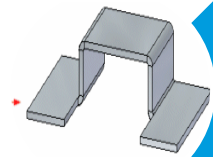




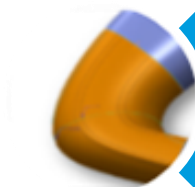
General



Part Modeling



Sheet Metal



Surfacing



Analysis Tools

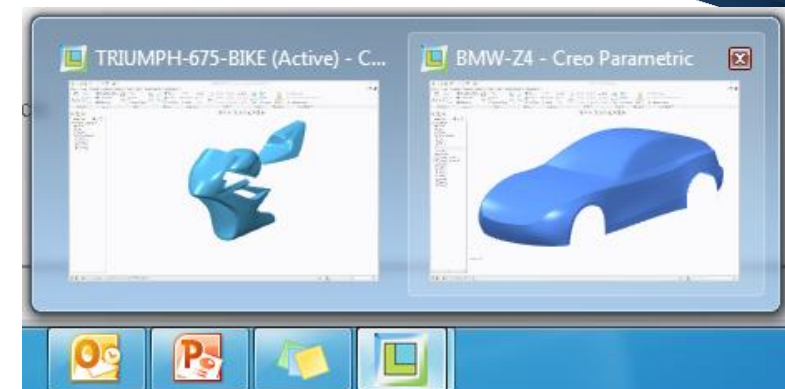
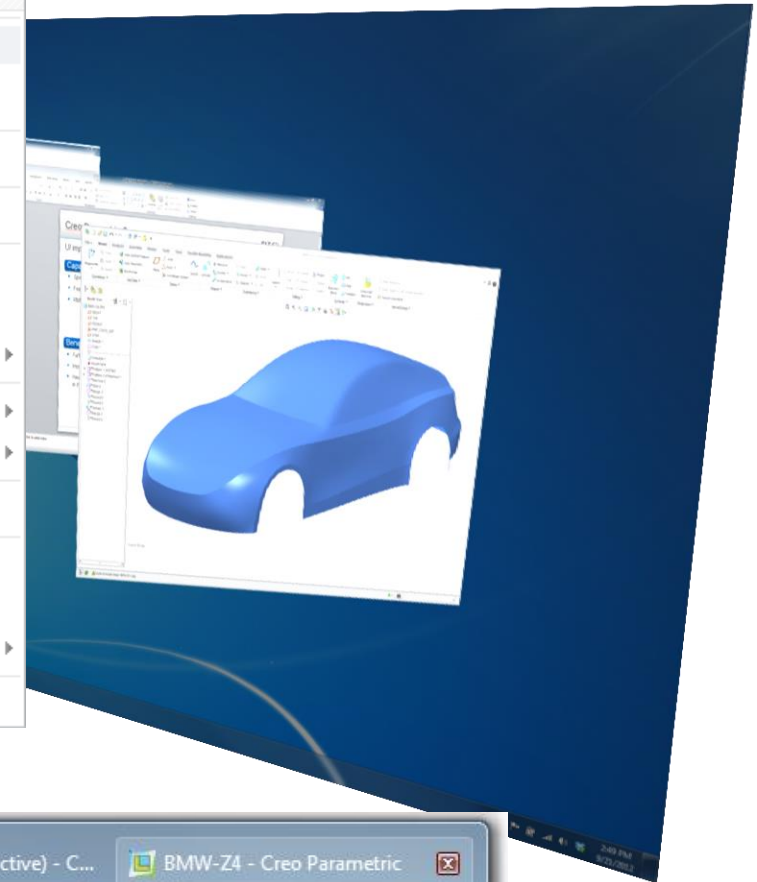
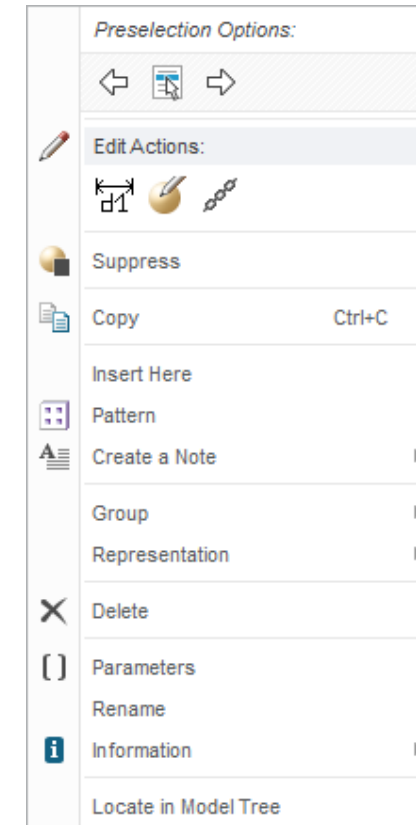
UI Improvements

Capabilities

- **Automatic Window activation**
 - No longer a need to manually activate a window when switching
- **RMB commands**
 - Selection based RMB commands modernized
 - Customization through Options dialog to allow enabling/disabling and reordering of commands

Benefits

- **Makes product more windows compliant**
 - More familiar to the users
- **Improved productivity**
- **Have the right commands available for your needs in the RMB**



Overview

- **UI Improvements**
 - Removal of Feature operations – Reorder, Read Only
 - Spinal Bend
- **Reference Control**
 - Overhauled Edit and Replace references
 - Display Missing references
- **Enhanced Capabilities**
 - Enhanced Collapse feature
 - Increase max draft angle
 - Ref pattern from any pattern member
 - Enhance Geometry Pattern



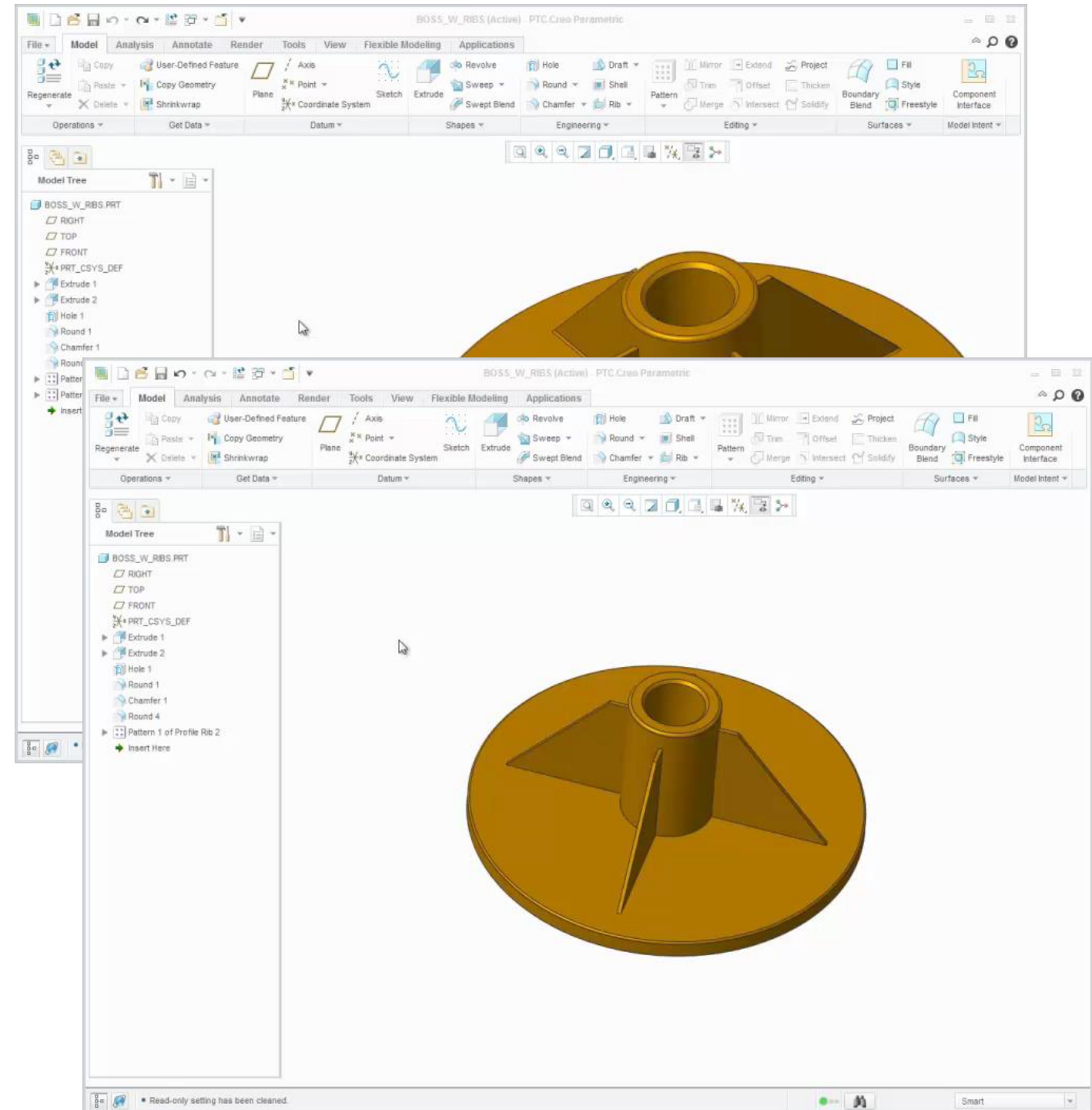
User Interface Improvements

Capabilities

- Removal of Menu Manager from feature operations
 - Feature Copy
 - Copy / Paste in Operations group and short cut keys
 - Reorder
 - New UI dedicated to Reordering features
 - Insert Mode
 - Drag and Drop or RMB menu
- Read Only
 - New User Interface
 - Read Only features are grouped in the model tree and shown with a lock icon

Benefits

- Further removal of Menu Manager to improve consistency
- Improved productivity and user experience



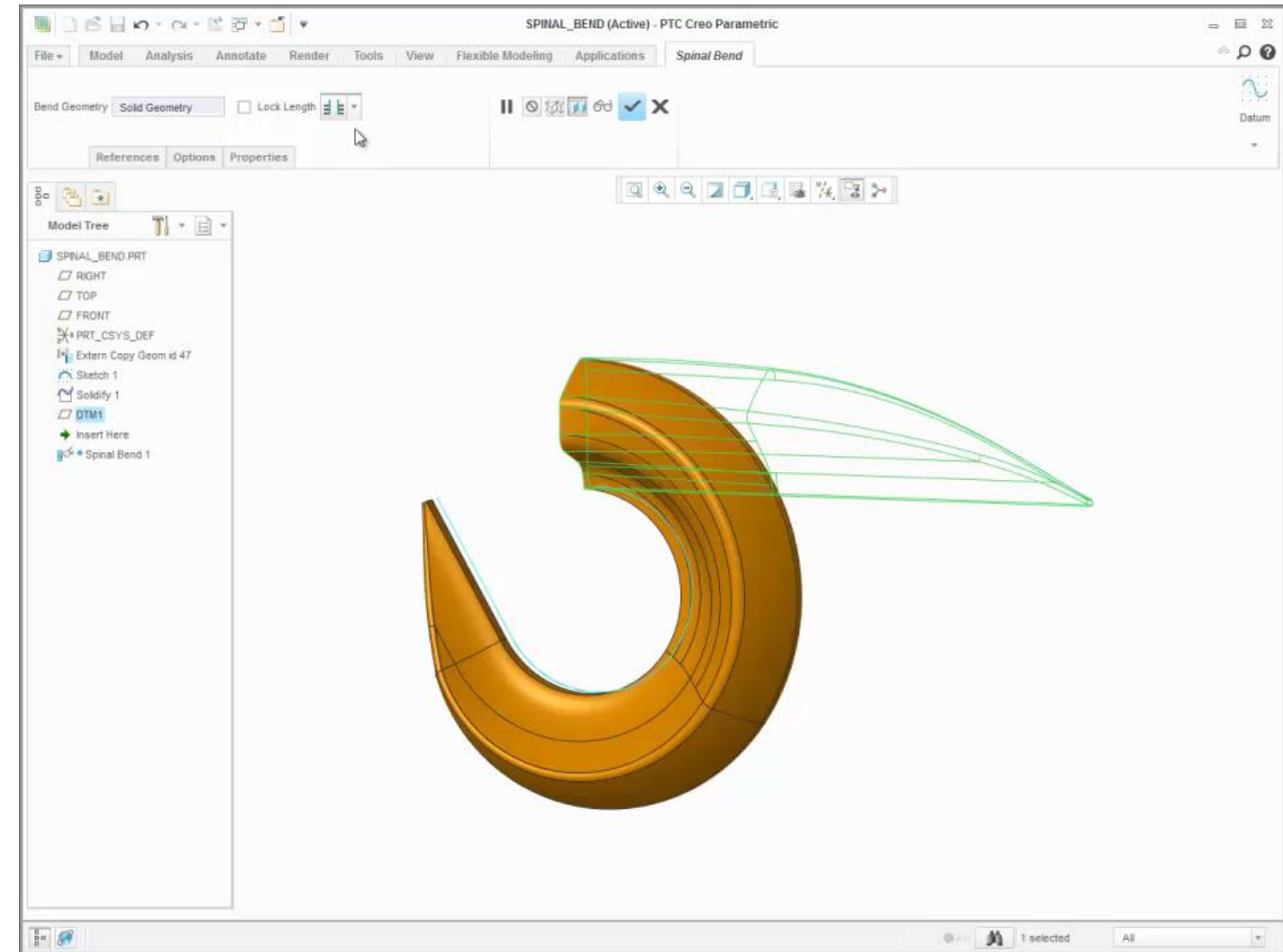
User Interface Improvements

Capabilities

- Spinal Bend
 - New dashboard UI
 - Bend entire object, blind distance, or up to reference
 - Options to maintain length, keep geometry outside the bend area
 - Easier to control standard x-section properties without relations

Benefits

- Improved productivity
- More flexible workflows
- Further removal of Menu Manager

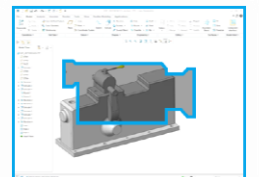
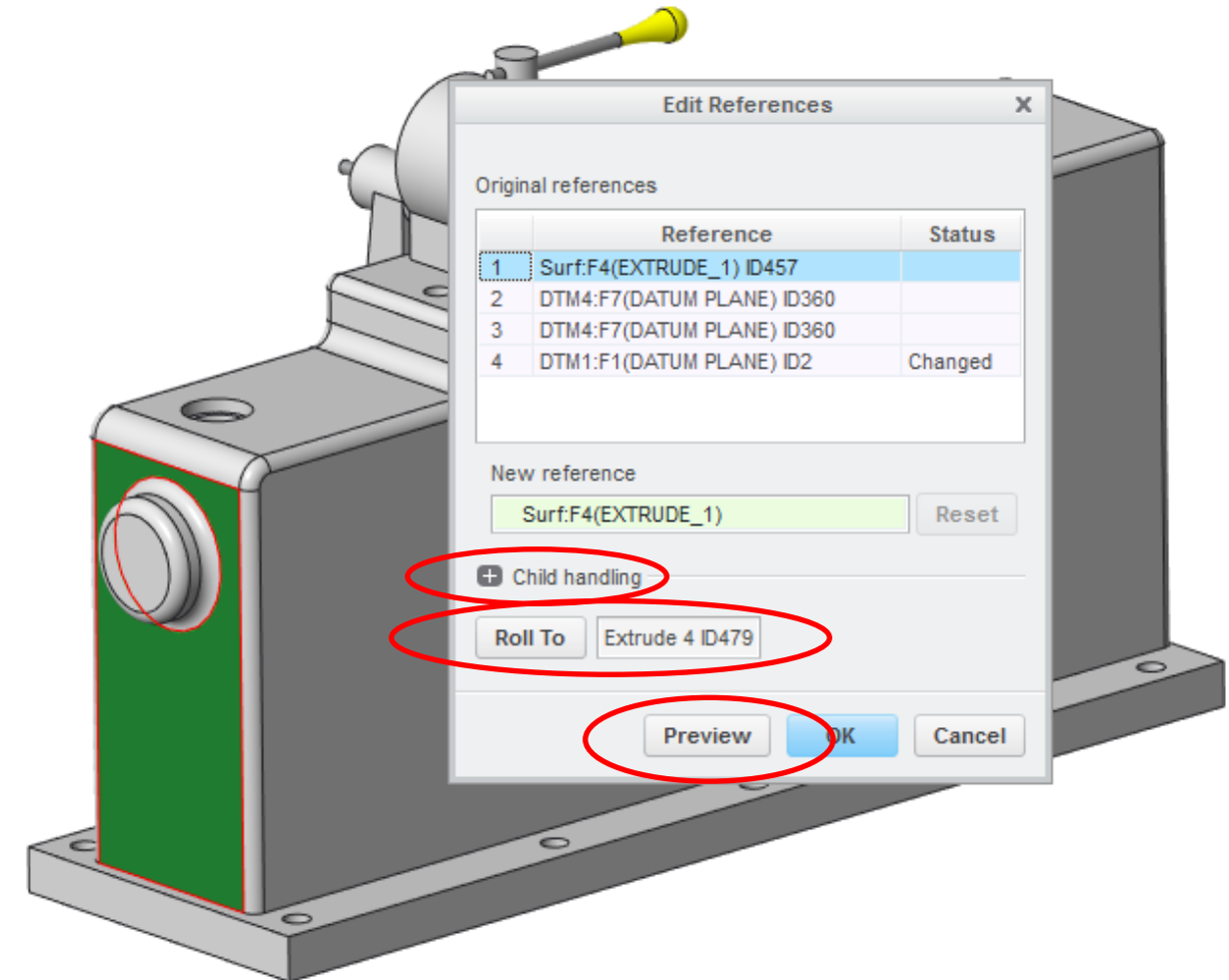


Overhauled Edit and Replace References Capabilities

- New, more powerful functionality to reroute references
- Edit references for one or more features
- Replace one or more references for all features
- Enhancements include:
 - Roll the model back or forward to the earliest affected feature at any time
 - Preview the proposed changes at any time
 - Access from Reference Viewer
 - Optionally handle child features
 - Include or exclude other children of the references
 - See multiple solutions based on reference direction

Benefits

- Faster, more powerful, and more intuitive reroute workflows
- Similar UI for Edit and Replace References



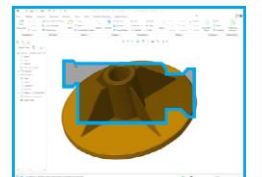
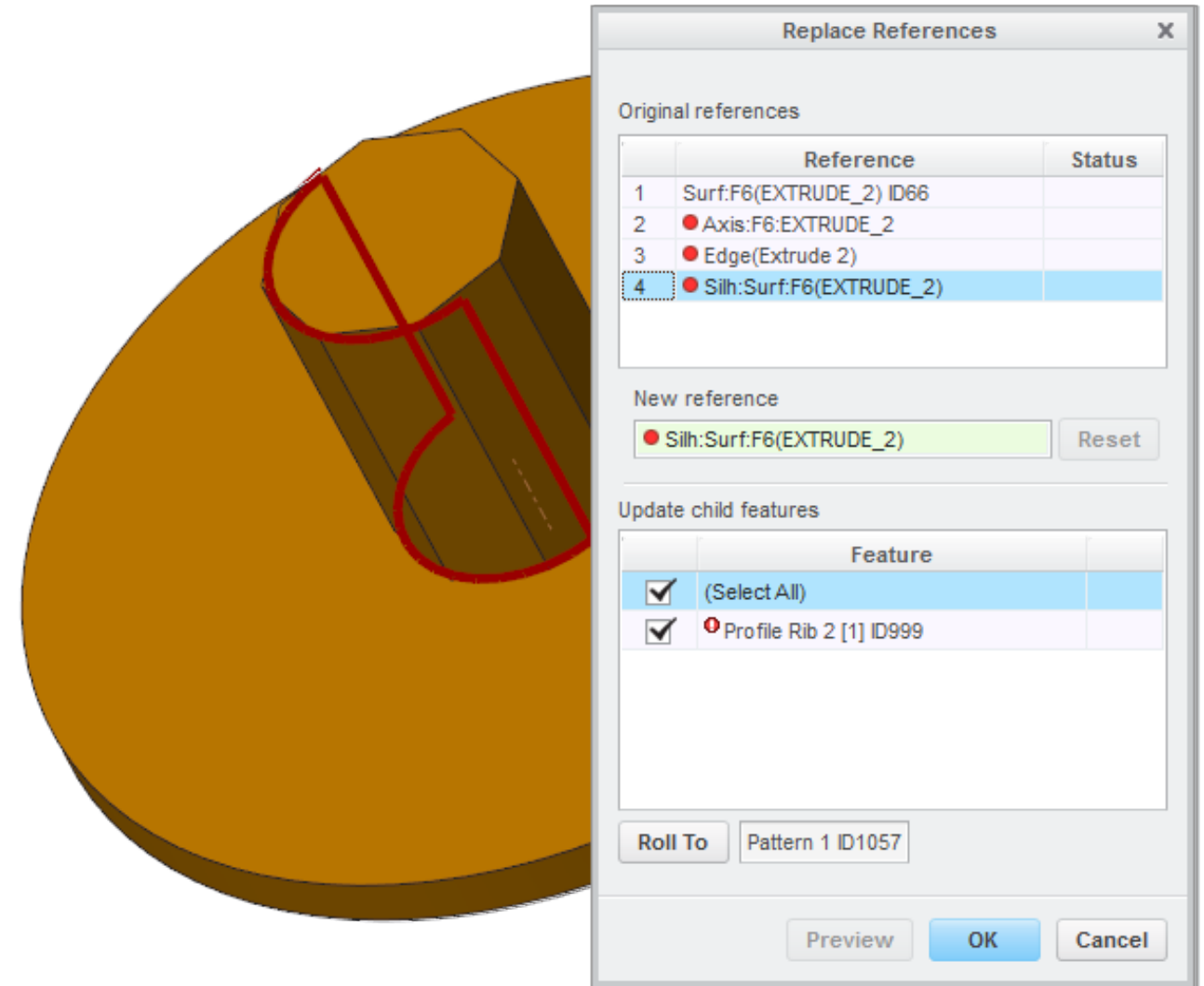
Display Missing References

Capabilities

- Displays the last successful regeneration of a lost reference
- Shows the owner of the lost reference
- Displayed in:
 - Edit Definition
 - Edit References
 - Replace References
 - Reference Viewer
 - Troubleshooter dialog box
- `backup_reference_information yes*`, no

Benefits

- Resolve failed features quickly
- Easily identify missing reference location
- Easily select an appropriate replacement reference



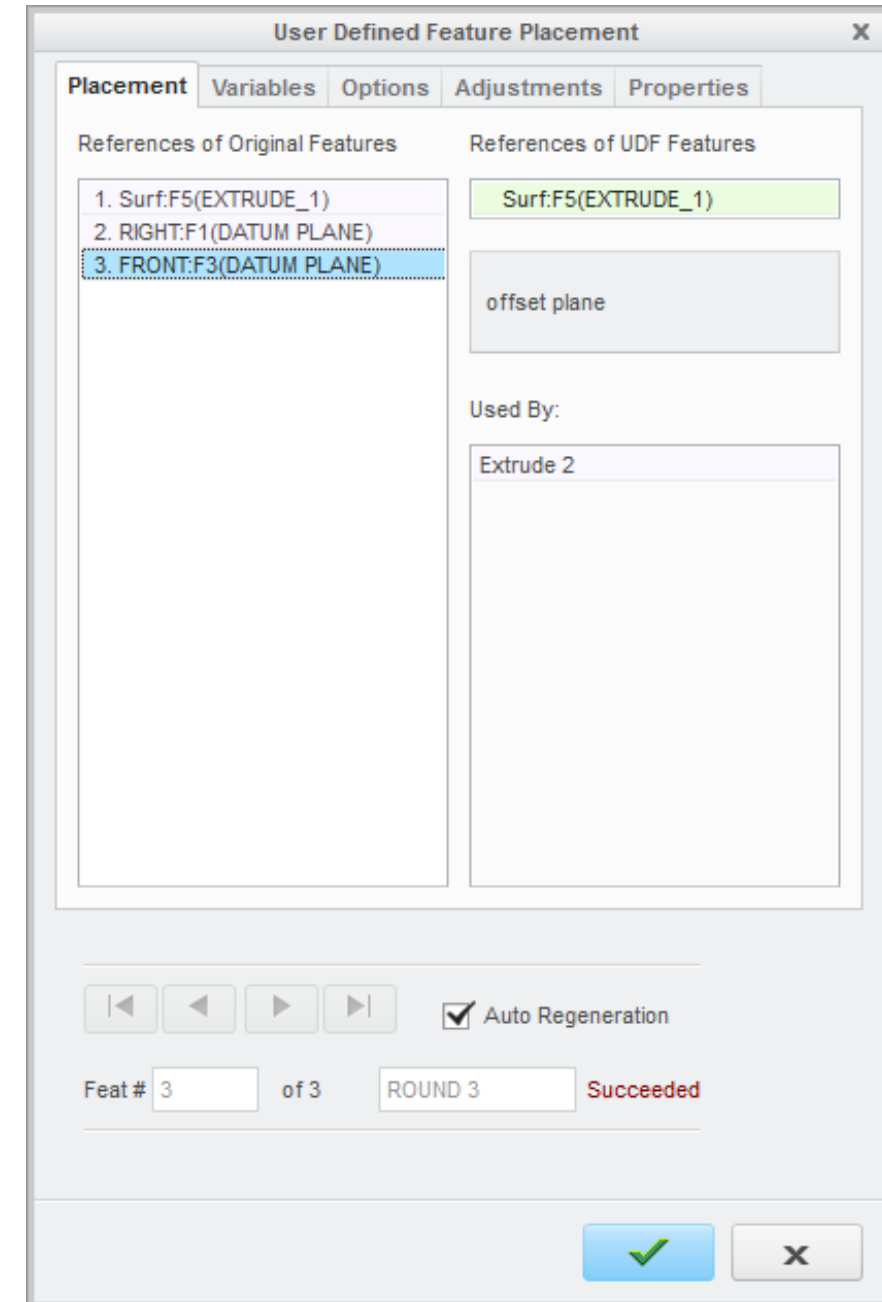
Reference control

Capabilities

- UDF placement
 - Auto advance and redefine feature enhancement
- Paste Special
 - Auto Advance for references

Benefits

- More efficient UDF and Paste Special workflows



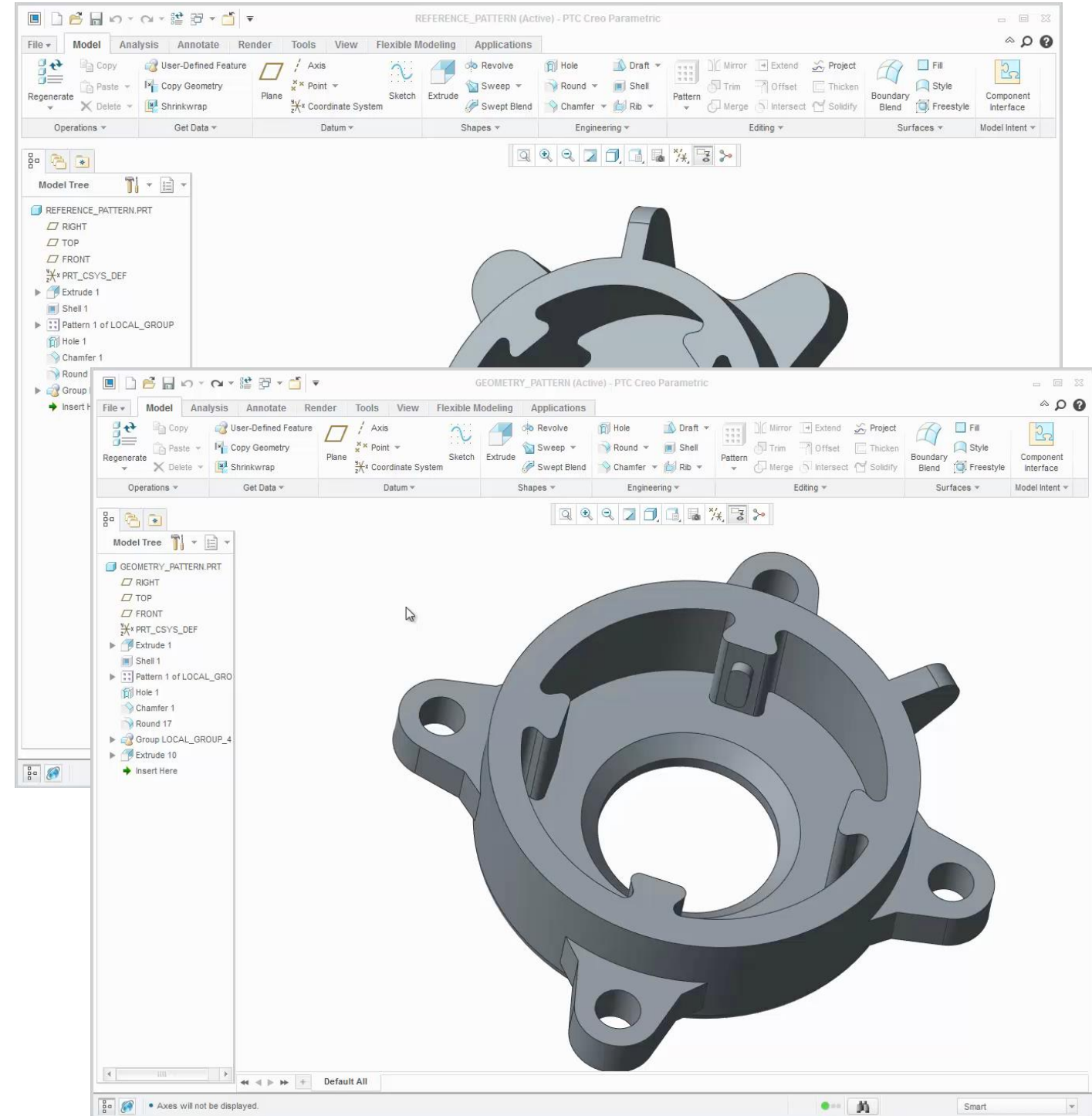
Pattern Enhancements

Capabilities

- Ref pattern from any pattern member
 - Features to be reference patterned can reference any pattern member, not just the pattern leader
- Geometry Pattern Enhancements
 - Now handles topology change using attach option
 - Pattern only quilts with Copy option

Benefits

- Improved usability
- More flexible Reference Pattern workflows
- More flexible and robust Geometry Pattern



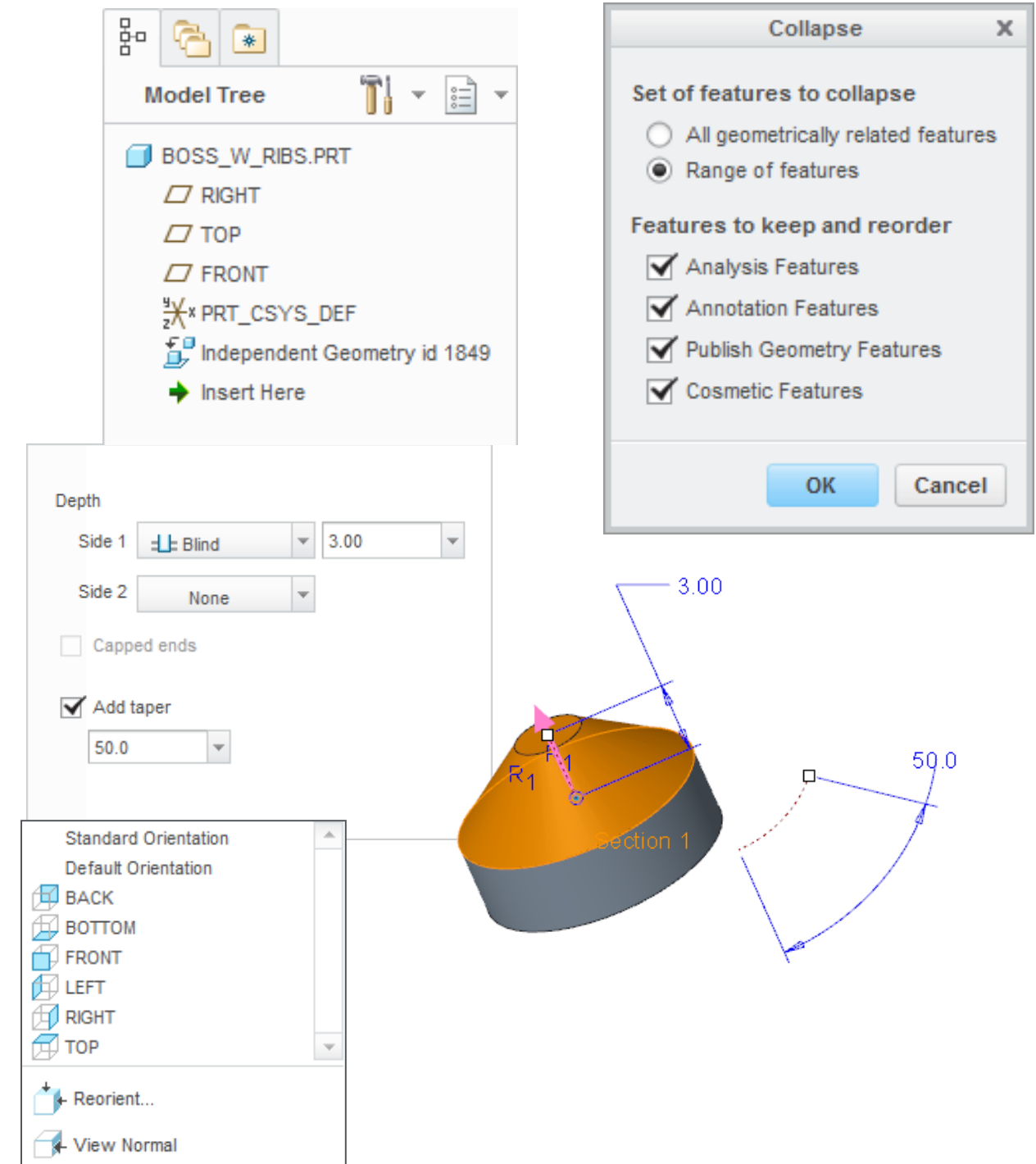
Enhanced Capabilities

Capabilities

- **Enhanced Collapse feature**
 - Collapse any features into either independent or incremental geometry
 - Ability to keep Analysis, Annotation, Publish Geometry, & Cosmetic Features
- **Increase max draft angle up to 89.9 deg**
 - In draft feature and tapered extrude
- **View Normal**
 - Added to Saved Orientations
 - View a model normal to one or two directional references
 - Second reference is positioned horizontally

Benefits

- Simplify feature tree more easily
- Increased design flexibility
- Improved usability



Overview

- **Form Enhancements**
 - New User Interface and Workflow for Die Form
 - Flatten geometry attached to forms
- **Bend Tool Enhancements**
 - Bend Multiple Planes
 - Bend Line Relief Placement
 - Create Multiple Bend Reliefs
- **Rip Enhancement**
 - Rip between different contours on the same surface



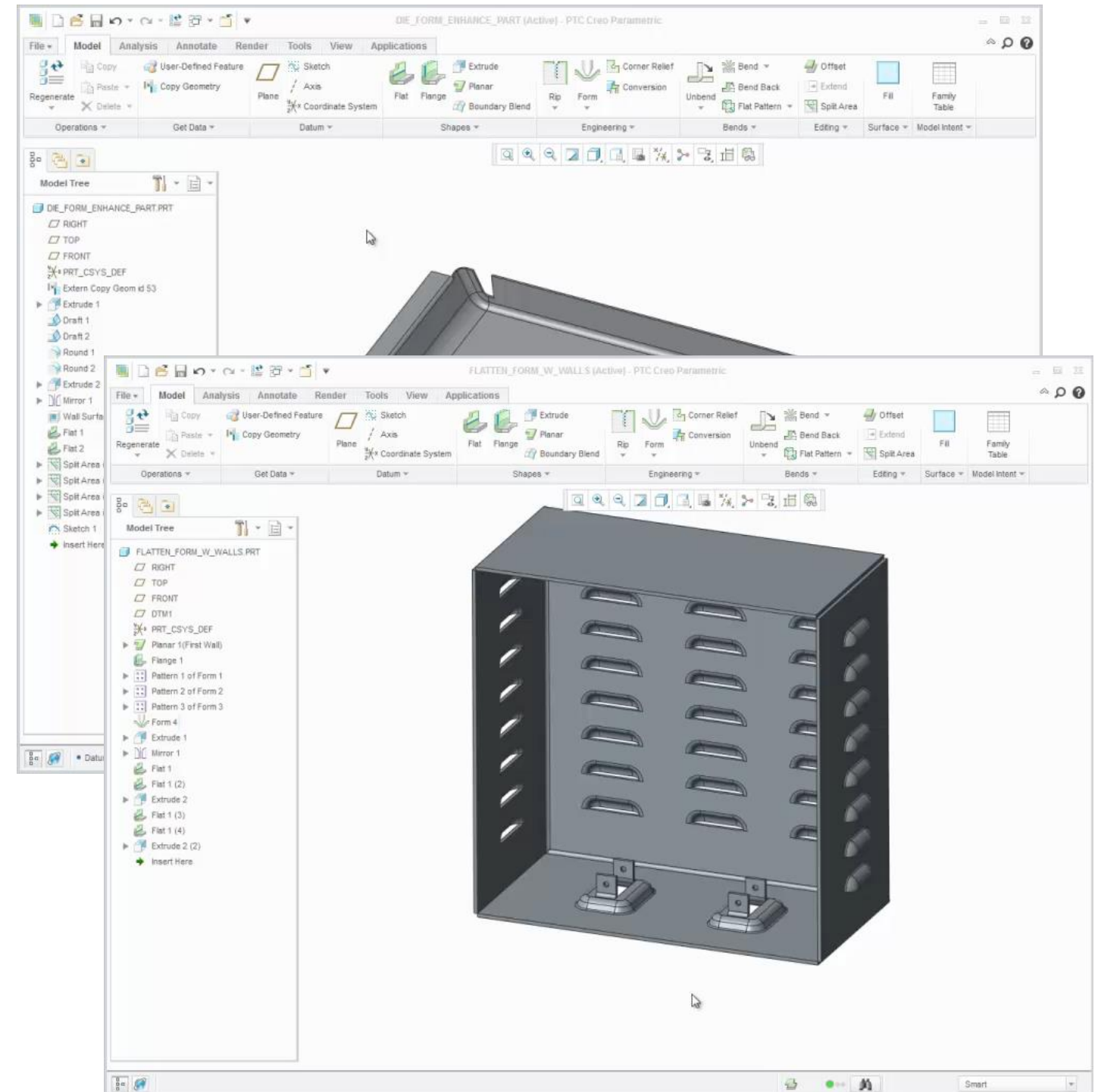
Form Improvements

Capabilities

- New UI and Workflows for Die Form
 - Similar to Punch Form
 - Ships with standard examples
 - Pocket is automatically found
 - Change it easily in the tool
 - Pre-define it in the reference model
 - Use Annotation Elements to pre-define
 - Pocket
 - Excluded Areas
- Flatten geometry attached to forms
 - Flatten Form supports unbent geometry
 - Flat Pattern unbends walls on forms first

Benefits

- Improved productivity and user experience
- Increased design flexibility



Bend Tool Enhancements

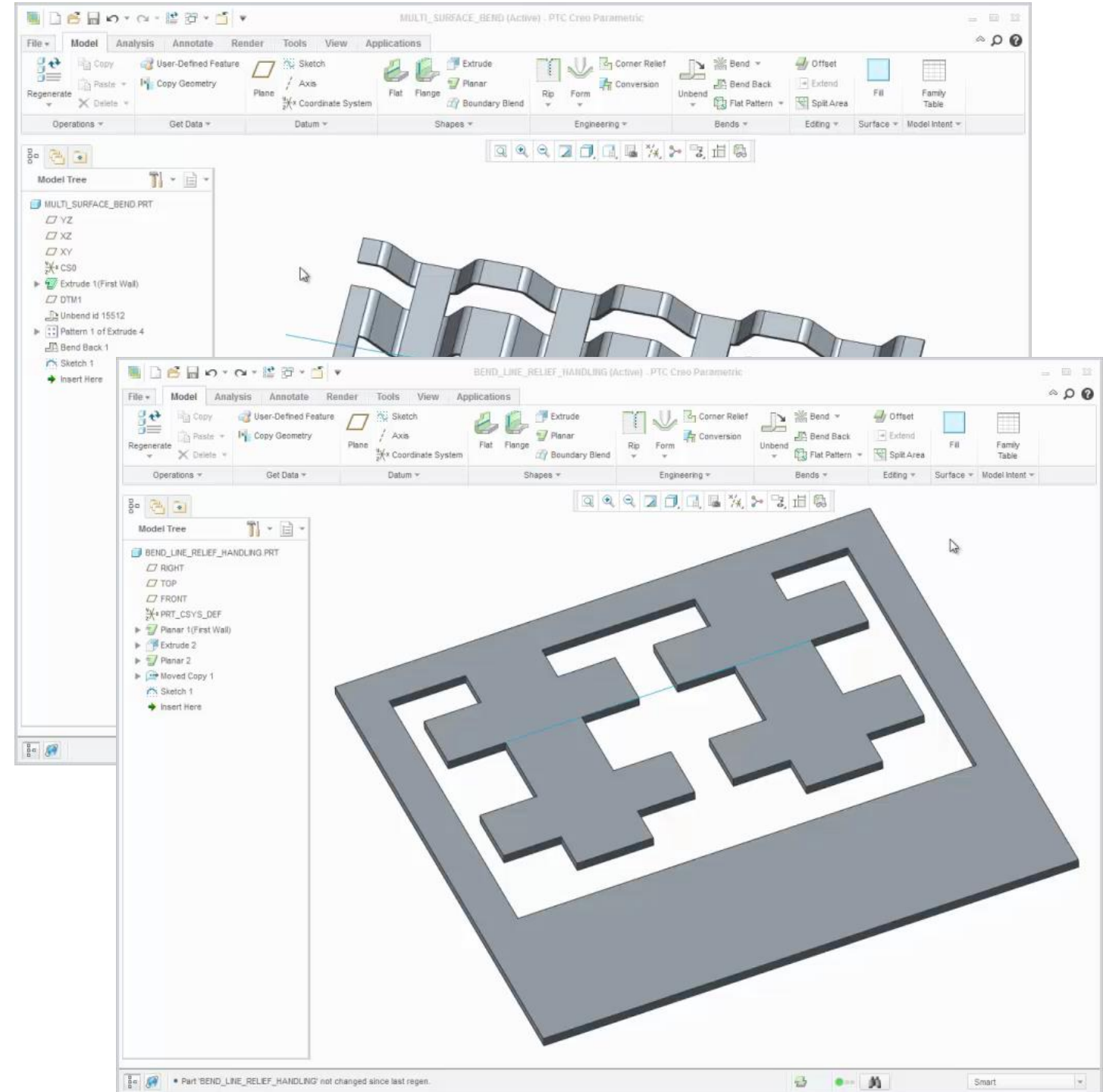
Capabilities

- Bend Multiple Planes
 - Apply bends to multiple co-planar surfaces
- Bend Line Relief Placement
 - Relief cuts normal to end of bend line up to bending plane boundary
 - No Relief extends bend to bending plane boundary
- Create Multiple Bend Reliefs
 - Reliefs created as appropriate, not just at bend line ends



Benefits

- Improved productivity and user experience
- Increased design flexibility

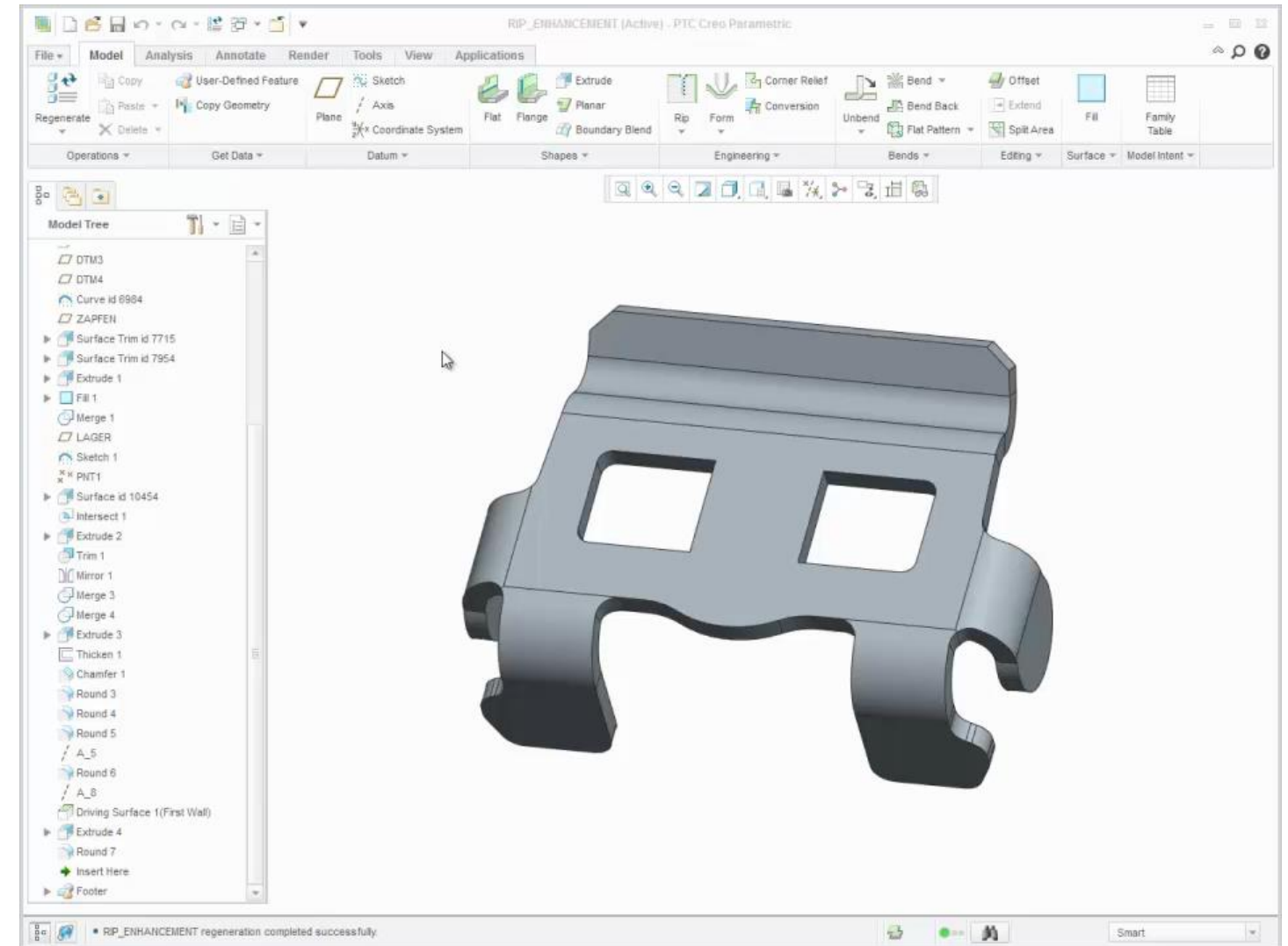


Rip Enhancement Capabilities

- Rip between different contours on the same surface
 - Sketched Rip
 - Rip Connect

Benefits

- Increased design flexibility



- **New capability**
 - Surface Untrim
 - Chordal round
- **Surfacing tools**
 - Boundary Blend enhancements
 - Flatten Quilt enhancements



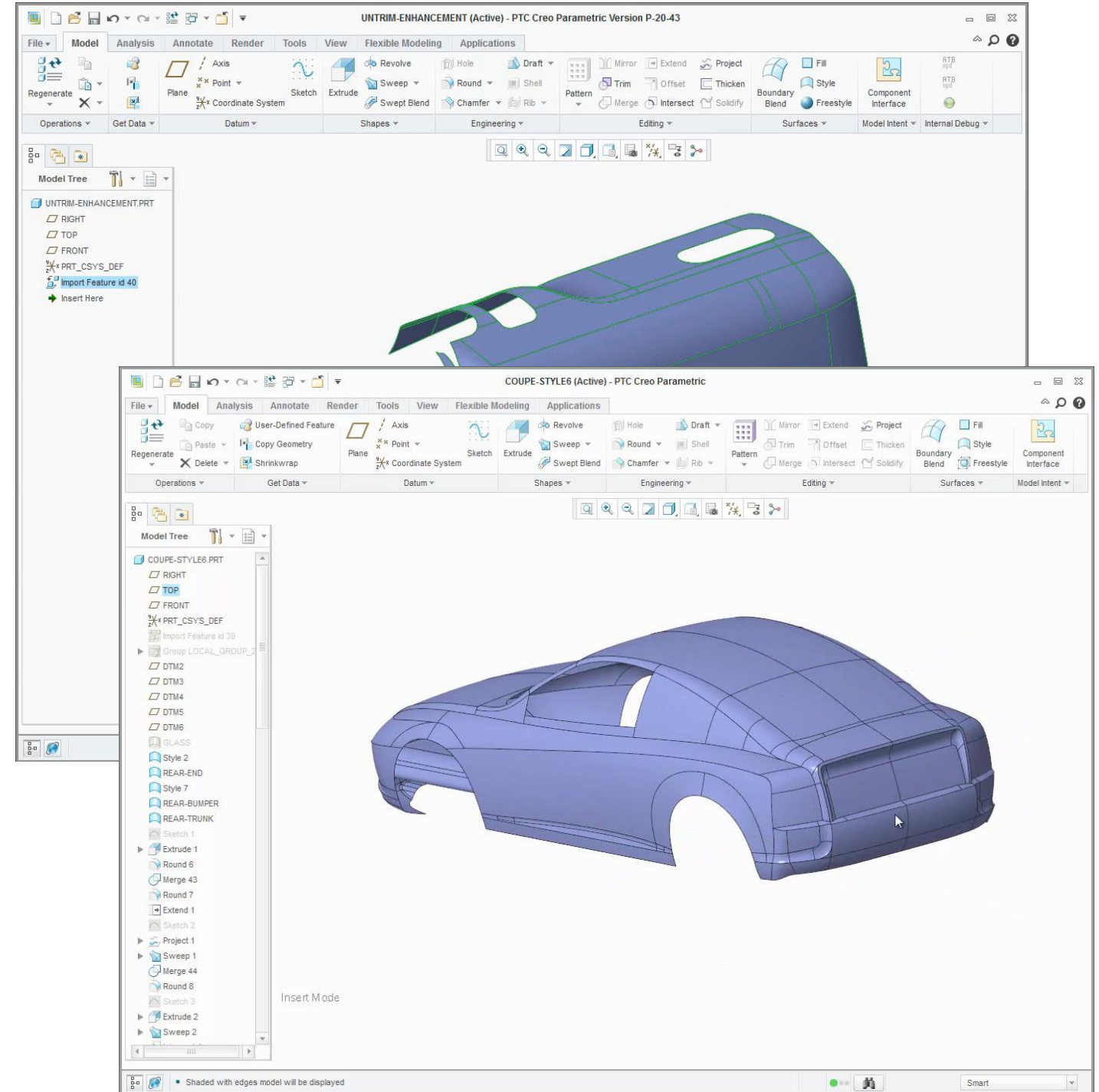
New Surfacing tools

Capabilities

- Ability to un-trim a surface or quilt
 - Un-trim to domain or envelope
 - Available through copy/paste
 - Fully associative to original surface
- Chordal Round
 - Constant width rounds
 - Options for conic or C2, with shape controls
 - Rolling ball and Normal to Spine options

Benefits

- More easily understand and change imported surfaces
- Build more attractive geometry



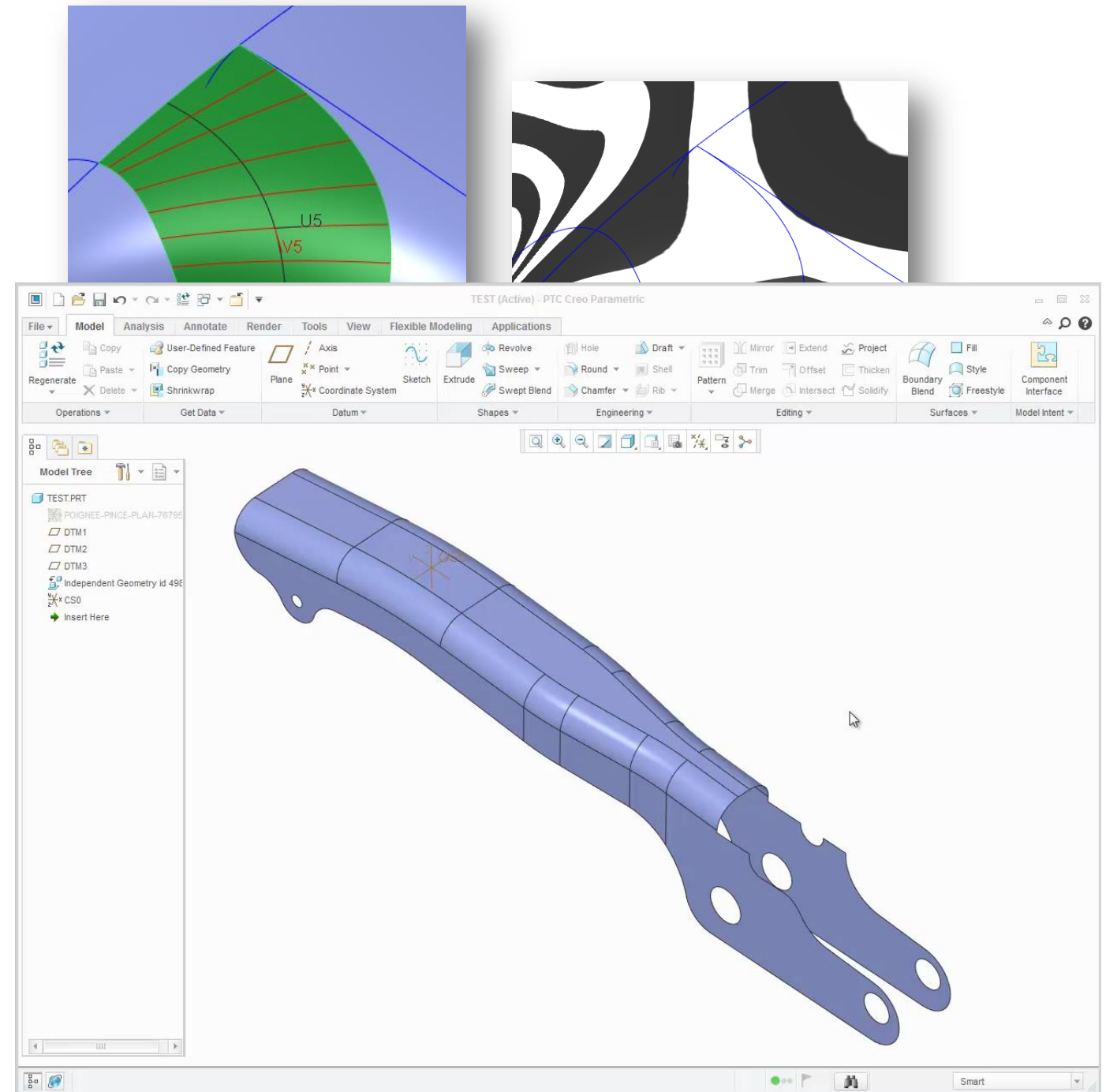
Enhanced Surfacing tools

Capabilities

- **Boundary Blend improvements**
 - Improve boundary Blend surface quality
 - Generates degree 5 surfaces
 - Option to optimize shape
 - Improved connections
 - Improve internal continuity
- **Enhanced Flatten Quilt**
 - Ability to flatten non rectangular surfaces, quilts and solid geometry
 - Symmetry support

Benefits

- Surface quality and connection quality improvements
- Improved productivity



- Analysis tools
 - 3D Thickness tool
 - Draft analysis enhancements



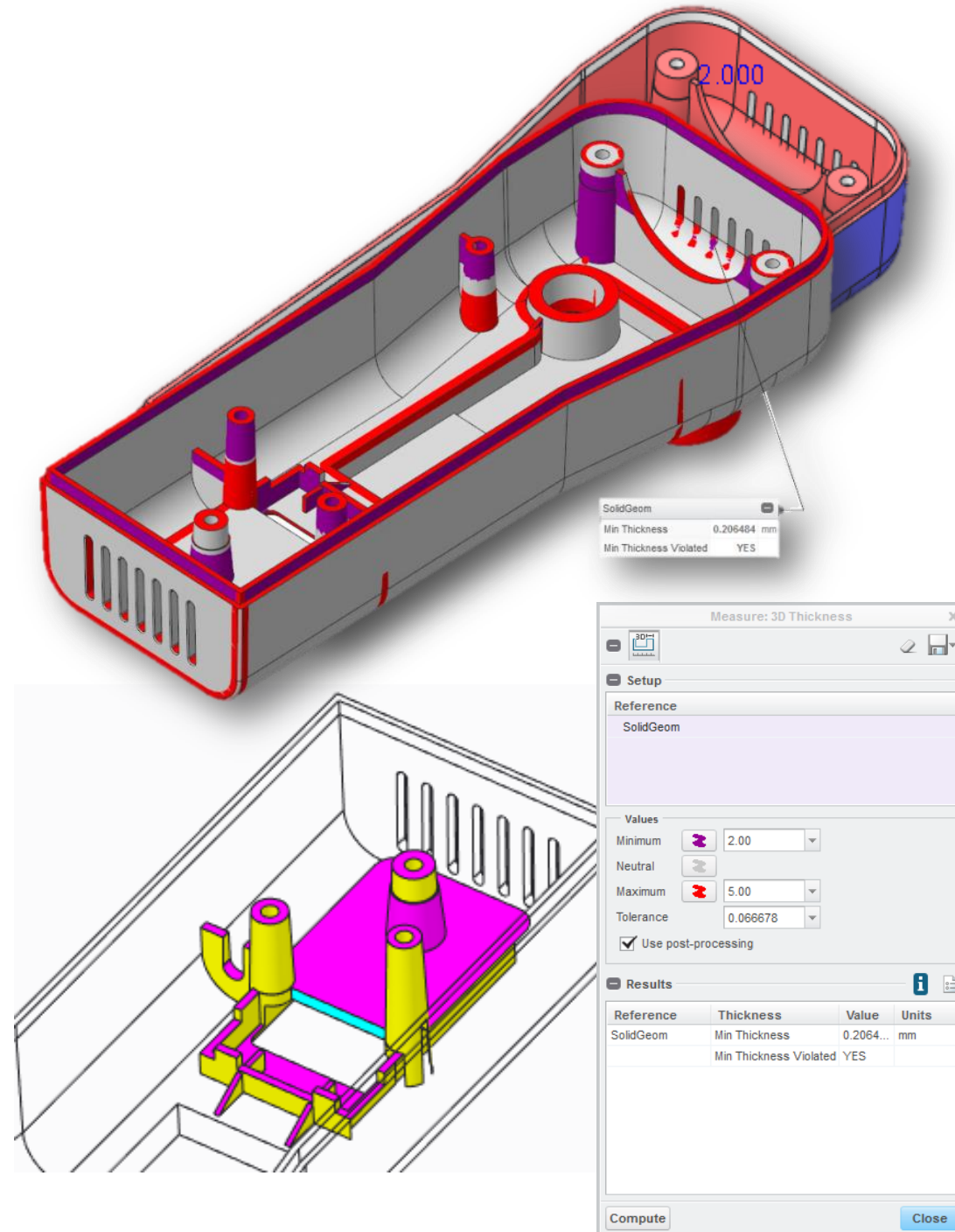
New and improved analysis tools

Capabilities

- More realistic display of Draft Analysis
 - Align result display with Display Style
 - Lighting support provides understanding of depth
 - Support for 3 and 4 colors in color plot
- New 3D Thickness Check
 - Perform a wall thickness check for plastic and cast parts
 - Supporting check both on Part and Surface
 - Minimum thickness displayed

Benefits

- Identify design flaws and eliminate late-stage rework of production tooling
- Reduce the time to analysis wall thickness of complicated parts and improve accuracy for identifying potential design issues



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