



Technical Seminar: Working with Surfaces in Femap

Topics for Today:

- Learning Resources for Femap and NX Nastran
- Using the Mesh Toolbox
- Parasolid Geometry Solids and Surfaces
 - (I) Manifold Geometry versus Non-Manifold Geometry
 - (II) Working with Geometric Surfaces
- Application Programming Interface
- Creating Tool Bars and Making your own Custom API Toolbar

A brief Q&A Period



Little Useful Things with Femap and NX Nastran

These are my pick of the pack:

- Ctrl-Z to bring up the Locate Dialog Box while you are in another Dialog Box
- The PCGLSS Iterative Solver
- The NX Nastran 64-Bit Sparse Matrix Solver (quite fast)
- Using the Save and Load View Option to customize your View Window
- Femap's API Language
- NX Nastran param,bailout,-1
- Femap's and NX Nastran Help Documentation

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Ctrl-Z to bring up the Locate Dialog Box while you are in another Dialog Box

This is quite the little Femap secret, but it is in the manual. See the Femap User Manual Section 4.2.4:

A few of the more useful but less obvious shortcut keys are listed below. These keys work within a text or drop down list box in a FEMAP dialog box or list boxes in FEMAP. They do not apply to other Windows applications except for those noted as Windows commands. For a complete list of shortcut keys, see Section A, "Using the Keyboard".

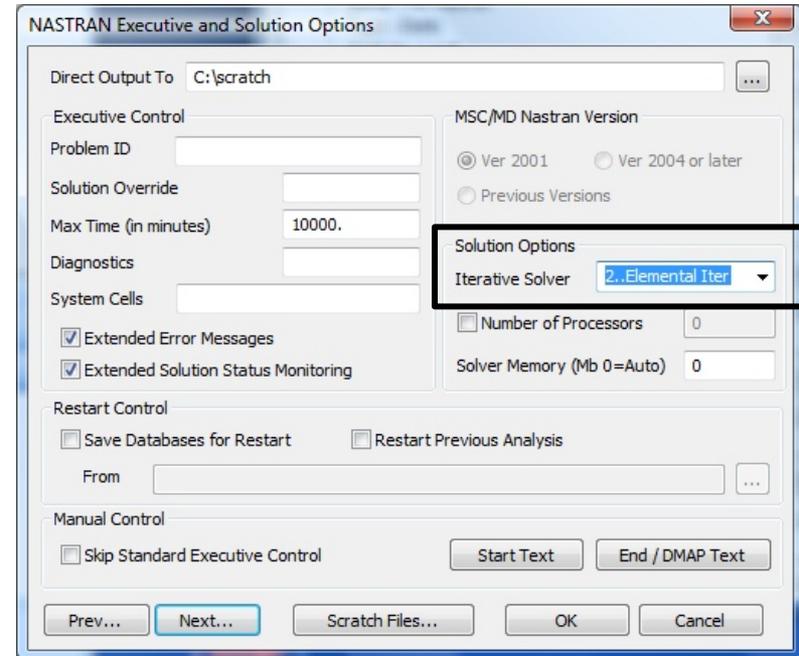
You may be asking yourself how I would use this, but think of all the times you have used the Geometry / Solid / Slice tool and needed to located a dimension! Or wanted to snap to a point (Ctrl+P) within another box...

Key(s)	Function
<i>Ctrl+A</i>	Measure an angle.
<i>Ctrl+C</i>	Copy (Windows command)
<i>Ctrl+D</i>	Measure a distance.
<i>Ctrl+E</i>	Display FEMAP Equation Editor for interactive definition of variables and equations.
<i>Ctrl+F</i>	List functions.
<i>Ctrl+G</i>	Snap cursor selections to snap grid.
<i>Ctrl+L</i>	Display a list of the existing entities of the desired type.
<i>Ctrl+N</i>	Snap cursor selections to nearest node.
<i>Ctrl+P</i>	Snap cursor selections to nearest point.
<i>Ctrl+S</i>	Snap cursor selections to screen (snap off).
<i>Ctrl+T</i>	Redefine snap grid.
<i>Ctrl+V</i>	Paste (Windows command)
<i>Ctrl+W</i>	Redefine workplane.
<i>Ctrl+X</i>	Cut (Windows command)
<i>Ctrl+Z</i>	Use standard coordinate selection dialog box to define location.



The PCGLSS Iterative Solver

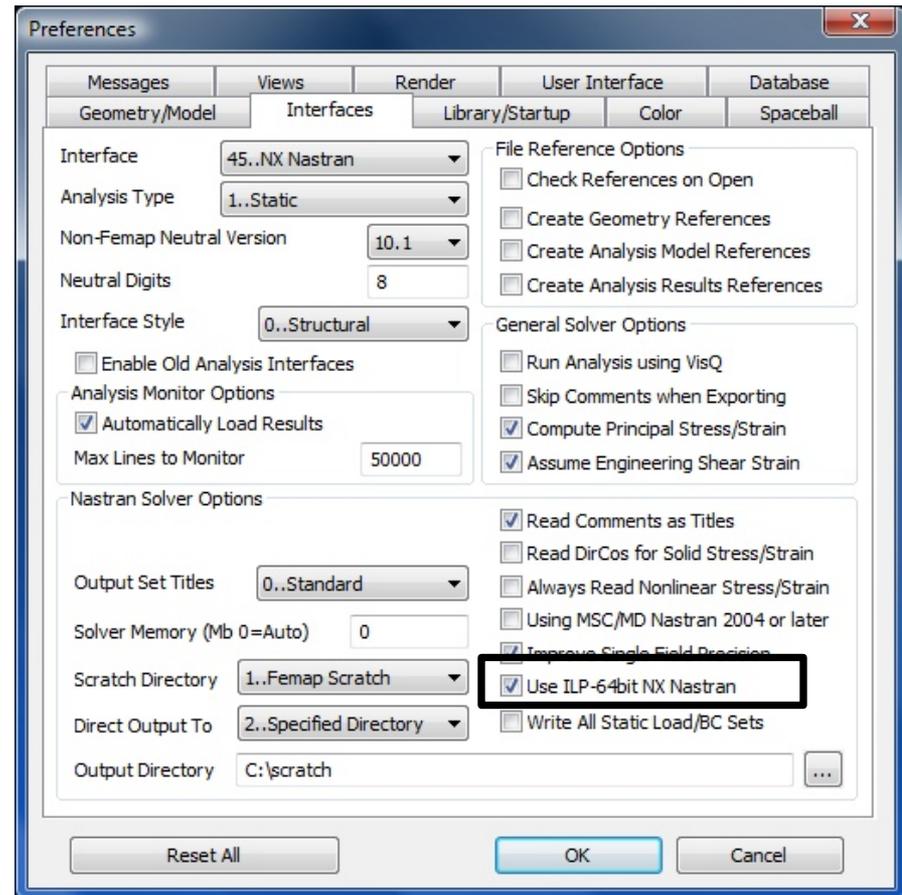
If you are running a 10-node tetrahedral model with a limited number of rigid links and beam elements (it hates plate elements), this is the solver for you. When you set up your analysis job within the Analysis Manager just set the solver the Elemental Iter:





The NX Nastran 64-Bit Sparse Matrix Solver (quite fast for large models)

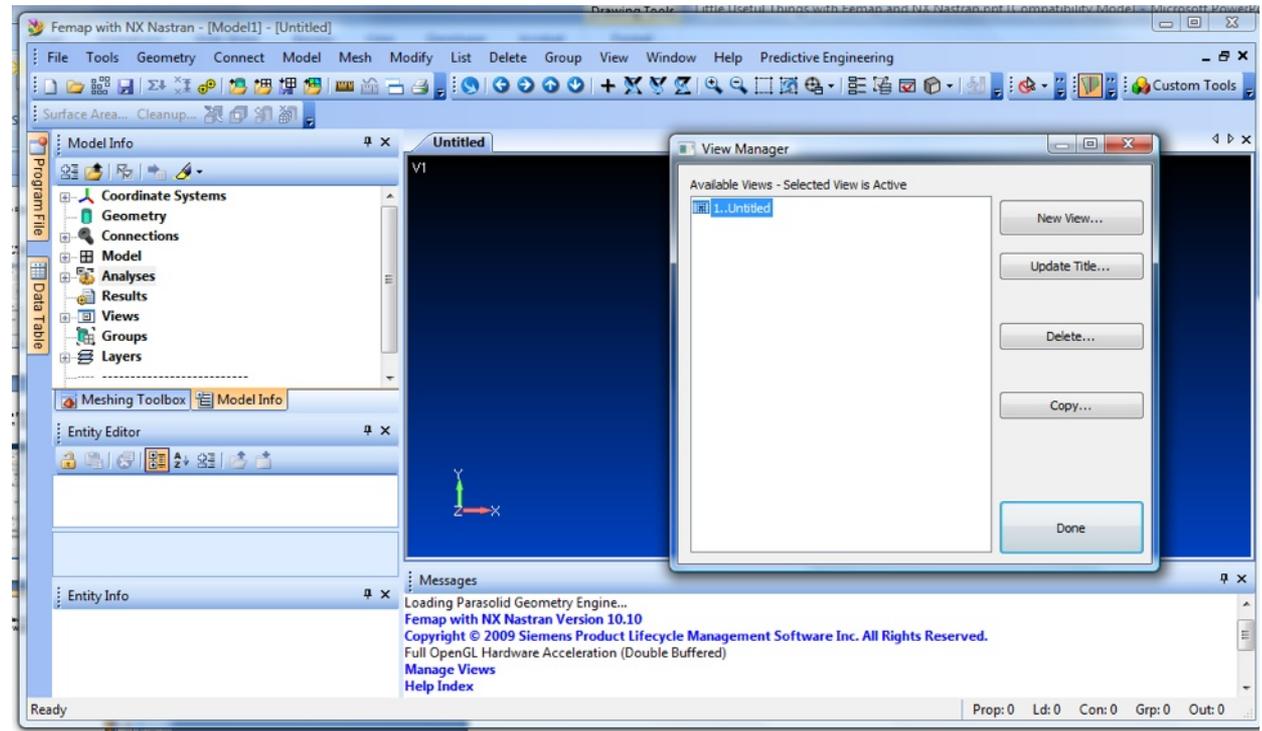
For solving what was considered often the impossible, use the new NX Nastran 64-bit solver (ILP-64bit NX Nastran) with at least 8 GBytes of RAM (the limit is 20 million terabytes). This solver is turned on within the Femap preferences. It is fine to use with smaller model and it is now my daily “solver”.





Using the Save and Load View Option to customize your View Window (Part I of II)

Femap's View Window is actually a mini-database. In the default mode, it comes up with the label "Untitled". This View Windows actually stores all your View Options and your View Select options. It will also remember your background color and orientation of the model.

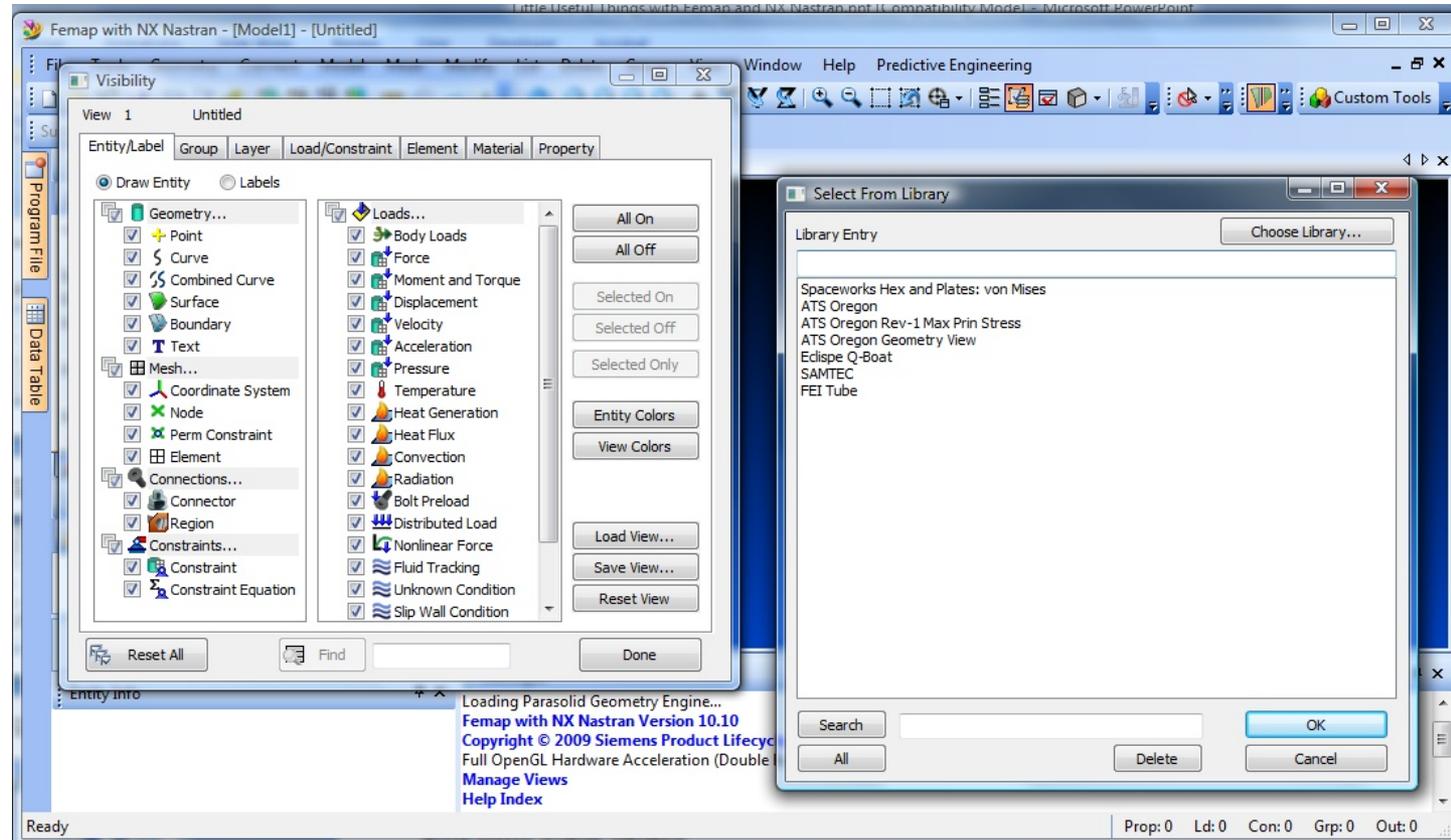


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Using the Save and Load View Option to customize your View Window (Part II of II)

Once you have everything configured the way you want it (element colors, contour type, transparent background, etc), you can give your View Window a name and save it using the Visibility tab. Once saved, you can reload it into a different model by using “Load View”:

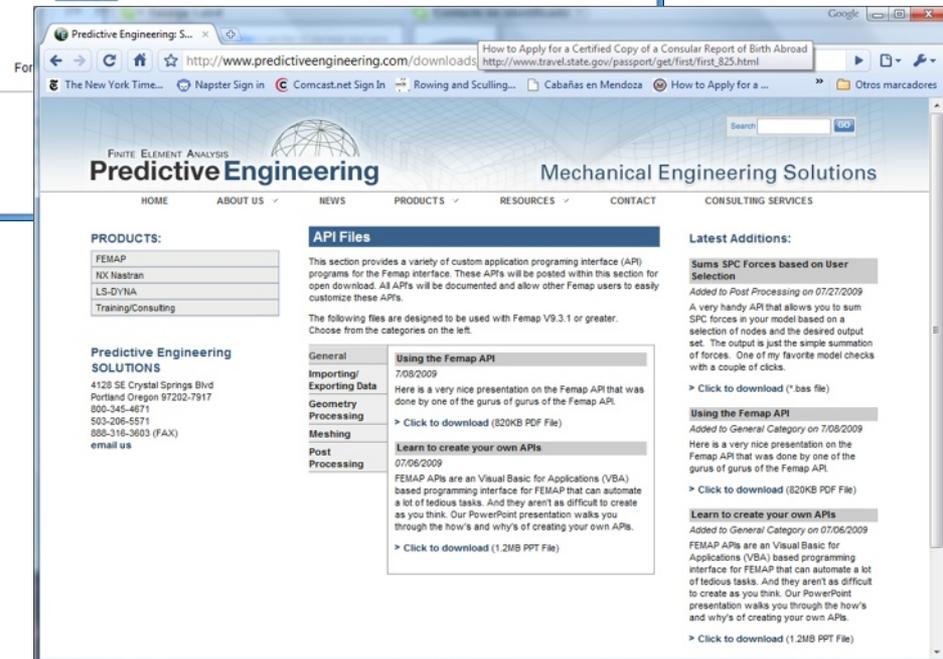
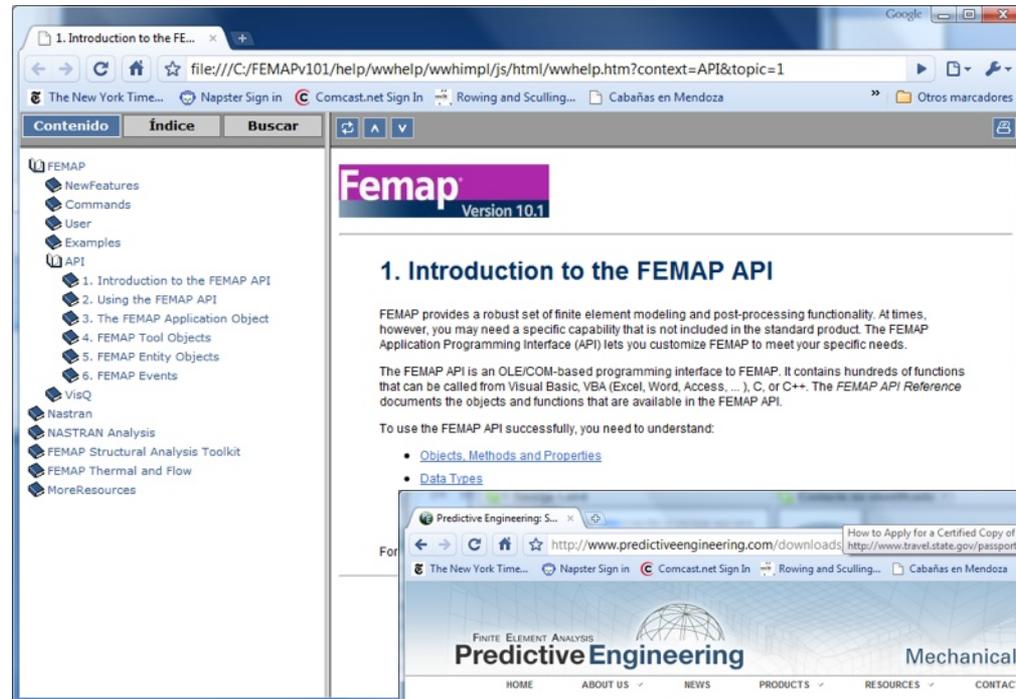


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Femap's API Language

Femap's API is powerful. If you want to customize the interface and avoid repetitive tasks – it can do it all. The Predictive Engineering website has examples and tutorials. The Username and Password are given in our email signature blocks.

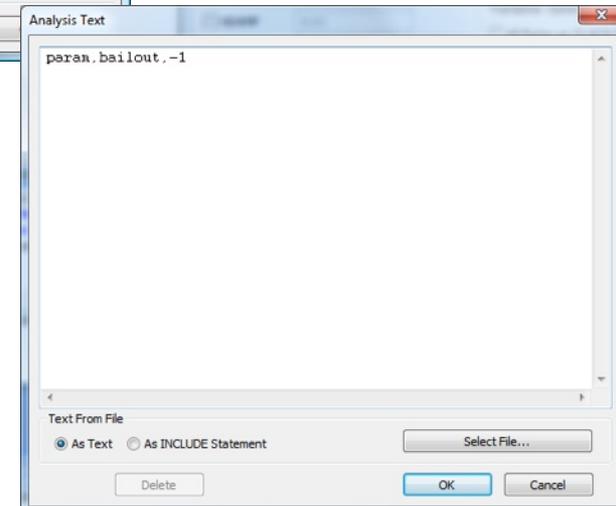
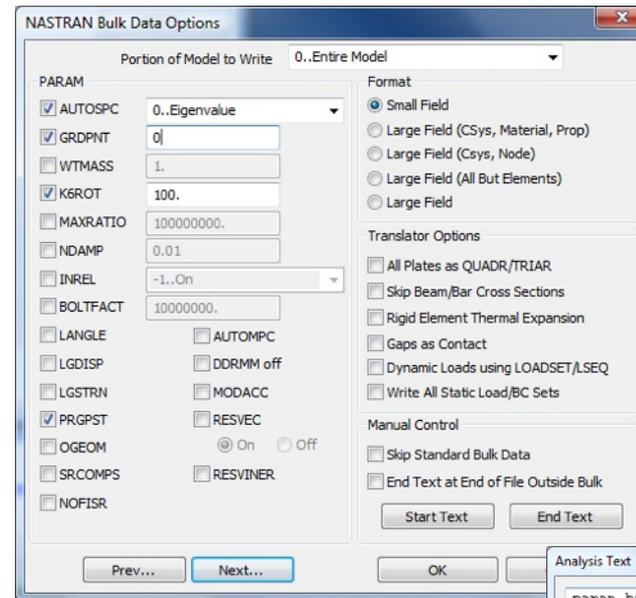




NX Nastran param,bailout,-1

I know you are probably wondering what the heck this is about.....

When you have a model that is spinning off into space (a constraint problem) and you are struggling to figure out what part of your model is not sufficiently constrained, you can always just force NX Nastran to solve and then debug the final solution. Just go to the Nastran Bulk Data Options page and hit the button Start Text and in the dialog box type in param, bailout,-1





Femap's and NX Nastran Help Documentation

When I do my Femap and NX Nastran course, I always spend a few minutes talking about the documentation that comes with Femap and NX Nastran. It is impressive. It is extremely valuable and will save you days of analysis time if you spend a few hours reading through what is available. All of this is installed in your current seat of Femap. Just open Femap and go to Help.

