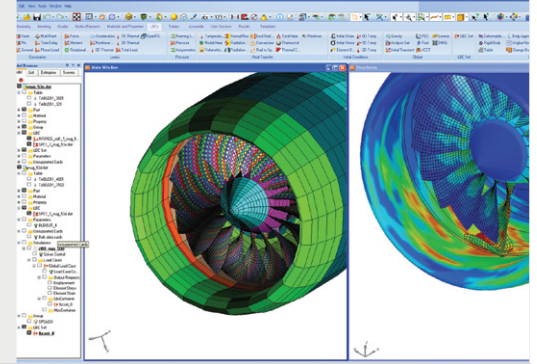


# SimXpert®

## Integrated Multidiscipline Simulation Solution for Engineers



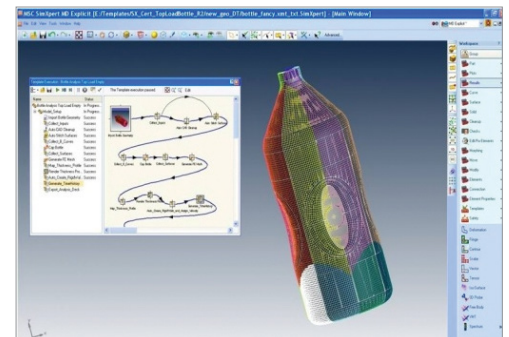
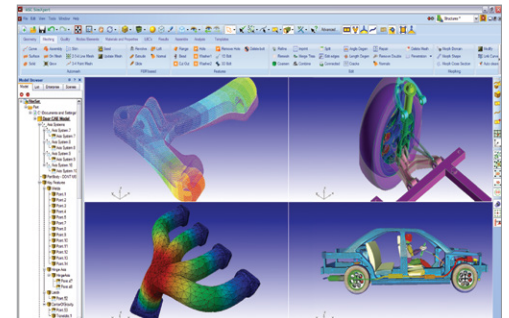
### Overview

SimXpert is a unified computer aided engineering environment for product simulation that enables manufacturers to accelerate the speed and accuracy of simulation, increase design productivity, and bring better products to market faster. SimXpert accomplishes this by integrating multidiscipline analysis capabilities, the best simulation methodologies, and a high degree of customization all into one engineering environment. Given SimXpert's unified engineering environment, analysts and designs can reduce the number of tools in their engineering workflow and better share critical information with each other.

### Integrated Suite of Multidisciplinary Workspaces

SimXpert provides multiple workspaces that allow analysts to easily move from one discipline to another while sharing data models and results. This enables all the CAE teams to share the information more effectively, without data loss.

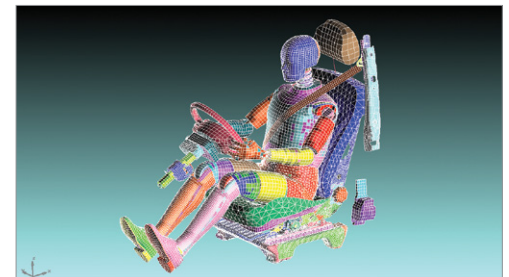
- **Structures Workspace** - Perform linear and advanced non-linear, static and dynamic structural analyses based on the very best solutions available in MSC Nastran.
- **Motion Workspace** - Evaluate the full motion behavior of complex mechanical system designs based on MSC's leading Adams capabilities.
- **Explicit Workspace** - Use MSC Nastran to perform large deformation, highly nonlinear, short duration transient dynamic analyses for both structural impact and coupled fluid-structure interaction problems..
- **Systems and Controls Workspace** - Accurate, reliable multi-domain modeling and simulation of dynamic physical systems including control systems, electrical, thermal, hydraulic, gas dynamics etc. Access full capability of Easy5 within SimXpert and integration with Simulink®.
- **Template Studio** - Design customized process flow in template studio which can be executed in manual or automatic manner
- **Advanced Solution Extensions** - SimXpert is an open platform enabling easy integration with third party tools as well as the creation of customized workspaces.



Best Practice capture in SimXpert

### Enabling Capabilities

- Intuitive object-based user interface with contextual actions
- Advanced browser capability to view, manipulate, and organize model
- Import IGES, Parasolid, CATIA V4, CATIA V5, Pro/ENGINEER, Creo, UG, SolidWorks, ACIS, STEP and STL data for FE modeling
- Interactive CAD cleaning and healing with auto curve, shell, and solid meshing
- Contact creation and setup through easy and intuitive contact tables
- Visualization and manipulation all CAE entities
- User configurable toolsets and menus to streamline the modeling process



Dummy positioning and seat belt routing

## Modeling Features

- Surface Meshing algorithms: paver, mapped, minimal, quad-dominant
- Mesh seeding: uniform/bias
- Assembly meshing
- Virtual geometry / topological simplification
- Composite modeling and verification
- Connections: Adhesive, bolt, seam weld
- Easy contact analysis set up and checks
- Import and export of solver input files
- Open platform enabling easy integration with third party tools as well as the creation of customized workspaces

## Comprehensive CAE Solution Set

- Linear and nonlinear structural analysis
- Static and dynamic simulations
- Transient dynamics for impact and crash studies
- Thermal analysis
- Multibody dynamics
- Systems and Controls

## Multi-disciplinary Solutions

- Coupled Motion-Structures-Controls Integration to carry out a diverse set of virtual tests
- Coupled Structures and Motion analysis to perform flexible body analyses
- Coupled Thermal and Structures analysis to seamlessly apply thermal loading to structural analysis
- Coupled linear and non-linear structural analysis to get high accuracy and faster solutions

## Post-Processing

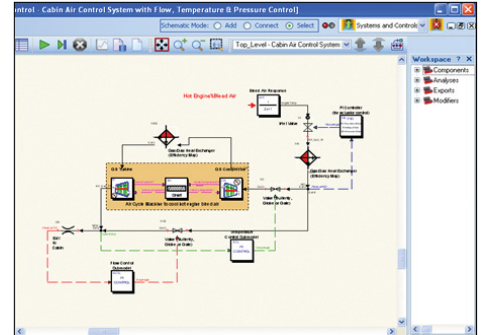
- Multiple window view support to visualize model, state plots and x-y charts and graphs simultaneously
- Animation of output quantities, including displacements, stresses, strains and vectors
- Time and frequency domain result plots
- Multi-file attachment
- Report generation

## Process Capture and Automation

- Export models as python scripts and record/replay
- Capture and record specific processing tasks as action macros
- Directly integrate macros to create highly complex SimTemplate™ CAE processes
- Build complex SimTemplate CAE processes based on SimXpert macros and SimXpert scripting to standardize and automate complete end-to-end analyses.
- Perform batch processing of SimTemplates

## Supported Platforms

- Microsoft Windows 7 x64 (Enterprise, Professional and Ultimate)
- Red Hat Enterprise Linux 5 (x64)



Systems and Controls Workspace