

ATA news

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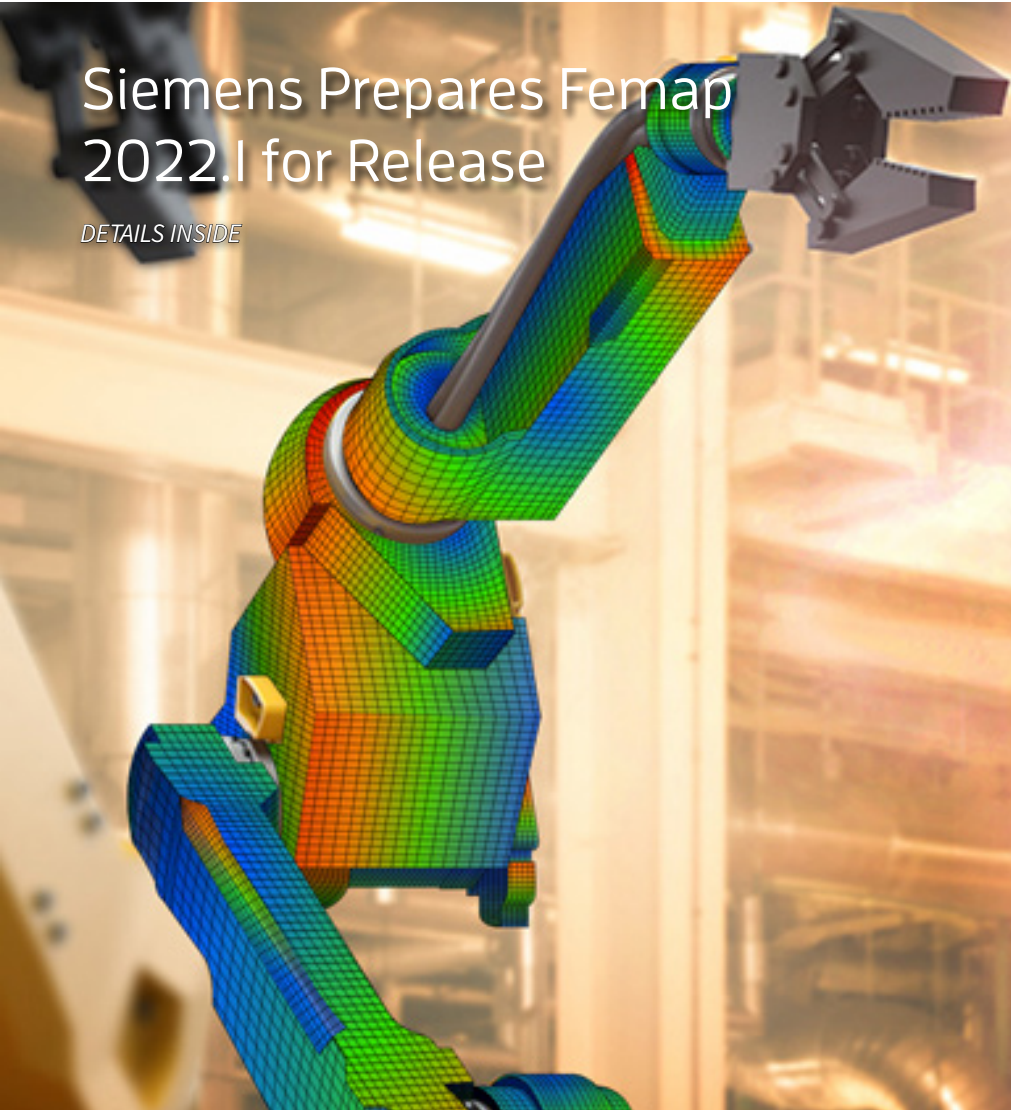
ISSUE 25



FALL 2021

Siemens Prepares Femap 2022.1 for Release

DETAILS INSIDE



Product Spotlight: Simcenter Amesim

The value of high-fidelity engineering simulations is well recognized, from response dynamics in Femap and multiphase flow and thermal in STAR-CCM+ to nonlinear durability and fatigue analysis in Simcenter 3D. However, simulating complex modern products is challenging since they consist of many interconnected components, each with its own area of physics and interactions. In addition, early-stage conceptual products may not yet have the detailed design information required to model them with full fidelity.

Simcenter Amesim, Siemens' Model-Based Systems Engineering (MBSE) toolkit, is a 1D systems modeling software that allows even the most complex systems to be modeled with surprisingly accurate results. Amesim allows an engineer to model systems including mechanical, electronic, fluid, and thermal components and controls, all in a holistic model that can predict the performance of the full system in a time-transient manner that takes into account time-dependent inputs and ongoing changes.

Amesim runs in seconds, allowing these system models to study hundreds of design variants while a project is still in the conceptual stage so the design can be optimized when changes are the least costly to implement. System simulation with Amesim enables design engineers to evaluate system performance virtually, make better design choices, and reduce costs and development time to improve product quality.

[Learn more](#) and [contact us](#) to discuss your project today.



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Siemens Prepares Femap 2022.1 for Release

Siemens is preparing for the imminent release of Simcenter Femap 2022.1. [Visit the Support Center](#) once it's available to download the software and generate updated license files.

This release delivers a variety of exciting enhancements to improve analysis workflows and the overall user experience:

- The Entity Display Toolbar now allows users to quickly toggle various entity labels on and off.
- The new hex-dominant mesher generates a high-quality mesh where the large majority of elements are hex elements, without requiring that the geometry be subdivided into sweepable areas. The remaining volume is filled with a combination of wedge, pyramid, and tetrahedral elements. A new command to refine mapped hexahedral meshes is also introduced.
- Support is added for SOL 402 kinematic joints and flexible sliders that allow analyses of assemblies with moving parts.
- Help documentation is available in HTML format, which enables the use of browser bookmarks and makes the documentation fully searchable.
- Options for PARAM, POST,-2 and a new Simcenter Nastran Solution Monitor are available.

Check out [our YouTube playlist](#) for more details on these and other enhancements in Femap 2022.1.

Calendar of Events

UPCOMING TRAINING CLASSES

ATA provides comprehensive training in the use of Femap, Simcenter 3D (formerly NX CAE), and Simcenter Nastran (formerly NX Nastran). Upcoming training classes are shown below. Please visit [our website](#) to sign up for these classes or request a custom class.

FEMAP

JAN 31 [Introduction to Femap](#)

TBA [Advanced Femap](#)

SIMCENTER NASTRAN WITH FEMAP

JAN 10 [Superelement Analysis with Femap for Pre/Post](#)

JAN 24 [Introduction to Dynamic Analysis with Femap for Pre/Post](#)

FEB 07 [Multi-Step Nonlinear with Solutions 401 and 402 with Femap for Pre/Post](#)

FEB 14 [Introduction to Finite Element Analysis with Femap for Pre/Post](#)

MAR 14 [Advanced Dynamic Analysis with Femap for Pre/Post](#)

SIMCENTER NASTRAN WITH SIMCENTER 3D

JAN 10 [Superelement Analysis with Simcenter 3D for Pre/Post](#)

JAN 24 [Introduction to Dynamic Analysis with Simcenter 3D for Pre/Post](#)

FEB 07 [Multi-Step Nonlinear with Solutions 401 and 402 with Simcenter 3D for Pre/Post](#)

FEB 14 [Introduction to Finite Element Analysis with Simcenter 3D for Pre/Post](#)

MAR 07 [Response Dynamics](#)

MAR 14 [Advanced Dynamic Analysis with Simcenter 3D for Pre/Post](#)

ALL CLASSES CAN BE SCHEDULED ON REQUEST.

ATA also provides a host of [free training resources](#) including tutorials, videos, and whitepapers.

Tips and Tricks

STAR-CCM+: CUSTOM TREES

Simcenter STAR-CCM+ is a comprehensive multiphysics simulation software that exists as an all-in-one package containing all necessary preprocessing tools to define CAD and mesh, a powerful solver, and high-end postprocessing capabilities. The general applicability of the software to a multitude of physics brings with it the consequence that the user has to navigate a large and multilevel simulation tree to interact with the simulation, but the large amount of items in the simulation tree can become overwhelming and difficult to navigate, resulting in user fatigue and loss of efficiency. Simcenter STAR-CCM+ provides the user the option to create a Custom Tree by simply dragging and dropping the simulation tree nodes that they want to interact with into the Custom Tree. This can vastly simplify the tree that the user has to work with and create a more efficient and comfortable user experience.

FEMAP: REPEAT LAST COMMAND AND CUSTOM SHORTCUTS

Femap makes it easy to quickly repeat the last command using the CTRL+Y keyboard shortcut. This effect can also be accomplished by right-clicking and selecting Previous Command. Give this shortcut a try to save time whenever you're interested in repeating a command.

Femap has a wide variety of keyboard shortcuts like CTRL+Y by default and also gives users the option to further modify or create their own shortcuts. Access these options by right-clicking in the toolbars area, selecting Customize, and opening to the Keyboard tab.

New Resources

[On-Demand Webinar: Understanding Aircraft Flutter and Predicting It with Simcenter 3D and Nastran](#)

Flutter is a dynamic aeroelastic instability that causes dangerous oscillation of wings or other aircraft surfaces and can lead to catastrophic structural failure. This webinar covers the fundamentals you need to understand and avoid flutter and features a flutter analysis demonstration with Simcenter 3D and Simcenter Nastran.

[On-Demand Webinar: HEEDS Automated Design Space Exploration Helps Bohning Optimize Arrow Vane Design](#)

This webinar highlights how digital tools, including process automation, simulation, and design space exploration, can change your design approach for almost anything—including an arrow! The webinar showcases how design space exploration with trajectory analysis can identify better designs automatically and presents a nearly hands-off workflow developed by ATA to design a new crossbow arrow vane with improved arrow performance.

[On-Demand Webinar: Meshless DEM in STAR-CCM+: Overview and a Worked Example](#)

In recent years, industrial bulk materials handling and processing equipment has become more complex, sophisticated, and capable, reflecting global trends toward faster production of high-quality products. Many particle-handling processes also involve complex geometries and combinations of different physics: examples include fluidized bed reactors with intricate shapes, and particle melting in 3D printing. The webinar focuses on the Discrete Element Modeling (DEM) functionality in STAR-CCM+ and shows how the latest version of STAR-CCM+ can run without a computational mesh for CFD, reducing computation time.

[On-Demand Webinar: System Simulation of Urban Air Mobility Aircraft](#)

The design of any electric aircraft involves multiple technical areas, including aerodynamics, thermal dynamics, electromagnetics, battery chemistry, thermal management, lift, propulsion, controls, and many more. This on-demand webinar uses a battery-electric VTOL aircraft as an example to show how system modeling can be leveraged to accelerate the investigation and design of urban air mobility concepts.

Recent News

Siemens Releases STAR-CCM+ 2021.3

The recent release of STAR-CCM+ 2021.3 brings a number of exciting new features to increase modeling fidelity and streamline simulation workflows. These include a new integrated workflow for faster electrothermal battery simulations and a new mesh-free Discrete Element Method (DEM) approach that saves time by eliminating the need for volume or overset meshes. Additional enhancements include faster mesh generation for aerodynamic simulations and a new method for hybrid aeroacoustic simulations of HVAC systems. Discover more on the [Simcenter blog](#).

December 2021 NX Release is Available

Check out the [NX Design blog](#) for more details about the exciting enhancements in the December 2021 (2007 Series) release of NX.

Discover What's New in Simcenter 3D 2022.1

[Register now](#) for the upcoming YouTube Premier event on January 11 to learn more about the newest features available in the recently released Simcenter 3D 2022.1.

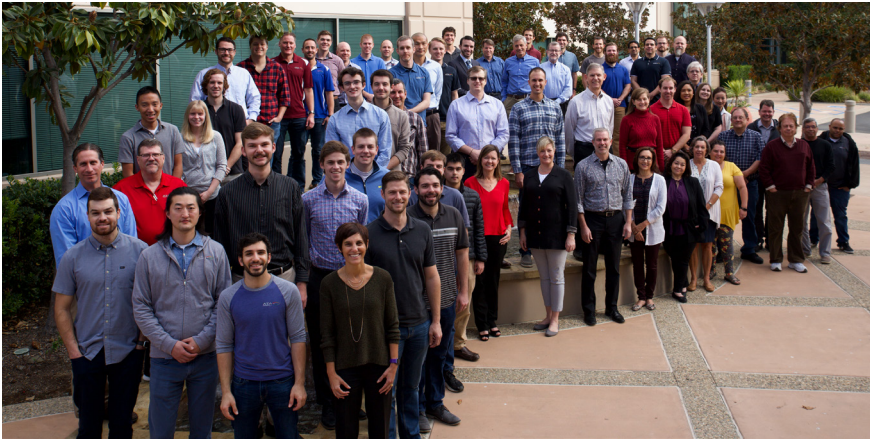
ATA Releases Vibrata 4.0.1 and IMAT 7.8.0

Vibrata 4.0.0 and 4.0.1 deliver new capabilities that allow users to define custom nonlinear forcing functions and add custom postprocessing. Enhanced support is also available for calculating composite failure indices and force limiting. [Learn more](#).

IMAT 7.8.0 enhancements include the new MIFODS application, customizable time-domain filtering, and capability for processing complex stress and strain input for von Mises calculations. [Learn more](#).

Save the Date: Realize LIVE

Realize LIVE is coming to Las Vegas May 9-12, 2022. Mark your calendars and [check back soon](#) for registration details.



Why choose **ATA**?

ATA Engineering is a nationwide provider of innovative, high-value, test- and analysis-driven mechanical engineering design solutions.

With more than four decades of experience working with our customers to solve the most challenging design, test, and analysis problems, we have gained a reputation for excellence in the engineering community.

Our work on a wide range of products across a broad spread of industries has been recognized with numerous technical and service awards for excellence. This expertise and support is a key part of the added value we offer to all customers who purchase Siemens products from us, whether you are an independent contractor or a large engineering team. To provide best-in-class support to our VAR software customers, we have established a formal hotline system that provides on-demand support to resolve technical issues encountered by our customers in their implementation of the tools.

The hotline is staffed by experienced engineers, all of whom use these applications on a regular basis. ATA is also the Siemens preferred training provider and official developer of courseware for all Simcenter Nastran training.

ATA Technical Support

Need technical assistance? Call our hotline staffed by engineers at **877-282-4223**, or [visit us online](#). Even if you're not a current ATA customer, try us out for free.

Free Software Trials

[Contact us](#) for more information about free trials/demos of Femap and Simcenter Nastran, NX CAD and CAM, Simcenter 3D, Simcenter STAR-CCM+, Teamcenter, and Solid Edge.



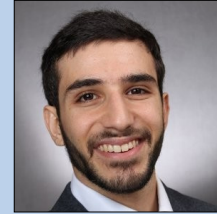
Solution
Partner
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Digital Industries
Software

SIEMENS

ATA Engineering, Inc., is recognized as a Smart Expert Partner with validated expertise in Femap, Simcenter 3D, and STAR-CCM+.

Featured Instructor

Aaron Atzil



Mr. Atzil is a Project Engineer in ATA's San Diego office. Since joining ATA in 2017, Mr. Atzil has specialized in aerospace structural analysis and has supported high-profile projects, including NASA's Perseverance rover and new ISS module development, where he leveraged his extensive knowledge of Femap, Simcenter 3D, and Simcenter Nastran to deliver high-quality analysis. Mr. Atzil has experience with linear statics, buckling, and sine and random vibration solution types, as well as creating and managing large FEM assemblies and developing high-quality thermal distortion models for sensitive optical payload assemblies. He is also among ATA's experts in use of the Simcenter Nastran Multi-Step Nonlinear solution types.

Mr. Atzil is an instructor for the Introduction to Femap course and has served on the CAE hotline for nearly his entire time with ATA. He enjoys helping others to get the absolute most from Femap, Simcenter 3D, and Simcenter Nastran.

Mr. Atzil received his Bachelor's degree in Engineering from Harvey Mudd College and his Master's degree in Mechanical Engineering from Rice University, where he studied nonlinear tuned mass dampers and other nonlinear phenomena.

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