



# FEMAP v11.3.2 New Features

A Seminar for Femap and NX Nastran Users

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- Ensuring our clients are utilizing FEA tools in the most effective fashion

## *How We Can Help:*

- Superior technical support and ongoing training
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## *Upcoming Training:*

- Onsite training available upon request
- Next hands-on FEMAP training class will be in mid-to-late April in Portland, Oregon. Specific dates TBD.

Interested in becoming a client, or in training?



Please contact Erik Barber at:  
(503) 962-0287  
[Erik.Barber@AppliedCAx.com](mailto:Erik.Barber@AppliedCAx.com)

## *Support Review:*

"After having worked with a couple of FEMAP suppliers in the past I can say that Adrian at Applied CAx has far exceeded my expectations... We use FEA for vessel design and having the support from Applied that helps break down the core problem to simple examples helps in multiple ways."

— *Nathan*

*Mechanical Engineer*

*Bristol Harbor Group, Inc.*

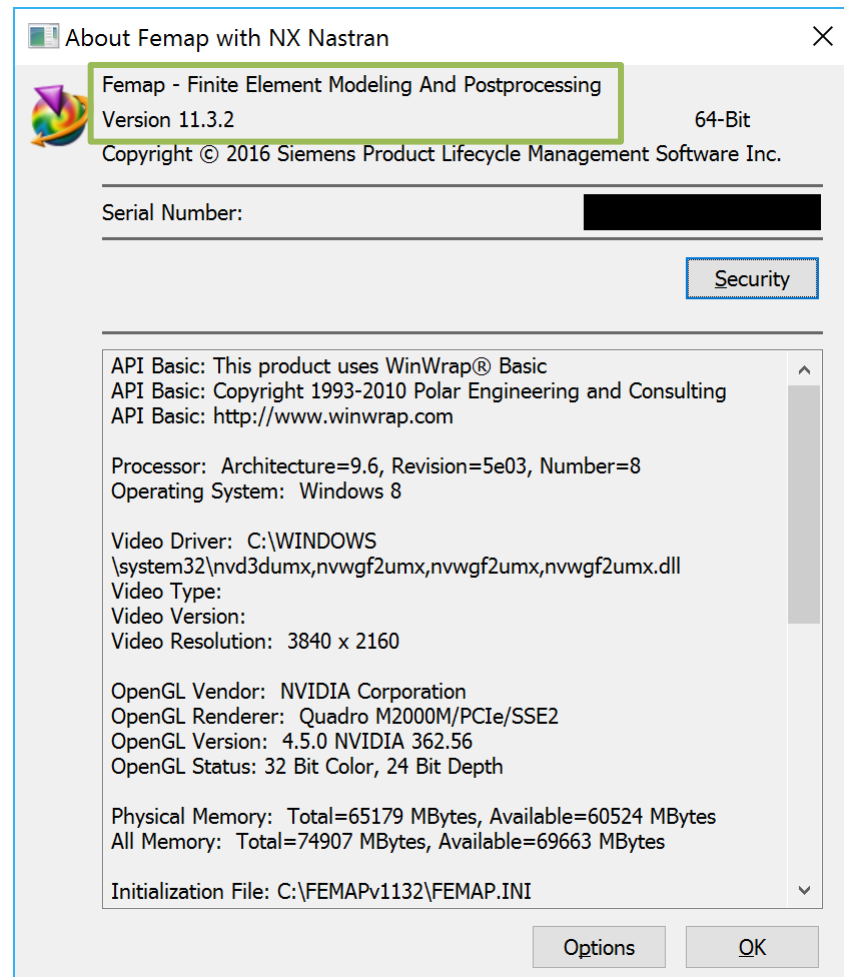
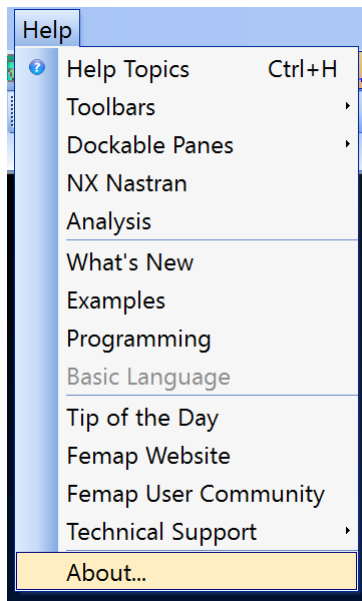


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## 1. IMPORTANT NOTE: UPDATE TO THE LATEST VERSION OF FEMAP

Please ensure you are using the latest version of FEMAP in order to get the best experience possible. At the time of this writing, the latest version is FEMAP 11.3.2. You can check your version using Help > About...

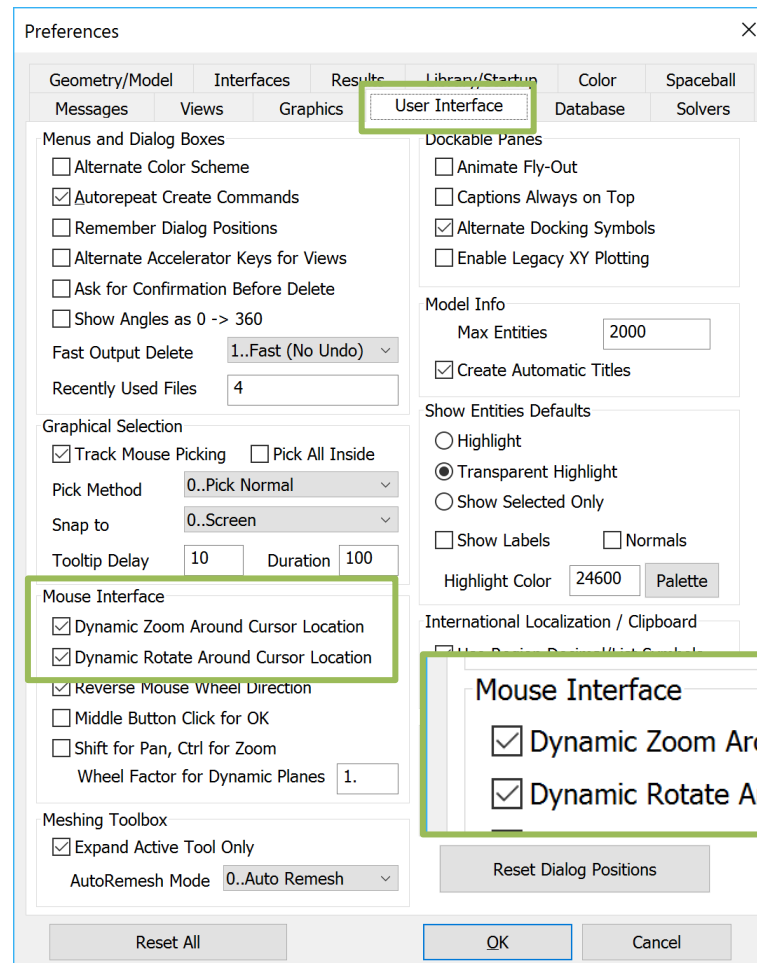


If you are not using the latest version feel free to reach out to Erik Barber for information on how to upgrade.

## 2. PRE-PROCESSING

### 2.1 VIEW CONTROLS

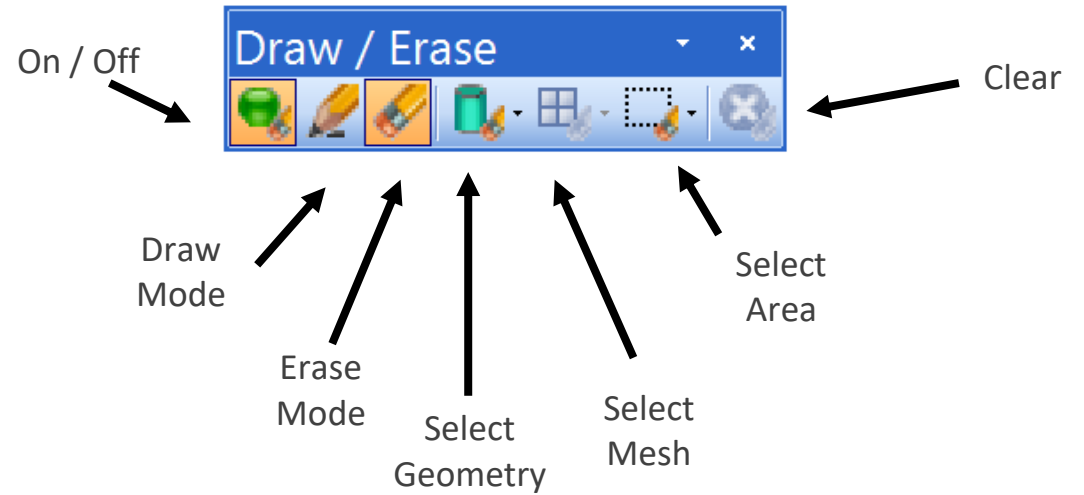
A new feature for Femap 11.3 is the ability to configure a dynamic zoom and rotation around your cursor location instead of the center of your screen or view center.



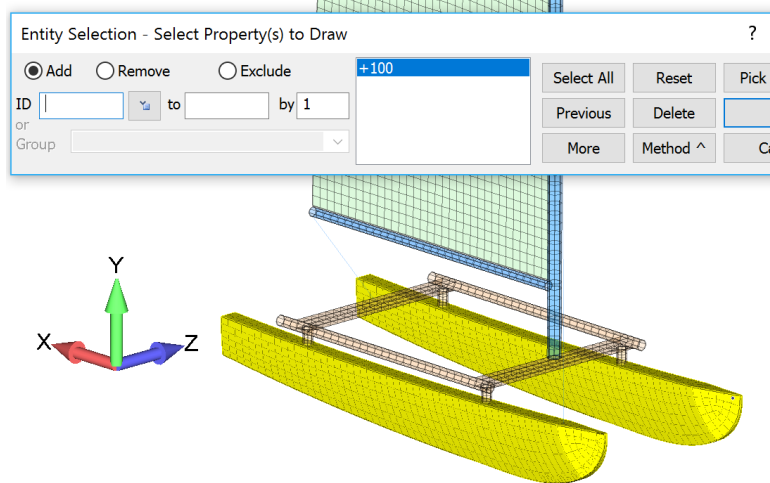


## 2.2 DRAW / ERASE TOOLBAR

The Draw / Erase toolbar is a useful new tool for navigating your model by selecting Entities to show, or to hide.



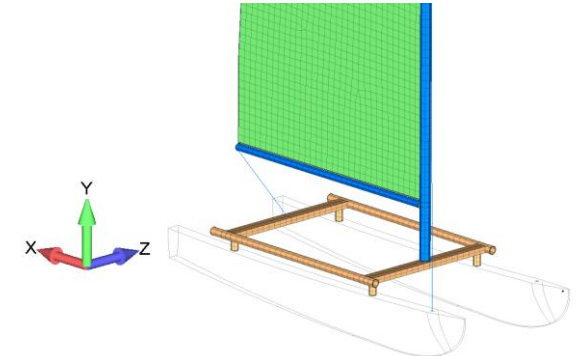
### Select by Property



### Draw Only



### Erase Only




















### 3. MESHING

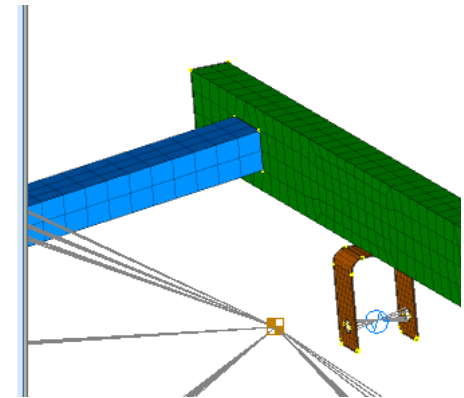
#### 3.1 PROPERTY TYPES

Each property type is displayed with a distinct property symbol. This is especially helpful when you have many beam elements of different cross sections in a model.

#### **I Properties**

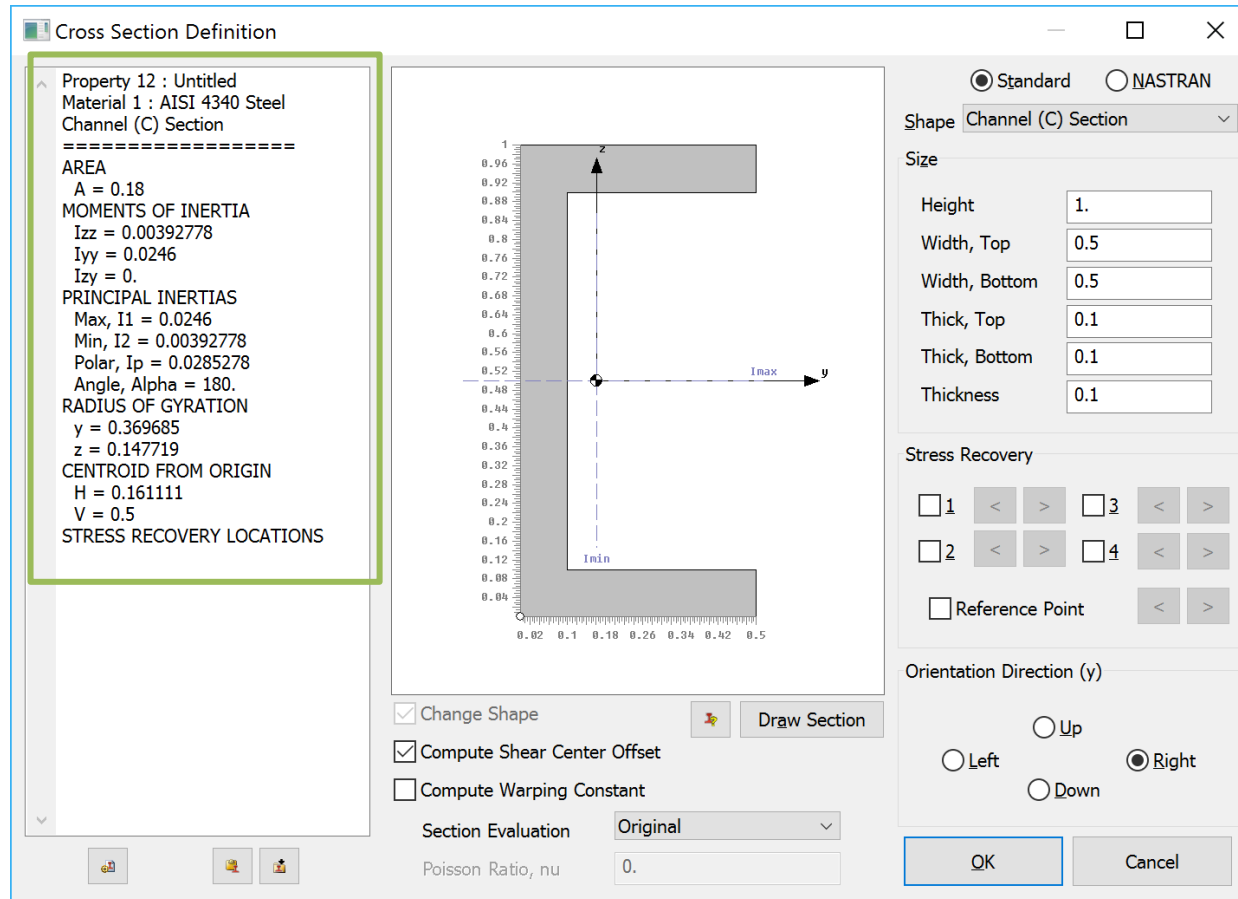
-  1..Plate
-  2..Laminate
-  4..Rectangular Beam
-  5..Rectangular Tube
-  6..I Beam
-  7..Z Section
-  8..Hat Section
-  9..Mass
-  11..Spring/Damper

- #### **I Properties**
-  1..0.25" Al Plate
  -  2..0.5" Al Plate
  -  3..0.188" Al Plate
  -  5..0.125" Plate
  -  6..Boat mass (3000 lbs)
  -  7..Springs
  -  **Layups**
  -  **Loads**



### 3.2 BEAM MODELING

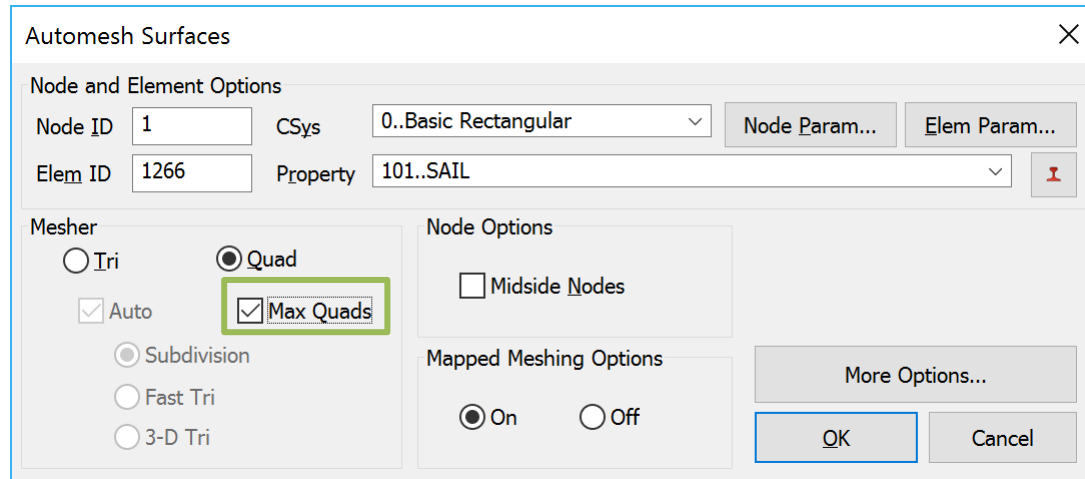
Femap 11.3 has a new beam cross section definition dialog. The new dialog displays the cross section area, inertia, and centroid data as you change your beam cross section definition.



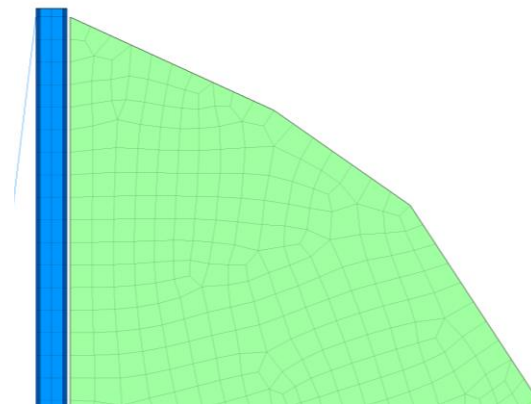
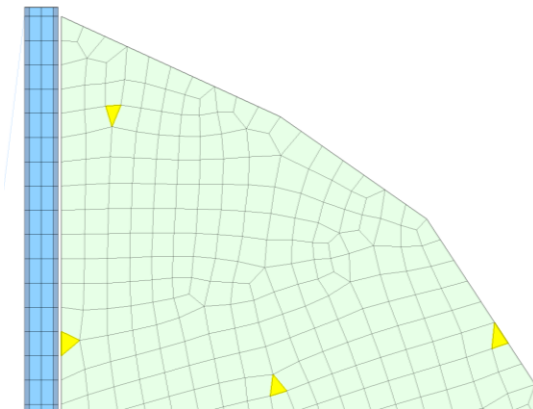


### 3.3 MAX QUADS

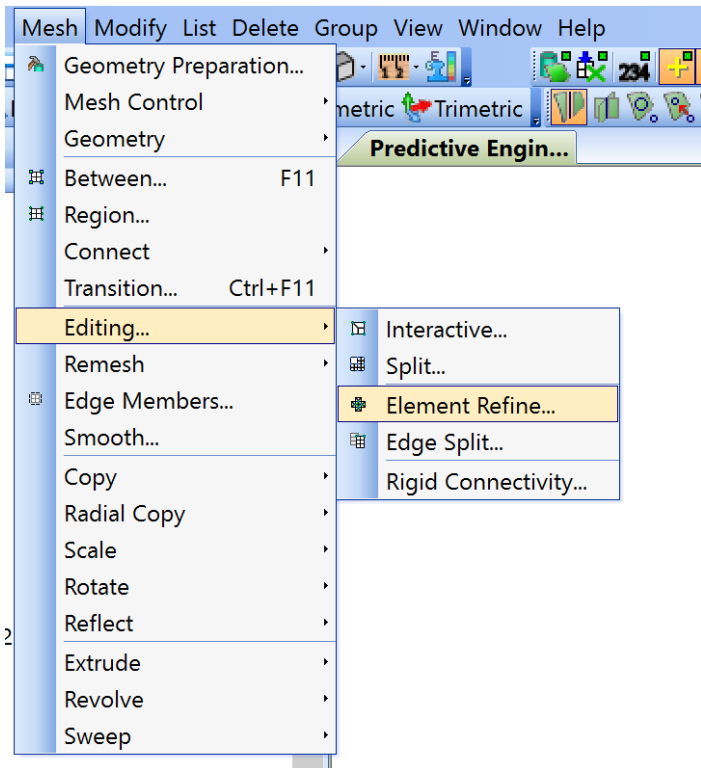
There is a new option in the auto-mesh surfaces dialog to Maximize Quads on your surface mesh.



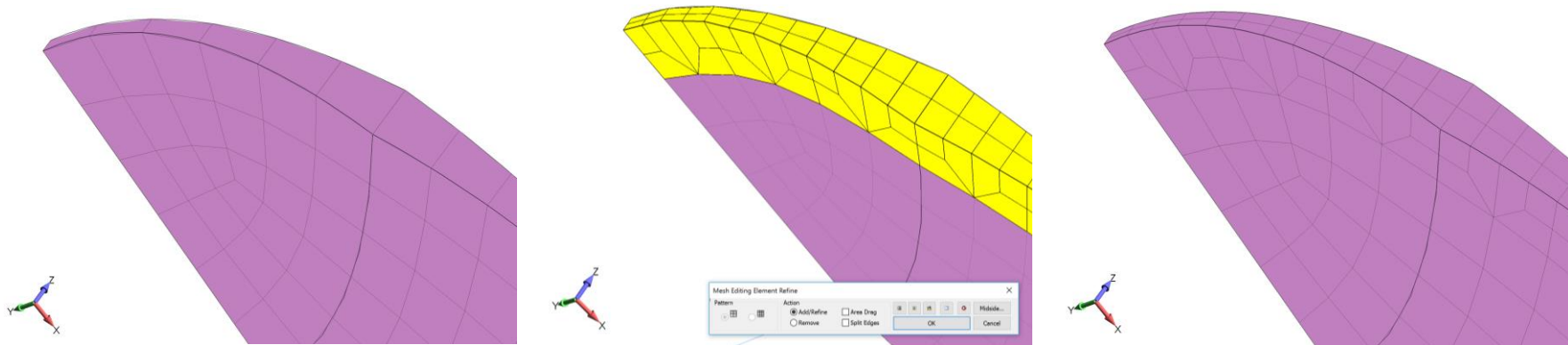
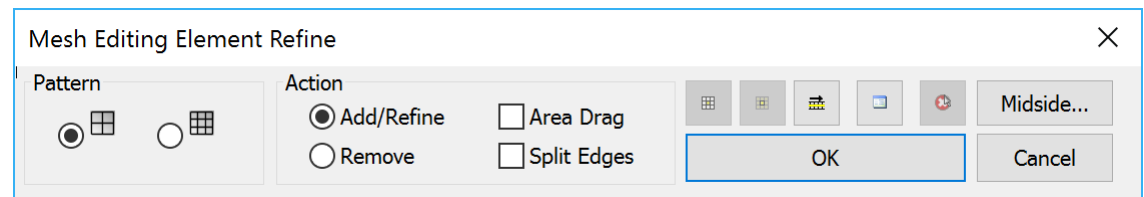
Take a look at the difference in the mesh elements below:



### 3.4 ELEMENT REFINE

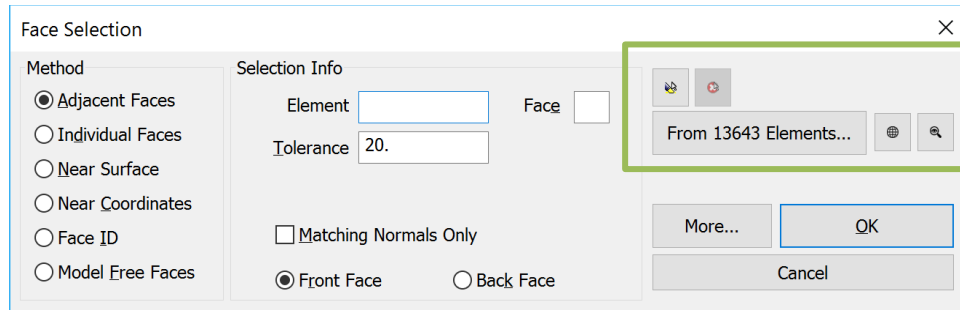


The Element Refine tool allows the user to update their mesh by clicking on elements to refine the mesh. Notable options in the Mesh Refine tool are the Grow and Shrink options shown below.

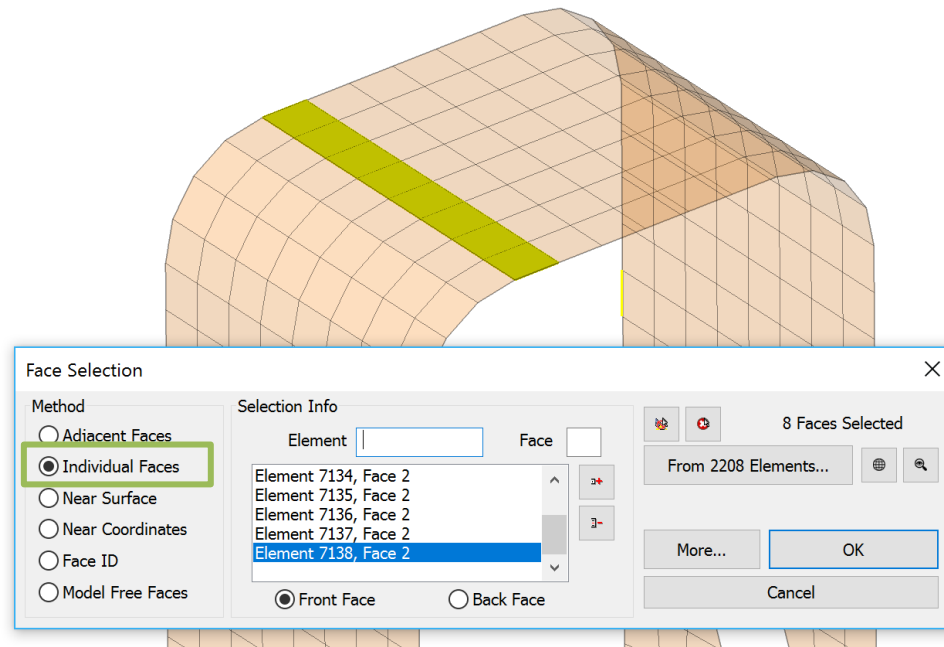


### 3.5 FACE PICKING

The Element Face picking dialog box has been updated with a new design. It now allows the user to select the “From \_ Elements” options in the selection dialog, and there is a new preview option to check the element faces selected.

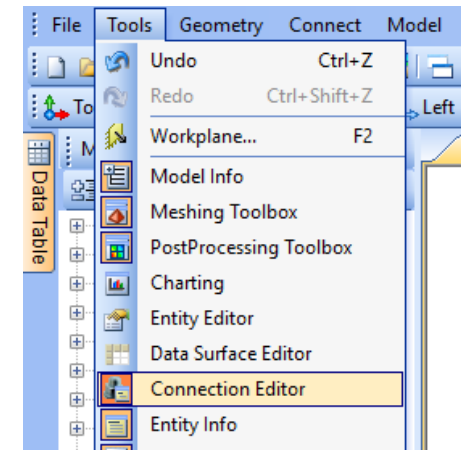


In addition, a new Selection Method was added, which allows the user to select individual element faces.



### 3.6 CONNECTIONS EDITOR

There is a new tool to assist in handling many connections in a model. It looks similar to a data table and allows the user to quickly see all of their connections in a tabulated format.



The image shows a screenshot of the 'Connection Editor' dialog box. The dialog has a title bar with '0..Basic Rectangular' and a toolbar with various icons. Below the toolbar is a table with the following data:

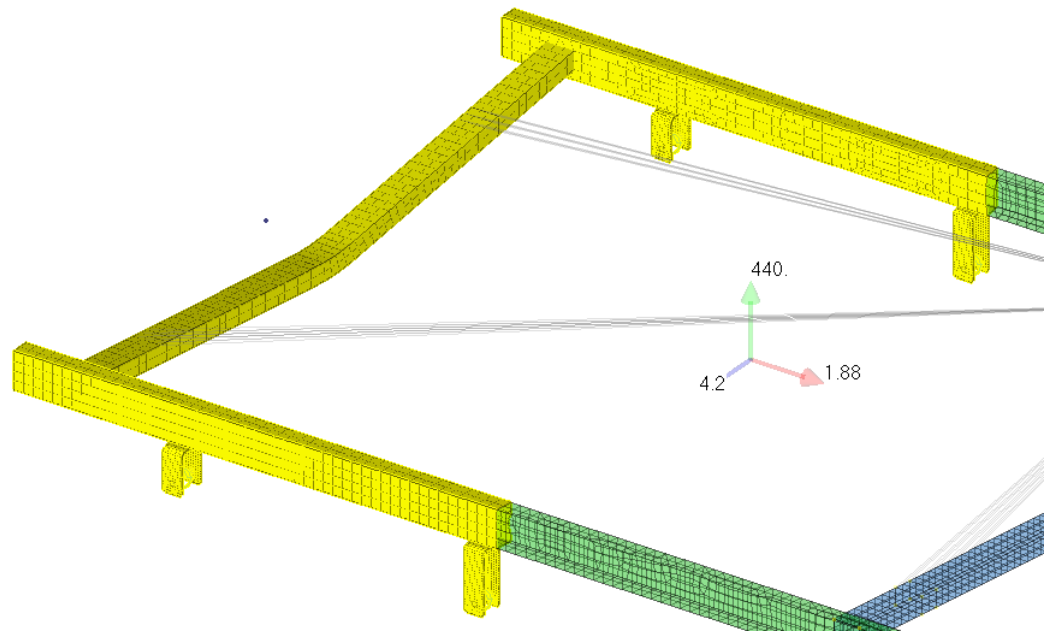
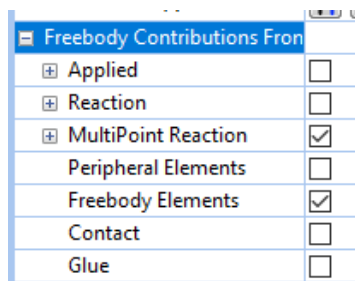
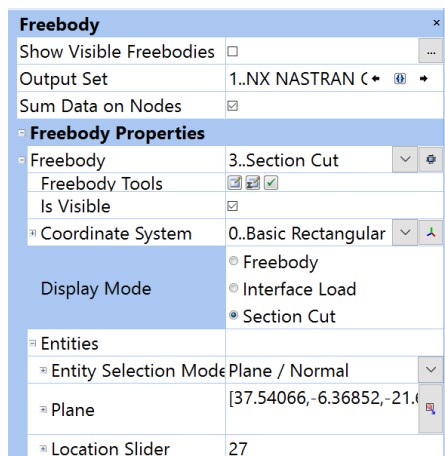
ID	Status	Title	Property	Master(Target)	Slave(Source)	X Center	Y Center	Z Center
1	<input checked="" type="checkbox"/>	B1	1..Glued Connection	1..Bottom of trailer	2..Bracket 1	103.4447	0.160271	0.112997
2	<input checked="" type="checkbox"/>	B2	1..Glued Connection	1..Bottom of trailer	3..Bracket 2	103.4447	0.161093	0.0808759
3	<input checked="" type="checkbox"/>	B3	1..Glued Connection	1..Bottom of trailer	4..Bracket 3	103.4447	0.160271	0.112997
4	<input checked="" type="checkbox"/>	B4	1..Glued Connection	1..Bottom of trailer	5..Bracket 4	103.4447	0.160271	-0.112997
5	<input checked="" type="checkbox"/>	B5	1..Glued Connection	1..Bottom of trailer	6..Bracket 5	103.4447	0.161093	-0.0808759
6	<input checked="" type="checkbox"/>	B6	1..Glued Connection	1..Bottom of trailer	7..Bracket 6	103.4447	0.160271	-0.112997

## 4. POST PROCESSING

### 4.1 FBD TOOLBOX

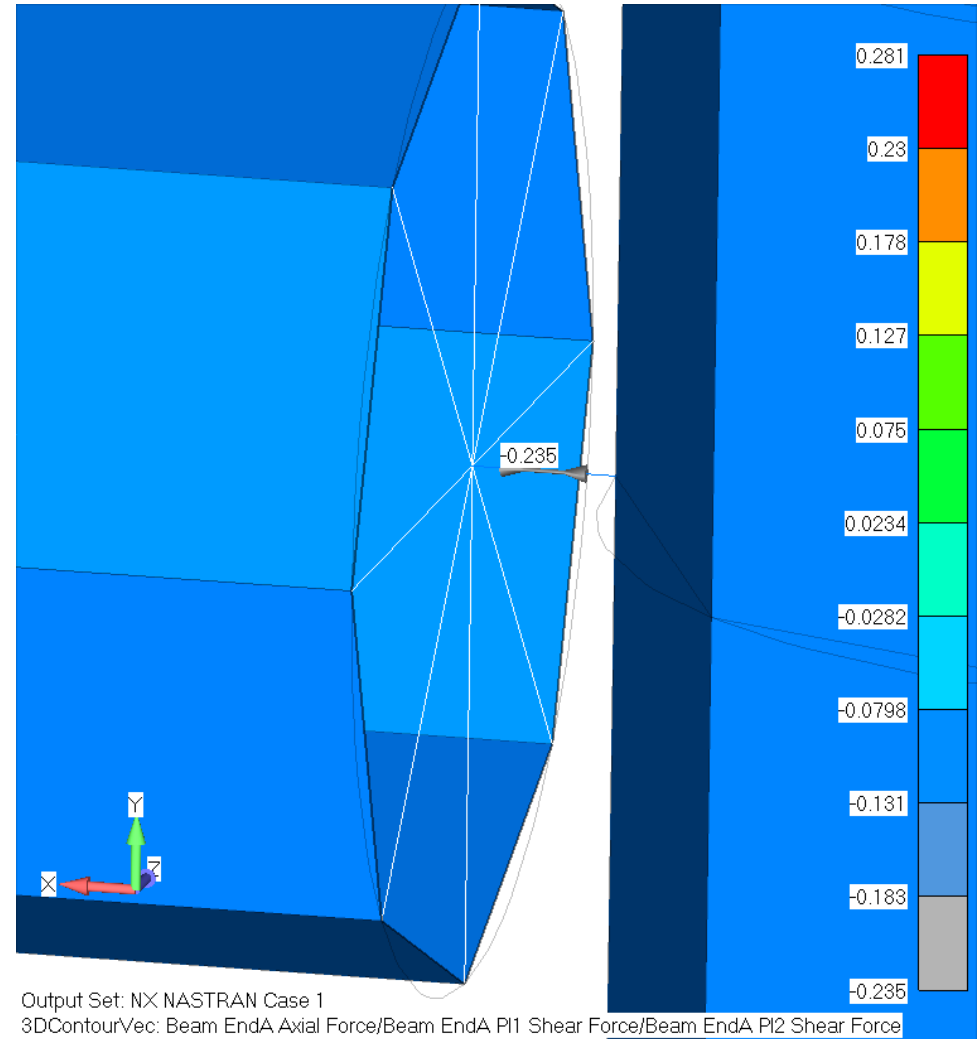
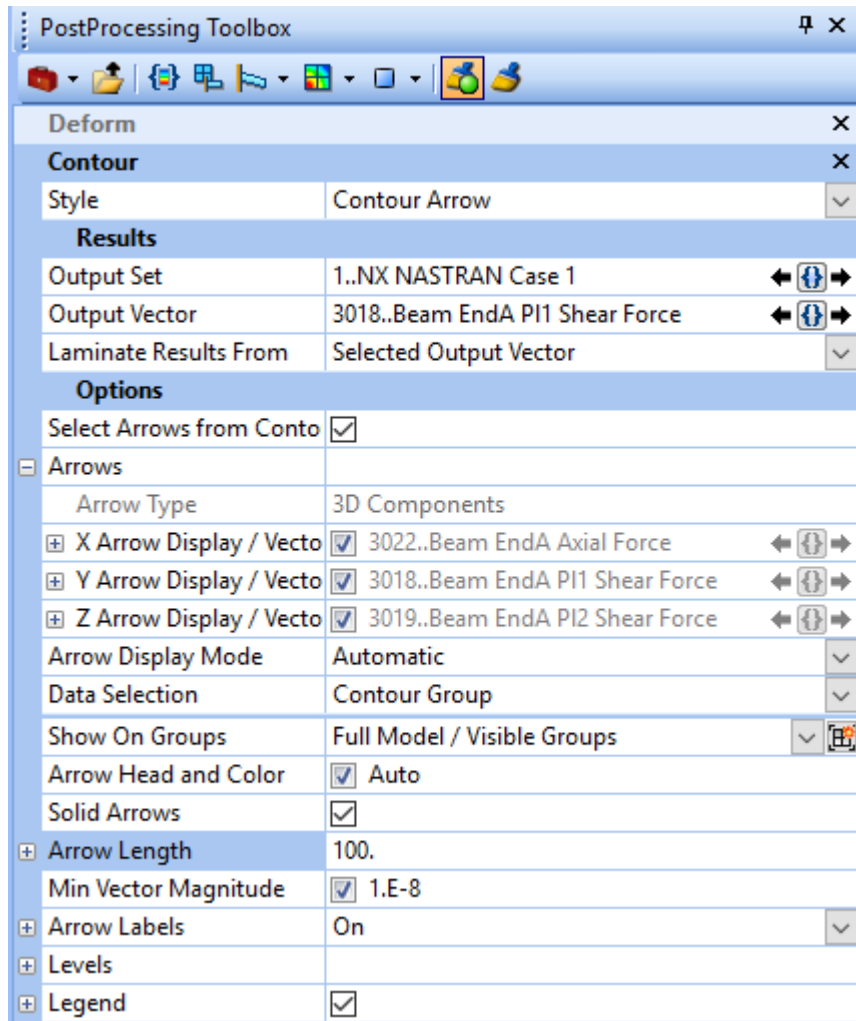
A couple of new options have been added to the Freebody Toolbox. There is now an option to grab Freebody Contributions from Glue and Contact connections.

Another new feature is the “Section Cut” display mode. This feature allows the user to define a cutting plane, and Femap will display an interface load at that plane. You can then slide the plane using the Location Slider to easily find nodal or summed forces along your structure.



## 4.2 CONTOUR ARROWS

Another new feature is the ability to display Contour Arrows. Beam axial and combined shear forces can be plotted across the beam elements in your model. This is especially helpful when diagnosing beam releases, or in cases where you are utilizing beams to idealize fasteners.





## 5. SUMMARY

This seminar covered most of the new features in Femap 11.3. We hope it was helpful to assist you in fully utilizing the tools available to maximize the speed and effectiveness of your analysis. For more information about any of the new features covered here, don't be afraid to dig in to the help file of Femap.

**Femap<sup>®</sup>**  
Version 11.3

### What's New for version 11.3

#### User Interface

[General](#), [Menu](#), [Toolbars](#), [Model Info tree](#), [Meshing Toolbox](#), [PostProcessing Toolbox](#), [Charting pane](#), [Entity Editor](#), [Connection Editor](#), [Data Table](#)

#### General

- Added *Add All Connected Elements* option to the *Pick*<sup>®</sup> menu of the standard entity selection dialog box when selecting elements.
- Added *on Element* to the *Method*<sup>®</sup> menu in the standard entity selection dialog box when selecting Coordinate Systems.
- Added *on Solid* to the *Method*<sup>®</sup> menu in the standard entity selection dialog box when selecting Regions.
- Added ability to use *Pick Query* or *Pick Front* when selecting Regions.
- Added ability double-click in the Graphics window, when not in a command, to Autoscale. See [Views](#) for details.
- Updated fast picking to improve performance when picking all entity types. It is now about 10X faster.
- Updated font selection in Graphics window to support new fonts loaded with Windows 8 and 10
- Updated icons for Properties to reflect the Property Type. If Bar/Beam Shape is defined, the icon will be shown as the selected shape ("G" icon is for C
- Updated Property drop-down controls on many commands to automatically only show properties that are compatible with the current operation. In co the operation if the current active Property type is incompatible. Also, the width of the drop-down list will now adjust to show titles wider than the drc
- Updated usage of the mouse wheel to work on the window/pane the cursor is currently over. Allows multiple graphics views to be manipulated and p when a dialog box is not open. Only graphics windows from the current model can be manipulated.

## 6. SEMINAR Q & A

*Can you use the Draw / Erase toolbar while in a dialog box? For example, when making connection regions, can you draw/erase?*

Excellent question! Yes you can. It is one of the great things about the Draw / Erase toolbar.

*Is there a way to limit the elements and nodes the section plane sums?*

The "Interface Load" FBD Display Mode allows the user to pick specific nodes and elements. The other option is to use the "radius" option with the "Section Cut" FBD Display Mode. This will only select nodes and elements within a specified distance from the section cut vector.

*Why doesn't the boat have a fish box? Rod holders?*

I have no excuses for this omission.