OVERVIEW

With SimDesigner for CATIA V5 integrated solutions, CATIA V5 users benefit from the world’s leading Simulation and Virtual Product Development (VPD) technology embedded inside their CATIA V5 environment. The “SimDesigner for CATIA V5” family of products provides companies and their design teams with the resources to focus on product performance while improving reliability and repeatability in their virtual product development process.

AN INTEGRATED PRODUCT PORTFOLIO

The SimDesigner for CATIA V5 family of products is built upon the CAA V5 architecture and is developed in close partnership with Dassault Systèmes. SimDesigner provides CATIA users integrated, scalable access to MSC.Software’s simulation tools and technology, enabling companies to reduce design and physical test costs throughout the product lifecycle.

SCALABLE SOLUTIONS

The SimDesigner product family is comprised of Generative products, Gateway products, Vertical applications, and discipline-specific Configurations.

SimDesigner Generative products seamlessly embed MSC.Software simulation solutions into the CAD environment, and focus on integrated attribute assessment across multiple disciplines, such as linear structures, motion, thermal, nonlinear structures, and more. The SimDesigner Gateway products provide a seamless bi-directional link between the CATIA environment and the customers’ chosen stand-alone VPD application. SimDesigner Vertical applications enable the capture, storage, and reuse of product evaluation and process knowledge associated with building, testing, and validating products directly inside the CATIA V5 environment.

Three SimDesigner configurations are available, providing a collection of Generative products that solve a set of problems relative to a specific analysis discipline.
SIMDESIGNER GENERATIVE PRODUCTS
SimDesigner Generative products seamlessly integrate MSC.Software Simulation solutions into the CATIA V5 environment. The available SimDesigner Generative products are: SimDesigner Linear (SDL), SimDesigner Fatigue (SFA), SimDesigner Composites (SCP), SimDesigner Nonlinear (SDN), SimDesigner Thermal (SDT), SimDesigner Advanced Structures Professional (ASP), SimDesigner Motion (SMO), and SimDesigner Flex (SDF).

SIMDESIGNER GATEWAY PRODUCTS
Each of the SimDesigner Gateway products is associated to a specific solver and includes the Gateway Analysis Manager (GAM). GAM allows users to submit analysis jobs in batch mode on a heterogeneous network. Results from the solver can be imported into CATIA V5 and post-processed as images and XY Plots. The available SimDesigner Gateway products are: SimDesigner Gateway for MSC.Nastran, SimDesigner Gateway for MSC.Marc, SimDesigner Gateway for LS-DYNA, and SimDesigner Gateway for STEP AP209.

SIMDESIGNER VERTICAL APPLICATIONS
SimDesigner vertical applications include SimDesigner Suspension for CATIA V5, which enables engineers to understand the behavior of a vehicle’s suspension and to evaluate suspension designs during the design process.

SimDesigner Configurations
Each SimDesigner Configuration includes a series of advanced products dedicated to linear and nonlinear analysis and component flexibility modeling applied to motion. SimDesigner configurations include: SimDesigner Linear Structures 2 (SDL2), SimDesigner Nonlinear Structures 2 (SDN2), and SimDesigner Flex 2 (SDF2). The SimDesigner Product Matrix below lists the available SimDesigner products and configurations.

SimDesigner Linear Structures 2
SDL2 includes:
• SimDesigner Linear (SDL)
• SimDesigner Advanced Structures Professional (ASP)
• SimDesigner Gateway for MSC.Nastran (GWN)

The SimDesigner Linear Structures 2 (SDL2) configuration provides the following capabilities and benefits:
• Integrated and Generative: MSC.Nastran subset available inside CATIA V5.
• Comprehensive linear stress analysis: SDL2 analysis capabilities include linear statics, normal modes, normal modes with differential stiffness, modal frequency response, heat-transfer, and buckling.
• Advanced finite element modeling: With ASP, SDL2 allows advanced FEM creation and edition including import of MSC.Nastran bulk data files.
• Scalable through GWN providing a seamless bi-directional link between the CATIA V5 CAE environment and your MSC.Nastran system.
SimDesigner Nonlinear Structures 2

SDN2 includes:

• SimDesigner Nonlinear (SDN)
• SimDesigner Thermal (SDT)
• SimDesigner Advanced Structures Professional (ASP)
• SimDesigner Gateway for MSC.Marc (GWM)

The SimDesigner Nonlinear Structures 2 (SDN2) configuration provides the following capabilities and benefits:

• Integrated and Generative: MSC.Marc subset available inside CATIA V5.
• Extensive thermal analysis tools: SDN2 thermal capabilities include steady-state heat transfer, conduction and convection, transient analysis, and thermo-mechanical coupling.
• Advanced finite element modeling: With ASP, SDN2 allows advanced FEM creation and edition including import of MSC.Nastran bulk data files.
• Comprehensive nonlinear analysis: SDN2 is ideal for problems that exhibit geometrical, material and contact nonlinearities.
• Scaleable through GWM providing a seamless bi-directional link between the CATIA V5 CAE environment and MSC.Marc.

SimDesigner Flex 2

SDF2 includes:

• SimDesigner Motion (SMO)
• SimDesigner Flex (SDF)
• SimDesigner Linear (SDL)
• SimDesigner Gateway for MSC.Nastran (GWN)

The SimDesigner Flex 2 (SDF2) configuration provides the following capabilities and benefits:

• Integrated and Generative: MSC.Nastran and MSC.ADAMS subsets available inside CATIA V5.
• Motion simulation: Provide multi-body dynamic simulation, and allow users to view animations and XY plots of resulting motion.
• Flexible component modeling: Flexible component modeling within the multi-body dynamic simulation.
• Comprehensive linear stress analysis capabilities: Analysis capabilities include linear statics, normal modes, normal modes with differential stiffness, modal frequency response, heat-transfer, and buckling.
• Scaleable: SDF2 provides a seamless bi-directional link between the CATIA V5 environment and your MSC corporate simulation resource.
A SINGLE SOURCE FOR TRAINING AND SUPPORT

MSC.Software provides both customer support and training in the use of its software products as well as the software products from Dassault Systemes’ allowing you to obtain complete CATIA V5 and SimDesigner product training and support from a single source.

CUSTOMER QUOTES

“Our choice fell on the SimDesigner products because they offer a broad suite of analysis products all integrated in the CATIA V5 environment; and they fit into our corporate way of working.”

“The MSC.Software products will enable us to optimize the engineering of our designs, and further improve the reliability and quality of our products as well as our time to market. Since we are now able to test more variants of the same design virtually, we expect to be able to address 90% of possible design changes and improvements before a first prototype needs to be built. By choosing SimDesigner, we made a significant step in the right direction, with our ultimate goal to be able to run virtual tests throughout a full modal analysis.”

—Brian Kennedy, Engineering Support manager Black & Decker and DeWalt UK.

“MSC.Software's SimDesigner for CATIA V5 allows us to perform critical analysis during the design process, eliminating the need for more than a single prototype. I would think that a 50% time reduction in concept to finished design is conservative”

—Patrick McCarville, CEO Grimes Industrial Design (GID) Development

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