



# What's NEW in VERICUT 9.4.2

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February 20, 2024

Dear VERICUT<sup>®</sup> User:

Thank you for your continued investment in VERICUT, an important part of your NC programming and machining process!

VERICUT 9.4.2 features Tool Manager enhancements, streamlined optimization, new CATIA V5 interface look and feel, and much more. These changes and more will be described in the following pages. Please take a moment to review what's new and improved in this release.

### **Maintenance and Licensing Information**

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VERICUT 9.4.2 runs on 64-bit Windows, and is supported on Windows 10 and 11 computers.

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Sincerely, Ely Wahbeh CGTech VERICUT Product Manager

# **Enhancements and Changes in V9.4.2**

# Verification

Tool Manager was enhanced by introducing capabilities to add limits to cut depth and width limit to inserts tools.

New ability to stop and output error when cutting condition graph max limits is exceeded.

Improved the optimization out by not outputting multiple spindle commands.

Added capabilities to allow Frame type unput argument for Siemens PROC.

Added capabilities to create a report at the end of each setup to match Reviewer file save at end of each setup.

Added ability to renumber tool change pockets to start a higher number in support of multi tool change chains.

Enhanced error reporting of the thread milling tool error.

Improved collision detection of very large complex fixtures and stock as a result improved simulation time.

Added Assembly Manager shortcut to the Project Tree side bar.

Added the ability to show annotated images in Reviewer tool manager for if saved in original vcproject.

Performance enhancements to collision logic was implemented for large turning jobs.

Add notification of no license server. present when opening Tool Manager Stand-alone Multi-tool stat.

Tool Chain tab now has option to adjust the numbering of Tool Chain components.

Support files enhanced to check for leading or trailing spaces in urls.

# **G-Code Processing**

Continued to improve on Siemens 840D processing of FRAME, ARRAY, and STRING type arguments.

Various offset macros have been updated to only affect the current active subsystem when called.

AdjustToolOffset macro has new option to treat spindle center as if it was at zero.

**ToolChangelfDiffMachineSub2** macro added to orient tools by using their Tool ID number.

MaxVirtualOutputFeedrate macro added to limit feedrates to avoid triggering excessive federate warnings.

EndSub macro can now call BlockFinish in limited situations.

An issue with **FadalCondEqualWord** condition not executing as intended has been resolved.

**MacroVarAutoUnitConvOnOff** macro introduced to manage program unit conversion correctly.

Fanuc SETVN feature now includes options to limit name lengths and for user to specify ranges.

HeidCondLblWord supports variables for Heid control files.

Siemens840DGotoSuppress macro added to help managed GOTOC commands.

New **STRCMP** function added.

# **CAD/CAM Interfaces**

CREO

- Added option in CREO interface to put all operations into one VERICUT setup.
- Added option to CREO interface to remove all models in STK/DSN/FIX tab.
- Added support for variables in preferences files.
- Reset button added to VERICUT tab on the menu ribbon.

#### CATV5

• CATIAV5 has been updated with a whole new look and feel to its GUI.

#### CATV6

• CATV6 can now pre-select Stock, Fixture, and Design models.

#### GibbsCAM

• Support added for GibbsCAM 2024

#### NXV

• Added support for NX 2306.

## **X-Caliper**

Axis Intersection options added to X-Caliper.

## **Reports**

Report Per Setup option added to Create Report file selection window and Settings, Auto Save tab.

## Reviewer

C-Sink Depth options added to Reviewer X-Caliper tab.

Added Axis intersection measuring tool to Reviewer X-Caliper.

Continued improving loading and enhancing reviewer processing speed.

Added counter sink measuring tool to Reviewer X-Caliper.

## Robots

Added support for KRL of VARSTATE() function.

Added support for KRL to use vector addition of FRAMES.

KRL functions like VARSTATE can now be processed.

# **Problems Resolved in V9.4.2**

## Verification

Resolved an issue reading models from folder with two bite characters.

Resolved an issue with CYCL DEF 225 not engraving correctly.

Resolved an issue with Stock/Design Distance failing to produce the correct value.

Resolved an issue with wrong display of material removal in profile view.

Resolved a reported problem of reports using tools from wrong setup.

Resolved an issue with 840D frames visibility in dark mode.

Resolved an issue with X-Caliper not measure chamfer face correctly.

Resolved refine display delay when working with additive part.

Resolved issue with word wrap when generating Reports as text.

Reported issues of unexpected termination have been corrected.

Corrected problem with engraving CYCLE DEF 225.

Resolved an issue with detached stock geometry.

Removed redundant message that generated when trying to delete and/or rename cutters or holders in Tool Manager.

Resolved an issue with inconsistent Stock/Design distance display.

Resolved several reports of unexpected software exits.

Resolved an issue with report only using tools from second setup.

Resolved issue measuring chamfer cutstock features.

Resolved an issue file summary not copying the initialization file.

Resolved an issue with NOVO Tool driven points not generating in correct location.

Resolved issue with colors in connectivity in Status window group not working when in an overlay state.

Enhanced display of additive buildup.

Resolved an issue with report from Tool Manager.

Resolved performance issues with blade parts.

Corrected report of fast feed error when using Drill cycles.

Corrected material removal issue during lathe grooving cycle.

Corrected several Off Turning reported errors when tool is part of MTS (Multi tool station) block.

An issue of Tool Manager not opening while Section feature was in use has been resolved.

An issue of head angle affecting generation of warning messages has been corrected.

An issue of Assembly Manager not interfacing correctly with certain mill tools has been resolved.

An issue of thread milling tools generating incorrect error messages when in use has been resolved.

Issues of Fast Feed Rate speed affecting material removal have been corrected.

An issue with thread milling tools accidentally triggering Gouge Check unnecessarily has been corrected.

An issue of Turret Setup not saving properly has been corrected.

An issue of Status window not loading properly has been corrected.

An issue of false collisions generating has been resolved.

An issue of NC Program Review causing performance issues has been resolved.

An issue of incorrect Maximum Gouge errors generating has been correct.

An issue of NC subprograms exiting incorrectly has been resolved.

An issue of certain uncut material attaching to spindle stock has been corrected.

An issue of certain machine models disappearing during NC Program Review has been corrected.

An issue of cut and paste utility sometimes not functioning in Project Tree has been corrected.

Resolved unit issues when importing from TDM.

An issue of interfaces not working with the Commuter Tool has been corrected.

An issue of turning tools not removing material as programmed has been corrected.

An issue of CYCLES affecting material removal in odd ways has been resolved.

# Optimization

An issue of Graphs not generating Force results for Turret setups has been corrected.

Issues of the Optimization Savings Calculator generating incorrect data have been corrected.

An issue of Graphs Force Limits not updating accurately has been corrected.

An issue of Graphs Tool Preview feature not displaying correctly has been resolved.

An issue of Graphics Area not updating to the selected point on Graphs in review mode has been corrected.

An issue of Stock Material Machine References sometimes being uneditable has been corrected.

# **Machine Simulation**

An issue of Driven Points not applying correctly to certain tools has been resolved.

An issue of certain arced motions not displaying correctly has been resolved.

An issue of specific tools causing Mounted Tool Systems to turn off has been corrected.

An issue of certain materials not being removed during lathe groove operations has been corrected.

An issue of Delete Detached Stock feature not updating during simulation has been corrected.

An issue of angled head cutters not rotating in some situations has been corrected.

An issue of machine rewind affecting the type of stock material in the simulation has been resolved.

An issue of playback speed causing false collision reports has been corrected.

An issue of simulation halting when simulating turns has been corrected.

An issue of machine movements not matching material that was removed has been corrected.

# **G-Code Processing**

An issue of blade parts occasionally causing performance issues has been corrected.

Issues of Siemens840D WRITE function not executing properly have been resolved.

An issue of **HeidCondPGM** accidentally generating white space in subheaders has been resolved.

An issue of some G-Code Offsets not being recognized when added to the Offset feature has been corrected.

VMC has been enhanced to better handle 5-axis machining.

# CAD/CAM Interfaces

CATV6

- An issue of CAT6 struggling to create certain tools has been resolved.
- An issue of certain measurements changing based on program language has been corrected.
- An issue of the CATV6 icon disappearing while running has been corrected.

### GibbsCAM

• Fixed a reported GibbsCAM setup issue.

### MasterCAM

- An issue of 3D turning tools not orienting correctly on import has been resolved.
- An issue of profile arcs not translating correctly has been resolved.

### NXV

- An issue of NX interface reverting from metric to imperial units on reopening has been corrected.
- An issue of NXV exporting Dovetail tool incorrectly has been resolved.
- Resolved an issue of transferring incorrect tool orientation in NX.

#### PowerMill

• Resolved issues with Tap tools in PowerMill interface.

#### ProeV

- An issue of inaccurate ToolID output has been corrected.
- An issue of ProeV not exporting certain tools as Creo logic has been corrected.
- An issue with ProeV not creating certain tools as specified has been corrected.
- An issue of ProeV accidentally duplicating tools lists has been resolved.
- An issue of false error messages generating upon launch has been corrected.
- In issue of certain 3D models not being output correctly has been resolved.

### **Tool Manager**

An issue of flute lengths not being able to be references by the Annotate tool has been corrected.

An issue of not being able to enter values for Radial Rake Angle has been corrected.

An issue with Import Tool sometimes not working with Tap tools has been corrected.

An issue of unexpected closure of Tool Manager has been corrected.

An issue of TDM Global Line Interface not connecting properly has been corrected.

An issue of ToolsUnited Interface launch causing unexpected termination has been resolved.

An issue of tap tools not importing to TDM correctly has been corrected.

## X-Caliper

Issues of leading lines disappearing from Notes after modification has been resolved.

An issue of Air Distance generating incorrect measurements has been resolved.

X-Caliper CSYS options added to resolve positioning issues.

## Reports

An issue of Tool Manager Reports failing to generate has been resolved.

An issue of attached Notes not matching the dimensions of the Report has been corrected.

## Probing

An issue of Heidenhain Probing Cycles not making contact with the parts they were supposed to probe has been corrected.

An issue of Import Probe feature sometimes not working as desired has been corrected.

## Reviewer

Reviewer performance issues have been resolved.

Resolved a report exit when Skip Blocks feature was used.

Resolved a reported exit of Reviewer when using X-Caliper to measure tools.

Resolved an issue regarding reading legacy data in Reviewer.

Corrected a problem of not considering project path.

An issue of toolpaths not generating correctly has been corrected.

## Robots

An issue of certain commands failing to modify tools has been resolved.

### VDAF

An issue related to VDAF X-Caliper Stack Thickness generating inaccurate results has been corrected.

# New Macros in V9.4.2

CutterComplgnoreEndGouge CutterComplgnoreEndGouge DoubleTransmitOnOff2 MacroVarAutoUnitConvOnOff MaxVirtualOutputFeedrate OptiXYZPresentCheck Siemens840DGotoSuppress SiemensApplyToolOffsets TapeCacheTowOnOff ToolChangelfDiffMachineSub2 WorkPieceErrorCompensation WTapeEISpecialTowProcessing

# **VERICUT 9.4 Release Highlights**

### Specifying Stock Material

Stock Material can now be set from the Project Tree, Configure Component: Stock panel. All Stock components use the same stock material so it is only necessary to specify the material for one Stock component. The stock material specification is referenced by VERICUT to generate cutting analytics (e.g., Force conditions), by VERICUT Tool Data to recommend appropriate feeds/speeds and limit ranges, during optimization, and by reports that include the identity of Stock Material from which the part is being made.

A **Change Stock Material** icon () is provided in several locations to guide users to the Project Tree Stock location, such as the Stock Configure Model panel, Optimize Control window, and Stock Material records in VERICUT's Tool Manager. In prior VERICUT releases these features were only located on the Optimize Control window.



## **Specifying Machine Name**

The Configure Machine panel has been updated to toggle between the official machine file name and an alias (nickname) you can specify for it.

When the toggle is set to "Machine

Name", the Change Machine icon (<sup>11</sup>) next to this field enables users to edit the name of the machine specified via the Machine Settings window.

Configure Machine		
Machine File 📕	M	
C:\Program Files\CGTech\VERICUT 9.4\library\generic_3ax_vmill.mch		~
3DLive™ Machine Import		
Machine Name 💶 Machine Alias Default	~	6
Machine Origin		
Translate		
Position 🗞 Vertex 🗸 0 0 0 0 in Move		
Reverse X Reverse Y Reverse Z		

#### **Optimize Control window**

This window has been streamlined to make optimization easier. Graphs preferences, Stock Material, and Machine Name information that was described earlier in this section, can be easily accessed for editing via the icons adjacent to the respective display fields. The other major change is the addition of a **Provide Default Tool Data** toggle which enables users to create "**Default Tool Data**" records for all cutters capable of using stock material records

V Optimize Control		x
	Node 🏧 Optimize 🛛 🗸 🗸	
	Optimize SubSystems	
Optimized File		
*_opti.spf		2
٠	Stock Material Alloy-Steel+4142+HRC30	)
	Machine grob_g352t	I
Provide Default Too	I Data Graphs 🧱	
Air Cuts Only Settings		8
Learn Mode Options		3
Output		«
	Override All Feedrates % 100 Apply Settings to All Setups	
ОК	Apply Cancel	

#### **Tool Manager**

Tool Manager Cutting Limits tab and Optimization tab contain several new features for more granular control of tooling and to improve ease of use.

Cutting Limits tab has a Tool Deflection toggle to control deflection during simulation, an Add New Stock Material button to quickly modify the Stock Material Record, and the top panel has been expanded with more information on the tool and materials being used along with an Operation Method to specify whether the simulation should be Rough or Finishing.

Stock Material : A	luminu	m+6061-T6	+HB95			Add New Stock Material				
Machine : *					Ð	Cutter Type	Solid Rou	ind Tool (SF	RT)	
Max Spindle Speed : 2	0000			RPM		Cutter Material	Carbide			
ool/Operation Description : .6	i25 Dia	3 Flute Fla	t Endmill, (	Carbide		Tool Diameter	0.625			in
Operation Method : R	ough			~		Teeth	3			
Cutting Limits										~
				Cutting Limits Sou	rce VER	ICUT Tool Data 👻				
Verify		Mi	n			Mid		Ma	ax	
Spindle Speed	(n)	5134	RPM	8556			RPM	11979	RPM	C Default
Feedrate Per Min	(vf)	58.53	in/min	128.34			in/min	226.4	in/min	🕑 Default
Feedrate Per Rev	(fn)	0.0114	in/rev	0.015			in/rev	0.0189	in/rev	Default
Chip Thickness	(hex)	0.0038	in	0.005			in	0.0063	in	Default
Surface Speed	(VC)	840	ft/min	1400			ft/min	1960	f/min	🕑 Default
Volume Removal Rate	(Q)	0	in³/min	20.1			in³/min	212.3	in³/min	🕑 Default
Tool Deflection	_	0.0013	in	0.0017			in	0.0021	in	🕑 Default
Axial Depth of Cut	(ap)							1.5	in	🕑 Default
Radial Width of Cut	(ae)							0.625	in	🕑 Default
Ramp Angle								0	deg	🗹 Default
					_				_	

The Optimization tab has been given an Optimize toggle to activate optimization quickly and easily without opening the Optimize Control window. There are also options to check for Chip Thickness as well as Default checkboxes for all settings to save the positions they have set for their Optimization Settings.

Cutting Limits Optimizat	on							
Stock Mater	al : Aluminum+6061-T6+HB	195	] 🗖 [	🕂 Add New Stock Material				
Machi	1e : *		6	Cutter Type :	Solid Round	Tool (SRT)		
Max Spindle Spe	ed : 20000	RPM	4	Cutter Material :	Carbide			
Tool/Operation Descripti	on : .625 Dia. 3 Flute Flat End	dmill, Carbide		Tool Diameter :	0.625		in 📕	
Operation Meth	d: Rough			Teeth :	3			
	Optimize Motions in A	ir 🕑 Motions Removin	g Materi	al 🕑 Enable Motion Breakup	Advanced S	ettings	0 in	
Resolution	Auto				in fee in	Condition 11	U IN	
Minimum Feedrate Char	ge 0.1				in/min	Feed/Min V	Default	
Minimum Cut Feedrate	260				in/min	Feed/Min V	Default	
Air Cut Feedrate	500				in/min	Feed/Min +	Default	
All Cul Peedrale	000	100 In/min Feed/Min V Detau						
Feedrate is adjus Tool Deflection,	ed to maintain Targe hichever requires a	et Chip Thicknes lower feedrate.	s, but	reduced where needed	to limit M	iax Force on	tool or Ma	
Optimization Setting	3						$\sim$	
Chip	Thickness 🔿 Ignore 💿 Lin	nit 🔿 Warn 0.005		in		Default		
Volu	ne 💿 Ignore 🔾 Lim	nit 🔾 Warn 1		in²/Min		Default		
Force	🔿 Ignore 🔘 Lin	nit 🔿 Warn 371.5289		lbf		Default		
Pow	r 💿 Ignore 🔵 Lin	nit 🔵 Warn 🛛 0		HP		Default		
Defle	ction 🛛 Ignore 💿 Lin	nit 🔾 Warn 0.001		in		Default		
	Stock Material File C:\Pro	gram Files\CGTech\VE	RICUT 9	.3bash\force_materials\Force_M	laterial_Catalo	g_vs		
Calculator							\$	
Adjust Entry/Exit							\$	

#### **Graphs window and Graphs Preferences**

The Graphs window has been updated with new features enabling users to toggle cutting conditions, change Graphs display preferences, and show "Peak" or "Average" Force Graph measurements for Force conditions. To see average Force condition graphs, the "Record Average Force Condition" Graphs preference must first be turned on to collect averaged data, as described below.



The Graphs Preferences icon

-() provides convenient access to the Preferences window, Graphs tab which contains several settings previously contained on the Optimize Control window. These options enable you to toggle settings for all projects of just the project that is currently open, to automatically save graphs at the end of a playthrough, and to set the Project Units to metric or inches among other options.

V Preferences							×
Start-up	PDF/HTML/Editor	<u> isp</u> lay	Appearance	status Info	Graphs	iii View Cube	💕 User Experience
			For all projects 🗨	For just this project			
✓ View Graphs a	t Process End			Record	Tool Positions		
Save Graphs a	t Process End			🗹 Record	Average Force Condition	ns	
Split by t	ool change						
Project	Units 🔿 Metric 🔿 Inches						
			Save Current	Preferences			
	ок		Ар	ply	C	ancel	

#### Siemens 840D Control Emulator

VERICUT's Siemens 840D control emulator has received enhanced support for Frames, TOFRAME and TOROT handling. The 840D Frames window has been completely redesigned to make debugging Siemens Frames even easier. Frames are displayed in a tree format. \$P\_ACTFRAME is the sum of all Active Frames. Similarly, \$P\_ACTBFRAME is the sum of all \$P\_NCBFRAME's and \$P\_CHBFRAME's. For the Management Frames, \$P\_UIFR, \$P\_NCBFR, and \$P\_CHBFR are tables. All entries that are set will be displayed under their corresponding variable name.



#### **Assembly Manager**

The Assembly Manager window has several new features including File Summary button, Jog button (similar to MDI button in VERICUT), and Preferences button to better utilize Assembly features.



#### CNC Machine Connectivity

CNC Machine Connect's "Precheck" has a redesigned main window which displays more information and enables users to select more features to get data for.

CNC Machine Connect licensed users can now run standalone Precheck application from VERICUT. This enables CNC machinists and operators to perform precheck operations before pressing "Cycle Start" on the first part to be run in a new machine setup.

#### A new CNC Machine Monitoring

module in 9.4 live streams data from CNC machines connected to VERICUT. This connection enables users to monitor current active NC program or subroutine, active NC program line (block), which cutting tool is in use, active tool and work offsets and offset values.

VERICUT CNC Prec	heck 9.4 by CGTech				23
Connection					$\sim$
Part#/Job File	U:\CGTech\CNC Prech	neck\proj640.vcproject	0	2	
System Information					
	System	Information			_
La	bel	Value			
Model		Series 0i-F			 _
Type		Machining center			_
Channels Configuration (ab constant	nindles aves]	1			 _
Configuration [channel,s	pindies,axesj	1,1,XYZ			 _
	<ul> <li>Para</li> <li>Initia</li> <li>Work</li> <li>Tooli</li> <li>NC F</li> <li>Get Data</li> </ul>	meters I Machine Location : Offsets ng Offsets Program For Precheck			
CNC Machine "1:Focas Sim Click "Get Data For Prechecl Comparing NC programs ar	ulator" Selected " to start comparison Id subroutines from CN	IC machine to VERICUT			 
Comparing tooling offsets fr	om CNC machine to VE	RICUT			

#### **Path Variables**

A new Path Variables window has been added to enable users to set CGTech variables quickly and easily from the menu ribbon. This feature is accessed from the Configuration tab.

<u> V</u> Path Variables	x
Name	Value
CGTECH_INSTALL	C:\Program Files\CGTech\VERIC
CGTECH_PRODUCTS	C:\Program Files\CGTech\VERIC
TEMP	C:\Users\kjames\AppData\Local\
Add	Remove

#### **Check for Update**

VERICUT now checks for updates automatically. When an update is available, users are prompted with the option to get the latest update, or read information about the update to help them decided if they want to download it.

Automatic update checks can be toggled off in the Check For Update window. This feature can be accessed any time via the Check For Update button in the Help tab.

	x
VERICUT will check for updates when your computer is connected to the internet.	
Your current version is 9.4	
New update available <u>Get Latest Update</u> For info about the update, <u>click here</u>	
Check at startup	-

### Reviewer

VERICUT 9.4 greatly reduces Reviewer files sizes by up to 50%.

New **Skip Material Blocks** setting limits how many material

removals can be performed before Review data is saved. This setting can further reduce file size while recording of collisions, other error conditions, and tool changes are not affected by the Skip value setting.

In a multi-setup project, users can save one reviewer file for all setups or reviewer file per setup. Users can also Auto Set VERICUT to save a reviewer per-setup under Settings window, Properties tab.







## ToolsUnited

The ToolsUnited Interface enables VERICUT users to directly read in 3D cutting tool assemblies from the ToolsUnited web service. Currently provides access to over 40 tooling vendors. Feeds and speeds for the ToolsUnited tooling can also be read in using the ToolsUnited Interface to ensure you are using the tool the way the manufacturer intended. Use cutting data provided by ToolsUnited suppliers in VERICUT's optimization software to reduce NC program run times and lengthen tool life.



# **Enhancements and Changes in V9.4**

# Verification

Status window has been enhanced with several new Tool group fields including **Tool Diameter**, **Tool Flutes/Teeth, Tool Cutting Distance**, and **Tool Cutting Time**. **Active Stock Material** has been added to the Optimization group. An icon has been added on the **Record Cutting Conditions** banner to provide convenient access to Graphs Preferences.

Additive simulation performance is enhanced especially for large additive builds. Graphical display improvements have been made for additively built parts, especially when rotating additive builds in the viewing area.

New "Transfer to Cut Stock" button on Die Sink feature enables the user to move the die sinking model into the primary cut stock model.

NC Program name has been added to Graphs.

# Optimization

Force optimization can now analyze tools that are part of a Multi Tool Station setup. This also allows Graphs to be generated for Multi Tool Stations.

# **Tool Manager**

Additional cutting data can be recorded and read in to CoroPlus, MachiningCloud, NOVO Tool, TDM, TDM Global Line, and Zoller.

New **Adjust Tool Angular Engagement** replaced the *Adjust Channel Cut* features available in previous releases, to adjust optimized feed rates for cutter engagements that exceed the specified **Start Angle** value.

Driven point can now be changed after being set.

Default Tool Data can now be created for all cutters via the Stock Material Record. This data can then be used to automatically populate Tool Manager fields.

Stock Material Record has been improved with Tool Deflection limit range on the Cutting Limits tab and several changes to the Optimization tab.

## **Tooling Interfaces**

CoroPlus now lets you automate material selection on tool import if you choose.

MachiningCloud and Novo Tool interfaces now support probes.

TDM, TDM Global, and Teamcenter interfaces now include 3D tooling and cutting data on import.

WinTool and Zoller interfaces now read in Minor Diameter data for taps when the tool is present.

## **G-Code Processing**

Significant work has been done to support Siemens TOROT with virtually any machine kinematic configuration.

Siemens840D READ command enhanced to read variables.

New **RpcpCompName** macro allows RPCP attach to stock and other components.

New InStrPos function has been added to support INSTR commands for Heidenhain controls.

TravelLimitErrorReporting macro now supports multi-channel jobs.

AxisVarMapping macro now supports Thermwood controls.

Multiple new conditionals and macros have been added to support Thermwood controls.

ZAxisMotionLimit macro enhanced to work with active rotation planes.

CycleAxis macro now works with V2 axis.

PRM support has been added for Fanuc controls.

### Robots

Probing support for robots has been added.

# **Problems Resolved in V9.4**

# Verification

Issues of unexpected termination have been resolved.

An issue of cutting limit warnings changing between versions has been resolved.

An issue of using multiple cutters resulting in an incorrect error message has been corrected.

An issue of tool spin point generating false collision warnings has been corrected.

An issue of cutter and fixture contact not generating a collision warning has been corrected.

An issue of holders reporting false collisions partway through simulation has been corrected.

An issue of false fast feed rate affecting material removal has been resolved.

An issue of the Assembly Manager window not opening has been resolved.

## **Machine Simulation**

Issues of Cut Stock failing to separate during machining have been corrected.

An issue of slower simulation speed in hole milling has been corrected.

## **Tool Manager**

An issue where removing cutter comp point or tool driven point resulted in the entire tool being deleted has been corrected.

An issue of APT-7 Parameter tool types not working as intended has been resolved.

## **G-Code Processing**

An issue of **HeidCmdIfGreater** macro not working when the values of the first two arguments are equal has been resolved.

An issue of **Heid\_YAxisMotion** failing to generate Y axis motion has been resolved.

An issue of **CurTime** not updating all relevant variables at end of processing has been resolved.

# **New Macros in V9.4**

CheckRollCenterOffset CheckRollerDistOnOff CheckRollerTwistOnOff CheckRollerYDirOnOff CutterCompFeedrateAdjust LaserdyneType2CLS LaserdyneType2DFS ProcessCompNameTesselate **RpcpCompName** SetRobotMaxSumTipDeltaAngles SetRobotShoulder SiemensTOFRAME3 SiemensTOROT3 **TapeBulkFactor** ThermwoodM98Call ToolChainFromCompName2 ToolChainToCompName2 WPReset