

# STRUCTURAL ENGINEER 3DEXPERIENCE USER ROLE



## A COMPREHENSIVE LINEAR STRUCTURAL ANALYSIS SOLUTION TO ASSESS THE PERFORMANCE OF PRODUCTS DURING THE PRODUCT DEVELOPMENT PROCESS

Design Simulation powered by proven world-class Abaqus Realistic Simulation technology in a seamless, intuitive, and modern user interface within the 3DEXPERIENCE® platform.

Structural Engineer equips the Design Engineer with all the tools needed to efficiently conduct structural linear static, frequency, buckling, steady-state thermal simulation and modal dynamic response of product designs within 3DEXPERIENCE.

It provides unique capabilities to collaborate, simulate, and impact product development processes throughout the extended enterprise using state-of-the-art Abaqus simulation technology, ensuring accuracy of the virtual testing.

## State of the art interaction between CAD, PLM, and CAE

With Structural Engineer, users build simulation models directly on the design geometry. Tight associativity with CATIA\* and SolidWorks\* means that simulation and CAD always remain synchronized even after design changes. It provides access to advanced simulation technology within a consistent and intuitive interface.

## Simulation management and collaboration leveraging the 3DEXPERIENCE platform

Simulation is managed as a core value of the 3DEXPERIENCE platform through the capture, management, and re-use of simulation IP allowing it to become a true corporate asset.

The 3D Space of the 3DEXPERIENCE platform offers for all users simplified and powerful management of data and content. The embedded 3D Search enables engineers to easily find data such as geometry, material and simulation models improving productivity.

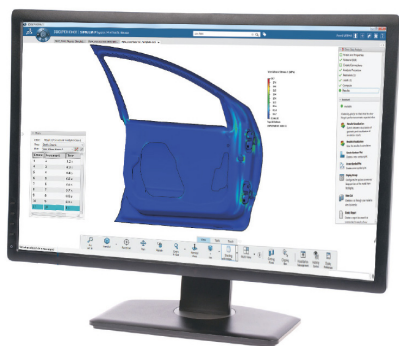


Image 1: Optimize product design with Structural Engineer

## High performance results visualization, particularly for very large models

High performance visualization tools support efficient post-processing of large-scale simulation data including an option to use remote machines for rendering and visualization computation. Structural Engineer enables interrogation of realistic simulation results with speed, clarity, and control on the desktop for enhanced decision making. Extensive tools and controls for results display can be used for advanced and collaborative post-processing while utilizing High Performance Computing (HPC) resources to perform results visualization. Simulation Review application offers Web based visualization of the geometry and simulation results for a unique collaborative experience around Simulation assets.

## Key Functionalities

Structural Engineer delivers proven world class Abaqus technology in a seamless and powerful user interface on the 3DEXPERIENCE platform so that design engineers can get the benefits of virtual testing for informed technical decisions-makings. It offers:

- Linear simulation setup for structural and steady-state thermal analysis provides interactive access to common functionality in Abaqus
- Linear Static, Frequency, Buckling, Steady-state Thermal and Modal Dynamic analysis types
- Realistic behavior Simulation under all common loading and boundary condition structural loading conditions
- Contact (surface pairs, detection) definition where parts within an assembly can be defined to be initially in contact
- High quality meshing directly on the design geometry, including rule-based meshing
- Automatic mesh generation with tetrahedral elements is provided, including specification of element type.
- Efficient post-processing for the largest of simulation models using distributed HPC resources
- Leverages proven Abaqus technology with accurate structural and thermal simulations in an intuitive workflow
- High performance on multi-core workstations with a modern simulation solution on multi-core distribute HPC clusters
- Always-available embedded compute licensing (up to 4 cores) allows the user to run simulation on the local machine at anytime
- Easily scalable to add non-linearity with other roles (DRD, SSU etc)

## Part of a complete SIMULIA portfolio

Structural Engineer is one of the roles among the complete SIMULIA 3DEXPERIENCE portfolio so manufacturing companies can find adequate solutions to their evolving needs, always in the same user interface. From Design Simulation to Design Optimization to Multiphysics Simulation to Simulation process Management, SIMULIA delivers realistic simulation applications that enable users to explore real world product behavior.

\* Pre requiste may apply

## Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 210,000 customers of all sizes in all industries in more than 140 countries. For more information, visit [www.3ds.com](http://www.3ds.com).

