What's NEW in VERICUT 9.1.2

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January 22, 2021

Dear VERICUT® User:

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

VERICUT 9.1.2 features streamlined optimization controls, new visibility control features, an enhanced X-Caliper, 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.

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VERICUT 9.1.2 runs on 64 bit Windows, and is supported on Windows 7 and Windows 10 computers. It is not available for 32 bit Windows computers.

VERICUT's license server will continue to run and be supported on 32 bit or 64 bit computers.

Software maintenance keeps you on the cutting edge - CGTech provides update software to customers with current software maintenance. Your continued maintenance ensures that you have the most advanced verification technology available. If your maintenance has expired, please contact your CGTech representative (http://www.cgtech.com/about/contact-us/).

Sincerely,

Gene Granata

CGTech VERICUT Product Manager

Enhancements and Changes in V9.1.2

Verification

Reports now output Cutter/Shank Diameter information.

Turret Setup no longer modifies data in Tool Manager.

Optimization

A dozen new material options have been added to the Force Material Catalog.

Tool Manager

Wave cutter edge type option has been added for Force settings.

Shank option has been added for Mill and Hole Making tools in CAD Tool Import.

Multi-Tool Holders now support several additional tools including "dead" (non-spinning) drills and taps.

Tool units can now be converted easily even for imported tools.

Machine Simulation and G-Code Processing

SiemensTOFRAME2 was implemented to support TOFRAME TR values

SetPreProcessorType macro value added to support Heidenhain Conversation and ISO programming of cycles and probing.

Library control Heidenhain 540 and Heidenhain 640 files modified to reset tool length with tool change.

TurretToolChangeAlpha and **TurretToolChangeByToolNum** macros now work better with Multi tool stations. Additionally, **GageOffsetDrivenPoint** references the sub tool when looking for the Driven Point (if the sub tool was specified with one of the two macros above).

RotaryAngleConversion macro added to better manage axis stroke limits.

OkumaContinuationOnOff macro added to support Okuma continuation characters.

Visibility of spindle direction has been added for milling tools on turrets.

Added support for Mazatrol "Tnn nn" format tool changes, for example: T06 06.

PROC CYCLE832 implemented in Siemens library control.

CAD/CAM Interfaces

New ESPRIT TNG interface available with this release.

VDAF

Enabled ability to use the same point for multiple locations in Fastener Programming.

Line Display has been reintroduced for NC Program Review.

Probing

New "Ignore during Probe or Touch Actions" option added. The following component types are can be excluded from both probing and touching processes: Design, Design Points, Electrode, and "Temp Stock" (carrier of a cut-off stock pieces).

Problems in V9.1.2

Verification

An issue related to surface speed cutting limits not working for drills has been corrected.

An issue where VERICUT failed to remove material and generated inaccurate collisions reports has been corrected.

An issue where material was not removed in the simulation even though the cut color changed has been resolved.

An issue where running a program with two turning tool inserts caused one to display incorrectly and not cut correctly has been resolved.

An issue where VERICUT incorrectly detected collisions caused by an unknown holder has been resolved.

An issue where polishing tools removing too much material failed to generate an error message has been corrected.

Issues of unexpected termination mid simulation have been resolved.

An issue of multi start angle positions not working in certain files has been resolved.

An issue of VERICUT Log File producing incorrect error reports has been resolved.

An issue of In Process files not decrypting properly has been corrected.

An issue of File Summary to Directory failing unexpectedly has been corrected.

An issue where tools wound up superimposed on each other in profile view has been corrected.

An issue where Preview and Review modes did not work correctly for Tool Trace with multiple setups has been corrected.

An issue where loading a project generated incorrect error messages has been resolved.

An issue where Probing produced different results between 9.0 and 9.1 has been corrected.

An issue where STL parts could not load has been resolved.

An issue of PPRINT/VERICUT-MOTION OFF not working has been resolved.

An issue of thread milling not executing correctly has been resolved.

An issue of spindle direction markers disappearing when more than one spindle is active has been resolved.

An issue related to stock disappearing during "Load Stock" section of simulation has been corrected.

An issue where stock translucency reverted from translucent to opaque during simulation has been resolved.

An issue where Save Cut Stock as CAD Model took too long to write has been resolved.

Added logic to detect when low on memory when exporting a model from VERICUT, and abort the export process gracefully.

Bounding Box adjustments no longer affect processing speed.

An issue of Profile views not remaining consistent across separate loads has been corrected.

Optimization

An issue where Air Cuts optimization did not rewrite specified program when prompted has been corrected.

An issue where Force Charts did not update correctly under certain conditions has been resolved.

An issue of OptiPath producing inaccurate time reports and not optimizing for maximum efficiency has been corrected.

Revised Plunge Feedrate adjustment so it works with Entry Feedrate adjustment.

An issue where OptiPath failed to generate output files has been corrected.

Tool Manager

Hole Making tools now include a Chip Thickness cutting limit in the Stock Material Record.

An issue where certain features of Tool Manager were not translating from English into Japanese has been corrected.

An issue where VERICUT experienced unexpected termination when Tool Search was used has been corrected.

An issue of Tool Manager forgetting unit preferences has been corrected.

An issue where tool components didn't correctly mirror across the Z-axis has been corrected.

Machine Simulation and G-Code Processing

Resolved a couple rare instances where cutter compensation was not applied as expected.

Corrected a display issue for Solid-of-Revolution (SOR) model representing Stock.

Touch macro now works on older files.

An issue where Driven Point offset values changed depending on VERICUT version number has been resolved.

Added code to save and read IP files with encrypted controls.

An issue of G71 Rough Turn Cycle experiencing circular motion problems has been corrected.

BlockEndLabel macro adjusted to produce more accurate results when used.

Nesting limit has been increased for Heidenhain REP.

An issue of unexpected termination occurring if a KUKA robot is loaded without linked NC data has been corrected.

An issue where time measurements varied between Cycle Times for similar programs has been corrected.

Resolved a couple rare instances where cutter compensation was not applied as expected.

X-Caliper

An issue related to Axis Vector not aligning with holes correctly has been resolved.

An issue where X-Caliper took measurements from a different model than what was graphically displayed has been corrected.

Issues where VERICUT experienced unexpected termination when using X-Caliper features have been corrected.

AUTO-DIFF

An issue where disabling Design components while enabling visible Design models caused visible models to disappear while zooming has been corrected.

Reviewer

An issue of unexpected tools appearing in the review file has been corrected.

An issue of manual deletion not actually removing parts has been corrected.

An issue of stock model disappearing after part transfer has been corrected.

VDAF

An issue where certain collisions were not detected unless Stop At Line # was active has been corrected.

Merge in Fastener Programming has been enhanced to better work with adding new points.

An issue of VDAF experiencing unexpected termination while sorting points has been corrected.

An issue of program generation errors appearing after Save feature is used has been corrected.

An issue of tool change sequences disappearing unexpectedly has been corrected.

An issue where APT tools did not display in NC Program Review has been resolved.

Reports

An issue where Inspection Report reversed certain values unprompted has been corrected.

Report now correctly displays values for Profile Tool Diameters.

An issue where decimal points where not standardizing in Reports has been corrected.

An issue of Reports generating empty documents has been corrected.

Report table now captures Axial Depth.

New Macros in V9.1.2

Accudyne2CourseDist
AdditiveRemoveFixture
ArraySizeOption
CallNCMacroBlockOkuma
GetCurrentWorkingDirectory
Ijk2AnglesPickSolution180Option
Ijk2AnglesPickSolutionZeroOption
RotaryAngleConversion
SetKinematicVars
SiemensConcatFrame
SiemensShadowAXISCheckOnOff
SiemensTOFRAME2
SiemensTOROT
UnitsProject
WTapeMTKnife1CenterFactor
WTapeMTKnife2CenterFactor
WTapeMTKnife2CenterOffset
VectorTransformRP

VERICUT 9.1.1 Release Notes

Enhancements and Changes in V9.1.1

Verification

AUTO-DIFF has a new refined display option.

NC Review files now have an option to save file at end of the simulation.

Units conversion for Tool and ability to copy/paste Holders having different units have been implemented.

Implemented new commands for creating stock AutoBlock in batch processing.

Added Distance and Cut Distance values to VERICUT log file Tool Summary table.

Various enhancements have been made to Check Syntax.

Waterjet tool now shows the difference between cutting and non-cutting zones.

Multi Tool Station now display collision errors and red colors for subtools that are attached to it.

Preferences have been updated to include Background, View Highlights, and GUI Selection colors. These are all controlled from the Colors window, Assign tab.

Preferences have been added for Stock/Fixture/Design/Machine Components. These are controlled from the Preferences window, Appearances tab.

Support has been added for rendering models composed of open surfaces.

Optimization

Force Data section of Force Charts can now be varied in size.

Learn From NC Program has been expanded to include both Force and OptiPath.

Tool Manager

Units conversion for Tool and ability to copy/paste Holders having different units have been implemented.

Inch and metric tool components can now be assembled in Tool Manager.

Support added for dragging and dropping tool components in Tool List and for converting between inch and metric tools.

Zoller has been enhanced to better handle importing duplicate tools.

MachiningCloud/Novo interfaces have been altered so that change height value matches flute length value for reamer tools.

G-Code Processing

Added support for VERICUT-MATRIX comment and CSYS assigned to NC Programs.

Added the capability to ignore rotary offsets when calculating RPCP and DWO.

Support has been added for Tap drill cycles with VcMultiTools turned on.

New "Filter" abilities added to G-Code Processing and Events Add/Modify windows.

CAD/CAM Interfaces

CATIA
- Support added for Manufacturing cell in 3dx.
- Support added for 3D turning tools assemblies in CATIA V5.

CAMWorks
- CAMWorks interface implemented several fixes and enhancements.

EdgeCAM
- EdgeCAM interface implemented several fixes and enhancements.

ESPRIT
- The ESPRIT interface implemented several fixes and enhancements.

Mastercam
- Support added for 3D turning tool assemblies.

NX
- Support added for latest version.

PowerMill
- PowerMill interface implemented several fixes and enhancements.

Reports

Added ability to manipulate font size in report template.

Added ability to output individual reports for each setup in multi-setup simulation.

VDAF

Added the ability to add and remove fasteners to the Replace Material When Stepping Back feature.

Robot Bases can now be positioned and oriented more easily.

The diameter of non-datum points in VDAF has been increased to be more visible to users.

Reviewer

NC Review files can be saved automatically at end of a VERICUT simulation.

Problems Resolved in V9.1.1

Verification

An issue related to X-Caliper Design to Stock feature not working properly has been corrected.

Incorrect unit display in Model location field has been corrected.

An issue relating to Assemble feature not working correctly when Show Machine Components is toggled on and not working with certain files has been resolved.

An issue related to Align Cylinder not function has been corrected.

An issue related to Syntax Check showing wrong files in NC Program panel has been corrected.

File Summary logic has been corrected to better handle reference files with same names.

An issue related to animation slider position causing material removal errors has been corrected.

The skip duplicate cutter description option is now available only when the Tool Change List By option is set to "Cutter Description".

Material removal rates have been adjusted for grinders.

Issues of incorrect tool change, incorrect tool shank rotation, and unexpected tool display reversal have been resolved.

An issue related to certain components and models not being movable has been corrected.

Project Additive Stock to Part Surface now works with multiple fixture/stock/design components.

Issues of importing errors for setups and DXF have been resolved.

Issues related to error messages generating incorrectly have been corrected.

An issue related to certain projects not loading correctly has been corrected.

Corrections for some rare occurrences resulting in the software becoming non-responsive or closing unexpectedly.

An issue related to tools not being correctly positioned when first added to turrets has been corrected.

Optimization

An issue related to Force Analyze pausing unexpectedly has been resolved.

An issue related to Air Cuts not being able to be turned on after being turned off has been corrected.

An issue related to Force Learn mode affecting chart output negatively has been corrected.

An issue of optimization being output in different units than specified has been corrected.

An issue where Force did not always output necessary data has been resolved.

An issue where optimization units displayed incorrectly in mouseover text has been resolved.

An issue where Force Optimize power limits were not set appropriately has been resolved.

Stop at "End of each File" feature no longer switches off optimization.

Tool Manager

An issue related to Include Current Library button in Tool Search not working has been corrected.

An issue related to Grinder profiles not generating correctly has been corrected.

An issue related to circle centers not displaying after moving the holder has been corrected.

An issue related to incorrect flute lengths displaying has been corrected.

An issue where DXF Import profiles were displaying measurements in the wrong unit system has been corrected.

An issue of Tool Manager not correctly adding tools to library has been resolved.

Tool Manager no longer experiences unexpected termination when new holder positions are set, when multiple tools are added or deleted, when using X-Caliper, or when creating PDF reports.

Machine Simulation

An issue related to machines not displaying accurately during simulation has been corrected.

G-Code Processing

An issue related to **MSWriteToFile** causing unexpected terminated has been corrected.

An issue related to Driven Point Zero jumping to unexpected placed has been corrected.

ToolChangeByList no longer fails to generate descriptions that include dash marks (-).

An issue of **CutterCompConnectyonType** not working correctly has been resolved.

X-Caliper

An issue related to X-Caliper measuring diameter incorrectly has been corrected.

An issue related to Model Thickness not functioning as intended has been corrected.

CAD/CAM Interfaces

CATIA
- CATV5 no longer experiences unexpected termination when command buttons are clicked more than once in a row.
- An issue related to CATV6_3dx files not being read has been corrected.

Edgecam
- Help has been expanded to cover applying VERICUT icon to Edgecam interface.

Reports

An issue related to Total Time not displaying properly in certain situations has been corrected.

An issue related to Text reports losing proper alignment has been corrected.

PDF reports no longer generate incorrect page numbers.

Reviewer

An issue related to spinning stock not running properly has been corrected.

New Macros in V9.1.1

CutterCompFlagShortMotion
CycleDrillingAxisLogic
EndIfBlockIgnore
GetComponentAcceleration
GetComonentDeceleration
GetComonentMaxFeed
GetComponentMaxVelocityDirChange
RotaryDirLocalMachine
SetComponentMaxVelocityDirChange

VERICUT 9.1 Release Highlights

Optimize Control

The Optimize Control window has been streamlined to fit in a single window with no tabs. Relevant features will become active in subsections depending on which Mode is selected. A new Force Learn Mode has also been introduced, providing a form of Artificial Intelligence (AI) to VERICUT optimization.

A new Optimize SubSystems option has been introduced enabling users to control which subsystems (or channels) are optimized for multi-channel and multi-tasking CNC machines.

New Visibility Controls

Visibility controls have been added to the Project Tree and view Right-Mouse-Button convenience menus, enabling users to toggle between visible and invisible states, or enable and disable 3D objects at will. The new Invisible/Visible and Enable/Disable states, plus "Apply to Sub-Components" options make it possible to hide or remove entire machine enclosures, interior sheetmetal, or other viewing obstructions with a mouse-click.
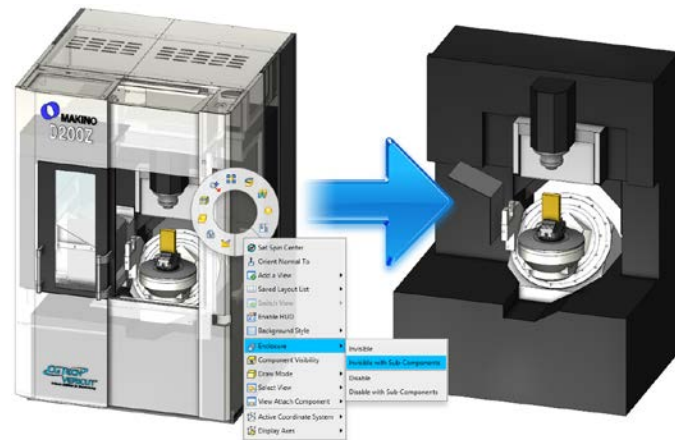
Visibility features in AUTO-DIFF

New features have been added to
AUTO-DIFF giving users a higher
degree of control over component
visibility.
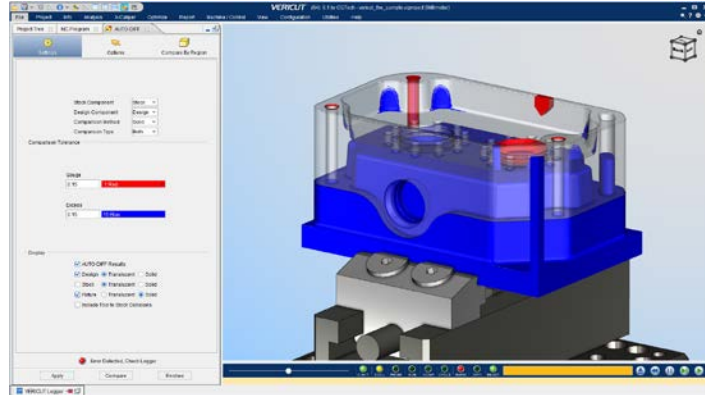
X-Caliper Annotated Images

Setup Plan has been renamed to
Annotated Images. VERICUT
Inspection is also now included with
Annotated Images. Both Setup Plan
and Inspection functionality is greatly
enhanced to quickly and easily create
descriptive 3D images for both Setup
Plan and Inspection reports.
Annotation planes can be used to
create the 3D equivalent of 2D views
for Setup Plan and Inspection that
include dimensions and notes.
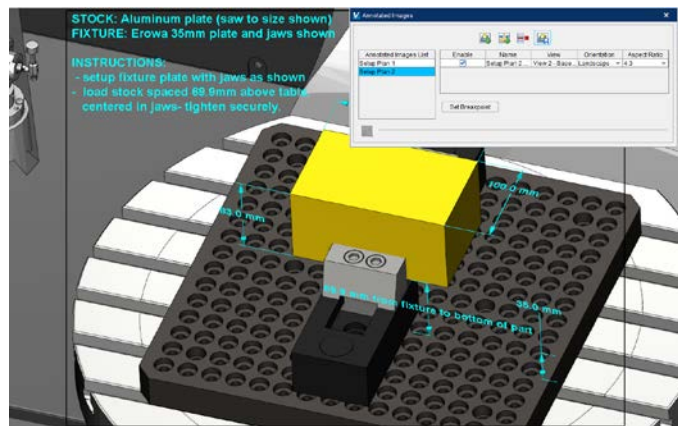
Annotation planes have been
introduced to define a plane to orient
a dimension text to. By setting a
plane, all text will orient relative to
that plane.
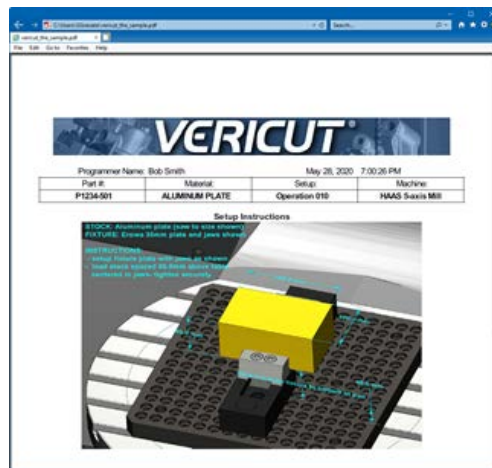
Inspection

The Inspection feature has been updated to have a cleaner look, multiple inspection images, stored view layouts with inspection measurements, and be easily referenced in VERICUT's Reports. GD&T information, including datums and feature control frames, can be added to Inspection measurements, to include Product Manufacturing Information (PMI) directly on VERICUT cut parts.
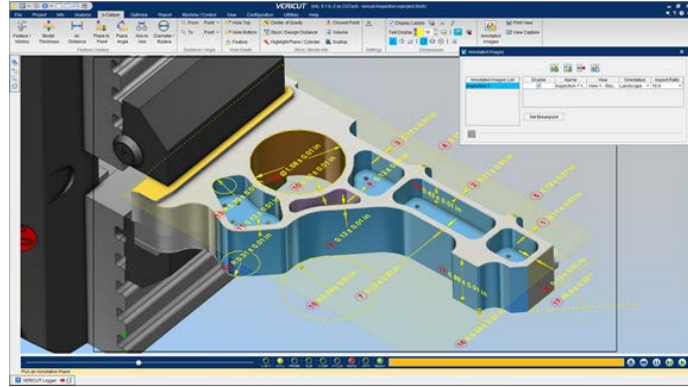
Force Charts

New Save All As Optimization Settings option added to the right mouse menu when clicking on Force Chart. New ability to Learn From Results enables optimization settings for a tool or all tools that were analyzed. The sorted view makes that task even by showing forces higher than raised areas or spikes on the right side of the graph. For safety and to keep the tool cutting more evenly, we would typically avoid using those values (red highlight in following picture) for optimization settings, and instead opt for a value somewhere in the portion of the chart before the extreme rise in the curve (green highlight) such as where the follower is positioned.
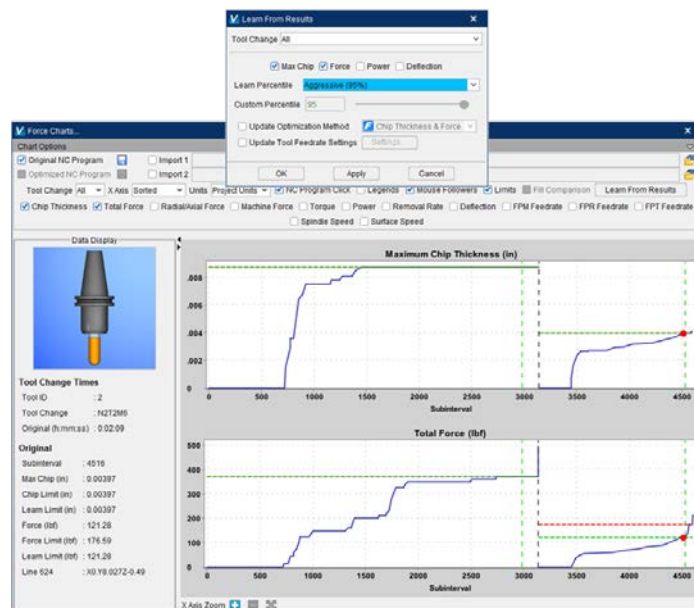
Additive Manufacturing

VERICUT 9.1 has a new "Additive" Default Machining Type. This enables VERICUT to predict system resources that will be needed to additively build the as-designed part, including any starting stock build plate or model.

VERICUT can build multiple parts created by a "nested" build NC program, enabling additively built parts to be independently relocated or assembled for finish machining, or exported. Great enhancement for Large Scale AM (LSAM) and Big Area AM (BAAM) CNC machines.

Enhancements and Changes in V9.1

Verification

New Spindle Direction axes (View Axes window): +/- arrow size and different colors CW/CCW directions.

New command line options to define Stock blocks from Design extent, such as for batch processing.

The Russian translation of VERICUT has been updated.

$P_SETFR added to library control.

New Spindle Direction axes (View Axes window): +/- arrow size and different colors CW/CCW directions.

Optimization

Optimize Hole Making: linear-G01 motions, such as deep hole drilling- slow down ahead of breakouts/re-entries.

Optimization Savings Calculator now incorporates features from Tool use graphs.

Tool Manager

Added units display in all number fields.

Enhancements for Dynamic Tool tip processing

Support for TAP tools been added to Multi Tool Station configuration.

Implemented mechanism to display tool ID as a part of title label of 'Opti Prompt' dialog.

Support has been added for taps and non-spinning ("dead") drills.

Spindle direction checking has been added for sub tool in MTS.

Tools have been separated from MTS for cut colors, error report, and reports.

Machine Simulation

A new TRAORI subroutine was created to support 3 bits for $MC_ROT_AX_SWL_CHECK_MODE system variable

A new condition has been added to the **AfterMotion** macro.

Enhanced support of concatenate operator.

G-Code Processing

Added **ArraySizeOption** macro to allow array variable defined in the MCD file to be created 1 larger than normal.

Siemens FRAMES window now displays all frames and TRANS ROT now uses direct variables.

CAD/CAM Interfaces

Added support for PowerMill 2020/2021.

Adds support for Mastercam 2021.

Added support for CATIA v6 2021.

Added support for CREO-7.

Enhancements have been made to the following interfaces:
- Gibbscam
- MachiningCloud Interface
- Mastercam
- NX
- TDM Interface
- Zoller Interface

ESV

Machine Start Position ZXY values from Esprit 'Machine Setup' dialog will only be considered in 'Mill-Turn' or 'Turning' machine, not in 'Milling' machine.

Robots

Added support for CONTINUE motion statements in KRL.

VDAF

Programming and Simulation support of PMM KAI Laser machine has been added to VDAF.

Probing

Heidenhain probe routines has been enhanced to either drive probe center or tip.

A new probing subroutine has been introduced to reduce collisions.

Problems Resolved in V9.1

Verification

Corrected an issue related to graph cutting conditions producing incorrect width and surface speed information.

Corrected an issue related to creating CSYS on cut stock.

An issue related to playback simulation causing unexpected termination has been fixed.

An issue related to Turret Setup rotating tools more than the specified amount has been corrected.

An issue related to multiple active APT programs causing unexpected termination has been corrected.

Fixed an issue saving Machine files with Turret components using non-English language translations.

An issue related to Assign Cylinder not working on certain model types has been corrected.

An issue related to Batch Wizard not reading files prior to 9.0 has been corrected.

An issue related to VERICUT experiencing unexpected termination when trying to save IP files has been corrected.

Fixed near miss error messages for probe stem near miss event with a fixture.

Corrected an issue with Tool Change By List settings not being retained across saves.

Corrected an issue where Ribbon config button would not work.

Corrected an issue with cut stock resolution becoming fuzzier in NC Program Review Mode.

Fixed issue with the batch commands EXPORT and STL_OUTPUT.

An issue related to cutting resolution adjustments causing unexpected termination has been corrected.

Standalone Cad2V.bat now uses CGTECH_DEFAULT_UNITS if defined. If not defined, the default units used for conversion is inch.

An issue related to false reports of collisions generating has been corrected.

An issue related to $P_FRAME not working correctly with translation has been corrected.

An issue related to unexpected termination as a result of insufficient processing memory has been corrected.

Optimization

Added check for spinning stock which displays as a warning message in Logger.

Fixed issue with optimization material entry feedrate adjustment when in CSS+FPR mode.

An issue related to Force optimization causing unexpected termination has been corrected.

An issue related to Force not being able to build tool representations in certain instances has been corrected.

An issue related to optimized results exceeding set Volume Removal Limit has been corrected.

Tool Manager

An issue related to DEL key canceling editing instead of deleting characters in Tool Manager has been corrected.

An issue related to Tool Manager numbers rounding incorrectly has been corrected.

An issue related to Multi Tool Station setup causing unexpected termination has been corrected.

An issue related to Turret Setup modifying tools in the wrong direction has been corrected.

G-Code Processing

An issue related to G-Code configuration producing cycling issues has been corrected.

SetDynamicVars **CurToolAlpha** variable now waits until tools are fully loaded before activating.

An issue related to components rotating incorrectly has been corrected.

Machine Simulation

Corrected an issue related to Siemens 840D string concatenation not responding as expected to machine control.

ArrayIndexOutOfBoundsException for Tool Graphs no longer references tool colors not defined in the Color Defined list.

Multiple issues relating to **CoupleComp** macro not working properly have been corrected.

An issue related to **GangToolChange** macro not working correctly has been resolved.

An issue related to **SiemensCTRANSOption** not working correctly has been resolved.

VMC

Fixed a false collision problem with the 5POD machine.

VDAF

An issue related to New Machine option on VDAF generating projects without component bases has been corrected.

Reviewer

An issue related to Reviewer experiencing unexpected termination has been corrected.

An issue related to Reviewer file not saving correctly has been resolved.

Probing

An issue related to probes being offset incorrectly has been resolved.

New Macros in V9.1

CloseBlock
Ijk2Angles
Ijk2AnglesPartZeroAdjust
OpenBlock
OpenCloseBlockCheckOnOff
RotationPlaneInc2D
SetComponentVisibilityState
SetComponentDisableEnable
SetCsysVsibilityState
Siemens_P_EXTFRAME
Siemens_P_TRAFRAME
VectorTransform