



CREO TIPS AND TECHNIQUES: SKETCHER

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AGENDA

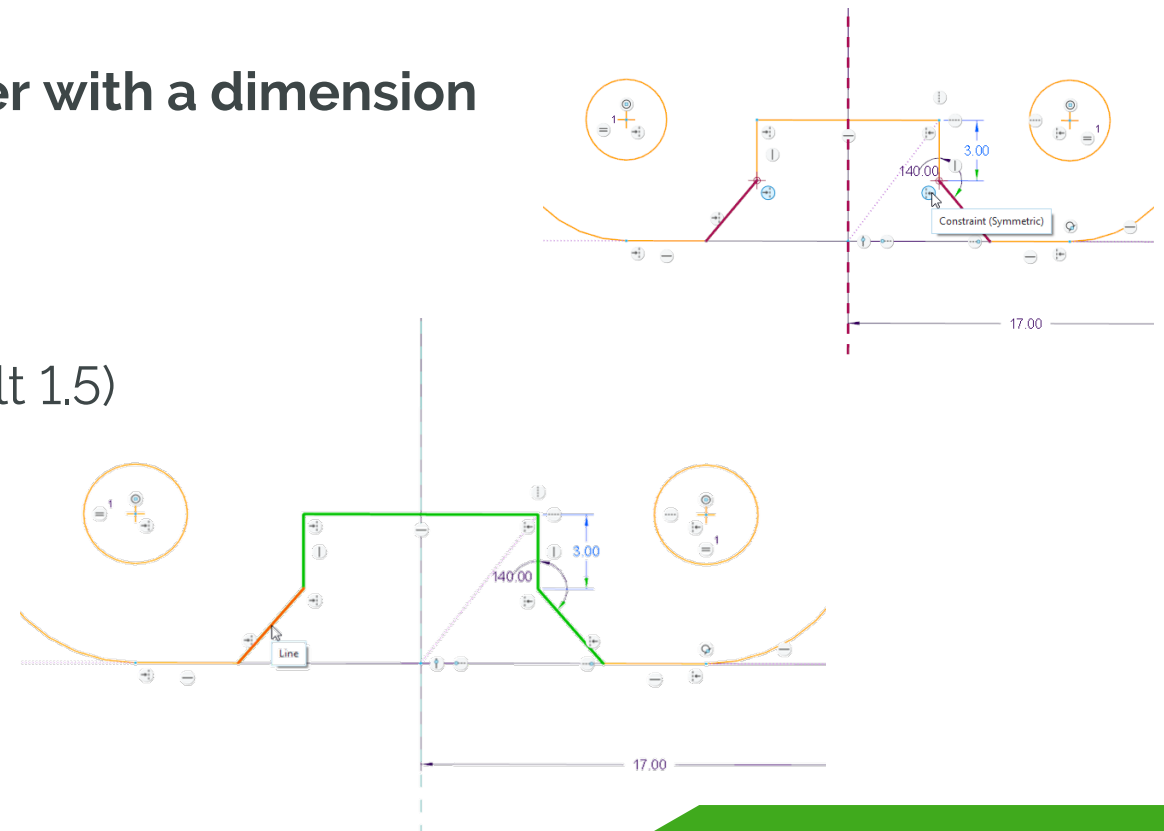
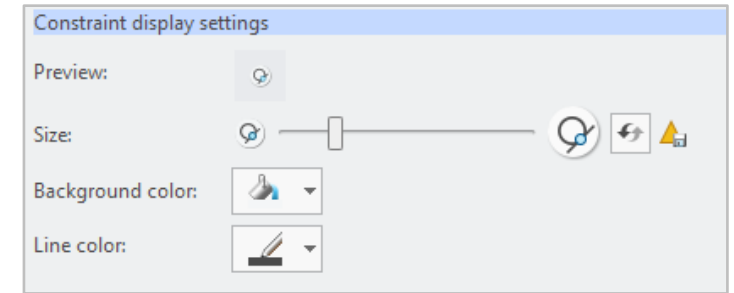
- Snapping and Constraints
- Inspection Tools (What's New)
- Project and Offset (What's New)
- Palette
- Dimensioning: arcs, splines, perimeter



CREO 7

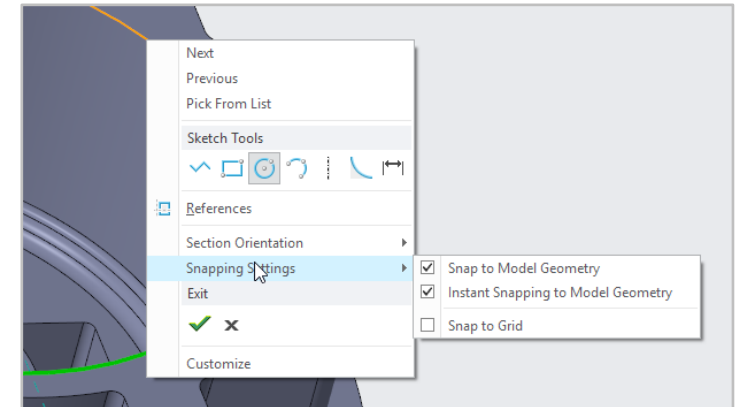
SKETCHER - DESIGN INTENT VISUALIZATION

- **Modernized appearance of constraint icons**
 - Icon color scheme is adjusted based on system colors
 - Ability to control icon size, background and line color
- **Sketch references are highlighted together with a dimension or constraint when they are (pre-)selected**
- **More visible highlight of sketch entities**
 - Config option `sketcher_line_width` (default 1.5)



SKETCHER – IMPROVED SNAPPING PERFORMANCE

- **User control over applied snapping methods to increase performance**
 - New option to turn off instant snapping to model geometry
- **Direct access to snapping options from within the Sketcher environment**
 - Snap to Model Geometry
 - Instant Snapping to Model Geometry (On/Off)
 - Snap to Grid
- **Configuration option: sketcher_instant_snap_to_model**
 - Yes – snaps when cursor is next to geometry
 - No – does not snap when cursor is next to geometry



Set Appearance of Sketcher Constraints in “Edit Dimension”

- **New configuration option Show_sketcher_constr_dyn_edit no*/yes**
 - No – Does not show sketcher constraints in dynamic editing
 - Yes – Shows sketcher constraints in dynamic editing

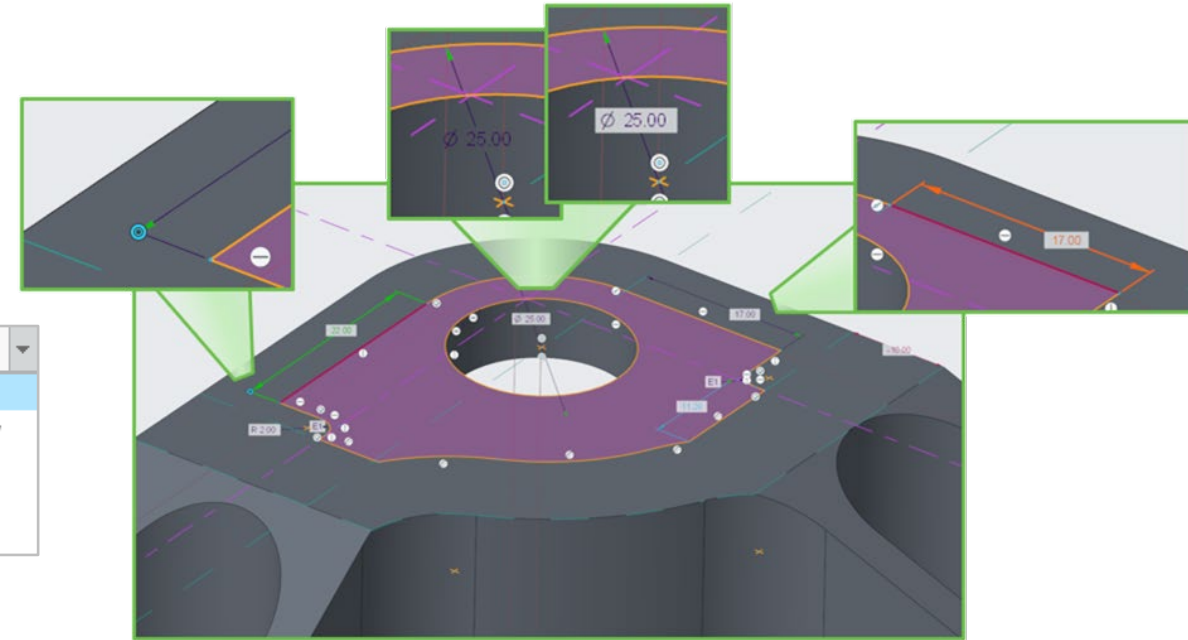
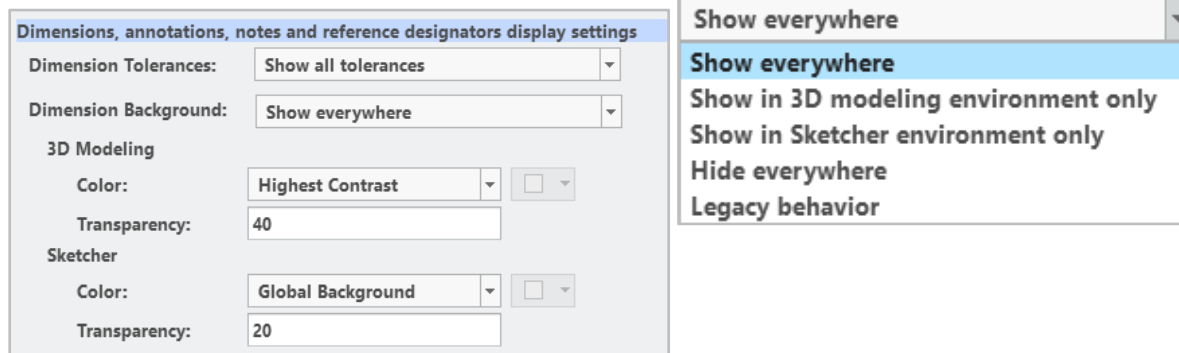


CREO 8

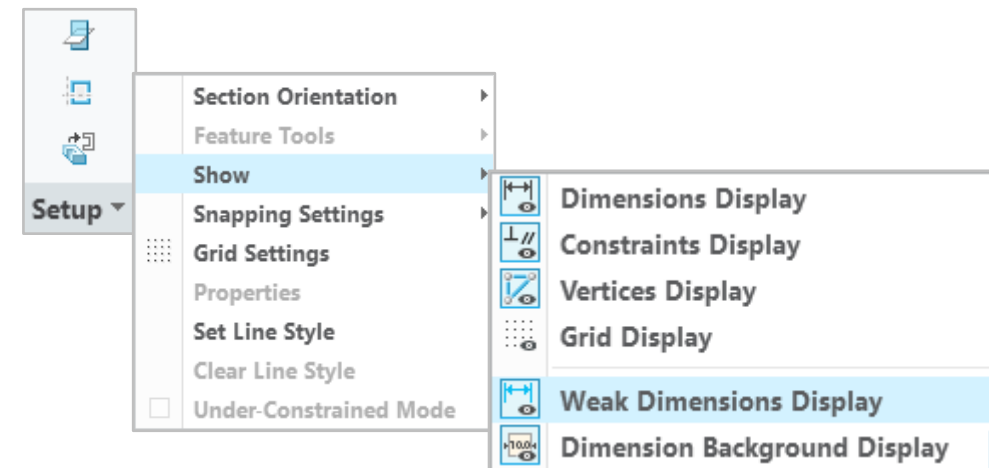
SKETCHER – VISIBILITY OPTIONS

Improved Visibility Controls in Sketcher

- Control of dimension background appearance
 - Color and transparency



- More pronounced dimension display during selection and pre-selection
 - Sketch_thick_dim_line_highlight (yes)
 - Dimension and sketch entity are highlighted when cursor is placed over dimension
- Modernized dimension dragger
 - Dragger icon is easier to see, select and drag
- Easy access to sketch display options
 - Toggle display of Weak Dimensions and Dimension Background

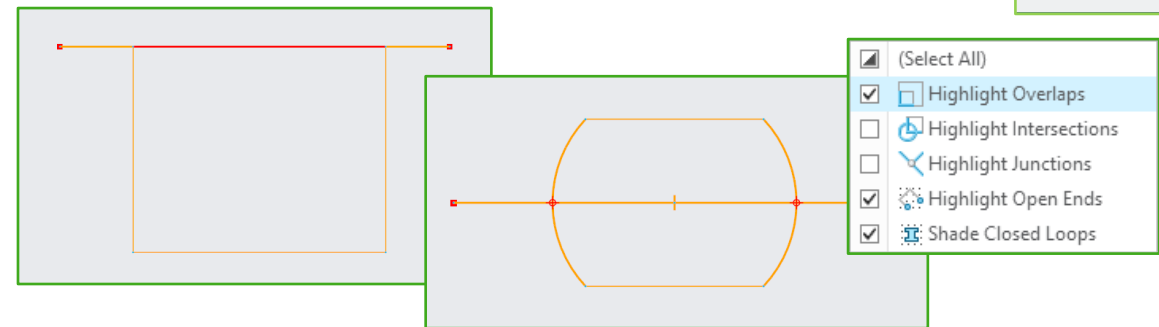
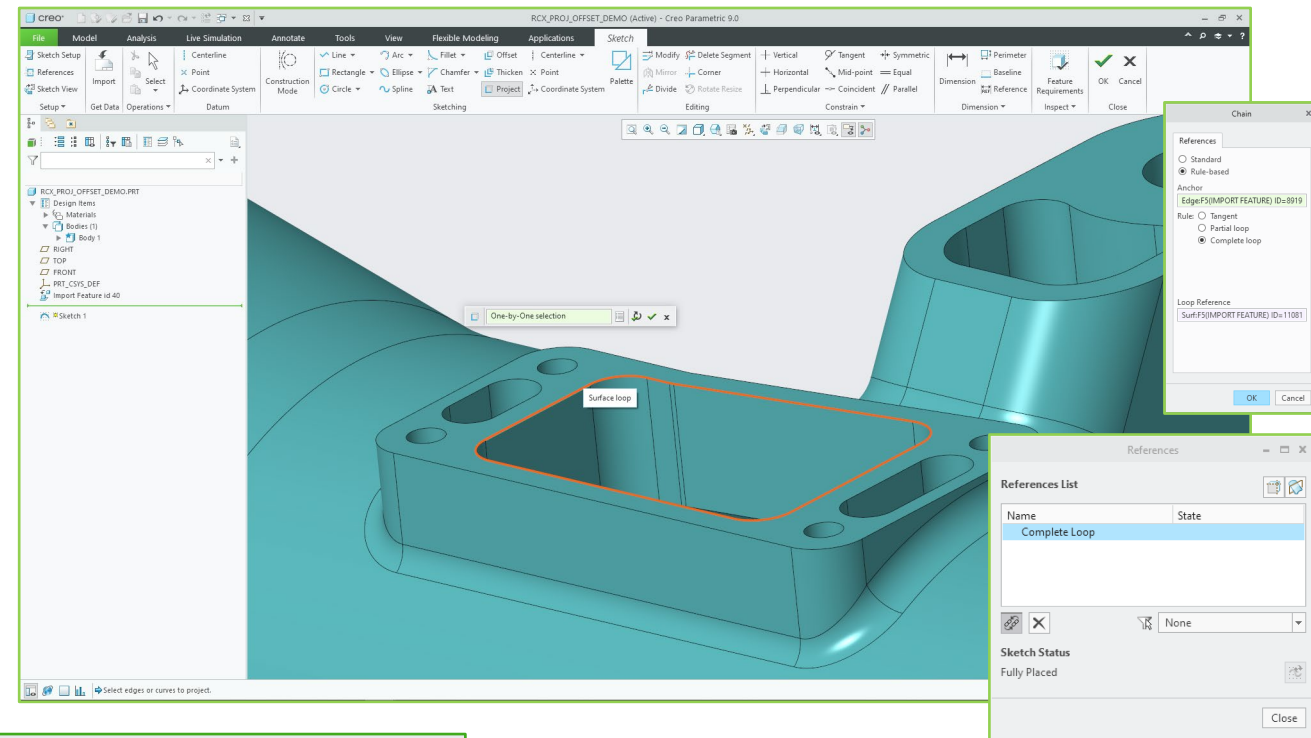




CREO 9

SKETCHER – OVERVIEW

- **Modernized Project/Offset tools**
 - Enhanced tool workflows incl. standard chain collection workflows
 - Enhanced reference handling aligned between 3D and 2D
- **Auto-scale FIRST Sketch**
 - Scale sketch based upon initial modification
- **Enhanced & Enriched Inspection tools**
 - Highlight intersections & junctions
 - Diagnostics remains active



Benefits:

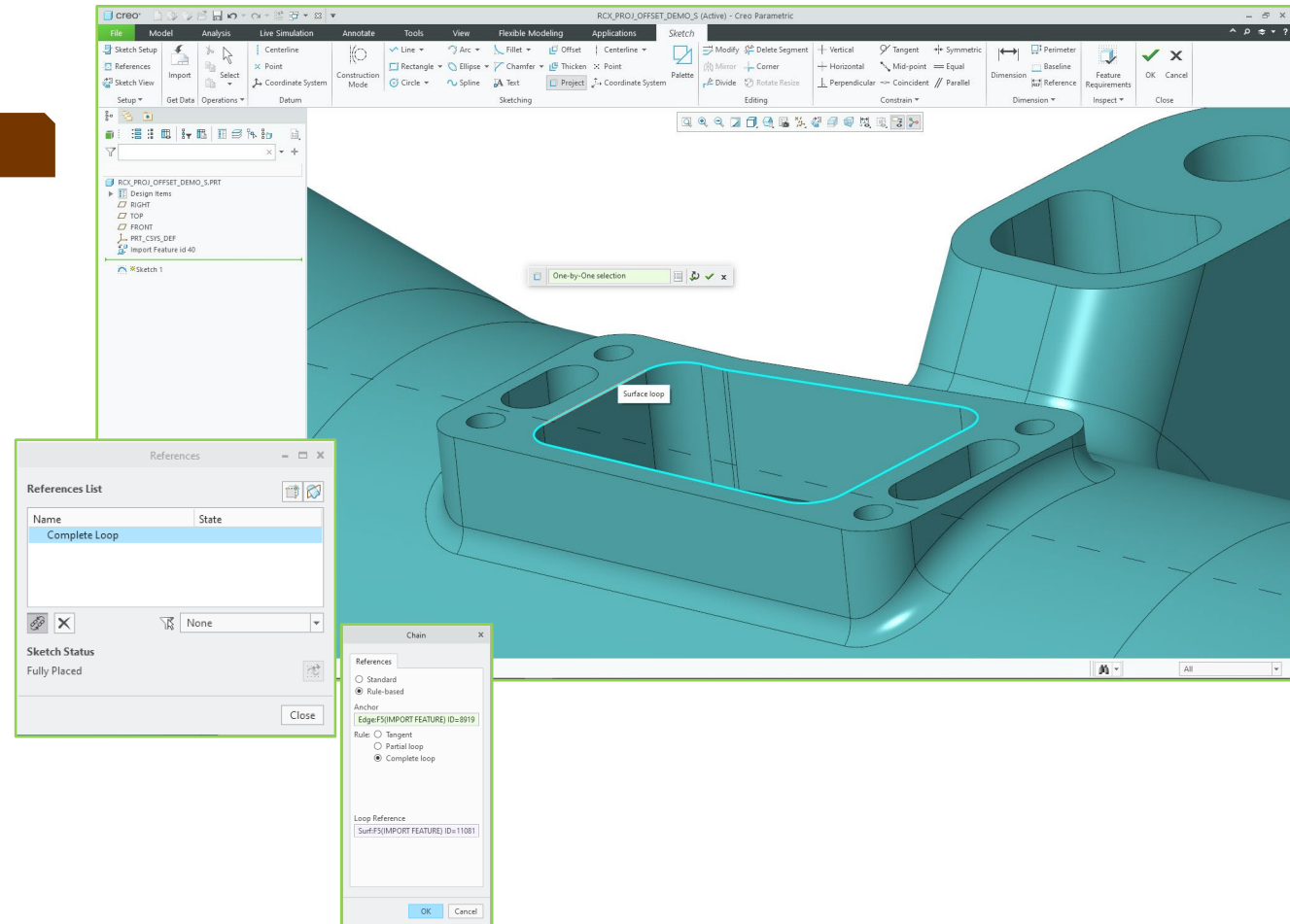
- Easier referencing and usage of 3D geometry inside sketcher
- Improved usability for easier creation and faster dimensioning of initial sketch
- Find and fix sketch geometry problems faster for increased design productivity

SKETCHER – MODERNIZED PROJECT/OFFSET TOOLS

■ Modernized Project/Offset tools

- Enhanced tool workflows
 - Modernized UI
 - Standard chain/loop selection workflows
 - Standard Chain Collection dialog is available
 - Including rule-based reference collection for tangent, partial and complete loop selection
 - Switching from rule-based definition to individually selected items is supported for “Project”-tool
 - Result of a 3D project/offset is “composite curve”
 - Supporting “Divide” & “Trim”
- Enhanced reference handling
 - Aligned with typical chain collection referencing schemes
 - Reference replacement (2D or 3D) show chain references as defined
 - Reference replacement within sketcher invokes project/offset tool for aligned editing workflows and failed reference handling

Community idea



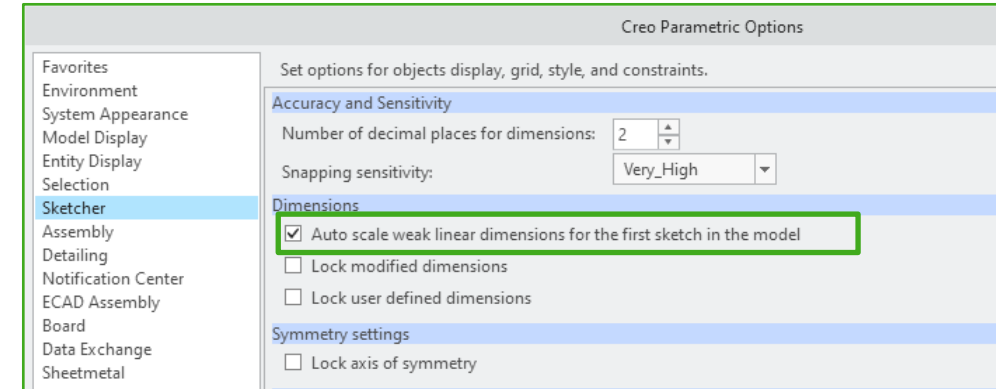
Benefits:

- Easier referencing and usage of 3D geometry inside sketcher
- Increased usability through modernized, aligned workflows

SKETCHER – AUTO-SCALE FIRST SKETCH

Community idea

- **Auto-Scale:** The first sketch automatically scales upon initial modification of a weak linear dimension
- Smart conditions:
 - Auto-scaling typically only applies to situations where the initial model outline was not changed yet by a preceding feature
 - Some exceptions apply (Analysis feature, convert to Sheet metal feature, and others)
 - => E.g. the first sketch of a model that does not contain geometry yet
 - Auto-scaling is not triggered
 - when dragging a dimension instead of typing an explicit value
 - when using the “Modify Dimension” UI
 - upon **re-definition** of the first sketch
- Note:
 - The “Lock modified dimensions” setting only applies to the explicitly modified weak dimension(s), and not to the automatically scaled ones
- Configuration option:
 - `sketcher_auto_scale_dimensions` *yes/no

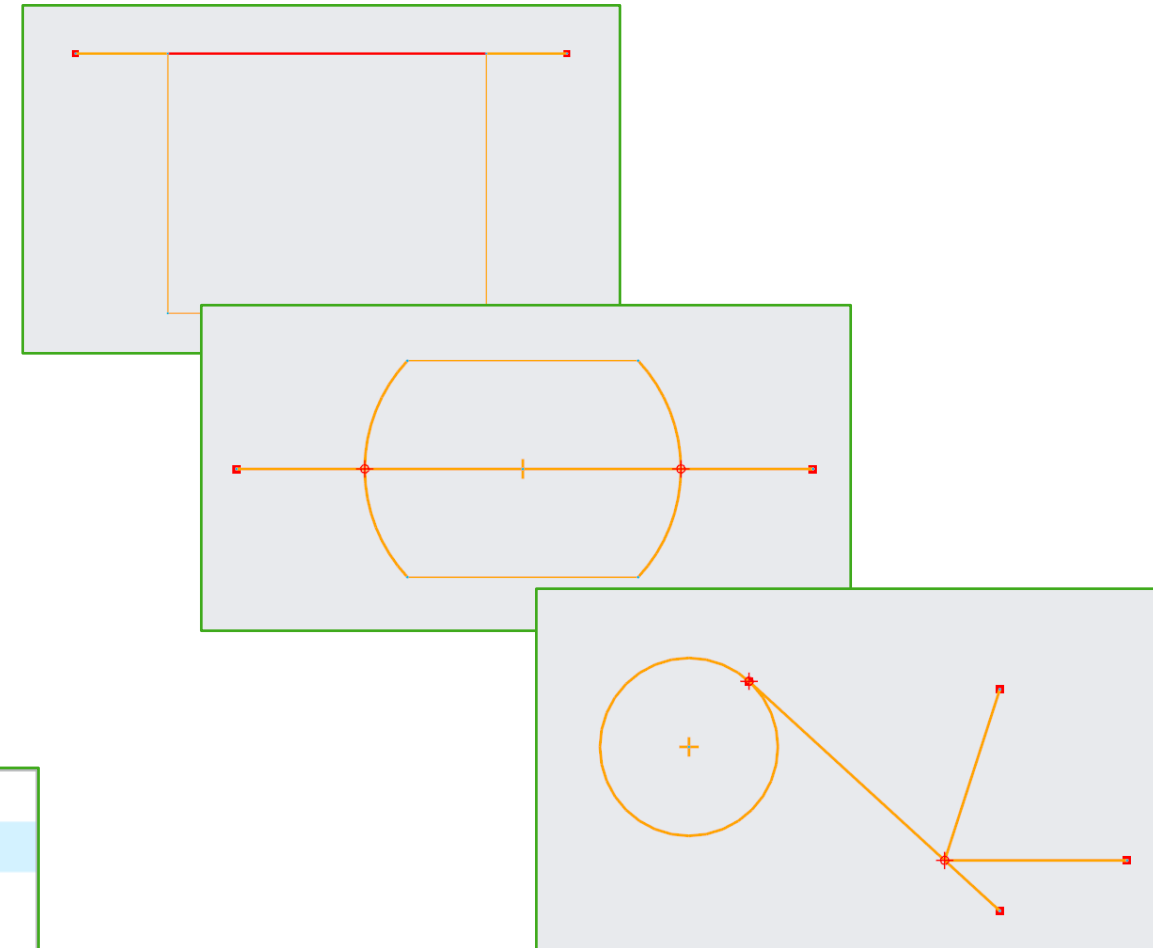
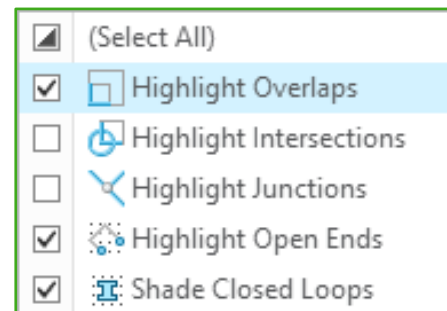


Benefits:

- Improved usability for easier creation and faster dimensioning of initial sketch

SKETCHER – ENHANCED & ENRICHED INSPECTION TOOLS

- **Enhanced & Enriched Inspection tools to highlight problematic sketch geometry**
 - “Highlight Overlapping Geometry” diagnostic can remain active while sketching
 - Additional inspection tools
 - T- Junctions
 - Intersections
 - All Inspection Tool Display Filters accessible from IGT
 - Configuration:
 - *sketcher_highlight_overlapping*
 - *sketcher_highlight_intersecting*
 - *sketcher_highlight_junctions*



Benefits:

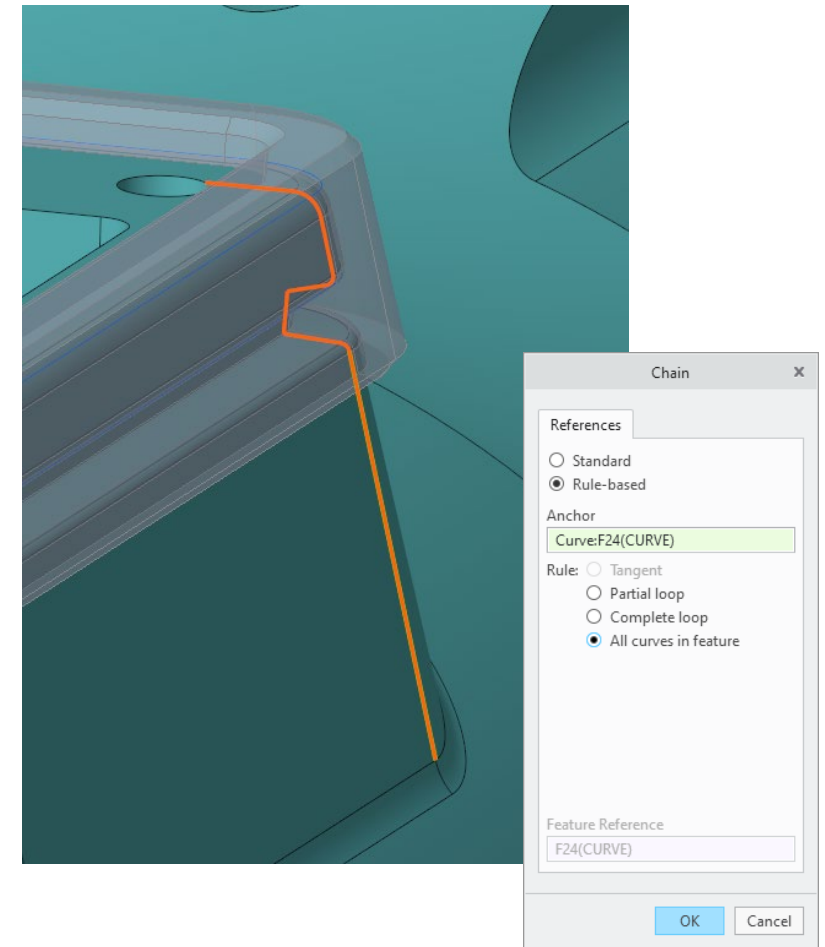
- Find and fix sketch geometry problems faster for increased design productivity



CREO 10

SKETCHER – OVERVIEW

- **Modernized Project/Offset tools – broadened support**
 - “All-curves-in-feature” option for “Project”
 - Project/Offset as construction geometry
 - Trajectory based features
 - (e.g. curve pattern, sweep, flange, Mfg turn profile, turn envelope etc)
 - Usability enhancements
 - Easier re-use / manipulation of projected/offset geometry
 - More detailed reference & trouble-shooting information
- **Sketching inside “Blend” Feature**
 - Reference Center-Lines, Csys, Points, Construction geometry in addition to solid sketched geometry from previous sections within the Blend-Feature
- **Improved Centerline Behavior**
 - Solver enhancements to prefer solutions that better match user expectations (avoid “flipping”)

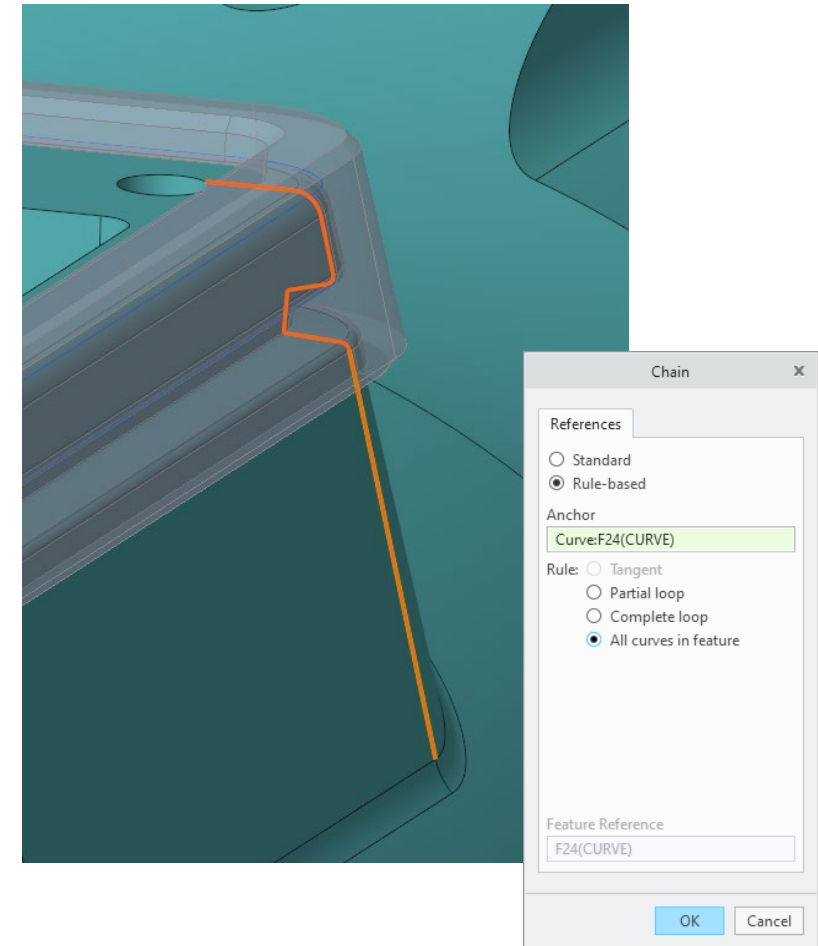


Benefits:

- Easier and more flexible usage & handling of 3D chain references inside sketcher
- Removal of limitations for increased usability & productivity

SKETCHER – DETAILS 1/3

- **Modernized Project/Offset tools – broadened support**
 - “All-curves-in-feature” option for Project
 - also, in Creo 9.0.2 / rule is evaluated only during creation
 - Project/Offset 3D references as construction geometry
 - Trajectory based features
 - (e.g., curve pattern, sweep, flange, Mfg. turn profile, turn envelope, etc.)
 - Easier re-use / manipulation of projected/offset geometry
 - Additional flexibility to reference individual entities of a composite curve
 - In Action/Object-based dimensioning/constraining workflows
 - In the “concentric arc” & “concentric circle” tool
 - composite curve into two and insert the round/chamfer in between
 - The Mirror tool better supports composite curves
 - Explicit references to individually referenced entities are created and visible from outside Sketcher environment



Benefits:

Increased usability & productivity in sketching

SKETCHER – DETAILS 2/3

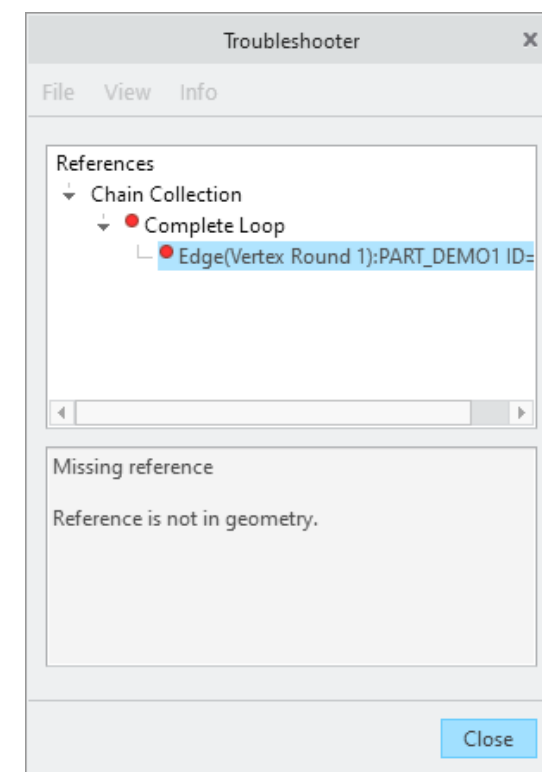
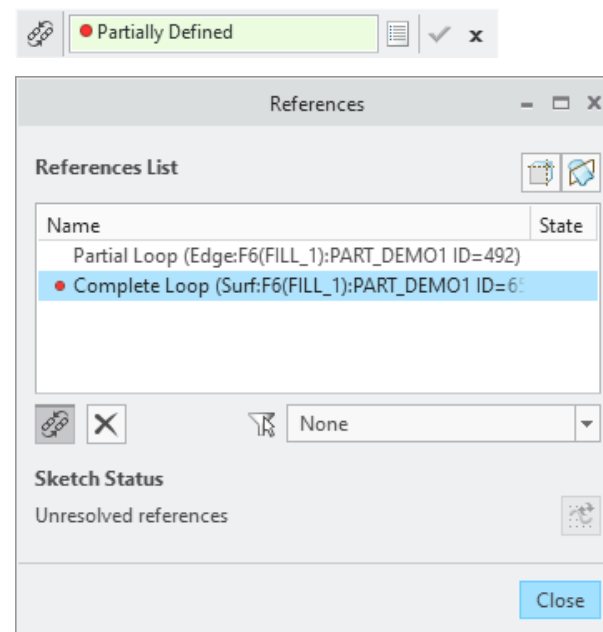
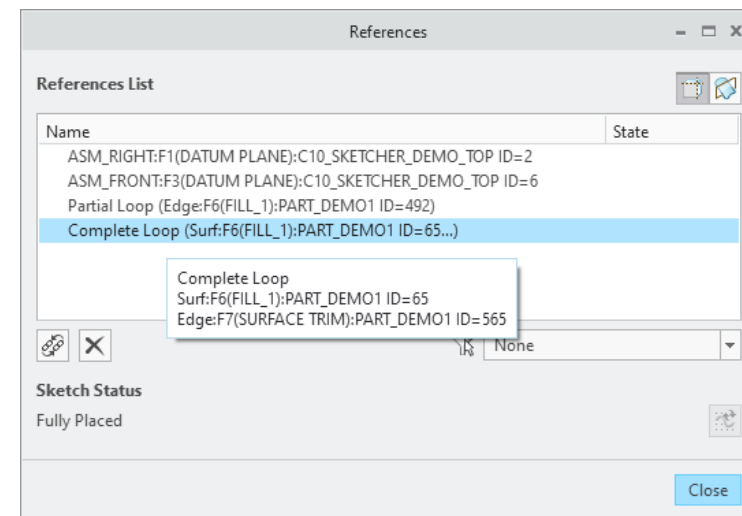
■ Modernized Project/Offset tools – broadened support (continued)

□ References List

- More detailed reference information showing referenced component of external references

□ “What is Wrong”

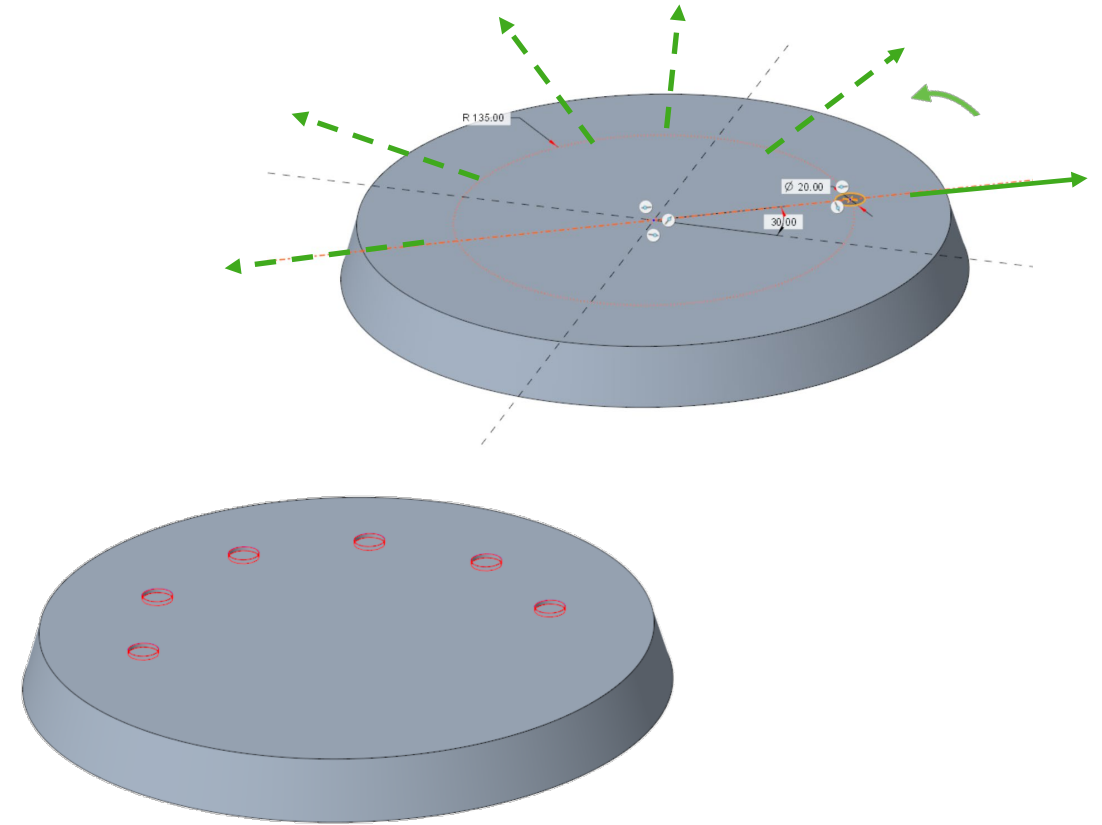
- Improved “What is Wrong” trouble-shooting information for chain references used in Project and Offset tools that failed regeneration



SKETCHER – DETAILS 3/3

■ Improved Centerline Behavior

- Increased predictability & reliability
- Solver enhancements to prefer solutions for which entities on a Centerline stay on their original side upon rotation
 - previously "flipping" could occur in specific situations
- Easier creation of rotational patterns for these specific situations
- Legacy sketches will be upgraded to the new behavior upon modification



Benefits:

Increased usability & productivity in sketching with solutions that better match user expectations (avoid "flipping")



THANK YOU

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