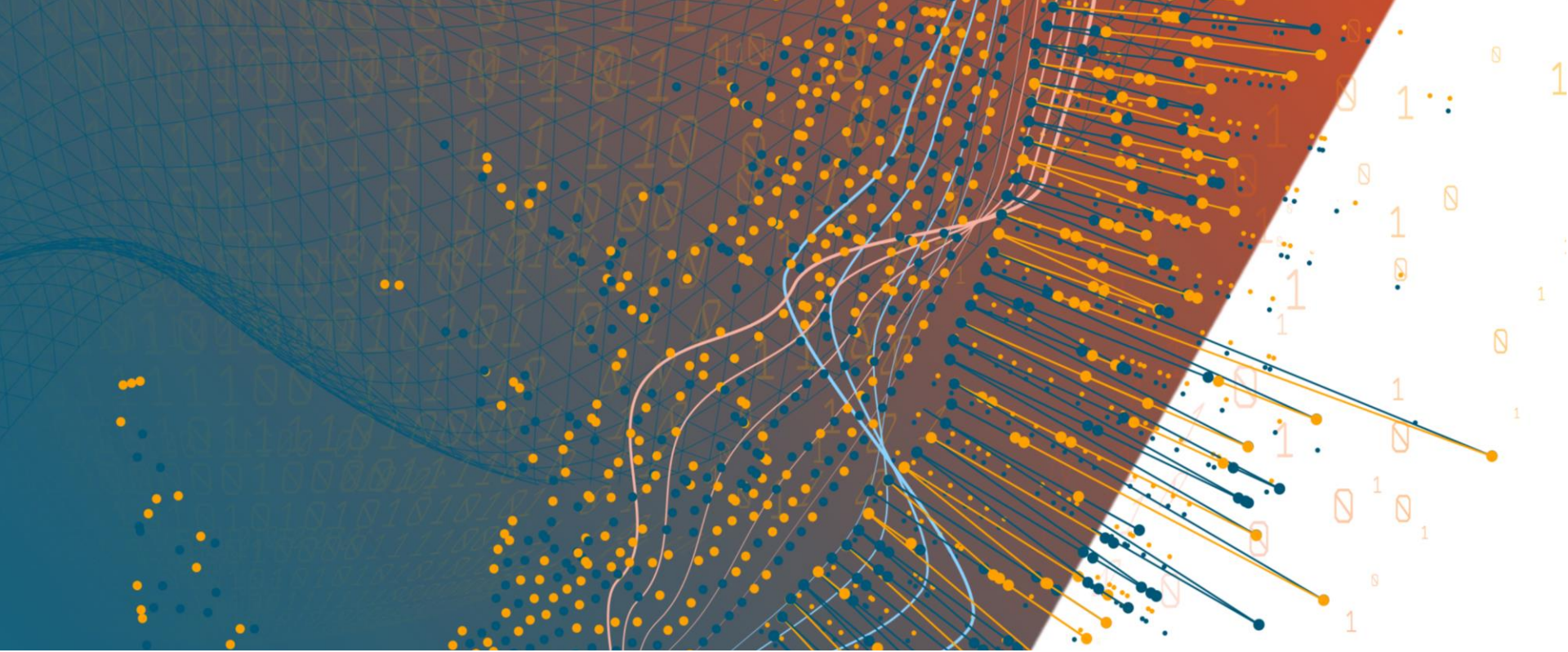

SimSolid Quick Overview
Module 7: Inspire / SimSolid Solver

Sebastian Karp ● Senior Application Engineer
Simon Zwingert ● Senior Technical Consultant
March 19th 2021

SimSolid Vision - A new paradigm for simulation

Altair **SimSolid** is **structural simulation** that operates directly on **original, un-simplified CAD assemblies**, **does not create a mesh..**

..and provides results in **seconds to minutes**

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• Module 1: Introduction	February 5th 2021
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	(all Fridays)

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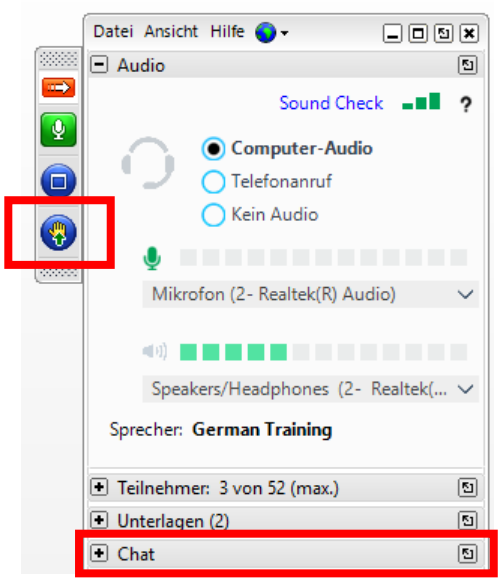
Organisational

- Session is recorded
- Q/A-block at end of session (not recorded)
- Raise hand and audio will be activated or use chat for questions
- Combined presentation of all modules can be shared



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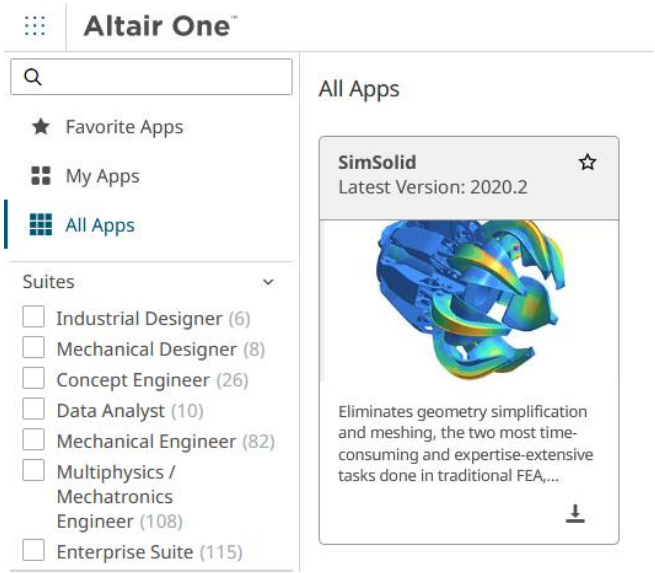
Have a look at…

- Contact us for later communication etc. - trainings@altair.de
- Check out www.altair.com/SIMSOLID

- Download - www.altairone.com



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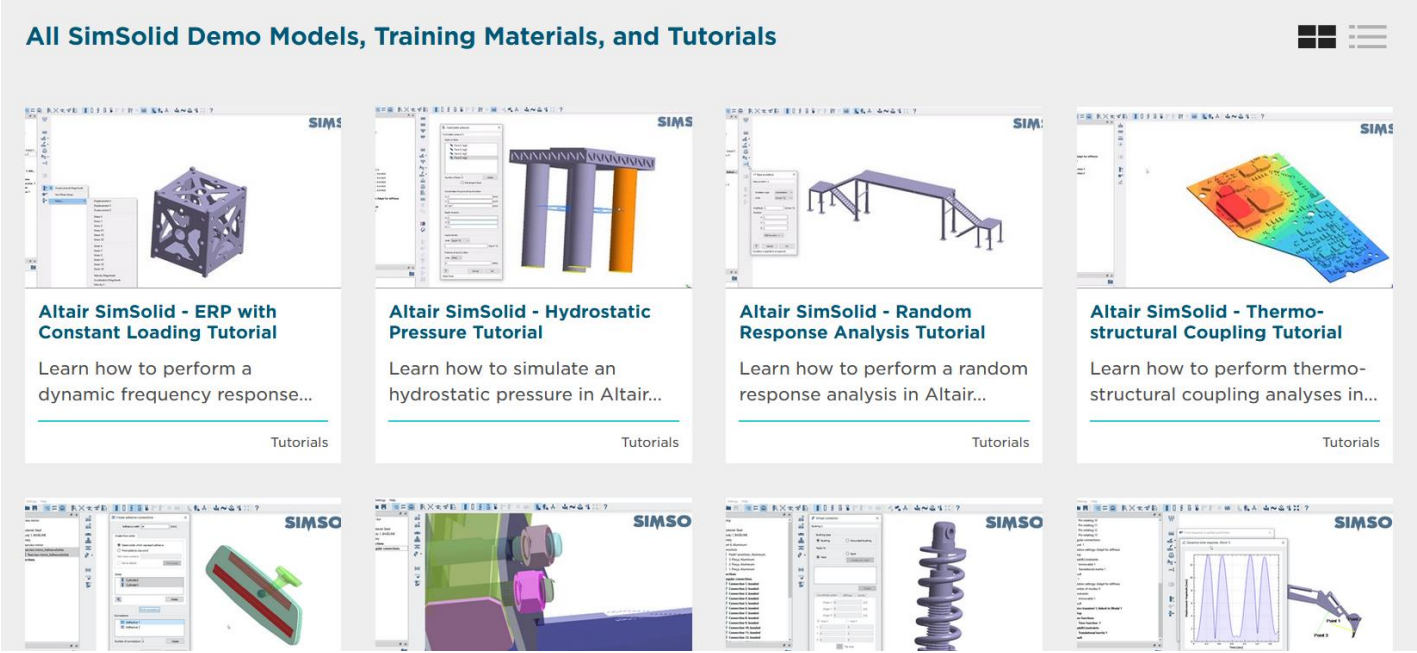
Have a look at…

- **www.altair.de/resource/altair-simsolid-tutorial-projects**



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POLL

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INSPIRE SIMSOLID SOLVER

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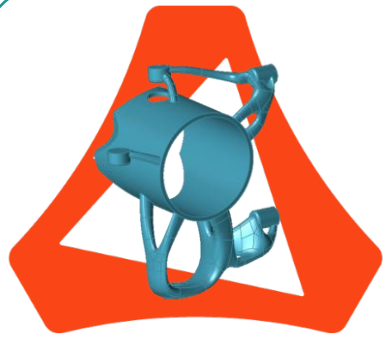
ALTAIR Softwaresuite

What is the difference?



Inspire Simsolid

- **Linear** platform
- **Geometrical** modification
- Highly automated
- **Easy** to **use**
- New **Unity GUI**
- **Limited analysis types**
- **Fast** and **accurate**

SimSolid Standalone

- **Nonlinear** platform
- Fast design studies
- Highly automated
- **Fatigue analysis**
- **Fast** and **accurate**
- **Easy** to **use**

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Notable features

Solutions

- Modal
- Linear Statics
- Nonlinear Statics
- Frequency Response
- Linear Transient
- Random Response
- Thermal
- Inertia Relief
- Bolt Pretension
- Linear Superposition
- Partial dynamic response
- Fatigue
- Linearized stresses

Materials

- Isotropic
- Elastoplastic
- Rigid
- User Extensible
- Orthotropic

Connections

- Auto-connections
- Bonded, Sliding and Separation with Friction
- Bolts
- Spot Welds
- Solid Seam Welds
- Bushings
- Rivets
- Virtual Connectors
- Adhesives
- Joints

Results

- Contours and Animations
- Displacements, Stresses/Strains
- Frequencies and Mode Shapes
- XY Plots
- Modal Participation Factors
- Forces: Reaction, Contact, Bolts and Weld
- Min/Max Labels
- Safety Factors
- Bookmarks
- Total strain energy

Supported by Inspire

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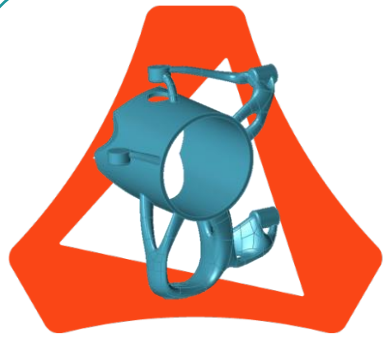
What is the difference?



Inspire Simsolid

ONE DATABASE

ONE SOLVER

ONE LICENCE

SimSolid Standalone

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VERIFICATION VS. FE

Verification Manual

NAFEMS about SimSolid

SimSolid in the News

Benchmark	Description	Quantity	Target Solution	SimSolid Results	SimSolid Discrepancy
1	Pressure component	Von Mises stress	534MPa	532MPa	<1%
2	Coil spring	Spring rate	20.8N/mm	20.76N/mm	<1%
3	Skew plate	Maximum principal stress	0.82MPa	0.82MPa	<1%
4	Plate with hole	Maximum principal stress	314MPa	325.7MPa	3.7%
		Minimum principal stress	-114MPa	-117.9MPa	4.2%
5	U-shaped notch	Maximum principal stress	48.2MPa	47.6MPa	1.2%
6	Cantilevered plate	Mode 1	0.42Hz	0.42Hz	<1%
		Mode 2	1.02Hz	1.02Hz	<1%
		Mode 3	2.58Hz	2.56Hz	<1%
		Mode 4	3.29Hz	3.27Hz	<1%
		Mode 5	3.75Hz	3.72Hz	<1%
7	Cantilever under pure bending	Sxx	221MPa	221.7MPa	<1%
		Uz	0.0247m	0.0247m	<1%
8	Cantilever realistic support	S_{VM}	356.5MPa	366.5MPa	2.8%

A summary of results for all benchmarks(NAFEMS)

Check for Other Media Testimonials:

DE247 Digital Engineering

https://www.digitalengineering247.com/article/altair-simsolid-walkthrough/simulate

DEVELOP3D

https://www.develop3d.com/reviews/review-altair-simsolid-simulation-CAD-design-engineering

https://www.nafems.org/publications/resource_center/bm_jan_20_1/

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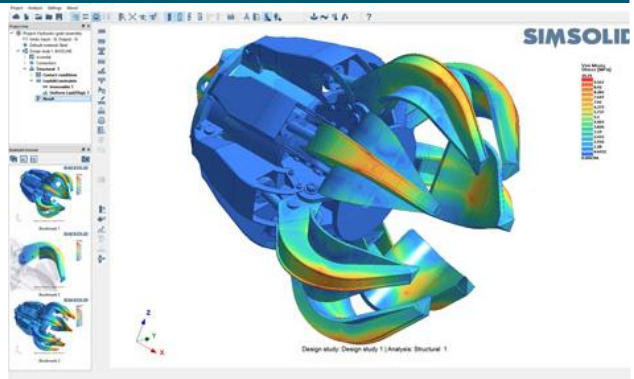
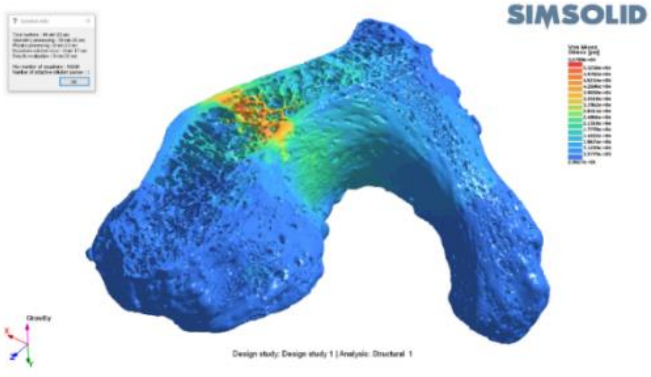
JOIN THE SIMULATION REVOLUTION

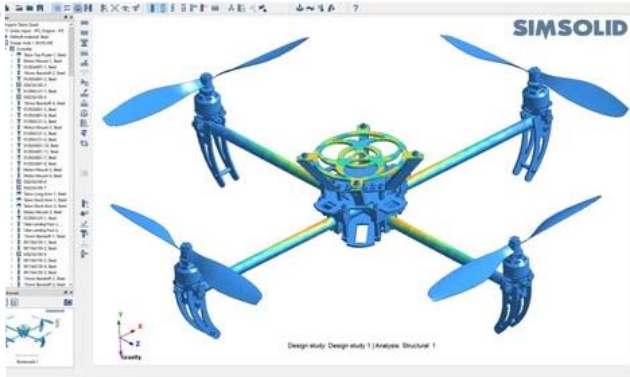
Fast, Easy to Use & Accurate



Expand What is Possible to Solve



Enables Simulation Driven Design



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- Contact: **trainings@altair.de**
- or give feedback after meeting finished

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QUESTIONS / ANSWERS

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THANK YOU

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#ONLYFORWARD

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