



Version 14 : September 2020

What's New in GibbsCAM 14



What's New in GibbsCAM 14

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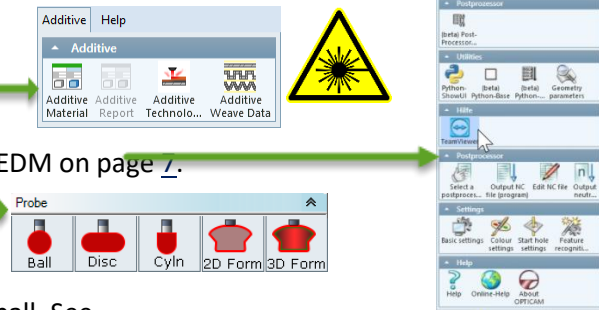
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Overview of Enhancements in GibbsCAM 14

The theme of GibbsCAM 14 is: ***Making the Possible Simple.***

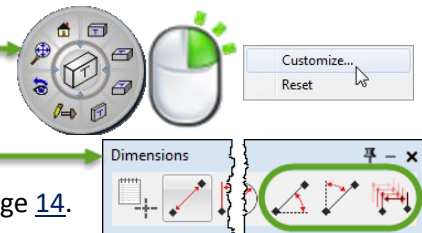
Four new product options:

- **Additive Machining** and **Additive 5-Axis**.
See [Beta Additive Machining](#) on page 5.
- **Opticam Wire EDM**: See [Beta Opticam Wire EDM](#) on page 7.
- **Probing**: See [Probing](#) on page 10.



Major enhancements to **workflow and productivity**:

- **One-touch command access** via custom trackball. See [Command shortcuts via trackball RMM Customize](#) on page 12.
- **Tool List Editor**: See [View/Edit Tool List](#) on page 12.
- **3D Material Only**: See [3D Material Only](#) on page 13.
- **Dimensioning**: See [Dimensioning](#) on page 13.
- **Two-click "Mouse Shape" function**: See [Mouse Shape](#) on page 14.
- **Align Face to CS, either side**: See [Align Face to CS](#) on page 14.
- **Dockable panes**: See [Dockable Panes](#) on page 14.
- **System-wide process changes**: See page 14.



Improvements to **visualization**:

- Show clearance volume and clearance planes in workspace **soon**
- Body Bag usability: background colors, tab locations
- Improve visibility of plane side in 3D views
- Selection visualization of Intermediate Tooling
- Show/hide Intermediate Tooling toolblocks

For details, see [Enhancements to Visualization](#) on page 15.

Improvements to **Simulation**:

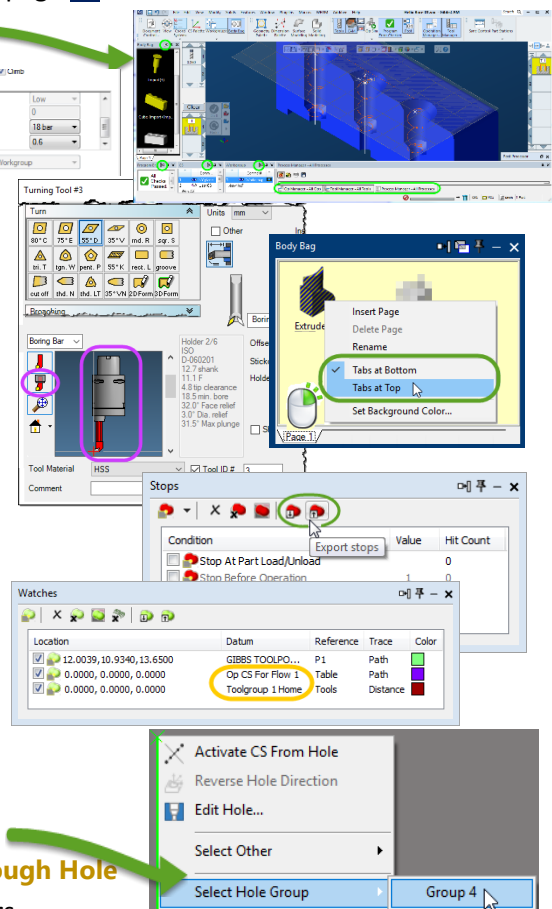
- Improve axis visualization in Sim / **Show Position**
- Import/export of Watches and of Stops
- Two new standard datums: **Operation CS** and **Toolgroup Home**

For details, see [Enhancements to Simulation](#) on page 16.

Improvements to **Hole Machining**:

- Predefine ANSI drill sizes by gauge letter/number
- New context menu item (RMM): **Select Hole Group**
- Two-sided hole machining improvements: **Split Through Hole**
- Improve noncutting tip behavior for taps and reamers

For details, see [Enhancements to Hole Machining](#) on page 17.

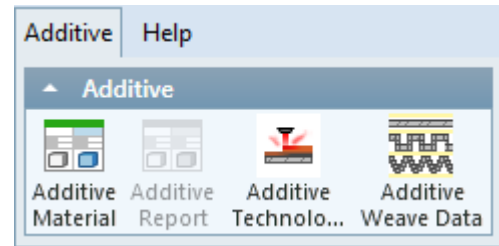


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New Product Options

Beta Additive Machining (Deposition Additive)

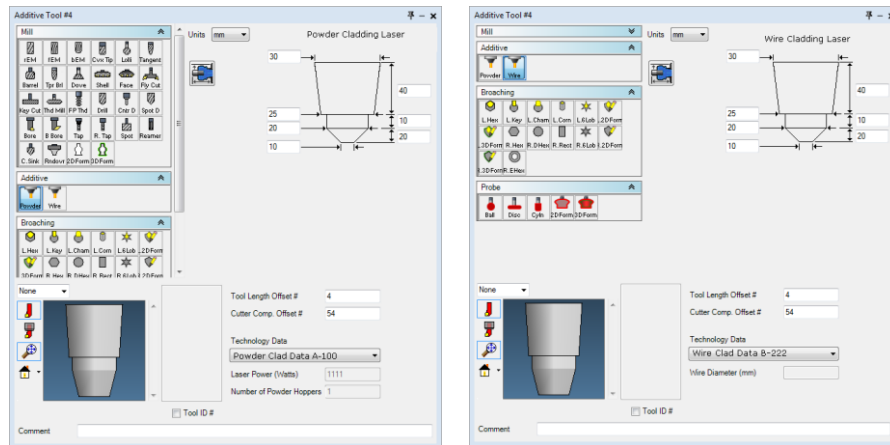
This major new product option for base GibbsCAM includes definitions of deposition additive tools (Powder and Wire), additive process types (Fill, Contour, and Rotary Surface), additive technology files, additive weave patterns, additive toolpath, and postprocessor support for additive operations.



This product option is still in Beta testing phase. **Do not use it in production.**

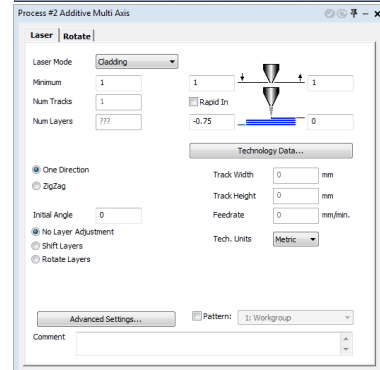
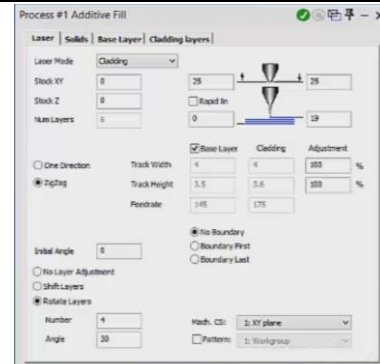
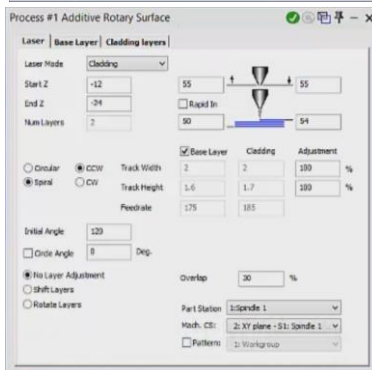
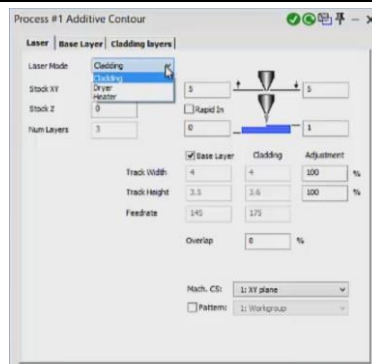
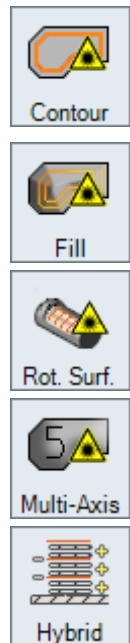
Tools:

- Powder
- Wire



Additive Tools

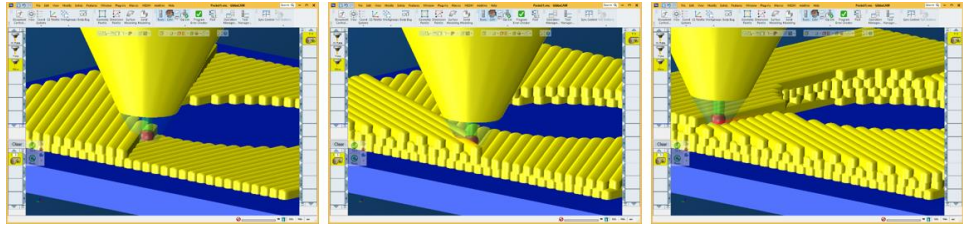
Processes:



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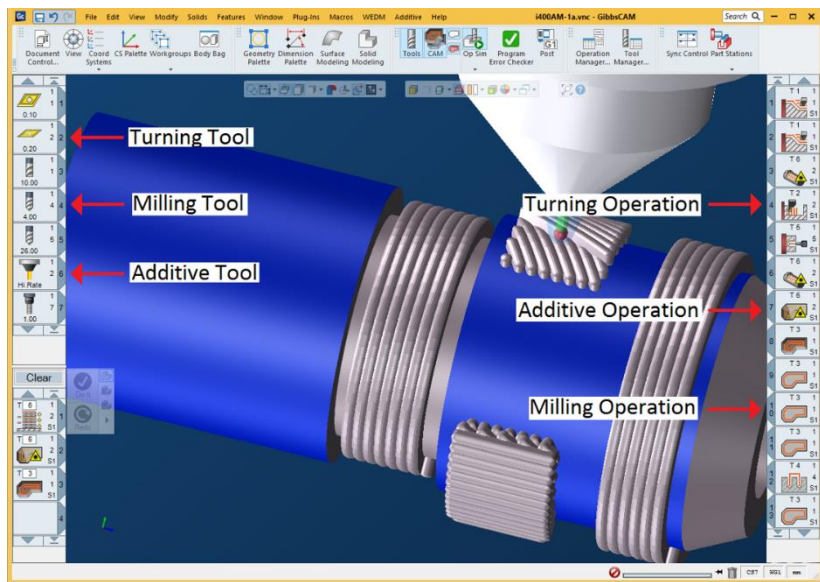
Cladding

Additive processes calculate the number of cladding layers required, using parameters from the integrated Technology Database. You are offered only the cladding heads supported by your machine, and processes present only the technology data applicable to the selected head. User parameters specify weave pattern (square, rectangle, ladder, etc.), cladding order (center-out, left-to-right, etc.), and the rotation of cladding direction in each layer.



Hybrid Machining

In a single part, additive operations can be combined with subtractive operations (milling, turning, and broaching) to create true hybrid machining.



GibbsCAM Integration

Additive tools and operations are fully supported by the Tool Summary/Manager and the Op Summary/Manager, as well as by Reporter commands and macros.

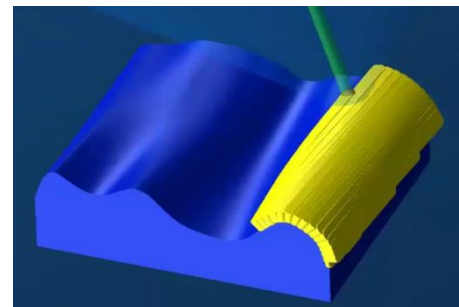
Postprocessing

A single postprocessor creates all your CNC code, with no need to copy-and-splice or use multiple part programs.

Beta Additive Multiaxis Surfacing

A new product option for 5-Axis supports deposition additive machining fully integrated with subtractive machining.

Like the base product option, **this product option is still in Beta testing phase. Do not use it in production.**



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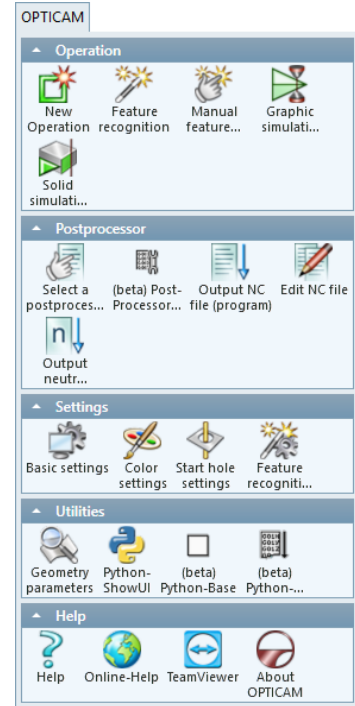
Beta Opticam Wire EDM (Electrical Discharge Machining)

The previous Wire EDM product option is replaced by a new and more comprehensive approach using existing high-end technology that is integrated within GibbsCAM. Legacy Wire EDM will be supported in GibbsCAM 14 but not beyond.

The new product option, Opticam, includes a detailed technology base that complies with all major machines providing Wire EDM machining capabilities.

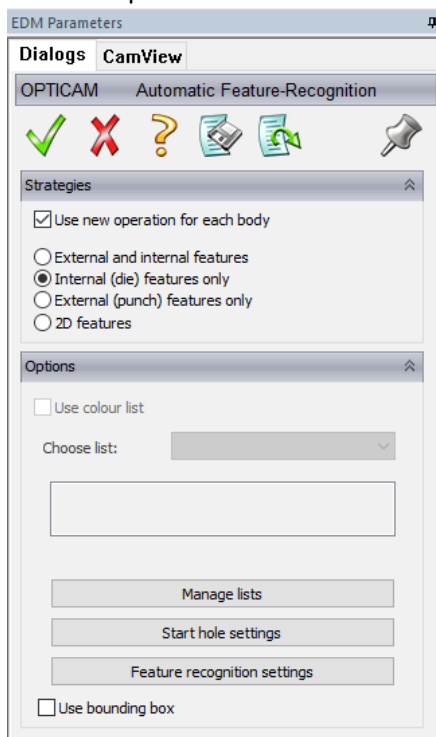
This product option is still in Beta testing phase. **Do not use it in production.**

In Beta releases, Opticam starts disabled. To use it, use **Plug-Ins > Plug-In Manager** to enable “**OptiCAM EDM(wire_gc_lh.dll)**”.

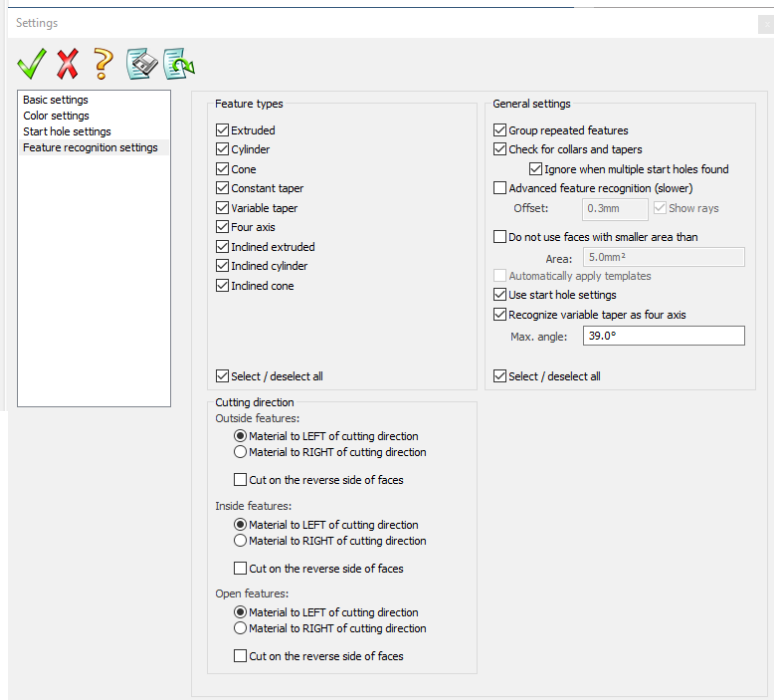


High-level overview

The usual sequence is as follows:



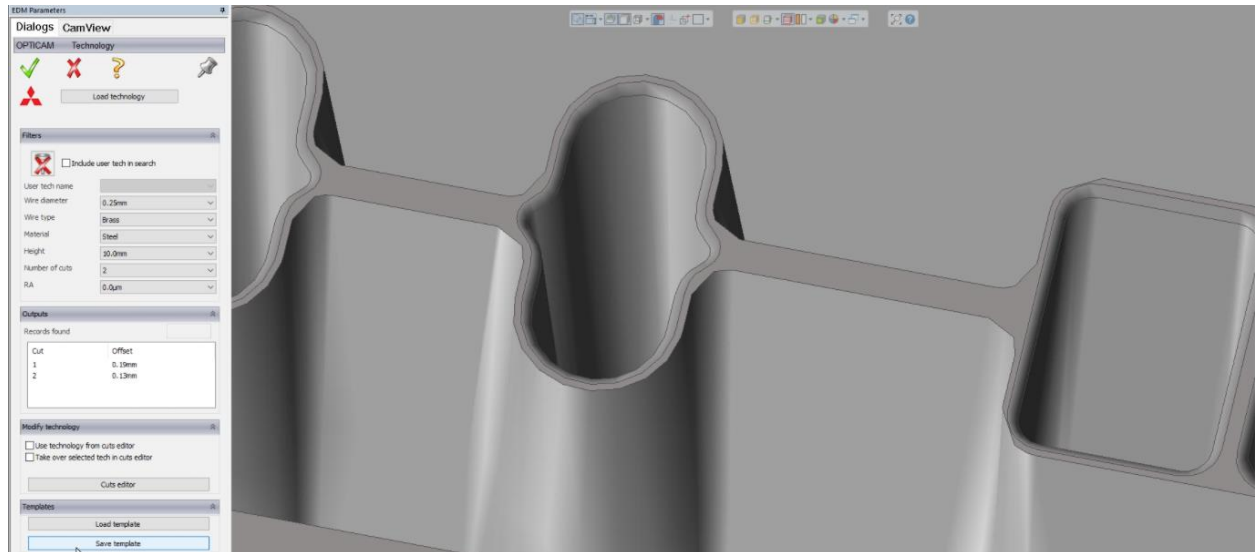
1. Define features, usually by Automated Feature Recognition, which you can adjust as needed for performance/precision, the features you want to be selected, collars and tapers, and other fine tuning).
2. Specify the technology you want to use, and then define strategies such as Feature Sequence, Cut Sequence, and Bridge Cut.



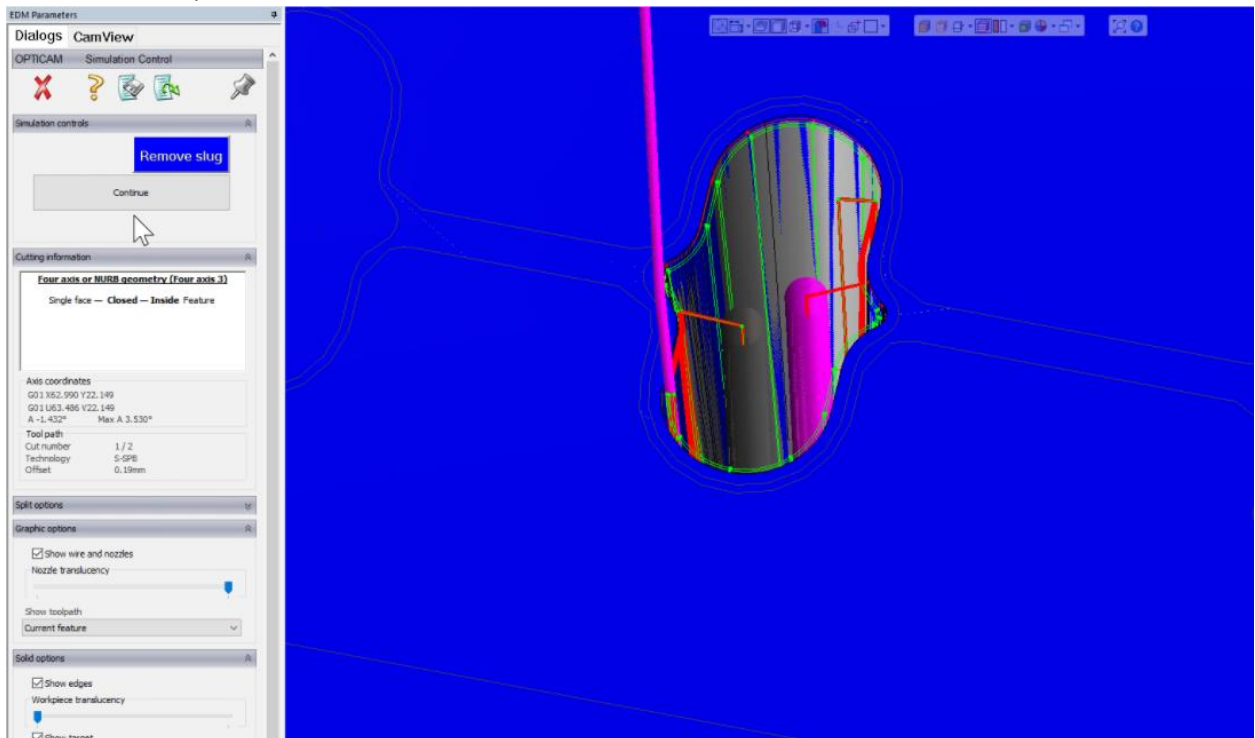
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3. Specify technology profiles and outputs as needed.

As usual, you can either accept defaults or else adjust parameters as needed:

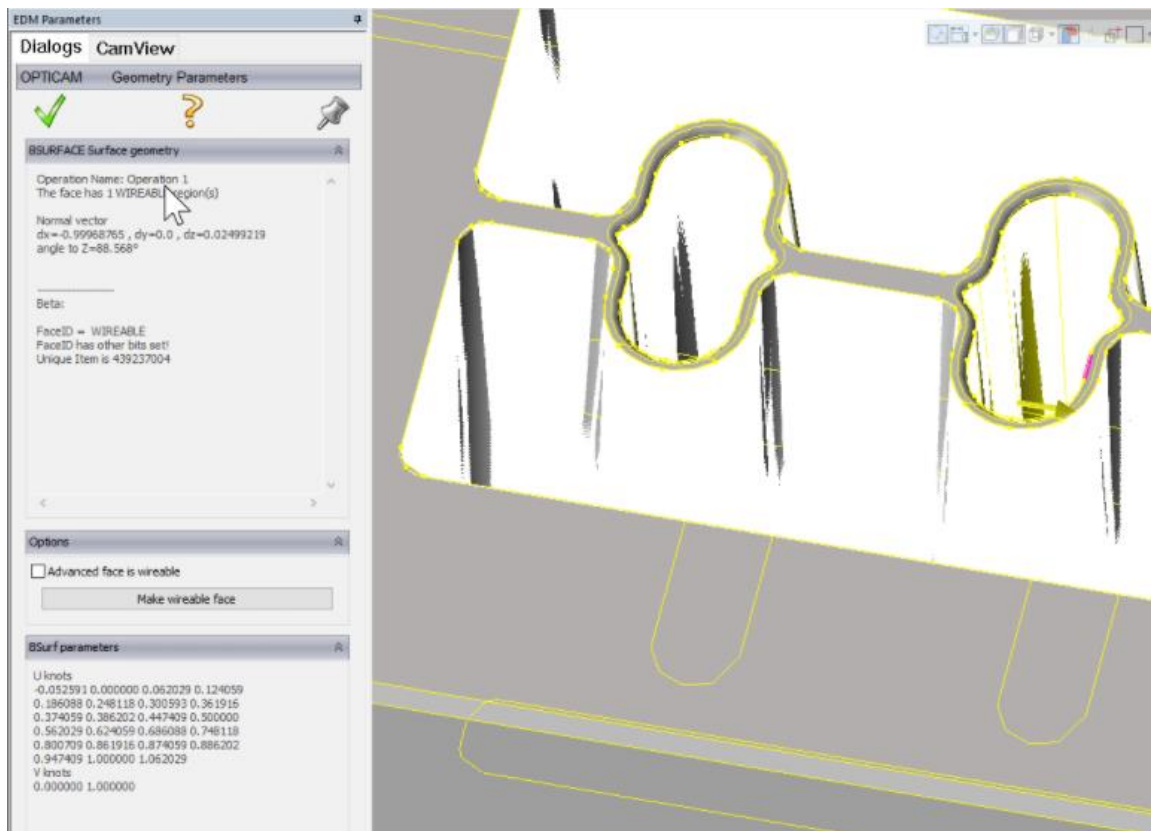


4. The process dialog also lets you specify the usual parameters for depths and clearances, cutting direction, tolerances, yes/no reverse, and arc handling, as well as EDM-specific parameters like nozzle distances/heights and bridge parameters (size, deviation, stop distance).
5. Actions can be combined into groups in various ways, with manipulation of features within a group (such as differing tapers).
6. Render the toolpath and check it with Simulation:



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7. Double-check and adjust as needed:



8. Tools like the Cutting Plan streamline this process:

Cutting Plan														
<input checked="" type="checkbox"/> Allow editing of the cutting plan order by drag and drop <input type="checkbox"/> Reset cutting plan to current strategy settings <input type="checkbox"/> Show consecutive trim cuts in one line														
<div>Undo Move</div> <div>Redo Move</div> <div>Start time</div> <div>Total operation time</div> <div>Total cutting length</div>														
Row	Cu...	Op...	Se...	Feature name	Master Feature	Cut type	S...	W...	Re...	Offset	Te...	Feedrate	Time	Ending time
1	1	1	1	Four axis 1		Rough cut, stop and cut bridge		No	No	0.19mm	2121	6.0mm/min	05min	17:08
2	1	1	1	Four axis 2		Rough cut, stop and cut bridge		No	No	0.19mm	2121	6.0mm/min	05min	17:13
3	1	1	1	Four axis 3		Rough cut, stop and cut bridge		No	No	0.19mm	2121	6.0mm/min	04min	17:17
4	1	1	1	Four axis 4		Rough cut, stop and cut bridge		No	No	0.19mm	2121	6.0mm/min	04min	17:21
5	1	1	1	Four axis 5		Rough cut, stop and cut bridge		No	No	0.19mm	2121	6.0mm/min	28min	17:49
6	1	1	1	Four axis 7		Rough cut, stop and cut bridge		No	No	0.19mm	2121	6.0mm/min	28min	18:16
7	1	1	1	Four axis 8		Rough cut, stop and cut bridge		No	No	0.19mm	2121	6.0mm/min	28min	18:44
8	1	1	1	Four axis 9		Rough cut, stop and cut bridge		No	No	0.19mm	2121	6.0mm/min	28min	19:11
9	1	1	1	Four axis 6		Rough cut, stop and cut bridge		No	No	0.19mm	2121	6.0mm/min	24min	19:35
10	2	1	1	Four axis 1		Trim cut		No	No	0.13mm	2122	8.0mm/min	03min	19:38
11	2	1	1	Four axis 2		Trim cut		No	No	0.13mm	2122	8.0mm/min	03min	19:42
12	2	1	1	Four axis 3		Trim cut		No	No	0.13mm	2122	8.0mm/min	03min	19:44
13	2	1	1	Four axis 4		Trim cut		No	No	0.13mm	2122	8.0mm/min	03min	19:47
14	2	1	1	Four axis 5		Trim cut		No	No	0.13mm	2122	8.0mm/min	20min	20:08
15	2	1	1	Four axis 7		Trim cut		No	No	0.13mm	2122	8.0mm/min	20min	20:28
16	2	1	1	Four axis 8		Trim cut		No	No	0.13mm	2122	8.0mm/min	20min	20:48
17	2	1	1	Four axis 9		Trim cut		No	No	0.13mm	2122	8.0mm/min	20min	21:09
18	2	1	1	Four axis 6		Trim cut		No	No	0.13mm	2122	8.0mm/min	17min	21:26

9. When all is as it should be, post it.

A post upgrade is required for the new Opticam Wire EDM product option.

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Probing

This new product option includes definitions of probing tools (Ball, Disk, Cylinder, 2D Form, and 3D Form), simulation support, a framework for probing operations, and built-in probing cycles:

- *Part setup.* Probing cycles during part setup can determine the initial setup locations of stock, such as by touching off a corner of the stock or a vice, or by probing a known feature on a casting. The output can be used to load WFOs (work fixture offsets) or other offsets on the machine.

- *In-process probing.* Probing cycles can be added between cutting operations to verify that an operation successfully achieved the desired result. This can allow for fixing a program in case of error or for stopping operations when a part is scrap, thus providing more efficient machine use and less wastage.

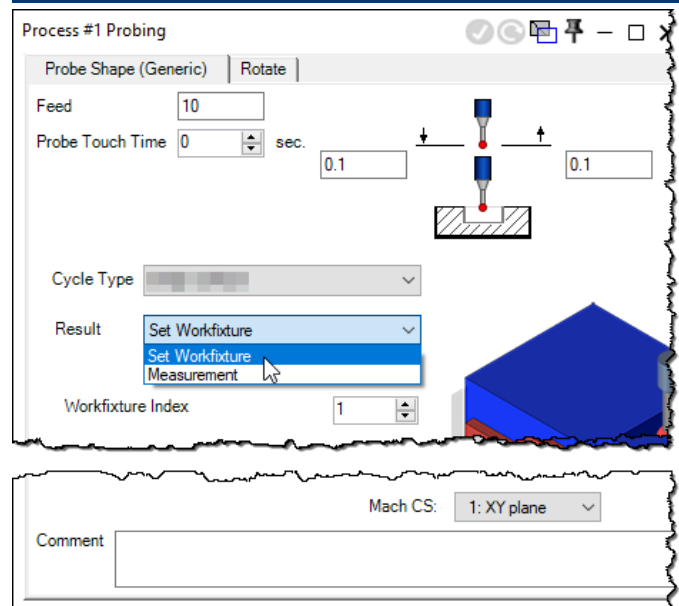
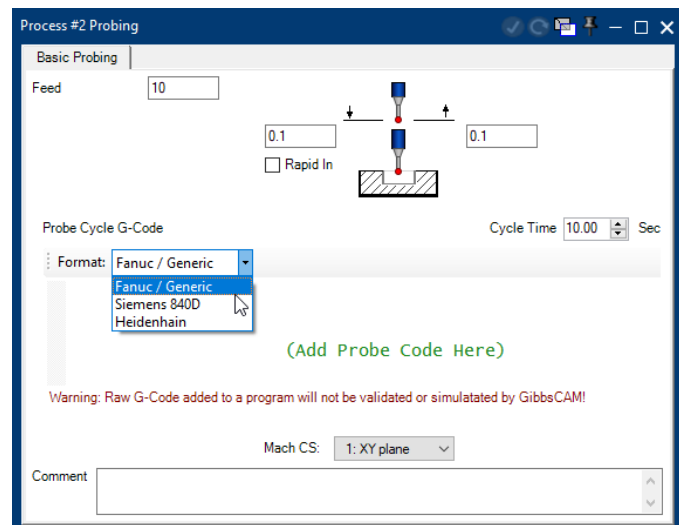
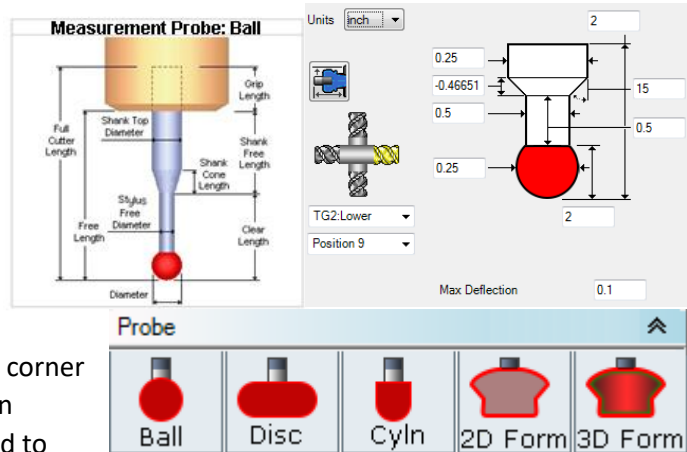
In cases where an operation fails, machines offer such response modes as:

- Stop cutting and output an error code
- Reload a tool
- Re-execute some portion of the program to re-cut the part

In-process probing is often combined with multi-process groups, such as:

- Probing a bore
- Probing a pocket depth
- Probing the walls of a completed operation

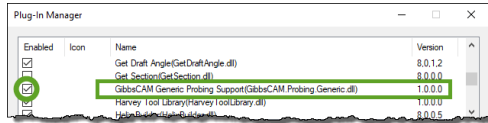
- *On-machine inspection.* This is similar to in-process probing but is performed after all operations are completed, resulting in a “good” or “bad” rating for the entire part. When the user does not need to unmount the part and mount it on a dedicated inspection, it allows for far greater shop efficiency.



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License options for Probing

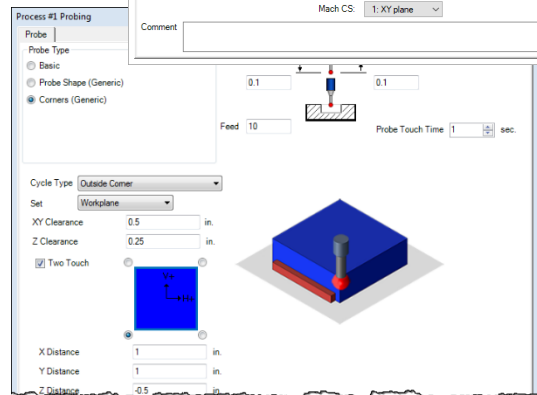
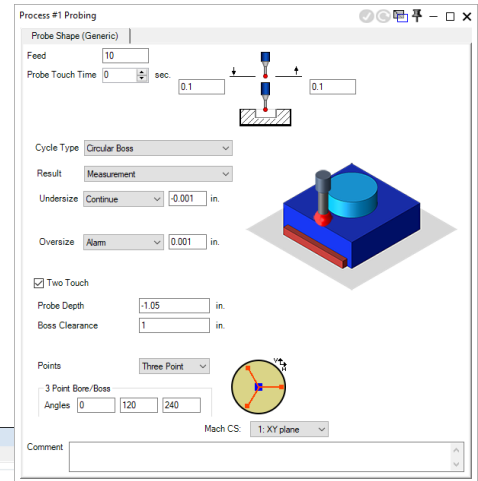
All customers who purchase Probing will receive the **Basic** functionality. This provides the framework (probe tools and a basic Probing process that lets you specify depths, feedrate, cycle time, and CS). To create an operation, paste in G code that is passed to GibbsCAM without validation or simulation.



If `GibbsCAM.Probing.Generic.dll` is enabled, **Generic** functionality is available for such functions as single

surfaces, rectangular and circular pockets/bosses, and corners:

- **Probe Shape (Generic)** functionality provides such common probe cycle types as Single Surface, Rectangular/Circular Pocket, and Rectangular/Circular Boss, and it supports such result types as **Set Workfixture** and **Measurement**. (**Measurement** lets you specify separate responses for Undersize and Oversize result types).
- **Corners (Generic)** functionality is intended for WFO setup on mill-style tables. It provides such cycle types as **Outside Corner**, **Outside Corner with Angle**, and **Single Surface from Corner (Z)**. You can set this to either **Workfixture** or **Workplane**, specify planar and Z clearances, and specify independent corner distances for X, Y, and Z.
- **GoTo** is a utility operation that lets you target an operation in **Result > Measurement > Undersize** or **Oversize > GoTo**.



GibbsCAM Integration

Probing tools and operations are fully supported by the Tool Summary/Manager and the Op Summary/Manager, as well as by Reporter commands and macros. The [Probing](#) guide contains detailed information on creating custom probe cycles.

Third-Party Integration

Custom providers (GibbsCAM partners) can provide additional probing functions in three different ways:

- Plug-ins: The most powerful and flexible way, for experienced developers who want to write their own extensions to the GibbsCAM process-dialog GUI.
- Customizable xVMM cycles: The easiest solution to implement, but somewhat limited.
- Macros: In the [Probing](#) guide, see the chapter titled "Using Macros to Create a Custom Probe Cycle".


Postprocessing

A post upgrade is required for the new Probing product option.

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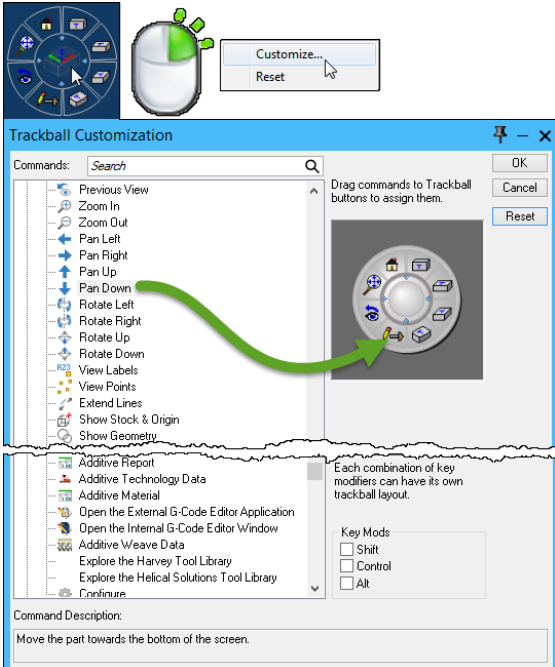
Enhancements to Workflow and Productivity

Command shortcuts via trackball RMM Customize

When you right-click the  trackball, its context menu now offers a powerful new choice: **Customize**.



The **Trackball Customization** dialog allows you to drag any command to any of the eight slots of the trackball, using any of eight possible combinations of key modifiers (**Shift**, **Ctrl**, and/or **Alt**). This puts up to 64 commands at your fingertips: Press **F5** to summon the trackball, press up to three modifier keys (the trackball display changes accordingly), and click a sector of the trackball.



Trackball Customization

Commands: Search

Drag commands to Trackball buttons to assign them.

Key Mods:

- ☐ Shift
- ☐ Control
- ☐ Alt

Command Description:

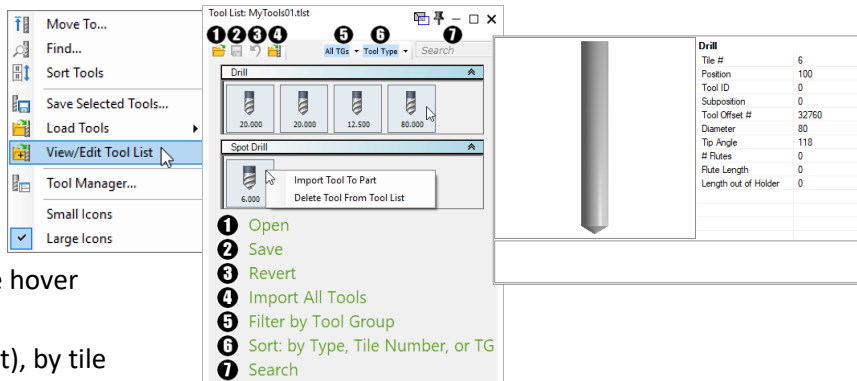
Move the part towards the bottom of the screen.

(Sample)	Plain	Shift
Plain		
Ctrl		
Alt		
Ctrl + Alt		

View/Edit Tool List

GibbsCAM 14 provides a new dialog for viewing or editing a tool list (*.t1st) file. **Tool List Manager** lets you:

- Hover over a tile in the dialog to show the Tool Preview in the hover window.
- Order tools by tool type (default), by tile number, or by toolgroup.
- Use the search bar to find a tool by text and/or by its most important dimension, optionally filtered by toolgroup.
- Delete a tool from the tool list.
- Drag a tool from the tool list to the part or vice versa.



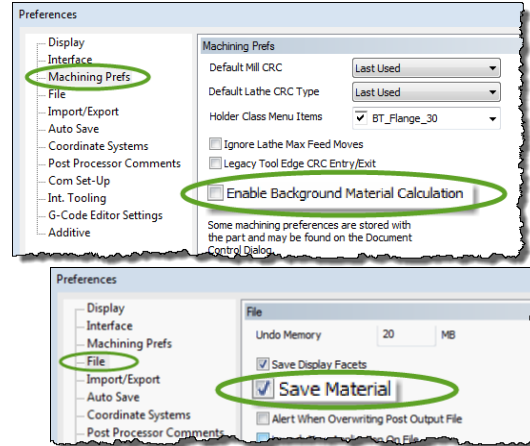
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3D Material Only

With 3D Material-Only, material can be shared across different operation types (such as Milling and Turning operations) or different CS's, and 3D milling can use rest material. It also provides Machine Sim with a more accurate picture. When a process dialog's **Solids** tab is bolded, it can use 3D Material Only.

Controls for **Material Only** are in the 5-Axis process dialog Options tab and in the Simulation dialogs, and three new global preferences allow you to specify how resources are used by 3D Material:

- In the DCD, you can set a global tolerancing preference for 3D material-only. Tighter tolerances mean better accuracy, at the cost of larger model size.
- In the File > Preferences dialog, **Machining Prefs** tab: You can set a new preference, **Enable Background Material Calculation**, to specify whether the calculation of 3D material-only runs in the background (faster but greedier in memory) or the foreground (slower but providing more control).
- In the File > Preferences dialog, **File** tab: Because this function operates by saving extensive data for 3D rest material, you can set a new preference to **Save Material** (keep all data for Material Only), independently of other file-related preferences.



Exceptions and Limitations

- 2D Material-Only is analytic (exact solution), whereas 3D is usually approximated to tolerances. Output can change between 2D and 3D during the execution of multiple operations: Some operations consume and produce only 2D Material; some (like Advanced 3D and Additive) only 3D Material; some can consume either as input; a few ops can produce either as output.
- Part flips, and part transfer from one spindle to another, require a utility op and VMM change.

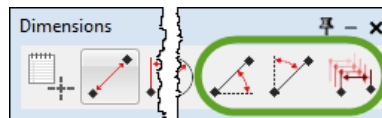
Dimensioning

Dimensioning has changed in several important ways.

- **On-the-fly preview (mouse hover):** While dimensioning, when you click the first element, hovering over another element causes a preview of the dimension to appear. To accept it, **CTRL**+click the candidate element and then adjust the dimension's position as needed.

- **Additional dimensioning types:**

- Angle to H axis
- Angle to V axis



- **Additional dimensioning behavior:**






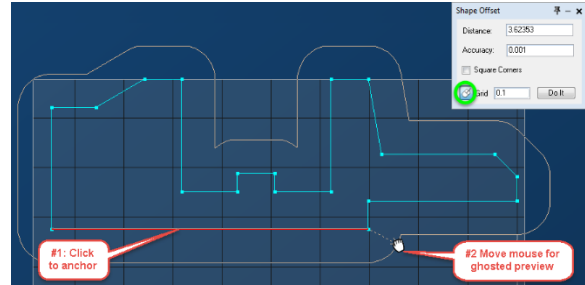
A new Multiple Dimension mode lets you create multiple dimensions with maximum power and efficiency. In this mode, you select a dimensioning type and then, after you select a base feature:

- Hovering over another feature provides a preview of the dimension;
- **CTRL**+click sets the dimension; and
- **CTRL**+drag adjusts the dimension's position.

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




Mouse Shape

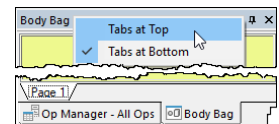
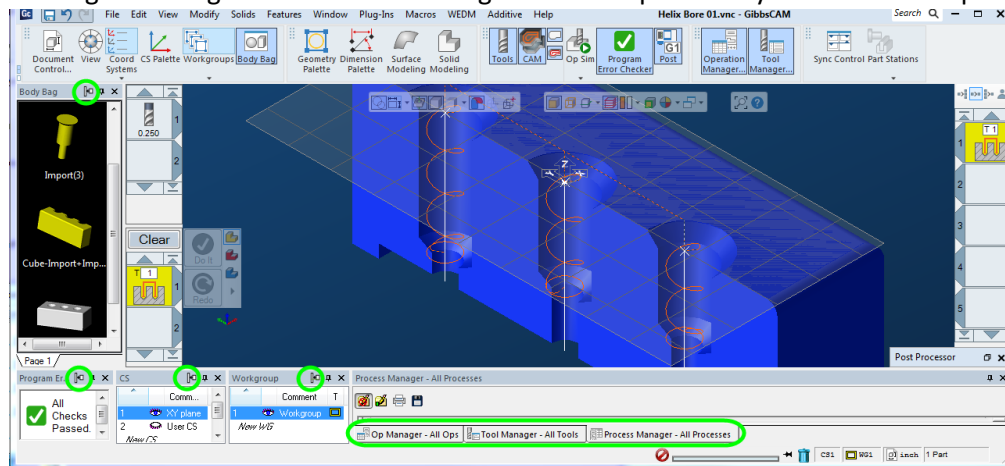
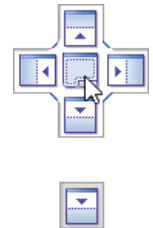
The lower left corner of the most-used  Geometry >  Shape dialogs presents a new  button that lets you create shapes with a quick **click-slide-click**:
Click to anchor, **slide** to get a ghosted preview, and then **click** to create the shape.



Dockable Panes

Many dialogs can now be **docked** — that is, attached to the left, bottom, right, or top side of the workspace or to each other (creating a tabbed window). These dialogs include: Body Bag, Program Error Check, CS List, Workgroup List, Operation Manager, Tool Manager, Process Manager, and a few others.

Clicking  in a dialog's titlebar activates the Docking Control in the workspace and in the center of each docked pane. Dragging the dialog onto an outward-pointing arrow (up=, left=, right=, down=) docks it to that side, and dragging it onto the center () adds a tab. Right-clicking the titlebar of a dialog in a tabbed pane lets you set tabs at top or bottom.



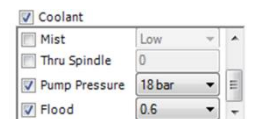
Align Face to CS

Align Face to CS now can align to either side of the CS. The first click aligns to the positive side as before, and the second click aligns to the negative side of the CS.

System-wide process changes

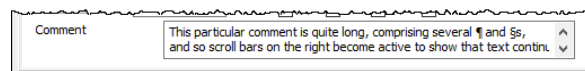
Combinatorial coolants

GibbsCAM can now program custom coolants individually or in combinations, such as **Pressure Type** and **On/Off Location**. The interface presented to the user lets these values be set separately for each toolgroup or part station.



Comments for processes

You can now store comments with each process. When you generate operations, process comments are saved in the operation data, in the **Op Comment** field. When you open an operation, its Op Comment data is displayed in the **Comment** field of the process dialog. The **Comment** input text field for a process dialog is located at the bottom of its leftmost tab:

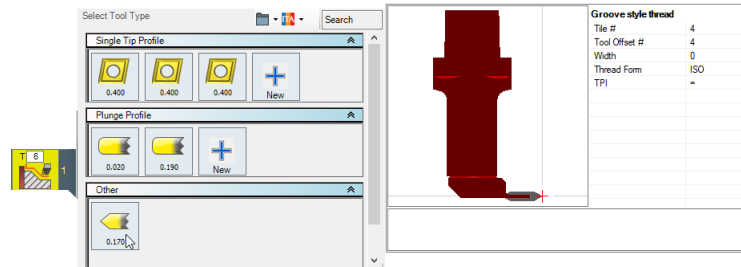


What's New in GibbsCAM 14

Enhancements to Visualization

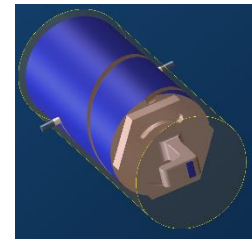
Flyout tool preview and description

Right-click context menu item **Change Tool** opens the **Select Tool Type** flyout, which now provides a detailed picture of the tool along with the most salient data describing the tool.



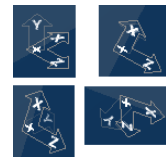
Show clearance volume and clearance planes in workspace **soon**

You are better able to visualize clearance planes (or clearance volume shape when **Clearance Volume** is enabled) in the workspace.



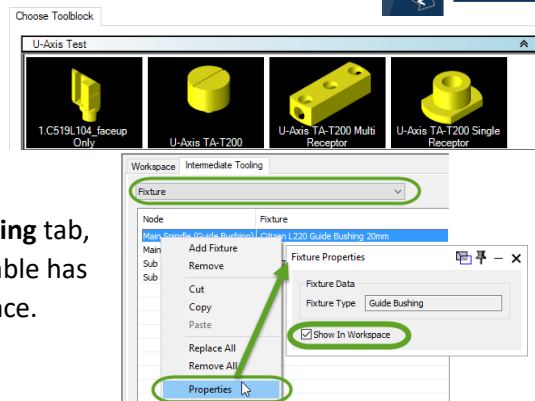
Improve visibility of plane side in 3D views

The axis letters (XYZ or HVD) are now easier to see, with each letter designation fully displayed when edge-on but converted to a symbol (+ or -) when seen from above or below. This is particularly helpful for visualizing the depth axis in world view.



Visualization of Intermediate Tooling

Adapter Preview. Intermediate Tooling provides a preview of each adapter that can fit into the receptor node that receives it, allowing for easy visualization and selection.

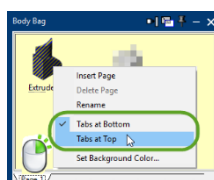


Show Fixture in Workspace. In the DCD's **Intermediate Tooling** tab, for **Fixtures**, each entry in the intermediate tooling fixture table has a property of optionally displaying the fixture in the workspace.

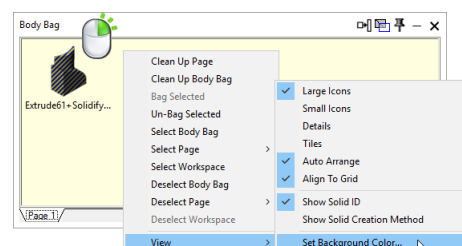
Easy setting of background color for Body Bag, Intermediate Tooling, and others

Many dialogs provide easy customization of background color: Right-click the title bar and select **View > Set Background Color**.

Body Bag tab controls



Right-clicking a Body Bag tab provides a context menu that allows you place the tabs on the bottom or the top, and to set a tab's background color.



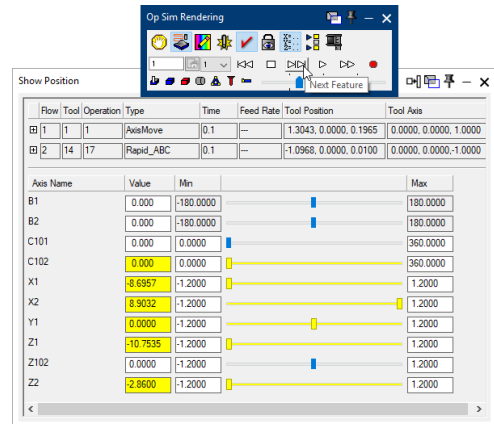
What's New in GibbsCAM 14

Enhancements to Simulation

Improve axis visualization in Sim / **Show Position**

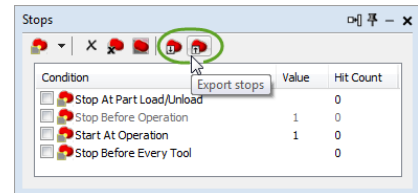
The **Show Position** dialog provides new options for finer control and visualization of Op Sim, Machine Sim, Tool Sim, and Rapid Sim.

For easy visualization, when you press **Next Feature**, in the **Rendering** dialog, the **Show Position** dialog shows the axes that move by changing the color of their values and sliders.



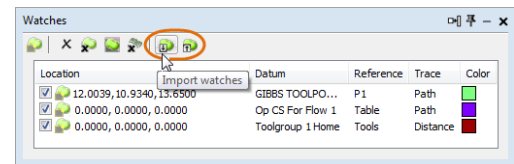
Import/Export of **Stops**

The **Stops** dialog for Op Sim, Machine Sim, Tool Sim, and Rapid Sim now offers new buttons that let you import and export Stops files (*.smd files).



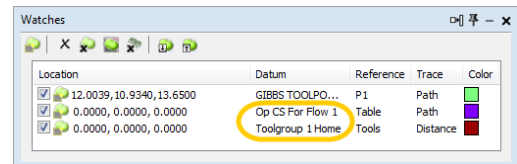
Import/Export of Watches

The **Watches** dialog now offers new buttons that let you import and export Watches files (*.smd files).



New Standard Datums

In addition to all previous datums, you can now use new datums for **Op CS** (operation coordinate system) and for **Toolgroup Home**.



What's New in GibbsCAM 14

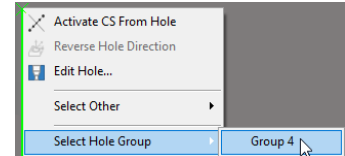
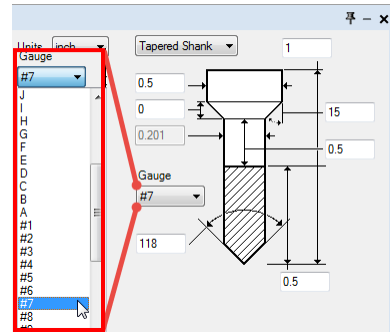
Enhancements to Hole Machining

Predefine ANSI drills by gauge letter/number

ANSI drills can be chosen by standard gauge size: The letter A is for a diameter size of 0.234 inches, B for 0.238 inches, C: 0.242", ..., M: 0.295", ..., Y 0.404", Z: 0.413".

New context menu item (RMM): **Select Hole Group**

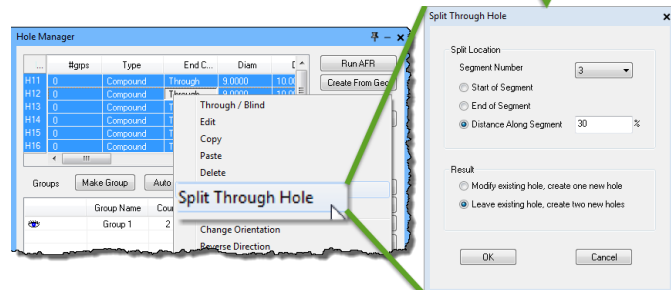
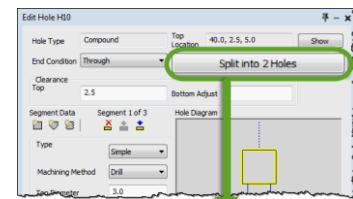
When you right-click a selected hole, a new item appears on the context menu: **Select Hole Group**. This allows you to expand the selection by adding holes that belong to the same group or groups to which the selected hole belongs.



Two-sided hole machining improvements: **Split Through Hole**

A new ability to split a hole is provided when you edit a Through hole (or, in Hole Manager, when you right-click a Through hole or a group of Through holes, using a new context menu option), to open the **Split Through Hole** dialog.

This dialog lets you split the Through hole at a segment you specify, creating one or two new holes and the ability to machine one hole from both sides.



Improve noncutting tip behavior for taps and reamers

Tools with non-cutting tips, such as flat-bottom reamers, now display their tips more clearly and accurately.

What's New in GibbsCAM 14

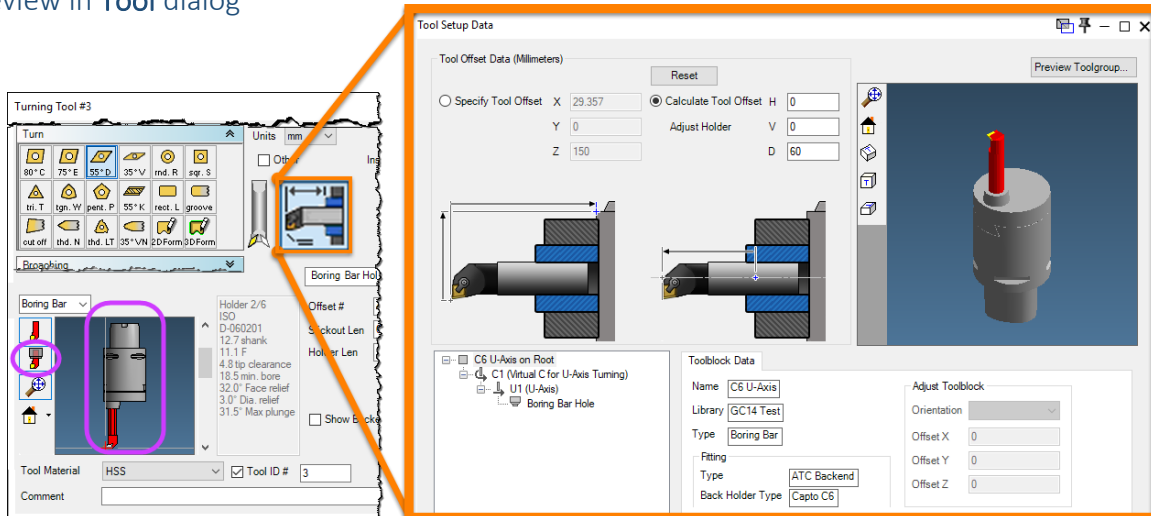
Intermediate Tooling

Stacking of adapter blocks

GibbsCAM 14 now allows stacking of toolblocks. Toolgroups can hold adapter blocks [that can hold other adapter blocks [that can ...] that can hold toolholders.

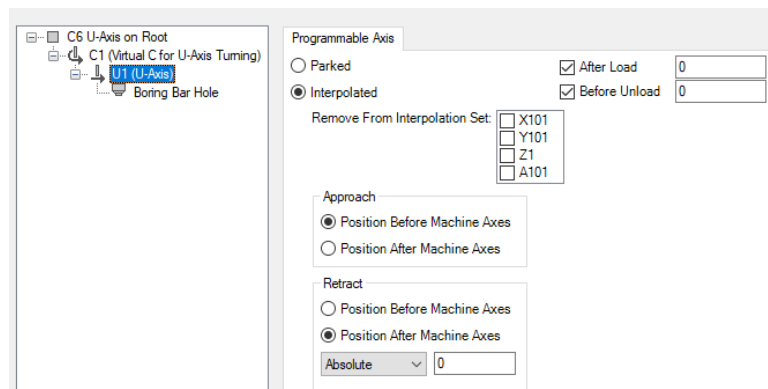
The machine definition specifies toolgroups and part stations; this is not subject to change. Intermediate Tooling lets you specify intermediate items — between toolgroup and tool, and/or between part station and tool; these can be changed as needed. The kinematic tree treats terminal nodes (tool stations, part stations, utility stations) as open receptors for either tools/parts or toolblocks. Each toolblock has a *fitting* node, where it attaches to the kinematic tree or to a receptor node, and one or more *receptor* nodes, where another object's fitting is attached. All fittings have a *type* and *size*. Receptors specify the type and size of the fittings they accept. Candidate toolblocks are presented for selection only if their fitting node matches the receptor node; see Visualization of Intermediate Tooling on page [15](#).

Preview in Tool dialog



Programmable axes

You can use Intermediate Tooling to add interpolated axes and to specify programmable axis status and behavior. This makes possible such features as U-axis heads, powered broaching units, and many others.



What's New in GibbsCAM 14

Kinematics, Machining, and Tooling

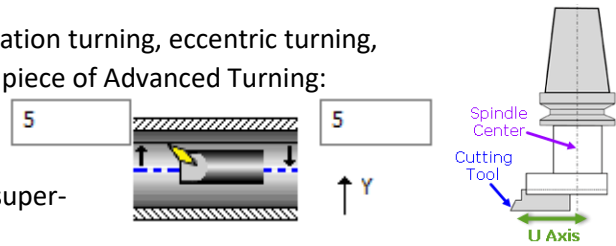
FreeTurn tooling systems for High Dynamic Turning (HDT)

Because of GibbsCAM's Universal Kinematic Machine (UKM) architecture, the versatility of Intermediate Tooling, and its Advanced Turning enhancements, GibbsCAM 13 could already support innovations like Ceratizit's FreeTurn tools for High Dynamic Turning (HDT) before those tools were available.

For more information on FreeTurn, see <https://www.ceratizit.com/en/hdt/>

U-axis turning support

In GibbsCAM 13, Advanced Turning provided interpolation turning, eccentric turning, and elliptical turning. GibbsCAM 14 supplies the next piece of Advanced Turning: Support for U-axis turning (the U-axis being an "alternate X-axis"), where a live milling tool spins the cutting edge of a turning-type insert as a kind of super-boring-bar.

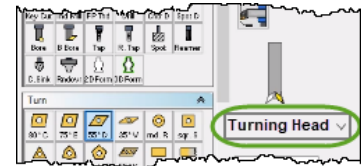


GibbsCAM 14 supports up to four linear and three rotary axes in an interpolation set.

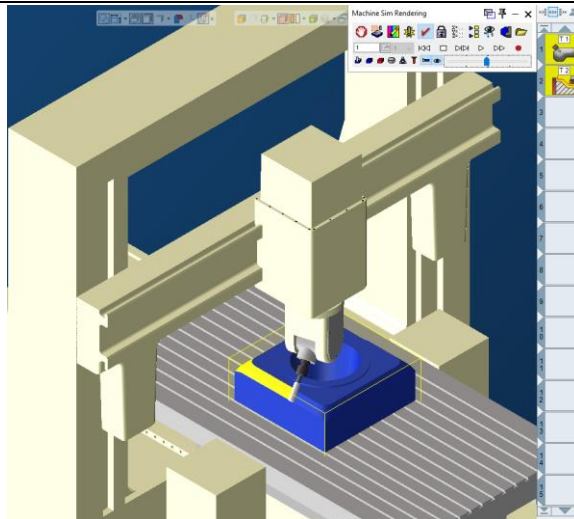
Swappable heads

Entire heads can be detached and parked, and a different head attached. (In the MDD tree, a *head* is a subtree that goes extends outward to but does not include a tool assembly).

The sequence is as follows (Okuma Bridge):

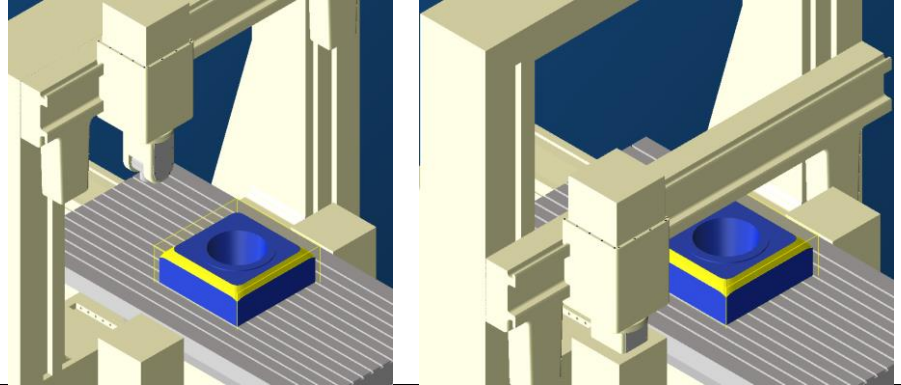


1. 5-Axis machining with Head #1.

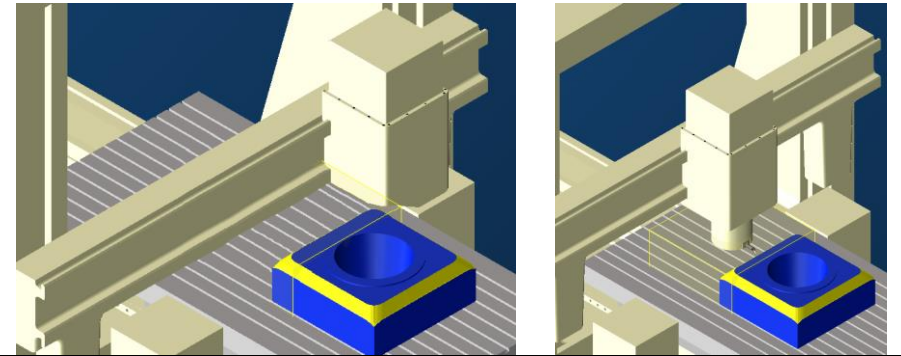


What's New in GibbsCAM 14

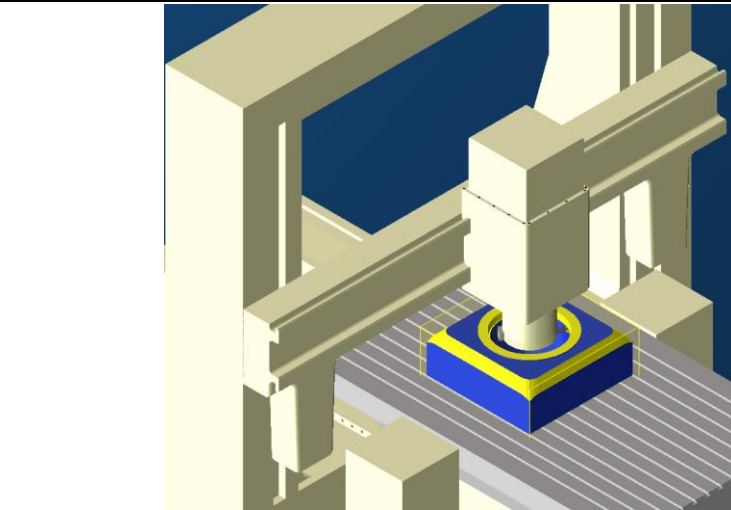
2. Upon completion, 5-Axis tooling is retracted into head and Head #1 is stowed.



3. Head #2 is fetched and tooling is deployed.



4. U-Axis machining with Head #2.



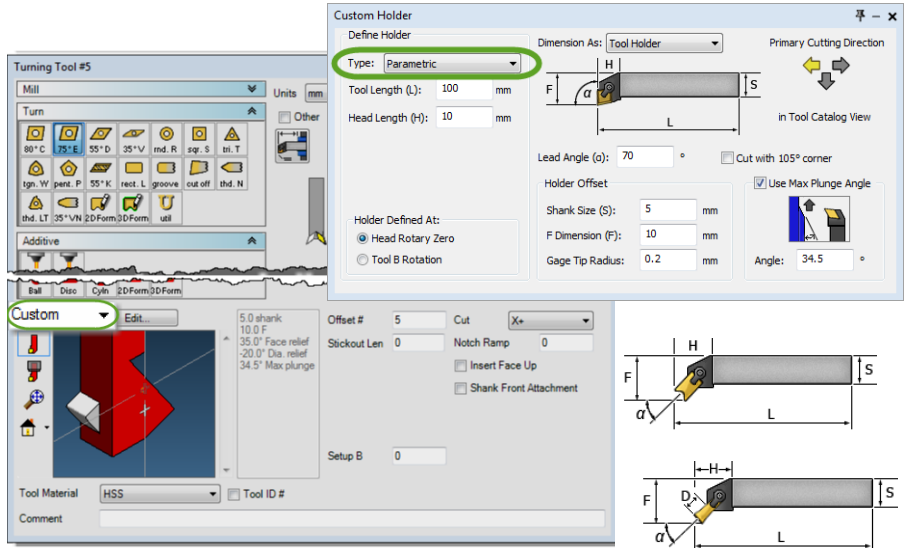
What's New in GibbsCAM 14

Parametric lathe toolholders

GibbsCAM 14 Turning users are no longer confined to the toolholder database. You can define custom lathe toolholder profiles by providing values for a few key dimensions provided in the **Tool** dialog under **Custom > Type=Parametric**, just as for parametric holders for milling tools. If you enter values that are impossible or grossly disproportionate, the pull-down menu defaults back to **Other**.

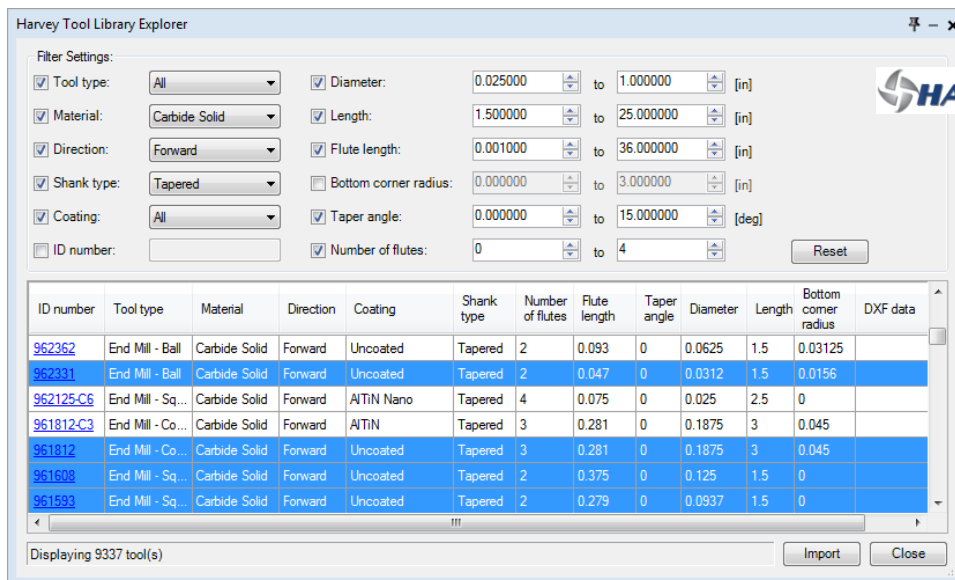
For lathe toolholders requiring other dimensions, **Profile** is still required. **Parametric** is not supported for ATC style holders, for laydown-style (LT) thread inserts, or for form tools.

The set of holder parameters to be defined varies according to insert type (ISO acute/obtuse or groove-style), insert flank angles, and insert flank length, as well as overall tool length, head length, and (for groove-style) max depth. Tip profiles and shank profiles have separate sets of parameters, and the connection between tip and shank varies according to back-cutting or front-cutting.



Plug-Ins for Harvey Tools, Helical Solutions, and Garr Tools

Three new plug-ins provide easy access to every tool in the Harvey Tool Library, Helical Solutions tool library, and (soon) Garr Tool Library. You simply enter your filter criteria, narrow down the list to a manageable size, and then import all the tools you need. They will then be visible within GibbsCAM.



What's New in GibbsCAM 14

Plug-In for CoroPlus

Enhancements to make CoroPlus compatible with GibbsCAM 14.

For MTG (move toolgroup): Control over tool subposition soon

The utility process dialog for Move Toolgroup now offers choices of subpositions.

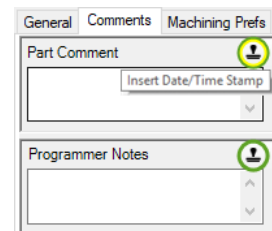
For MTG: Improve clarity of CS selection drop-down soon

When the utility process dialog for Move Toolgroup offers several CS selections, it is now clearer which CS is associated with which spindle / part station.

DCD

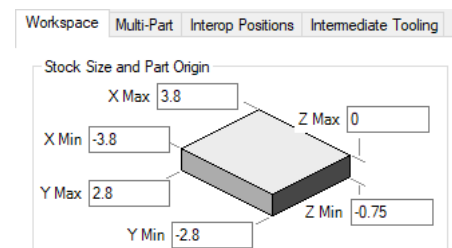
Datestamp function for comments

Users can now easily insert a date/timestamp on their DCD comments.



Clarify stock size

For greater clarity, labels on stock are changed from **-** and **+** (such as **X-**, **X+**) to **Min** and **Max**.



What's New in GibbsCAM 14

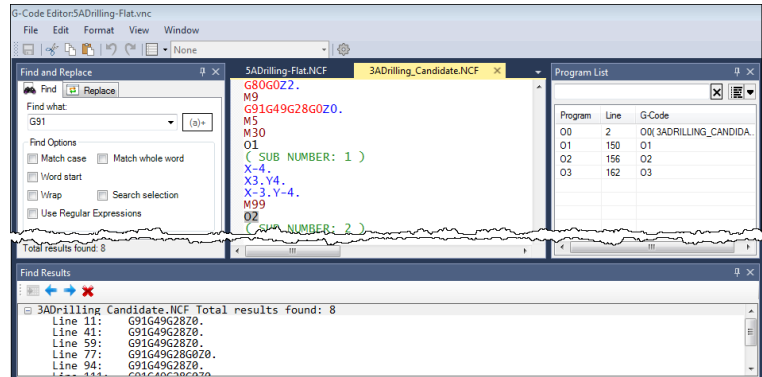
Posting and Output

G-Code Editor

The G-Code Editor now provides extensive find and replace capabilities, and its **Find Results** pane provides options like **Go to result**, **Next**, and **Prev**.

Its List pane can now show:

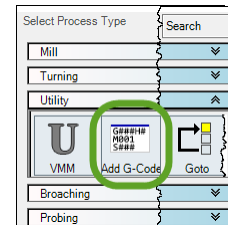
- An **Operation List** pane that provides a list of operations by line.
- A **Called Tools List** pane that provides a list of tool calls by line, plus G-Code.
- A **Program List** pane that provides a list of program codes by line, plus G-Code.



You can also set the background color, and you can print results in either black-and-white or color.




Add G-Code Utility Process

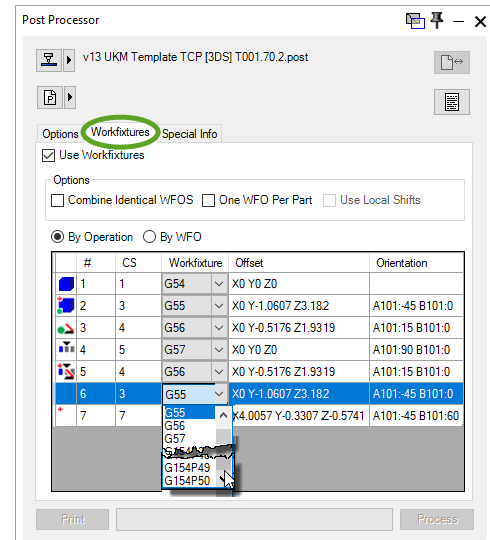
Add G-Code, formerly a plug-in, is now a utility process.



GUI for work fixture offset (WFO)

Before GibbsCAM 14, users assigned up to one work fixture offset (WFO) to each coordinate system (CS). This constrained the use of WFOs, sometimes required part programmers to needlessly create duplicate CS's, and did not support multi-part setups.

In GibbsCAM 14, WFO assignments are in the **Post Processor** dialog instead of the **CS** list. This lets you: Identify at a glance a **Part Station** or a **multi-part part instance**, with markers for whether the WFO is manually changed (icon —e.g., , , the op is shifted from the WFO origin (icon), op oriented differently from the WFO definition (icon), or any combination (e.g., ); assign a WFO per op rather than per CS (including multi-part instances); see the WFO list before you post; and tell the system how to handle cases where a WFO does not match a CS. If your post is from before GibbsCAM 12, the interface simply lists CS's and WFOs. UKM posts (specifically designed for GibbsCAM 12 and later) display a new interface (pictured).



Options in the new interface let you determine how WFOs are assigned, such as combining identical WFOs regardless of the source CS, allocating one WFO per part instance, or using Local Shifts instead of Work Shifts.

In GibbsCAM 14, your ability to specify behavior is more powerful, and so interpretations are now stricter. If you have assigned CS's with different origins to the same WFO in a previous version of GibbsCAM, the system automatically remaps them to different WFOs and notifies you of the changes.

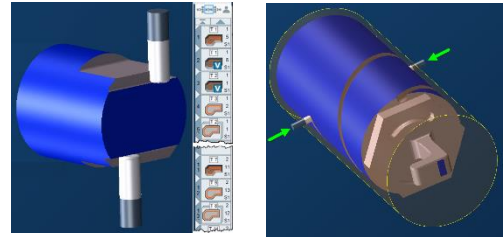
Note on posts: Some posts from before GibbsCAM 14 may need modifications to output user-specified WFOs for certain operation types.

What's New in GibbsCAM 14

Miscellaneous

Double Milling (Pinch Milling) in MTM



With double milling, you can have two milling operations working on opposite sides simultaneously. This is similar to analogous operations in pinch turning.

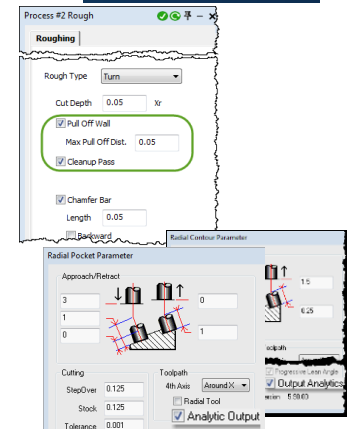


Efficiency and performance improvements

Rough Turning using **Pull Off Wall** provides a new parameter (**Maximum Pull Off Distance**) that lets you specify how far back the tool will pull off. When this is set, changes to the toolpath algorithm provide performance improvements because of fewer tool change positions.

Imports of parts using Spatial are now threaded, meaning that machines with multiple cores can import much faster than before. Performance is especially improved when importing assemblies containing many parts.

 **Radial Contouring** and  **Radial Pocketing** now offer options for analytic output, greatly reducing the size and complexity of G-Code output.

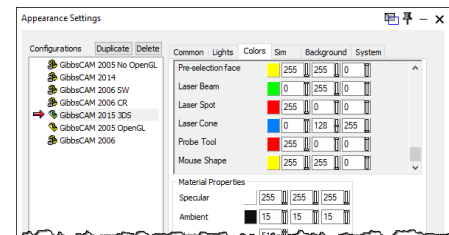


Changes in Preferences

The **Preferences** dialog lets you set:

- Import/Export: **Import Construction Geometry**
- Display > Appearance > Colors: Colors for Additive, Probing, and Mouse Shape

Also, see preferences for 3D Material Only on page 13 and for **Activate Machining CS** and **Reverse Mouse Wheel Zoom** below.

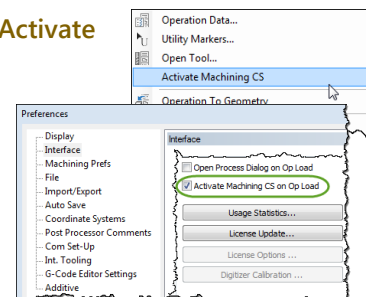


New option: **Activate Machining CS**

The context menu when you right-click an op tile provides a new option, **Activate Machining CS**, to visualize and activate that operation's CS.

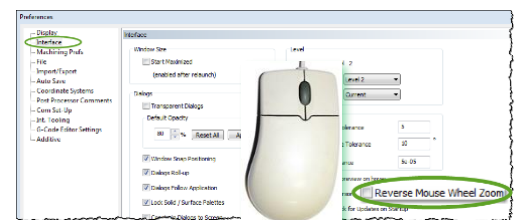
In the File > Preferences dialog, **Interface** tab: You can select the **Activate Machining CS on Op Load** checkbox if you want an operation's CS to be activated upon loading the operation.

Note: Enabling this as the default behavior provides simple, fast, and powerful access, but it is not recommended for bottle mold or Z Ramp.



Zoom using reverse mouse wheel zoom

In the File > Preferences dialog, **Interface** tab: You can set a preference for the mouse scrollwheel behavior. **Reverse Mouse Wheel Zoom** specifies that scroll-up will pull the "camera" closer (showing less of the part but in greater detail) and scroll-down will pull the "camera" away (showing more of the part but in less detail).



Desupport of Windows versions before Windows 10 or Windows Server 2019

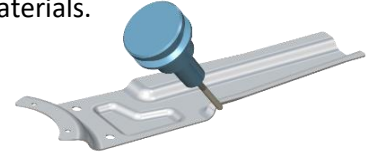
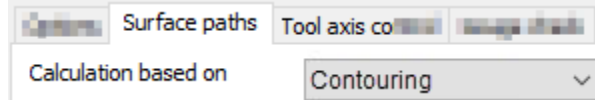
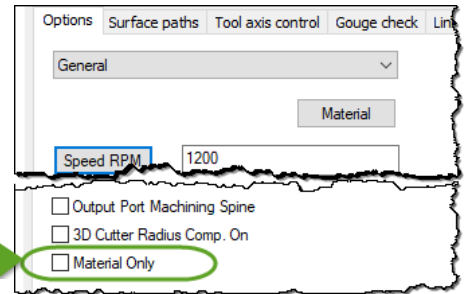
Although GibbsCAM 14 will run on older versions of Windows, we will no longer investigate or create solutions for problems specific to versions before Windows 10 or Windows Server 2019.

What's New in GibbsCAM 14

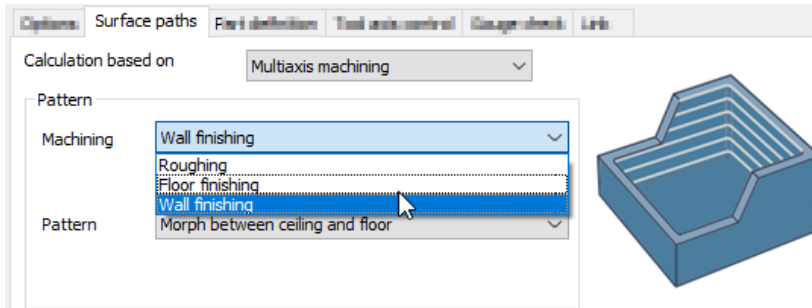
5-Axis

Each new release of GibbsCAM includes upgrades and enhancements to 5-Axis. In GibbsCAM 14, additional capabilities include:

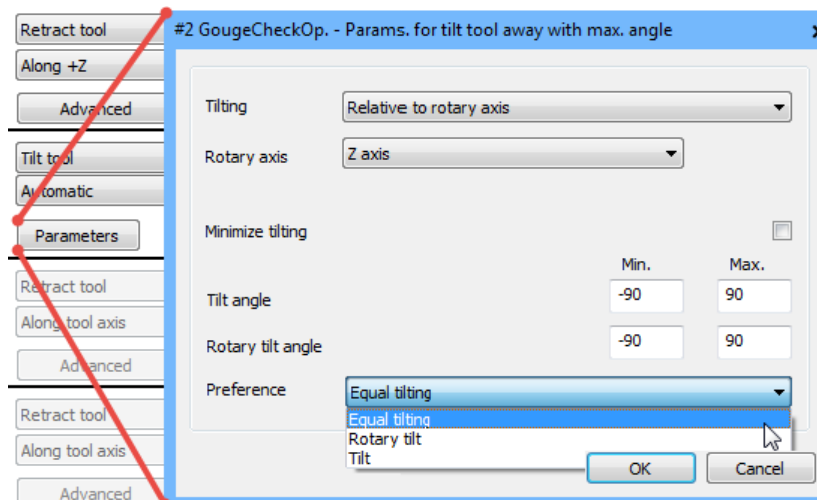
- Support for **3D Material Only** via a checkbox on the **Options** page.
- Support for form tools (generic revolved tools).
- New **Surface paths** calculation type: **Contouring** (edge trimming).
A specialized strategy for edge trimming of thin-walled hulls and other thin materials.



- **Multiaxis machining** provides new floor and wall finishing strategies that take advantage of barrel tools, as well as automatic collision-free linking.

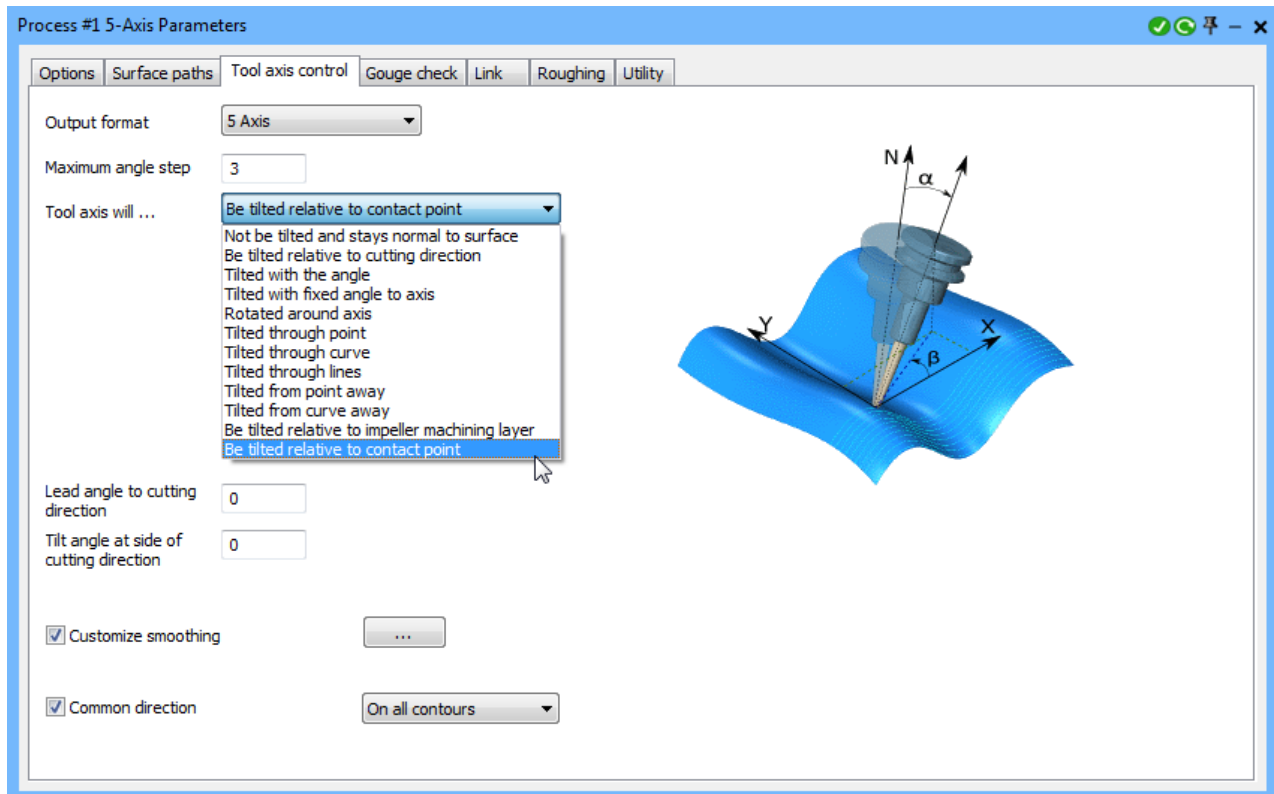


- **Gouge check** tab: Auto-tilt for barrel mills (**Tilt tool – Automatic > Parameters > Preference: Equal tilting**):

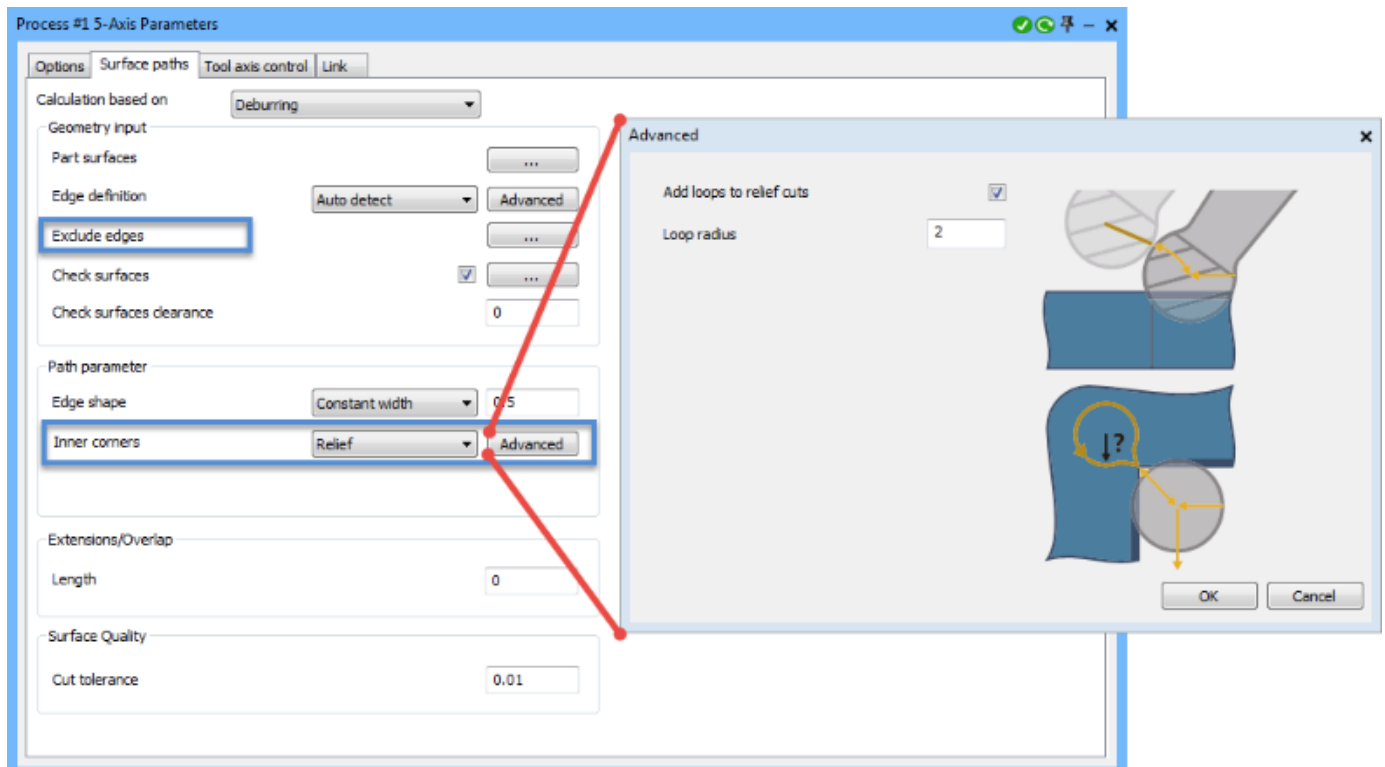


What's New in GibbsCAM 14

- **Tool axis control tab: Tilt by contact point:**

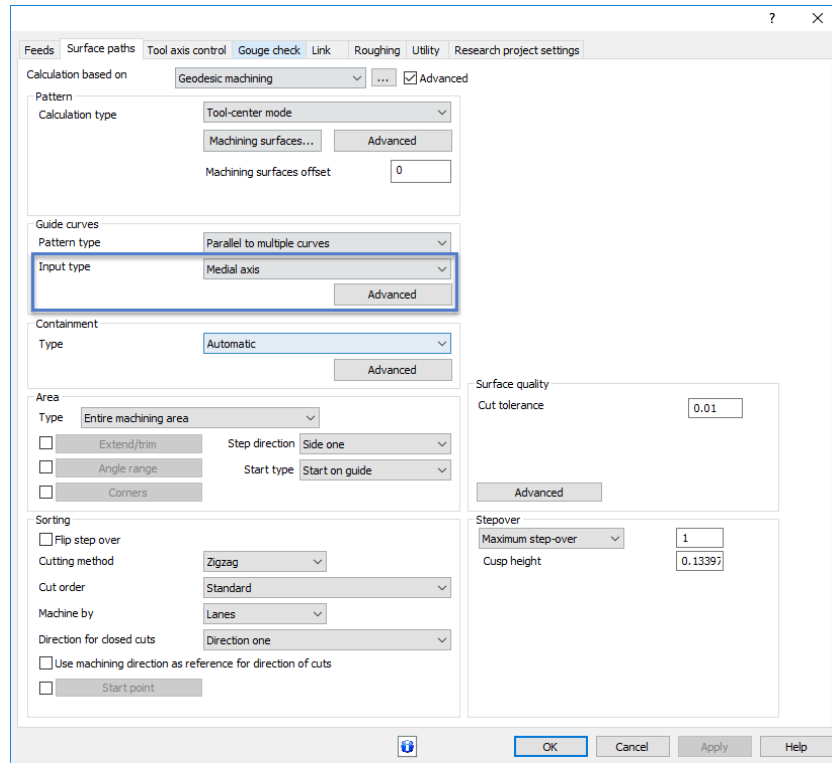


- **Surface paths / Deburring: Enhanced deburring:**

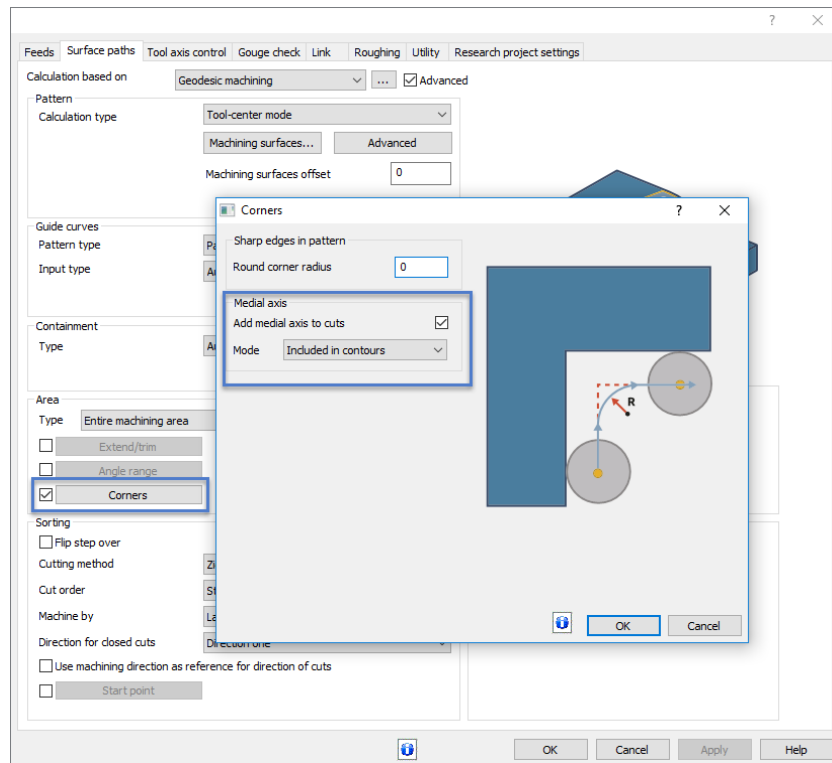


What's New in GibbsCAM 14

- **Surface paths / Surface machining:** Geodesic medial axis (Guide curves > Pattern type: {morph, parallel} > Input type: Medial axis):

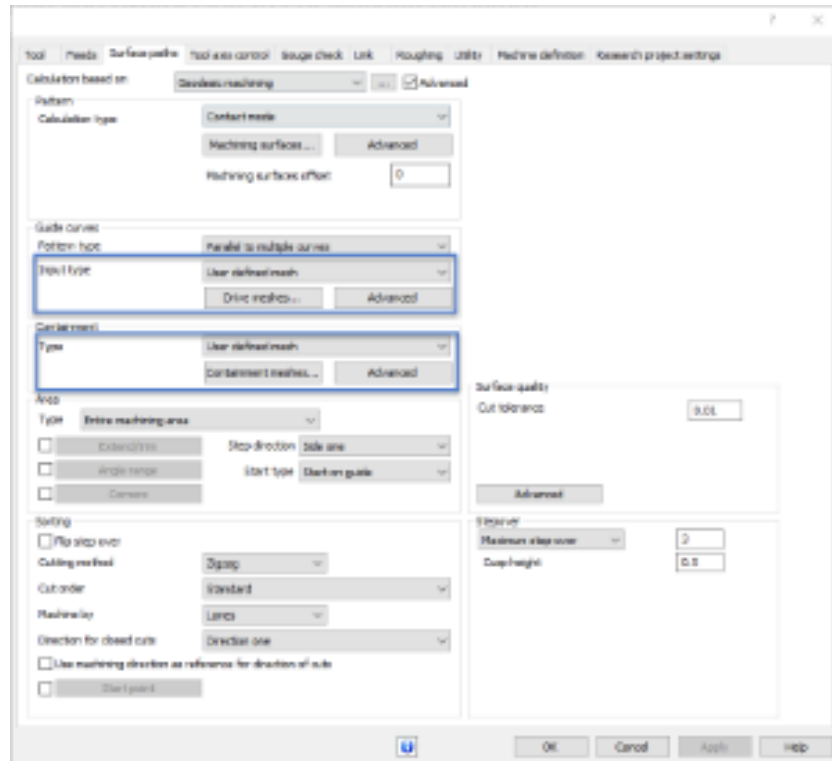


- **Surface paths / Geodesic machining:** Add medial axis to cuts (Corners > Medial axis):

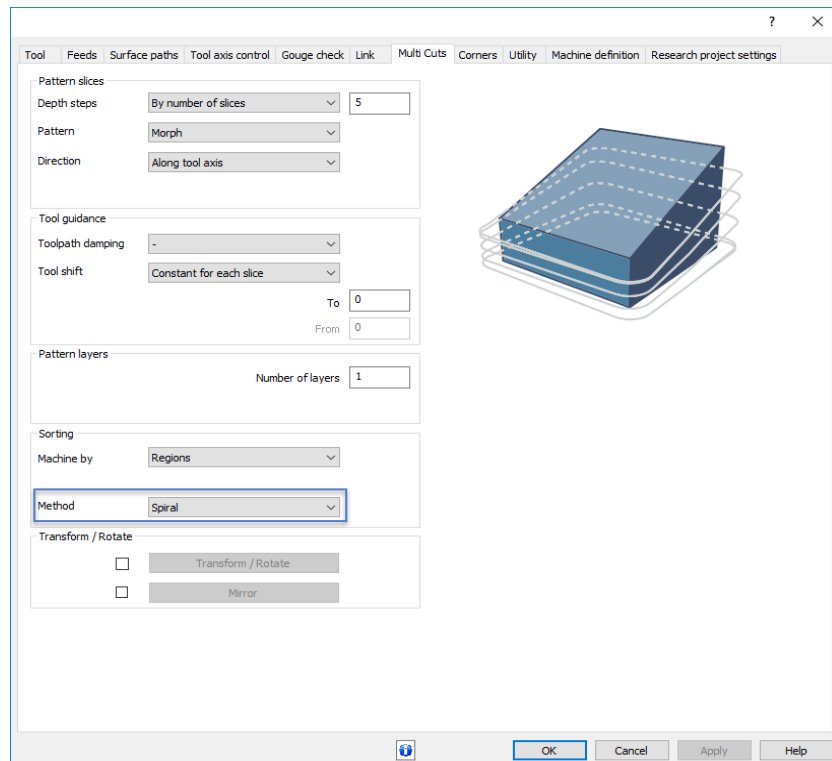


What's New in GibbsCAM 14

- **Surface paths / Geodesic machining from mesh** (Guide curves > {Input type, Containment}: User-defined mesh):

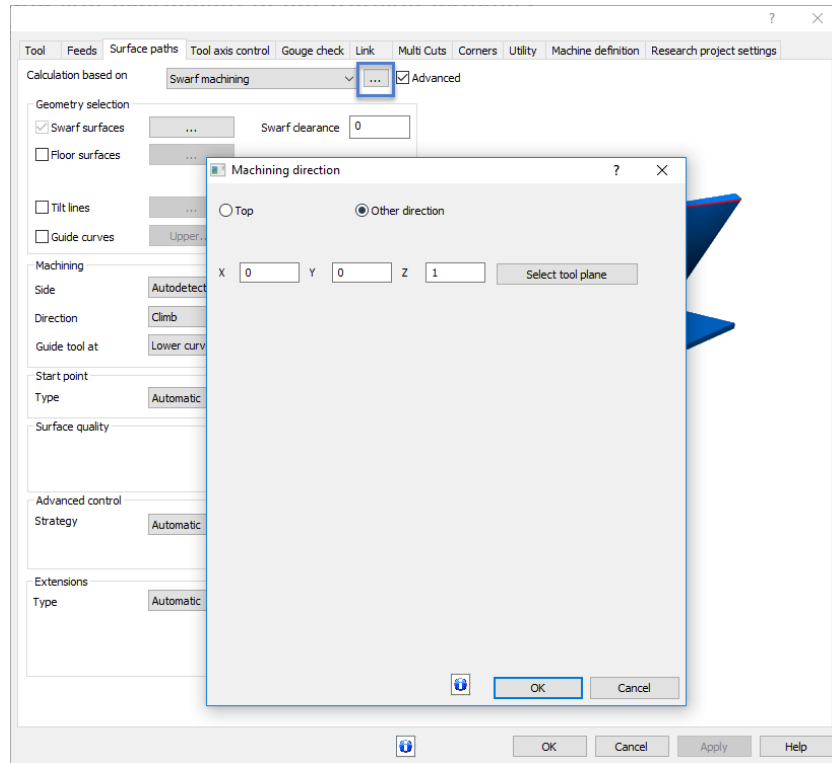


- **Multi Cuts tab for Swarf machining: Spiral cutting for closed contours** (Method: Spiral):

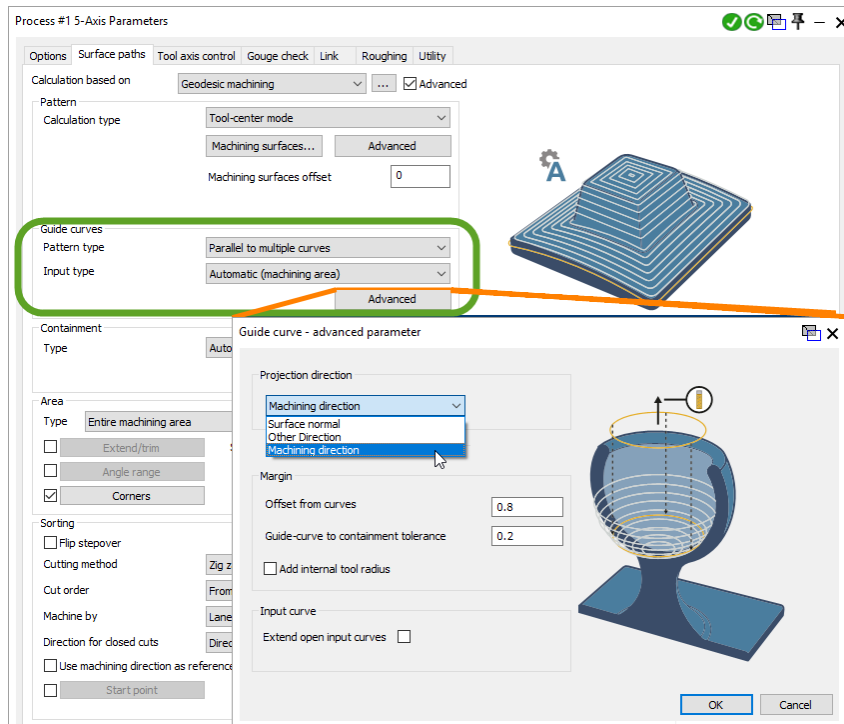


What's New in GibbsCAM 14

- **Surface paths / Swarf machining:** Customize guide curve detection ([...] ☒ Advanced > Machining direction: ☒ Other direction):

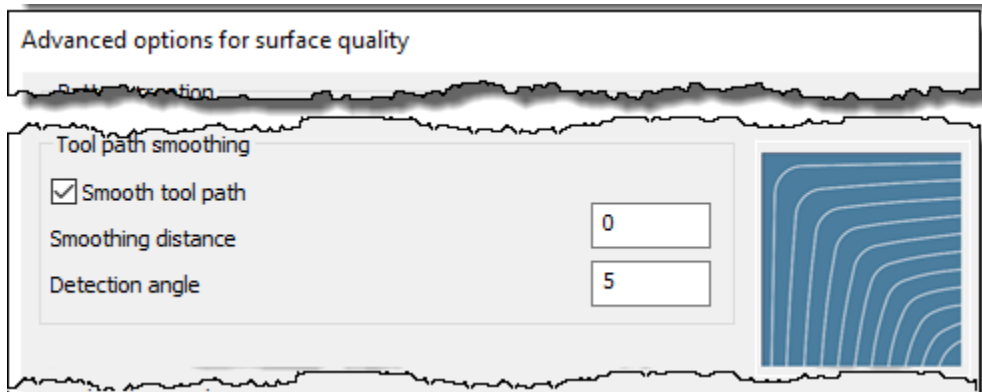


- **Surface paths / Geodesic machining:** Autodetection and advanced options for guide curves:

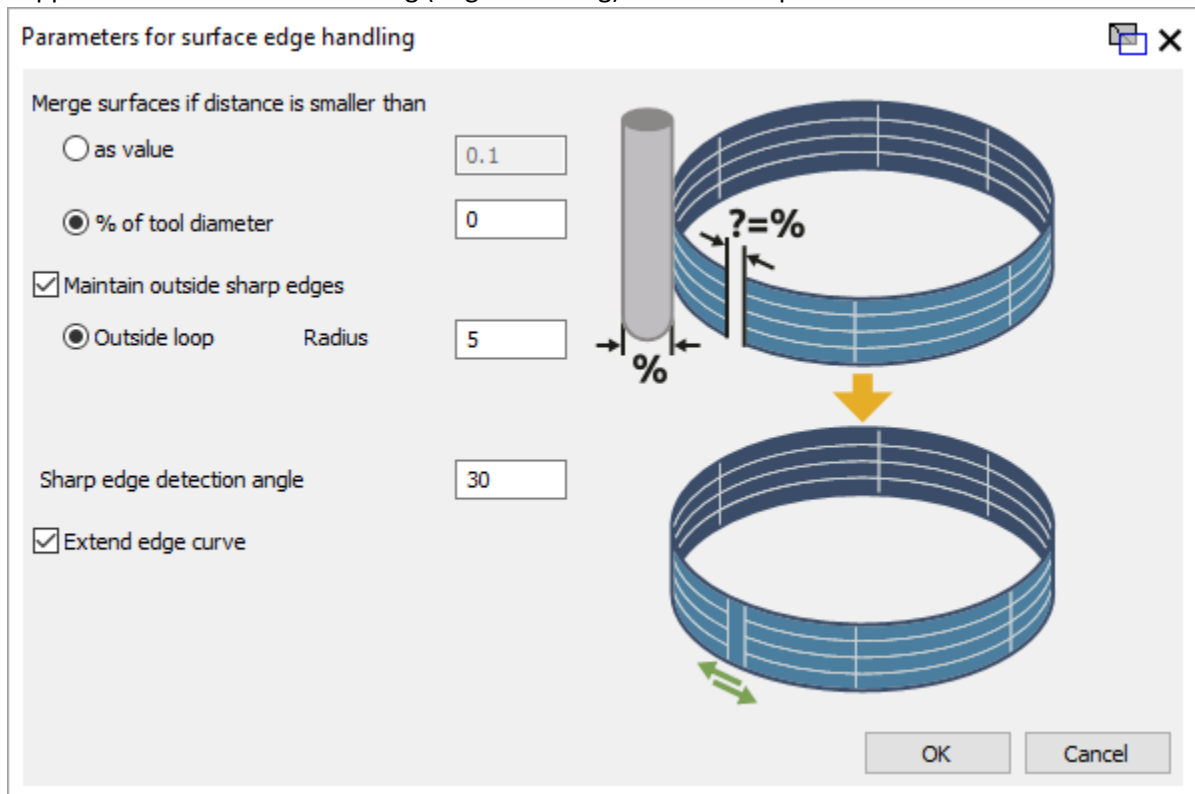


What's New in GibbsCAM 14

- Toolpath smoothing with corner rounding: Sharp corners are replaced by splines.



- Support for automated contouring (edge-trimming) on thin workpieces.



- Enhancements to deburring (lead/lag angles, climb/conventional machining directions).
- New tilting option (**Side tilt by contact point**) and automatic tilting for barrel mills.
- Additional options to round corners in small-radius areas, avoiding fishtail or dovetail toolpath.

... along with many others.