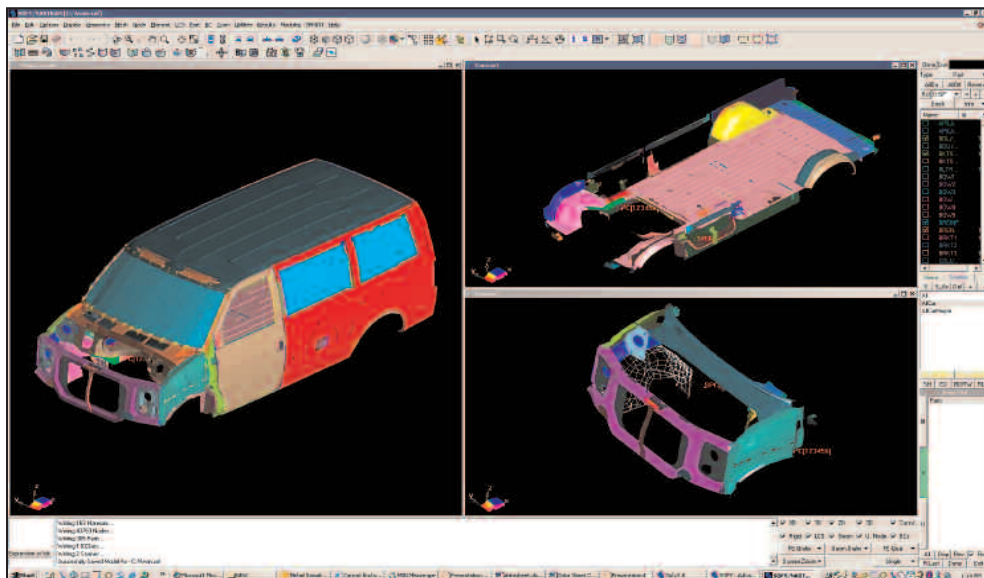


MSC.SOFY™

Process Automation for FE Simulation



MSC.SOFY provides a user-friendly, Windows-type interface. The user can simultaneously display multiple windows with individual control of content.

Overview

MSC.SOFY™ is a next generation finite element-modeling environment that provides users with a high level of automation and intuitive tools to quickly and effectively generate, manipulate, and manage complex finite element models.

MSC.SOFY is part of MSC.Software's SimOffice product line, which includes the world's leading solvers and modeling environments for Virtual Product Development. Within SimOffice, the MSC.SOFY family of products is aimed at process guidance for FE simulation. In addition to providing state-of-the-art pre and post processing capabilities, MSC.SOFY includes modules for capturing and automating modeling processes and ensuring model quality.

The programmability and extensibility of MSC.SOFY allows it to be customized thereby enabling companies to retain corporate knowledge and to create and deploy robust, standardized processes. The result is a highly user-friendly environment that significantly increases productivity and consistency of CAE.

Consistent Processes Lead to Consistent Results

In order to achieve the true benefits of CAE, companies need to have higher levels of confidence in their analyses. Currently, poor consistency in FE modeling across different individuals and organizations compromise this confidence. Customers also experience low productivity due to the need to constantly check and recheck modeling methods. This is true even if they have well documented procedures, if these procedures themselves are not captured in the modeling environment.

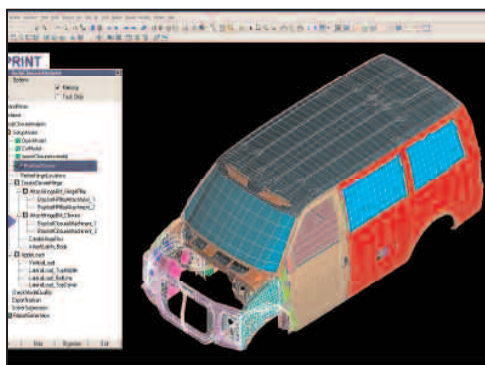
MSC.SOFY addresses these issues by focusing on process automation and on the elimination of manual steps that are tedious and prone to errors. With VRADE and SPRINT, customers can define and automate standard processes associated with finite element model preparation, post processing and report generation.

Capabilities

- Infrastructure for development of process automation tools
- MSC.SOFY – core architecture and utilities
 - RADE and VRADE - capability to rapidly design and publish a process
 - SPRINT – environment for executing the process
- Morphing – ability to quickly modify the design of a structure based on the finite element model
- Model data quality manager (MDQM) – ability to specify and check FE model quality
- Acoustics
 - Automatic cavity detection & fluid meshing interactive panel definition
 - Vibroacoustic Input & Output generation
 - Integration with MSC.Nastran Acoustics to calculate & visualize fluid/structure coupling & the wetted element surface
- State-of-the-art pre & post processing for finite element analysis (FEA)

Benefits

- Enhance productivity in the CAE process by creating & deploying consistent processes
- Achieve immediate & high ROI on process automation projects
- Get quick feedback on the effect of design changes with morphing capability
- Acoustics -
 - Interactively enhance an existing body-In-white (BIW) model for interior acoustics simulation
 - Drive MSC.Nastran Acoustics through a powerful GUI to generate and optimize the fluid/structure coupling



High ROI On Process Automation

With the MSC.SOFY suite of tools and related utilities, the lead-time for automation projects is dramatically shortened, thereby leading to immediate benefits and a higher ROI. This also enables the tool to evolve quickly based on feedback. The software allows the architecture/support group to be more responsive and leads to a more satisfied user experience. MSC.SOFY is an integrated environment that was designed bottom-up to facilitate customization and automation. MSC.SOFY has a bi-directional hierarchical database that supports an object-oriented functional approach. This design makes the product scalable and modular so that new functionalities can be added with great ease and speed.

MSC.SOFY Modules

MSC.SOFY – The core MSC.SOFY module includes the graphical engine, the database engine, and various utilities such as read/write capabilities for a variety of solvers. Models prepared in other pre-processors can be imported into MSC.SOFY and checked to improve quality. The model can then be exported to MSC.Nastran, LS-DYNA, RADIOSS, ABAQUS or PAMCRASH. The results can also be post-processed using MSC.SOFY's post processor. MSC.SOFY also supports several assembly and connection methods, including welds, adhesives, and bolted connections.

RADE (embedded in MSC.SOFY) – Rapid application development environment (RADE) provides users the utmost programmability with C++ like language with access to all of MSC.SOFY's objects and functions. RADE is an interpreter that permits object and function extension and overloading.

VRADE – Visual RADE, is a graphical process design tool that allows users to design processes using blocks (of functions). The users can then connect the outputs from a block to an input of subsequent blocks. Once the process has been developed in VRADe it is automatically published in SPRINT within the MSC.SOFY interface for immediate testing and eventual deployment.

SPRINT – SOFY PProcess INTEgrator (SPRINT) is a utility for automating CAE processes. A process developed in VRADe is shown to the user in SPRINT. The user can then go through the sequential tasks of a process in SPRINT.

Morphing – MSC.SOFY's built-in morphing module allows you to modify a design with Shape, Domain, Cross-section morphing capabilities. Depending on the design intent, any or all types of morphing modules can be utilized.

MDQM – With the model data quality manager (MDQM), users can check their mesh quality, as well as the model quality for connections, mesh topology, and other attributes. This module allows experts to specify the quality rules & metrics so that all users can follow the same guidelines.

Penetration – This module allows you to check & fix penetrations between parts and/or elements.

Dummy Positioner – With this module you can position dummies in a vehicle for crash analysis. It consists of an inverse kinematic solver to position dummy components (eg. Positioning the dummy hands on to the steering). Seat belts can also be easily routed around the dummy.

Acoustics - MSC.SOFY Acoustics provides a utility for generating a cavity mesh, and coupling a cavity model with a structural model. The module also provides the ability to integrate with MSC.Nastran Acoustics to calculate & visualize fluid/structure coupling & the wetted element surface.

MSC.SOFY modules are bundled under the following set of offerings, which are enabled under the MSC.MasterKey licensing system: MSC.SOFY Standard, MSC.SOFY Acoustics and MSC.SOFY Developer. Please contact your MSC.Software account representative for more information on these offerings.

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