SIMULIA

3DEXPERIENCE®

3DEXPERIENCE WORKS STRUCTURAL SIMULATION PORTFOLIO

KEY CAPABILITIES	STRUCTURAL DESIGNER	STRUCTURAL ENGINEER	STRUCTURAL PERFORMANCE ENGINEER	DURABILITY PERFORMANCE ENGINEER	STRUCTURAL MECHANICS ENGINEER	DURABILITY AND MECHANICS ENGINEER
INTEGRATION WORKFLOW						
SOLIDWORKS® Connector Save SOLIDWORKS data on the cloud-based **3D**EXPERIENCE® platform directly from SOLIDWORKS	*	*	*	*	*	*
Full Design Associativity Enable efficient what-if scenarios that update your simulation model for any change made with a CAD application connected to the platform	●	●	●	●	●	●
USER INTERFACE						
User Assistant Follow an interactive wizard to set up, run, and review results of simulations	●	●	●	●	●	●
Physics Methods Reuse Customize the User Assistant to streamline the setup and solving of complex simulations			●	●	●	●
PLATFORM						
Data Access and Management Access the latest product design information from a single, centralized, secure location on the cloud	●	●	●	●	●	●
Engineering Collaboration Collaborate in real time, exchange ideas, and manage tasks across disciplines on the cloud	●	●	●	●	●	●
Lightweight Results Review Review and share simulation results in real time on the cloud	●	●	●	●	●	●
SOLVING TECHNIQUES						
Abaqus Implicit Static Analysis Solve static problems of deformable parts and assemblies	●	●	●	●	●	●
Abaqus Implicit Dynamic Analysis Solve nonlinear transient and quasi-static problems such as snap fits			●	●	●	●

DASSAULT SYSTEMES

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Abaqus Explicit Dynamic Analysis Solve nonlinear dynamic problems such as drop test and impact					●	●
fe-safe Durability Analysis Solve linear and nonlinear fatigue analysis with stress-based and strain-based fatigue methods allowing high-cycle and low-cycle fatigue analysis				●		●
SCENARIO						
Linear Analysis Run static, thermal (steady-state), frequency, and buckling studies with frictionless contact interactions and small sliding	●	●	●	●	●	●
Advanced Linear Analysis Run modal transient and model harmonic studies		●	●	●	●	●
Nonlinear Analysis Run nonlinear static, thermal (transient), visco/creep studies and axisymmetric idealization of 3D models			●	●	●	●
Advanced Nonlinear Analysis Study explicit dynamic, post-buckling, random vibrations, complex frequencies (with possible preloading effects), piezoelectric response, and unstable collapse of nonlinear structures					●	●
Sequential Multi-Step Simulations Set up automatic sequential loading in one simulation			●	●	●	●
Abaqus General Contact Automatically set up component contact	●	●	●	●	●	●
Design Exploration Find the best design based on performance objectives, working with SOLIDWORKS and **3D**EXPERIENCE parameters					●	●
Durability Analysis Run realistic fatigue loading defined by any number of structural events from elastic or elastic-plastic structural analysis; multiple load events can be used to replicate entire test schedules, including inter-event transitions and manufacturing effects				●		●
MODEL						
Connections Set up modeling of multiple components in an assembly	●	●	●	●	●	●
Comprehensive Meshing Capabilities Create high-quality meshes for solids, shells, and beams		●	●	●	●	●
Rule-Based Meshing Set meshing size and specifications (holes, fillets) for automatic high-quality mesh creation		●	●	●	●	●
Model Assembly Design Apply automated modeling to rapidly set up a simulation model mesh on a complex assembly			●	●	●	●

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Geometry Preparation & Simplification Automatically remove undesired geometry (holes, fillets, logos), extract mid-surface, and partition geometry for hex meshing					●	●
MATERIALS						
Nonlinear Materials Explore a wide range of materials including the following properties: hyper-elasticity, plastic or permanent deformation, creep deformation, viscoelasticity, and more			●	●	●	●
Fatigue Materials Use database of fatigue materials with high-quality stress- and strain-based data for over 350 common materials				●		●
Material Calibration Use test data to calibrate model behavior					●	●
RESULTS						
Basic Post-Processing Tools Generate reports, contour/vector/iso-surface plots	●	●	●	●	●	●
Advanced Post-Processing Tools Create XY plots (field, history), path plots, view cuts		●	●	●	●	●
Material Rendering Create stunning visuals coupling material rendering with simulation results		●	●	●	●	●
High-Performance Visualization Accelerate the visualization of results, even on large models		●	●	●	●	●
COMPUTATION						
Local and Cloud Computing Run simulations on your local computer or in the cloud	●	●	●	●	●	●
High Performance Computing (HPC)* Expand the computing capacity of your local computer and on the cloud	●	●	●	●	●	●

● *Included*

* *Requires an additional role*

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