



CREO 4.0 SURFACING AND GRAPHICS UPDATE

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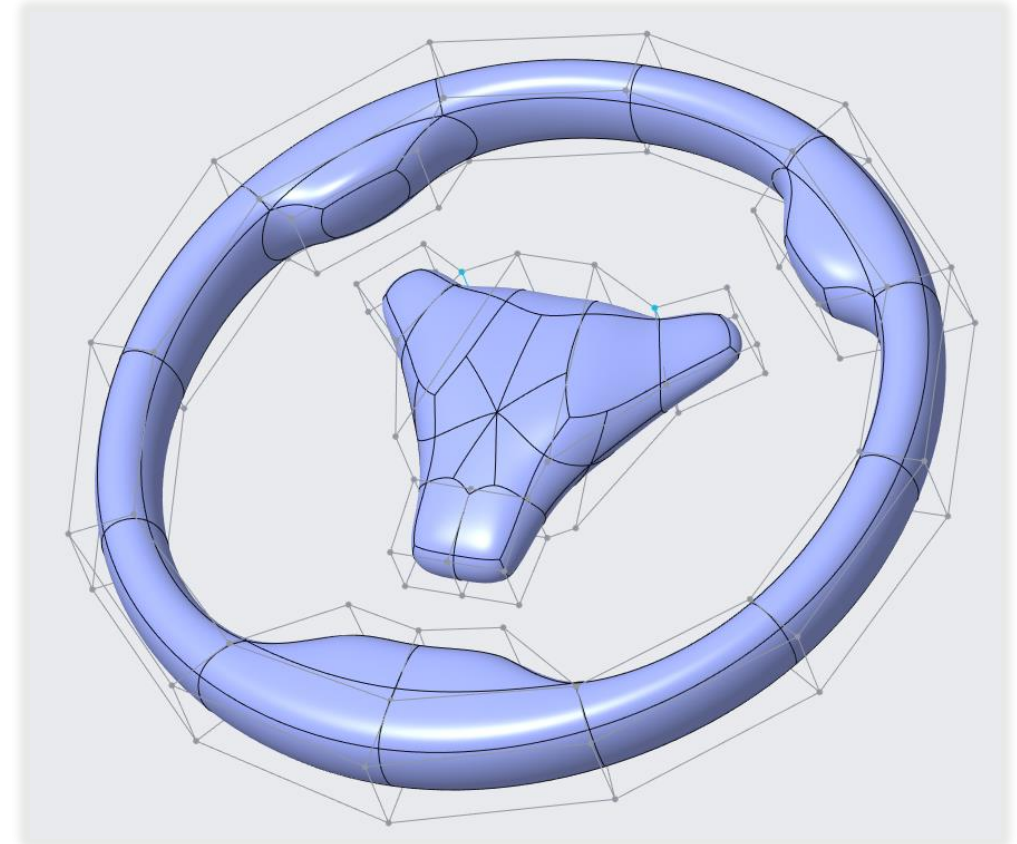
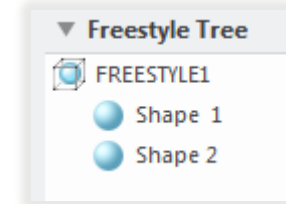
AGENDA

Surfacing

Graphics

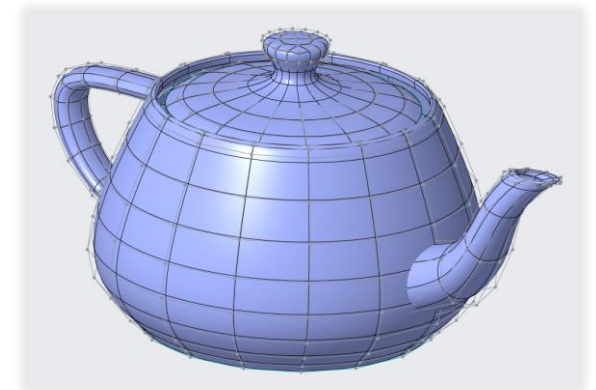
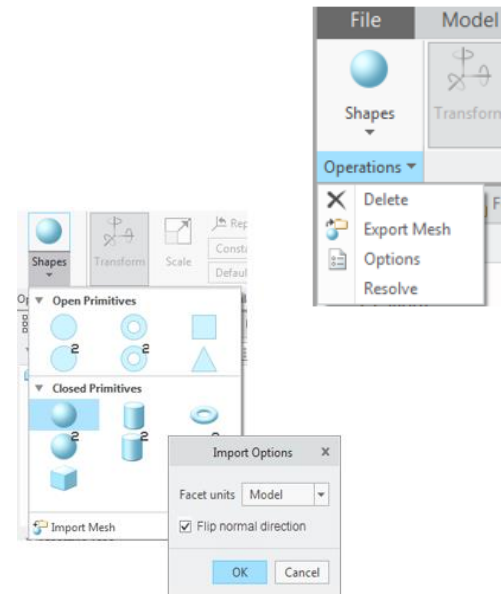
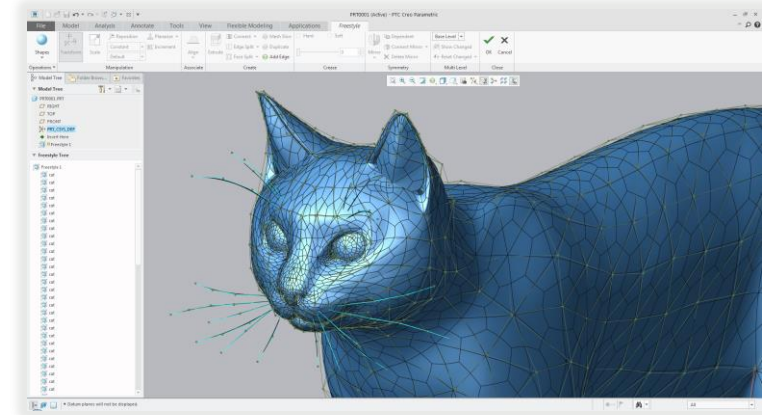
FREESTYLE: SUPPORT MULTI-OBJECTS

- Create multiple disconnected objects
 - Add new primitives at anytime
- New Freestyle Tree allowing quick selection and manipulation of selected shapes
- Easily edit and manipulate individual or multiple objects irrespective of order
 - Join and connect entities from different shapes
 - Split a shape into multiple shapes by slicing along a set of edges or faces
 - Duplicate shapes
 - Hide/unhide shapes
 - Lock shapes



FREESTYLE: IMPORT/EXPORT OBJ FORMAT

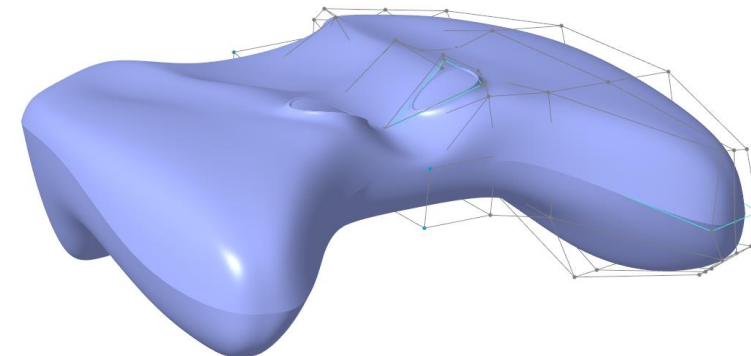
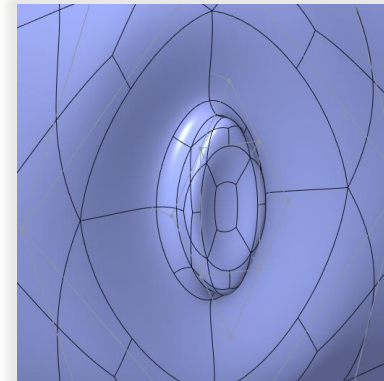
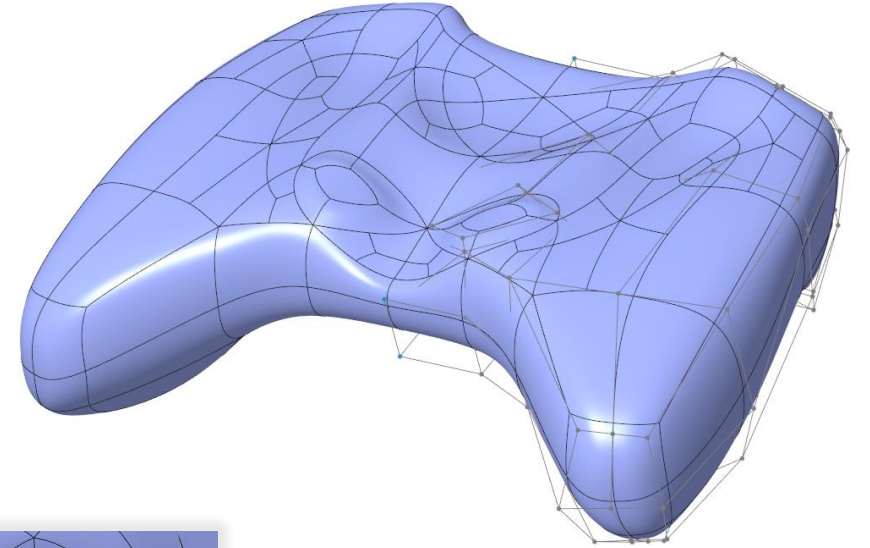
- Import Wavefront (*.obj) files into Freestyle
 - Imported geometry created from other sub-divisional modelers tools – 3D Studio, Maya or Modo
 - Import geometry can contain multiple shapes
 - Control the facet units during import
 - Flip the normal direction of the control mesh
 - Available during import or via RMB from the Freestyle Tree
 - Limited to 5000 control mesh faces
- Export Freestyle geometry to obj file to be used in other applications
 - Save obj format file to the local machine



FREESTYLE: SUPPORT N-GON FACES



- Enable the ability to split quad faces into n-sided faces (N-Gons)
 - Users will be able increase the number of edges per face by selecting the new command **Add Edge**
 - Each added edge will break the 4 sided face into smaller faces providing enhanced control for the user to define their form
- Users will be able to delete selected edges causing the faces to collapse
 - After deleting the edge, the two vertices will automatically be deleted by the system
 - User can control this under the Options menu



FREESTYLE: USABILITY IMPROVEMENTS

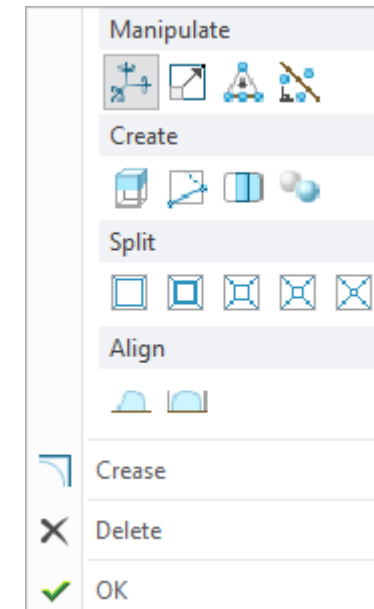
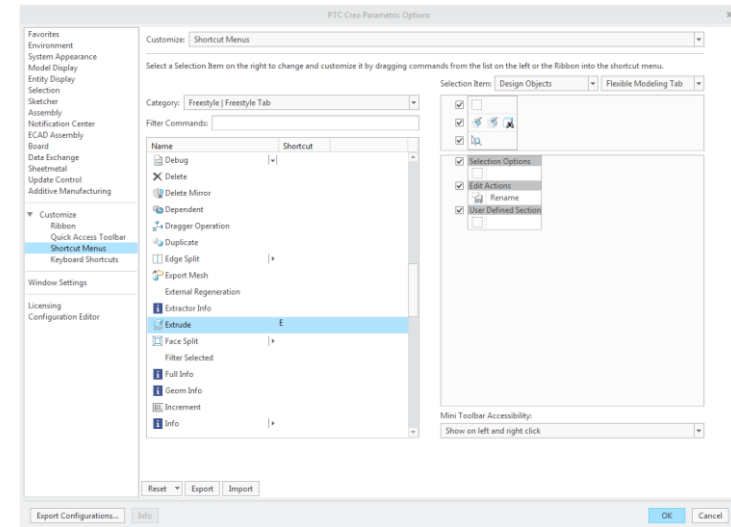


- **Command Shortcuts**

- Out-of-the-box shortcut commands defined for common Freestyle features
- Commands specific to Freestyle and can be easily modified

- **Replacement of Freestyle Circular Menu**

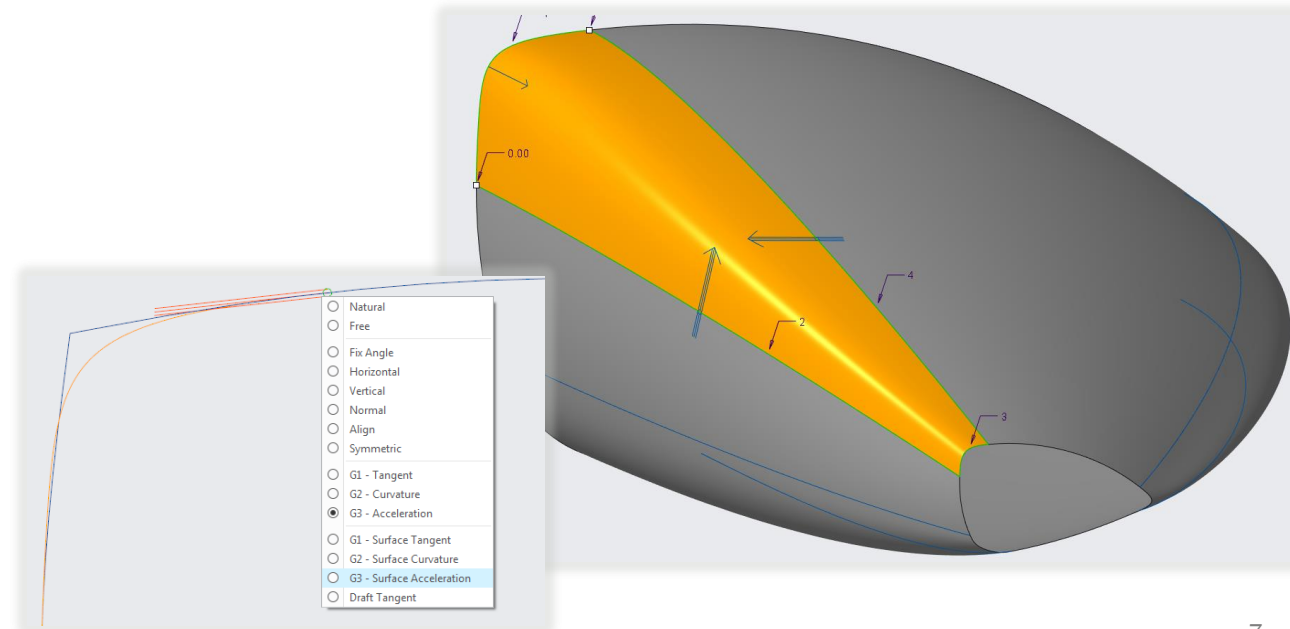
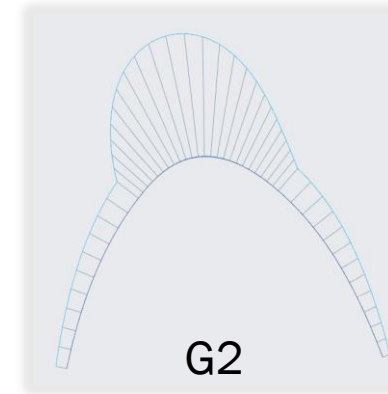
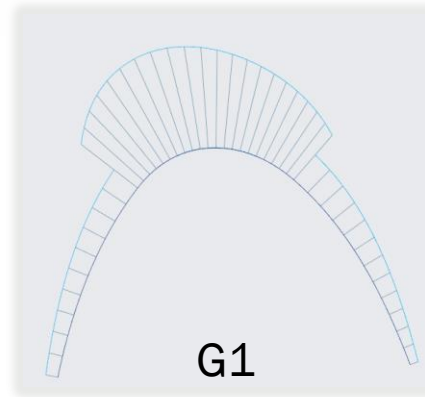
- Consistent with the rest of PTC Creo
- Fully customizable
- Dynamic based on selected entity
- Improve speed to accessing commands directly from graphics area



STYLE: G3 (ACCELERATION) CONNECTIONS

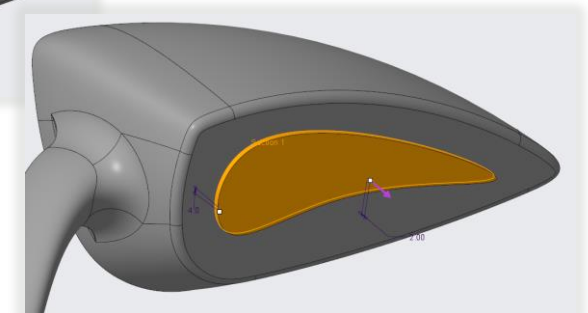
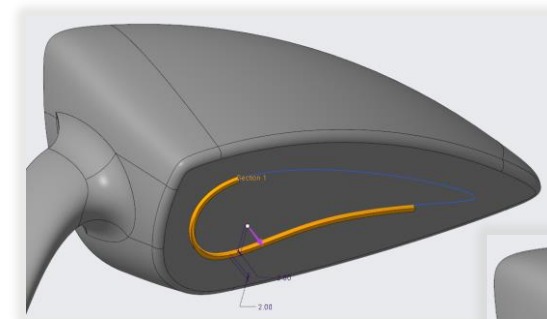
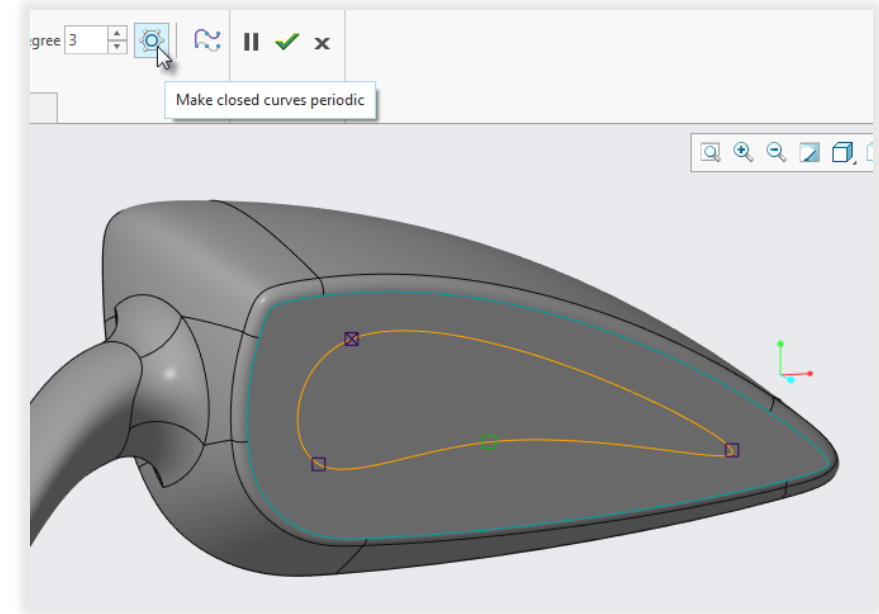
- Define a new Acceleration connection between curves (curve-to-curve, curve-to-surface and curve-to-edge)
 - Available in Interpolation and Control Point modes and can be free, planar or COS curves
 - New arrow glyph will represent the new acceleration connection

- Define a Acceleration connection between surfaces
 - New arrow glyph will represent the new acceleration connection



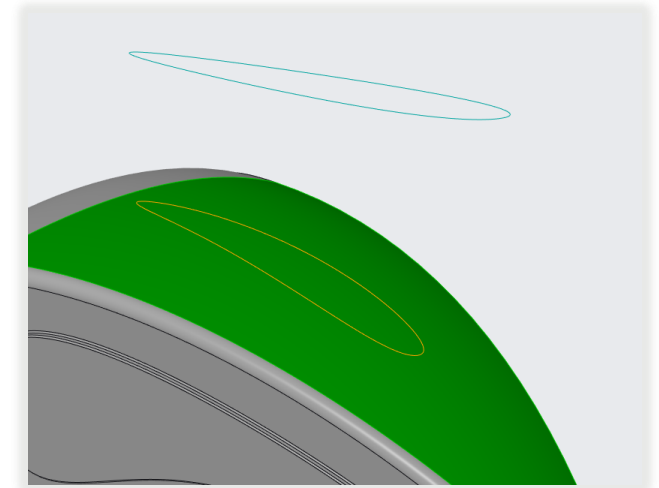
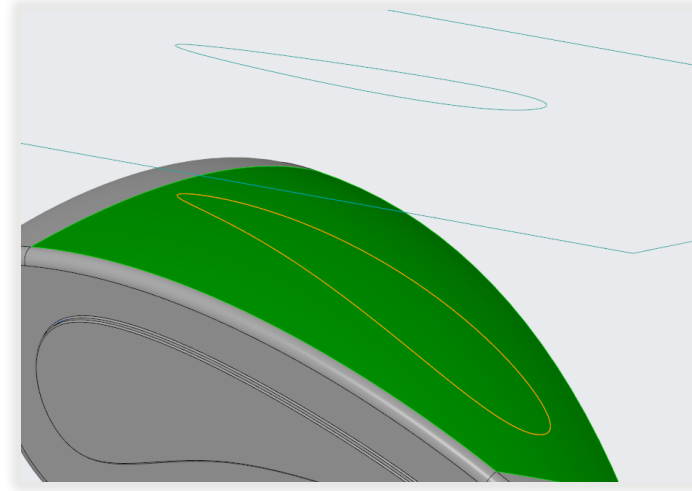
STYLE: CLOSED CURVE HANDLING

- Allow the ability to create closed curves as periodic or nonperiodic curves
 - New option will be available to toggle the Periodic/Nonperiodic state of the closed curve
 - Closed curves will be defined as periodic by default
 - Periodic curves have no tangency control on endpoints
 - Nonperiodic will be split in two halves during regeneration to support downstream creation of sketched based features
- Legacy curves will not change to become periodic curves



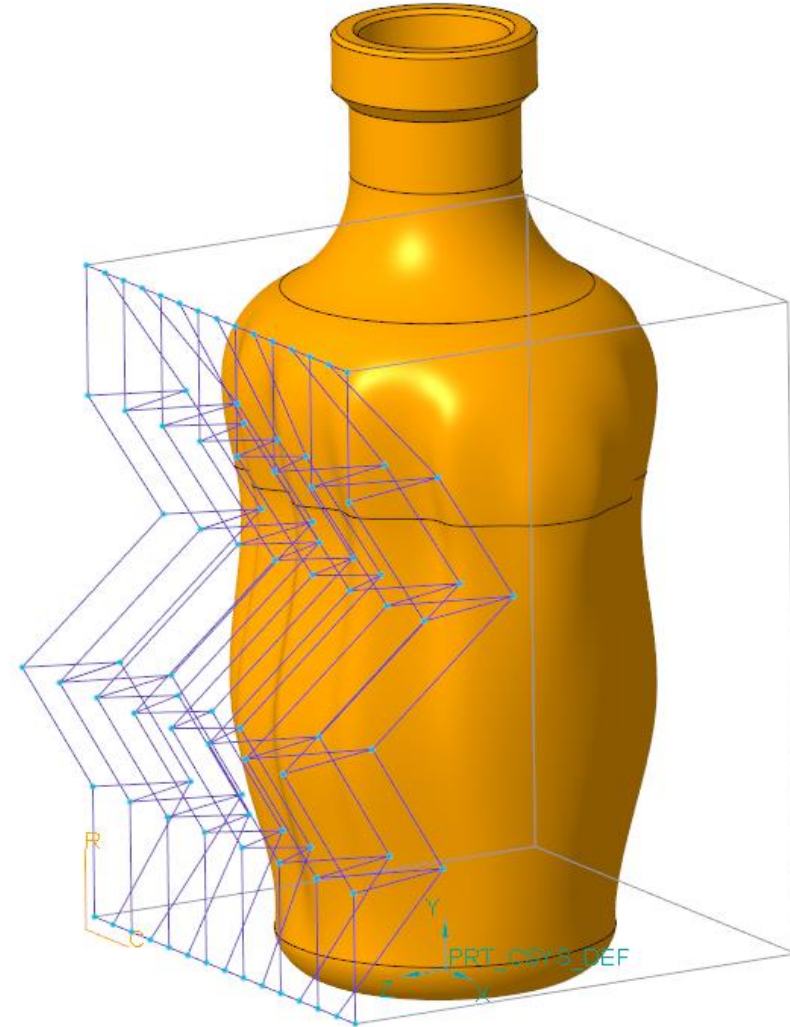
STYLE: DROP CURVE IMPROVEMENTS

- Enable the ability to drop a curve Normal to a surface
 - New direction drop-down option – **Normal to Surface**
 - User can select the desired surface to drop the curve onto
- Enable the ability to drop a curve onto a datum plane
 - Similar to the capabilities in the Project feature
 - Dropped curve on a datum plane will convert the curve to planar curve
- Allow the ability to flip the direction when dropping a curve on surface



WARP: PRESERVING ANALYTIC GEOMETRY

- Analytic geometry will be maintained after a warp feature has been created
 - No longer will geometry be approximated to splines which can cause downstream problems
 - Planer surfaces outside of the warp marquee and not impacted by the warp feature will remain planer
- Warp features created in previous releases will not be updated
 - Users will need to create a new warp feature to preserve the analytic geometry



AGENDA

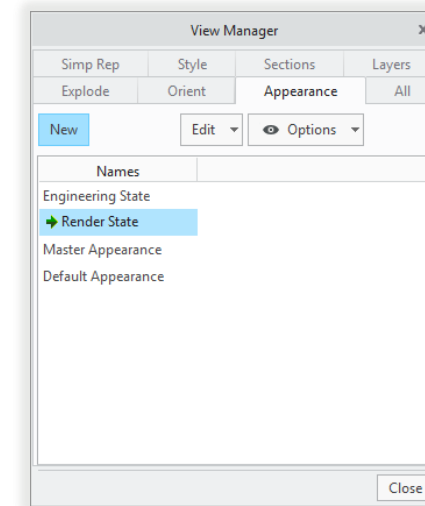
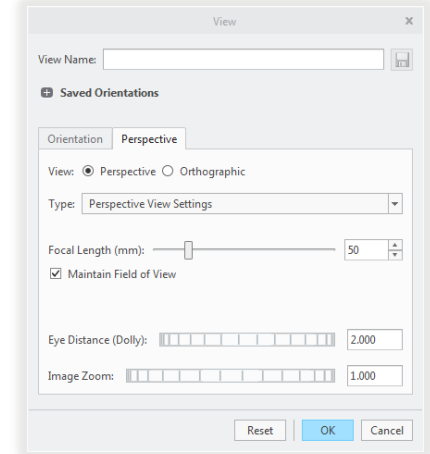
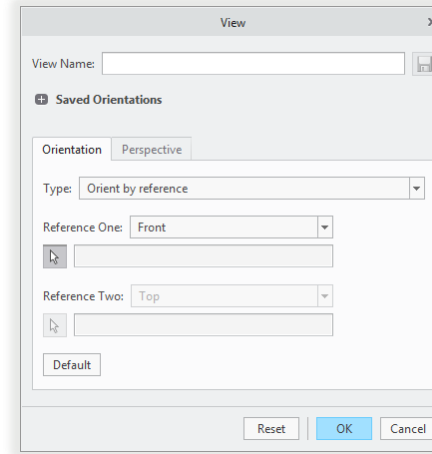
- Surfacing
- Graphics

GENERAL APPEARANCE



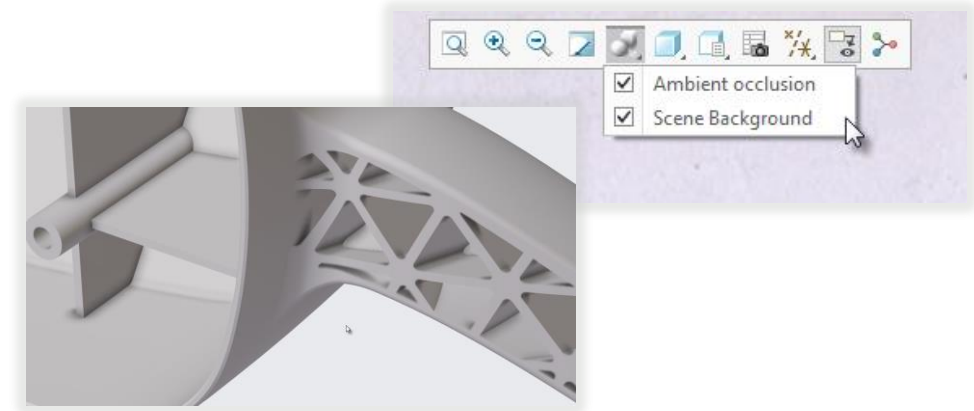
- **New Model View Dialog**
 - Single dialog to access a models saved orientation states, create new orientation states or modify the Perspective settings
 - Accessible under the View Tab

- **New Appearance State in the View Manager**
 - The View Manager has been updated to allow users to define different Appearance States for their model
 - Users can now define different color combinations for specific use cases easily without compromising their design



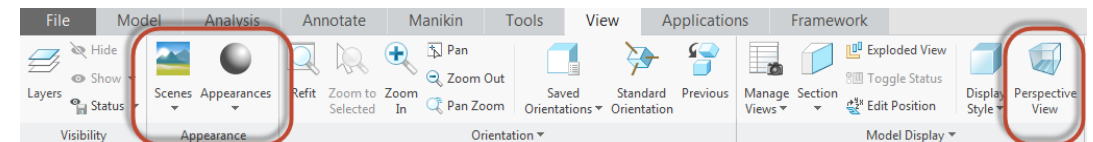
- **Updated In-Graphics Toolbar (IGT) Options**

- New commands have been added to the IGT making it easy for users to access key capabilities
 - Ambient Occlusion
 - Scene Background



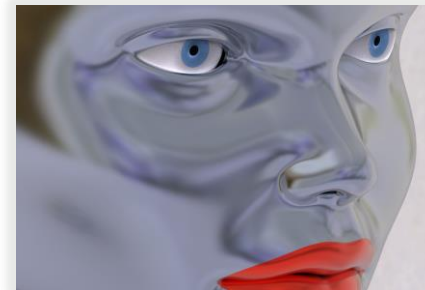
- **Render Tab**

- The Render tab will not longer be available with Creo 4.0.
 - The core components – Scene, Appearances and Perspective, will be moved to the View and Model tab



ADVANCED RENDERING

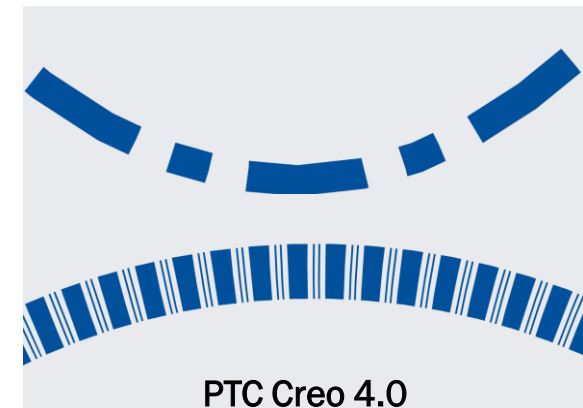
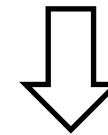
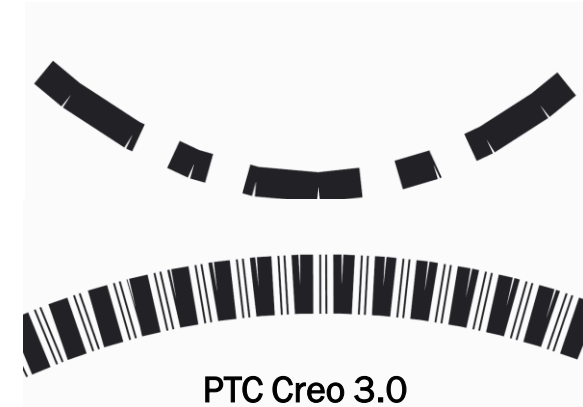
- **New rendering mode** for PTC Creo to replace former Advanced Rendering Extension
 - New application available under the Application tab
 - Switch between rendering mode and modeling mode without needing to exit the rendering application
- Provide **Real-Time Raytracing** powered by **Luxion Keyshot**
 - Leverage existing scenes and appearances applied to the your design
 - Lights, HDRI Environment, Textures
 - Create Screenshot or output fully rendered image
 - Easily export data to standalone Keyshot for extended Keyshot capabilities



KeyShot
by Luxion

LINE STYLE DISPLAY

- Collaborated with NVIDIA to support new GPU libraries for line style display
 - Improves the overall quality of all line styles used throughout Creo
 - Addresses disconnected line sections when defining a thick line
 - Resolves the pattern flow issues displayed in earlier Creo releases
- New GPU supported line styles will be enabled by default, but users can utilize the following config and detail options
 - **(Config) force_cpu_line_style_rendering:** Forces CPU linestyle (old) in current session for all parts, assemblies and drawings
 - **(Config) pre_creo4_dwg_use_cpu_rendering:** Will only affect prior release drawings and force CPU linestyle display on a given machine
 - **(Detail) pre_creo4_dwg_use_cpu_rendering:** Will update the drawings so that it will always use CPU linestyle on all machines



The image features several colorful, geometric shapes scattered across the background. On the right side, there is a large, multi-colored triangular shape composed of various shades of blue, green, yellow, orange, pink, and purple. Several thin, elongated triangular shapes in blue, pink, orange, and green are scattered around the central text.

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