



Pro/ENGINEER Mechanical Lite

Don't just design a good product....

...engineer a great one!

Designing Better Products – Right from the Start



“... fewer than 15% of quality problems can be traced to shoddy workmanship or other factory errors... The real problem, he says, is at the **front end of the development process.**”

“Besides turning to **simulation** for root cause analysis when a design problem occurs and using it to check product performance pre-release, many manufacturers are **using simulation to drive design.**”

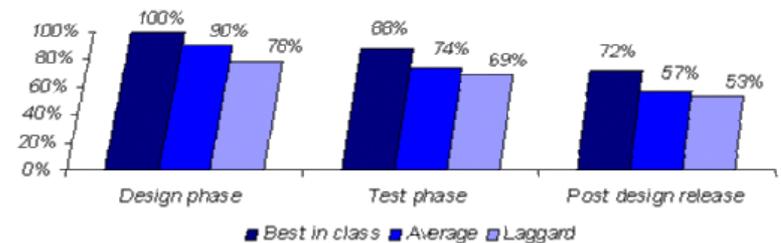
Aberdeen Group

“... one can see that the **best in class performers** place the highest emphasis on performing **simulation upfront in the design phase**... this early use enables those leading manufacturers to **reduce the number of prototypes** necessary to pass quality tests as well as to **avoid unnecessary change orders** after design release



“Warranty tends to be a reactive response, not a predictive [one]”

Figure 4: Best in Class Perform More Simulations Earlier



Source: Aberdeen Group, October 2006

The pressure to engineer great products is not letting up...

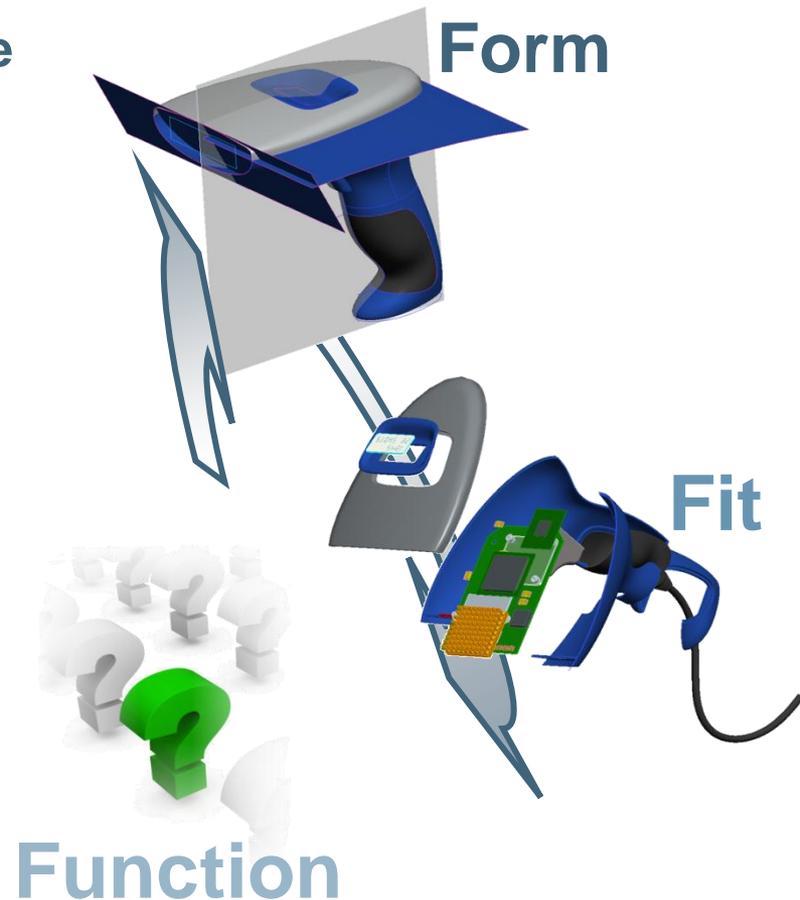
Simulation in product design

Product design is the interplay between the often conflicting requirements of...

- Form
- Fit
- Function

Pro/E and ISDX address form and fit...

- But what about Function?
 - How will my design perform?
 - What can I do to reduce warranty liability?
 - Can I optimize my design to differentiate it?
 - Is weight reduction a possibility?



How will you understand the performance of your design?

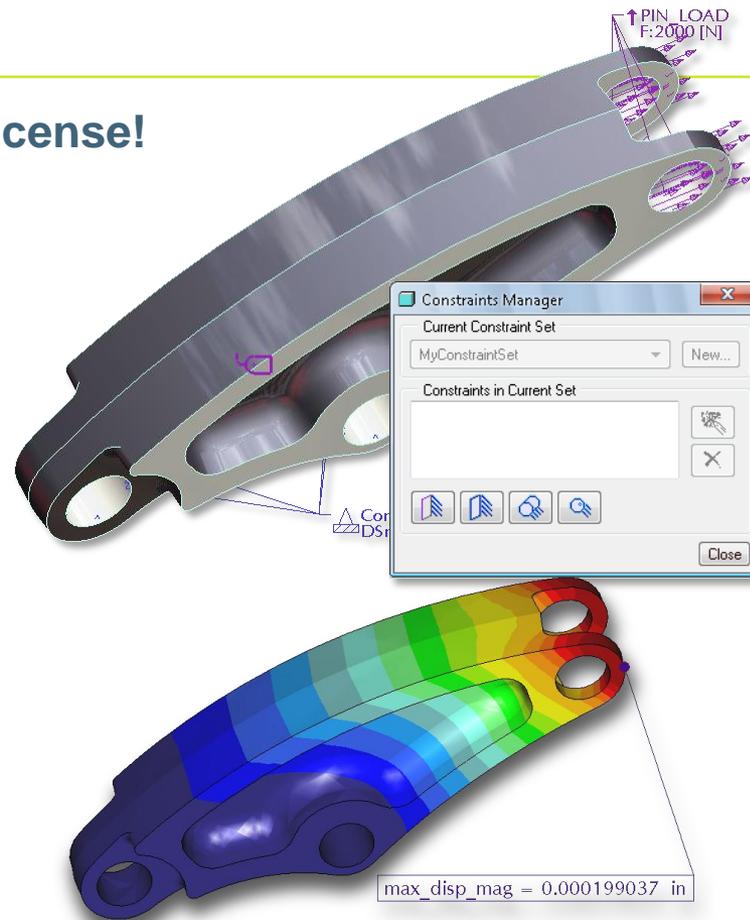
Pro/ENGINEER Mechanica Lite

Pro/ENGINEER Mechanica for every Foundation license!

- From model to results in minutes...

Capabilities include*...

- Guiding interface walks users through model setup
 - Static Structural Analysis
 - Parts and Assemblies
 - Loads
 - Force/Moment, Pressure, Gravity
 - Constraints
 - Displacement, Pin, Ball, Planar
 - Full results functionality
 - F Probing, Animation, etc...
- Mechanica Solution Technology
- Complete upward model compatibility to full Mechanica!



Stop designing, start engineering!

Movie

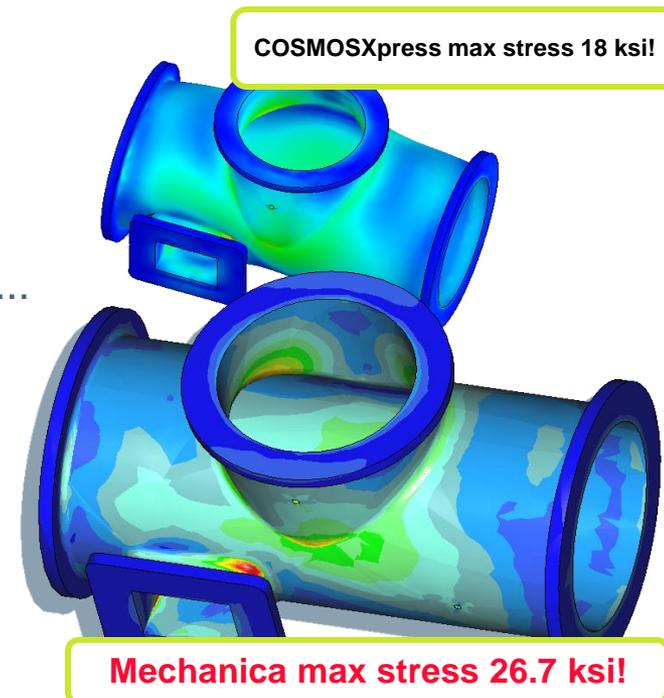
Pro/ENGINEER Mechanics Lite

Proven, unparalleled accuracy

Not just any answer; the right answer

- Unique MECHANICA solution technology
 - Capturing model geometry
 - Accurately and automatically finding high stresses
- No more need to be an FEA specialist
 - Focus on being a good engineer
- Competitors rely on dated technology
 - They claim accuracy, but it fails when put to the test...

Do you value a pretty picture...
...or the right answer?



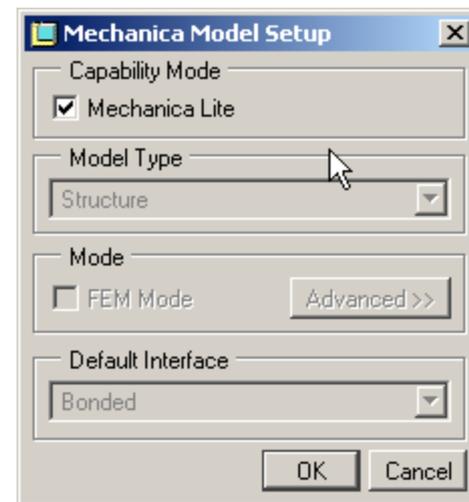
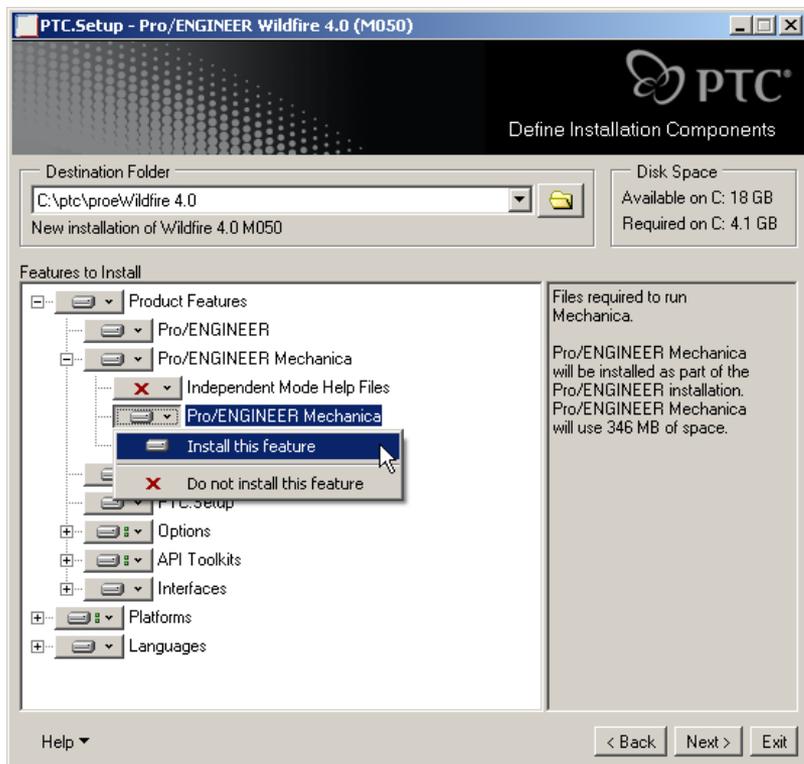


Pro/ENGINEER Mechanica Lite – FAQ

Pro/ENGINEER Mechanics Lite – FAQ

What Are The Pre-Requisites to Access Mechanics Lite?

- Wildfire 4.0 M060 – Scheduled Release Date December 30th 2008
- Maintenance Paying Customers with Pro/ENGINEER Foundation XE
- Mechanics needs to be installed (346 Mb)

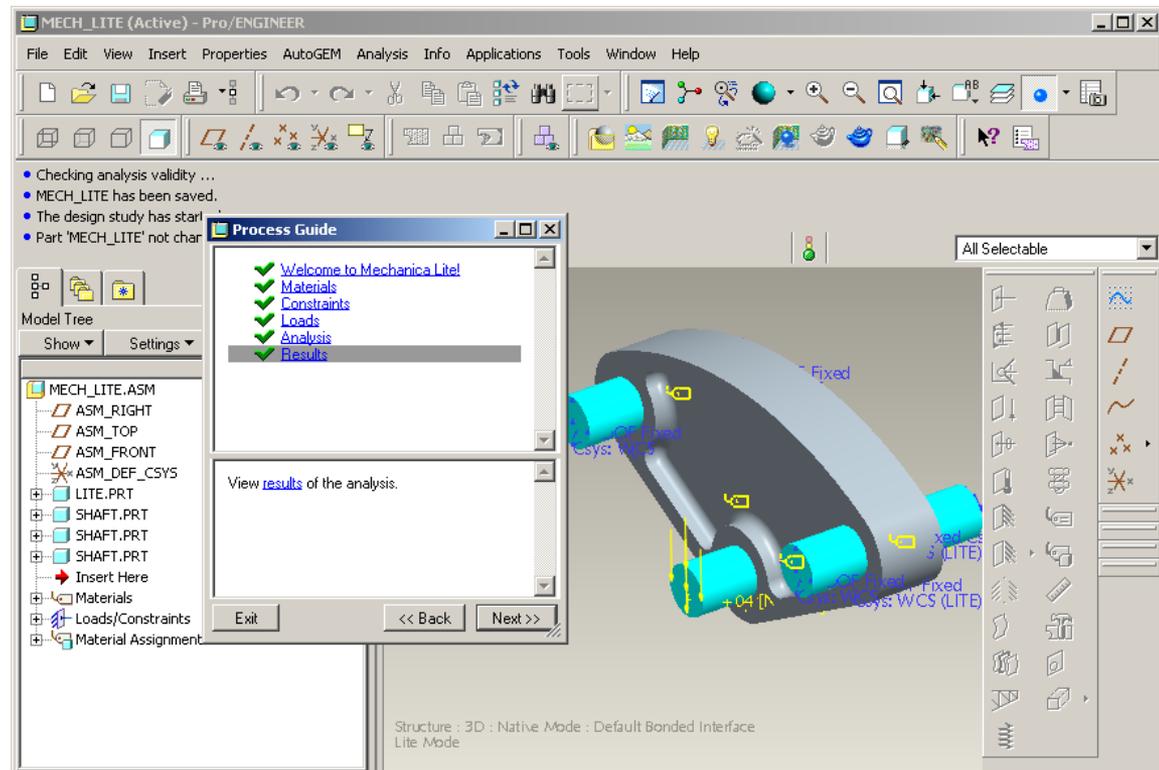


Wildfire 4.0	C000	June 13, 2007	TBD
	C010	September 26, 2007	
	F000	January 21, 2008	
	M010	March 14, 2008	
	M020	April 25, 2008	
	M030	June 20, 2008	
	M040	August 15, 2008	
	M050	October 17, 2008	
	M060	<i>December 30, 2008</i>	
	M070	<i>February 20, 2009</i>	
M080	<i>April 17, 2009</i>		

Pro/ENGINEER Mechanica Lite – FAQ

What Model Types can Mechanica Lite accept?

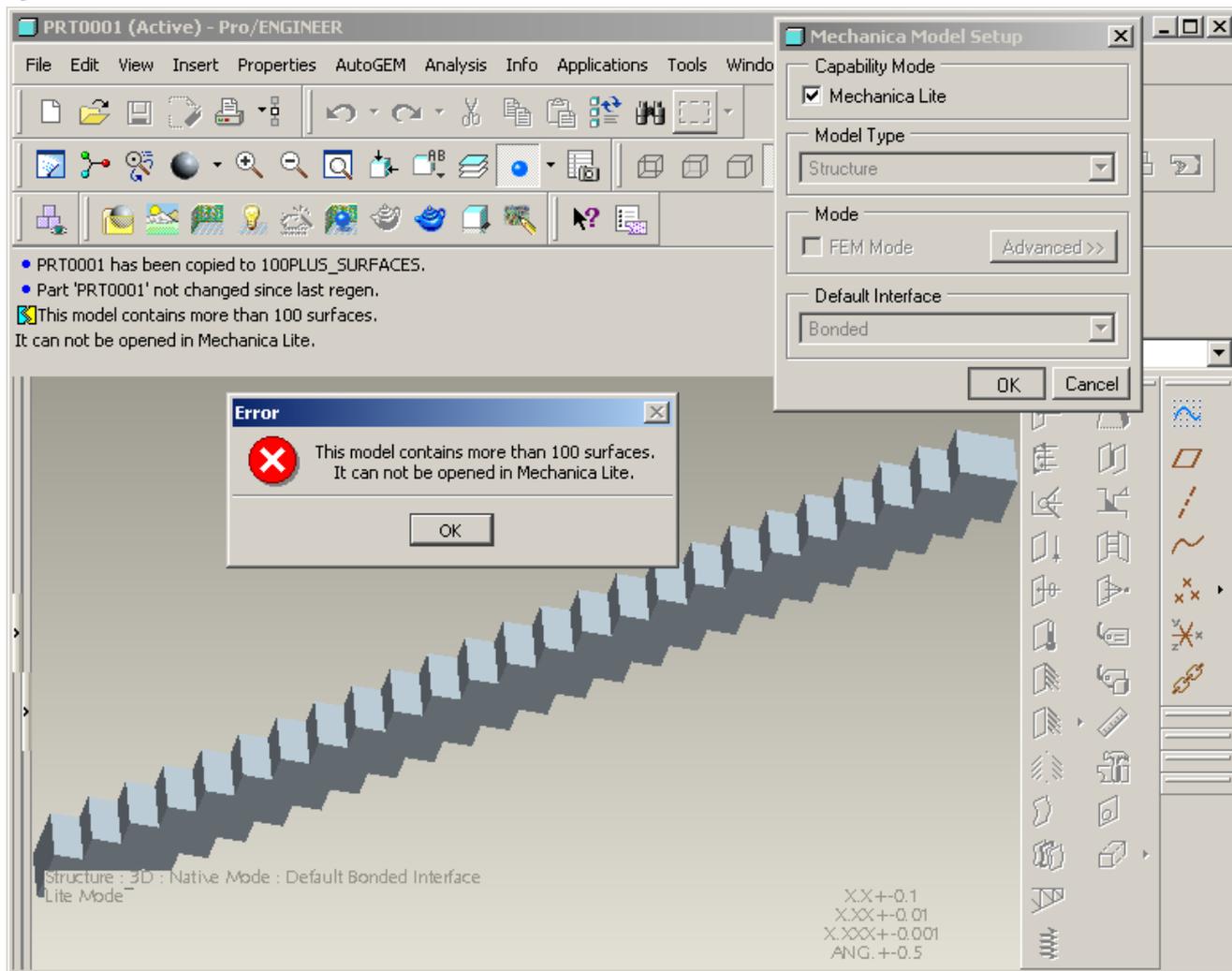
- Solid Models only – no shells, no beams
- Parts or Assemblies – limited to 100 surfaces
- Assemblies have bonded connections only
- 100 surfaces limit applies to total surfaces in assembly
- A cylinder has 4 surfaces – 2 ends, 2 cylindrical
- Mated identical surfaces in an assembly still counts as 2 surfaces
- No Surface or Volume Region capability



Pro/ENGINEER Mechanica Lite – FAQ

What happens when you hit the 100 Surface Limit?

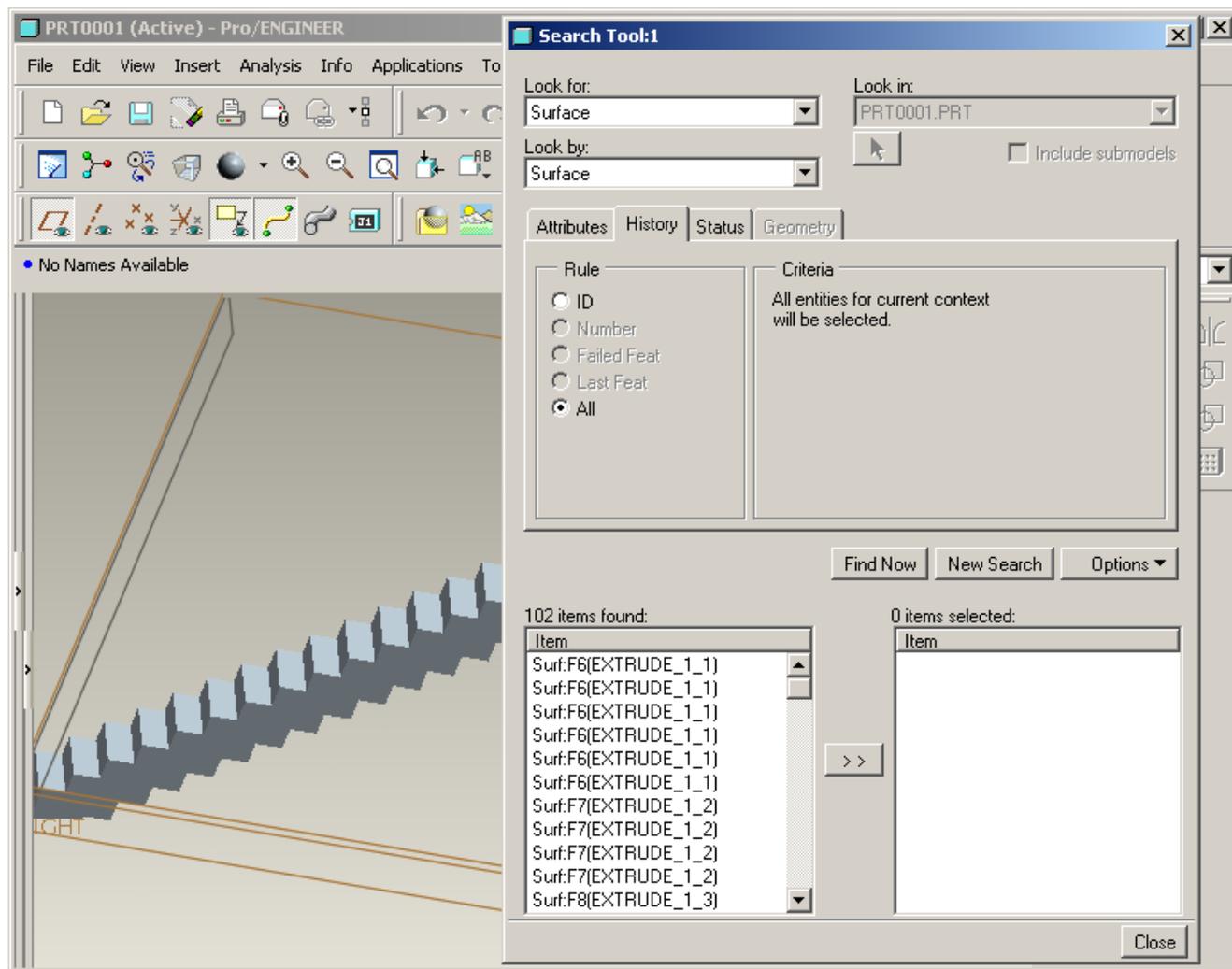
➤ Error Message



Pro/ENGINEER Mechanical Lite – FAQ

How can you check the number of surfaces in a model?

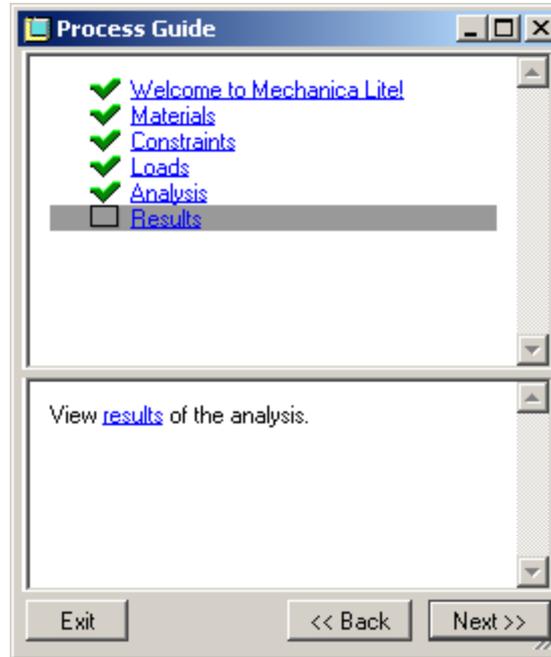
- **Edit > Find > Surface / Surface History / All**



Pro/ENGINEER Mechanical Lite – FAQ

What Are The Process Guide Steps in Mechanical Lite?

- Materials
- Constraints
- Loads
- Analysis
- Results

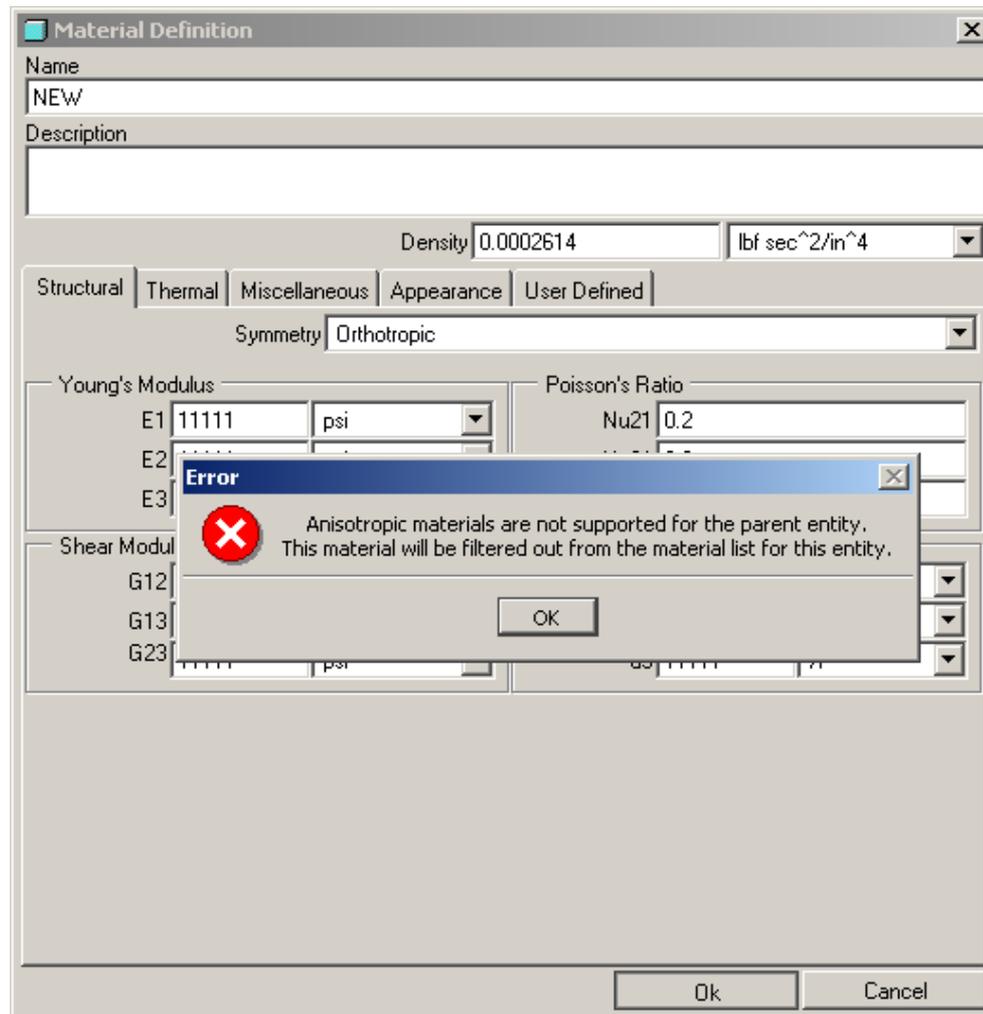


Note: To move to the next step, click “Next”, or use config.pro option:
`simulation_process_auto_advance yes`

Pro/ENGINEER Mechanical Lite – FAQ

What Type of Materials can you use in Mechanical Lite?

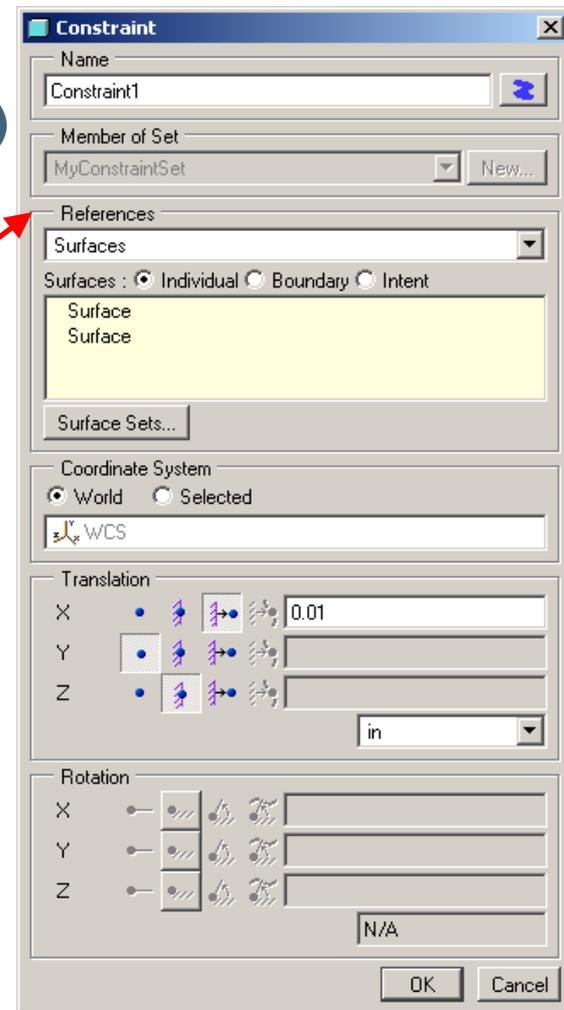
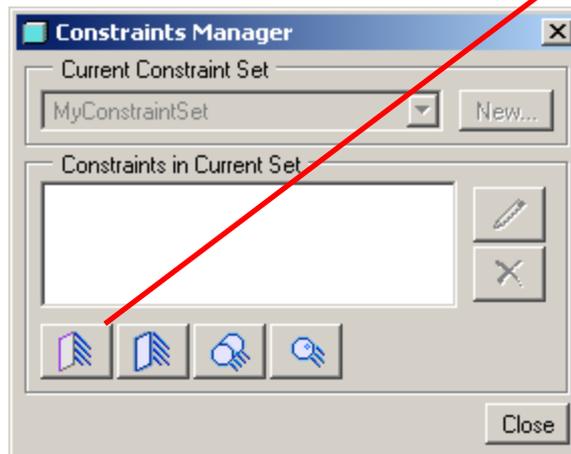
- Linear Isotropic only
- Existing Isotropic Materials in Material Directory
- Pro/ENGINEER Assigned Material (Isotropic)
- Error Message if Isotropic is not selected



Pro/ENGINEER Mechanical Lite – FAQ

What Type of Constraints can you use in Mechanical Lite?

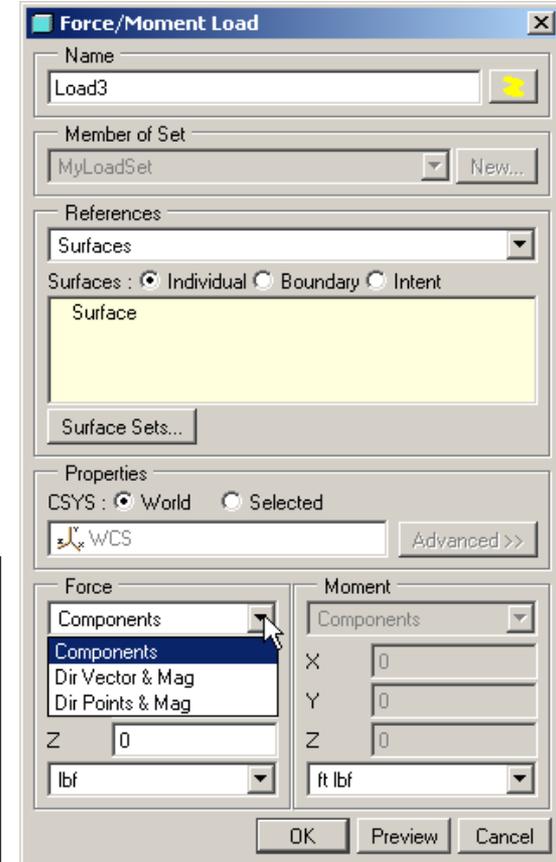
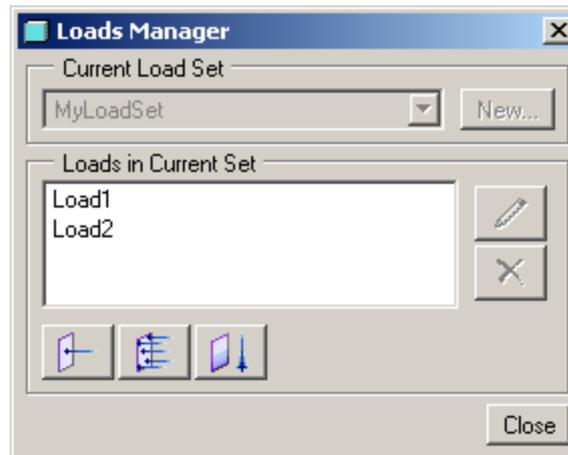
- Single Constraint Set
- Standard Displacement Constraint (not Rotations)
- Wildfire 5.0 Planar, Pin & Ball Constraints
- No Symmetry Constraint (can be manually created)



Pro/ENGINEER Mechanical Lite – FAQ

What Type of Loads can you use in Mechanical Lite?

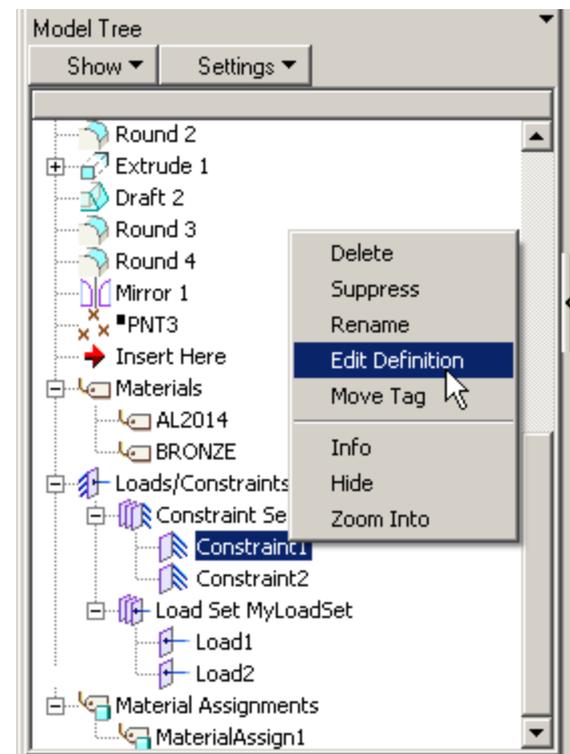
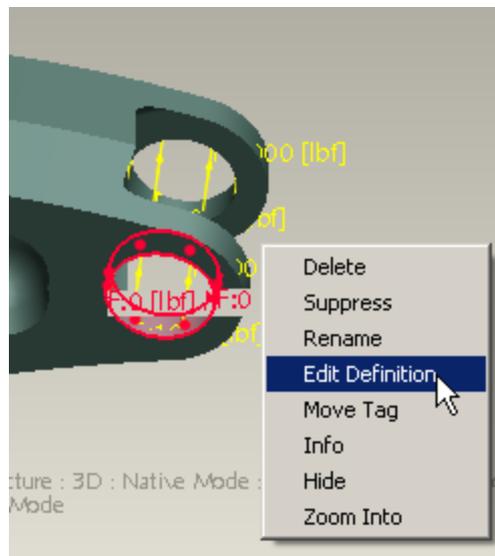
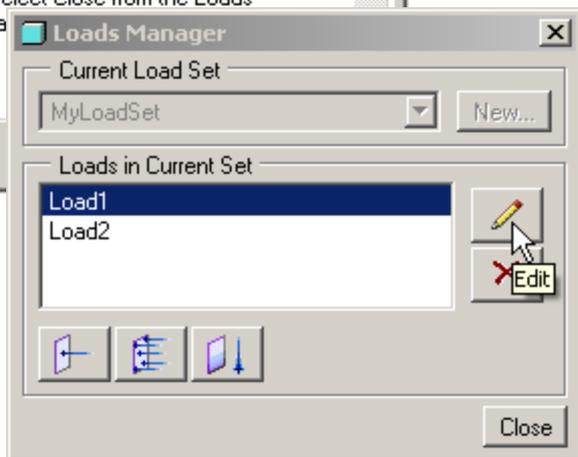
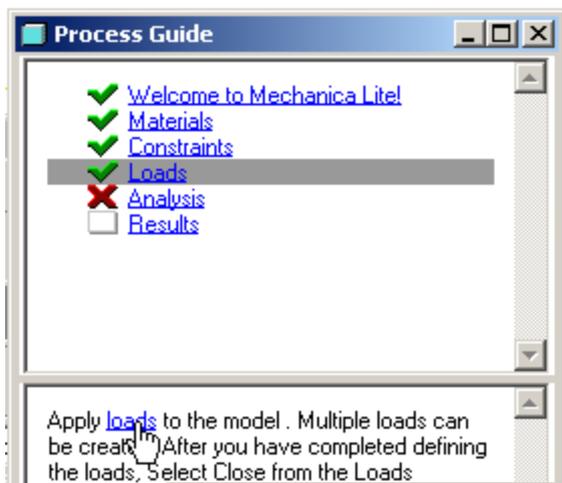
- Single Loadset
- Multiple Loads
- References – Surfaces, Edges/Curves, Points
- Properties – World or Selected CSYS
- Force Components, Dir Vector & Mag, Dir Points & Mag
- Pressure Load
- Gravity Load
- No Advanced Loads
i.e. Total Load At Point
- No Bearing Loads
- No Moment Loads
- No Temperature Loads



Pro/ENGINEER Mechanical Lite – FAQ

Can you Edit / Delete Constraints, Loads etc. in Mechanical Lite?

➤ Yes – From the Process Guide, Model or Model Tree

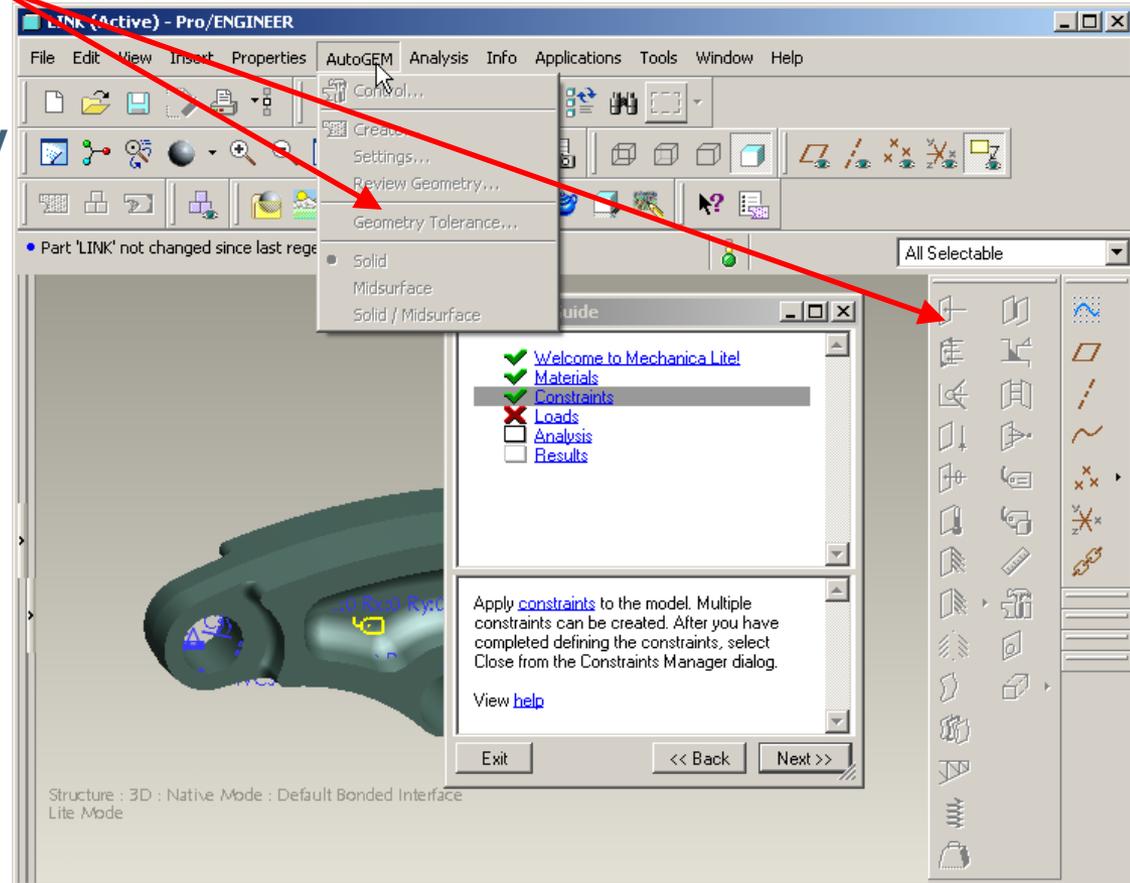


Pro/ENGINEER Mechanics Lite – FAQ

Can you access any functions outside the Process Advisor?

➤ No, except the following:

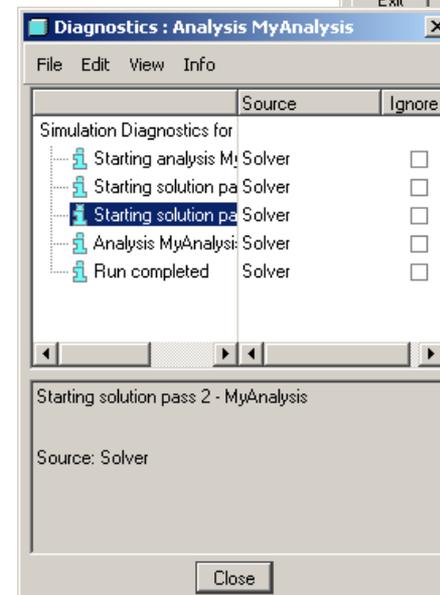
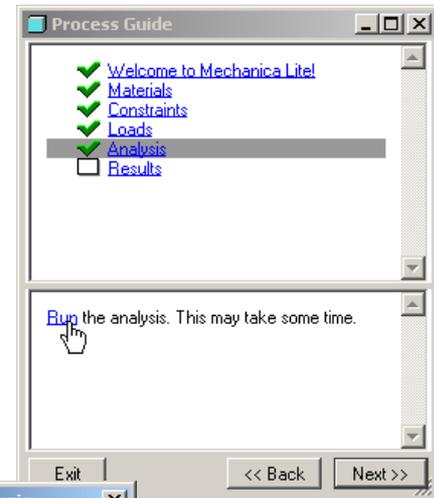
- Edit > Current CSYS
- View > Simulation Display
- Info > Simulation Model
- Info > Tolerance Report
- Info > Review Total Load



Pro/ENGINEER Mechanical Lite – FAQ

What Analysis Types can you set up in Mechanical Lite?

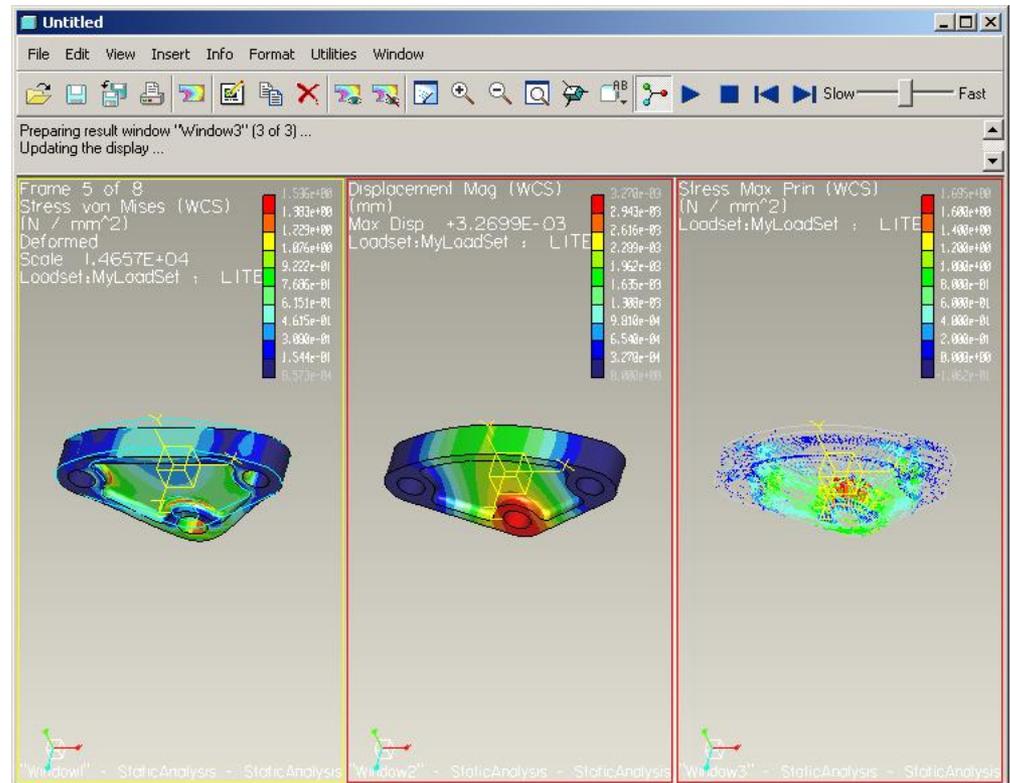
- Linear Static Only
- No Access to Analysis Types, Settings etc.
- Only Option is “Run”
- Single Pass Adaptive Solver
- Diagnostic Window shows Status
- Study Name “MyAnalysis” cannot be changed – danger of overwriting
- No Direct Access to Summary File
- Result Directory is Standard
– i.e. Contains Summary File, Models etc.
- Plotting Grid 4



Pro/ENGINEER Mechanical Lite – FAQ

What Result Windows can you set up in Mechanical Lite?

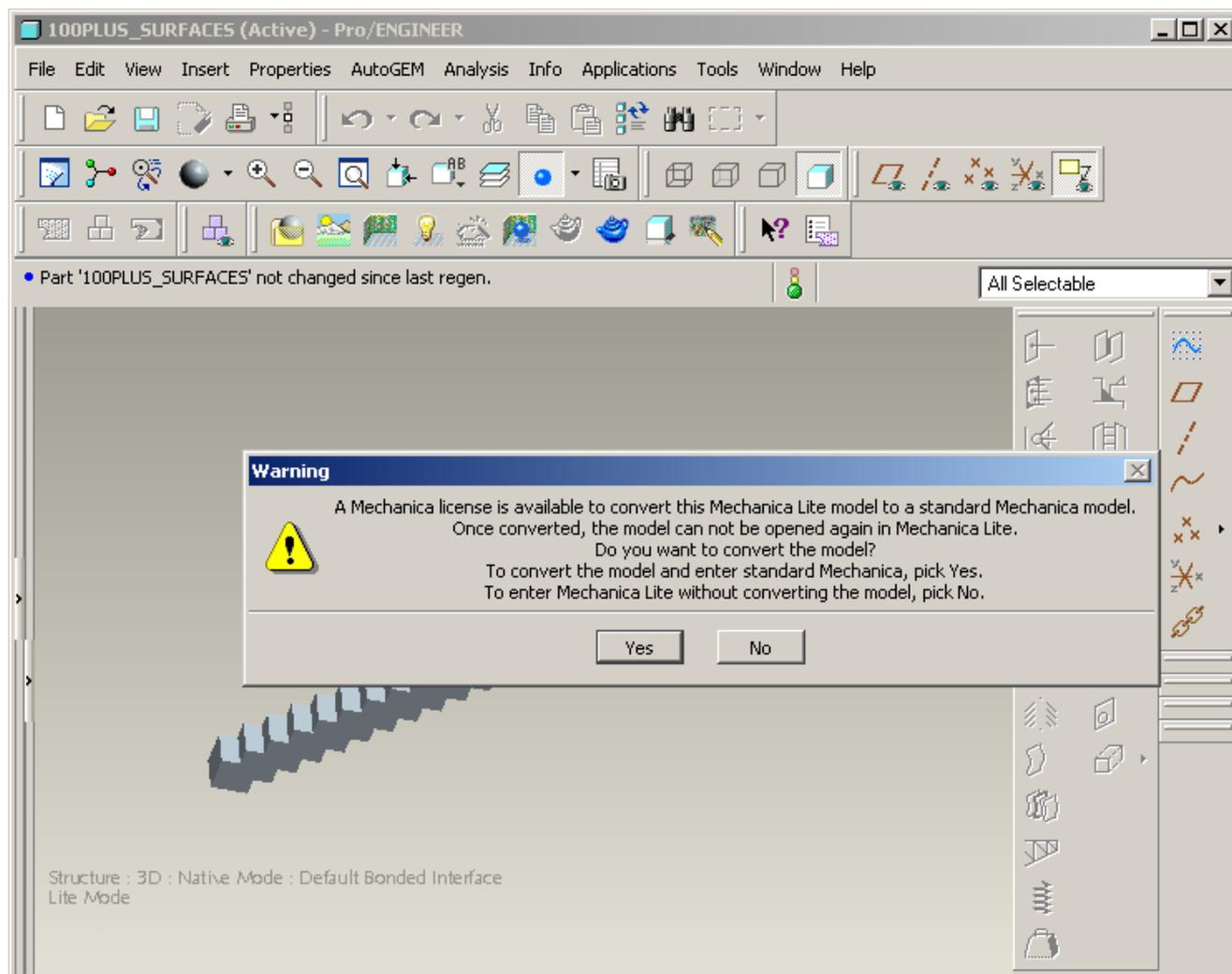
- All – Full access to all Standard Mechanical Result Window Controls
- Process Guide automatically creates animated Von Mises Fringe Stress Window, Displacement Window, and Vector plot of Max Principal Stress
- Windows can be Edited, Deleted or New Windows can be created with full controls



Pro/ENGINEER Mechanical Lite – FAQ

Can you take a Model from Mechanical Lite to Full Mechanical?

- **Yes**
– see message



Pro/ENGINEER Mechanics Lite – FAQ

Can you take a Model from Full Mechanics to Mechanics Lite?

- Yes, but all Mechanics Entities will be Deleted – see message

