

MecSoft Corporation  
Your CAM Partner



# What's New in VisualCAM 2016 for SolidWorks

January 1,  
2016

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This document describes new features and enhancements introduced in VisualCAM 2016 for SolidWorks, the CAM plug-in for SolidWorks Design from MecSoft.

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## VisualCAM 2016 for SolidWorks

This document describes the enhancements incorporated into each of the constituent modules of VisualCAM 2016 for SolidWorks.

VisualCAM 2016 is a plug-in that runs inside SolidWorks Design (versions 2010 thru 2016) and hosts the following modules:

1. VisualMILL
2. VisualTURN

Each of these modules can be licensed and invoked separately of the other modules. This section describes the various enhancements and improvement to each of the modules.

## What's new in VisualCAM 2016 for SolidWorks

This section describes the common enhancements and changes to VisualCAM 2016 for SolidWorks.

- 1) VisualCAM has been transitioned over to use software licensing from a hardware key (dongle) licensing scheme used in previous versions.
  - a. Upgrade licenses will require the dongle to be plugged in the first time the product is upgraded but will not be necessary after the upgrade process completes
  - b. Internet access is necessary when activating the license for the first time. Once activation takes place, internet access is not necessary for normal operation
- 2) All old style dialog pictures and icons have been reworked for a more modern look
- 3) On-line help for all modules completely rewritten and enhanced
- 4) Cut material simulation libraries have been upgraded and enhanced for better quality and performance

## What's new in VisualCAM 2016 - MILL

This section describes the enhancements and changes to the VisualCAM-MILL 2016 module.

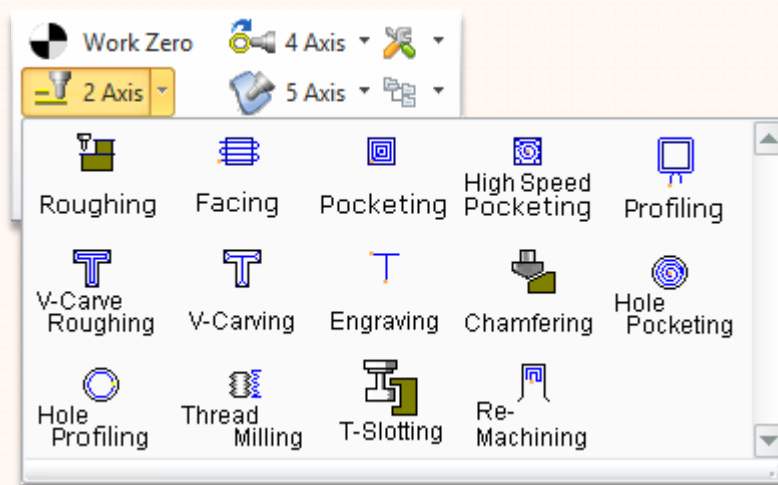
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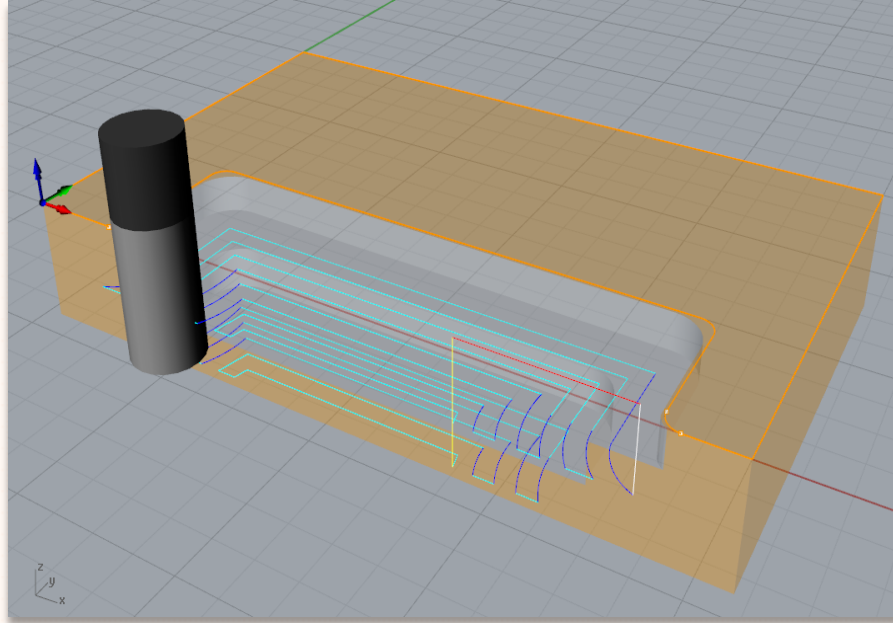
*VisualCAM 2016 now uses software licenses*

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### 2-Axis Enhancements

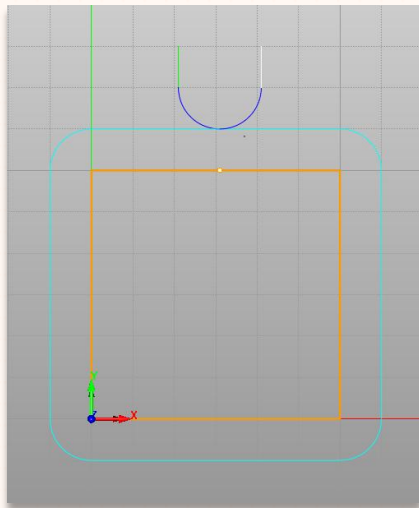
1. Use of Stock model to generate the material regions instead of having to select material regions in 2-1/2 Axis milling. This has the advantage of not having to create 3D part models if you are working only with curves. This has the added advantage of being able to machine arbitrary open area machining. A new method called 2-1/2 Axis Roughing has been introduced to implement this. The heights of the selected regions are honored in this method.



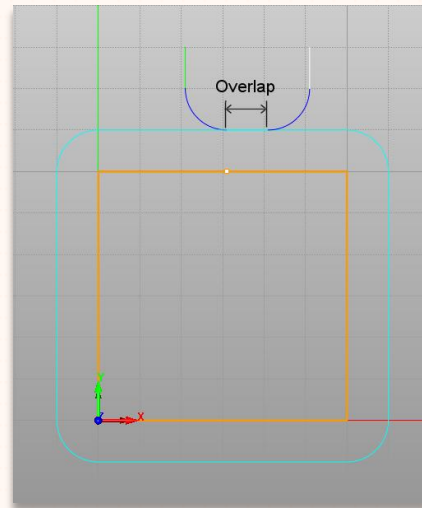


Use of 3D Stock Model to define material regions in Facing

2. Overlap Distance for Closed Profiles Added. The Overlap option on the Exit block in the Profile Engage/Retract page has been added. Specify an overlap distance for closed profiles to avoid leaving small tool marks at the start point of the part. The toolpath will start as specified, follow the closed profile back to the start point and then continue past for the specified distance. The overlap distance will be restricted so that it cannot exceed the profile length.

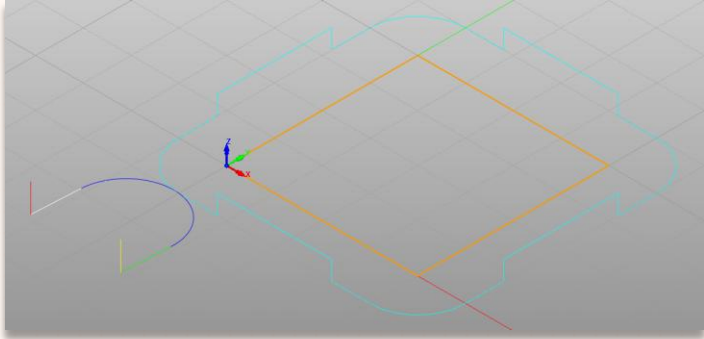


No overlap

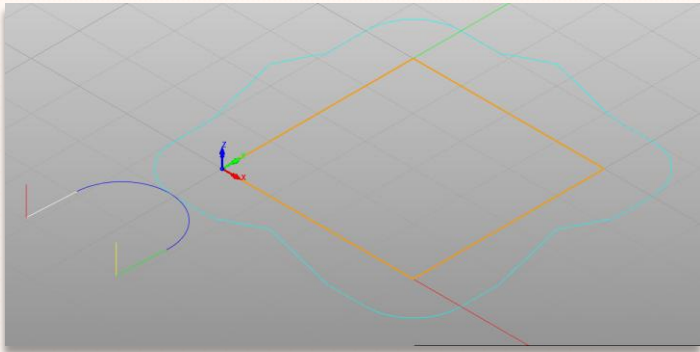


Overlap specified

3. Option for Triangular or Rectangular bridges added for profile machining

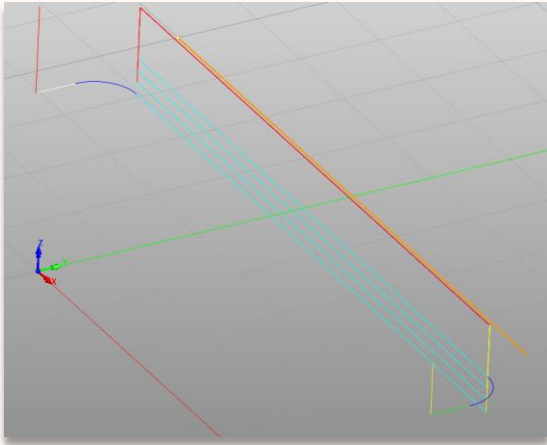


Rectangular Bridges

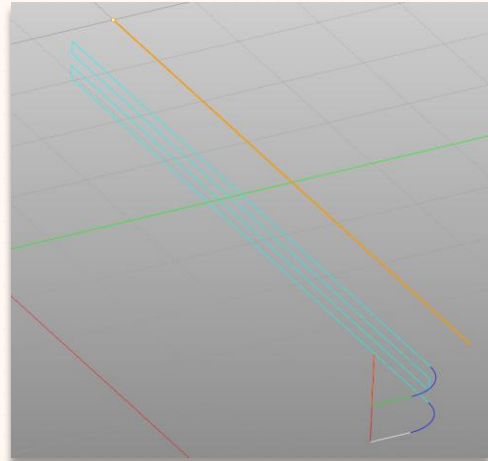


Triangular Bridges

4. Zig Zag option for Z levels in profiling allowing for less retracts between Z levels.

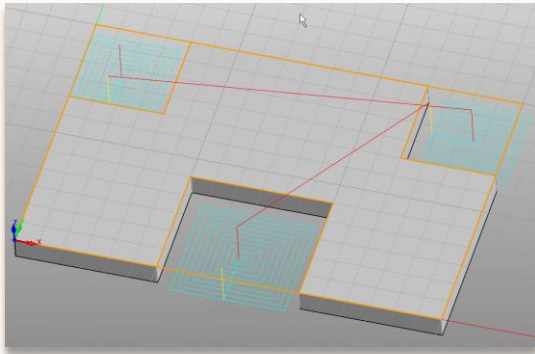


2015 - retract between levels

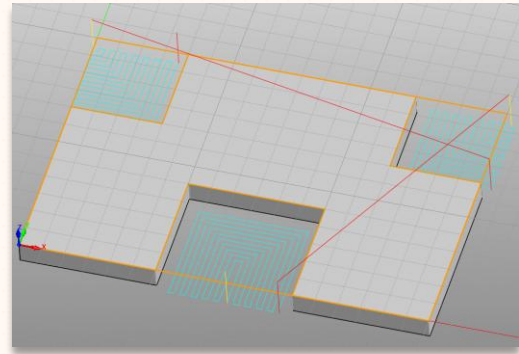


2016 - no retracts between levels

5. Use overlapping Stock and Part regions for machining open pockets. Not necessary to create open regions to define open pockets in 2-1/2 Axis Facing.

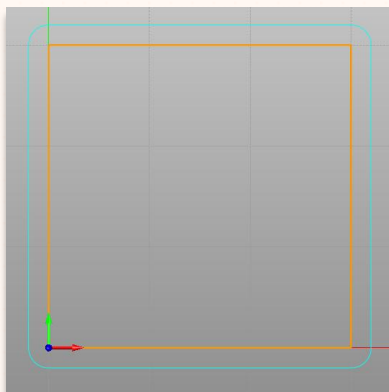


2015

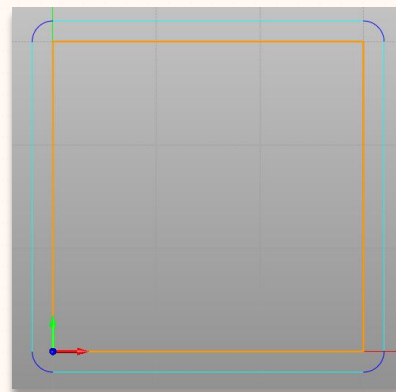


2016

6. Arc fitting of toolpaths automatically turned on now.



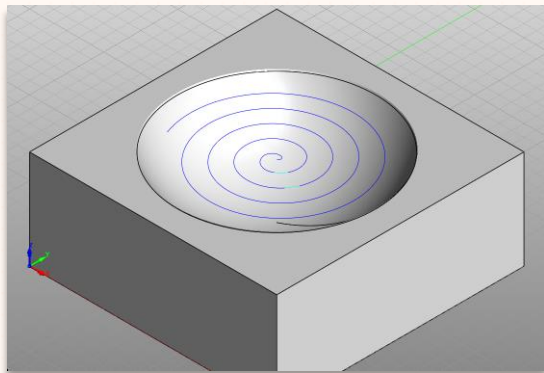
In 2015 - without arc-fitting



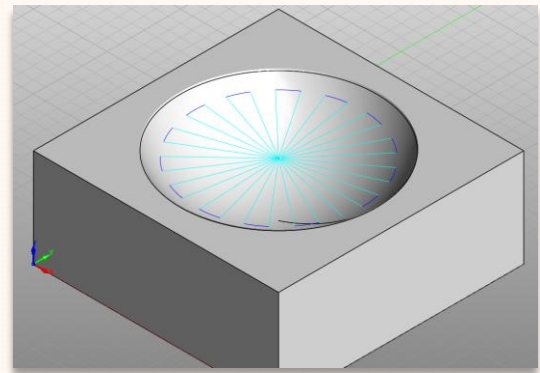
In 2016 - default behavior

### 3-Axis Enhancements

1. Horizontal Roughing has been enhanced to add Spiral and Radial cut patterns for machining each cut level. The dialogs also have been unified with 2-1/2 Axis Pocketing making this cut method even more easy to use.

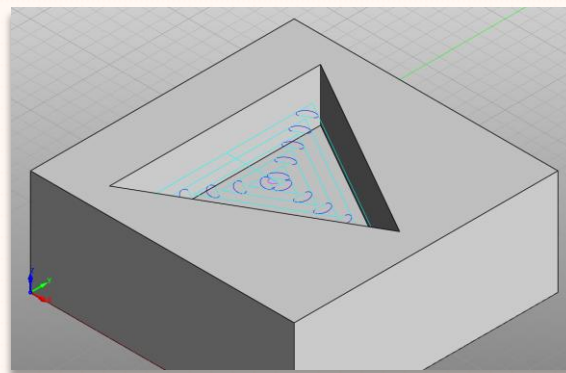


Spiral Machining in each cut level



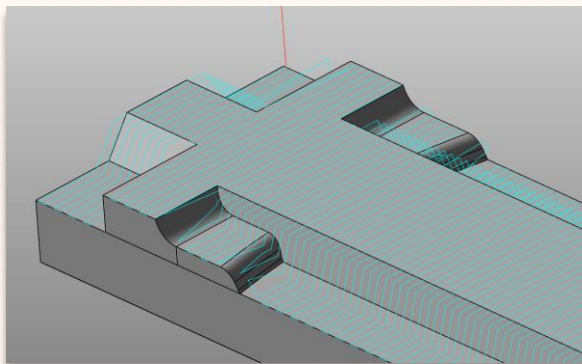
Radial Machining in each cut level

2. Corner cleanup now implemented in Horizontal Roughing

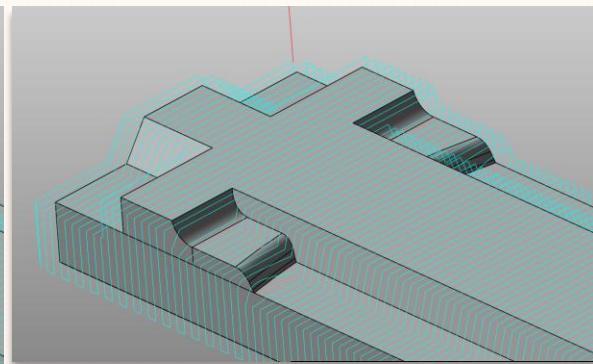


Inside Corner Cleanup loops in each level

3. Cutting Top Only or Top And Sides control added to Parallel Finishing in 3 Axis machining



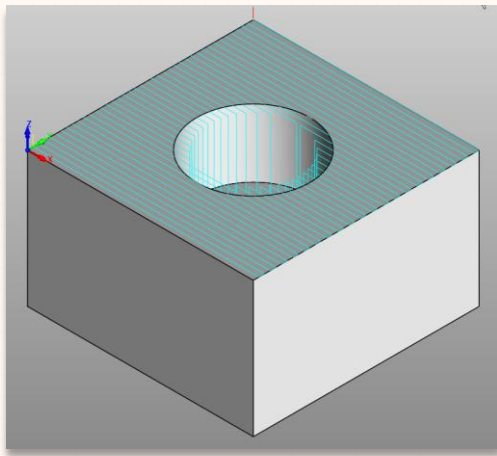
Top Only Machining



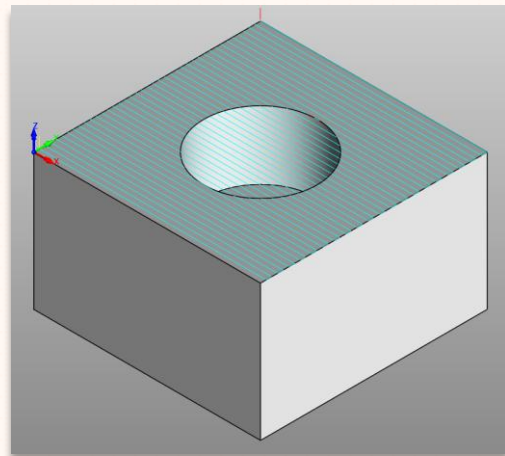
Top & Sides Machining



4. Added an option to cap holes in Parallel Finishing in 3 Axis machining

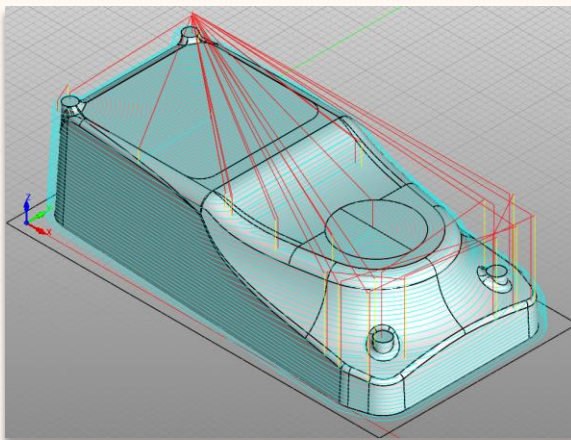


2015 - Tool drops into hole

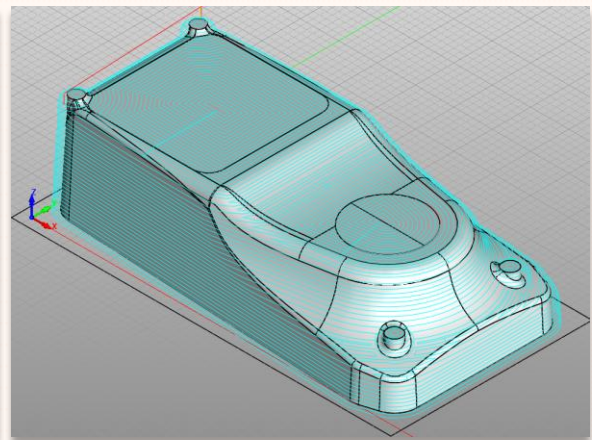


2016 - Tool ignores hole if Ignore Holes on

5. Horizontal Finishing - Reduce retracts in optimized machining



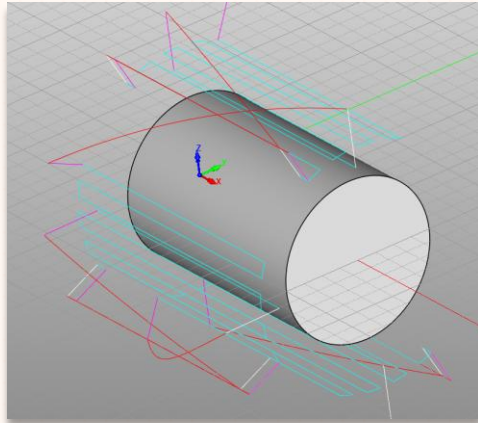
2015



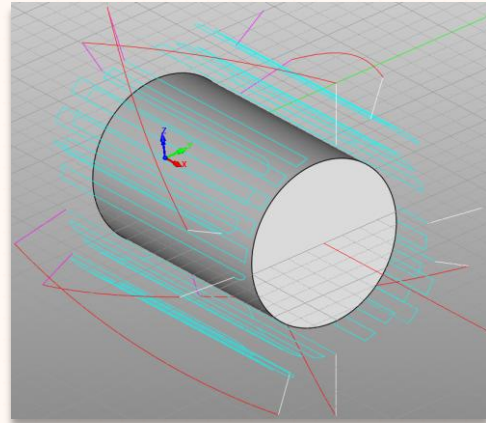
2016

6. Arc Fitting property page added in Horizontal Finishing as well as Parallel Finishing

## 4 Axis Toolpath Enhancements



Machining from rectangular stock in 2015



Same toolpath in 2016

1. R-Level Roughing has been completely revamped to produce better toolpaths
2. R-Level Finishing has been completely revamped to produce better toolpaths as well

## Drilling Toolpath Enhancements

1. Pick Z level has been added to all hole making operations

## UI Enhancements

1. Moved all CAM options and preferences into one dialog
2. Dialog behavior in dual monitor setup enhanced.
3. Machining Operations Info. - Subtotals for each mop set are now provided when a setup or machining job includes multiple mop sets
4. Now allowing a way to disable automatic loading default library in the Tools Browser
5. 4 Axis dialogs enhanced to show containment graphically on the screen
6. Orient part in VisualCAM now has ability to orient part normal to active C-Plane as well as to move a point on a surface/planar curves/pick point.

## Feeds/Speeds Enhancements

1. The system now allows coolant specification in feeds/speeds dialog in the operation to override the one in tool.
2. Editing a mop by replacing the current tool with a new one does not update feeds/speeds. This has been implemented.
3. Updating feeds/speeds on a tool & saving edits to tool, requires feeds/speeds on each mop to be updated by editing a mop & selecting load from tool from feeds/speeds tab. This is now done automatically.

## Machining Regions Enhancement

1. Display each contiguous region as sub object of the Machining Region object. Users should be able to edit these sub-objects independently

## Simulation Enhancements

1. The previously separately priced Advanced Simulation Module is now included in the Standard configuration of the Mill module.
2. It is now possible to perform view manipulations such as rotating and moving of the graphics screen for better visualization when the Part/Stock dialog is active.
3. Simulation of Instancing operation has been changed to simulation of all instanced operations instead of just the first one as was done in previous releases

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*STD configuration includes  
Advanced Simulation*

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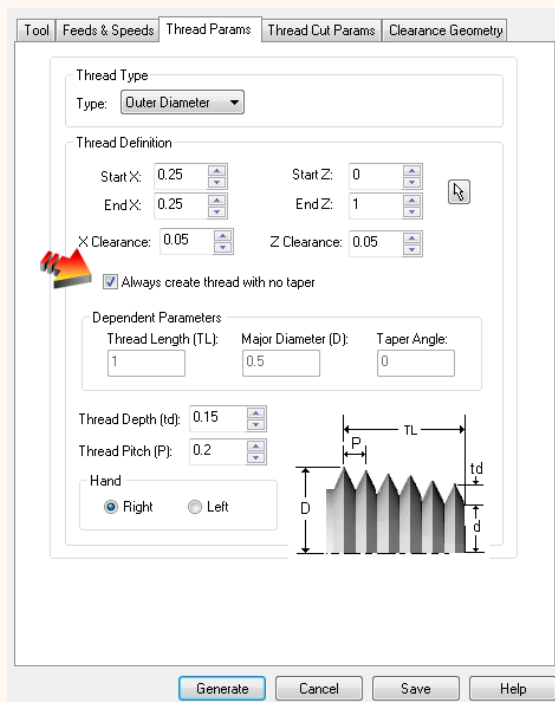
## Miscellaneous

Numerous other smaller usability enhancements and over 200 bug-fixes ....

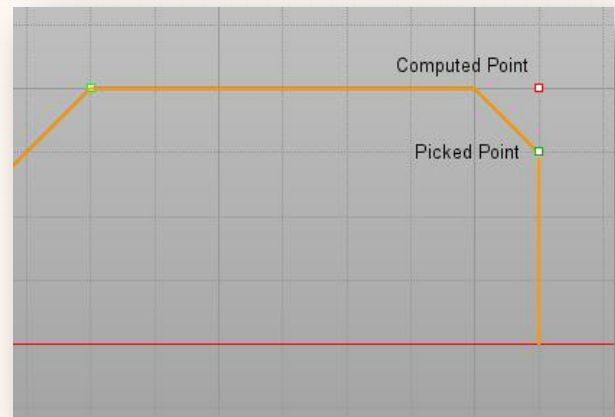
## What's new in VisualCAM 2016 - TURN

This section describes the enhancements and changes specific to the VisualCAM-TURN 2016 module.

- 1) Display issues when displaying Part and Stock model has been fixed
- 2) The tool preview display in the Tool Definition dialog now displays differently depending on Tool Tip or Tool Center programming set in the Machining Preferences
- 3) Pull out variable for threading added to post processor
- 4) “Always create thread with no taper” check box added to threading parameters dialog. This allows users to pick points on a non-straight area of the model and create a straight thread with no additional geometry creation.



Parameter to force straight threads



Effect on thread computed point

## Common Enhancements to VisualCAM 2016 MILL & TURN Modules

This section describes the enhancements and changes that are common to the MILL and TURN modules of VisualCAM 2016.

### Tooling Enhancements

- 1) Tool list display in the Tool Definition dialog now follows the same sorting rules as the tool display in the browser window

### Material Removal Simulation Enhancements

- 1) Simulation libraries in Milling and Turning have been upgraded and enhanced with:
  - a. Multi-threaded simulation
  - b. Faster simulation
  - c. Smaller memory footprint

### Knowledge Base Enhancements:

- 1) Add the ability to save Drive/Containment geometry selection rules & filters in Knowledge Bases has been introduced. This allows Knowledge Bases, upon load to automatically, select geometry into the operations. This functionality greatly enhances the use of Knowledge Bases in machining automation.

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*Use the latest Knowledge Base enhancements for machining automation*

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