

# What's NEW in VERICUT Composites Programming 8.1.3.5

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November 15, 2019

Dear VERICUT® User:

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

The VERICUT Composites Programming 8.1.3.5's NC program simulation, verification, and optimization technology is packed with new features making it more powerful and easier to use. This letter describes important changes in VERICUT Composites Programming 8.1.3.5. Take a moment to review what's new and improved in this release.

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Sincerely,

Andre Colvin

CGTech VERICUT Composite Product Manager

# V8.1.3.5 Release Notes

November 15, 2019

## **New Features in V8.1.3.5**

- Enhancements to curve transformation card, the card now uses an entity table to select curves.
- Ability to shorten entity names to the truncated display names.
- New license card, users can now manually release checked out licenses back to the license server.
- ATL enhancement, ability to decide initial shape selection when generating courses.

## **Changes in V8.1.3.5**

- Changes to ATL rendering logic.
- Ply boundaries in laser inspection output are now ordered alphabetically.

## **Bug Fixes in V8.1.3.5**

- Fixed issues related to tow rendering when using ‘render courses darker’.
- Fixes to Fibersim interface related to importing parent laminates.
- Fix to issues related VCP’s screen occasionally going blank when using batch actions.
- Fix to newly created geometry not populating the layup coverage table.
- Fix some settings not appearing in the custom settings table.
- Fixes to calculating tow elevations with segmented rollers.

# V8.1.3.4 Release Notes

October 10, 2019

## **New Features in V8.1.3.4**

- Ability to export custom settings views.
- Added ability to determine initial shape for ATL course generation.

## **Changes in V8.1.3.4**

- Changes to Overfill/ underfill display; All fields are now permanently visible.
- Batch action to update material thickness now stops if no thickness model is present.
- All boundary selections now saved when merging ply files.
- Checkbox for overfill underfill card now apart of settings system.

## **Bug Fixes in V8.1.3.4**

- Fixes to reading in CPD files with intermediate surfaces.
- Fixes to CPD file not selecting multiple boundaries in a single ply.
- Changes to the VCP bat file to fix posting issues caused by different OS languages.
- Fixes to overfill underfill card not properly filling boundaries.
- Fixes to overfill underfill card not adding tows under certain conditions.
- Fixes to VCP locking up and crashing when loading certain laminates.
- Fixes to probe subroutine list not properly updating with legacy .VcPost's.
- Fixes to inconsistent results when adding tows using overfill underfill card.

# V8.1.3.3 Release Notes

September 4, 2019

## **New Features in V8.1.3.3**

- NX 12 files are now supported.
- Fibersim laminate imports additional data.
- Added the ability to set distinct colors for three phases of linking motion: traverse, plunge, and retract.
- Tow centerline, edge, add, and cut data has been added to ATL laser inspection output.
- Added environment variable to batch export thickness files when posting.
- Visualization of curve selections on the Ply card has been improved.

## **Changes in V8.1.3.3**

- “Render thicker material darker” button now has selected and deselected display modes.
- “Toggle display thickness” button now has selected and deselected display modes.
- “Toggle between shaded and wireframe surfaces” button now has selected and deselected display modes.
- Restored the functionality to right-click a boundary curve in the graphics window to highlight the curve selection in the Ply card’ curve table.

## **Bug Fixes in V8.1.3.3**

- Fixed importing with certain malformed data in a Fibersim laminate template.
- Removed duplicate data in certain configurations of laser XML output.
- Fixed specific situations where VCP refused to save a ply file.
- Added a missing checkbox to the Excel sheet for trimming converging courses.

# V8.1.3.2 Release Notes

July 23, 2019

## New Features in V8.1.3.2

- Added coordinate system nodes in the laminate tree, which can be created, edited, and hidden directly from the tree.
- Added a way to remove a tow of any length.
- Added a button and batch action to center a picked head path or all unlinked head paths.
- Added a new batch action to refresh all links.
- Added ability to visualize selected course before adding a tow.

## Changes in V8.1.3.2

- Added error log messages when importing CPD files to indicate what's wrong with the file.
- Overfilling a course is now performed in a separate thread.

## Bug Fixes in V8.1.3.2

- Fixed a crash when overfilling with a one tow course and saving the ply file.
- Fixed a bug where wide tape was not being accounted for in thickness models.
- Fixed a bug where nodes with invalid thickness were not rendered in red.
- Fixed CPD template import failing due to missing entities in the CAD file.
- Fixed CPD template import issues related to spaces in entity names.
- Fixed Excel template issues where extra nodes were being rendered in the laminate tree.
- Fixed camera jumping issues.
- Fixed a bug where VCP would sometimes hang when moving head paths on particular surfaces.
- Fixed an issue where attempting to rename a sequence node with a period in the name was failing.
- Fixed a bug where giving a batch action a really long file name would break the layout of the GUI until restarting VCP.
- Fixed a bug where overfill automation parameters were not properly imported from the Excel template.
- Fixed a bug where tow numbering was not properly imported from the Excel template.

# V8.1.3.1 Release Notes

June 7, 2019

## **New Features in V8.1.3.1**

- Added a way to create custom views in the Settings View.
- Added tow edges, adds, and cuts for wide tape laser inspection.

# V8.1.3 Release Notes

May 17, 2019

## New Features in V8.1.3

- Completely revamped the settings system to assist in the management of settings throughout the entire laminate.
- Added multithreading support for course generation and path offsetting algorithms. This can result in up to ~35% faster processing times for specific algorithms.
- Added an intermediate thickness setting to effectively reset the thickness model when laying on an intermediate surface.
- Sequence folders to be imported via the Import Sequences feature can now be sorted in ascending or descending order.
- Added “Determine staggered start point” batch action.

## Changes in V8.1.3

- CPD and Fibersim Laminate templates can now be read into an existing laminate.
- Some course-to-course trimming logic has been changed for certain scenarios which lead to minimum length tows not being extended according to the minimum tow extension setting.
- Enhanced the method users can use to select points by adding a right-click menu to point selection.

## Bug Fixes in V8.1.3

- Fixed an issue with the display of gap and overlap stack-up models, which appeared to be rendered in wireframe.
- Fixed an issue where the Course Spread setting was no available when using wide tape.
- Fixed an issue where CPD and Fibersim input files were not read in correctly.
- Fixed an issue that would inconsistently generate reference curves that were too short.

# V8.1.2 Release Notes

**November 16, 2018**

VERICUT Composites Programming VERSION 8.1.2 is not available for 32 bit Windows computers. It will only run on 64 bit Windows, and is supported on Windows 7 and Windows 10 computers.

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

## **New Features**

- New parameters to control AFP course-to-course gap have been added. Previously these parameters were only available for wide tape configurations.
- A batch action to export rule checks reports has been added.

## **Changes**

- Internal changes to VCP have allowed for massive performance increases over VCP Revision 1.
- Geometric entities in VCP now use unique identities internally.
- The option to automatically save laminate stack-up models is now always displayed, instead of after reading any models.



## Bug Fixes

- VCP now properly generate supplementary files when both “NeedInspectionXML” was defined in a post-processor and the auxiliary file checkbox was selected on the Post card.
- Thickness validity was not properly transferred over though the File Summary feature.
- VCP still displayed GUI elements for Laser Inspection in the ribbon without a license.
- Curved shelf entries and exits were not being rendered correctly.
- Slight mouse movements while clicking on the recent laminates list would not open the laminate project as expected.
- A specific set of steps was causing unexpected behavior when renaming a ply node.
- The Python post-processing system was incorrectly converting points and normals to the post-processor references frame when using certain API calls.
- Closing </Packet> tag was missing when attempting to write laser inspection files for wide tape.

# V8.1.1.2 Release Notes

## New Features in V8.1.1.2

- The Excel template has been updated to include fields in the Roller card's Segmented Roller section.
- A new preference has been added to toggle the automatic navigation to a process's card after creating a new process.
- New batch actions have been added for the Divide card's functionality.
- A new batch action has been added for the Ply Trial's functionality.

## Changes in V8.1.1.2

- The Rule Checks card has been revamped to include minimum and maximum values directly on the card, a redesigned layout, customizable heat map colors, the ability to display heat maps with no deviations, and the ability to clear pins in the view.
- When merging plies, into the active ply, the merged plies are now automatically disabled.
- The active node in the Laminate Tree is not highlighted in green when selected at the same time.
- File browser dialogs now maintain position on top of all windows until closed.
- VCP now displays a logger message when a file referenced in the recent files list could not be found.
- VCP now displays specific logger messages when licenses are missing instead of a generic one.
- The Import Boundaries section in the File tab is now appropriately disabled if no surface is loaded.

## Bug Fixes in V8.1.1.2

- Courses utilizing the barrel option were not generating past the initial course.
- Importing CAD boundaries was not working as expected.
- Under certain conditions, the post-processing system was not outputting restart blocks.
- Having the mouse cursor over a table produced undesirable scrolling behavior.
- Copying the active process was invalidating thickness models for subsequent processes.

# V8.1.1.1 Release Notes

## Enhancements in V8.1.1.1

- Active color now displayed on laminate level node.

## Changes in V8.1.1.1

- More descriptive messages when VCP is unable to create folders.

## Problems Resolved in V8.1.1.1

- Bug fix when rendering contour process option pins.
- Bug fix for updating existing option pins for ply processes.
- Bug fixes to ATL match tape functions.
- Bug fix to recent files list for missing laminates.

# V8.1.1 Release Notes

**May 17, 2018**

VERICUT Composites Programming VERSION 8.1.1 is not available for 32 bit Windows computers. It will only run on 64 bit Windows, and is supported on Windows 7 and Windows 10 computers.

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

## Enhancements in V8.1.1

- Users can now save VCP settings to “settings profiles” and use those profiles to initialize settings when creating a new laminate.
- A new batch action, Export FEA, has been added to batch export selected layers to a FEA node file.
- Users can now chain batch actions together, allowing for a completely customizable batch workflow. These chained batch actions are stored in the preferences and can also be imported and exported.
- New ribbon functionality has been added to make a copy of the active process.

## Changes in V8.1.1

- Major improvements have been made to fix oscillations in head paths near boundaries with large material buildups (shelves).
- The Laminate Tree's right click capabilities have been expanded for multiple-selection. In particular, users can now merge, enable, or disable multiple nodes at once.
- VCP settings can now be transferred from a process node to the laminate node.
- Batch Manager's layout has been changed.

## **Problems Resolved in V8.1.1**

- Giving a python post-processor an invalid default value for a GUI setting would cause undesired behavior in VCP's GUI.
- Contour paths were not rendering option pins on the correct side of the contour's normal.
- Importing certain Fibersim boundaries or laminate template was causing VCP to hang.
- Right clicking in the Laminate Tree would sometimes show a null pointer exception in the logger.

# V8.1.03 Release Notes

## Enhancements

- Users can now read in an Excel laminate template into existing laminates.
- A new batch action, Export Geometry – STEP, has been added for exporting gap, overlap, tow surface, and tow centerline geometry for the STEP format.
- VCP now has an optional preference to ask before updating thickness models.
- An optional checkbox to enable model healing has been added to the New Laminate and Import Surface dialogs.

## Changes

- VCP's reseat logic has been improved to reduce oscillations of the resulting resealed head paths.
- When loading a VcPly file, VCP now displays the entire course at once instead of one at a time. This greatly decreases loading times.
- When creating a new laminate, VCP uses the project location field's text as the working directory (unless one is defined on the Preferences card).
- VCP no longer deselects the highlighted contour when refreshing contour links.
- VCP now prefers the numerical portion of file names when attempting to sort imported sequences and process files.
- The FEA card now outputs ply angle in addition to fiber direction.

## Problems Resolved

- A change in the prior update for deleting multiple nodes in the tree made VCP unable to delete a single selection.
- The Excel template was not properly utilizing the default column for text settings.
- Displayed gaps and overlaps remained in the view when switching between processes.
- File browser dialogs on some cards were not using the existing path as the target path.
- When exporting geometry to the current surface and declining to save, the geometry remained in the GUI until the surface was reloaded.
- VCP froze when attempting to read in certain CATIA CPD XML formats.

# V8.1.02 Release Notes

## Enhancements

- VCP now has a “boundary crossing distance tolerance” field. The value here is a tolerance used to determine whether or not a path crosses a boundary. With care, it can be increased to prevent leaky tows.

## Changes

- If a working directory is not defined on the Preferences card, VCP will default to the current laminate project’s directory.
- Improvements were made to the Flightware card’s logic for computing course to course gaps.
- The Laminate Tree now supports deleting of multiple nodes.
- The Laminate Tree now supports multiple selections in all modes, instead of just during the unlocked state and in Batch mode.
- The Laminate Tree now maintains the collapsed and expanded states of child nodes when moving a node around.
- Closing a save dialog with the “x” button now assumes that the user meant “cancel” instead of “no”.
- The “good” offset algorithm on the Layup card has been renamed to “express”.

## Problems Resolved

- Leaving Batch mode with the Laminate Tree unlocked would reset multiple selection capability.
- The Axis Design card was allowing for multiple selections of “mouse pick” options causing unexpected behavior.
- Specific geometries of partial width courses would cause incorrect cut output for wide tape post-processing.
- Partial width wide tape courses would sometimes be rendered on the wrong side of the surface.
- Stagger card’s functionality was not being invoked if settings were specified in the Excel template.

# V8.1.01 Release Notes

## Enhancements

- VCP now has a Preferences card, with the ability to set the working directory for file selection dialog windows.
- Python post-processing API now has the ability to make direct queries to head paths.
- Python post-processing API now has the ability to query thickness points near a provided point.
- Python post-processing API now has access to environment variables.

## Changes

- VCP used to save laminate analysis models (gaps and overlaps) on every process node save. This is no longer the case; generating the models is now performed solely from the Laminate Analysis tool.
- When moving nodes in the Laminate Tree, nodes now keep their expanded or collapsed state.
- Reseat functionality has been modified to prevent large oscillations in resulting head paths.



## Problems Resolved

- Form surfaces were not being read in properly (e.g. leading whitespace), causing them to be deselected when the ply file is read back in.
- Exporting from the Rule Checks card was not working as expected.
- When importing a CAD boundary, the imported curves were not visible until reloading the surface or laminate.
- When activating a process node while one was already active, VCP would not save the surface file as expected.
- File selection dialog windows did not have the VCP icon.
- VCP was not setting the post-processor field to blank when a laminate was closed.
- Incorrect surface name was displayed in the logger when creating a new laminate.
- Debugging a point from the post card's G-Code editor would not update the ribbon selection as expected.
- In certain situations, post-settings were not being initialized to the proper units.
- Off part motion in python post processors not being output as expected.
- VCP would sometimes have issues saving ply nodes during batch processing.
- VCP would incorrectly change a ply node's thickness model state when deactivating a ply that had been set with the "Set Valid Thickness" batch action.

# V8.1 Release Notes

**March 9, 2018**

VERICUT Composites Programming VERSION 8.1 is not available for 32 bit Windows computers. It will only run on 64 bit Windows, and is supported on Windows 7 and Windows 10 computers.

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

# New Features in V8.1

## Laminate Manager

Laminate Manager, the focal point of the VERICUT Composite Programming (VCP) 2018 reinvents users' workflow for constructing composite parts in VCP. Primarily, this feature organizes the various files involved in building a laminate from design to production by streamlining the flow of data from various software packages. With the laminate manager users can now directly import laminate tree structures from Catia's Composite Workbench, Fibersim, and Excel into VCP.

## Laminate Analysis

With new analysis tools users can inspect and visualize defects, such as gaps and overlaps, through the thickness of the laminate. These tools allow engineers to review the compliance of composite manufacturing specifications such as course to course stagger directly inside of VCP.

## Redesigned GUI

VCP 2018 adopts a modern and easy to use and ribbon interface that is consistent with all CGTech products. The new look and feel ensures that users will intuitively navigate from one feature to the next. Menu layouts have been rethought and simplified to streamline the user-experience and improve ease-of-use.

## Enhanced Material Projection

VERICUT Composite Simulation (VCS) and VCP have both had improvements to material projection and display, resulting in a more accurate representation of material placement.

## Batch Processing

The vastly improved file management system allows for a simple and versatile batch processing tool. Through predefined and customizable strategies, users can choose how far to automate their composites programming – anywhere from generating a single ply to exporting part programs for the entire laminate.

## New Contour Programming

The new Contour Programming feature of VCP allows users to control motion platforms directly with pre-defined contours. This feature was designed for ultrasonic knife, printing, and stitching processes but can be applied to a wide variety of other processes. CAD definitions are easily imported from specific formats like CATPart, prt, and sldprt as well as STEP.

## **Redesigned Collision Avoidance Algorithm**

A redesigned and vastly improved collision avoidance algorithm in VCP detects and avoids collisions by automatically correcting end effector orientations. These adjustments can be visualized on a course to course basis or applied to the entire laminate during the creation of NC programs.

## **For existing programs**

The logic for thickness models has been updated to allow for a user-defined point spacing. In VCP 8.1, the thickness model definition is now separate from the underlying CAD model to make switching between layers faster. For existing VCP files it is highly recommended that users re-generate their material as the new thickness models will impact path generation.

## Enhancements in VCP 8.1

- Implemented Export Strategies, a flexible way to define the output structure of export files necessary for production (such as GCode or laser inspection).
- The logic for thickness models has been updated to allow for user-defined point spacing. In VCP 8.1, the thickness model definition is now separate from the underlying CAD model to make switching between layers faster.
- Added support for Python post-processors.
- In addition to an updated user interface, the Ribbon comes with a search bar functionality to make it easy to find functionality.
- Custom key binding support is now available.
- There is now functionality to mirror exported files such as GCode or laser inspection.
- EEOP data has been added to MTorres and ElectroImpact inspection files.
- VCP now has the ability to export gaps, overlaps, centerlines, and tow surfaces to CATParts.
- Overfill / underfill capabilities can now be automated through the use of the “Overfill” tow-boundary overlap option.
- A new card for exporting course data to HDF5 files has been added.
- A new minimum tow extension option, “from long sides” has been added to the Layup card.
- The Links card now has a tool to refresh all visible links.
- The Spar card now has a tool to split multi-packet courses into single-packet courses.
- The Links card now has a tool to “Reverse a single tow-packet”.
- A new laser inspection format has been added for AGS laser projectors.
- The Laser Inspection card has a new option to include a summary of output data.
- The Laser Inspection card has a new option to include contour path data.
- A new Contour card has been added to VCP to replace the Knife card.
- Added an option for more stringent checks while identifying gaps on the Gaps card.
- The Spar and Flags cards now have functionality to “shorten unlinked tow ends which exceed allowed overlap”.
- The Stagger card now has the option to toggle “adjustments for a full complement of tows”.
- Added support for Electroimpact ATL head.
- Added support to the Contour card for stitching heads.

## Changes in VCP 8.1

- Improved the rendering of axis systems, material display, and other VCP objects like links, option pints, and points.
- Improved surface normal for a roller offset with the “rocking” grader blade option.
- Improved algorithm used for EEOP intersection detection.
- Rotisserie coordinate system name and other related link settings are now saved to the VcPly file.
- Multi-packet courses are now included in the material balancing process.
- Links are now highlighted when the “Query” functionality is used.
- The Tow Balancing card has slightly improved performance.
- Modified calculation of “Q” values for segmented rollers.
- When reading a VcPly file, required surfaces are now selected all at once instead of one at a time.
- Roller visualization now clears from the view when navigating to the Form or Ply cards.
- Increased the offset when checking for path-boundary intersections to reduce chance of incorrect tow placement.

## Problems Resolved in VCP 8.1

- Fixed roller offset problems with “rocking” grader blade.
- Fixed bug involving rotisserie axis systems not being restored from VcPly files.
- Fixed bug where tow numbering was incorrect in a mirrored laser inspection file.
- Fixed issue where VCP would sometimes have a blank GUI with certain preference file settings.
- Fixed bug where tow-coloring and material vector would not activate when a new preference file is used.
- Fixed a VCP crash when navigating away from the Flags card.
- Fixed issue where VCP would freeze with large models for Collision Avoidance and with no form surface selected.
- Fixed issue where right click would not lock a head model on the visualization card.