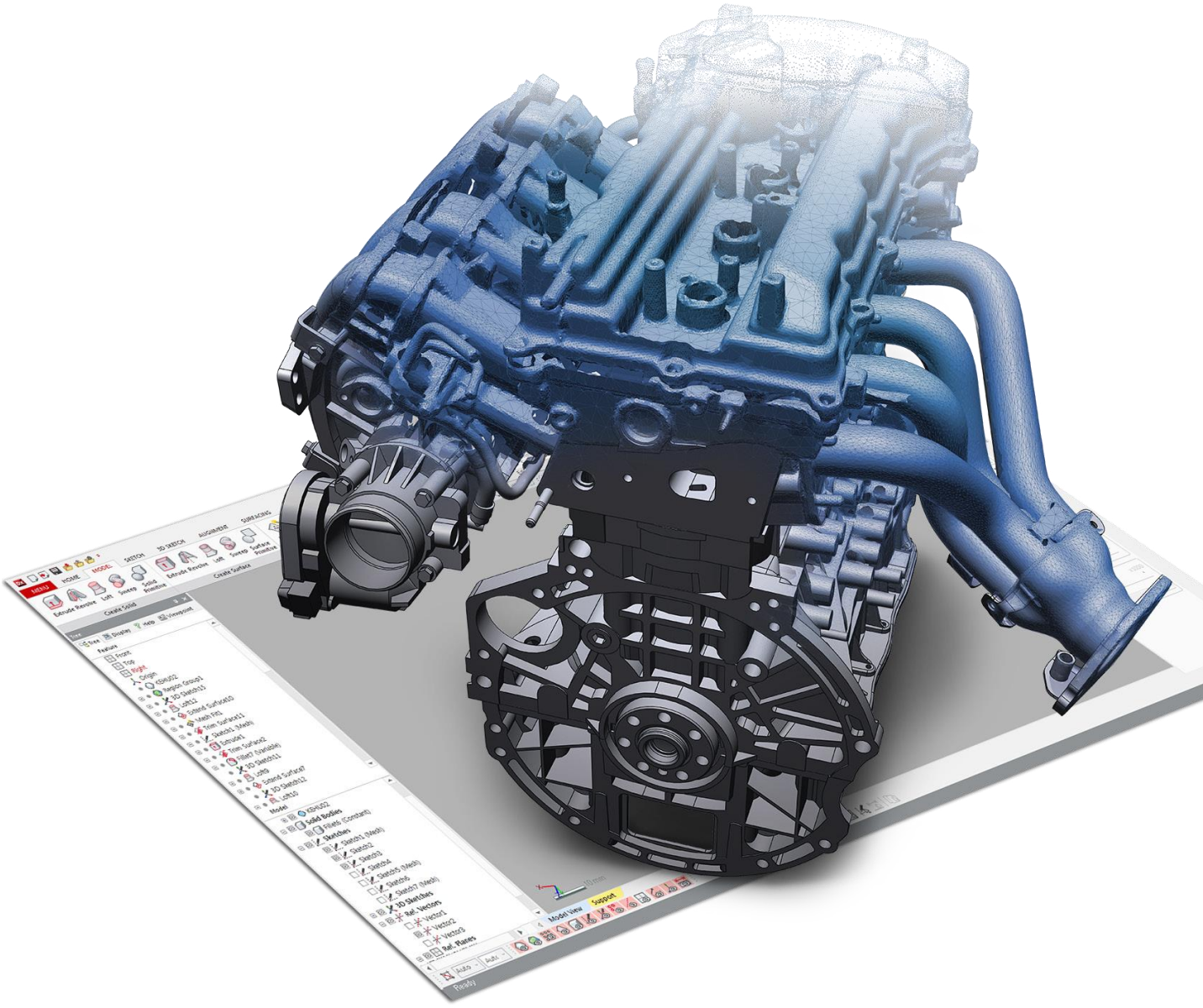
3D SYSTEMS

Geomagic® Design X™

Release Notes

Release Date: December, 2018



Software: Geomagic Design X

Version 2019.0.0

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1 INTRODUCTION

We are pleased to announce the availability of the new version of Geomagic Design X. Geomagic Design X is the only reverse engineering software that combines history-based CAD with 3D scan data processing so you can create feature-based, editable solid models compatible with your existing CAD software.

New features in this release were made to deliver more efficient, and streamlining design workflow. Improvements in this release allow users to create design results with better speed, performance, and quality. 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 Design X product, then select to download Geomagic Design 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 Design 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 Design 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 Design X product, then click Licensing.

WHAT'S NEW IN 2019.0.0

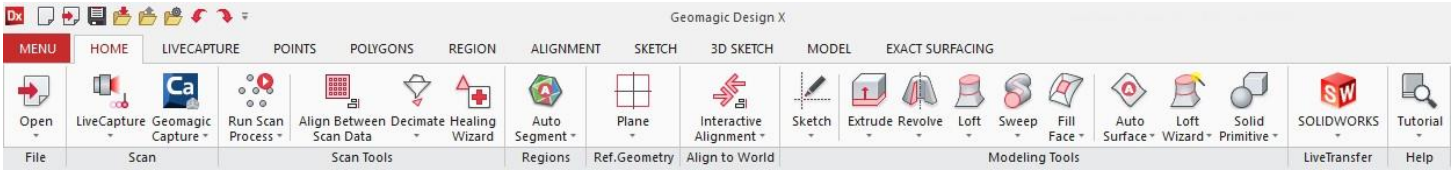
Improved General User Interface And User Experience

Improvements to Design X 2019's user interface streamlines the overall workflow, allowing you to be more efficient throughout the entire process. Additionally, improvements to rendering and view-ability provide a better user experience.

New Ribbon Layout

The ribbon UI has been reorganized to provide smooth workflows for your design works. From left to right, all the tabs have been relocated to consider the Scan-To-Design tasks.

Ribbon UI in Geomagic Design X 2016.2.2



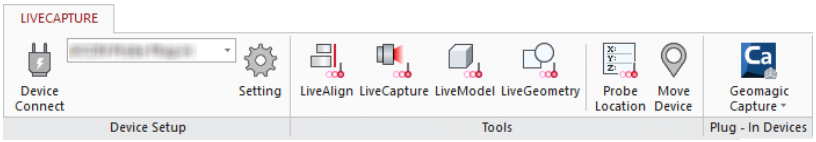
Ribbon UI in Geomagic Design X 2019.0.0

New Home tab

The Home tab has been updated to provide a clean Toolbar that contains tools for a streamlined workflow.

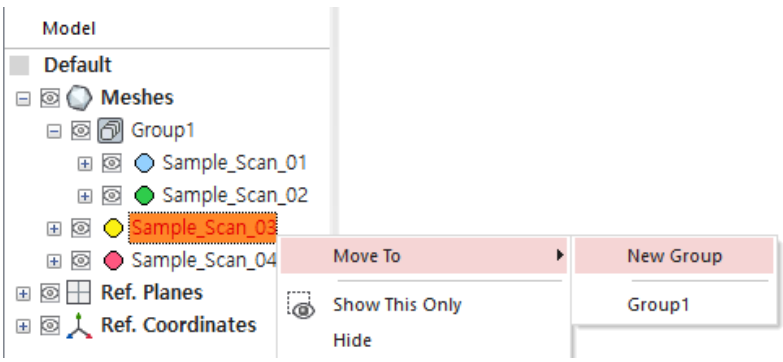
New LiveCapture Ribbon

LiveScan experience has been replaced with a modern LiveCapture tab. This tab helps you to easily navigate tools while scanning or probing an object.



Group Scans in Model Tree

You can now group scan objects in the Model Tree for better management and easier selection.

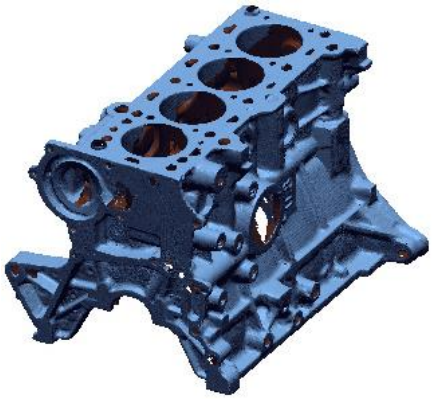


Active Mesh

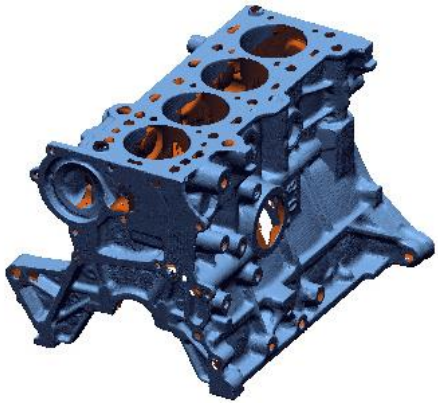
You no longer need to pre-select a mesh in order to activate tools, improving workflow efficiency.

Mesh Rendering

An improved graphics engine provides higher frame rates and brighter lights while viewing scan data. This helps you quickly view scan data and handle large scan data in a comfortable environment. Brighter back faces also enables you to design features from scan data, even if it is a complex object.



Mesh Rendering in Geomagic Design X 2016.2.2



Mesh Rendering in Geomagic Design X 2019.0.0

Import And Scanning

You can expect to scan with the latest devices and import the most recent file formats needed for their workflows. Additionally, new measurement tools and interfaces makes capturing data easier and more efficient.

Updated Import native CAD File Formats

Updated native CAD file import:

- Solidworks 2018
- Creo 5
- CATIAV5R28
- Inventor 2019
- NX12

Import WRP and CXPROJ Files

You can now also import .WRP (Geomagic Wrap) and .CXPROJ (Geomagic Control X) files.

Improved Scanning Performance

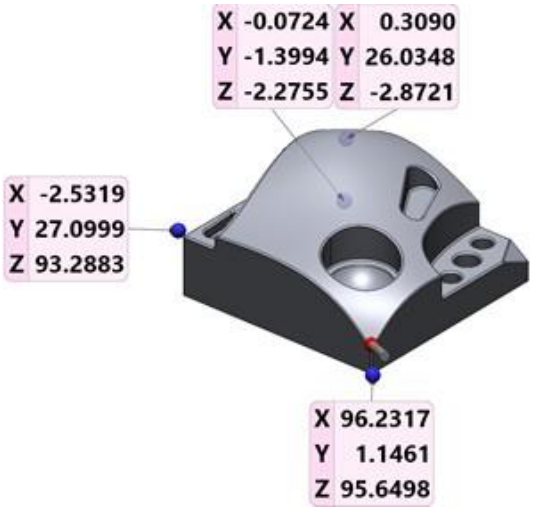
The scanning experience has been improved with better LiveCapture performance.

New Move Device Tool

The new Move Device tool provides functionality that allows you to move a measurement device using a Transformation Matrix or by probing known locations, in addition to capturing common geometries. The user interface has also been improved for a more streamlined workflow.

New Probe Location Tool

The new Probe Location tool has been added to the LiveCapture, allowing you to quickly note the location of their probing measurement device and find the difference from reference data.



Scan Processing

The tools for scan processing have been greatly enhanced with better speed, performance, and quality. There are also new tools that make the scan data processing simpler and easier.

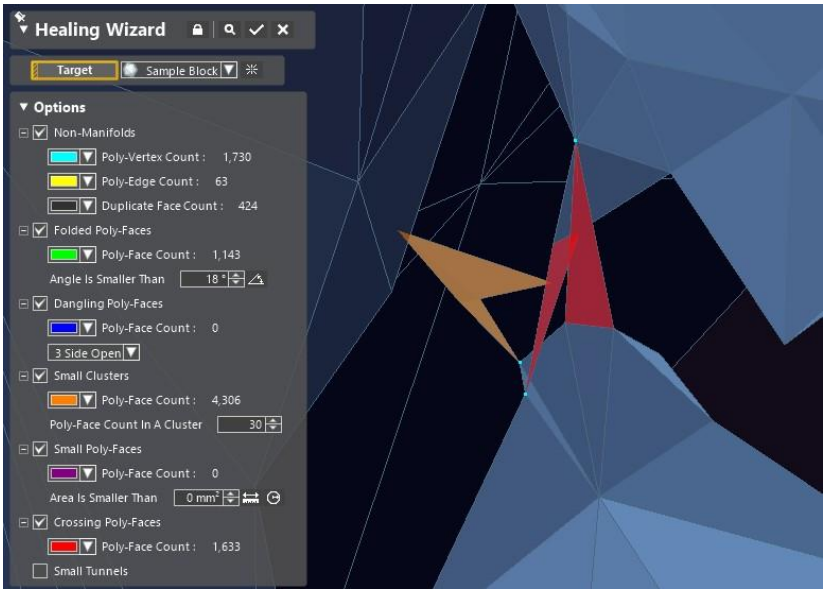
Enhanced Performance

The following processes now have a noticeable improvement in speed:

- Region Segmentation
- Import/Save
- Undo/Redo
- Smooth
- Delete

New Healing Wizard

The Healing Wizard has been enhanced with a new algorithm resulting in faster processing, as well as improved healing results.



Scan Process

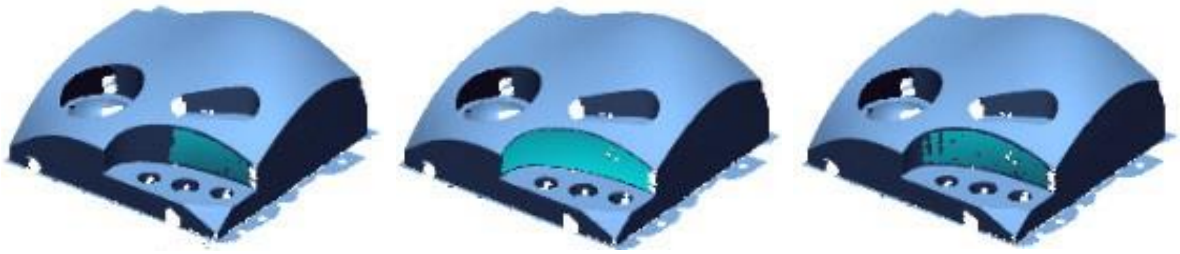
You can now design a batch process and run it within the application. This new method is called "Scan Process" and allows you to automatically process scans with simplicity and ease.

The following tools are now available in the Batch Process and the Scan Process:

- Select
- Delete
- Region Segmentation
- Extract Contours

New "Smart Select" selection tool

A new mesh selection tool called "Smart Select" has been added. This tool selects regions of the mesh based on curvature and angle, similar to the "Extend to Similar" selection tool. However, this new tool allows you to dynamically control the sensitivity of selection.



Click | Click + Drag Up | Click + Drag Down

Fill Hole Algorithm

The Fill Hole command has been improved to provide results that follow the surrounding shape better, without modifying the existing topology.

Improved Point Normal Generation

Generating point normals has been enhanced to provide better results.

Sketching and Modeling

You can expect greater efficiency and higher quality models by taking advantage of the new tools and controls for sketching and modeling, as well as being able to LiveTransfer those models to their latest CAD systems.

2D Sketching

Improved Auto Sketch

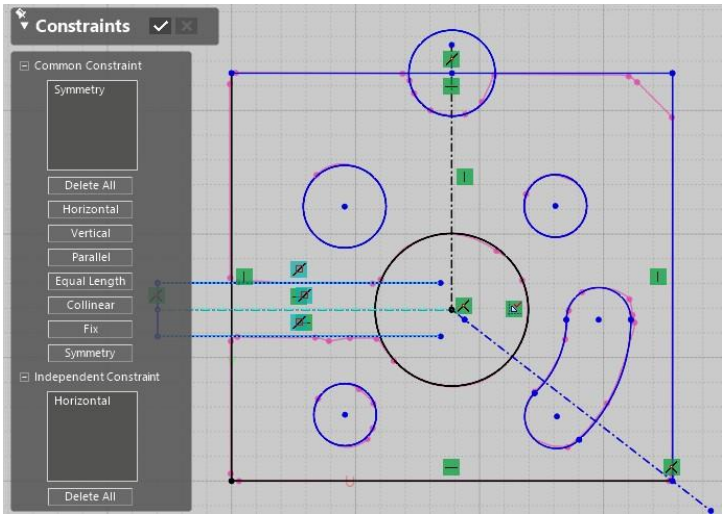
The Auto Sketch tool has been enhanced to provide streamlined sketching workflows. New enhancements include constraint tolerances, double-click to apply, and a command lock.

Smart Dimension

The Smart Dimension tool now provides dimensional rounding, allowing you to quickly capture design intent and set dimensions in sketches.

New Constraint Manager

You can now easily view and apply sketch constraints with a persistent constraint menu. Additionally, a new selection logic is in place that will generally anchor the first selected entity.



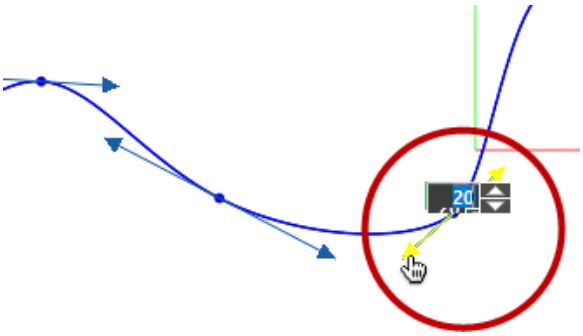
New Constraints

The following constraints are now available:

- Symmetry
- Mid-Point
- Horizontal and Vertical Points

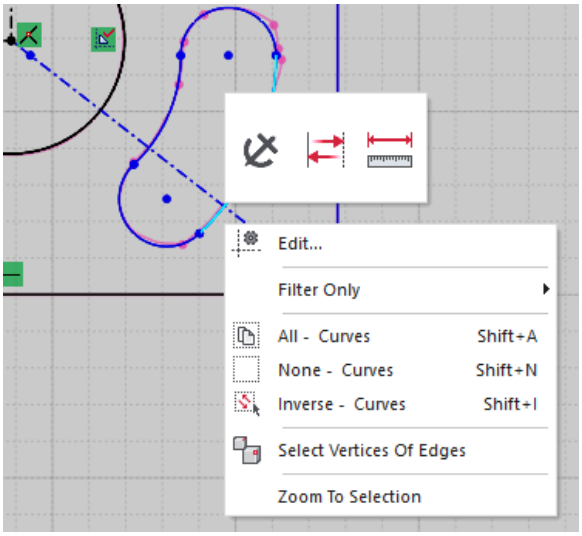
Spline Tangency Control

You can now enter a numerical tangent value for splines for greater spline control.



Improved Context Menus

The Context menus of 2D sketches have been enhanced to include the ability to accept/reject sketch fit as well as apply Smart Dimensions.



Improved Command UX

In the sketch commands, you can now Undo and Cancel actions within the command, without exiting.

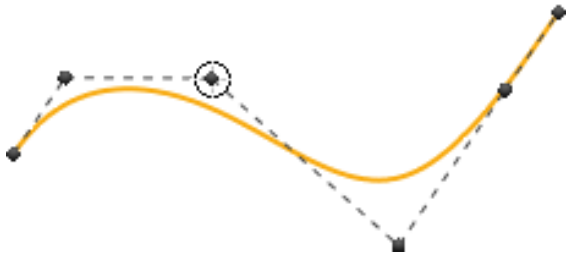
3D Sketching

New Spline Blend Tool

Added a new Blend tool, which creates a smooth transitions between two curves by adding a continuous blend curve between their endpoints.

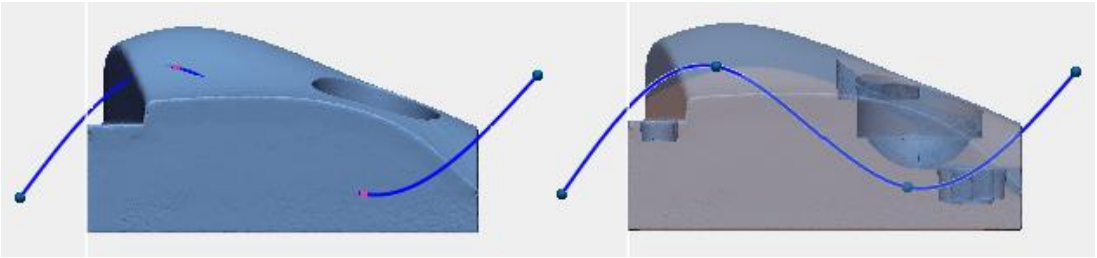
Edit Splines using Control Polygons

You can now modify splines by manipulating the modes of the control polygon. You should convert curves to a Style Spline in advance, by using the Convert To Style Spline tool in the Context Menu.



New Hotkey for turning off Spline Snapping

You can now temporarily ignore the spline snapping function, which is automatically enabled while creating a spline on a mesh, by holding down the S or the Alt key. This allows you to create a spline on a screen view plane or a specified base plane regardless the existence of a mesh.

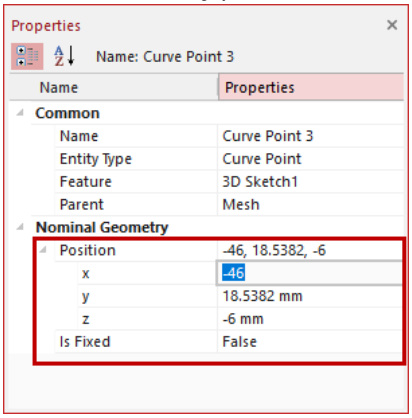


A spline snapping on a mesh

A spline drawn on a screen view plane

Edit Splines using typing in Properties

You can now finely place control interpolation points using the Properties tab.



Modeling

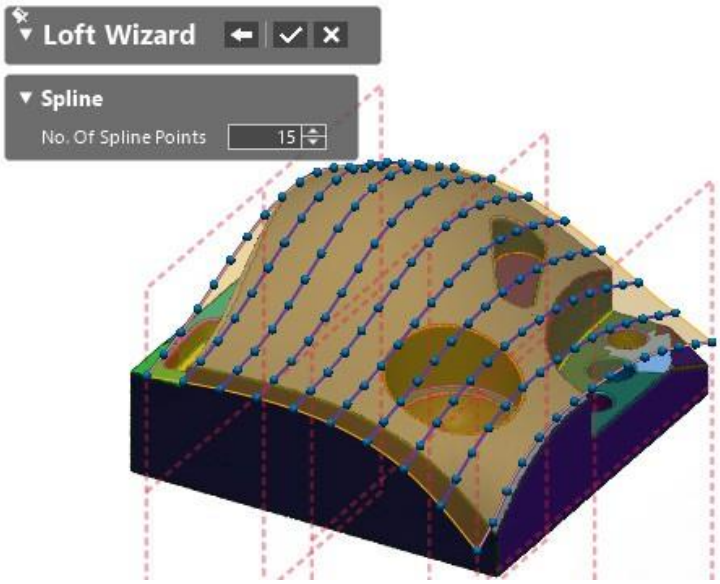
LiveTransfer Update

The following CAD applications are now supported:

- Support for SW2019
- Support for Inventor 2019
- Support for NX 12
- Support for Creo 5.0

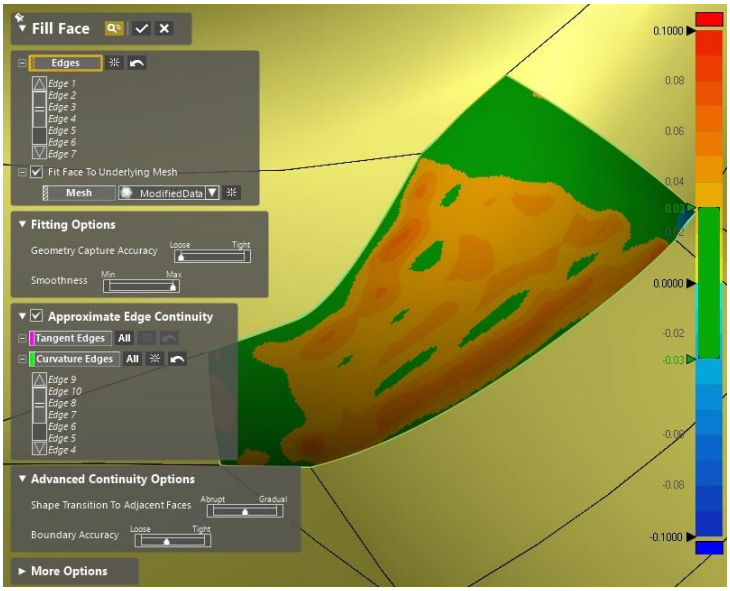
Loft Wizard Improvement

You can now modify the number of spline points used for section curves in creating a lofted surface. This new ability can be found in the 2nd stage of the Wizard.



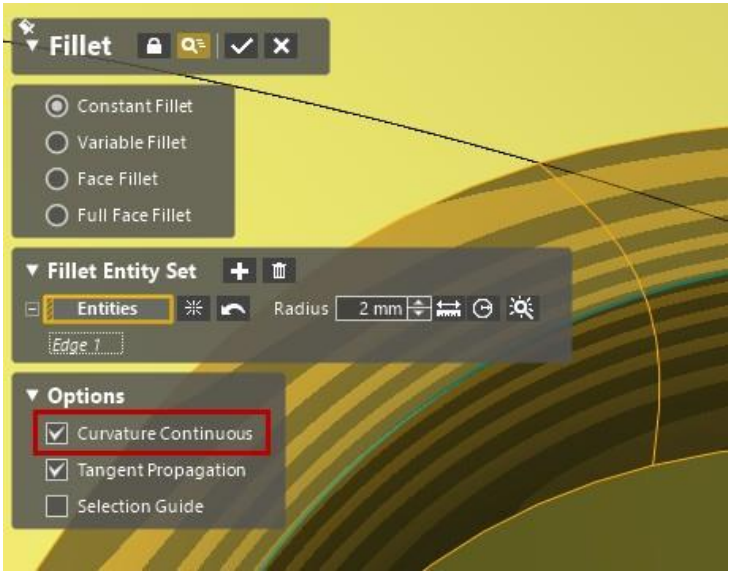
Fill Face Continuity

Ability to create curvature continuous surfaces has been highly enhanced in the Fill Face command.



Fillet supports Constant Curvature Continuity

A new Curvature Continuous option has been added to the Fillet tool. This allows you to add curvature continuous fillets which are smoother than standard tangent fillets to edges or between faces.



Improved Exact Surfacing logic

Added messages to the Exact Surfacing tool to guide you to create better surfaces.

Enhanced Accuracy Analyzer

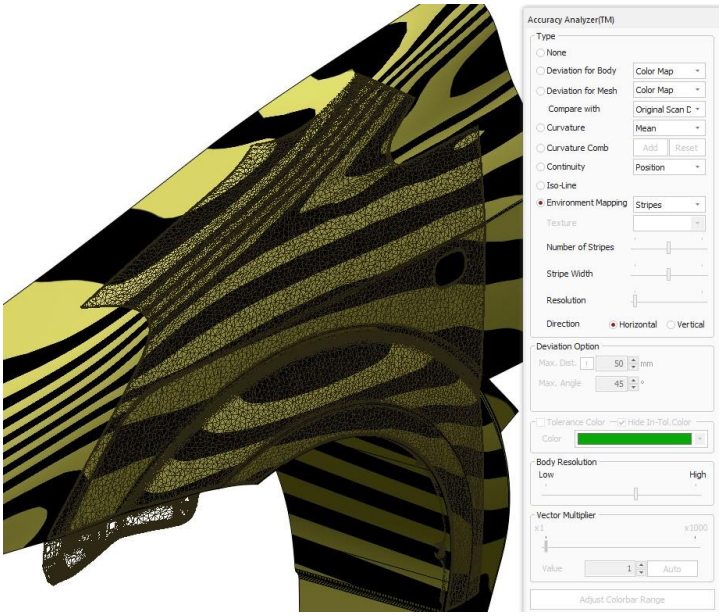
The Accuracy Analyzer has been greatly enhanced to provide greater confidence in your designed models. You can now analyze the surface quality of your models in many different ways and quickly check results.

Accuracy Analyzer

Accuracy Analyzer algorithm improved to provide faster results.

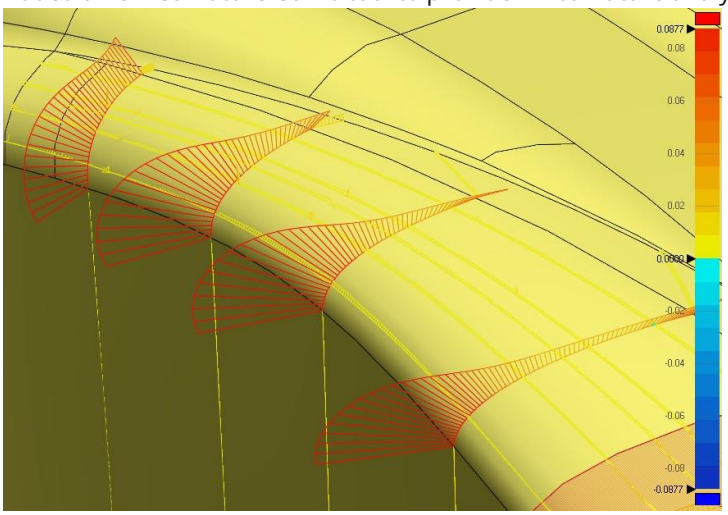
New Zebra Stripes

Added new Stripes options, allowing to better surface quality analysis, also providing control over stripe density and directions.



New Curvature Comb tool

Added a new Curvature Comb tool to provide 2D curvature analysis across surfaces to better surface quality analysis.



BUG FIXES IN 2019.0.0

This section lists issues that have been resolved since Geomagic Design X v2016.2.2:

- **GDX-1070:** Fixed an issue where the software would crash when the user would run Undo after creating boundaries in the Fill Hole function.
- **GDX-2689:** Fixed an issue where the software would crash when the user would run the Optimize Mesh command with the gradient background turned off.
- **GDX-2966:** Fixed an issue where the software would crash when the user would make a variable fillet on a closed edge.
- **GDX-3425:** Fixed an issue where the software would crash using the Combine command after an Undo command, while using data from the Geomagic Capture scanner.
- **GDX-3082:** Fixed an issue where meshes would appear as different colors while scanning with a FARO ScanArm device.
- **GDX-3070:** Fixed an issue where the software would take an unusual amount of time to complete a modeling command with large complex models.
- **GDX-3278:** Fixed an issue where strange polygon shading would appear when converting CAD models to meshes with the “High-Quality” option selected.
- **GDX-3444:** Fixed an issue where the software would crash when the user would use the Combine function.
- **GDX-3431:** Fixed an issue where the Delete Poly-Faces/Vertices dialog would appear every time the user would press the delete key to remove selected data.
- **GDX-3476:** Fixed an issue where the “Extend Maintenance” button would lead to the wrong website.
- **GDX-3527:** Fixed an issue where the Transform Body feature would reset the input values when editing the feature.
- **GDX-3435:** Fixed an issue where the Customize toolbar menu was missing commands.
- **GDX-5846, GDX-3531:** Fixed an issue where the software would crash when the user selected HD Mesh Construction, in the Merge function, with a Xeon processor.
- **GDX-3616:** Fixed an issue where some CAD faces would not properly display deviation while using the Accuracy Analyzer.
- **GDX-3799:** Fixed an issue where some holes would not be filled with the Fill Holes function during a Batch Process.
- **GDX-3586, GDX-3789:** Fixed an issue where the software would crash when scanning dark and reflective objects with the Romer Absolute Arm.
- **GDX-3988:** Fixed an issue where the software would crash when users would use HD Mesh Construction on extremely dense point clouds.
- **GDX-3566:** Fixed an issue where the software would crash when the user would toggle the Autosketch Preview on and off.
- **GDX-3963:** Fixed an issue where some faces would not be deleted when attempting to delete faces from multiple scan objects.
- **GDX-3538:** Fixed an issue where the software would crash when exiting from the second stage of the Revolution Wizard function.
- **GDX-3553:** Fixed an issue where the software could not import SOLIDWORKS 2018 files.
- **GDX-3849:** Fixed an issue where there would be two mesh objects in the model tree, with only one mesh object in the feature tree.
- **GDX-4190:** Fixed an issue where the Undo function would not be available when the user would exit the Delete command using the ESC key.
- **GDX-4445:** Fixed an issue where the deviation would be displayed incorrectly when using the Accuracy Analyzer.
- **GDX-4619:** Fixed an issue where the trigger buttons would not work if the laser was out of range when using a Faro ScanArm.
- **GDX-5197:** Fixed an issue where the software would crash when using the Healing Wizard and Smooth function on scans with color textures.
- **GDX-4484:** Fixed an issue where mesh sketch entities would get displaced when editing the mesh sketch feature.

- **GDX-4731:** Fixed an issue where the software would crash when using the Healing Wizard function on extremely noisy mesh data.

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