

# ATA news

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ISSUE 28



FALL 2022



## ATA Adds Siemens Simcenter Testing Solutions to Offerings

DETAILS INSIDE

## Simcenter 3D 2206 Adds NX Join Features and More

[NX Join](#) was introduced a few years ago to streamline the definition and placement of fasteners, rivets, and spot welds with established relationships between parent parts. The features appear in the part navigator, custom attributes can be configured as needed, and a sample hardware library can be expanded or linked to existing hardware libraries.

New in version 2206, Simcenter 3D can automatically create [Universal Connection](#) definitions in the finite element model (FEM) from NX Join features. Once the connections are created in the FEM, changes to the original NX Join features in NX will propagate through to Simcenter 3D to update the FEM connections as needed, which can help reduce errors due to out-of-synch models. Learn more in the [Simcenter 3D blog](#).

Simcenter 2206 delivers a number of other exciting enhancements, including the ability to reuse Aerostructures templates, better integration between strength and fatigue analyses, and a new drag and drop functionality for displaying contour displays and XY graphs in the graphics region. Support of visco-thermal effects in Simcenter 3D Acoustics, releasable supports in Flexible Pipe, and new characterization possibilities in Electromagnetics have also been included. [Learn more](#) about these and other enhancements in Simcenter 3D 2206.

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[www.ata-e.com](http://www.ata-e.com)  
**844-756-7638 (844-PLM-SOFT)**  
[plm\\_sales@ata-e.com](mailto:plm_sales@ata-e.com)

# ATA Adds Siemens Simcenter Testing Solutions to Offerings

Expanding our role as a leader in the development of innovative test and analysis methods for aerospace and defense structures, ATA is excited to have recently been selected by Siemens to be their exclusive US value-added reseller (VAR) for Simcenter Testing Solutions. These new offerings combine high-speed multi-physics data acquisition hardware with a full suite of integrated testing, analytics, and modeling tools for a wide range of test-based performance engineering in the core fields of acoustics, vibration, and durability.

Simcenter Testlab software has been designed to offer test and simulation teams new capabilities to collaboratively innovate smart products more productively while managing tight schedules. It covers every step of a typical test campaign, from instrumentation, monitoring, and data collection to validation, analysis, verification of performance requirements, and reporting.

Simcenter SCADAS hardware includes portable solutions, compact mobile units and autonomous smart recorders, and rugged data acquisition systems, as well as high-channel-count laboratory systems. Every device can be seamlessly integrated with dedicated and tailored software packages for accelerated measurement setup and correctly formatted results and analysis.

Simcenter Testing Solutions give engineers the scalable and versatile tools needed for recording accurate measurements during all stages of product development. Stay tuned for additional information; in the meantime, [contact us](#) with any questions or inquiries.

# 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.

In-person classes have now resumed. All classes can be scheduled by request.

Our 2023 training schedule will be released soon.

### FEMAP

**TBA** [Introduction to Femap](#)

**TBA** [Advanced Femap](#)

### SIMCENTER NASTRAN WITH FEMAP

**NOV 14** [Multi-Step Nonlinear with Solutions 401 and 402 with Femap for Pre/Post](#)

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

**TBA** [Introduction to Dynamic Analysis with Femap for Pre/Post](#)

### SIMCENTER NASTRAN WITH SIMCENTER 3D

**NOV 14** [Multi-Step Nonlinear with Solutions 401 and 402 with Simcenter 3D for Pre/Post](#)

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

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

### WEBINARS

**SEPT 28** [Optimization of Hypersonic Engines with STAR-CCM+ and HEEDS](#)

STAR-CCM+ can accurately predict high-speed flow phenomena including the existence of shock waves, shock-boundary-layer interaction, and high aerothermal loads. With STAR-CCM+, vehicle designers are equipped with powerful tools that can account for the extreme structural and thermal loads present in the hypersonic environment. In this webinar, we will demonstrate the use of HEEDS and STAR-CCM+ in investigating subtle variations in Scramjet design to improve performance. Along the way, we'll highlight how HEEDS is able to optimize design performance over a range of Mach numbers and operating conditions with no analyst intervention needed.

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

# Tips and Tricks

## STAR-CCM+: REMOVE REDUNDANT EDGES

Oftentimes, CFD analysts need to idealize geometries to remove unnecessary geometrical features. Features in the CAD may be important to the mechanical design of the device while being irrelevant to the flow problem. Candidates for idealization may be fasteners, thin structural members, or features that are located far from the region of interest. These features can be removed in STAR-CCM+ 3D-CAD by using the Defeature Bodies tool or by using a combination of the delete and Fill Holes tools.

Although the removal of the feature may result in a smooth geometrical facet on which to build a surface mesh, the deleted feature's ghost may continue to haunt the analyst due to the fact that the edges where the feature contacted the rest of the geometry still remain. These edges are respected by the surface mesher, and they can lead to unnecessarily high mesh concentrations in their vicinity. In 3D-CAD, these edges can be easily identified and removed using the Remove Redundant Edges tool. The tool detects unnecessary edges, highlights them for inspection by the analyst, then, upon confirmation, gets rid of them.

## NX: REUSE LIBRARY

The Reuse Library navigator can be used to access reusable objects and components in your model or assembly. Examples of objects that can be added to the reuse library include sections, faces, features, bodies, or parts.

NX comes with an example library with common inch and metric bolts, washers, nuts, pins, and screws. A reuse library can also be created on a shared drive folder, providing multiple users with access. You can also save a frequently used feature or object in your model as a reusable object to standardize components companywide across programs or simply save time not recreating the same components over and over again.

The components used in the reuse library can also be dynamic where certain dimensions of the object are able to be adjusted before import. An example of using this feature could be having a library of common 80/20 aluminum extrusion shape profiles where the length of the extrusion can be adjusted. Check out the [NX Documentation](#) for more details.

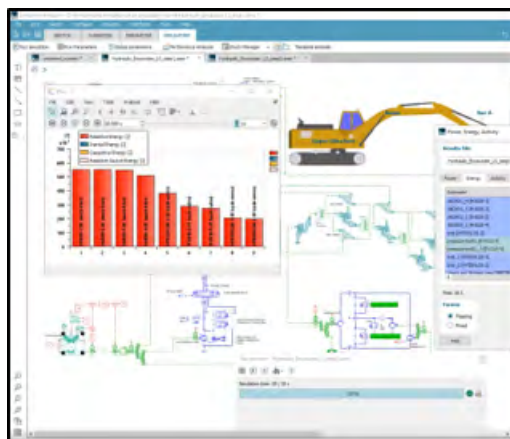
# New Resources

## [On-Demand Webinar: System Simulation for Optimization of Heavy Equipment](#)

This webinar describes how Model-Based Systems Engineering (MBSE) with Simcenter Amesim empowers industrial and heavy equipment manufacturers to understand and optimize performance of new design concepts throughout a product's design cycle.

A diesel-powered hydraulic excavator model is used to demonstrate how Amesim can pinpoint the components with the highest energy losses, and, after replacing the hydraulic swing motor with an electric motor and hybridizing the power system, fuel consumption will be compared to the original diesel excavator.

In addition, this webinar describes how Amesim allows users to integrate subsystem models for large and complex systems and can be extended with reduced-order modeling or co-simulation.



# Recent News

## ATA's Southeastern Regional Office Moves to Accommodate Growth

ATA's Huntsville, Alabama, operations recently relocated to a new facility with over 10,000 square feet, including more office space and a lab facility. The new space allows ATA to sustain our significant growth within the thriving regional aerospace and defense sectors by increasing our engineering workforce to provide enhanced, exceptional localized support. Learn more on [our website](#).

## ATA Engineering Releases Vibrata 4.0.3

Vibrata is a comprehensive, easy-to-use, advanced dynamics toolkit to predict stress, deflection, and other responses to transient, harmonic, random, and response spectrum excitation. In addition to important bugfixes, recent enhancements include support for Femap 2022.1 and 2022.2 and MATLAB R2022a. Learn more about Vibrata [here](#).

## Register Now for NX and Simcenter 3D 2212 Early Access Programs

The Simcenter 3D Early Access Program (EAP) offers users a sneak-peak at the latest enhancements and a chance to help influence what the next release has in store. Virtual presentations showcasing the new features will be held October 17-21 ahead of the in-person EAP, which will take place on October 24-28 in Milford, Ohio. Learn more and register [here](#). EAP is also available for both the monthly and biannual functional releases of NX.

## 2022 Femap Symposia Wrap Up

ATA thoroughly enjoyed hosting the final Femap Symposium of the year at our office in Lakewood, Colorado, earlier this month. Thank you to everyone who joined us!





## 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

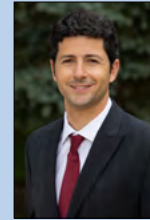
[Contact us](#) for more information about free trials/demos of Femap and Simcenter Nastran, NX CAD and CAM, Simcenter 3D, Simcenter STAR-CCM+, Teamcenter, and Solid Edge.



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

## Featured Instructor

George Antoun



Mr. Antoun is a Senior Technical Advisor in ATA's Lakewood, Colorado, office with expertise in the dynamic modeling and analysis of complex aerospace structures. Over his 19 years at ATA, he has worked on a diverse array of dynamics problems, including Component Mode Synthesis modeling techniques for Coupled Loads Analyses; has supported modal tests by performing pretest analysis to select accelerometer locations and posttest model correlations; and has studied the dynamic behavior of aerospace structures using both linear and nonlinear methods. Mr. Antoun has also developed expertise in using nonlinear finite element approaches and Multi-Body Dynamic analysis codes to study the stowing and deployment behavior of highly packaged space-bound origami structures as well as the deployment and landing of the Curiosity and Perseverance Mars rovers.

Mr. Antoun is a certified instructor for Siemens's Simcenter Nastran superelement course and ATA's IMAT+Modal course focusing on pretest analysis for modal test programs. He also serves on ATA's CAE hotline.

Mr. Antoun received his bachelor of science degree in engineering from Trinity University in San Antonio, Texas, and his masters in engineering mechanics from the University of Wisconsin-Madison, where he studied shape memory alloys.

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-  844.756.7638