

Version 9.0

- **Enhance workflow automation.** Create, save, execute, and share repeatable engineering processes.
- **Integrate high fidelity CAE software.** Easily wrap CAE solvers early in product development to find the best designs.
- **Accelerate multi-run trade studies.** Replace long running analyses with quick, accurate approximations.
- **Quickly wrap any command line based simulation intuitively.**

PHX ModelCenter® 9.0 features new, enhanced modules to: enable users to perform multiple trade studies quickly, reduce errors, then standardize and share common repeatable processes across an engineering organization; quickly wrap high fidelity CAE software for detailed design verification and validation; conduct faster multi-run trade studies by replacing long running analyses with accurate response surface models.

Process Modeling

Graphically combine engineering analyses with the Process Modeling feature using logic, looping, and branching constructs to create hierarchical and reusable flowchart-like engineering processes.

Once created, these processes can be automated and used to perform trade studies, answer “what-if” questions, reduce errors, standardize and share common repeatable processes across the organization.

- **Intuitive Flow Chart-Like Display.**
Use an intuitive drag-and-drop graphical user interface to create repeatable, standards-based, flow-chart like engineering processes that combine engineering analysis tools with logic, looping, and branching statements.
- **Graphical Programming.**
Visually implement complex logic using inclusive and exclusive If statements, If-Else statements, For-Each loops, and convergence loops.
See Figure 1.
- **Workflow Automation.**
Monitor workflow progress using the graphical flow-chart-like display. Once an engineering process is created, it can be executed automatically. Data is automatically transferred from one simulation to the next as the workflow runs—across the network, if necessary.

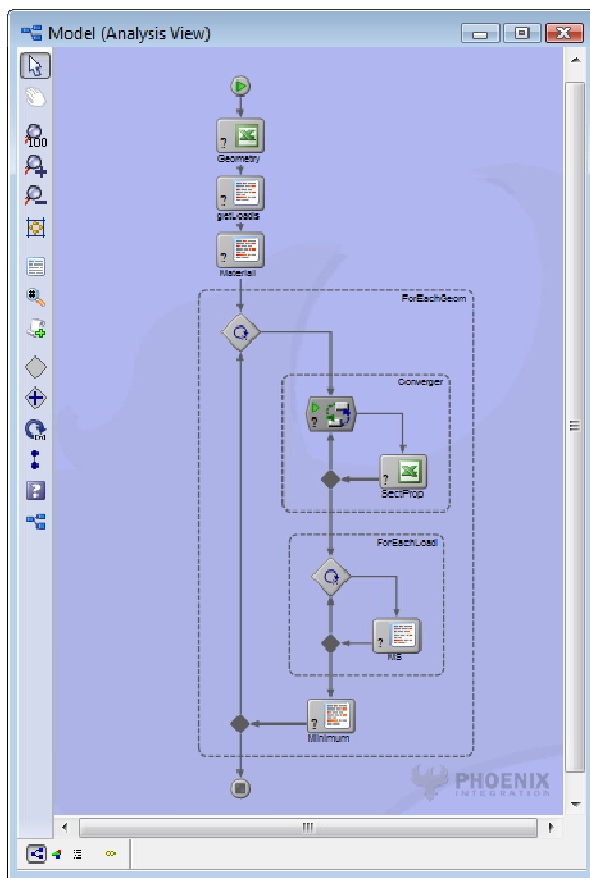


Figure 1. Visually implement complex logic.

CAE Solver Plug-In Suite

The CAE Solver Plug-In Suite allows users to wrap their favorite CAE solvers to perform multiple trade-off studies efficiently and effectively. The integration of CAE solvers into PHX ModelCenter is performed within an easy-to-use visual environment and does not require any tedious programming.

Custom interfaces are provided for a number of commercially available CAE software tools (such as Nastran®, Ansys®, ABAQUS® and LS-DYNA®). Once the CAE solver(s) are integrated into PHX ModelCenter, trade studies such as parametric evaluations, design of experiments (DOE), response surface modeling (RSM), and optimization studies can be performed to find the best design solutions.

- Easy-to-Use Graphical Interface.**
 Define the design parameters visually: CAE solver input/output files are parsed out graphically.
- Automatic Identification of Design Variables.**
 Automatically identify key design variables and specify their bounds with solver-specific intelligence embedded in the graphical parser. *See Figure 3.*
- Model Visualization.**
 Visualize FEA models in the workspace. *See Figure 4.*
- Parsing API.**
 Quickly wrap any analysis software that uses ASCII input and output files.

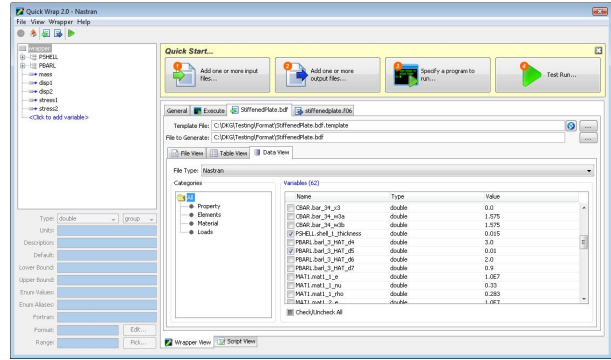


Figure 3. Quick Wrap automatically identifies a list of potential design variables from the Nastran input file.

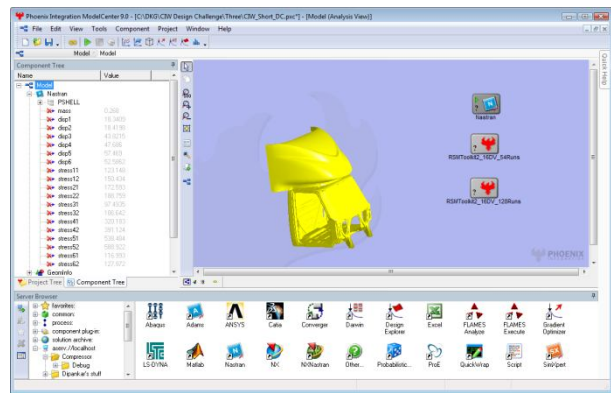


Figure 4. Visualize FEA input model in PHX ModelCenter 9.0.

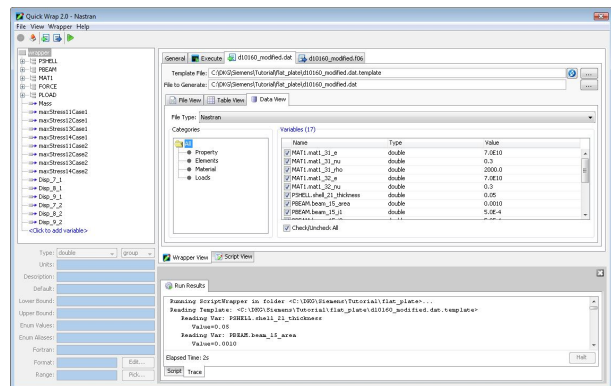


Figure 5. Perform a dry run to ensure that the wrapping of input and output files is correct.

Quick Wrap 2.0

The Quick Wrap 2.0 tool provides an intuitive point-and-click graphical user interface for quickly wrapping any command line based simulation. In most cases, input and output variables are specified by simply pointing and clicking on the variables in the input and output files with the mouse. See Figure 9. Version 2.0 has been updated and enhanced to make it more robust and user friendly.

- **Enhanced Debugging.**
Run programs in the local folder and view run progress on the trace panel.
- **Large File Support.**
Load, scroll and navigate through large files faster.
- **Pattern Matching Engine.**
Gain support for various patterns for CAE input files, FORTRAN name-list, general name-value lists, and user-defined patterns.
- **Easy-to-Use.**
Automatically highlight variables, control-click to select multiple ranges, and support for relative and absolute file paths.

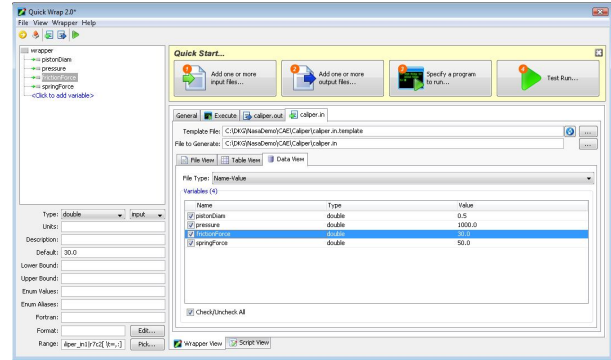


Figure 9. Open any ASCII input file and let Quick Wrap automatically identify a list of potential input parameters.

Specifications

Hardware Minimum

- 1GHz CPU
- 512MB RAM
- 1GB Hard disk space plus space for user data to run
- 800x600 video resolution

Hardware Recommended

- 2GHz Dual Core CPU
- 2GB RAM
- 1GB Hard disk space plus space for user data
- 1024x768 video resolution

Operating System

- MS Windows XP, MS Windows XP x64, MS Vista, MS Vista x64

Optional Software

- Microsoft Excel 97 or greater
- Mathcad 2000i or greater
- Matlab

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