

ATA news

[Click to Subscribe](#)

ISSUE FOUR



WINTER 2016



ATA Engineering Performs Vibration Testing of Perlan 2 Glider

[DETAILS INSIDE](#)

ATA Co-hosts 2016 Femap Symposia with Developers

The 2016 Femap Symposia, co-hosted by ATA Engineering and the Femap development team, are half-day events designed to increase your knowledge of Femap and to share tips and tricks that will improve your productivity. The events focus on exploring the robust capabilities and flexibility of Siemens' Femap CAD-independent and solver-neutral finite element analysis and engineering simulation software. Each symposium provides two unique sessions. Morning sessions are dedicated to new users of Femap and include the opportunity to install a free, fully functional trial copy of Femap on a personal laptop—with our staff on hand to get you up and running! Afternoon sessions focus on enabling more experienced users to enhance their efficiency and harness Femap's advanced capabilities. Regardless of your experience level, you are welcome at both sessions.

These free informative events include technical sessions led by industry experts demonstrating useful techniques in various technical areas, a look at what's new in Femap II.3, opportunities to meet some of the Femap developers, and more. If you are interested in dramatically increasing your analysis capability, or getting started with a free disk or trial download, sign up to reserve your seat today!

The event and lunch are complimentary, but seating is limited, so [register now](#) to reserve a space.



www.ata-plmsoftware.com
844-756-7638 (844-PLM-SOFT)
plm_sales@ata-e.com

Calendar of Events	2
Tips and Tricks	3
Recent News	3

inside:

ATA assists in development of groundbreaking Perlan 2 glider

ATA Engineering recently performed the ground vibration test of the Perlan 2, an experimental engineless sailplane designed to glide on air currents to reach an altitude of 90,000 feet at speeds of over 400 mph—conditions where flutter and turbulence pose great risks. To meet these challenges, ATA Engineering was selected to perform the GVT, subjecting the aircraft to controlled vibration and measuring its responses to determine its dynamic characteristics.



ATA is the leading independent company for performing modal and dynamic testing of aircraft, and ATA engineers routinely use Femap to develop the models that facilitate the GVT and subsequent test-analysis correlation.

[Read more](#) about the project, or view a short [time-lapse video](#) of the testing.

Calendar of Events

UPCOMING TRAINING CLASSES

ATA provides comprehensive training in the use of Femap, NX, and NX Nastran. Upcoming training classes and webinars are shown below.

NX NASTRAN WITH FEMAP CLASSES

- APR 4** [NX Nastran Topology Optimization](#)
- APR 11** [NX Nastran Introduction to Finite Element Analysis](#)
- MAY 9** [NX Nastran Advanced Dynamic Analysis](#)
- MAY 11** [NX Nastran Aeroelastic Analysis](#)
- MAY 12** [NX Nastran Introduction to DMAP](#)

NX NASTRAN WITH NX CAE CLASSES

- APR 11** [NX Nastran Introduction to Finite Element Analysis](#)
- APR 18** [NX Response Simulation](#)
- MAY 9** [NX Nastran Advanced Dynamic Analysis](#)
- JUN 6** [NX Nastran Introduction to Finite Element Analysis](#)
- JUN 13** [NX Nastran Introduction to Dynamic Analysis](#)

FEMAP CLASSES

- AUG 16** [Introduction to Femap](#)

UPCOMING SEMINARS AND WEBINARS

- MAR 8** [Femap Symposium: San Diego](#)
- MAR 10** [Femap Symposium: Los Angeles](#)
- MAR 15** [Femap Symposium: Huntsville](#)
- APR 7** [Femap Symposium: Denver](#)
- APR 12** [What's New in Femap 11.3 Webinar](#)

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

Tips and Tricks

FEMAP: CREATE 3-D NODES FROM POINTS

When creating a simple manual mesh, a few specific points on the geometry can be used to create node locations. This capability is built into Femap using the command Mesh > Geometry > Point. Change the Generate option to "Nodes" and select the points that are desired for creating nodes at those locations. The nodes are then automatically generated, for any number of points, simultaneously.

NX CAD: DELETE BODY COMMAND

You may find yourself in a situation where you would like to remove a body from your model but not completely delete it from your assembly or part file. For example, certain operations may generate more bodies than you actually need for a given modeling task. Other operations may create non-associate copies of bodies, and you may want to work with the copy and not alter the original. In such cases, the Delete Body command allows you to prevent certain bodies from being referenced in downstream modeling operations. This command creates an associate feature in the part navigator, so you can always roll back this operation if you find you need the body after all.

Find it by selecting Show Component Groups in the Assembly Navigator background menu or the Tools → Assembly Navigator menu.

NX CAD: CONVERT PART OR ASSEMBLY UNITS

Ensuring that models are in the correct units is one of the most critical tasks that designers and engineers face, and situations frequently arise where models must be converted from one set of units to another. NX allows you to model in length units of inches and millimeters, and ordinarily this cannot be changed after the model has been created. However, Siemens provides a command line utility to convert CAD parts and assemblies from one unit system to another, called `ug_convert_part`. This utility allows you to convert entire assemblies or individual part files. Consider the following example, which converts from millimeters to inches:

```
"C:\Siemens\NX 9.0\UGII\ug_convert_part.exe" -y -in TopAssembly.prt
```

Note that depending on the exact version of NX that you have, you may need to modify the file path. The "-y" flag means that the top level assembly, and all its subassemblies and constituent parts, should be converted, and the "-in" flag indicates that the conversion is to inch units. Before running the command on a .prt file, it may be helpful to run `ug_convert_part` from the command line without any flags or qualifiers, which will print out an informational message describing the various options in more detail.

NX NASTRAN: GROUND CHECKS

Ground checks are a critical part of model debugging. NX Nastran offers ground checks on up to five degree of freedom sets. All models should be checked on the "G" set and the "N" set. Any grounding on the "G" set indicates poorly defined elements, inconsistent coordinate systems, or incorrectly attached DMIG matrices. Any grounding on the "N" set indicates a problem in MPC equations or in R-type element definition. To help identify the cause of the grounding, NX Nastran will write out the forces associated with grounding if the user sets "DATAREC=YES" on the GROUNDCHECK card. Groundchecks on the "A" set can be used to confirm that the correct boundary condition was applied.

You can find additional details in the whitepaper posted on [our website](#).

NX NASTRAN: DMAP SEPARATION CHECKS

ATA often writes DMAP alters to implement features not found in standard Nastran. One such commonly used alter is the separation check, which is a model check that assists engineers in finding grounding errors in their FEM. It serves the same purpose as the Nastran GROUNDCHECK and is often included in aerospace model check requirements. The separation check takes the ratio of the grounding force in each degree of freedom to the corresponding diagonal entry of the stiffness matrix and compares that ratio against a threshold.

You can find this DMAP alter and other useful resources on [our website](#).

Recent News

Siemens announces "Quantum Leap" NX CAE promotion

Siemens PLM recently announced a special promotion on NX CAE. This integrated program includes ten 90 minute webinars, free NX CAE trials, free 90-day subscriptions to Siemens Learning Advantage, and 50-60% off select NX™ CAE products, including NX Advanced Simulation. Whether you are new to NX or are an experienced analyst looking to expand your knowledge and software inventory, this unique promotion offers an opportunity to increase your CAE capabilities at an extremely competitive price. Quantum Leap expires on March 29, 2016, so [contact us](#) for additional details.

ATA tests revolutionary Engine Air Brake

ATA Engineering has designed, analyzed, and tested a novel aircraft drag management device on an FJ44-4A engine, demonstrating the potential of the ATA Engine Air Brake for supporting next-generation quiet aircraft goals without decreasing performance or fuel economy. [Read more](#) about the technology, and see the article below for how NX played a pivotal role.

ATA to present at 2016 PLM Connection

Siemens PLM Connection Americas User Conference 2016 will be held May 16-19 in Orlando, Florida. ATA was selected to present three papers and host one demonstration:

- Using NX in the design, analysis, and manufacturing of a deployable turbofan Engine Air Brake nozzle
- Analysis-driven design of a hexapod isolator via structural optimization and parametric modeling
- Workflows in NX: product and manufacturing information (PMI) for design and analysis
- Knowledge Theater Demonstration: When your team uses NX PMI, it is never "TMI"

[Registration is still open!](#)



Why choose **ATA**?

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

With more than three 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 PLM Software-preferred training provider and official developer of courseware for all NX 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

Interested in trying out Siemens PLM software? Visit our website to access free trials/demos of [Femap and NX Nastran](#), [NX CAD](#), [CAM](#), and [CAE](#), [Teamcenter](#), and [Solid Edge](#).



Featured Software Service Engineer

Kurt Knutson



Kurt Knutson is Manager of Software Services at ATA Engineering, Inc. He has worked primarily on analysis of aerospace flight hardware, including composite structures and instrument payloads. He has managed several large projects and project teams performing analysis on structures to address complex requirements.

Mr. Knutson frequently focuses on process challenges and methods development, and has developed software programs and utilities for engineering automation for ATA projects and customers.

He has an M.S. degree in Mechanical Engineering from the University of California, San Diego and a B.S. in Mechanical Engineering from the University of Minnesota.

-  www.ata-e.com
-  [ata-engineering](https://www.linkedin.com/company/ata-engineering)
-  [@ataengineering](https://twitter.com/ataengineering)
-  sales@ata-e.com
-  858.480.2000

www.ata-plmsoftware.com

Copyright © ATA Engineering, Inc. 2018