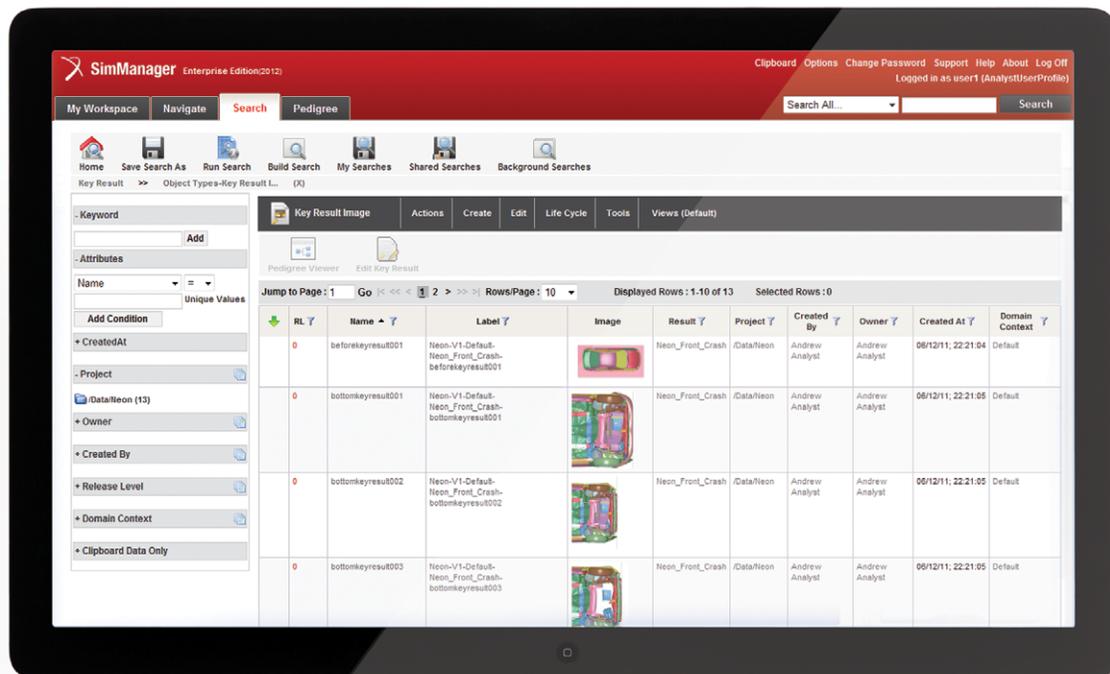


SimManager™

Simulation Process & Data Management



SimManager

SimManager is an easily deployable and highly configurable web-based simulation and test data management system addressing all phases from project initiation through product launch and beyond. SimManager addresses some of the critical simulation process issues encountered by analysis organizations, helping drive increased simulation throughput and efficiency.

- **Capture** local disparate data in a central, searchable environment
- **Author and Manage** repeatable simulation work activities
- **Assemble** models and load cases from one to thousands of simulations
- **Launch** simulation to the High Performance Computing (HPC) environment
- **Sort** through terabytes of data to get the most meaningful design insight automatically
- **Report and Compare** virtual-to-virtual or virtual-to-physical test results in an automatically generated company specific reports
- **Trace** the entire simulation pedigree from model to report

The Challenges of Simulation Data Management

The challenges of building innovative products expected by today's market continue to grow dramatically. Performance, safety, reliability, fuel efficiency, carbon emissions and regulatory requirements are just some of the challenges companies face. More than any other engineering process, simulation has taken center stage to ensure companies are able to bring great products to market. In addition to reducing physical test, simulation allows engineers to explore design options that are impossible to physically test or are too cost prohibitive to test. Simulation is now one of the most important assets for making design decisions.

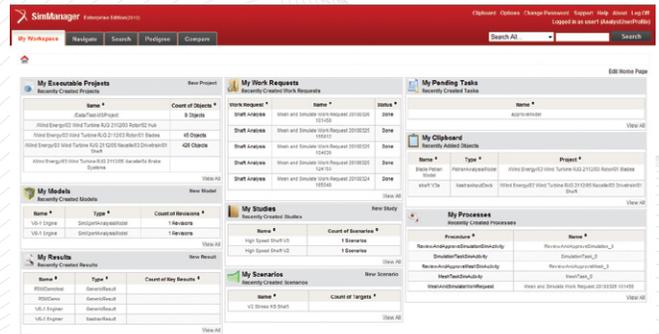
The volume and complexity of the simulation data for Finite Element Analysis, Computation Fluid Dynamics and other computationally intensive methods are growing by orders of magnitude. Data volumes have increased nearly 1000 times for a typical automotive OEM over the past decade.

In a 2012 MSC survey of over 200 companies (half of which consist of 2000+ employees) most expect simulation to increase and 25% expect simulation to increase between 2x and 5x in the next 2 – 4 years. It is simply not possible to keep pace by growing analysis capacity using traditional methods. What's required is a technology that leverages your most valuable and often over committed engineering experts. SimManager provides this technology with its robust and easy to deploy capabilities.



Data Capture

Capture Import Simulation Data in a Central, Searchable Environment.



“We have successfully deployed SimManager in the High-Lift System test department at Airbus Bremen and benefit from a tight connection between physical test and virtual test correlation.”

Thomas Krüger, Airbus

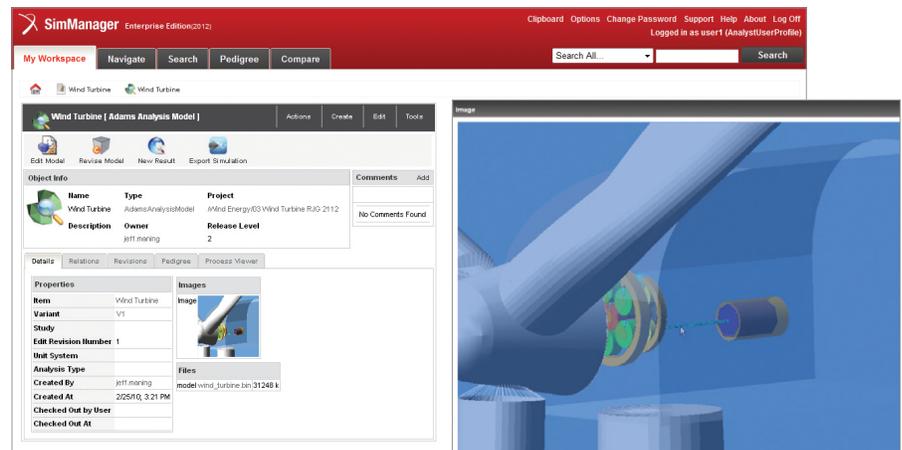
SimManager automatically captures all data associated with every executed process, ensuring 100% traceability of process-generated objects – a key benefit not provided by Product Data Management (PDM) based PLM systems. Customers are ensured a quick return on investment due to dramatic productivity and quality improvements.

Import and Export Options

SimManager enables the import and export of a large number of objects in a single operation, maintaining the relationships of imported files. This easy flow of data in and out of the system provides great flexibility to run simulation sequences both inside and outside of SimManager.

Extract and Compare Key Results

One or more Key Result Curves (x-y plots) can be displayed in a plot. The curves and display can be manipulated using an extensive list of options and mathematical operators.



Process Automation

Assemble multiple models and load cases into numerous unique simulations simultaneously & launch to existing High Performance Computing (HPC) resources.

“Using SPDM, the number of Engineers didn’t grow over the last 4 years, but the number of development projects doubled. With SimManager 2012, the planned increase of car project for the next 4 year can be managed without increasing personnel resources.”

Marc Hertlein, 06.05.2013, NAFEMS SPDM Users Conference, 2013

Import and Simulate

Import a model file and optionally submit for analysis, post-process and create a report, in a single operation. This reduces the time spent on each task and improves simulation efficiency.

Assemble and Simulate

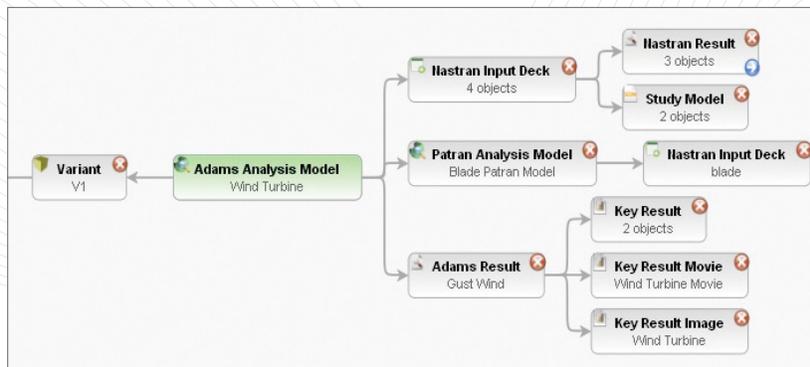
Assemble selected component models into a run-ready input file and submit the job to HPC cluster. Post-processing and reporting steps can also be included as part of the automated sequence saving engineers time and effort in the simulation process.

Simulation Model Generator

An analyst can build up FE models based on loadcases, assembly, analysis and post-processing methods. For each scenario, the input file is assembled from different sets of models. Any number of analysis runs can be started at once after changing one or more sub-models. This improves productivity for all the steps of analysis process.

Report Generation

The Report Generator tool, an individually licensed dedicated workspace, provides a set of tools used to create a Report in SimManager. You can add report sections from pre-defined templates and organize them. SimManager objects such as Key result values, curves, and images can easily be placed in the report. Side-by-side comparisons of data from multiple simulations (“Seeds”) can be included.



Rapid Deployment

SimManager introduces web-based configuration of many new process automation features, which ensures faster deployments, easy extension into new domains and broad-scale usability. Most configurations can updated, edited, published and activated without restarting the server within the Administrative Workspace.

“Product development time has been reduced tremendously as well. We cut it by 25 percent, which literally took months off the product development process”

Brian Brandner, Global Design Engineering Director, TI Automotive

Queue Configuration

SimManager can be configured via the web interface to work with several job submission software applications, such as LSF or SGE.

Solver Integration

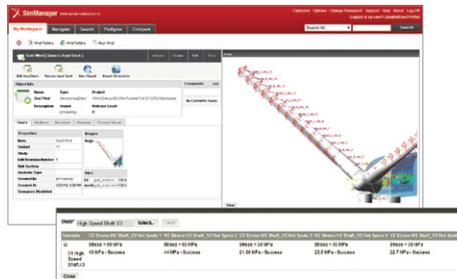
The SimManager 2012 tool suite allows customers to easily integrate their discipline-specific solvers for use in an automated process sequence. Integrated applications can be called by standard SimManager process sequences, such as Import and Simulate, Assemble and Simulate and other SimManager ‘Out-of-the-Box’ actions.

Post-Processing Integration

SimManager provides the tools needed to implement or integrate specific post-processing business logic. It is designed to accept information regarding a specific Simulation as input and export appropriate result data, perform the specified post-processing logic to create key result data (values, images, curves, etc.) and return the key results files as output. The post-processing sequence includes 3 activities: assembly export to a local directory, processing of the exported data, and import of the key results back to SimManager.

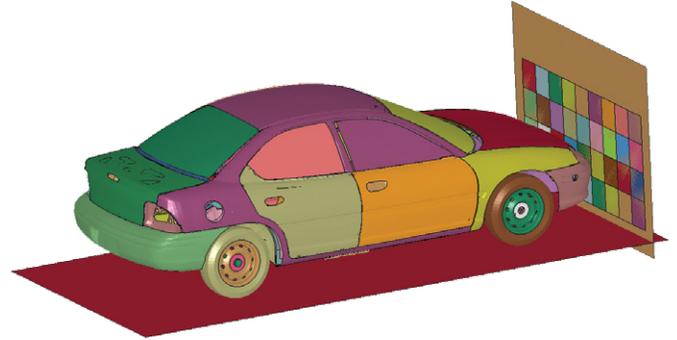
Storyboard Management

Provides an effective way to specify a set of requests associated with a particular process and to generalize them for different users of the system.



Collaboration

SimManager introduces traceable collaboration within and across project teams.



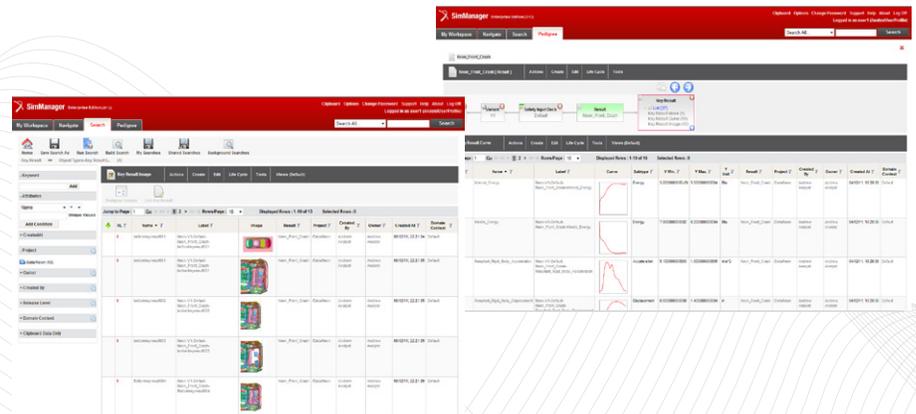
“Leading companies such as Audi, BMW, Tetra Pak and Airbus have chosen both SimManager and our professional services teams to support the management of their Virtual Product Development activities.”

Work Request

Captures customer-specific work-request tasks and activities as re-usable templates. Work Request tasks manage project work assignments and record task status.

Project Dashboards

The status of assigned tasks can be tracked and viewed in the Project Dashboard, providing project transparency and enhancing engineering productivity.



SimManager Key Benefits

- Manage large amounts of data from a central location
- Find things fast, with traceability and accountability
- Improve communication and enhance transparency
- Streamline the product development process
- Track the progress in a transparent manner
- Increase productivity
- Standardize on best practices
- Collaborate effectively
- Reduce product development times
- Accelerate process and product innovation
- Improve consistency and reliability
- Automate methods and processes to reduce repetitive and manually intensive tasks
- Improve efficiency through open support of existing simulation investments including third-party CAE tools, HPC hardware, and methods



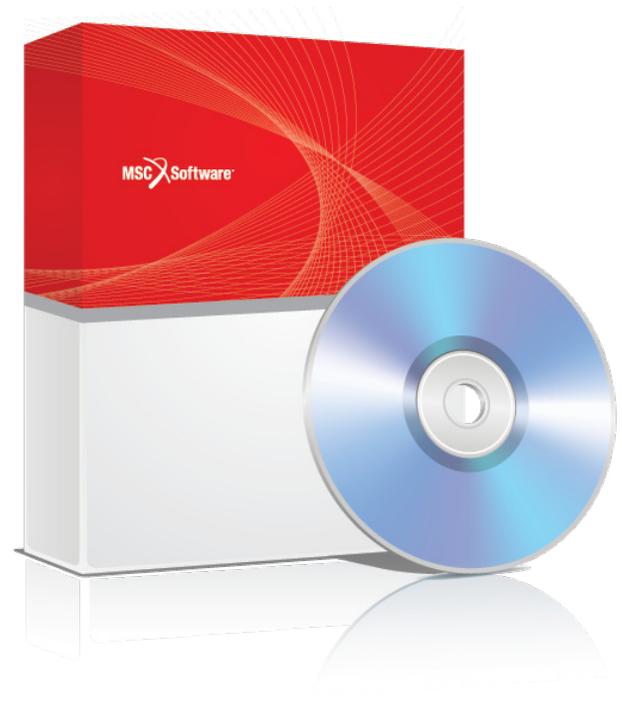
Product Overview

MSC Software makes products that enable engineers to validate and optimize their designs using virtual prototypes. Customers in almost every part of manufacturing use our software to complement, and in some cases even replace the physical prototype “build and test” process that has traditionally been used in product design.



MSC Products

Simulating Reality, Delivering Certainty



Integrated Solutions

Adams

Multibody Dynamics Simulation

Actran

Powerful Acoustic Simulation Software

Easy5

Advanced Controls Simulation

Marc

Advanced Nonlinear & Multiphysics

SimXpert

Multidiscipline Simulation

Solver Solutions

MSC Nastran

Structural & Multidiscipline

Dytran

Explicit Nonlinear & Fluid Structure Interaction

MSC Fatigue

Fatigue Simulation

Sinda

Advanced Thermal

Mid-Sized Business Solutions

FEA, AFEA, TFEA

Structural, Nonlinear, Thermal Simulation Bundles

MSC Nastran Desktop

Multidiscipline Simulation for the Desktop

SimDesigner

CAD-Embedded Multidiscipline Simulation

Modeling Solutions

Patran

FE Modeling and Pre/Post Processing

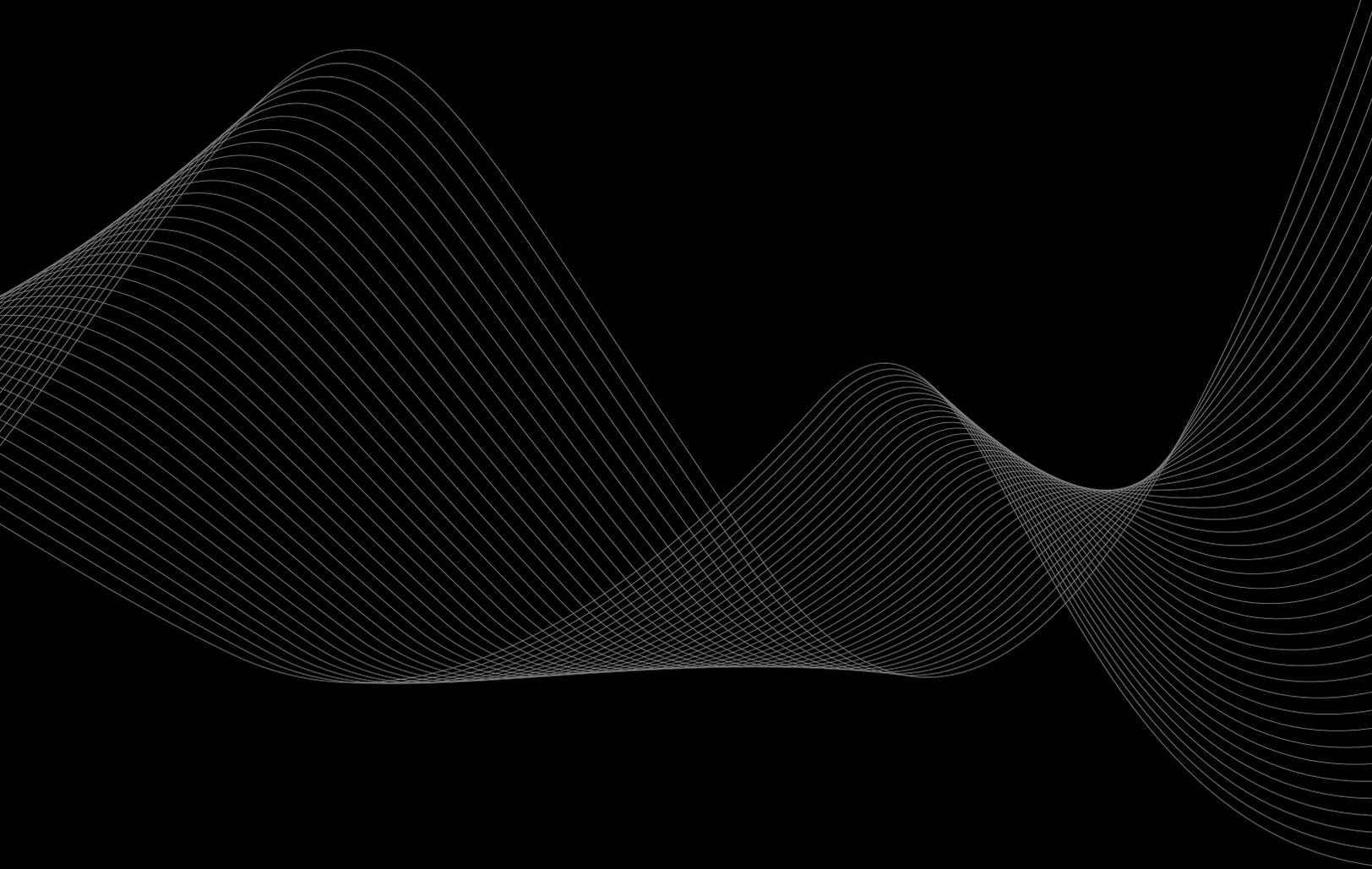
SimXpert

Multidiscipline Simulation Environment

Simulation Process & Data Management

SimManager

Simulation Process & Data Management



SimManager™

Simulation Process & Data Management

MSC Software is one of the ten original software companies and the worldwide leader in multidiscipline simulation. As a trusted partner, MSC Software helps companies improve quality, save time and reduce costs associated with design and test of manufactured products. Academic institutions, researchers, and students employ MSC technology to expand individual knowledge as well as expand the horizon of simulation. MSC Software employs professionals in 20 countries.

For additional information about MSC Software's products and services, please visit: www.mscsoftware.com.



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