HYPERWORKS X HIGHLIGHTS

Altair

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OUR BROADENING SCOPE

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INTERCONNECTED SYSTEMS

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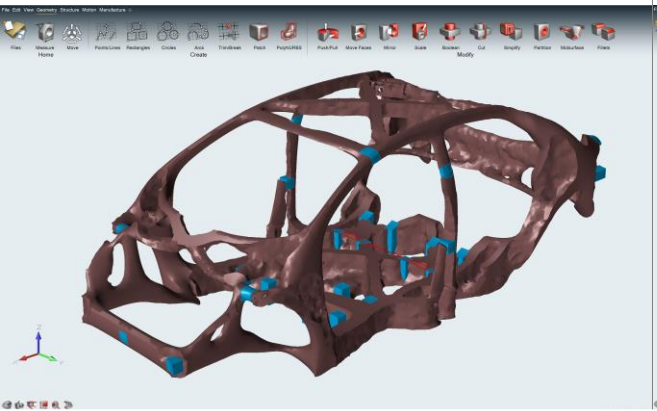
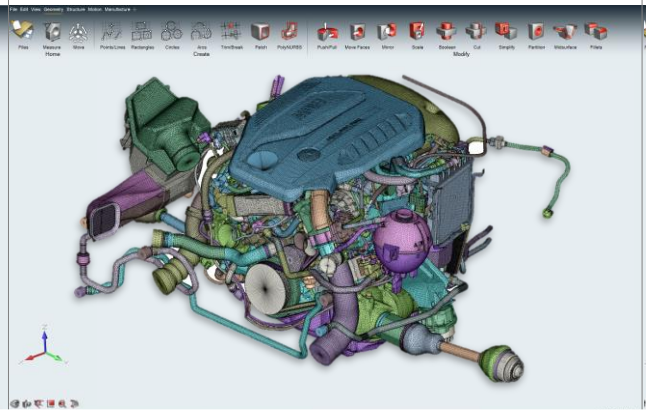
COMMON ENVIRONMENT UNITING DESIGN/ENGINEERING COMMUNITY

Inspire



Ideation and Manufacturing Simulation

SimLab



Complex Solid Assemblies and Multiphysics

HyperMesh

Complex Shell Model Assemblies

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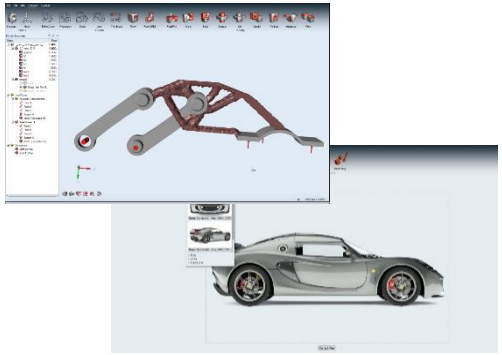
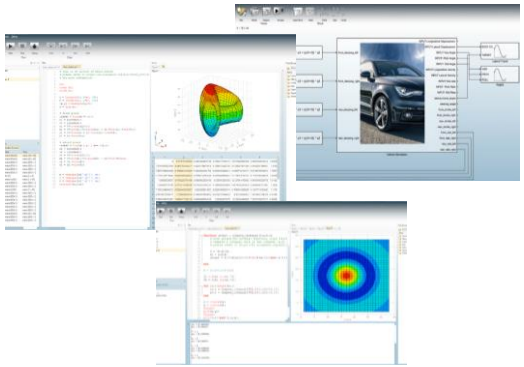
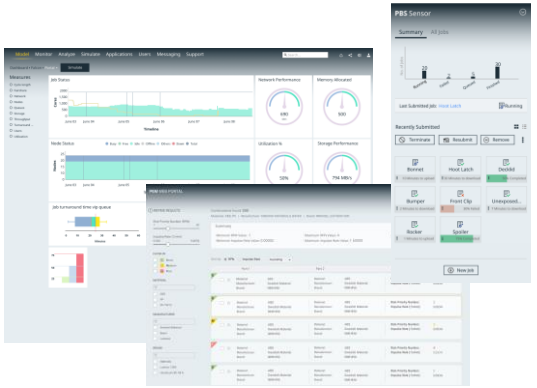
SOLIDTHINKING



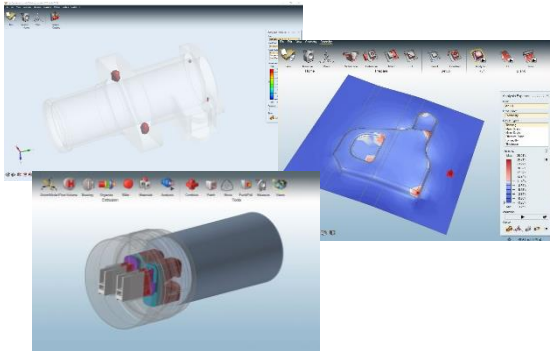
SYSTEMS



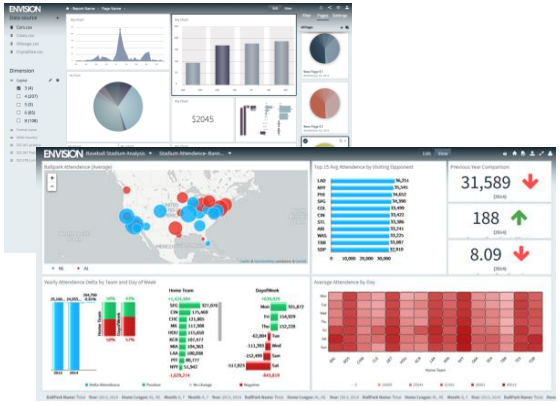
PBS



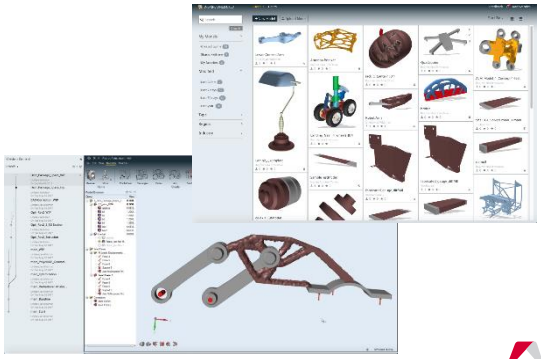
MANUFACTURING



SMARTWORKS



UNLIMITED



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HYPERWORKSX FOCUS

ROBUSTNESS

Model and analyze hiccups-free, error-free

EFFICIENCY

Find the most efficient path with process-driven workflows

PERFORMANCE

Leverage all the power of your hardware resources

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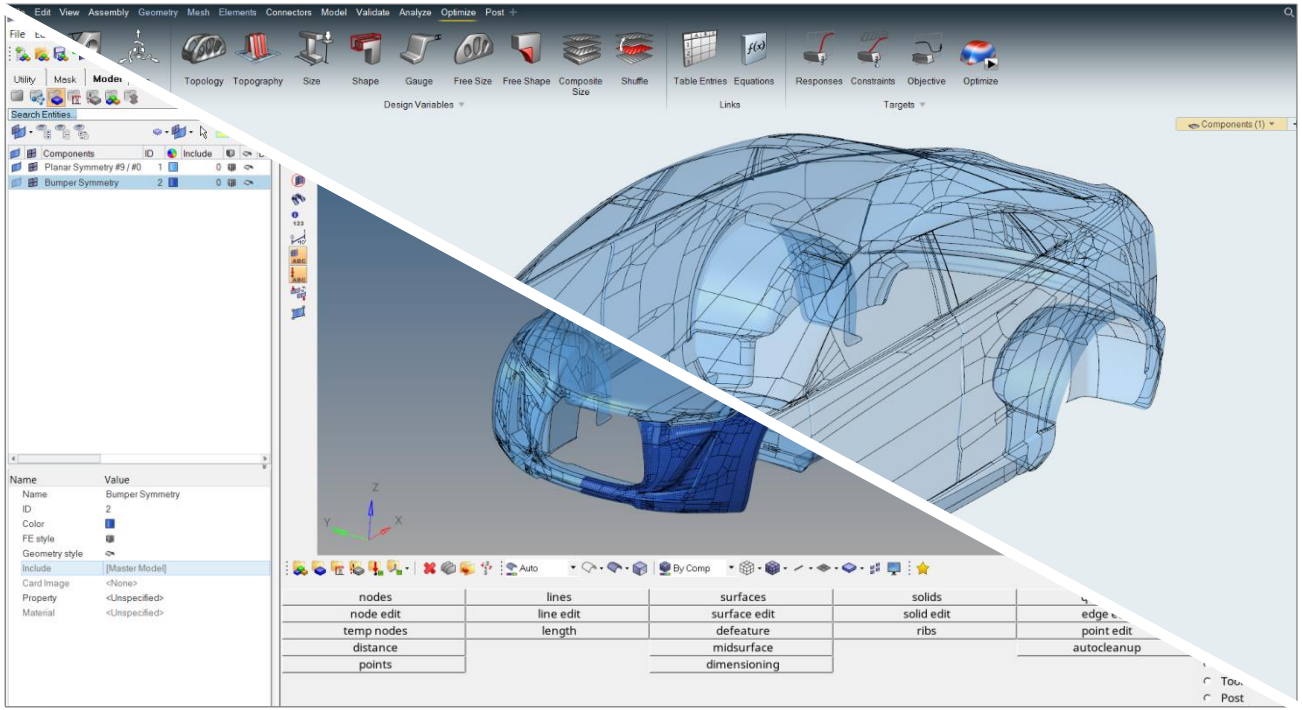
GRACEFUL TRANSITION TO NEW USER EXPERIENCE

All models, scripts, processes continue to work - Same HM file, Same DB



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GETTING AROUND HYPERWORKS X

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GETTING AROUND HYPERWORKS X

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GETTING AROUND HYPERWORKS X

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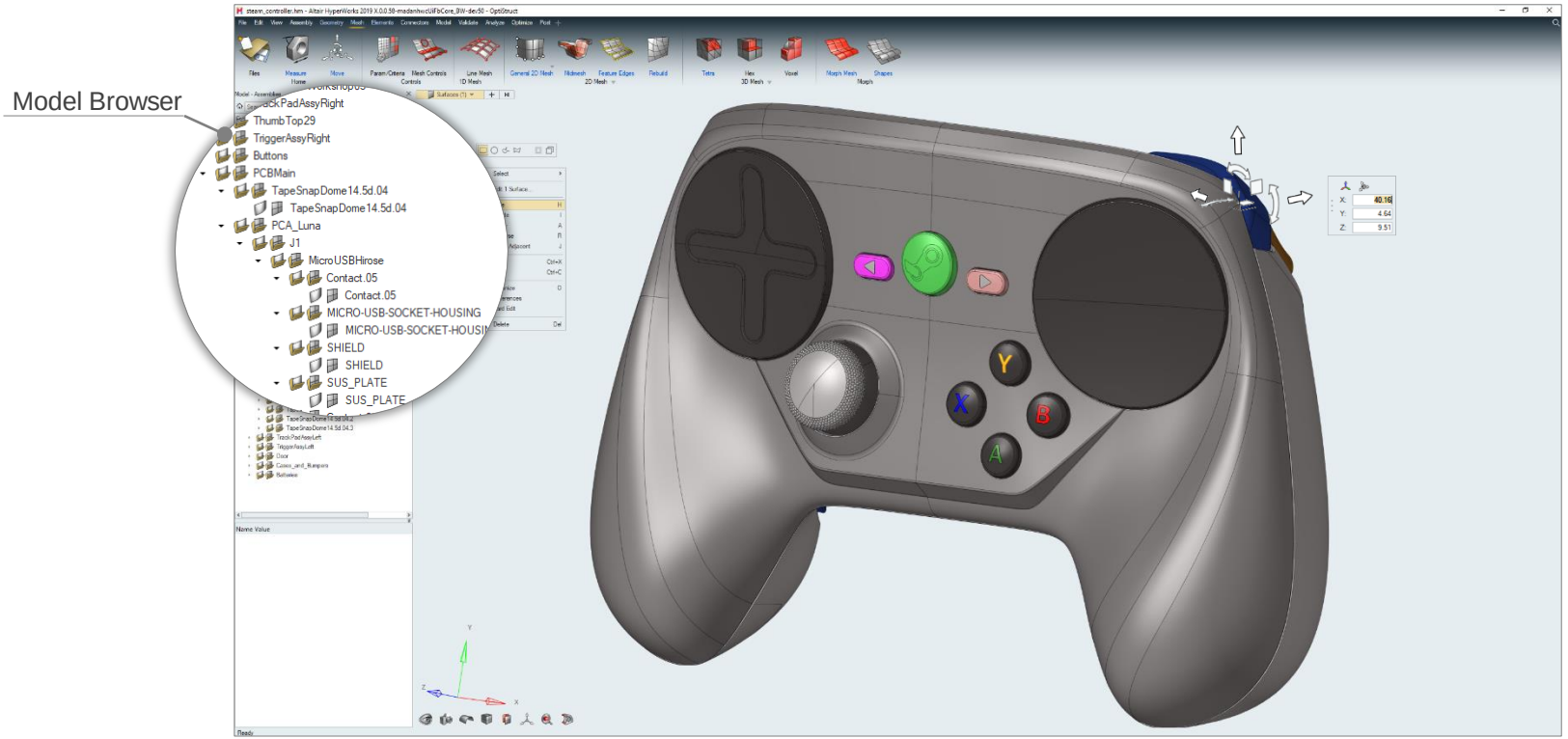
GETTING AROUND HYPERWORKS X



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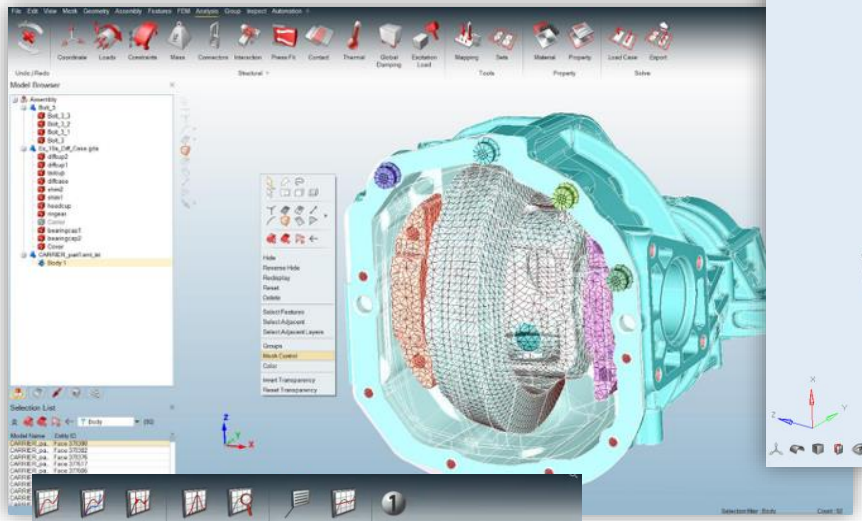
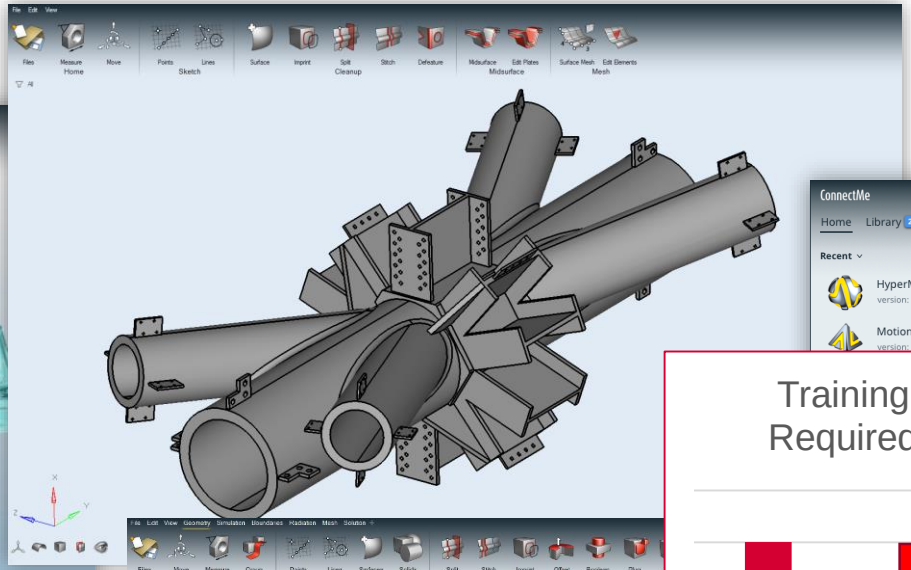
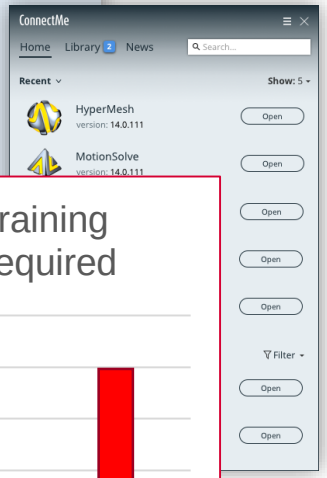
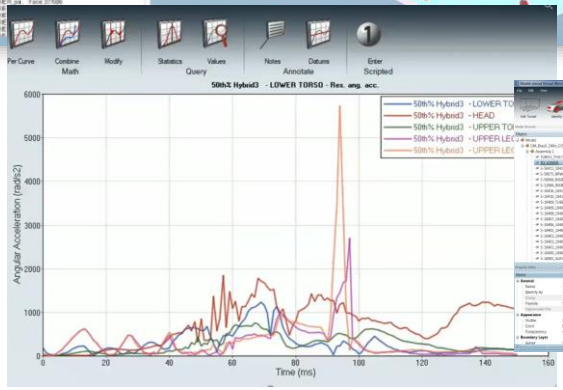
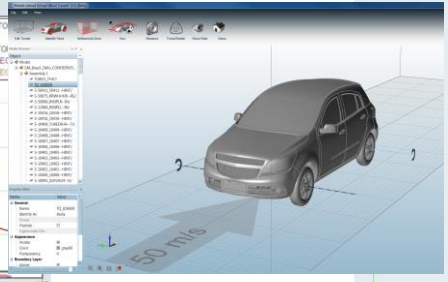
HYPERWORKS

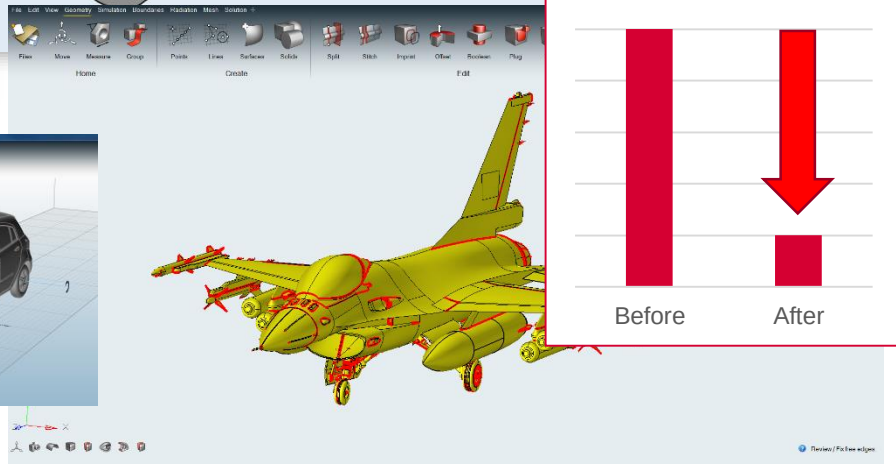












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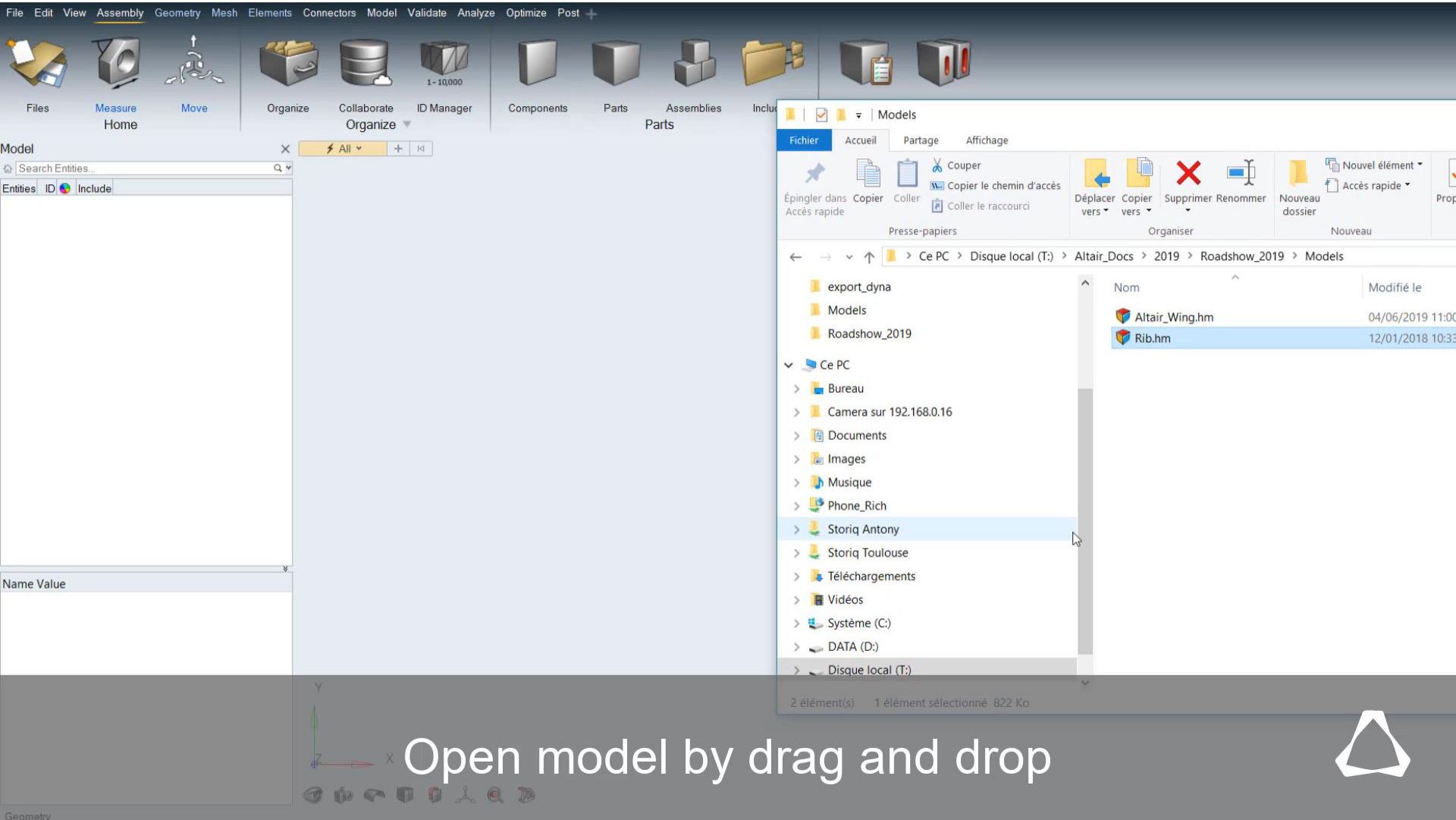
HWX 2019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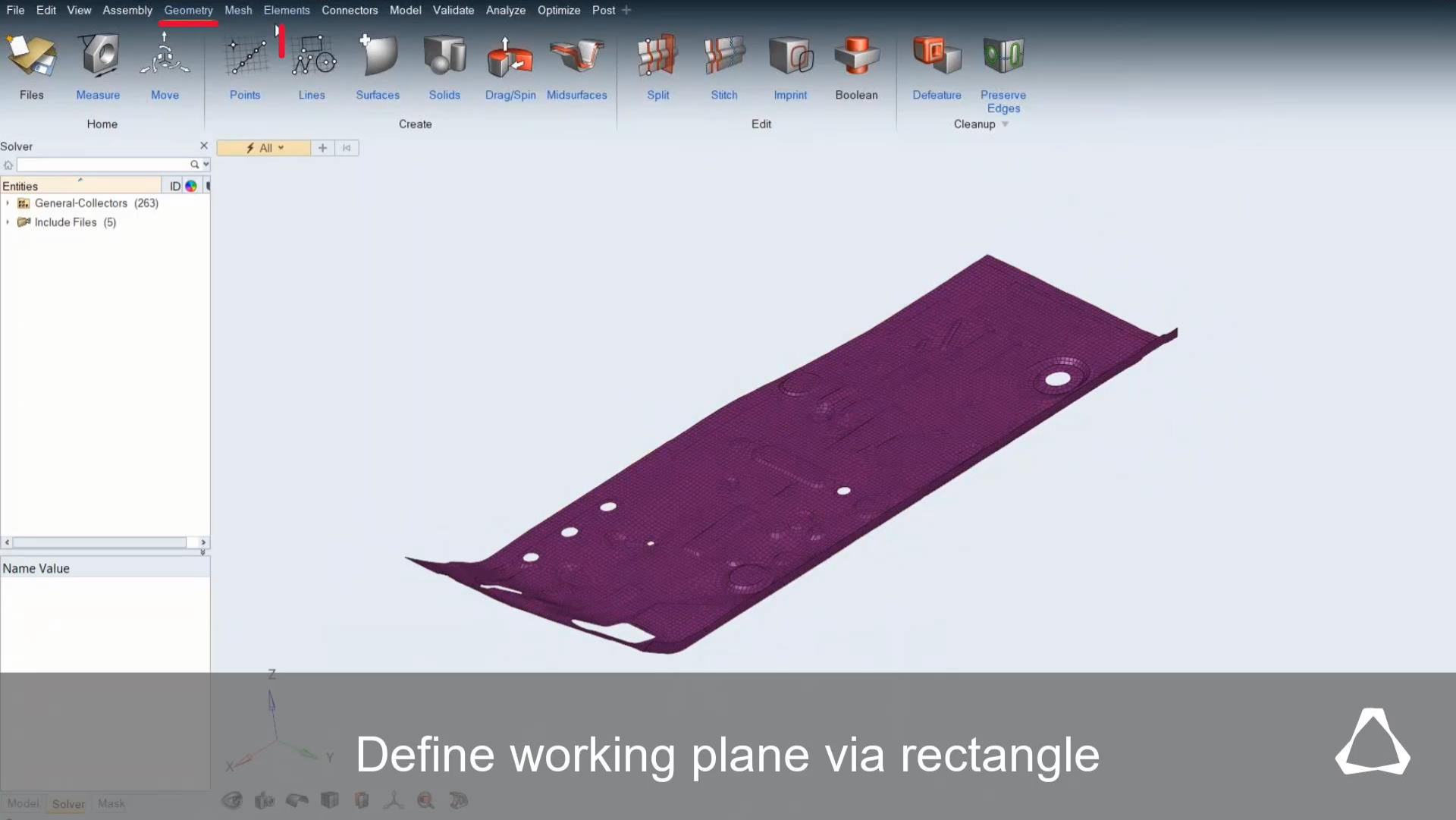
Files Measure Move
Home
Organize Collaborate ID Manager
Organize
Components Parts Assemblies
Parts
Model
Search Entities...
Entities ID Include
Name Value
Models
Fichier Accueil Partage Affichage
Couper
Copier le chemin d'accès
Coller le raccourci
Épingler dans Accès rapide
Copier
Coller
Presse-papiers
Déplacer vers
Copier vers
Supprimer
Renommer
Organiser
Nouveau dossier
Nouvel élément
Accès rapide
Nouveau
Ce PC › Disque local (T:) › Altair_Docs › 2019 › Roadshow_2019 › Models
export_dyna
Models
Roadshow_2019
Ce PC
Bureau
Camera sur 192.168.0.16
Documents
Images
Musique
Phone_Rich
Storiq Antony
Storiq Toulouse
Téléchargements
Vidéos
Système (C:)
DATA (D:)
Disque local (T:)
Nom
Modifié le
Altair_Wing.hm
04/06/2019 11:00
Rib.hm
12/01/2018 10:33
2 élément(s) 1 élément sélectionné 822 Ko
Open model by drag and drop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Files Measure Move
Points Lines Surfaces Solids Drag/Spin Midsurfaces
Split Stitch Imprint Boolean
Defeature Preserve Edges
Home
Create
Edit
Cleanup
Solver
All
Entities ID
General-Collectors (263)
Include Files (5)
Name Value
Z
X
Y
Model Solver Mask
Define working plane via rectangle

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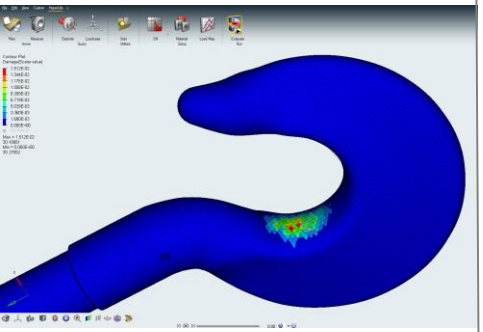
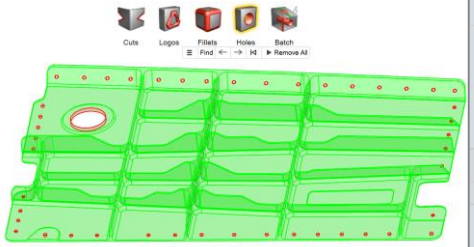
HYPERWORKS 2019 X - TARGETED WORKFLOWS

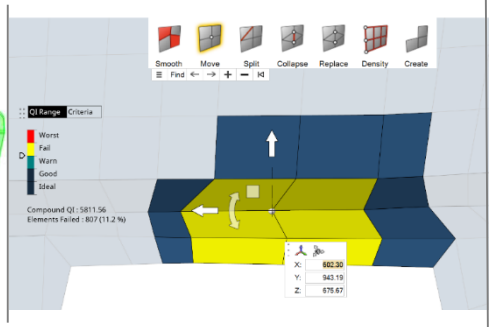
Fatigue



Easy-to-learn solution for fatigue life prediction on a solver-neutral framework

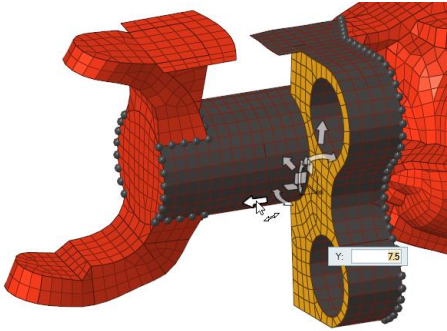
Geometry & Meshing





Decrease model build time with efficient workflows including: geometry creation and editing, mid-surface extraction, surface meshing and midmeshing, mesh quality correction

Morphing



Morphing is no longer an expert-level tool. Click and morph directly on your model

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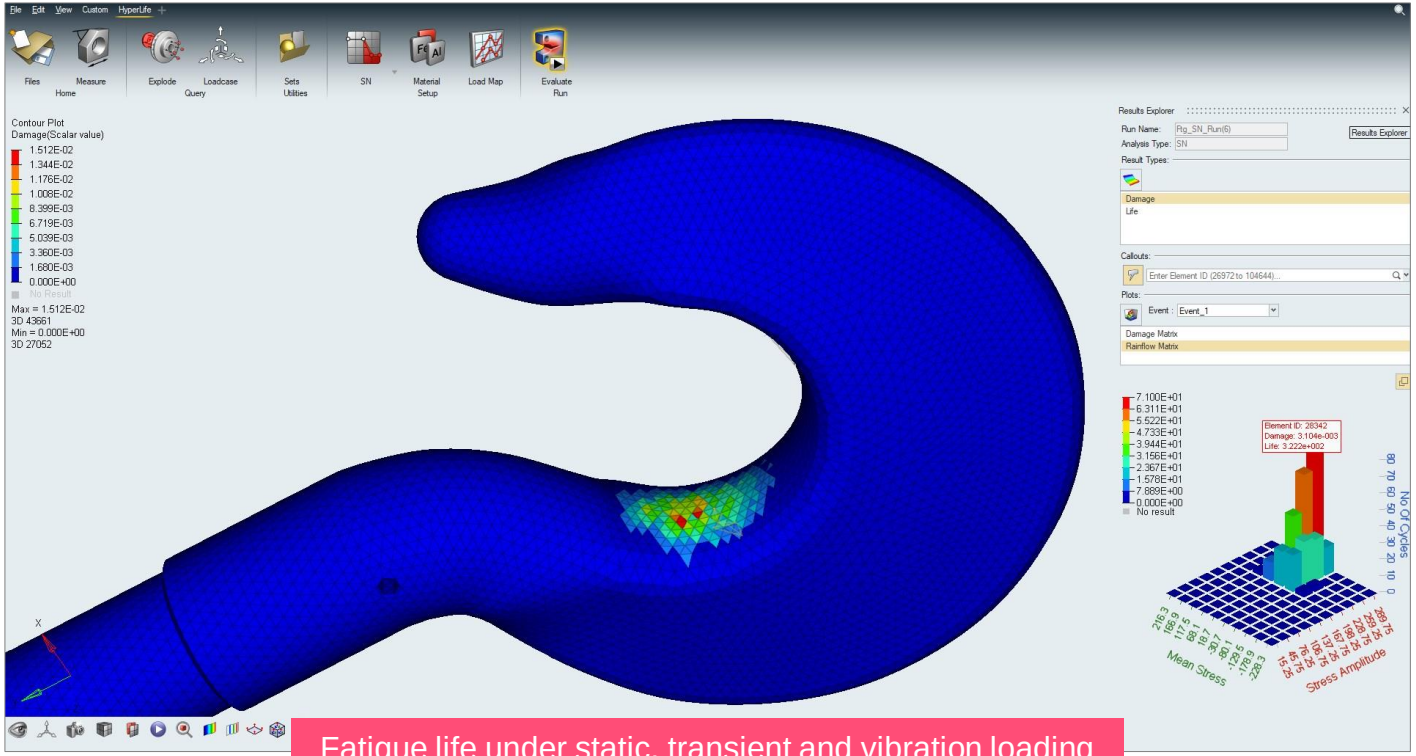
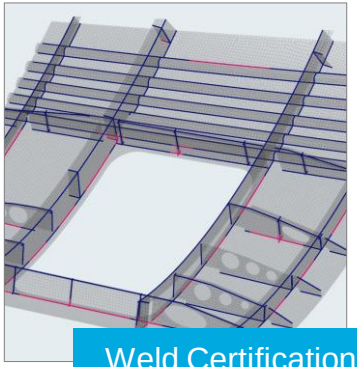
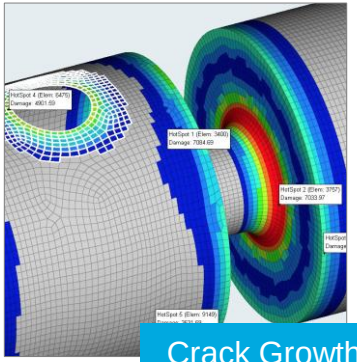
ALTAIR HYPERLIFE – FATIGUE AND DURABILITY PLATFORM



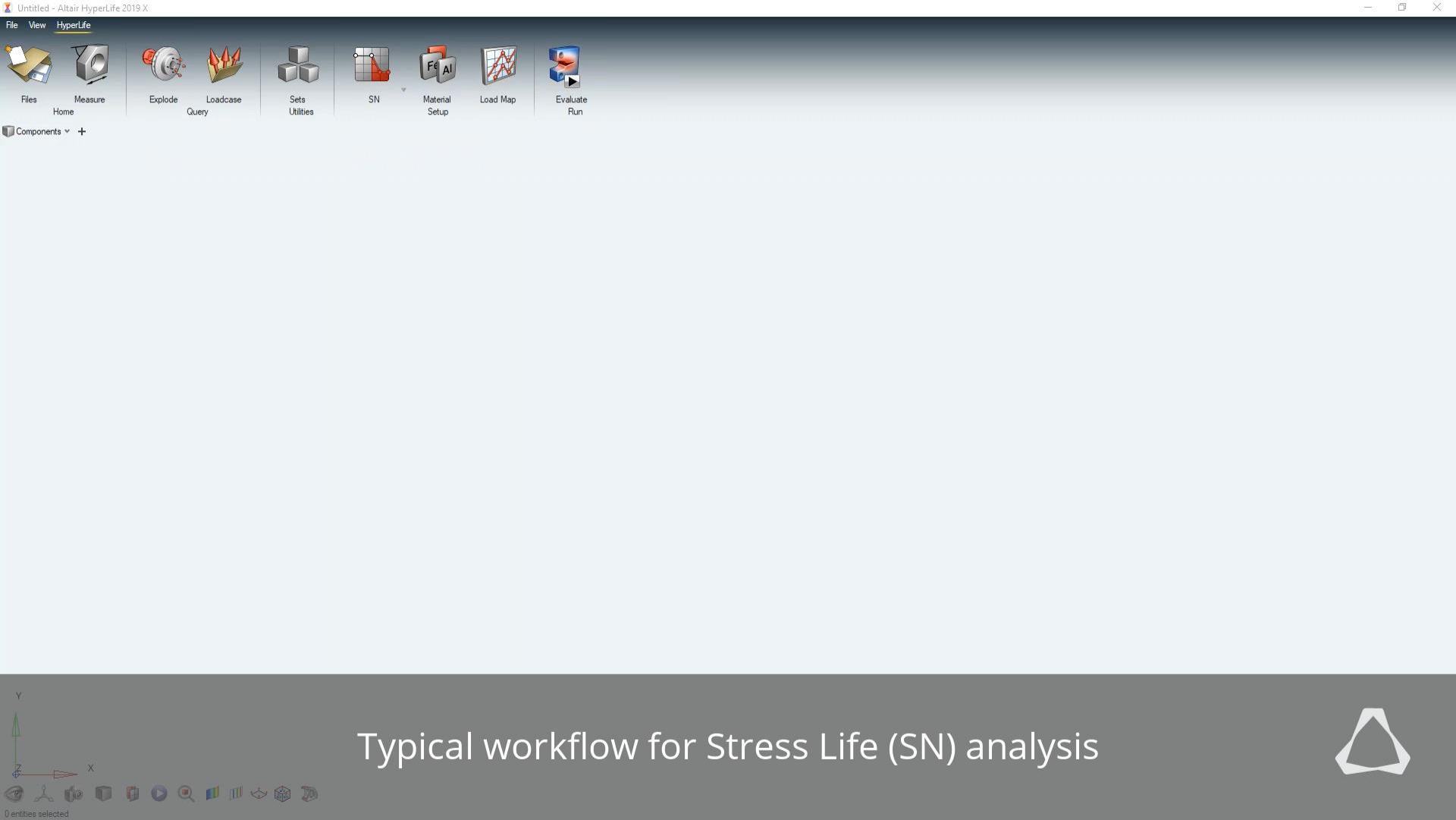
Fatigue life under static, transient and vibration loading



Weld Certification



Crack Growth


Untitled - Altair HyperLife 2019 X
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HyperLife
Files
Measure
Home
Explode
Loadcase
Query
Sets
Utilities
SN
Material
Setup
Load Map
Evaluate
Run
Components
Y
Z
X
0 entities selected
Typical workflow for Stress Life (SN) analysis

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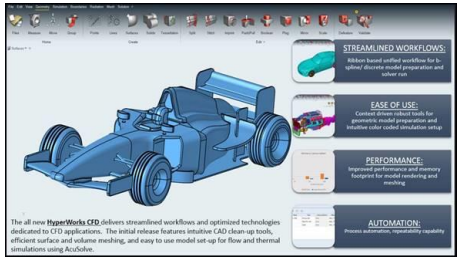
HYPERWORKS 2019.1 X - TARGETED WORKFLOWS

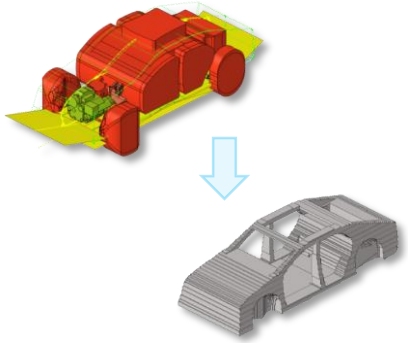
CFD



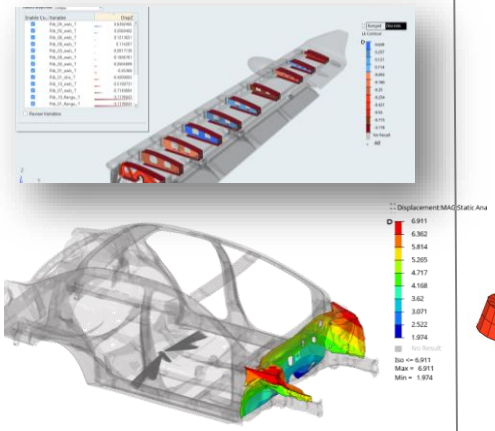
Easy-to-learn solution
for CFD workflows

Optimization Workflows

Conceptual

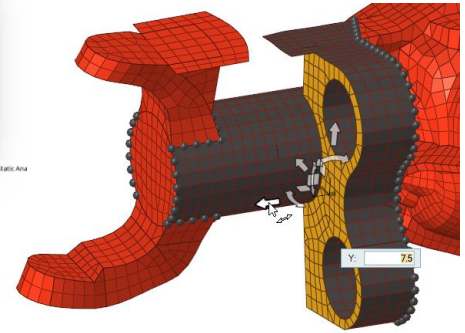


Size & Shape



Optimize your problem from beginning to end of the design cycle

GPU Enabled Morphing



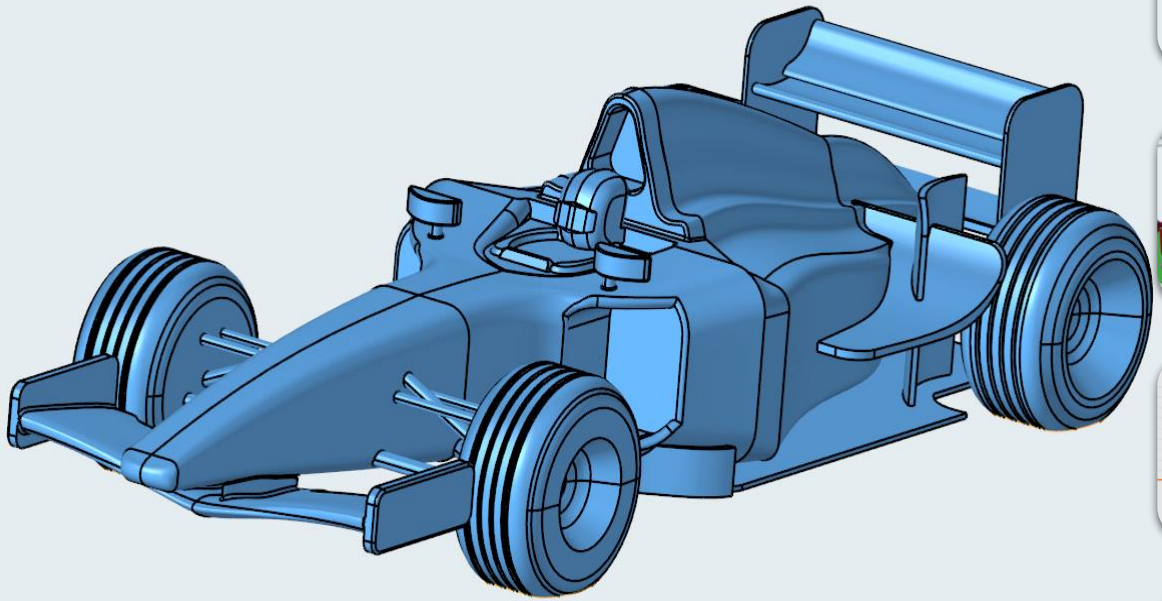
Potentially 10X Faster!

File Edit View Geometry Simulation Boundaries Radiation Mesh Solution

Files Measure Move Group | Points Lines Surfaces Solids Tessellation | Split Stitch Imprint Push/Pull Boolean Plug Mirror Scale | Defeature Validate

Home Create Edit

Surfaces



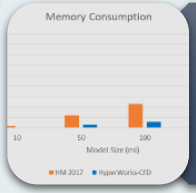
HYPERWORKS – CFD

STREAMLINED WORKFLOWS:

Ribbon based unified workflow for b-spline/ discrete model preparation and solver run

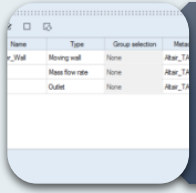
EASE OF USE:

Context driven robust tools for geometric model preparation and intuitive color coded simulation setup



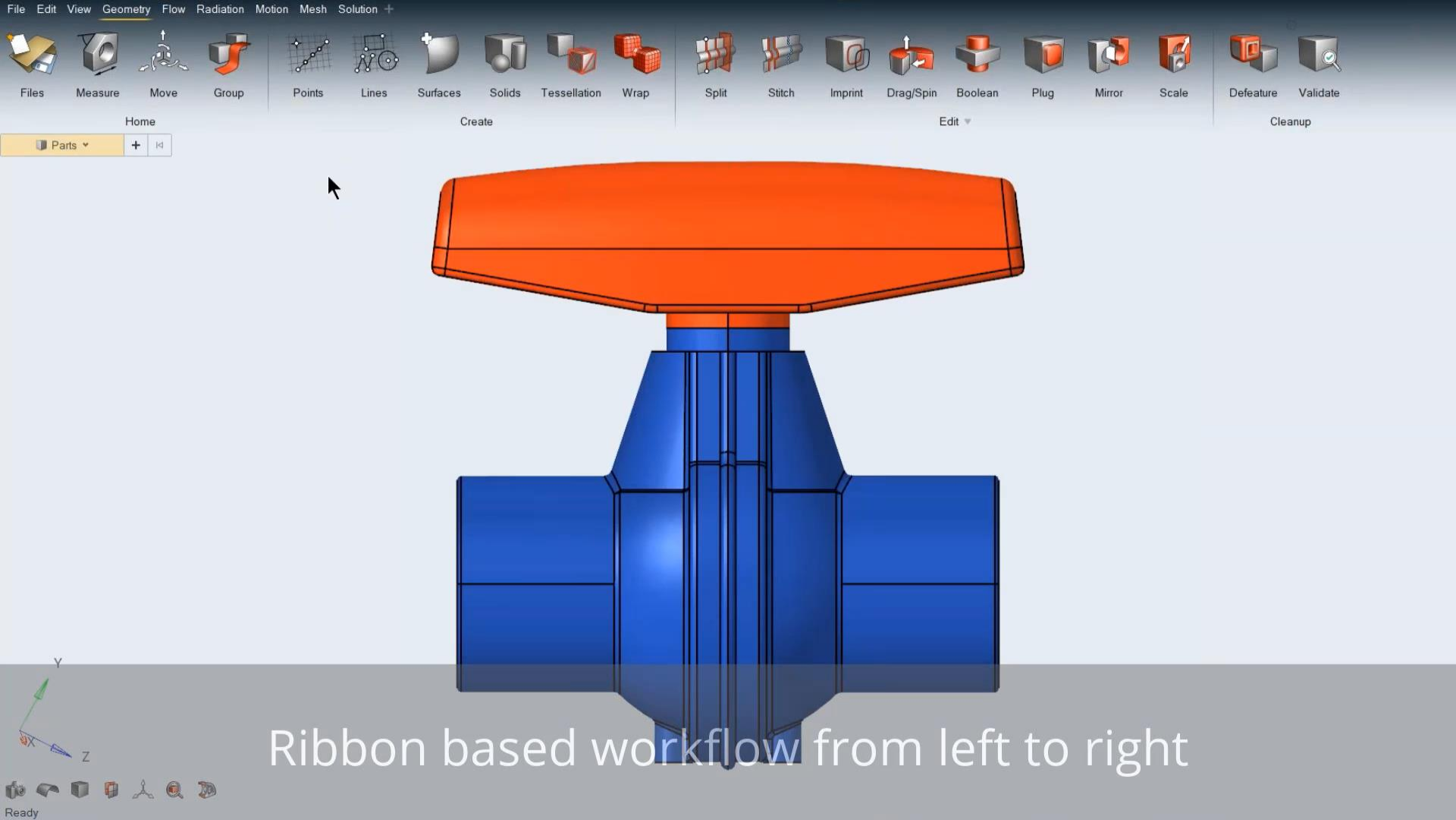
PERFORMANCE:

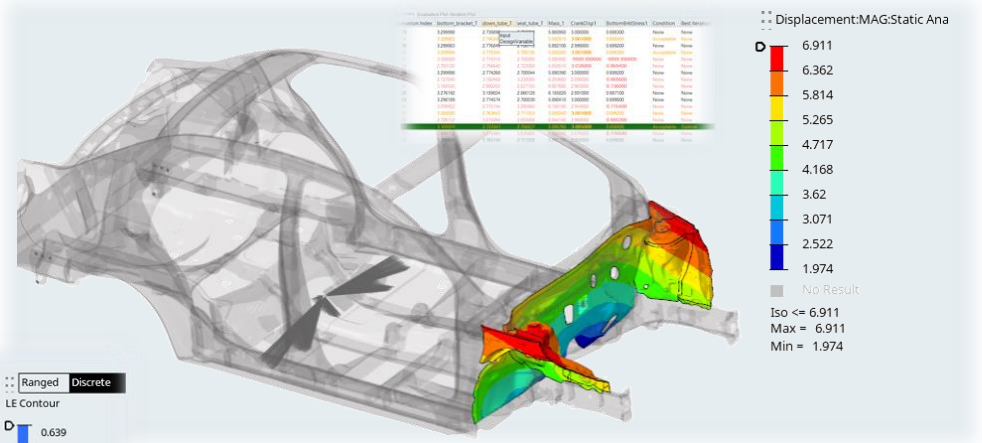
Improved performance and memory footprint for model rendering and meshing

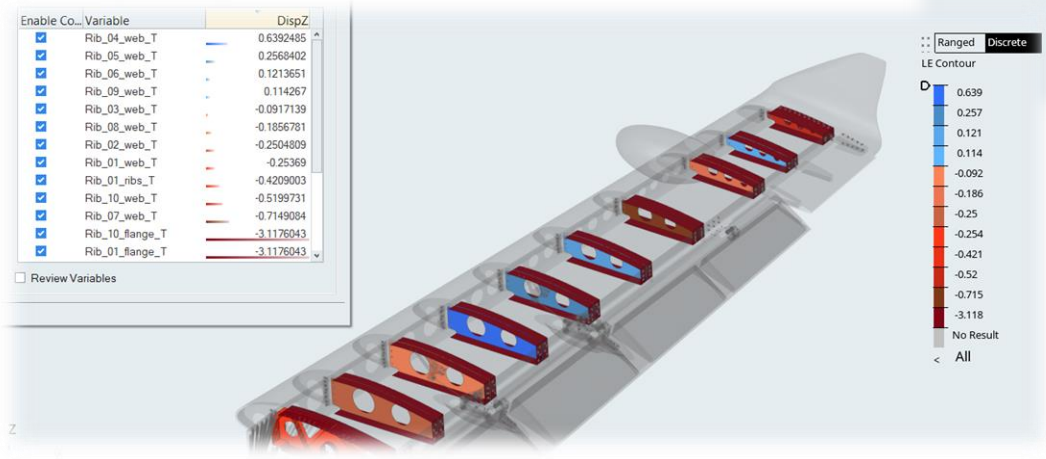


AUTOMATION:

Process automation, repeatability capability with template manager


File Edit View Geometry Flow Radiation Motion Mesh Solution
Files Measure Move Group
Home
Points Lines Surfaces Solids Tessellation Wrap
Create
Split Stitch Imprint Drag/Spin Boolean Plug Mirror Scale
Edit
Defeature Validate
Cleanup
Parts
Y
Z
Ready
Ribbon based workflow from left to right





HYPERWORKS X DESIGN EXPLORATION

HyperWorks 2019.1

Altair

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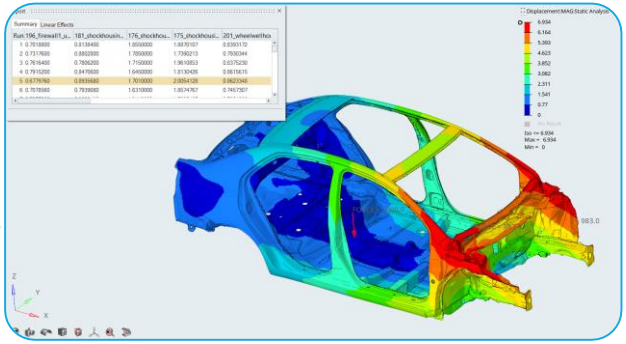
DESIGN INSIGHT

- Review, plot, and compare results from multiple runs

Solver Results Table & Visualization

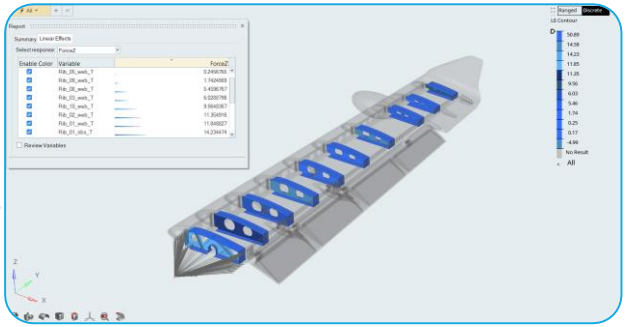
Load results for any exploration run



- Discover which attributes contribute most to behavior

Linear Effects Plot & Visualization

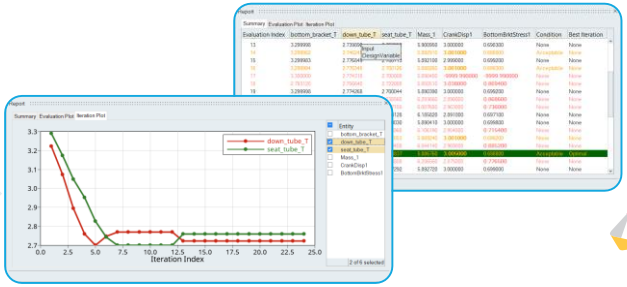
Input sensitivities mapped on model



- Find optimal designs

Optimization Tables & Plots

Integrated post-processing



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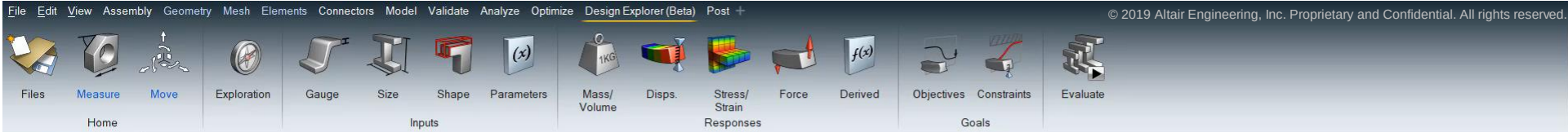
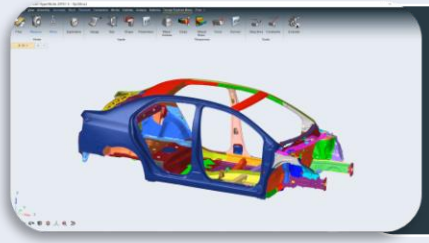
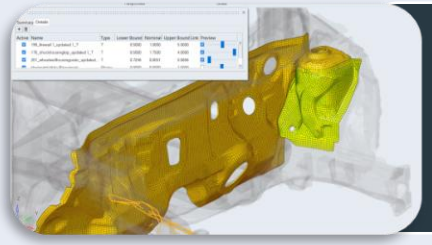




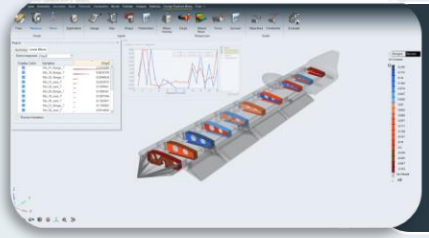
End-to-End Workflow

Ribbon-based workflow captures everything from input & response definition, to multi-run execution, to post-processing and results interpretation



Ease of Use

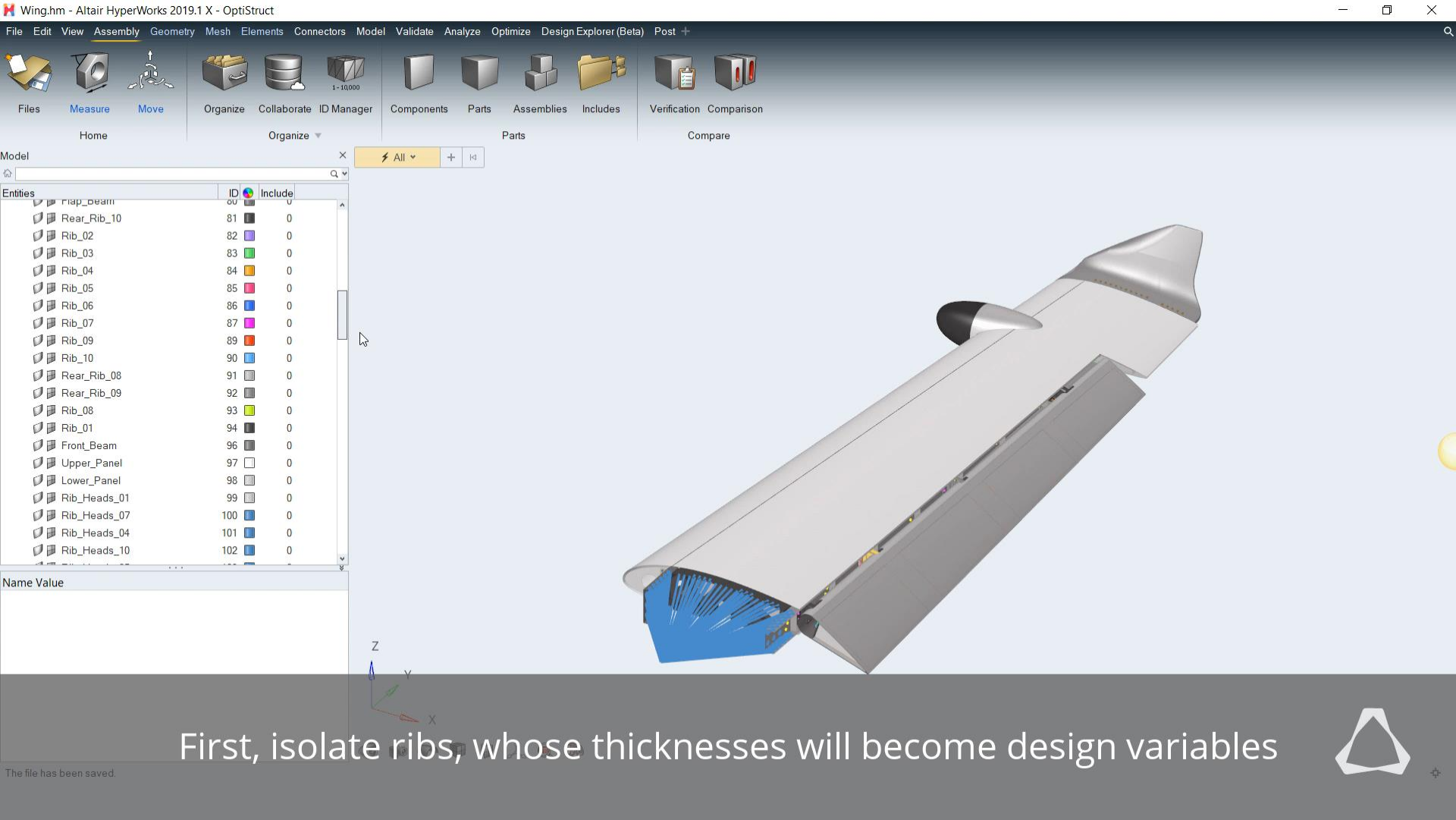
Interaction with model graphics makes design variable creation and response definition interactive



Insight

- Learn which attributes contribute most to behavior
- Review, plot, and compare results from multiple runs
- Find optimal designs

The brand new **HyperWorks Design Explorer** provides a complete end-to-end workflow for multi-run simulations, including designs-of-experiments and optimizations. The workflow includes set-up, evaluation, and – most importantly – insightful interpretation of results, in an easy-to-use, intuitive environment, tightly integrated into the pre-processing environment.


Wing.hm - Altair HyperWorks 2019.1 X - OptiStruct
File Edit View Assembly Geometry Mesh Elements Connectors Model Validate Analyze Optimize Design Explorer (Beta) Post
Files Measure Move Organize Collaborate ID Manager Components Parts Assemblies Includes Verification Comparison
Home Organize Parts Compare
Model
All
Entities ID Include
Rear_Rib_10 81 0
Rib_02 82 0
Rib_03 83 0
Rib_04 84 0
Rib_05 85 0
Rib_06 86 0
Rib_07 87 0
Rib_09 89 0
Rib_10 90 0
Rear_Rib_08 91 0
Rear_Rib_09 92 0
Rib_08 93 0
Rib_01 94 0
Front_Beam 96 0
Upper_Panel 97 0
Lower_Panel 98 0
Rib_Heads_01 99 0
Rib_Heads_07 100 0
Rib_Heads_04 101 0
Rib_Heads_10 102 0
Name Value
Z
Y
X
The file has been saved.
First, isolate ribs, whose thicknesses will become design variables

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HWX 2019
MORPHING

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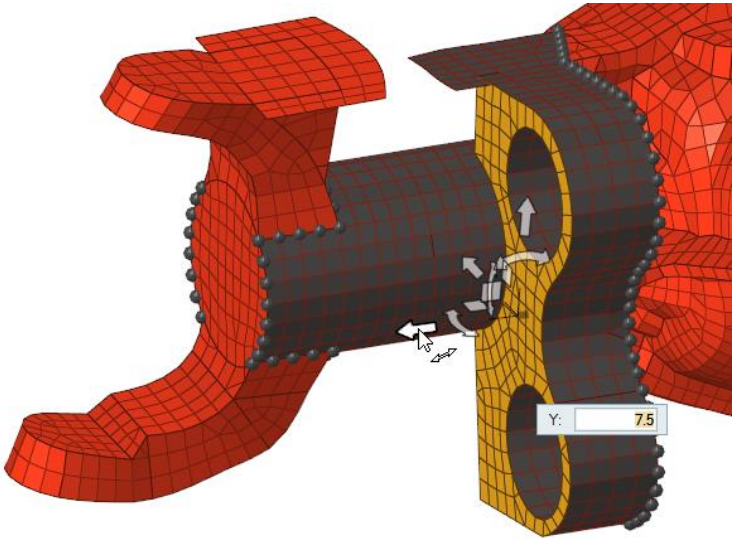
MORPHING TOOLS: NEW USER EXPERIENCE IN 2019X

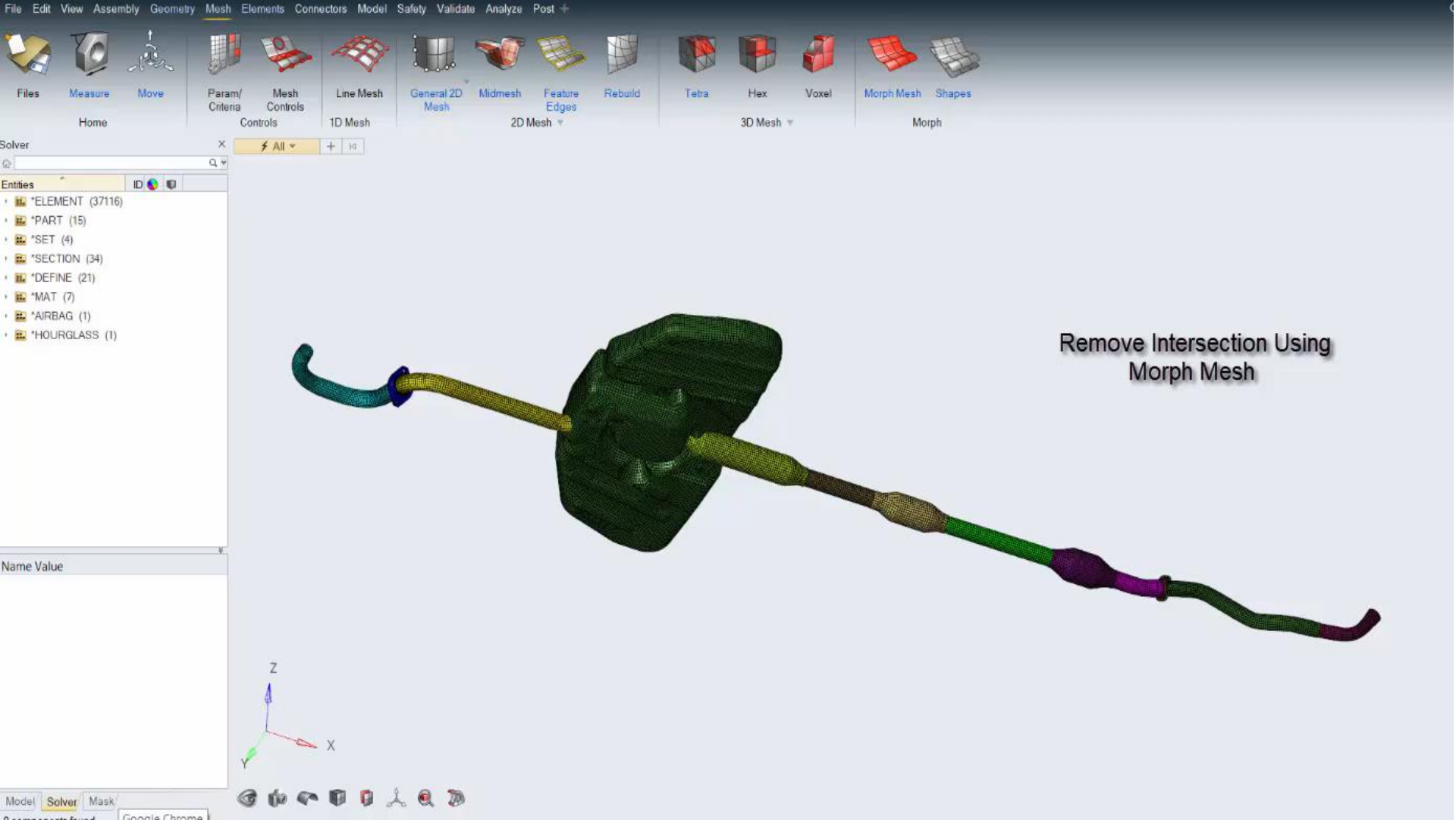
No panels, no setup. Click and morph directly on your model.



Great for:

- **Concept Design.** Morph to modify designs.
- **Model Build.** Map an existing mesh to new geometry.
- **Analysis, DOE, Optimization.** Create and test design variants.

Revert, save, and reapply morphs freely.


File Edit View Assembly Geometry Mesh Elements Connectors Model Safety Validate Analyze Post
Files Measure Move
Home
Param/ Criteria Mesh Controls
Controls
Line Mesh
1D Mesh
General 2D Mesh Midmesh Feature Edges Rebuild
2D Mesh
Tetra Hex Voxel
3D Mesh
Morph Mesh Shapes
Morph
Solver
All
Entities
*ELEMENT (37116)
*PART (15)
*SET (4)
*SECTION (34)
*DEFINE (21)
*MAT (7)
*AIRBAG (1)
*HOURGLASS (1)
Name Value
Model Solver Mask
Remove Intersection Using Morph Mesh
Z
X
Y

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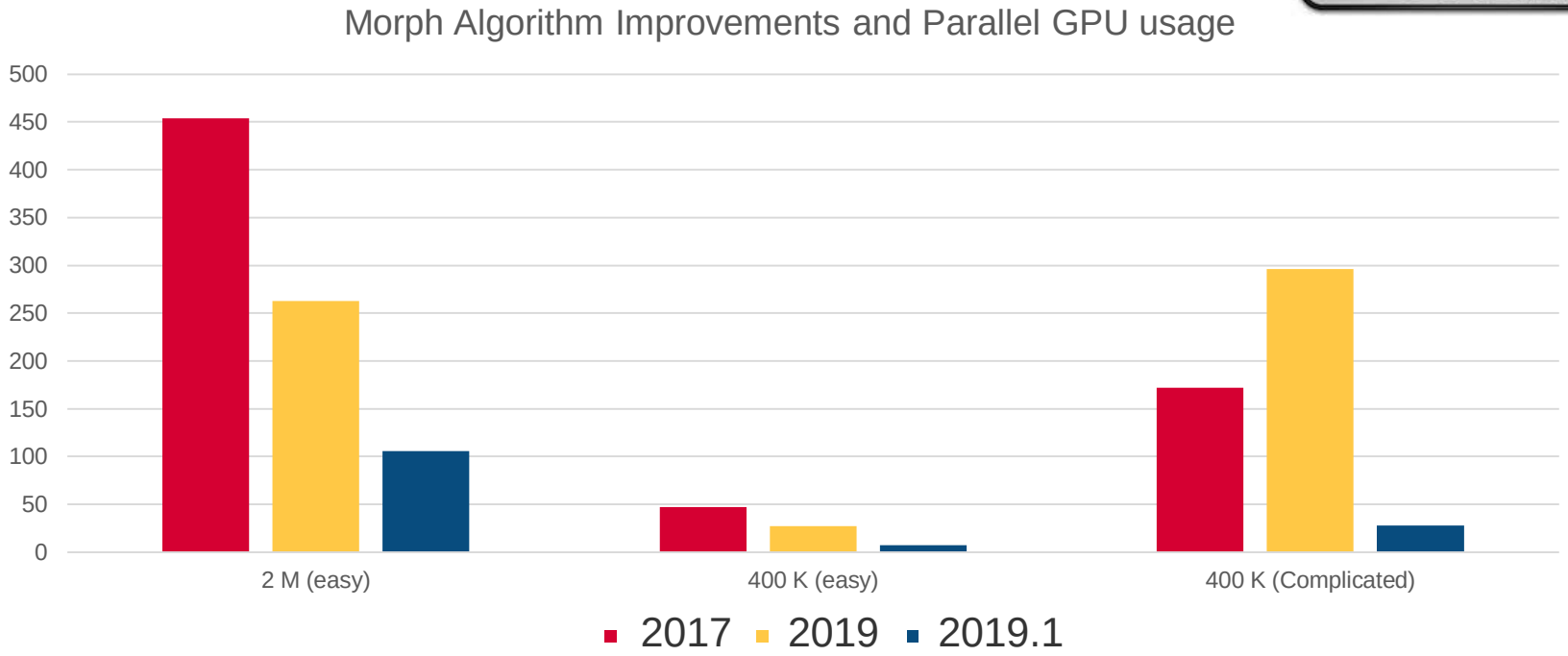
MORPHING PERFORMANCE!



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HWX 2019.1
DESIGN SPACE MANAGEMENT FOR TOPOLOGY OPTIMIZATION

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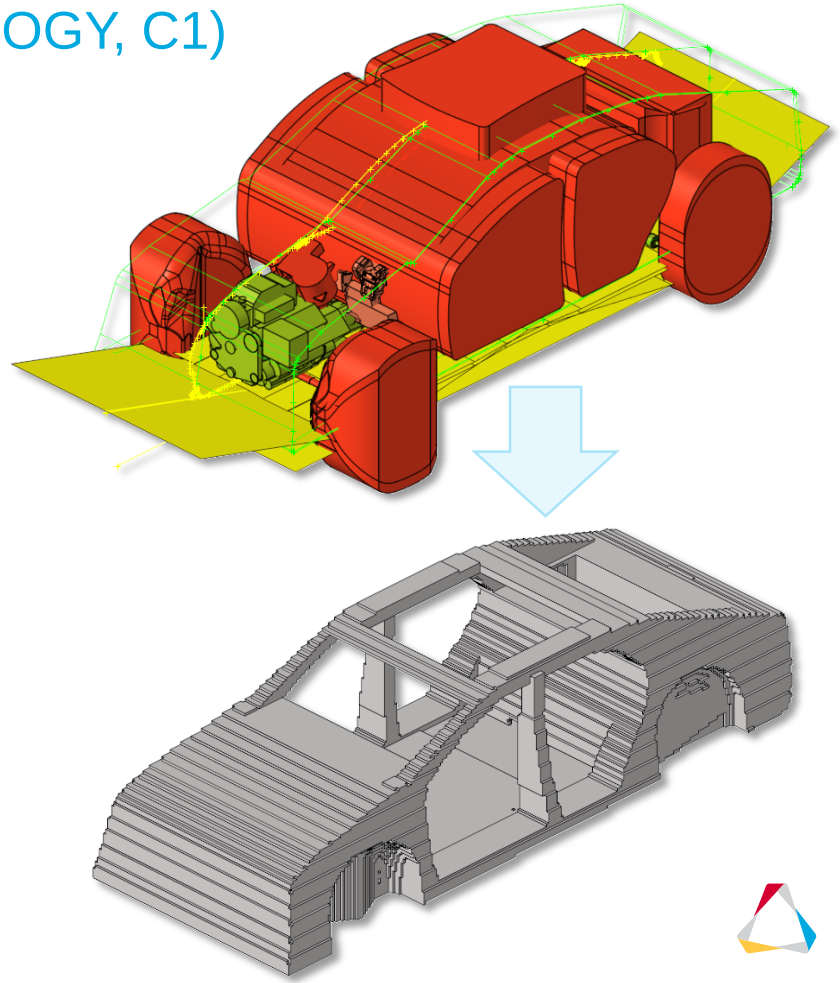
DESIGN SPACE MANAGEMENT (TOPOLOGY, C1)

All new workflow to support the complete topology modeling and meshing process.

Process reduced from hours to minutes.

- New package space library
- New tools for managing package space
  - Collision detection
  - Package space (primitive) editing
- New voxel engine which supports..
  - Rapid creation (with boolean)
  - Design change edits – V6 to I4
  - Quickly generate new variants for multi-model optimization
  - Interactive design space editing



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CONCEPT DESIGN SPACE – CRADLE

Design space created in less than 7 minutes

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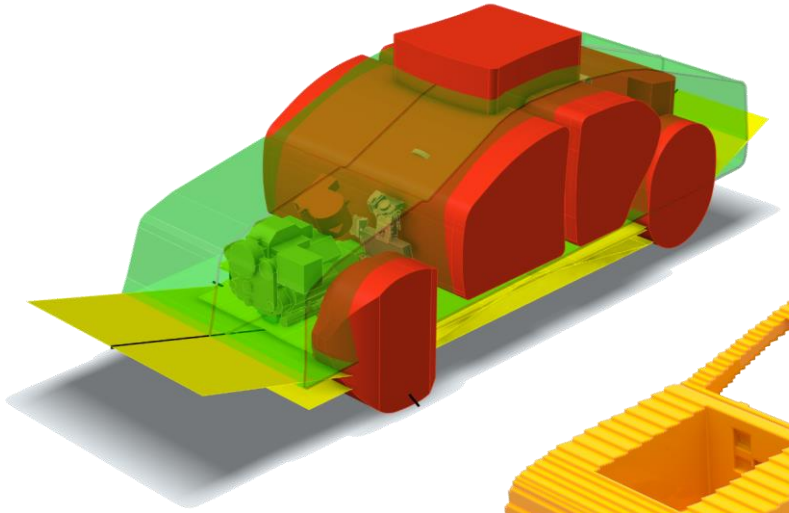
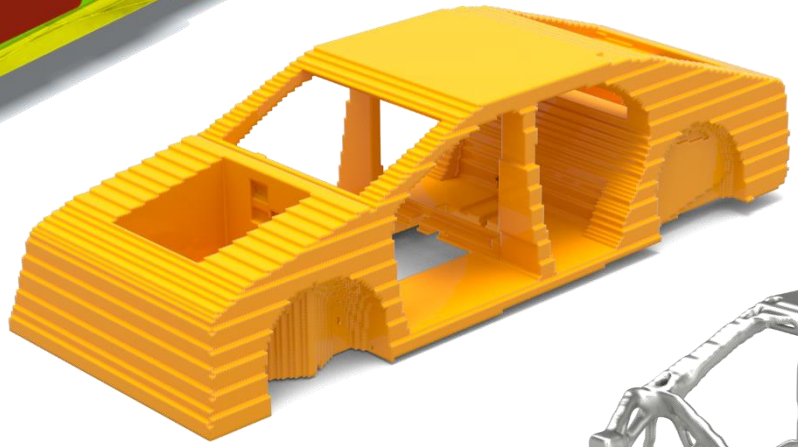
VEHICLE ARCHITECTURE CONCEPT DESIGN

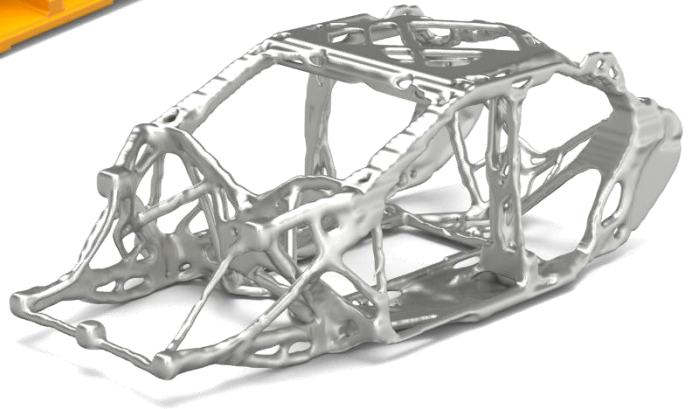
Design/non-design setup



Voxel design space



Optimization results



Design Space Management for Topology Optimization in Altair HyperWorks X

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HWX 2019.1.1
SAFETY WORKFLOWS

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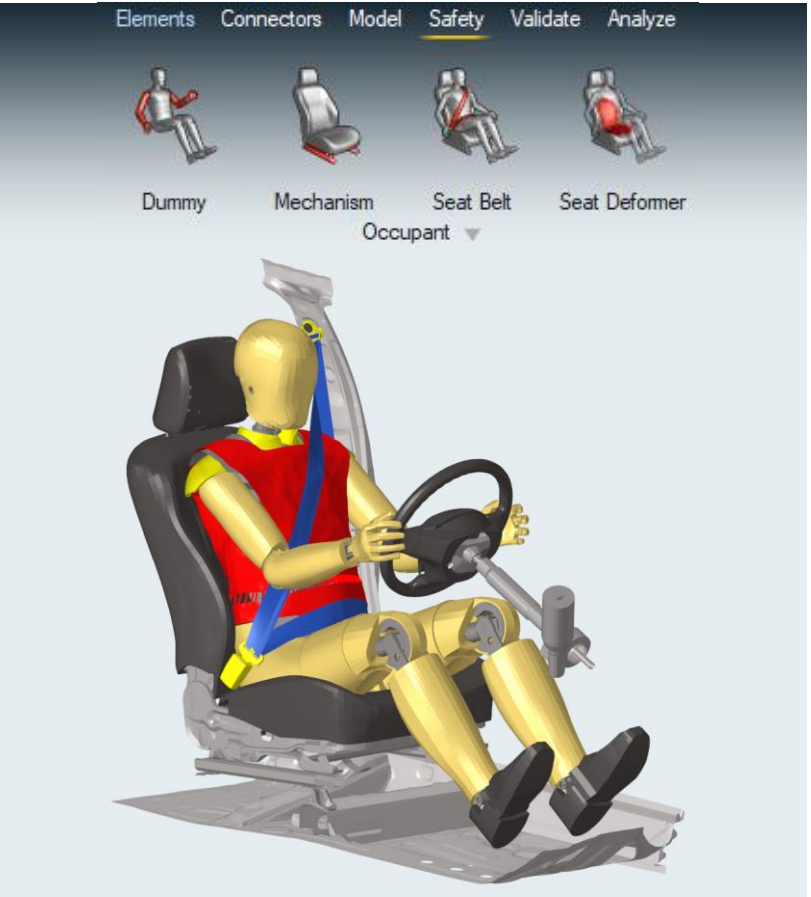
HWX 2019.1.1 - UNITY CRASH – OCCUPANT SAFETY



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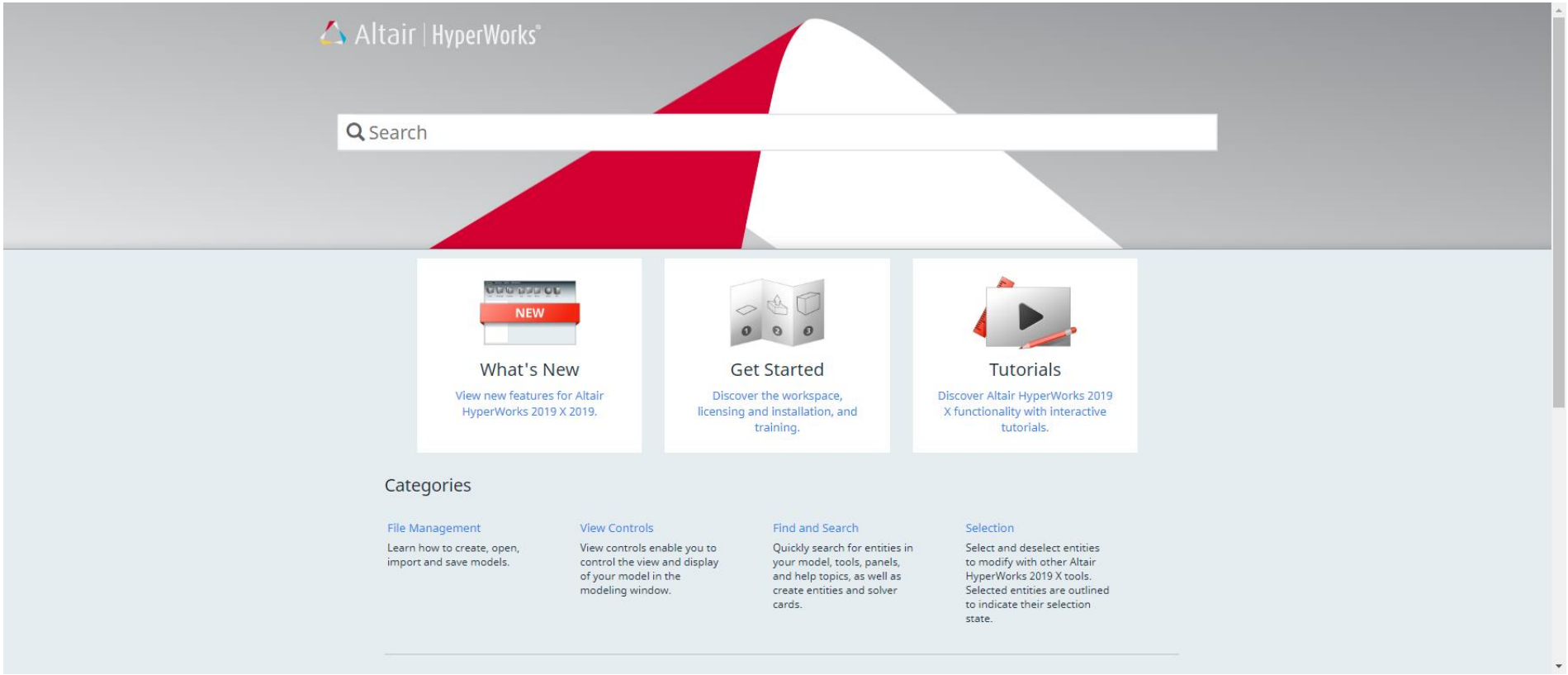
DOCUMENTATION EXPERIENCE



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THANK YOU