

Cx Geomagic® Control X™

Release Notes

Release Date: October 2021

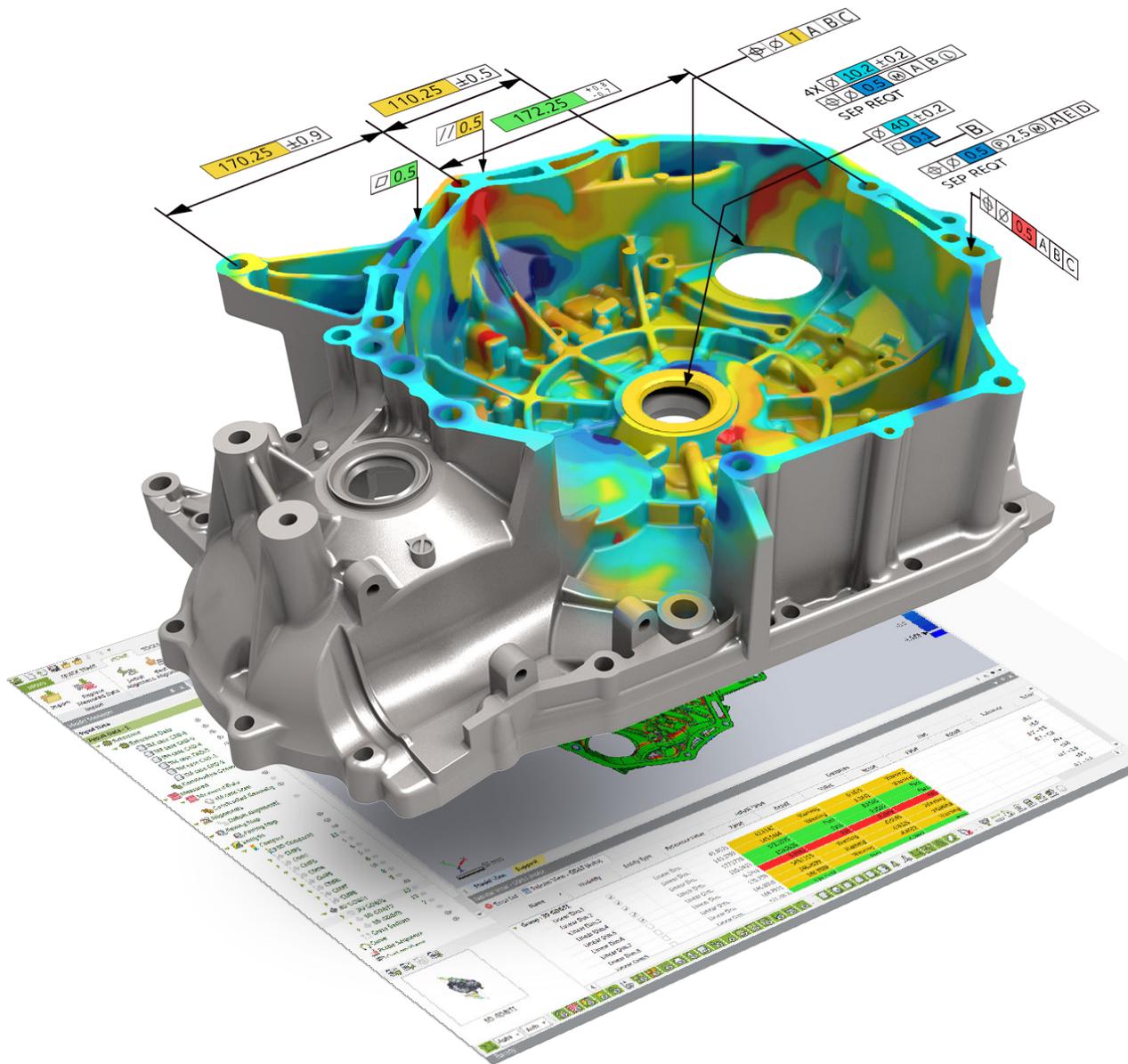


TABLE OF CONTENTS

1	INTRODUCTION	1
2	INSTALLATION	2
	System Requirements.....	2
	Download and Install software.....	2
	Activate License.....	2
3	NEW FEATURES AND ENHANCEMENTS	3
	What's New in 2022.0.0.....	3
	Automation and Scripting.....	3
	File Import.....	3
	New Hexagon Structured Light Scanner Interface.....	4
	Performance Enhancements.....	4
	New Smart Selection Tool.....	5
	New Unequal Tolerance in Surface Profile.....	5
	New Separate Mesh.....	6
	Improvement of CAD Tessellated Mesh Segmentation.....	6
	Importing Mesh as Reference Data.....	6
	Deleting Poly-Faces or Poly-Vertices without Running Delete Poly-Faces/Vertices Command.....	7
	Updated Licensing System.....	7
4	FIXED BUGS	8
	Bug Fixes in 2022.0.0.....	8

Introducing Geomagic® Control X™

Version 2022



Ensure Quality Everywhere

Bring the power of 3D scan-based inspection to more people in more places with industry-leading 3D metrology software that makes it easy to capture and interpret scan data.

Geomagic® Control X™ is a comprehensive metrology software platform that delivers the industry's most powerful tools within straightforward workflows. With Geomagic Control X quality managers are enabled with revolutionary ease-of-use, intuitive, comprehensive controls and traceable, repeatable workflows for the quality measurement process. Its fast, precise, information-rich reporting and analysis enable significant productivity and quality gains in any manufacturing workflow.

What Can You Do with Geomagic Control X?

Geomagic Control X includes features to help you ensure quality for each stage of your manufacturing workflow including designing, manufacturing, inspecting, and maintaining.

Design

- Design for manufacturability
- Find and fix problems

Manufacture

- Identify and resolve manufacturing and assembly issues
- Eliminate costly scrap and rework

Inspect

- Solve your toughest measurement problems
- Improve quality documentation
- Reduce quality control bottlenecks

Maintain

- Assess damage, deformation, or wear accurately and consistently
- Predict part failure before it happens

System Requirements

For the latest system requirements information and to learn about specific qualified system configurations, go to the [System Requirements](#) page in the Geomagic Support Center. Some users have had success running system configurations that deviate from the supported listed on our website. In such cases, these configurations are not officially supported by 3D Systems, Inc.

Additionally, we test a variety of hardware platforms in combination with the graphics subsystems. While we make every attempt to be as thorough as possible, hardware manufacturers change their products frequently and may be shipping newer products or have discontinued active support for others. Check the support section of the website for the latest system requirement information and specific qualified systems.

Download and Install software

You can download and install the software from <https://support.3dsystems.com/s/article/Geomagic-Control-X>.

In addition, automatic software updates are available if you set the **Update Product Automatically** option to **True** in Preferences and a valid maintenance code is activated, and your computer is connected to the Internet. The application will check if a newer version is available and will download it automatically for installation.

You can also manually check if a newer version is available by going to **Help > Check For Update**.

Activate License

Geomagic Control X requires license activation to run the application on your PC. You can choose to use an evaluation license for a 15-day period or activate a permanent license by using an Online Activation license or a physical dongle.

After you start your application, the License Manager window opens. The License Manager allows you to activate and use the Geomagic Control X software.

NOTE: When you launch the License Manager, you can click the **Help ? button found at the top right corner of the window to read the [CimLM Licensing Guide](#).**

For more information, go to the Licensing section on the [getting-started](#) page.

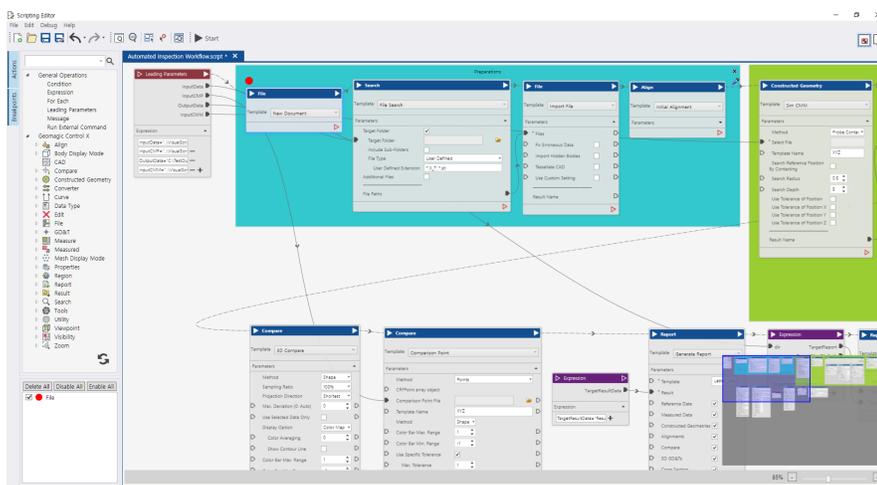
What's New in 2022.0.0

Geomagic Control X 2022 offers powerful inspection tools including Visual Scripting tool, new Hexagon Structured Light Scanner interface, and many enhancements to current features that provide increased productivity and traceability in your metrology workflows. This release also includes many more enhancements and bug fixes.

Automation and Scripting

Enabling automation and customization of inspection workflows

The successful inspection of parts requires expertise, experience, and precision. The knowhow gathered through diligent experimentation and innovation can now be incorporated into automated inspection workflows. Scripting is a tool that enables automation of workflows, simplification of the preparation process, and standardization to meet compliance and validation processes.



CHALLENGE:

Preserve and automate learned expertise and knowhow of repeatable workflows to make the process more accessible to novice users, and reduce time and costs of repetitive inspection workflows. Simplify the process of preparing and inspecting parts.

SOLUTION:

A new **Visual Scripting** tool enables automation and customization of any inspection workflow in Geomagic Control X. This is based on a non-programming interface for the simple definition and implementation of scripts.

Scripting and workflow automation are key in standardizing work processes, which can streamline compliance and validation procedures. Cost savings come from automating repetitive tasks as well as from preventing user errors and operations that deviate from best practices.

File Import

Native CAD File Import has been updated to support the following versions.

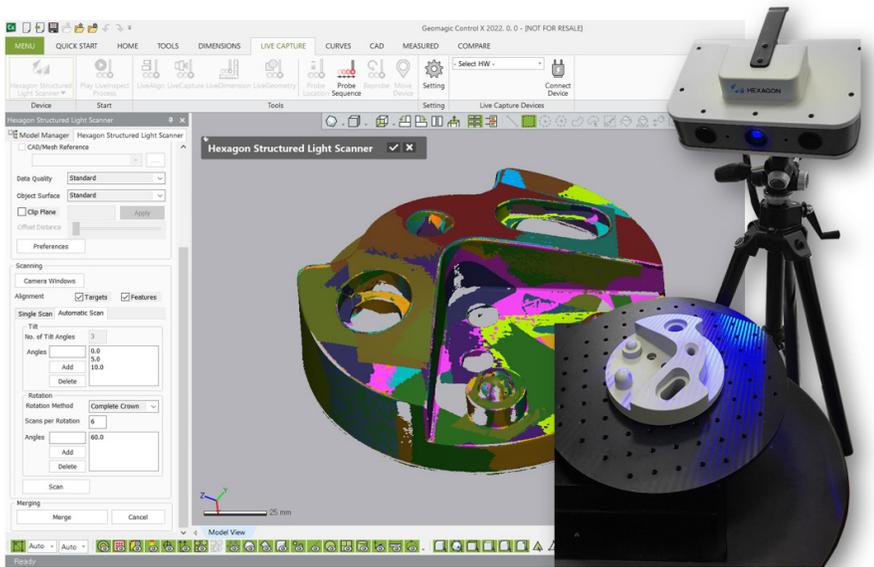
CAD Application	File Extension	Version Supported	Comments
CATIA V5	.catpart, .catproduct	R8 - V5-6 R2021	Geometry and PMI
CATIA V6	.catpart, .catproduct	Up to V6 R2021x	Geometry and PMI
Creo (Pro/E)	.prt, .prt.*, .asm, .asm.*	Pro/E 16 – Creo 7.0	Geometry and PMI
Inventor	.ipt, .iam	V6 - 2022	Geometry Only
SIEMENS NX	.prt	11 – NX1953	Geometry and PMI
SOLIDWORKS	.sldprt, .sldasm	98-2021	Geometry and PMI (2014-2021)
STEP	.stp, .step	AP203, AP214, AP242	Geometry Only ¹⁾

1) STEP AP242 PMI is limitedly supported and available as a 'Preview' feature found under the Add-Ins menu.

New Hexagon Structured Light Scanner Interface

Scanning with Hexagon Structured Light Scanners within Geomagic Control X

Geomagic Control X offers the Scanner Direct Control that enables the use of various scanning devices directly within the application. Hexagon Structured Light Scanners are now available in Geomagic Control X.



CHALLENGE:

Enable to use the Hexagon Structured Light Scanners within Geomagic Control X.

SOLUTION:

A new Plug-In for [Hexagon Structured Light Scanners](#) has newly been implemented. You can now connect Hexagon Structured Light Scanner Interface and directly scan objects in Geomagic Control X without using the Optocat application.

Performance Enhancements

Improve productivity and efficiency with new meshing algorithm

Geomagic Control X contains numerous performance enhancements for importing files and handling meshes.

CHALLENGE:

Increase productivity and improve calculation performance.

SOLUTION:

You can save ~50% of operation time and increase productivity with new meshing and rendering algorithm that are implemented in the new version of Geomagic Control X.

The performance of the following commands has been highly enhanced:

- Merge
- Triangulate
- Fix Normal
- Split
- Defeature
- Fill Holes
- Transform Measured Data
- Align Between Measured Data
- Combine
- Volume Offset
- Import
- Mesh Select

New Smart Selection Tool

Selecting interesting regions on a mesh effectively

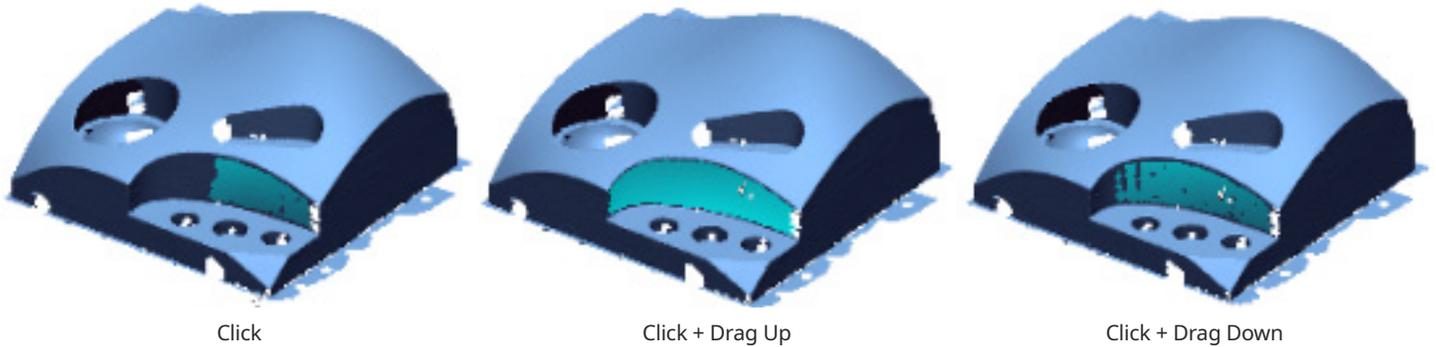
Allows to select interesting regions on a mesh based on curvature and angle.

CHALLENGE:

Improve the efficiency of region selection.

SOLUTION:

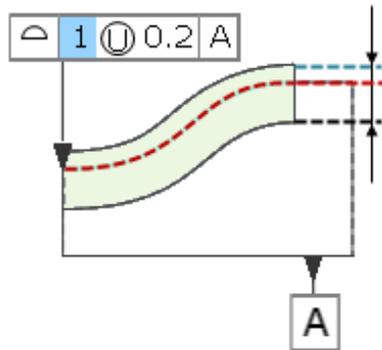
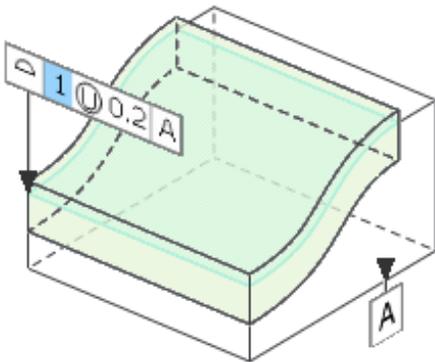
A new **Smart Selection** tool that selects contiguous regions on a mesh effectively based on curvature and angle, similar to the **Extend to Similar** selection tool. This allows you to dynamically control the sensitivity of selection.



New Unequal Tolerance in Surface Profile

Enabling unequal tolerance zone for Surface Profile

The Tolerance Zone is an allowable zone surrounding the ideal surface of a target measurement face. Depending on various measurement purposes, not only is this distributed from the target measurement face in both directions equally but it can also be shifted to allow variation to be larger on one side of a target measurement face unequally.



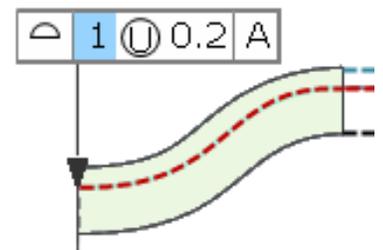
CHALLENGE:

Allow the user to control the position of the Tolerance Zone so that it can shift to be larger on one side of a target measurement face or to be only permitted in one direction.

SOLUTION:

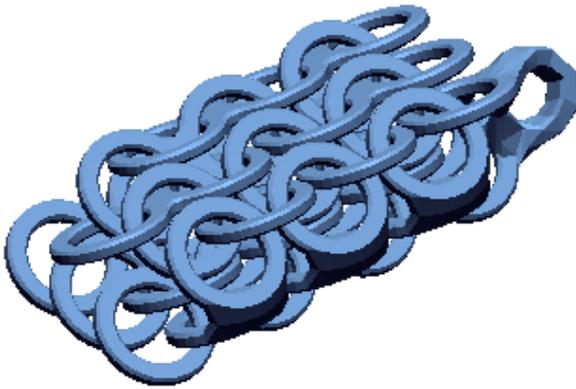
The **Surface Profile** command now supports the Unequal Tolerance Zone as specified in the ASME Y14.5 - 2009 Standard. The new **Unequal Tolerance** option allows you to specify tolerance values that makes the tolerance zone distributed from the target measurement face unequally. This also allows you to shift the Tolerance Zone so that variation can only be permitted in one direction.

Once the Unequal Tolerance is specified, the **Unequally Disposed Profile Modifier (U)** is illustrated in the first set of the Feature Control Frame. The tolerance value preceding the (U) in the Feature Control Frame represents the total Surface Profile tolerance, and the value following the (U) represents the portion of the tolerance zone which lies on the in-space side of the target measurement surface.

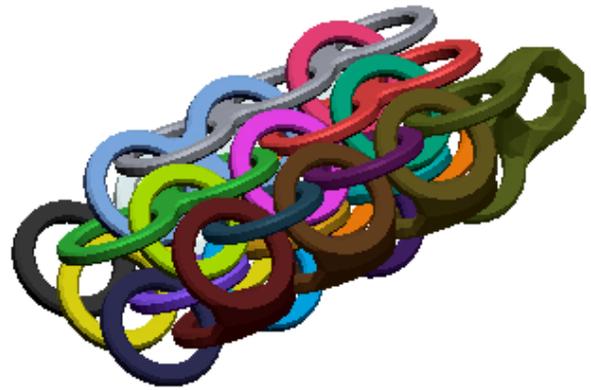


New Separate Mesh

You can now separate a single mesh object composed of multiple clusters easily.



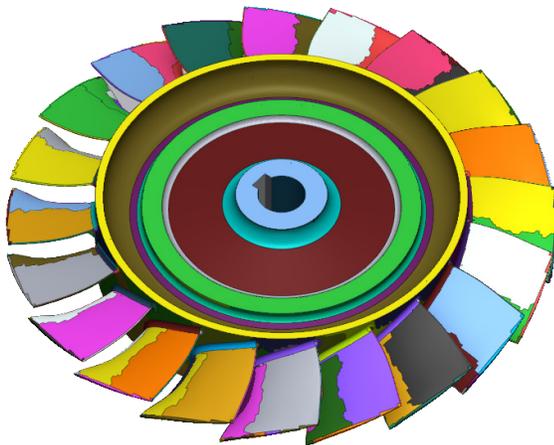
A single Mesh



Individual Meshes

Improvement of CAD Tessellated Mesh Segmentation

A new Region Segmentation algorithm has been implemented, improving the quality of region segmentation for a mesh tessellated from CAD. You can also easily control segmentation results by using the Slide bar.



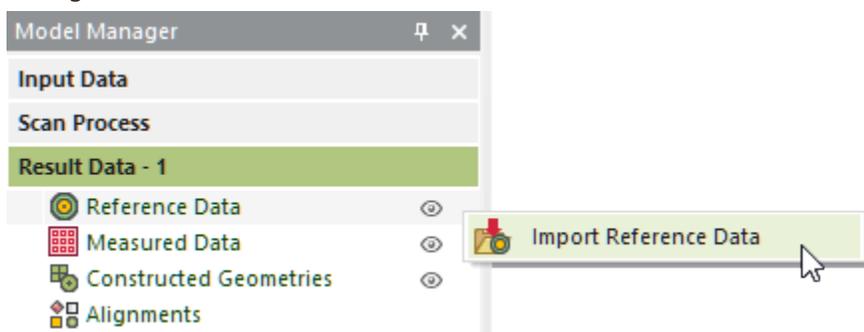
Geomagic Control X 2020.1.1



Geomagic Control X 2022.0.0

Importing Mesh as Reference Data

You can now directly import meshes as Reference Data by clicking **Import Reference Data** in the Context Menu of the Model Manager.



The following mesh files are available: *.xdl *.mdl *.fcs *.gpd *.3dprint *.stl *.obj *.ply *.3ds *.wrl *.icf *.dxf *.dat *.ans *.iv

Deleting Poly-Faces or Poly-Vertices without Running Delete Poly-Faces/Vertices Command

You can now delete selected poly-faces or poly-vertices by pressing the **Delete** key without running the Delete Poly-Faces/Vertices command.

Updated Licensing System

The **CimLM Licensing System** has now been updated to the latest version of CimLM 3.2. CimLM 3.2 contains compliance related fixes that allow the user to enable trial licenses for Geomagic Control X.

Bug Fixes in 2022.0.0

This section lists issues that have been resolved since Geomagic Control X v2020.1.1:

- **GV-20416, GV-19398, GV-19725:** The alignment would not be maintained when switching between results using the same scan differently for the Measured and Reference Data.
- **GV-20384:** After running the Move Device command, the unit of deviation results calculated from the Check and Fix Deviation were different from the unit set in the preferences.
- **GV-19714:** The application would sometimes crash when running the Triangulate command for a certain point cloud.
- **GV-19598, GV-8737, GV-7137, GV-4378:** Geomagic Control X didn't support the Unequal Tolerance Zone for the Surface Profile.
- **GV-19592:** The Color Bar in the viewpoints disappeared when editing a 3D Compare feature.
- **GV-19081:** The application would sometimes crash when entering the 2D GD&T after creating cross sections on a certain large mesh.
- **GV-18572:** The "Sampling Ratio" option didn't work for meshes when performing the Global And File method in the Align Between Scan Data command.
- **GV-18488:** Import failed for a certain FLS file.
- **GV-18401:** The Normal Information Wizard command in the Scan Process didn't work.
- **GV-18048:** Adding simulated CMM points on a point cloud caused the file size to grow up unexpectedly.
- **GV-17907:** Unable to select an existing plane after going to a new position with the Move Device command.
- **GV-17906:** The options in the Context Menu would not be selectable while scanning an object with a FARO arm.
- **GV-17891, GV-16205:** A target mesh disappeared or moved away when completing mesh editing operations by clicking OK while the "Don't Quit Command With OK" option is toggled on. This also occurred when rebuilding a project after editing a mesh.
- **GV-17690:** The wrong download URL for FARO LS Software Development Kit (SDK) was displayed in the notification message while importing FLS files saved in a newer version of FARO Scene. The latest FARO LS SDK can be downloaded at : https://knowledge.faro.com/Software/FARO_SCENE/SCENE/SDK_File_Download_and_Installation_for_SCENE
- **GV-17491:** The "Precise" option in the Initial Alignment command would not maintain when editing an Initial Alignment feature.
- **GV-17419, GV-16865:** A certain STL file exported from the other software caused the application to crash when importing.
- **GV-17356, GV-10546:** Triangulation didn't work properly for selected poly-vertices on a point cloud.
- **GV-17235:** When aligning a mesh to a reference CAD by using the Coordinate Alignment command with the Moving XYZ and the Target XYZ options, the target mesh moved in a wrong position.
- **GV-17203:** A certain corrupted file caused the application to crash when opening.
- **GV-16923:** The application crashed when clicking on a target model to define a position of a conical section in the Section command in the Curve Tools.
- **GV-16848:** The delta value (Δ) between two radii of circular geometries measured from Measured and Reference Data didn't show up in the annotations of Geometry Deviation.
- **GV-16622:** After decimating a mesh imported with Double precision, the geometry pairs would not be searched properly when rebuilding inspection features. This caused that the existing inspection features connected to the mesh become failed.
- **GV-16523:** Once PMI import failed in the PMI STEP AP242 command in the Add-ins, the application became inoperable.
- **GV-16515, GV-13684:** Paired geometries would not be updated in the Model Manager immediately after pairing the geometries manually.

- **GV-16486:** After undoing probing done for a first entity in the Interactive Align command, the wrong information was displayed in the Infocenter.
- **GV-16476:** When deleting dimensions, an existing datum defined in the same feature would not be maintained.
- **GV-16474:** The visibility of the Custom View that was duplicated in the other Result Data would not be maintained when editing.
- **GV-16410:** The results of Alignment would not be maintained when replacing Measured Data by using the Scan Process.
- **GV-16406:** The application crashed while copying and editing paired Simulated CMM points.
- **GV-16390:** Undoing and redoing didn't work for imported probe sessions.
- **GV-16319, GV-13412:** Changing annotation styles by using Preset and the Edit Annotation Style didn't work for Simulated CMM points created in 2D GD&T.
- **GV-16303:** Defined Simulated CMM Points would not be updated when replacing with new Measured Data.
- **GV-16149:** The results of some measured features would not be listed in the Result Navigator when opening a CXProj file.
- **GV-16089:** The position of planes used for alignment would not be maintained while repeating actions such as undoing, reprobing, and redoing in LiveInspect.
- **GV-16066:** Unable to select poly-faces while the View Clip was toggled on and the Visible Only was toggled off.
- **GV-16061:** After importing a WRP file, a mesh was displayed incorrectly when rotating.
- **GV-15949, GV-15948:** When rotating the screen during the triangulation, the application hung and became unresponsive.
- **GV-15946:** There were several texture mapping issues in scanning with a FARO Quantum Max ScanArms.
- **GV-15944:** A memory leak occurred when a scanning device was in a state of rest.
- **GV-15943:** The buttons in a FARO ScanArm didn't work if the device was out of the Range.
- **GV-15915:** While undoing poly-face deletion, hovering the mouse over the mesh caused the application to crash.
- **GV-15856:** The application sometimes crashed when pressing the A button two times quickly in the LiveAlign and LiveCapture.
- **GV-15381:** Some meshes were getting scaled down unexpectedly when using the batch process.
- **GV-15302:** The Trend Report showed values only up to 4 decimal places.
- **GV-14893:** The application crashed when exiting the LiveCapture after scanning was done.
- **GV-13973, GV-10404:** After opening a CXProj file or adding a new Result Data, the model view would sometimes not be updated to match the active Result Data.
- **GV-13379:** GD&T would not be calculated for the case that Geometric Tolerancing was defined on a Constructed Geometry manually paired with another Measured Constructed Geometry.
- **GV-13105:** While switching between alignment methods in the Coordinate Alignment command, the manipulator would not be activated properly according to the selected method.
- **GV-13072:** Planes that were used for creating a point or a P.C.D circle remained even if an existing Inspection Data was reset in the Play LiveInspect Process.
- **GV-10663:** When saving a CXProj file with multiple Result Data, some information in the inactive Result Data would be omitted.
- **GV-10189:** The Trend Report always reported the units as milliliters.
- **GV-8966:** Decimating a mesh with the "Allowable Deviation" criteria didn't make any changes in the results.
- **GV-8174:** While an overlay menu is floating in LiveCapture, pressing the OK & Exit button found at the right down corner of the Model View caused the application to crash.
- **GV-8008:** The application would sometimes crash when exiting the LiveCapture.
- **GV-7268:** Unable to navigate between Result Data when the number of results exceeded the available height of the Model Manager panel.
- **GV-6791:** The application crashed when editing the layout of a report.
- **GV-6469** In the Line Profile command, the sub-options of the "Unidirectional Tolerance Zone" option would not be shown even if it was set to on.

There were several issues in the Report where:

- **GV-5695, GV-5576, GV-5366, GV-5223:**
 - Some results in the report were mismatched with the results in the Tabular View.
 - The Manage Templates window took a long to open.
 - Failed to save a report as a PowerPoint file.
 - Undoing and redoing didn't work.



3D Systems, Inc.

333 Three D Systems Circle Rock Hill, SC 29730 www.3dsystems.com

Copyright © 2021 3D Systems, Inc. All rights reserved.