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Solid Edge ST4 Update Training (Display)

Presented By: Steve Webb

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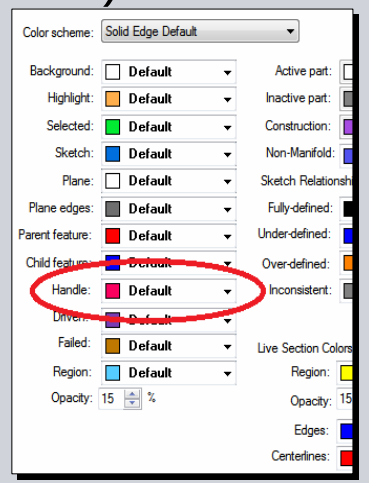
Topic

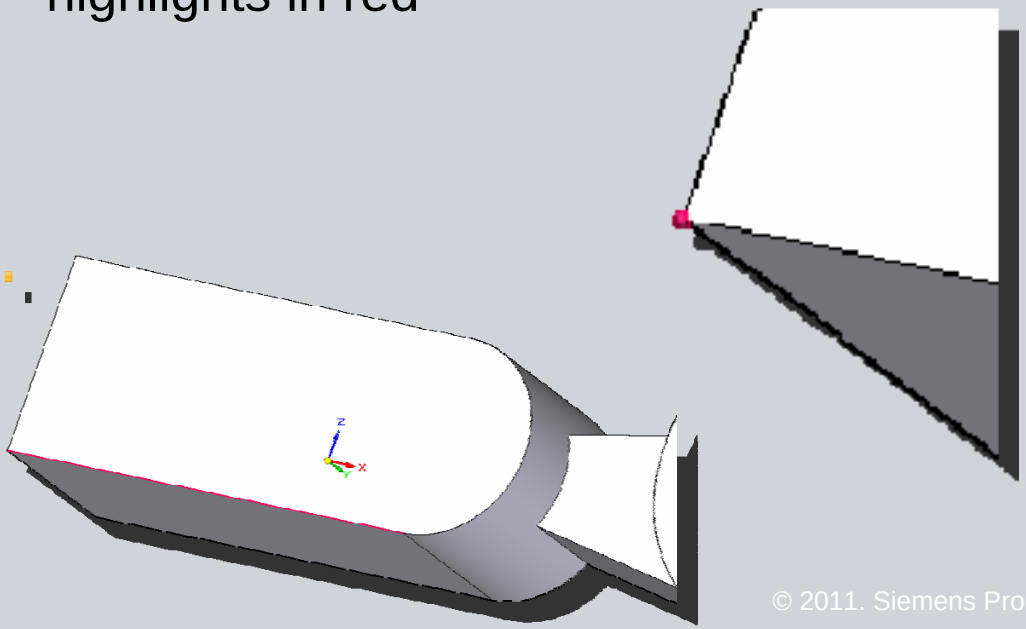
- Middle Mouse Button Rotate
- Model Edge Display
- Display Performance
- View Style Thread and Weld Bead Texture

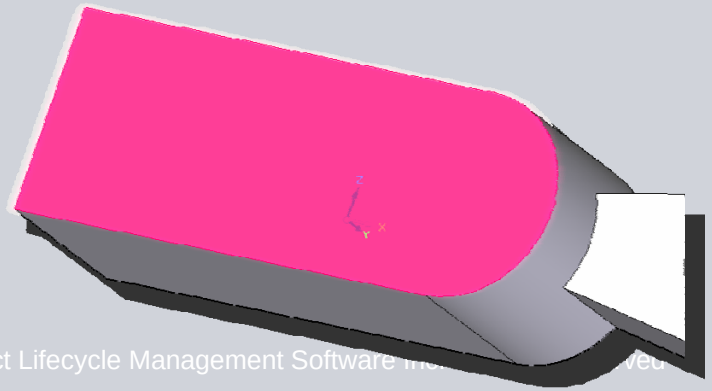
Middle Mouse Button (MMB) Rotate

- To start the rotate command, Middle Mouse Click then move to the Face, Edge or Vertex then hold Middle Mouse Button (MMB) down to rotate

- When rotating using the MMB about an explicit rotation point or axis, the rotation point or edge axis highlights in red

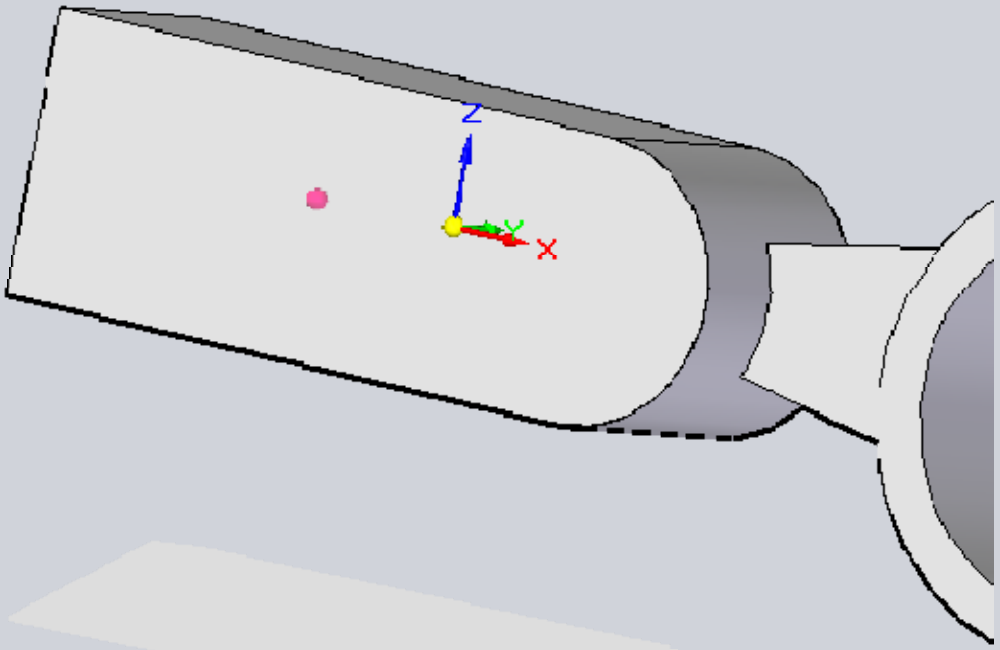






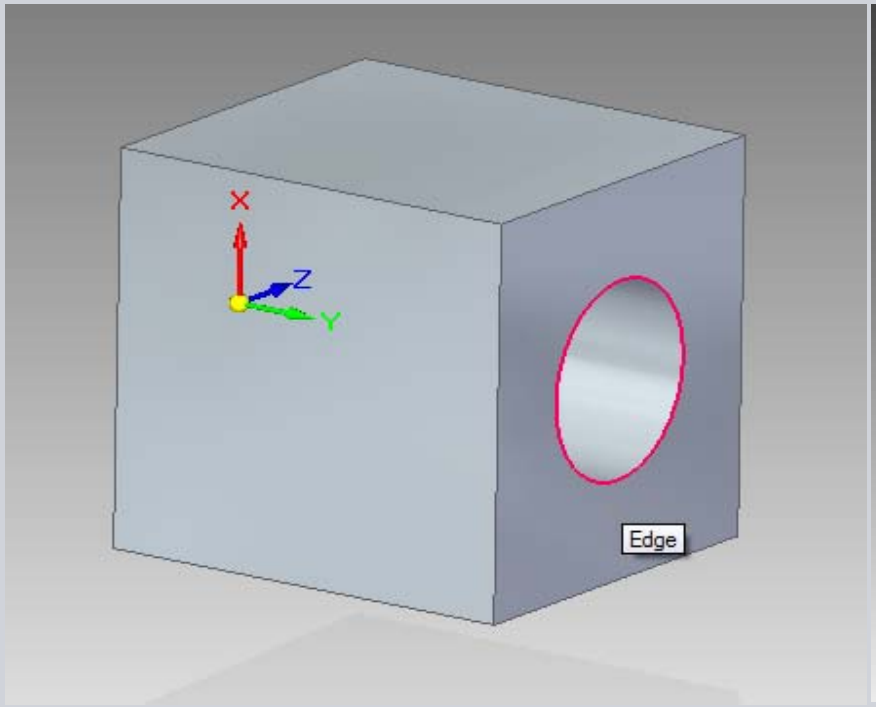
Middle Mouse Button (MMB) Rotate

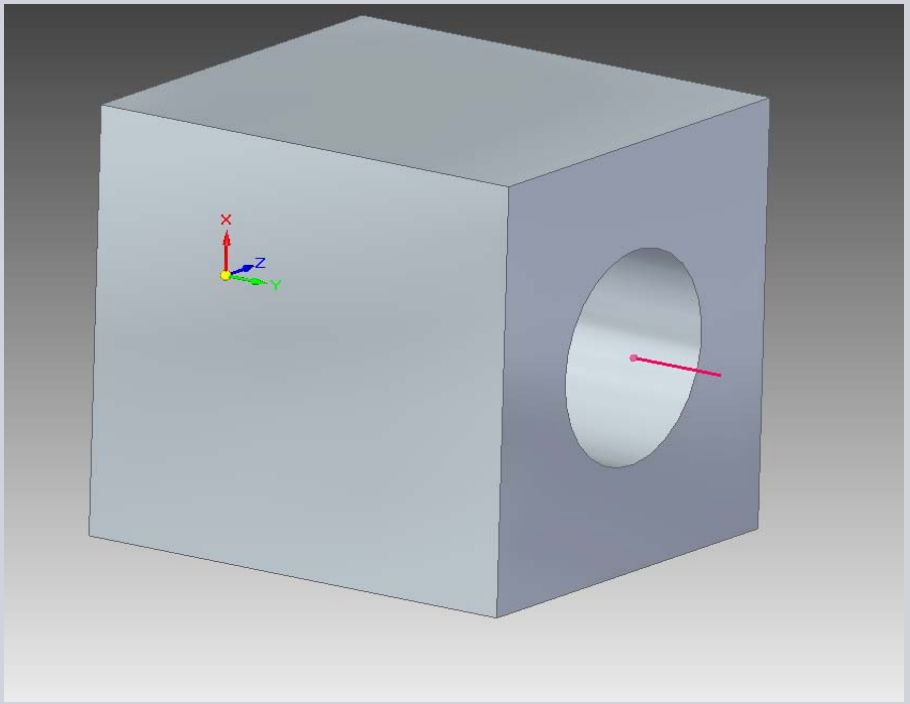
- Rotating using the MMB about a face selection, the rotation point highlights as a red rotation ball and rotation is about the ball center



Middle Mouse Button (MMB) Rotate

- Rotating using the MMB about an Axis selection
  - Highlight cylinder edge and hold middle mouse wheel, the rotation axis highlights in red rotating about axis center





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Middle Mouse Button (MMB) Rotate

- Clear MMB Rotating
  - MMB click in free space – while in the Rotation Focus command
  - Alt + MMB click
  - Fit the view
  - Closing the file

- Selection choice so that the user does not select geometry that is on the ”back” of the model is relative to the view direction
  - Priority is given to the geometry that is first in Z-order

Middle Mouse Button (MMB) Rotate - Cursor

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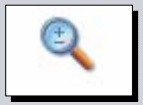
- New Cursor types to support Rotation, Pan and Zoom
- Free Rotate about the Model or View center of volume 
- Rotate about an Explicit point 
- Rotate about an Explicit Axis 
- Pan (Shift + MMB drag) 
- Zoom (Ctrl + MMB drag) 
- Zoom Area (Alt + MMB drag) 
- Fit (Slow Double Middle Mouse click)

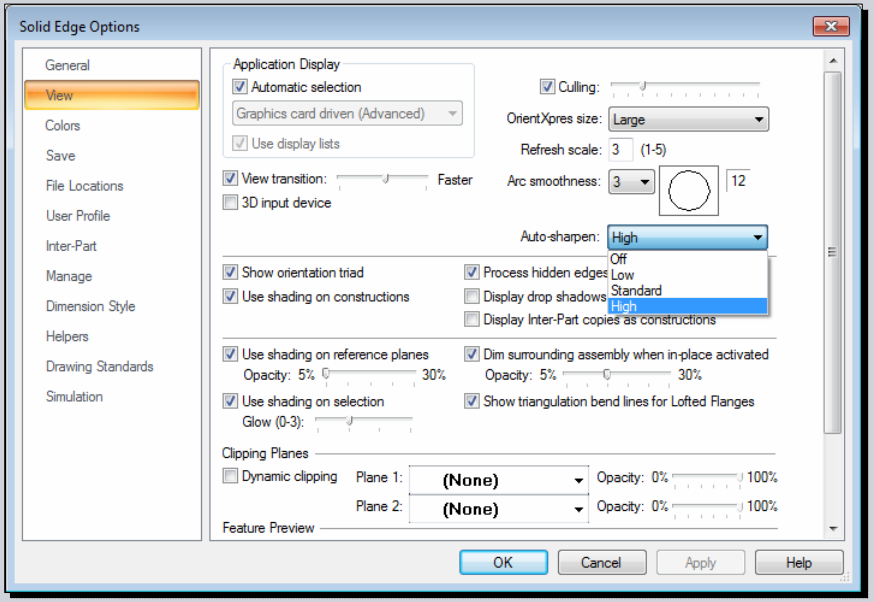
Demo 1

Model Edge – Auto-sharpen

- Auto-sharpen has explicit control of the arc /chord deviation defining an arc or circle
  - A large deviation in the smoothness of the arcs or circular shapes results in an unappealing display

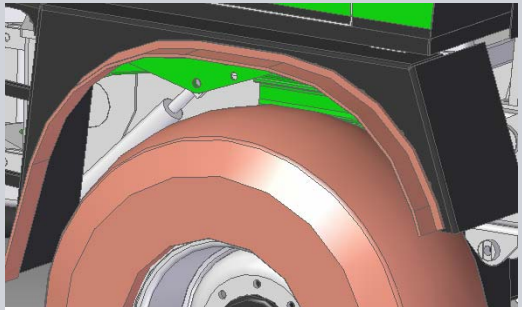
- Auto-sharpen has four setting for sharpness:
  - Off
  - Low
  - Standard
  - High

- This setting impacts File Open and display times – higher=slower

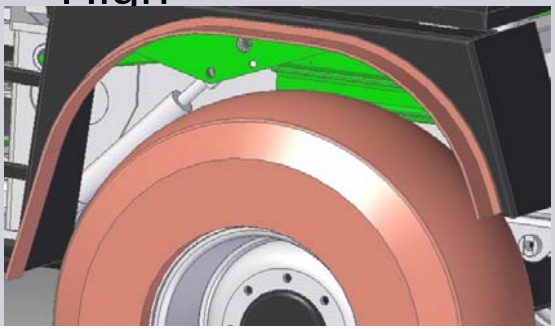


Model Edge – Auto-sharpen

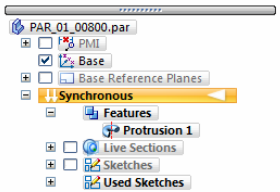
- Off

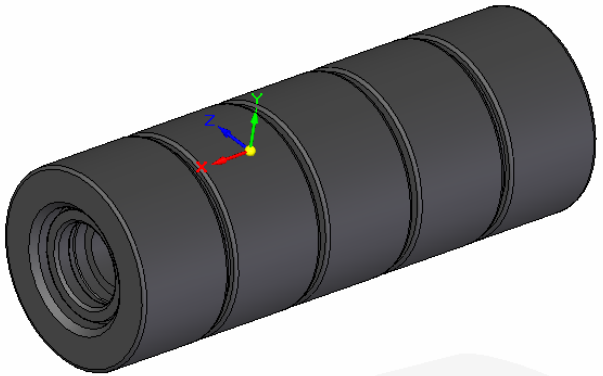


- High



```
Populate Scene Graph
  [Part File]
    GIA[0] 77, 0x369d8b88
      LOD[0]  S+B+W- (56 faces, 610 triangles, 44638 bytes)
      LOD[1]  S+B+W- (58 faces, 2778 triangles, 202694 bytes)
      LOD[2*] S+B+W- (58 faces, 5758 triangles, 434264 bytes)
      LOD[3]  S+B+W- (58 faces, 16218 triangles, 1024844 bytes)
      LOD[4]  S-B-W-(empty)
    GIA[1] 53, 0x3adaf538
```

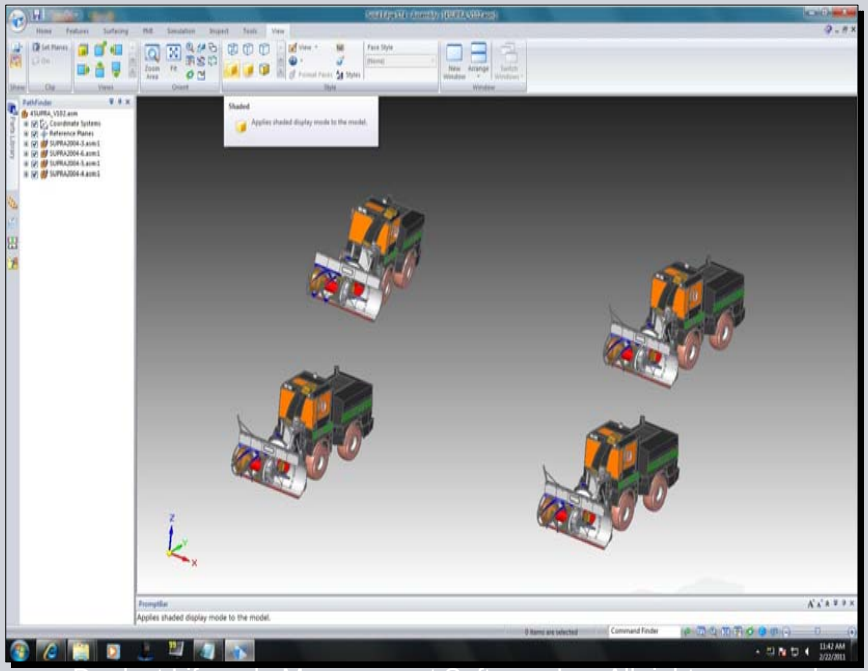




Display Performance

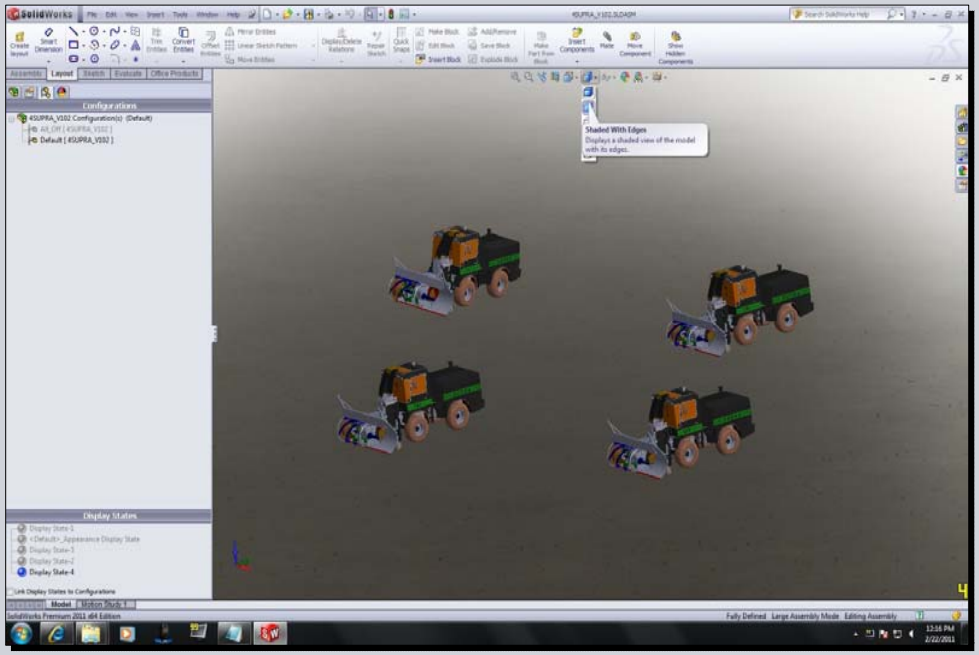
- Display performance between Solid Edge ST3 & St4, SolidWorks 2011 and Inventor 2011 all 64 bit

- Solid Edge (ST4 Data / ST3 Data)
  - File open – 1 min 13 sec / 1 min 35 sec
    - With Shaded with Edges
  - Rotate the model 16 hz / 16hz
  - Rotated with Shaded 24 hz / 24 hz



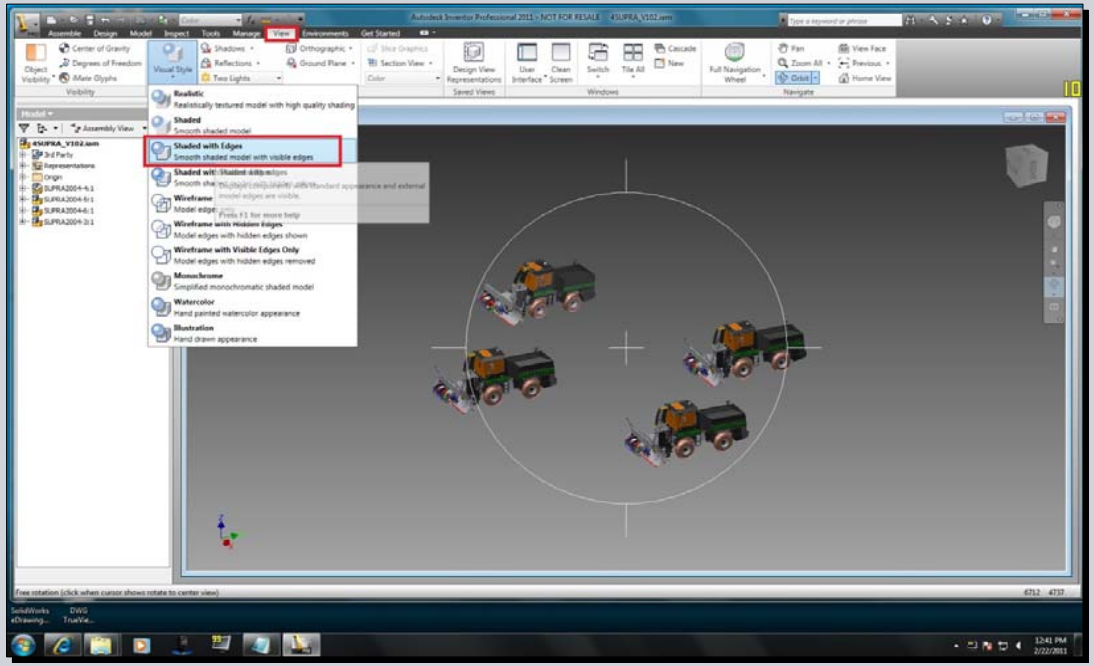
Display Performance

- SolidWorks 2011
  - File open – 2 min 3 sec
    - With Shaded
  - Rotate the model 23 hz
  - Rotated with Shaded with Edges displayed 29 hz
- Higher rate but SolidWorks will cube the models to help with performance



Display Performance

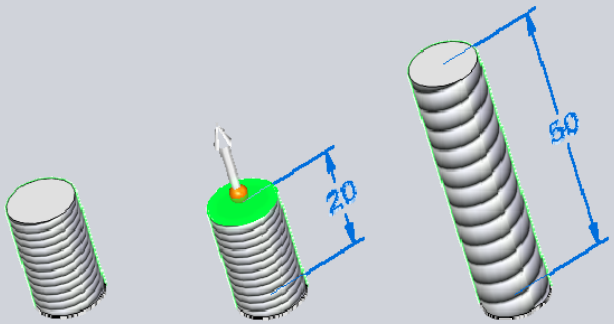
- Inventor 2011
  - File open – 3 min 49 sec
    - With Shaded
  - Rotate the model 10 hz
  - Rotated with Shaded with Edges displayed 8 hz



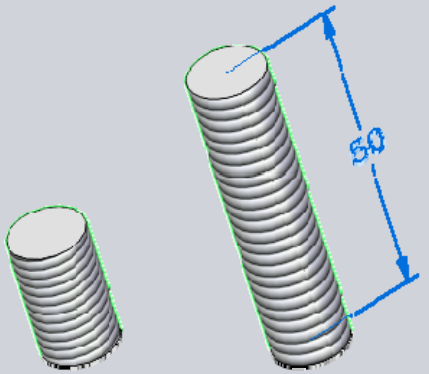
Thread Texture

- Threads are placed at small scales and stretched rather than repeated as model faces change size

- When a threaded cylinder or hole grows, the thread texture stretches such that the thread count remains the same but the pitch changes
  - The proper result is for the thread count to grow along with the cylinder length



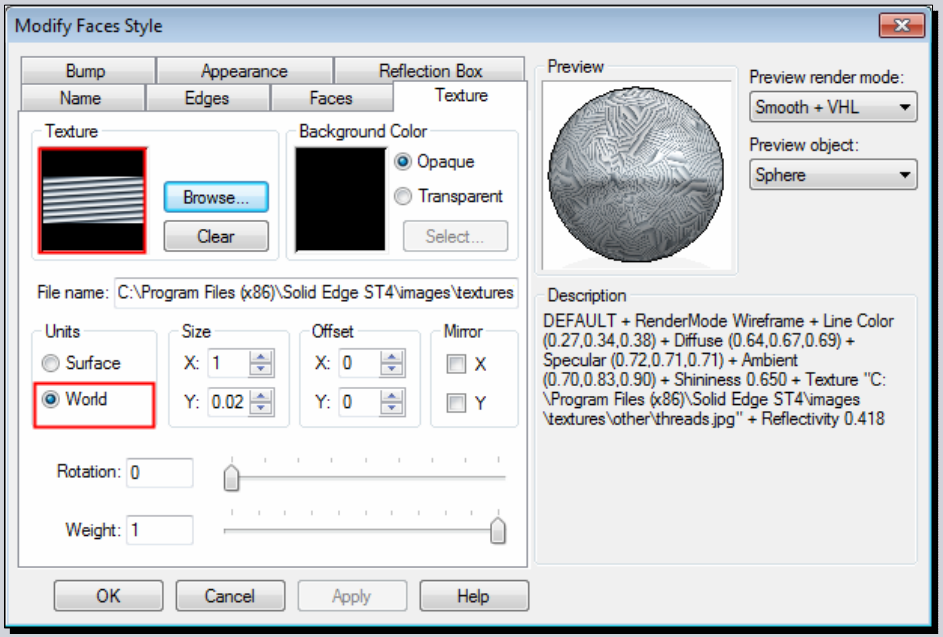
Incorrect result of threaded cylinder growth



Correct result of threaded cylinder growth

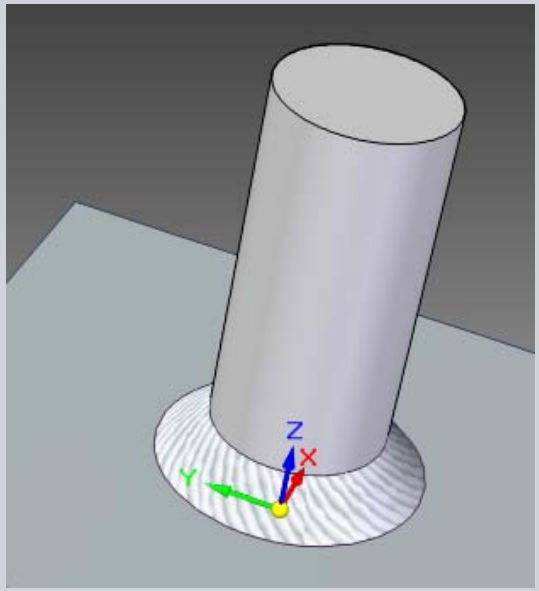
Thread Texture

- WORLD (Applies the image to all faces on the part globally) units for the texture in the “Thread” Face Style is default setting
- Scale for Thread texture ranging from ¼” to 1” diameter
- New texture image used by the “Thread” Face Style



Weld Bead

- The Weld Bead texture image has been improved to look more realistic
- WORLD units for the texture in the “Weld Bead” Face Style is default setting
- Scale for Weld Bead texture ranging from ¼” to 1” width
- New texture image used by the “Weld Bead” Face Style



Demo 2

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Thank You!