



CADfix VIZ 2

“What’s new”

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CADfix VIZ Product Manager

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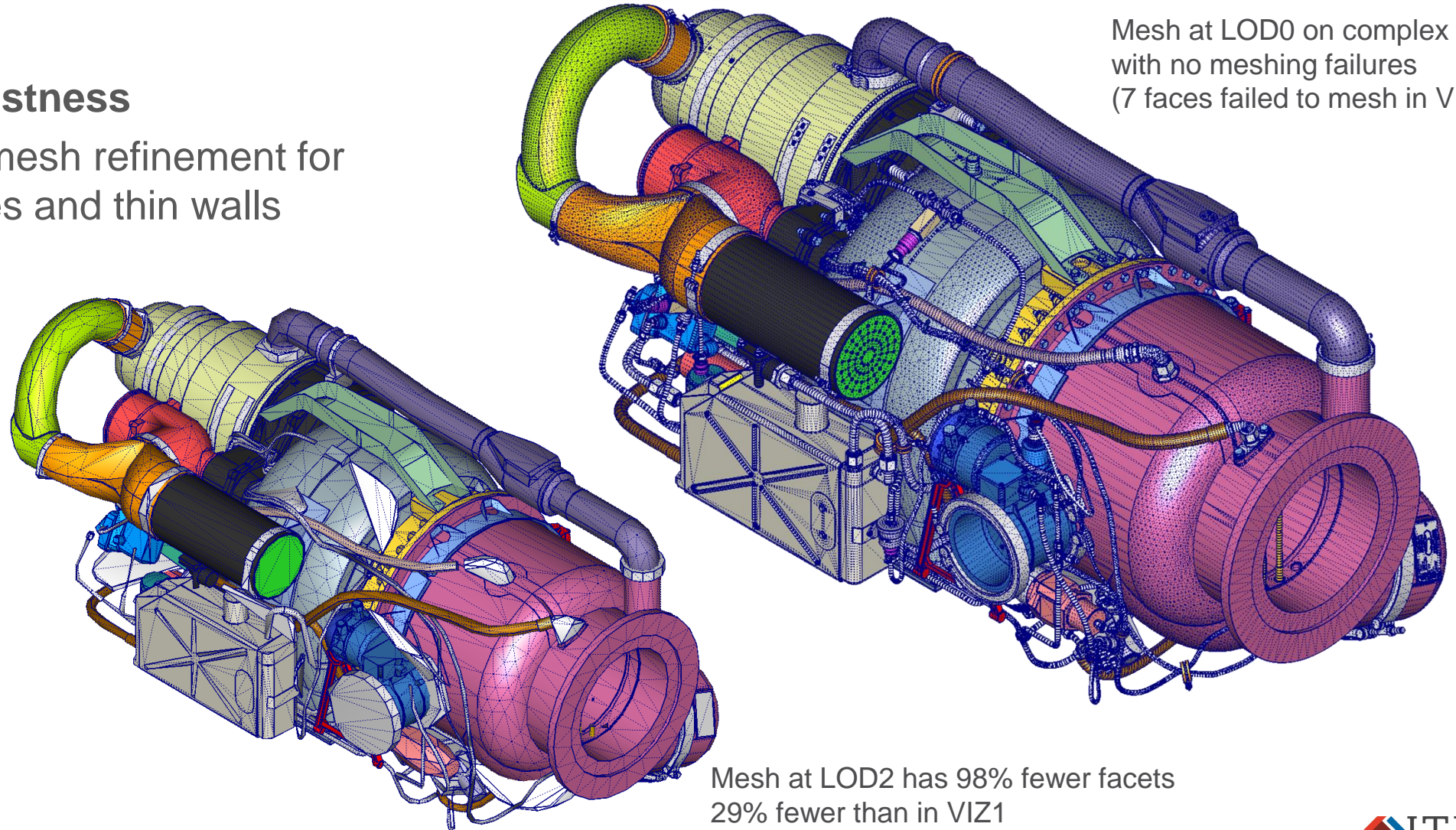
CADfix VIZ 2 Summary

- Meshing
 - Enhanced robustness
 - Improved facet quality
 - New algorithm for better mesh regularity
- Simplify
 - New simplification to mid-surfaces tool
 - Upgraded hole/protrusion removal tools can process more complex geometries
 - Faster, more accurate internal detail removal tool
 - Decimator preserves imported UV maps
 - Detect and delete duplicate faceted bodies
 - Pick similar for faceted bodies
- Assemblies
 - New compression fix to remove duplicates
 - Smarter auto-build from existing duplicated bodies
- GUI
 - Increased responsiveness when busy & interrupts
- Tolerances
 - New controls over modelling tolerances
- Import/Export
 - Latest CAD versions supported
 - USD export
 - Import/Export of UV maps in FBX
- Platforms
 - Windows 10 & 11

VIZ2: Mesh generation

Improved robustness

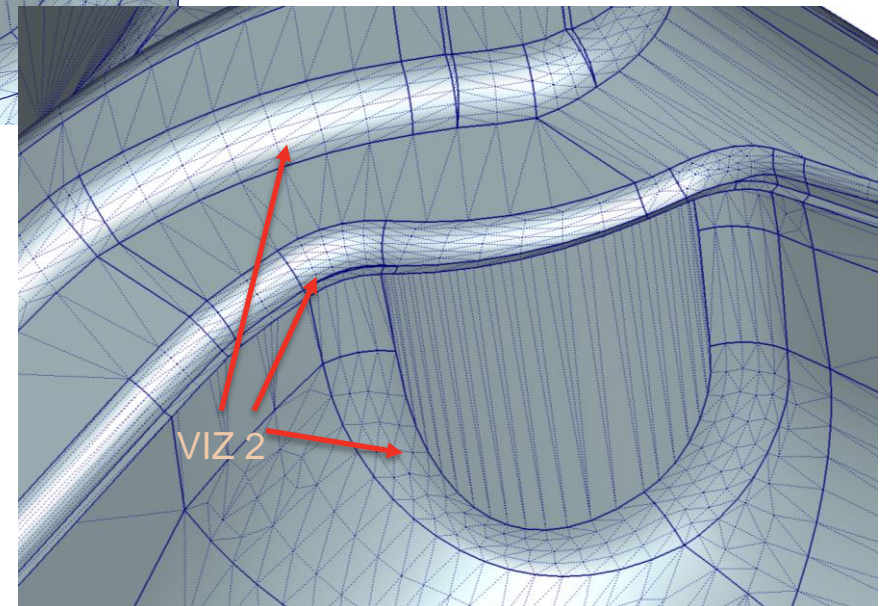
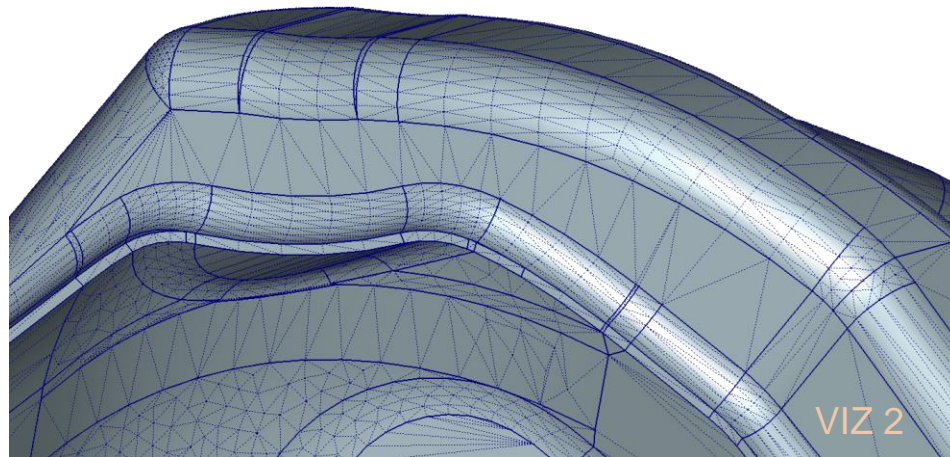
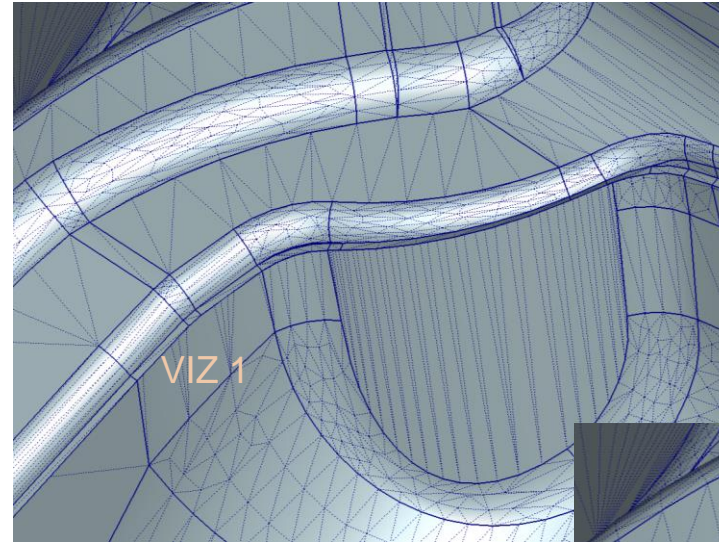
- Automatic mesh refinement for narrow faces and thin walls



VIZ2: Mesh generation

Regular structured style

- Structured style pattern of regular facets
- Improved capture of common doubly curved surfaces, such as fillets and torii

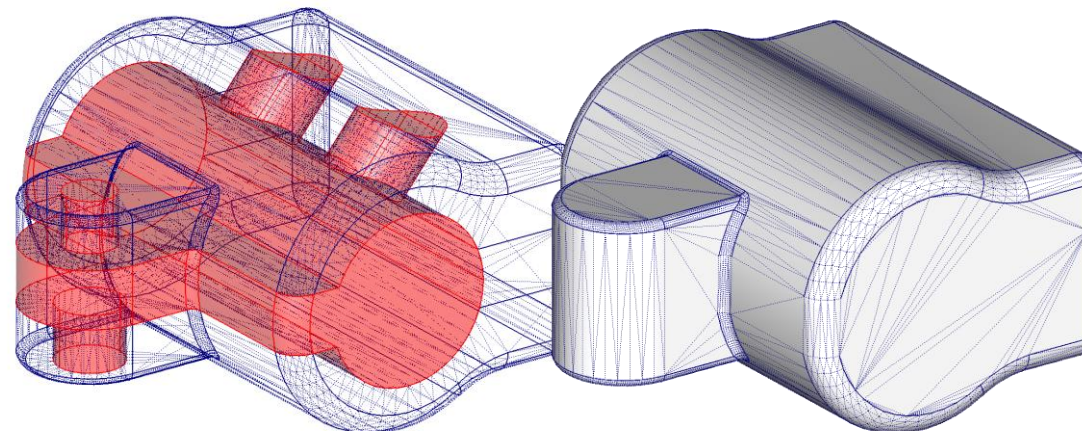
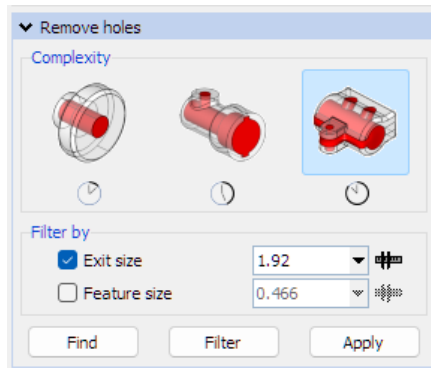
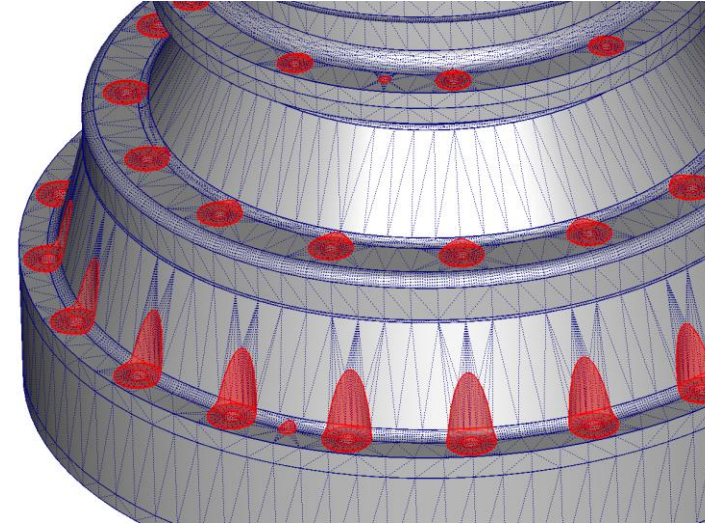


VIZ2: Simplify - Hole removal

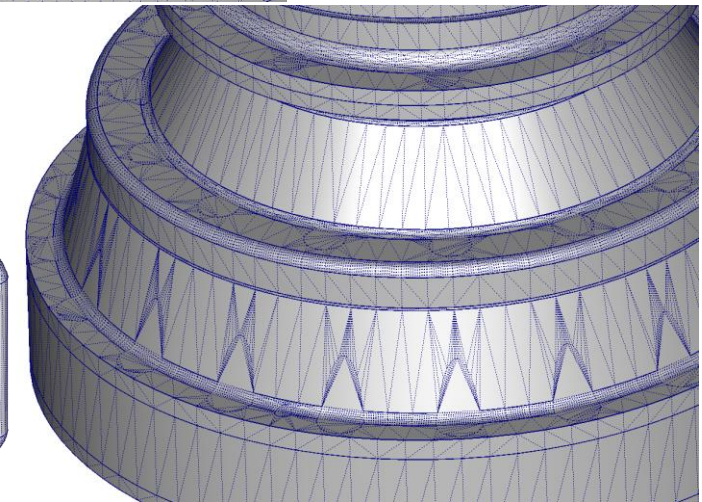
Improved hole removal

- Finds holes with complex entry/exits, e.g. split across multiple faces
- Auto-constructs complex hole cap geometry
- New user control over level of hole complexity

Holes interacting with fillets



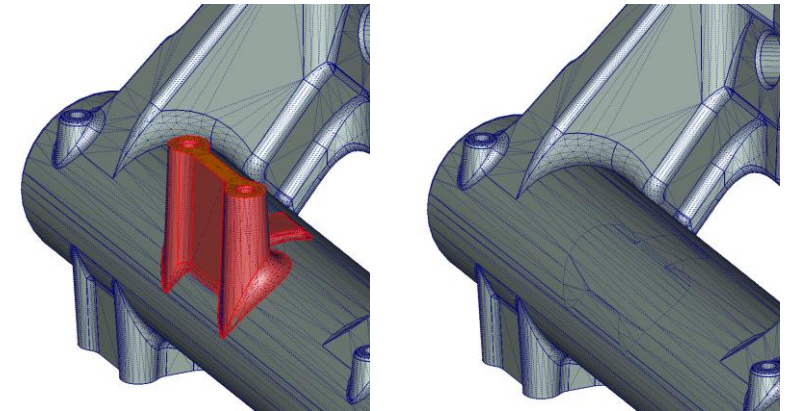
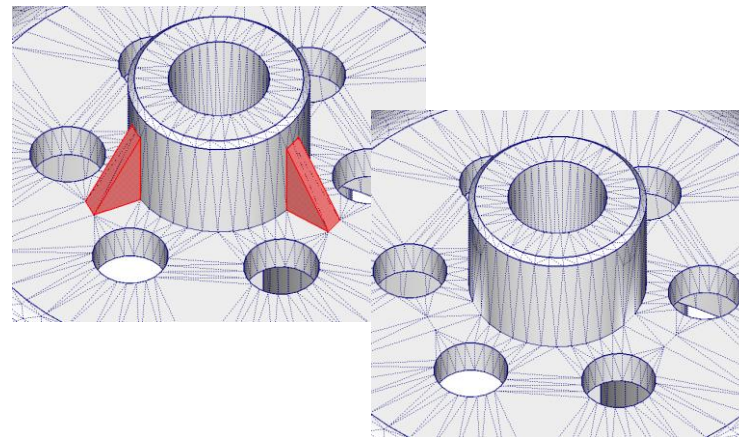
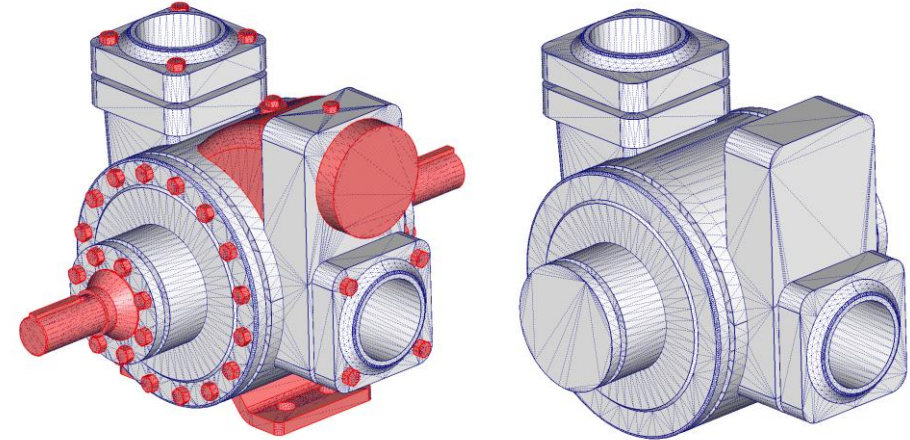
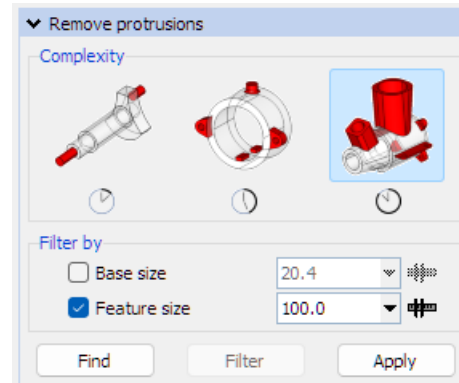
Hole with complex "exit"



VIZ2: Simplify – Protrusion removal

Improved protrusion removal

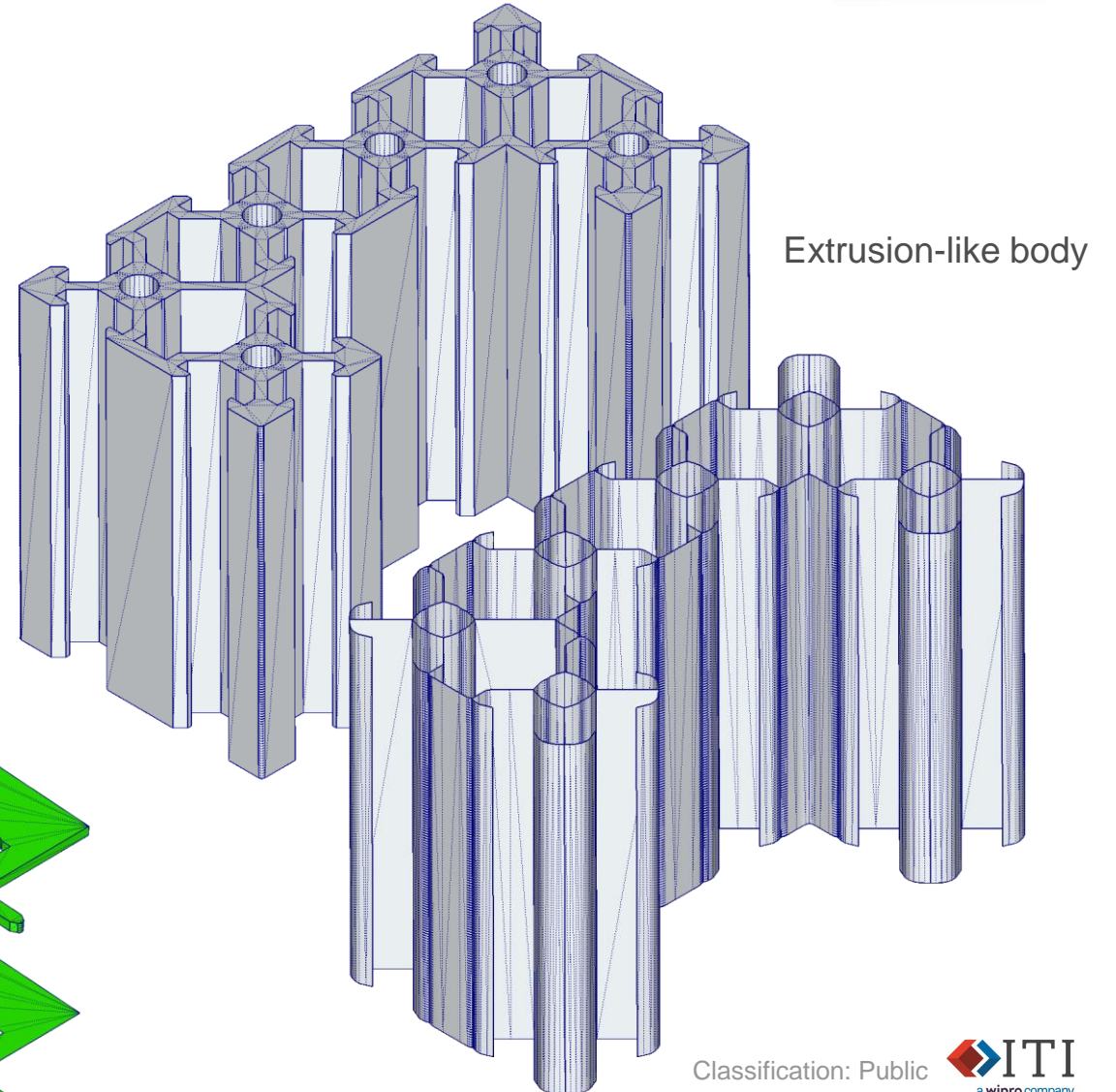
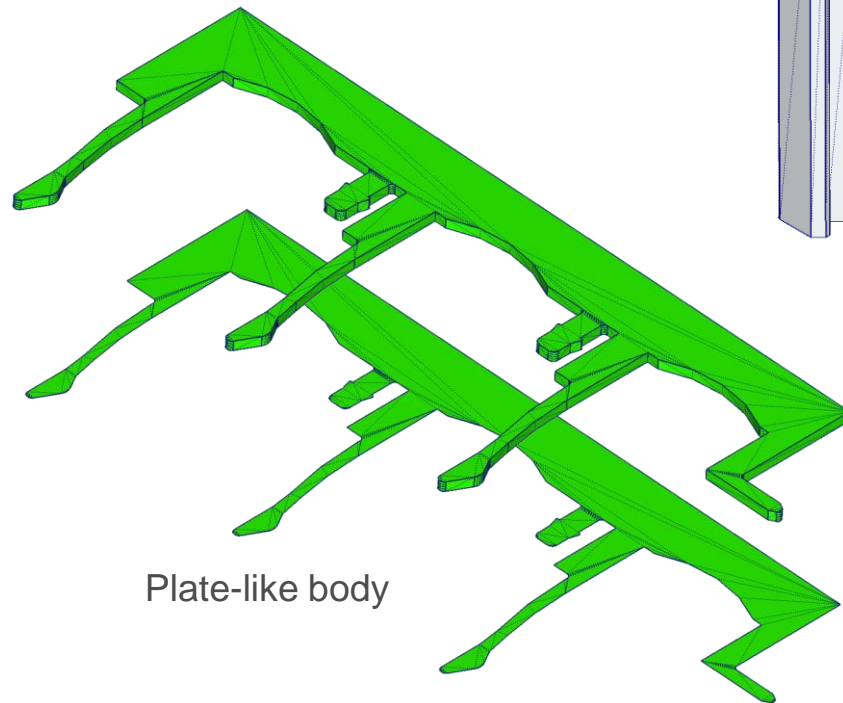
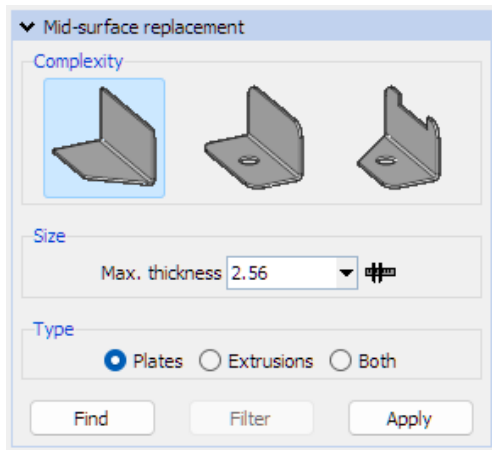
- Finds protrusions with complex bases, e.g. split across multiple faces
- Auto-constructs complex base cap geometry
- New user control over level of protrusion complexity



VIZ2: Simplify - Midsurfacing

New tool to simplify bodies to their mid-surface form

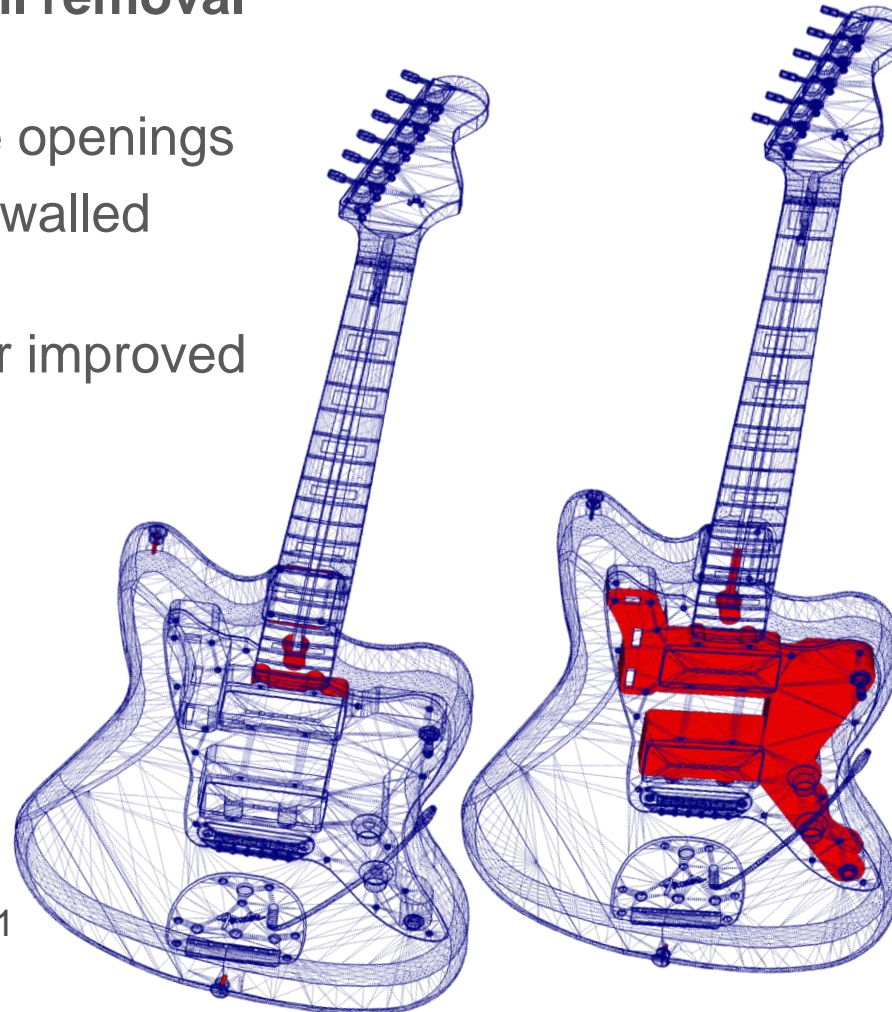
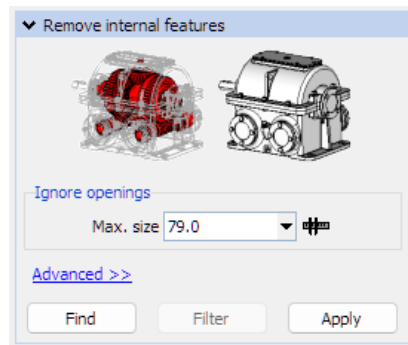
- Plate-like thin bodies
- Extrusion-like thin-walled bodies



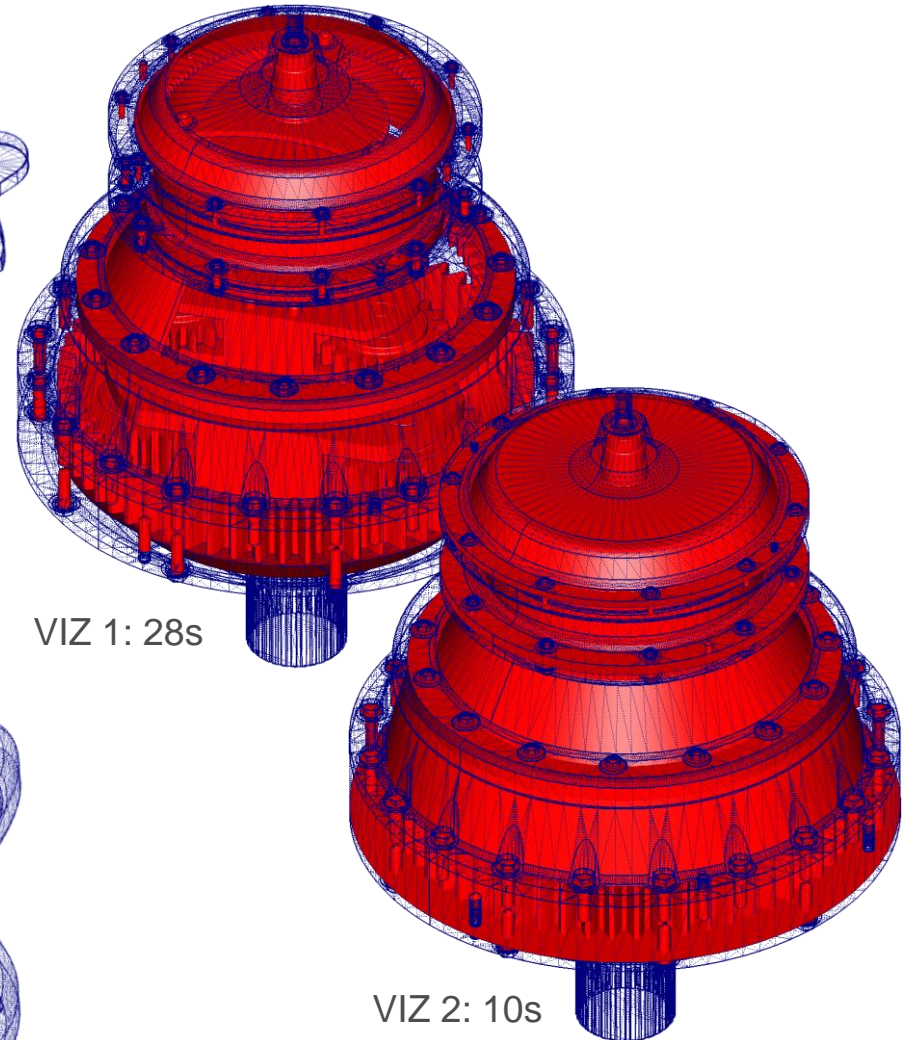
VIZ2: Simplify – Internal detail

Improved internal detail removal

- Better detection and suppression of large openings
- More robust on thin-walled objects
- Parallel algorithm for improved performance



VIZ 1



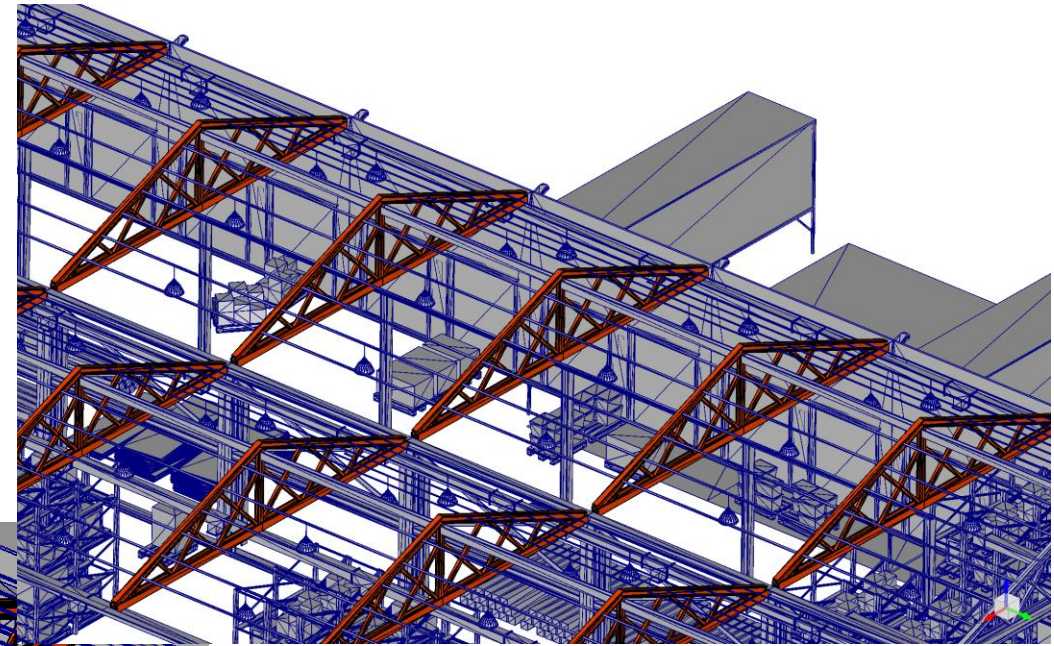
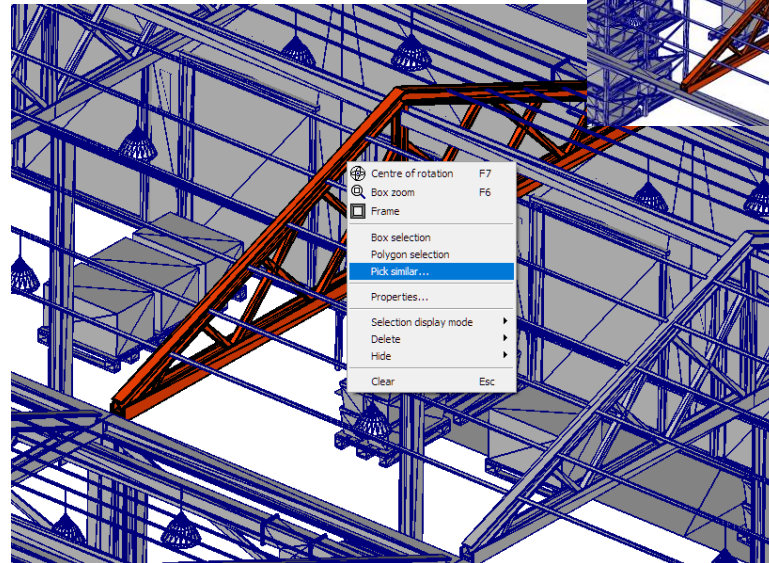
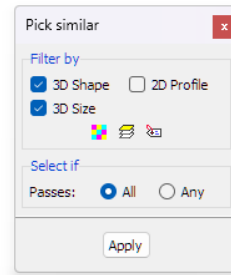
VIZ 1: 28s

VIZ 2: 10s

VIZ2: Simplify – Pick similar

New pick similar tool

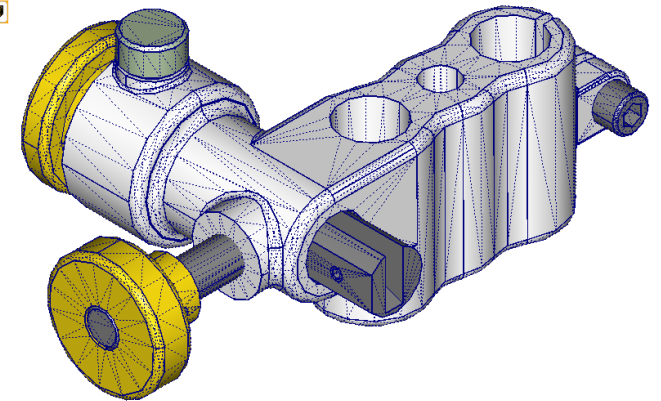
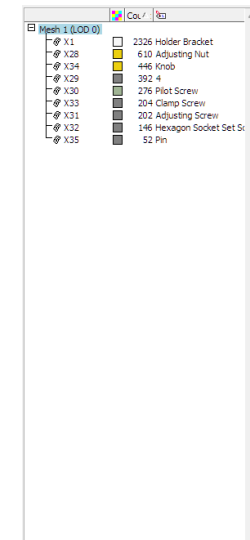
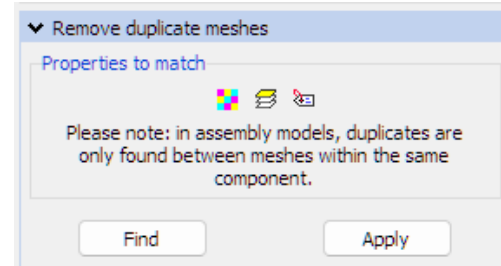
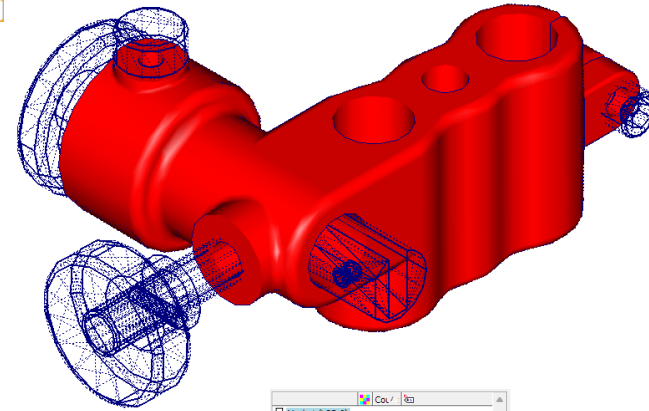
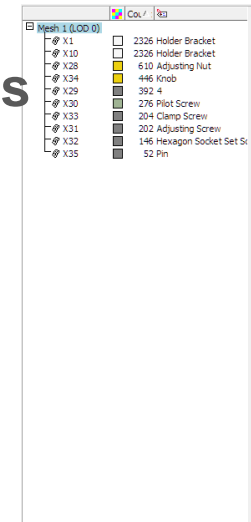
- Identify parts with similar shapes from an example
- Can find similar parts of different sizes
- Works on CAD geometry or facets



VIZ2: Tools – Delete duplicate meshes

New tool to delete duplicate meshes

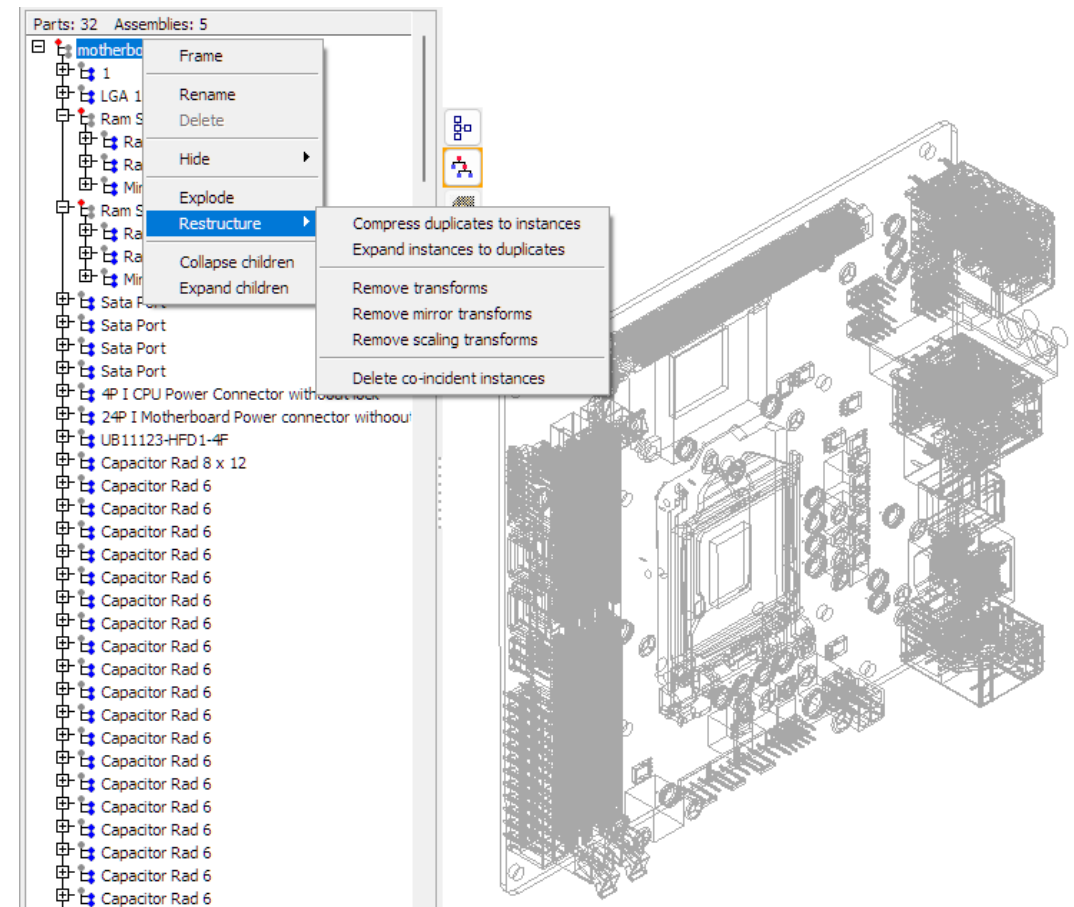
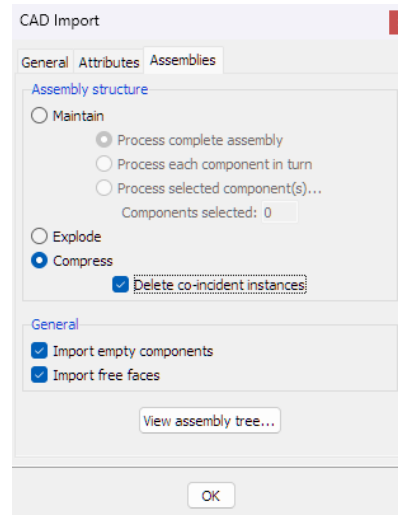
- Detects meshes with exact duplicate geometry and removes them
- Optionally validates that the properties also match
- Useful for removing accidentally duplicated meshes, which can be hard to identify



VIZ2: Assemblies

New tools for assemblies

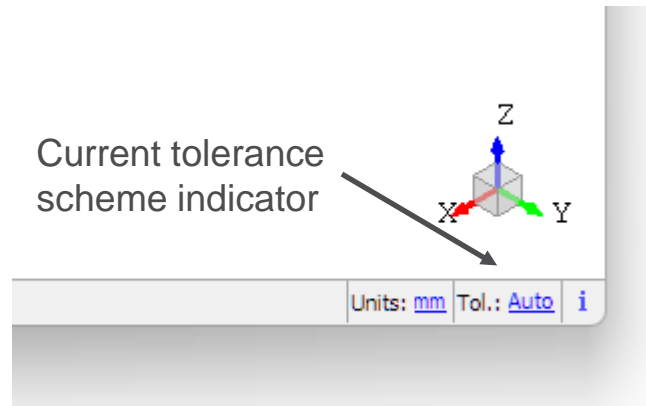
- New assembly compression
 - Detect duplicated parts and convert to sub-assemblies of instances
- New delete co-incident instances
 - Deletes instances that occupy the same space
- Option to apply assembly compression on import



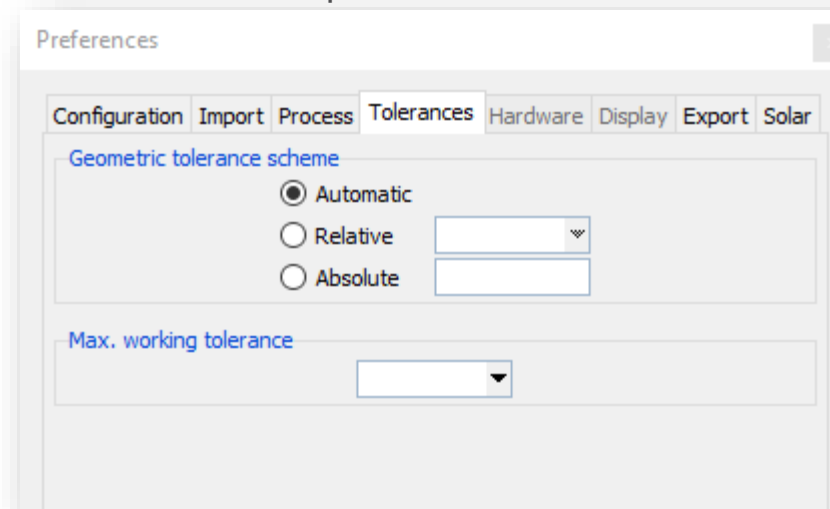
VIZ2: New Tolerance Controls

User control over CADfix modelling tolerances

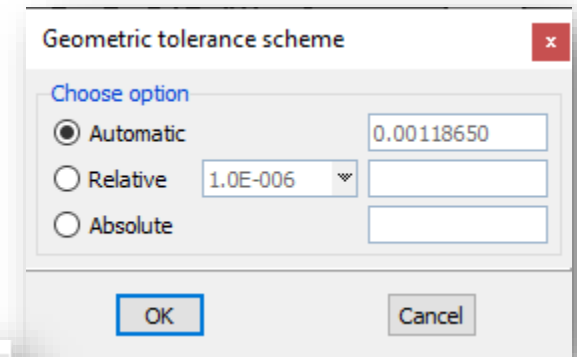
- New control over CADfix tolerance scheme
- Choose between auto (default), fixed or user defined
- Allows better processing of very large or very small models
- New absolute mode locks tolerance and hence many tool defaults to a fixed value
- Absolute mode helps to process multiple models with the same defaults and settings, i.e. model size does not affect values



User preference control



Change tolerance scheme



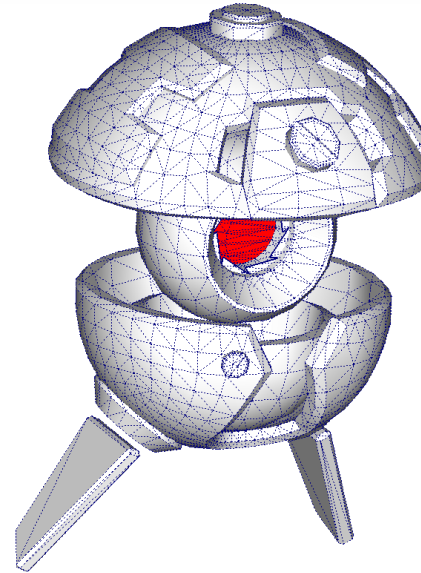
VIZ2: Import/Export

- CAD version support updates
 - CATIA V5-6 R2023
 - NX 2212 series
 - Creo 10.0
 - SolidWorks 2023
 - SolidEdge 2023
 - Inventor 2024
- IFC Import
 - More entities/attributes supported
- DGN Import
 - More entities/attributes supported
- New USD export
- FBX import
 - UV maps imported
- FBX export
 - UV maps exported

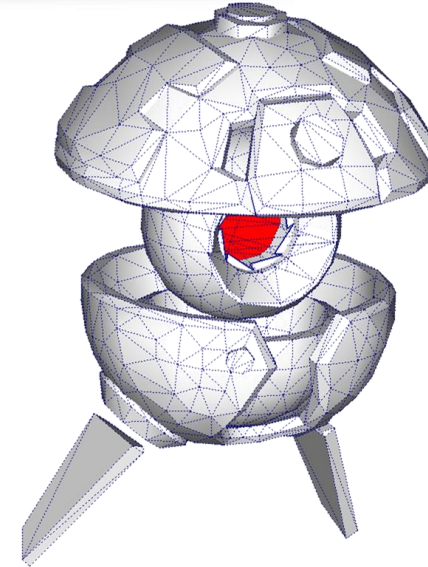
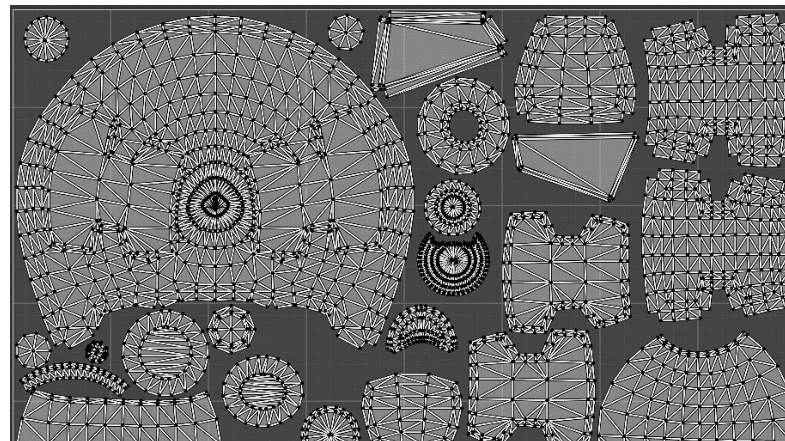
VIZ2: UV maps

UV maps preserved in FBX files

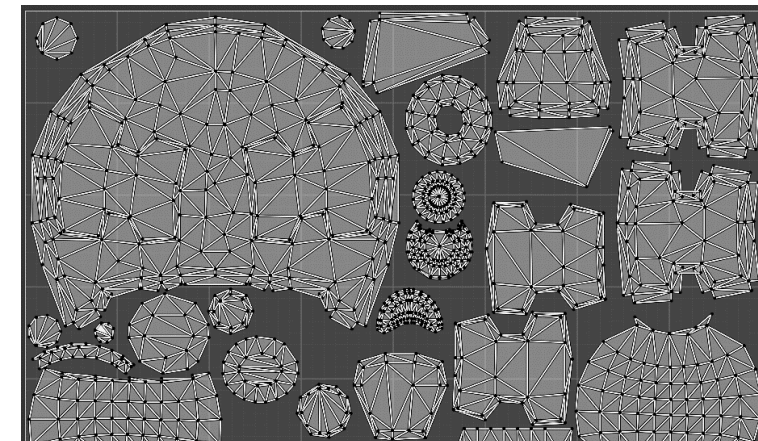
- UV maps imported from FBX
- UV maps are decimated alongside mesh
- UV maps are exported to FBX



Imported FBX
mesh and UV map



Decimated FBX
mesh and UV map



VIZ2: Coming in VIZ3 (Q3 2024)

- **Simplification**
 - Extruded and revolved model simplification
 - Unified shrinkwrapping tool with more controllable results
 - Further improved hole & protrusion removal
 - Improved midsurfaces with reduced curvature
- **Import/Export**
 - Latest CAD version support
 - New X3D export



Thank you!

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