# ENOVIA V5 DMU
for Advanced Product Simulation

Highlights

» **No need for data translation, duplication, synchronization between design and simulations**

» **Defines and simulates the product kinematics intuitively through dynamic, mouse-based manipulation**

» **Generates disassembly trajectory, avoiding collisions and respecting angular limitations**

» **Eliminates 2D-3D mismatch errors while improving 3D definition quality**

» **Validates more complex products faster by mixing several disciplines, e.g. kinematics within fitting analysis with dynamic clash detection**

» **Optimizes the size and re-usability of the mock-up through a comprehensive set of alternative shapes creation**

Validating & Accelerating the Release of Complex Product Designs

Manufacturers must overcome unique technical and strategic challenges to keep pace in today's virtual global marketplace. Customer segmentation, pricing wars and shrinking market windows are pressuring design teams to produce more innovative products faster than ever before — from marketing concept through maintenance. As global demand and breakthrough technologies increase the complexity of product designs, engineers need more advanced desktop tools to quickly validate and release designs into production.
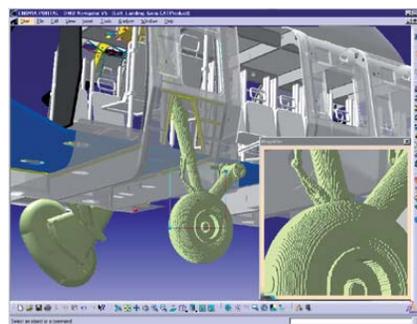
V5 DMU utilizes lightweight representations of parts and assemblies to validate design elements such as fit and form without exposing intellectual property within the design.

Predict product behavior earlier

Eighty-percent of development costs are incurred early in the product lifecycle, making it critical to simulate the behavior of a product in 3D before building a single prototype or beginning production planning. In particular, engineers need to understand how complex product designs and assemblies will perform in the real world, for example, when multiple parts and sub-assemblies are moving, or need to be mounted or replaced during servicing.

Digital Mock-up (DMU) provides early insight and collaborative review of product performance and serviceability, key elements of any successful Product Lifecycle Management (PLM) strategy. Within a unified PLM environment, Digital Mock-up (DMU) allows product development teams to digitally create a product and its environment, then analyze it to understand key factors that determine quality, performance and cost.

Ensure digital mock-up spatial integrity

V5 DMU provides a comprehensive set of tools to simulate complex product behavior in one unified environment. This enables more decisions in the virtual stage of development

— before investing in expensive prototypes, production resources, and product launch activities.

V5 DMU for Advanced Product Simulation provides:

- A completely V5-integrated solution
- In-context simulation of large and complex assembly structures
- Seamless design, simulation and analysis of product mechanisms
- Early assessment of serviceability requirements
- Leading-edge integration within ENOVIA product data management systems

### Promote advanced design in context

To promote efficient collaboration and review, V5 DMU facilitates the creation of alternate product shapes and light-weight representations, enabling data size reduction, while ensuring accuracy and confidentiality. For instance, using V5 DMU, users can transform the different positions taken by vibrating parts into a single volume that will support further mock-up synthesis activities. Others examples include:

- Generation of a swept volume from a displaced part or moving parts for space reservation
- Measure of a volume capacity and creation of the resulting shape
- Creation of a security zone on volumes and surfaces

Simulate and analyze mechanisms

V5 DMU allows engineers to define complex mechanisms either by using a wide variety of joint types, or by generating them automatically from mechanical assembly constraints defined in CATIA V5. They can use
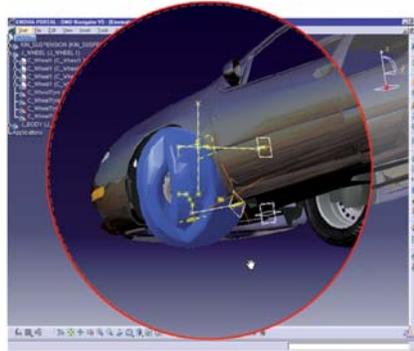
V5 DMU allows design teams to take into account product kinematics in the detection of parts interferences.

their mouse to simulate complex mechanisms in motion, and then view the dynamic visual feedback to check limits and interferences and compute minimal distances. For instance, engineers are able to analyze the kinematics of a wheel and its suspension to be sure it will function correctly when in operation. With V5 DMU, users gain rapid and accurate product insight to help them optimize product behavior.

Access serviceability requirements

V5 DMU enables the definition, simulation and analysis of assembly-disassembly procedures early in the product development process. V5 DMU simulates maintenance trajectories involving parts, sub-assemblies and tooling, and supports the analysis of these trajectories with real-time interference checking, including contact management and distance analysis. Advanced V5 DMU features allow users to execute very complex scenarios to ensure product quality, such as automatically generating a trajectory that will avoid collisions, or assessing serviceability in conjunction with human ergonomics analysis.

V5 DMU transforms design knowledge and behavior into business intelligence, providing support for fast and accurate business decisions across the entire product development lifecycle.

V5 DMU for Advanced Product Simulation is based on the following products:

- DMU Navigator 2
- DMU Space Analysis 2
- DMU Kinematics Simulator 2
- DMU Fitting Simulator 2

A configuration is also available:

- ENOVIA - DMU Digital Product Synthesis 2

About Dassault Systèmes
As a world leader in 3D and Product Lifecycle Management (PLM) solutions, the Dassault Systèmes group brings value to more than 90,000 customers in 80 countries. A pioneer in the 3D software market since 1981, Dassault Systèmes develops and markets PLM application software and services that support industrial processes and provide a 3D vision of the entire lifecycle of products from conception to maintenance. The Dassault Systèmes portfolio consists of CATIA for designing the virtual product - SolidWorks for 3D mechanical design - DELMIA for virtual production - SIMULIA for virtual testing and ENOVIA for global collaborative lifecycle management, including ENOVIA VPLM, ENOVIA MatrixOne and ENOVIA SmarTeam. Dassault Systèmes is listed on the Nasdaq (DASTY) and Euronext Paris (#13065, DSY.PA) stock exchanges. For more information, visit http://www.3ds.com.

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