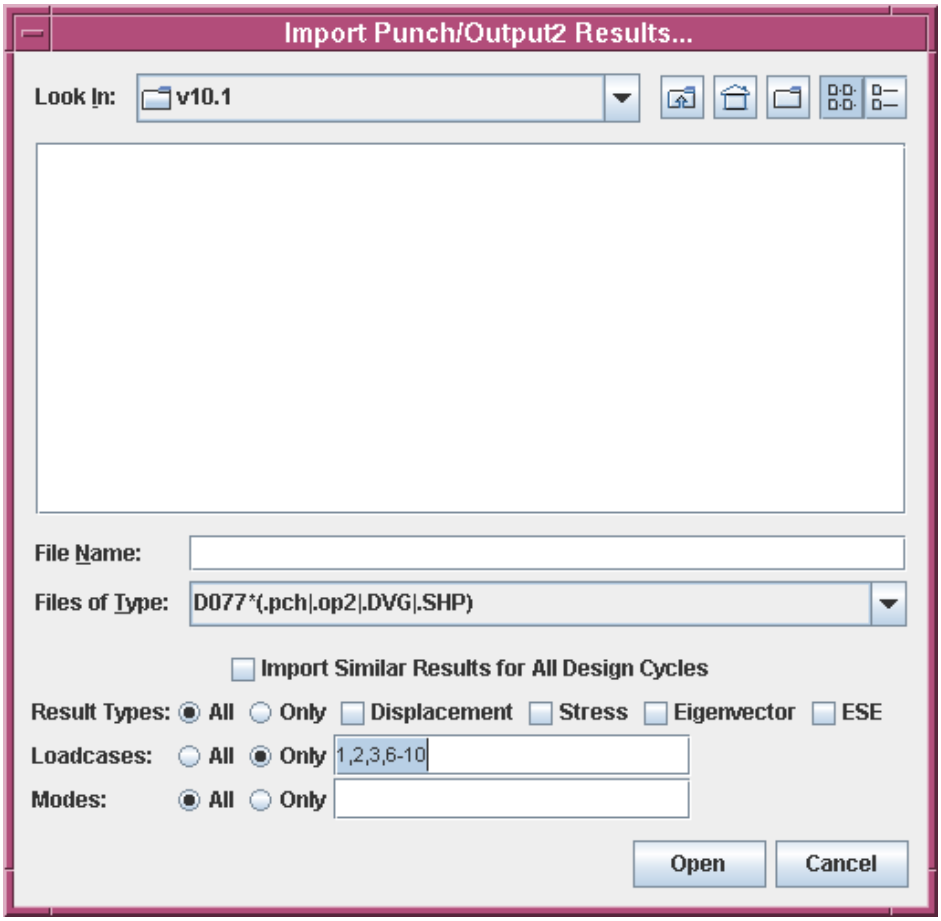




4 New Postprocessing Capabilities

1. Selective import of results from PUNCH/OUTPUT2 files. Results can be filtered by type, loadcase and/or eigenvalue mode.

2. Import CBUSH dynamic forces. Frequency response plots can be created from the imported data.



5 General Enhancements

1. Find filters for all selection lists. Long lists of data items can be made more easily managable by filtering for selected text and/or identification numbers.

   Every entity selection list has a Find: box at the bottom that can be used to filter the list. When a search is entered in the box and return is pressed, the list changes to show only entities that match the search. When the list is being filtered, an X button appears next to the Find box. This button will clear the Find box and all list items will reappear.

   The basic unit of a search is a search term. A search term contains two parts: a test operator and match operand. Some test operators do not require the second part.

   A search can be any boolean combination of search terms using the operators **and** and **or**. If two search terms are adjacent with no operator between them, then **and** is assumed. The **!** operator (boolean not) placed before a search term will reverse the sense of the test. The operator precedece is as follows: **!**, **and**, **or**. Parenthesis can be used to group search terms.

   The available test operators are:

   desc:*match*

   This test will be true if *match* occurs anywhere in the entity description (the left side of the list). The text matching is case-insensitive. If match contains spaces, then it must surrounded by double-quotes (").

   name:*match*

   This test will be true if *match* occurs anywhere in the entity name (the right side of the list). The text matching is case-insensitive. If match contains spaces, then it must surrounded by double-quotes (").

   id:*num*

   This test will be true if the entity id number is equal to *num*.

   id:*num1*-*num2*

   This test will be true if the entity id number is anywhere in the range *num1* to *num2*.

   A bare *match* string with no test operator is the same as:

   (desc:*match* **or name:***match* **)**

2. Special Group Find filters for group selection lists. Long group lists can be filtered based on group attributes, such as the presence of certain design data.

   Group Find filters can use all the capabilities of regular Find filters, plus the following special test operators:

   mat:*match*

   This test will be true if *match* occurs anywhere in the group's primary material's name or description. The text matching is case-insensitive. If match contains spaces, then it must surrounded by double-quotes (").

matid:*num*

This test will be true if the group's primary material id number is equal to *num*.

matid:*num1-num2*

This test will be true if the group's primary material id number is anywhere in the range *num1* to *num2*.

sizing:

This test will be true if the group has sizing design data.

topology:

This test will be true if the group has topology design data.

topography:

This test will be true if the group has topography design data.

topometry:

This test will be true if the group has topometry design data.

design:

This test will be true if the group has any design data (sizing, topology, topography or topometry).

visible:

This test will be true if the group is not hidden.

6 Changes in Design Studio for Genesis Version 10.1 with Respect to Design Studio for Genesis Version 10.0

Design Studio database files (*.dsg) written with version 10.0 are compatible with version 10.1. However, database files written with version 10.1 are not compatible with previous versions.