



What's New I-deas Simulation 12 and M1

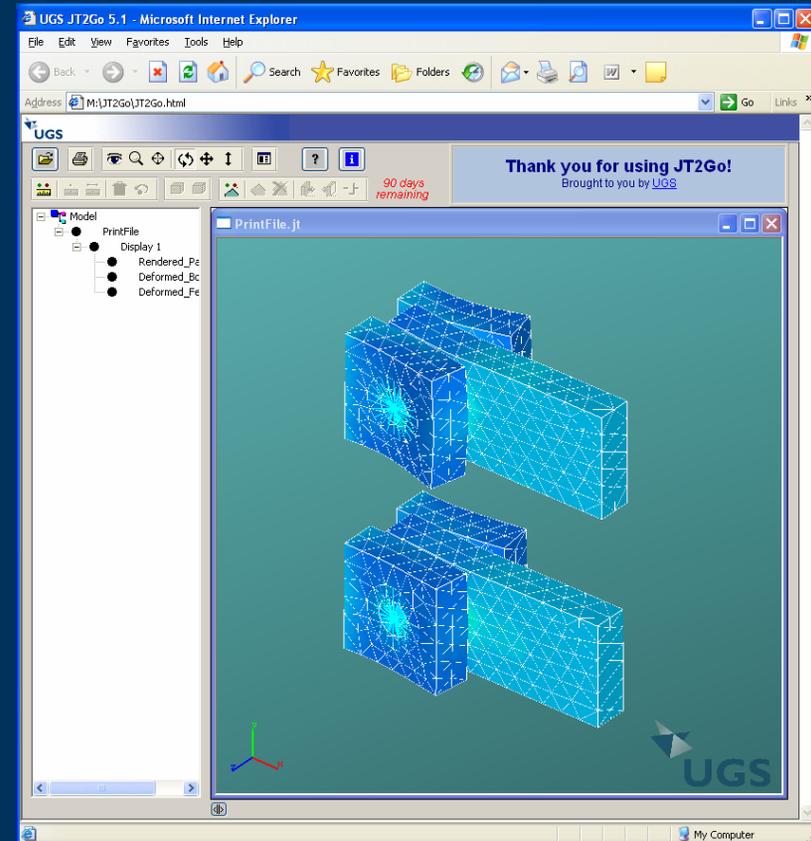
Pete Ogilvie
UGS



I-deas 11m2 / 11m3

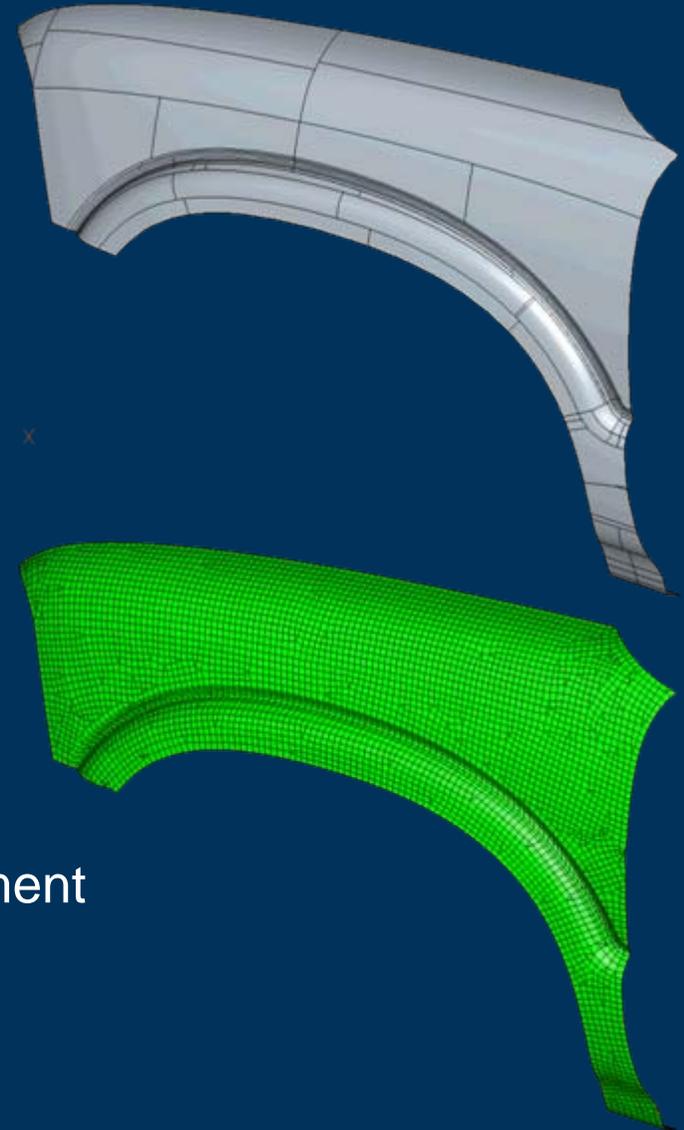


- ▶ Export JT format results from I-deas Visualizer
- ▶ Free viewer at <http://www.jt2go.com/>
 - ▶ Anyone can view files
- ▶ JT Documents
 - ▶ Plug-ins to allow JT Viewers to be embedded in Microsoft Word, Powerpoint and Excel documents
- ▶ Teamcenter Visualization





- ▶ TMG 64 bit version on SGI/HP/Sun platforms
 - ▶ Allows >2GB memory for large problems
- ▶ Quad Mesh assistant
 - ▶ Extension of the Tet Mesh Assistant
 - ▶ Goal is a quad dominant mesh (will contain triangles) that will meet automotive body meshing quality requirements
 - ▶ Uses section meshing tools and element quality tools to improve mesh quality

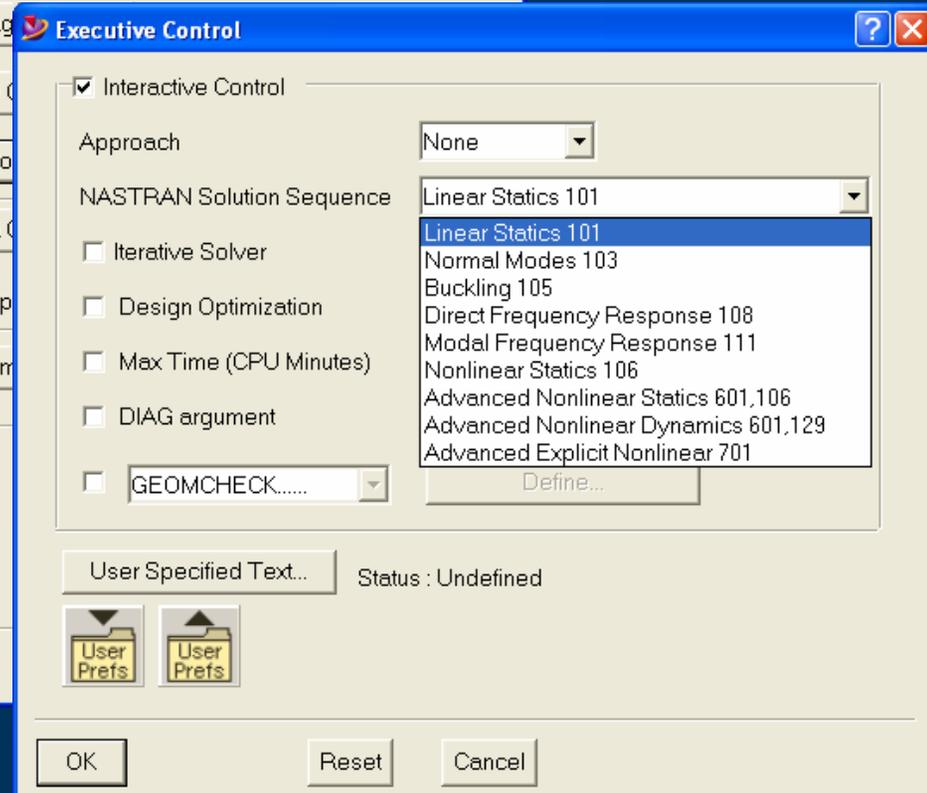
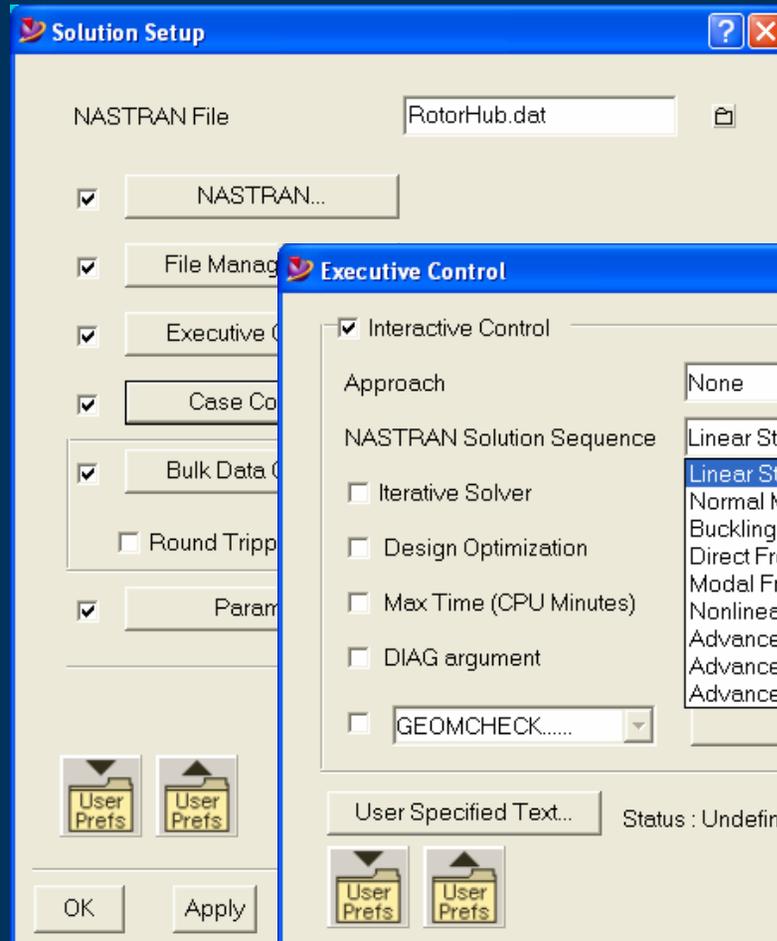




I-deas 11m2 / 11m3 / 12



- ▶ Support for NX Nastran 3 & 4
- ▶ SOL 601 & 701
- ▶ Integrated feel
 - ▶ Similar to Model Solution
 - ▶ Translate solution set
- ▶ Resizable NX Nastran Solution Monitor form





► Laminates

Create Laminate

Full | Feature View

Symmetric with core

ID	Thickness	Angle	Material
4	2	+45	CARBON FIBER
3	1	+0	EPOXY
2	2	-45	CARBON FIBER
1	1	+0	EPOXY

Thickness	Angle	Ply	Material
1	+0	7	EPOXY
2	-45	6	CARBON FIBER
1	+0	5	EPOXY
2	+45	4	CARBON FIBER
1	+0	3	EPOXY
2	-45	2	CARBON FIBER
1	+0	1	EPOXY

Number of plies: 7
Total thickness: 10 mm

Properties... | new | Regular | Top | 1

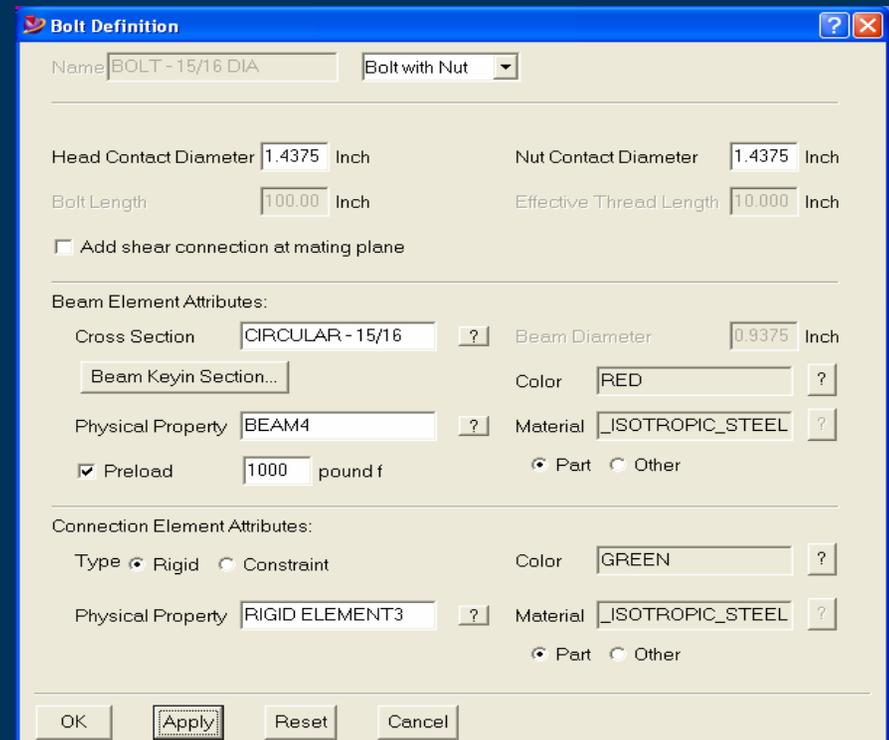
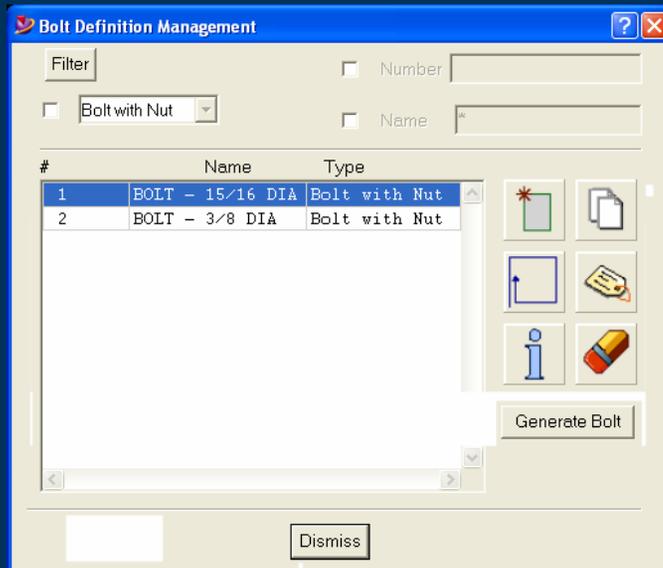
OK | Apply | Reset | Cancel | Help



I-deas 12 - Automatic Bolt Creation



- ▶ Driven by bolt definition
 - ▶ Stored
 - ▶ Reusable
- ▶ Geometry based selection
- ▶ FE based connection

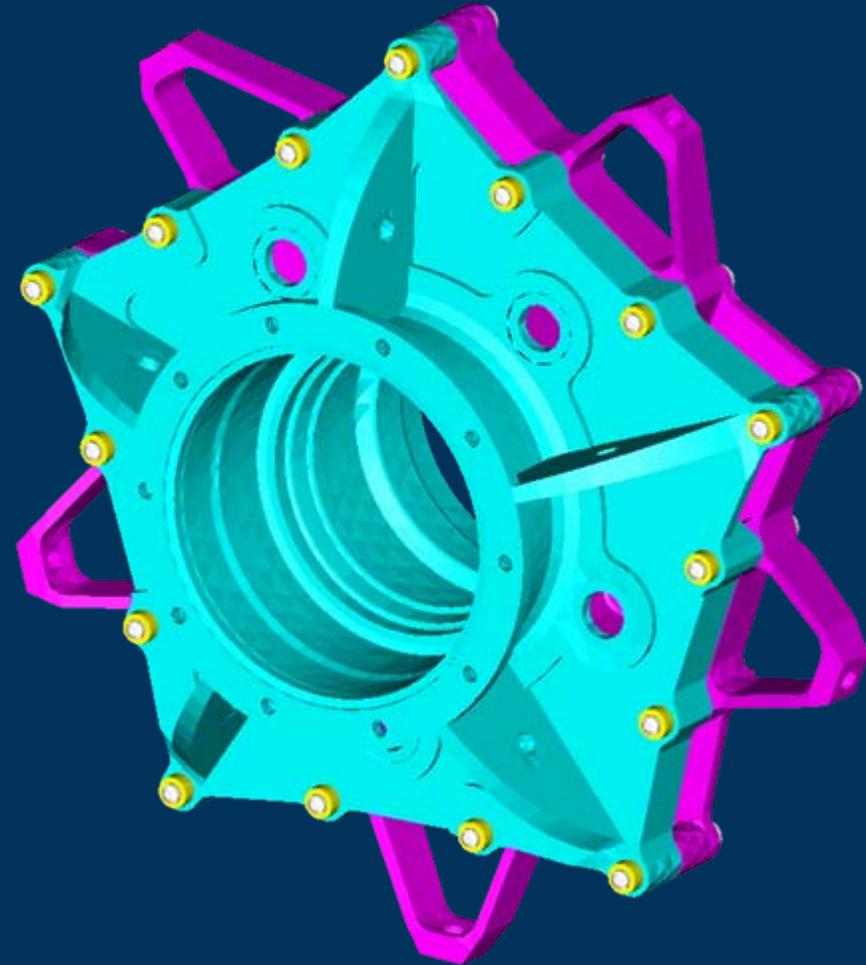




I-deas 12 - Automatic Bolt Creation



- ▶ Graphical preview
- ▶ User defined tolerances
- ▶ Beam cross section table sets diameter
- ▶ Through holes (bolt with nut)
 - ▶ Geometry sets length
- ▶ Bolt in tapped hole
 - ▶ Bolt definition sets length





Automatic Bolt Creation Preferences



- ▶ RMB during 'Generate Bolts'
- ▶ User defined tolerances
 - ▶ Passing – incremental search distance beyond cross section dia.
 - ▶ Add for Failures – range beyond passing to consider a failure. Anything larger is not even reported
- ▶ Color preferences for geometry highlighting/preview

The screenshot shows the 'Bolt Preferences' dialog box with the following settings:

Parameter	Value	Unit	Category
Passing Tol.	0.019685	Inch	
Tol. to add for Failures	0.019685	Inch	
Hole Dia.	0.019685	Inch	Bolthole Finder Tolerances
Coaxiality	00984252	Inch	
Shear Hole Dia.	.0393701	Inch	
Geometry Tolerance	00393701	Inch	
Head Color	WHITE	?	Highlighting
Nut/Tapped Color	YELLOW	?	
Shear Color	CYAN	?	
Shared Color	PINK	?	
Contact Color	BLUE	?	
Deselect/Failed Color	PINK	?	
Bolt Color	WHITE	?	Bolt Geometry
Nut/Thread Color	YELLOW	?	
Shear Plane Color	RED	?	
Deselect Color	RED	?	

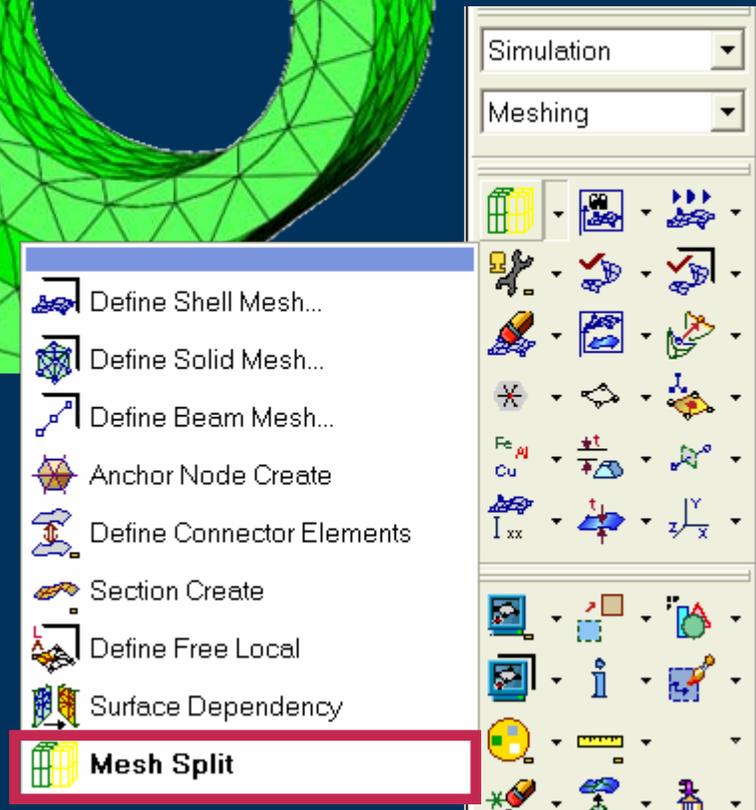
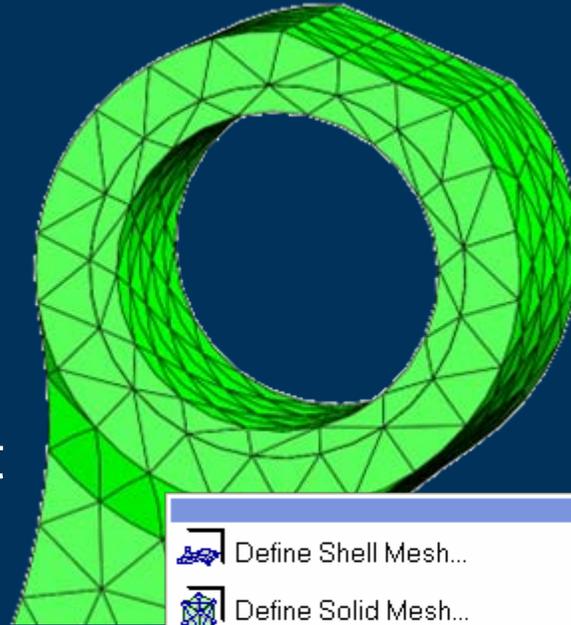
Buttons: OK, Apply, Defaults, Cancel



I-deas 12 - Mesh Split



- ▶ Mesh may be split or disconnected at shared surface
- ▶ Multi bodied parts may be modeled as a single partitioned solid and split at partition(s)
- ▶ Geometry or FE based
 - ▶ Surfaces
 - ▶ FE free faces





I-deas 12 – NX Licensing Daemon



- ▶ Single FlexLM license daemon for I-deas, NX and NX Nastran
 - ▶ One license file for all products
- ▶ Model Solution/Nastran Shared License
 - ▶ Can be used to run Model Solution OR NX Nastran



I-deas 12 – Dynamic Viewing



- ▶ ‘NX like’ capability in I-deas
- ▶ In addition to existing F1, F2, F3 functionality
 - ▶ Does not replace - can use either
- ▶ Rotate: Click & hold MB2 
 - ▶ Action is identical to existing F3
 - ▶ MB2 (click & release) still works to accept default prompt
- ▶ Pan: Click & hold MB2 + MB3  + 
- ▶ Zoom: Click & hold MB2 + MB1  +  or 
- ▶ Scroll wheel (if available)



I-deas 12 M1 – Platform Support



- ▶ Windows XP 64
 - ▶ I-DEAS 12m1, **as a 32-bit application**, has now been certified on Windows XP X64
- ▶ Large Address Aware Memory Mode
 - ▶ LAA mode provides access to extended memory resources greater than 2GB on platforms that support it
 - ▶ Windows XP x32, Windows XP x64, Sun Solaris, and HP-UX
 - ▶ LAA can address 3 (maybe 4) GB
- ▶ In user param file set
 - ▶ `Memory.AutoSetting: 2`
 - ▶ You adjust Display List, software adjusts remaining params



I-deas 12 M1 – Platform Support



- ▶ LAA not implemented in Model Solution
- ▶ LAA will allow you to handle larger models in meshing, better response in post, and other applications run better concurrent with I-deas



- ▶ Contact Control Enhancements
 - ▶ Initial Penetration/Gap
 - ▶ Calculated
 - ▶ Calculate the initial penetration or gap directly from the nodal coordinates
 - ▶ Basically, do nothing
 - ▶ Zero penetration
 - ▶ Set any calculated initial penetration to zero to eliminate the numerical error
 - ▶ Unintentional contact caused by mismatched elements will be corrected
 - ▶ Zero penetration & gap
 - ▶ Set any calculated initial penetration and gap to zero to eliminate the numerical error



- ▶ Contact Stress Method for Solid Elements
 - ▶ Option to calculate contact stress from the element displacements or from the element contact forces is now in the UI, rather than in the param file
 - ▶ Contact stress from displacements includes stress due to everything, not just the contact force



- ▶ Follower Stiffness for Surface Pressure Loads
 - ▶ Without follower stiffness, the software may not correctly estimate the buckling load if it's assumed the surface pressure direction remains perpendicular to the element face
 - ▶ On by default, to ignore include the `Solver.NoFollowerStiffness:1` entry in your param file



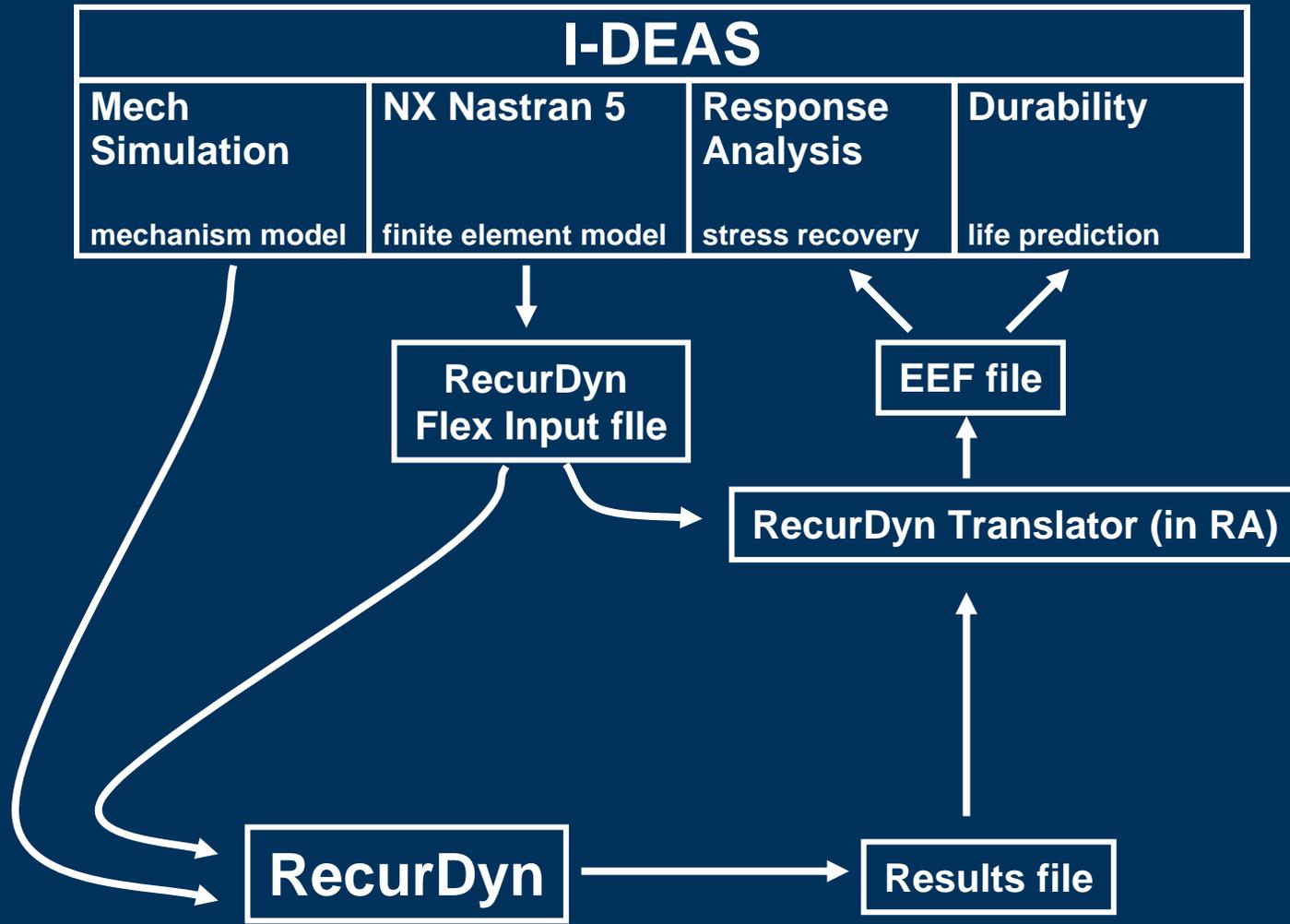
I-deas 12 M1 – Response Analysis



- ▶ Support for RecurDyn mechanism results
 - ▶ Can translate results from a RecurDyn analysis to an Event Evaluation File (.eef)
 - ▶ .eef can then be used in RA to create stress results, or used in Durability Analysis
 - ▶ .eef are Modal Responses
 - ▶ Think of it as a cycle
- ▶ DDAM
 - ▶ Uses the newer Navy specification (DDS-072-1) when defining a DDAM event
 - ▶ Allows use of proprietary DDAM coefficients



Recurdyne and I-deas





- ▶ Ansys
 - ▶ Support for version 10 results
- ▶ NX Nastran 4.1
 - ▶ Glue Joints
 - ▶ Glue Joints? Similar to contact, but surfaces are assumed to always remain in contact, tension and compression
 - ▶ I-deas contact surface can be exported as Glue Joints
 - ▶ Can be used in all solutions except 601, 701



I-deas 12 M1 – External Solvers



▶ Glue Joints

- ▶ Need to use Contact Pairs, not Global Search
- ▶ Don't include in Boundary Condition Set, use NX Nastran UI

The image displays three overlapping dialog boxes from the I-DEAS software interface:

- Solution Setup:** Shows the NASTRAN File path as '2x4modes.dat'. The 'Case Control' checkbox is checked and highlighted with a red box.
- Case Control:** Shows the 'Current Solution Sequence' as 'Linear Statics 101'. The 'ECHO' dropdown is set to 'SORT'. The 'Subcase Definition' section shows 'Subcase Number' 1 and 'Global Case' checked. The 'Glue Joints...' button is highlighted with a red box.
- Contact Set:** Shows the 'Contact Set' name as 'GLUED JOINTS'. The 'Global Search' checkbox is unchecked. The 'Search Dist. Between' is set to 0 and 2.54. The 'Friction' is set to 0. The 'Regions...' and 'Pairs...' buttons are visible.

This is a close-up of the 'Contact Set' dialog box. The 'Contact Set' field contains 'GLUED JOINTS'. Under 'Automatic Parameters', 'Global Search' is unchecked. 'Search Dist. Between' is set to 0 and 2.54. 'Friction' is set to 0. Under 'Advanced Parameters', there are 'Regions...' and 'Pairs...' buttons. 'OK' and 'Cancel' buttons are at the bottom.



Thank You!