3D SYSTEMS

Geomagic® Control X™

Measure. Understand. Communicate.

Release Notes

Software: **Geomagic Control X**

Version 2018.0.0

Release Date: September 2017
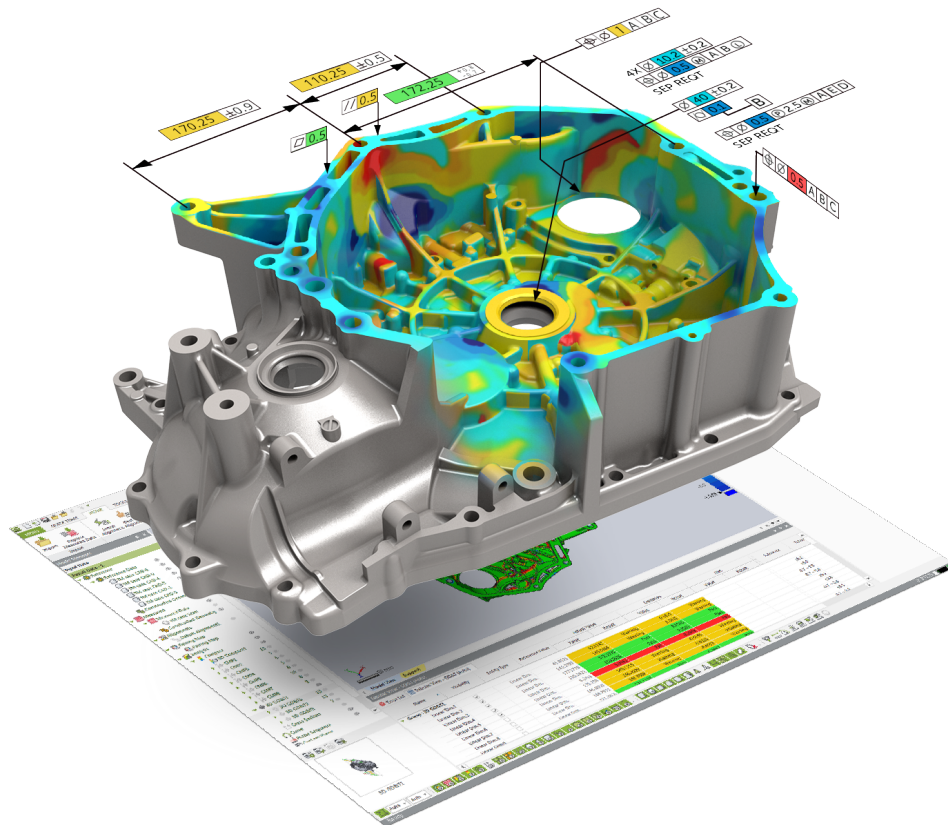
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1 INTRODUCTION

We are pleased to announce the availability of the new version of Geomagic® Control X™. 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.

New features in this release were made to deliver intuitive and efficient user experiences. Work more productively with the Ribbon UI. This release also includes many more enhancements and some bug fixes.

For more information, please visit www.geomagic.com.

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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 gettingstarted.geomagic.com, select the Geomagic Control X product, then click **Download Control X** to download 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 Utility window opens. The License Utility allows you to activate and use the Geomagic Control X software.

NOTE: When you launch the License Utility, you can click the Help button to read the Licensing Guide.

You should have received an email from 3D Systems with your activation code. If you have not received an email from 3D systems, contact them at Geomagic.Support.Americas@3DSystems.com.

If you are an existing user and have already activated the license on your PC with the previous version of the application, you can run the newer version of the application without re-activating the license.

For more information, go to gettingstarted.geomagic.com, select the Geomagic Control X product, then click Licensing.

WHAT'S NEW IN 2018.0.0

New Compare Tools

A new **Compare** tab has been added to group all the compare tools for analyzing the deviation between the Reference and Measured Data with different analysis methods and to provide quick access.

The following tools are newly added in Control X v2018.0.0:

Deviation Location

Added a new **Deviation Location** tool to the **Compare** group in the **Compare** tab, supporting a particular deviation analysis between the Reference and Measured Data, or a fitting surface and Measured Data. This tool helps find and analyze surface wear, dents, and correction on Measured Data.
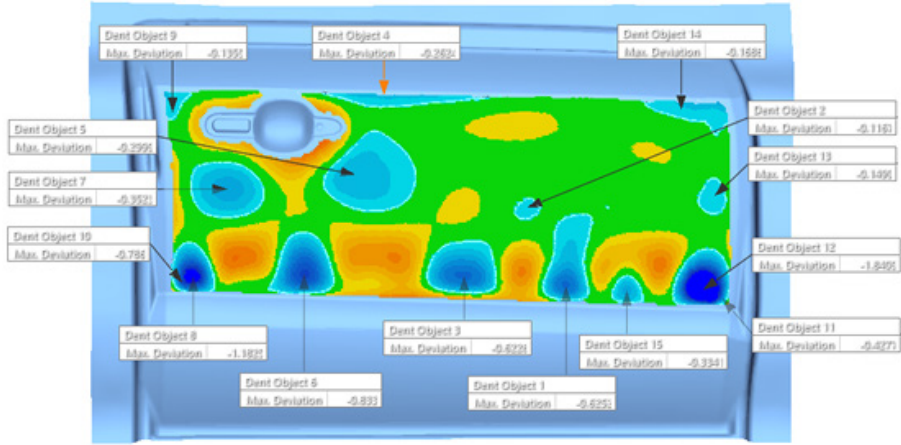
New Airfoil Analysis

Added a new **Airfoil Analysis** tool to the **Compare** group in the **Compare** tab, allowing you to analyze the deviation for key elements of an airfoil profile between the Reference and Measured Data.
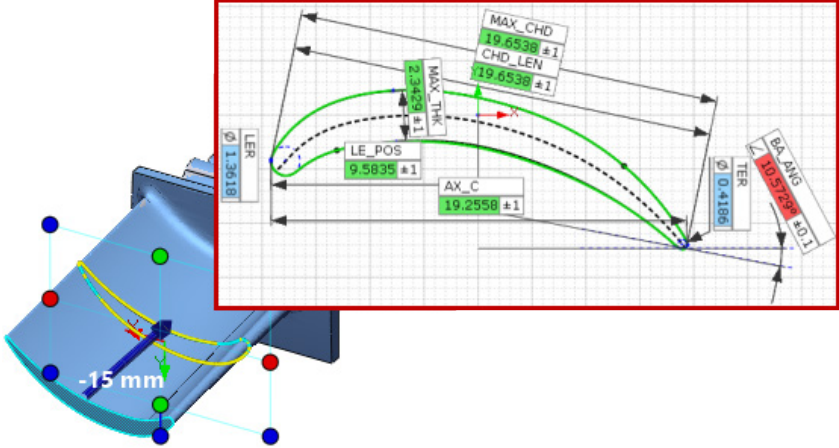
New 2D Twist Analysis
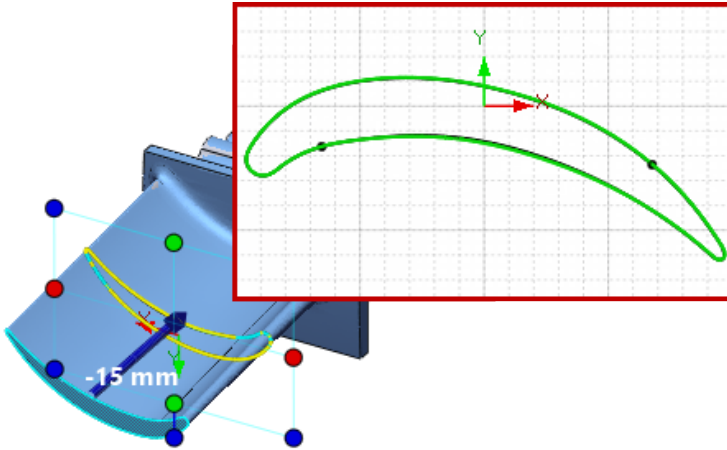
Added a new **2D Twist Analysis** tool to the **Compare** group in the **Compare** tab, allowing you to analyze the deviation of twist angle between section profiles of the Reference and Measured Data.

New Scan Process

You can now plan automation for scan processes with the new **Scan Process** tools, and share the desired scan process with your others to increase work productivity. The new **Scan Process** tools enables you to execute a series of the scan processing tools and quickly get data that can be used for an inspection project with minimal intervention.
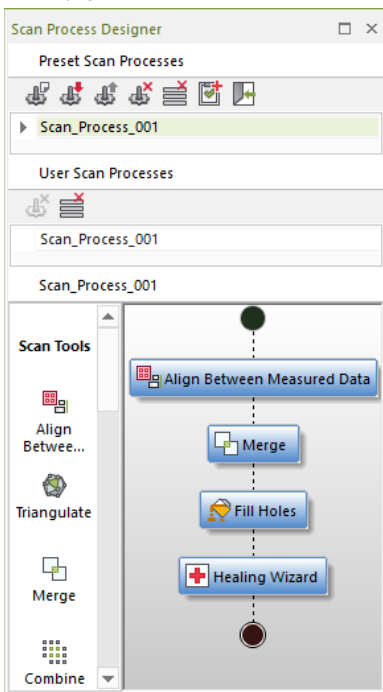
New Probe Location

Added a new **Probe Location** tool that reports the location of the probe center of a probing device during LiveInspect. This tool helps you validate ali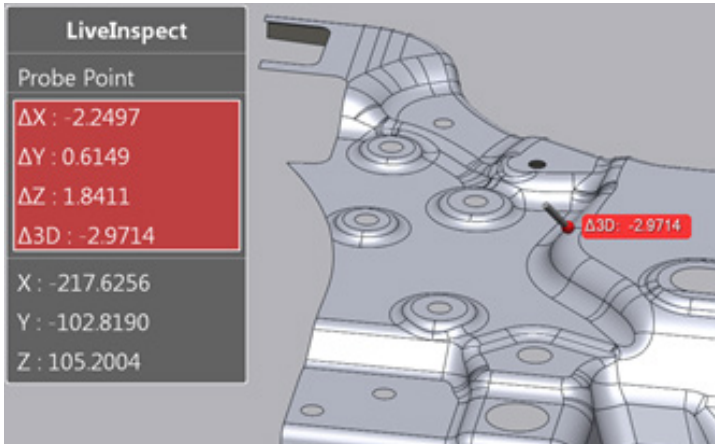gnments, and complete inspection workflows that require on-the-fly probe locations. These locations can also be recorded as Comparison Points for later use.

New User Profiles

By switching between **User Profiles**, you can now quickly customize the User Interface, Preferences, Annotation Style, and Toolbar behavior. New User Profiles can be created and shared for custom work environments.
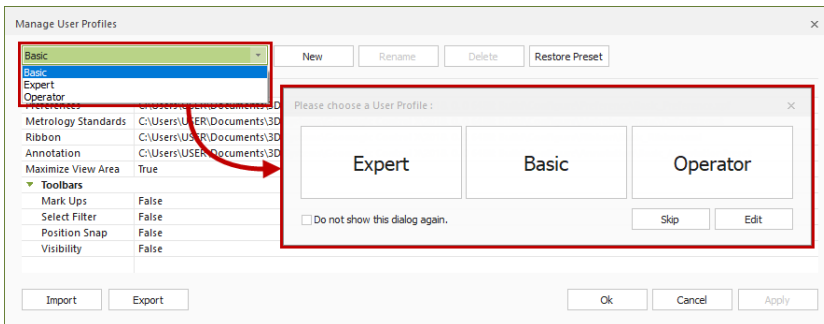
New Metrology Standards

A new preference dialog named **Metrology** has been added to allow customization of Metrology standards. You can now customize orientation of the Front View direction, annotation styles, dimensional tolerances, measurement methods, and properties of inspection reports. In addition, standard profiles are provided, that follow the ISO and the ANSI metrology standards.
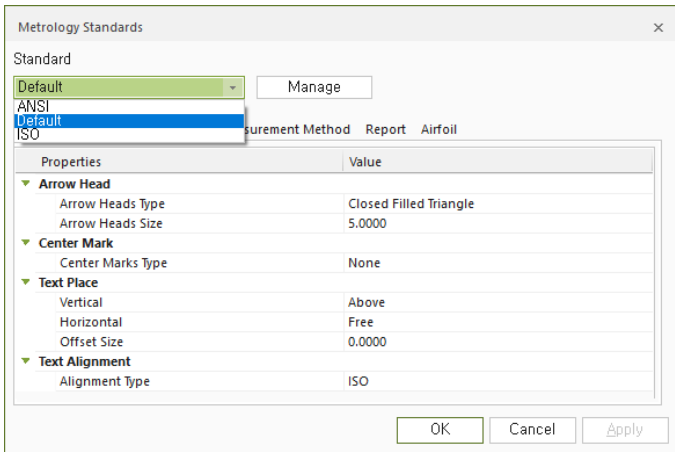
New ASCII Geometry Import

You can now import ASCII-encoded geometry files into the application. Without using CAD files as the Reference Data, you can set up a systematic inspection process using only imported geometries.

Enhancements

Pairing Manager

The enhanced **Pairing Manager** tool now enables you to explicitly set alignment conditions when searching for geometry pairs of Measured Data. Entities can now be groupe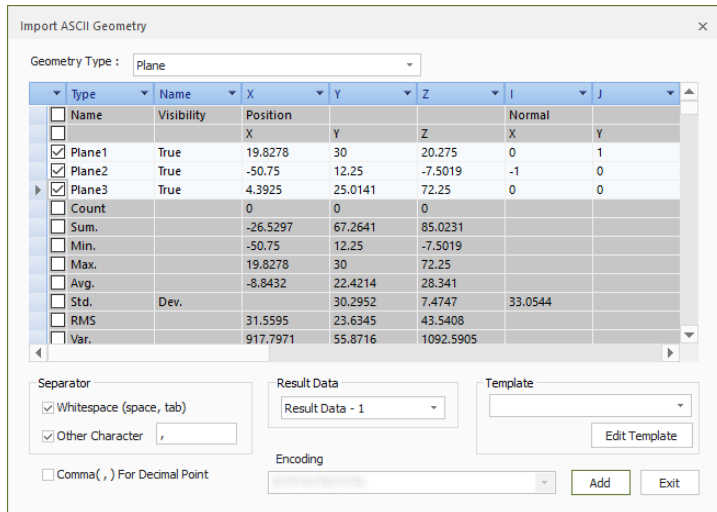d for easier management of different searching conditions. Furthermore, the User Interface has been enhanced for clearer understanding of pairing results.

Tessellating CAD Files while Importing

Added a new **Tessellate CAD** option to the Import tool to support converting CAD files into a mesh while importing. A tessellated CAD files can now be used as Measured Data for various purposes in inspection projects.
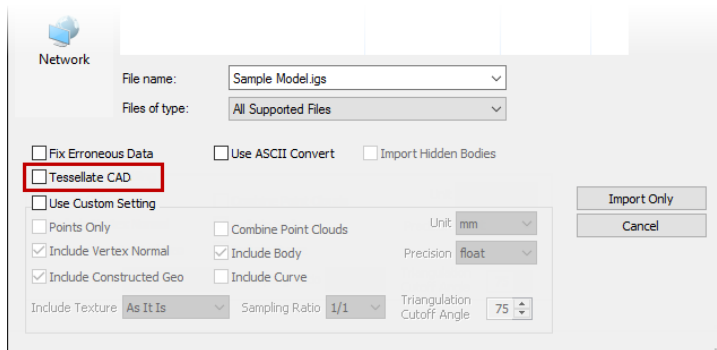
Regenerated Measured Geometries

When Measured Data is replaced, geometries constructed on an original Measured Data can now be automatically regenerated and rebuilt on the new Measured Data.

Alignment Matrix Export

An alignment matrix for all scan data or a selected scan can now be exported as a .CSV file and used for various purposes. This new feature can be found in **Tools > Measured Tools**.

Enhanced Report Tools

When generating an inspection report, you can now add a 3D Object to pages and export it in 3D PDF file. The values in a table can also be rearranged in horizontal or vertical layout, and a template can be saved of the table formatting. In addition, the rebuild of report time is much faster than previous versions.

Replacing Measured Data

A new **Re-Align To Existing Measured Data** option has been added to the **Replace Measured Data** tool, providing quick access to alignment tools for Measured Data.
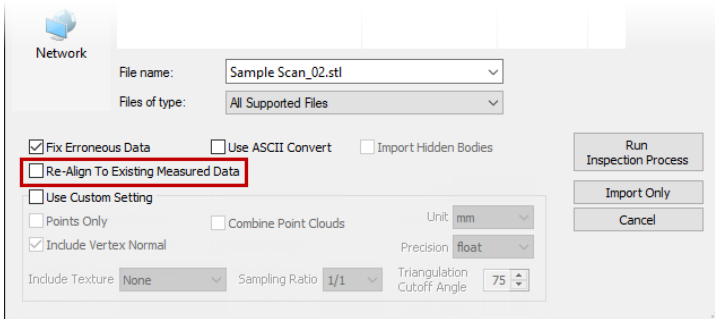
Enhanced LiveInspect

The enhanced **LiveInspect** now fully supports guided probing inspection for positions where simulated CMM points and comparison points have been defined. In addition, probing requirements for Circles, Slots, and Rectangles have been improved for quicker acquisition.
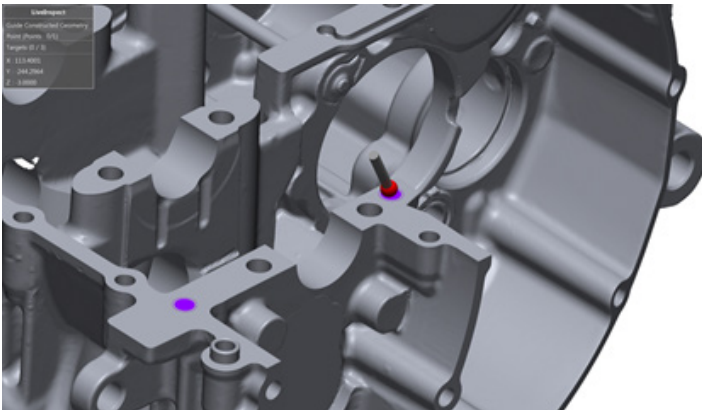
Enhanced Result Navigator

The **Result Navigator** is now an insert window, alongside the Model View and Support Window. This allows for easier visibility control from within the application. Additionally, viewpoints and tables of the Result Navigator can now be captured and inserted into Reports.
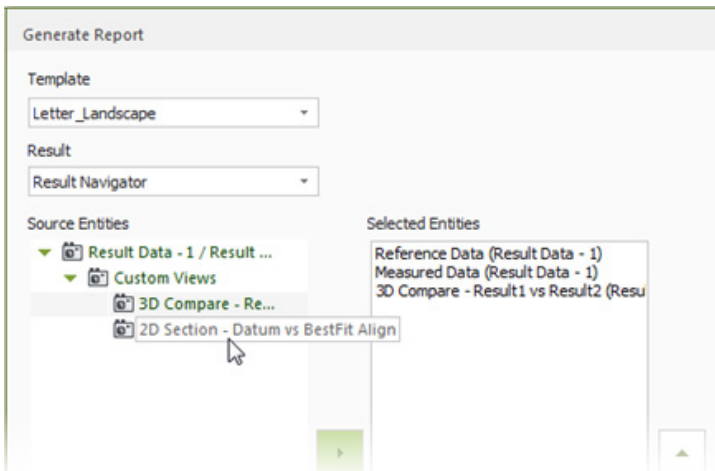
Misc Enhancements

- **Display Settings** - The visibility of the Global Coordinate System displayed at the system origin can be toggled on or off from the **Display** pane.

- **File Import**
  - New support for **.WRP** and **.GEODOC** file formats - Users with legacy Geomagic Control files as well as the current Geomagic Wrap files can now import them directly into Geomagic Control X
  - Geomagic Control X now supports up to version 10.0 of the **JT** file format
  - The following tables shows some of the updated CAD file formats that can be imported. For the list of full supported file formats, see the *Geomagic Control X's User Guide*.

CAD Application	File Extension	Version Supported	Comments
CATIA V5	.catpart, .catproduct	R8-R27 (V5-V6R2017)	Geometry Only / PMI Import Supported
CATIA V6	.catpart, .catproduct	V62017x	Geometry Only / PMI Import Supported
Creo (Pro/E)	.prt, .prt.*, .asm, .asm.*	Pro/E 16 – Creo 4.0	Geometry Only / PMI Import Supported
Inventor	.ipt, .iam	V6 - 2017	Geometry Only
NX	.prt	11 – NX11	Geometry Only / PMI Import Supported
SOLIDWORKS	.sldpt, sldasm	98-2017	Geometry Only / PMI Import Supported (2016-2017)
STEP	.stp, .step	AP203, AP214, AP242	Geometry Only

- **Grouping Measured Data** - Measured Data added in the Result Data tab can now be managed by groups as needed in the **Model Manager**.
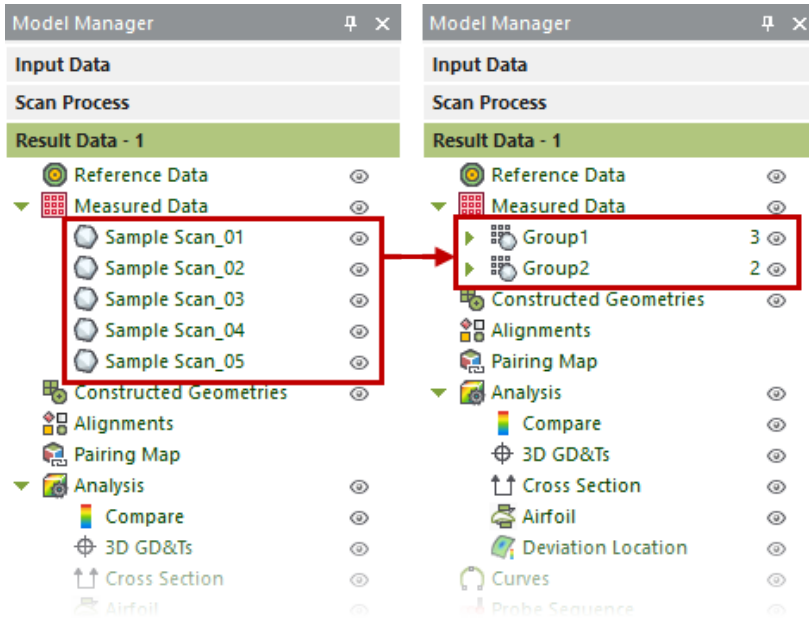
- **Construction Geometries in the Model Manager** - Construction Geometries are now organized in their own entity group within the **Model Manager**. Furthermore, changes to icons and entity grouping help clearly differentiate between the different types of geometries.
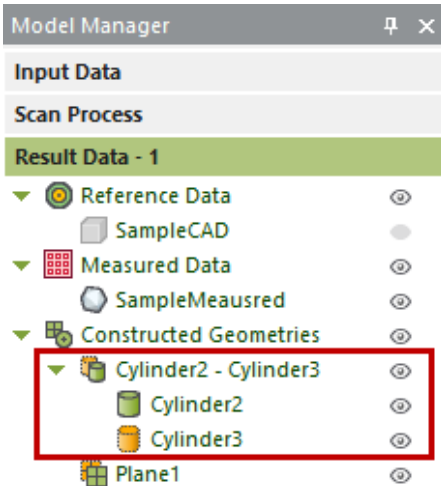
- **Pairing / Unpairing Geometries** - You can now locally pair and unpair constructed geometries directly from the **Model Manager**.
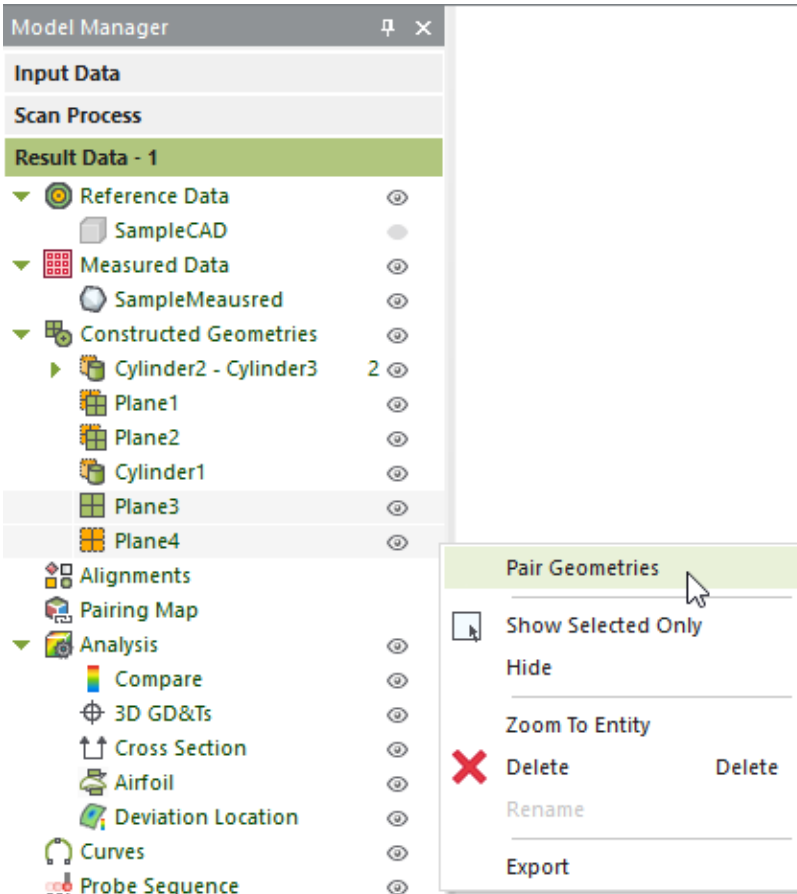
- **Editing Geometries** - You can now edit parameters of Reference construction geometries directly from the **Tabular View**.

Tabular View - Plane (Auto)

Name	Visibility	Position			Normal			Pair Pos.		
		X	Y	Z	X	Y	Z	X	Y	
Plane1	☑	-0.087	19.2456	14.90250317	0	0	1	0.8446	19.2242	
Plane2	☑	-0.087	19.2456	-14.8105	0	0	-1	-0.1316	19.2673	
Plane3	☑	-56.1356	6.9122	0.046	0	1	0			
Plane4	☑	-57.7197	6.9138	-0.1441	-0.0033	1	0.0025			
Count		0	0	0						
Sum.		-114.0292	52.3171	-0.006						
Min.		-57.7197	6.9122	-14.8105						
Max.		-0.087	19.2456	14.9025						

- **Enhancements to 3D Compare** - The Use Specific Tolerance option is now used by default.

- **Performance Improvements** - Due to enhancements and upgrades to core algorithms and program architectures, you can expect overall performance improvements. Noticeably, you will see improvements in the following areas.
  - Scan Pair Searching
  - Best-Fit Alignment
  - 3D Compare
  - Point Cloud Handling

- **Program Crash** - When you encounter a program crash, you can create a bug report with a. DMP file and send it to 3D System to help resolve the issue.

BUG FIXES IN 2018.0.0

This section lists issues that have been resolved since Geomagic Control X v2017.0.3:

•	**GV-4493:**	Resolved an issue where in a very specific scenario, a construction cone would fail to fit.
•	**GV-6005:**	When opening older files, sometimes Datum Alignment deviation values would fail to load.
•	**GV-4873:**	Resolved an issue with Iterative Alignment where an incorrect geometry pairing would occur.
•	**GV-4355:**	Sometimes empty values would appear as selectable fields for the Tabular View.
•	**GV-5330:**	Fixed an issue where the Automation Server would crash when the Rules document was opened.
•	**GV-3939:**	In some cases, CAD faces would disappear when using the Reverse Normal command
•	**GV-4039:**	Improved the CAD importer to resolve missing faces for IGES import
•	**GV-4097:**	Improved the CAD importer to reduce defective topology
•	**GV-4176:**	Changed the default behavior of importing curves in dxf format. It will now always import curves, even if the option is unchecked.
•	**GV-4256:**	Improved the CAD importer to improve the import of STEP files.
•	**GV-4646:**	Improved the CAD importer to improve the import of IGES files
•	**GV-5203:**	If PLY files only contained points, sometimes the normal information would not be imported. This has been resolved.
•	**GV-4026:**	3D Compare with Selected Faces will now use the current alignment, not the Paired Alignment
•	**GV-4183:**	Resolved an issue where the Colorbar would be black
•	**GV-4644:**	Resolved an issue where the Colorbar templates would not be installed correctly.
•	**GV-4938:**	While using Specific Tolerance for Comparison, the statistical information would not update appropriately. This has been resolved.
•	**GV-5251:**	Resolved an issue where a section compare would not update if the base Construction Plane's location was changed.
•	**GV-5622:**	In some cases, the values of Over Tol (%) and Under Tol (%) were reversed in Tabular View of 3D Compare.
•	**GV-6037:**	Sometimes in 3D Compare, the automatic Local Average Tagging would not display the correct number of tags
•	**GV-4814:**	Fixed the tutorials so that the Highlight and Run buttons work correctly
•	**GV-4239:**	Corrected the Help documentation where it states that Section perpendicularity uses paired measured points. It actually uses paired geometry for calculation.
•	**GV-4845:**	In some cases, adjusting the Segment Resolution slider in 2D Dimensions would cause a crash.
•	**GV-5348:**	Resolved an issue where if construction geometry was manually paired, in some cases the actual value associated with the Reference geometry would not update.
•	**GV-5710:**	Improved construction geometry fitting
•	**GV-6090:**	Default tolerance values for dimension are now provided to improve Dimensioning UX
•	**GV-5418:**	Sometimes the "Not enough data for fitting" warning would appear for manually paired geometry.
•	**GV-6429:**	Added an error message if Line Profile command fails to calculate
•	**GV-3986:**	Improved the fitting of Cylinders during datum alignments with a probing device
•	**GV-4788:**	Resolved an issue where slots could not be probed if they were on a freeform surface
•	**GV-4790:**	Resolved an issue where users could not progress inspection when using RPS alignment and a slot boundary as a circle
•	**GV-4929:**	Comparison Points using different methods would not be compatible with a probe device. This has been resolved.
•	**GV-5274:**	When exiting LiveInspect, the side windows would reset to the default settings
•	**GV-4951:**	Fixed an issue where the Pairing Manager and the Properties values would interfere with each other.
•	**GV-6095:**	Improved Pair Fitting search results
•	**GV-4223:**	Sometimes the Shrinkage value would not be applied in the Pairing Manager
•	**GV-6398:**	Resolved a crash when attempting to use the Pairing Manager on Sections.
•	**GV-3359:**	Fixed a Reporting issue where a PDF could not be exported with Windows 10
•	**GV-3581:**	During Reporting, the active Result will now be focused instead of all Results.
•	**GV-3712:**	Fixed a Reporting issue where the Result name would be duplicated
•	**GV-3903:**	Fixed a Reporting issue where the incorrect Measured Data name would be applied
•	**GV-4499:**	When exporting a report as a PowerPoint in Landscape orientation, images would be incorrectly sized
•	**GV-4526:**	Trend Reports were missing SPC values
•	**GV-4576:**	3D Compare groups did not have a template in Layout mode

- **GV-4610:**   Trend Report templates were behaving incorrectly
- **GV-4697:**   The Colorbar would not appear on custom viewpoints
- **GV-4717:**   Delta radius values can now be reported for cylinders
- **GV-4739:**   Report objects will now include versioning information
- **GV-4785:**   Sometimes a crash would occur when editing 2D Compare templates in Layout Mode
- **GV-4820:**   Alignment groups did not have a template in Layout mode
- **GV-4851:**   Field chooser for Report tables had empty values
- **GV-5012:**   Resolved an issue where the font size of tables would change
- **GV-5215:**   Resolved issues when editing SPC values for Trend Reports
- **GV-6325:**   Resolved an issue where Trend Report source files window would be empty
- **GV-4282:**   A crash would occur when selecting a comparison point in Layout Mode
- **GV-4952:**   A crash would occur when editing in Layout Mode after generating a Report
- **GV-5923:**   Adaptive and Homing alignment were missing Result names in the Report
- **GV-5926:**   Adaptive and Homing alignment were missing Result names in the Tabular View.
- **GV-6366:**   When using the Faro Cobalt, the right and left views would continuously switch
- **GV-6367:**   When using the Faro Cobalt, the exposure value was limited to 200
- **GV-4586:**   Changed the hardware interface name of the LDI device to Laser Design Surveyor Scanner
- **GV-3606:**   Improved stability of Colorbar Template management
- **GV-4126:**   When using the software in the French Language, the icon was missing.
- **GV-4365:**   Undo / Redo for Annotation changes did not work
- **GV-4525:**   When exiting LiveInspect, the Model Manager would not revert to previous state
- **GV-4616:**   Viewpoints did not remember Annotation Display Settings
- **GV-5172:**   Improved the annotation view during 2D Dimensioning where annotation arrows would be misplaced
- **GV-5836:**   Could not move the Scanner Setup function when trying to Customize Ribbon Bar
- **GV-5876:**   Angular Deviation and Projected Angle in the tabular view showed the wrong values
- **GV-5889:**   The "Remove Original Data" option was missing in HD Mesh Construction of Mesh Buildup Wizard
- **GV-6249:**   During 2D Compare, the Color Bar options would reset when going to the next stage of the command