



Geomagic®

Geomagic Design X

What's New for 32-bit and 64-bit versions

Build Version 4.1.0.0

December 02, 2013

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I. Installation Guide

This version of the installation guide is for the latest version of the Geomagic Design X application. You can check the version by going to Help > About.

Software Identification

After installation, the update can be verified by running Geomagic Design X and checking the version by going to **Help > About**. This version is listed in the About page as Geomagic Design X (Build Version : 4.1.0.0)

System Requirements

- **Hardware:** The minimum hardware requirements are listed below. More memory will allow for larger models to be processed.
 - ✓ Processor: Intel® and AMD® processors, 2-GHz or above
 - ✓ RAM: 4 GB
 - ✓ Hard Disk: 30GB or more recommended (temporary file cache requires about 3 GB free disk space for every 100 million points)
 - ✓ Graphics Card: OpenGL 1.2 or above, 32 bit true color
 - ✓ For more details, see the System Requirement at:
<https://rapidform.zendesk.com/entries/20237017--XOR-XOV-XOS-System-Requirements>
- **Operating System:** Supported operating systems are listed below.
 - ✓ Windows Vista (32-bit or 64-bit SP1 or above)
 - ✓ Windows 7 (32-bit or 64-bit)
 - ✓ Windows 8 (32-bit or 64-bit)
- **Third Party Application:** Microsoft .NET Framework 4.0

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II. Highlight Functions

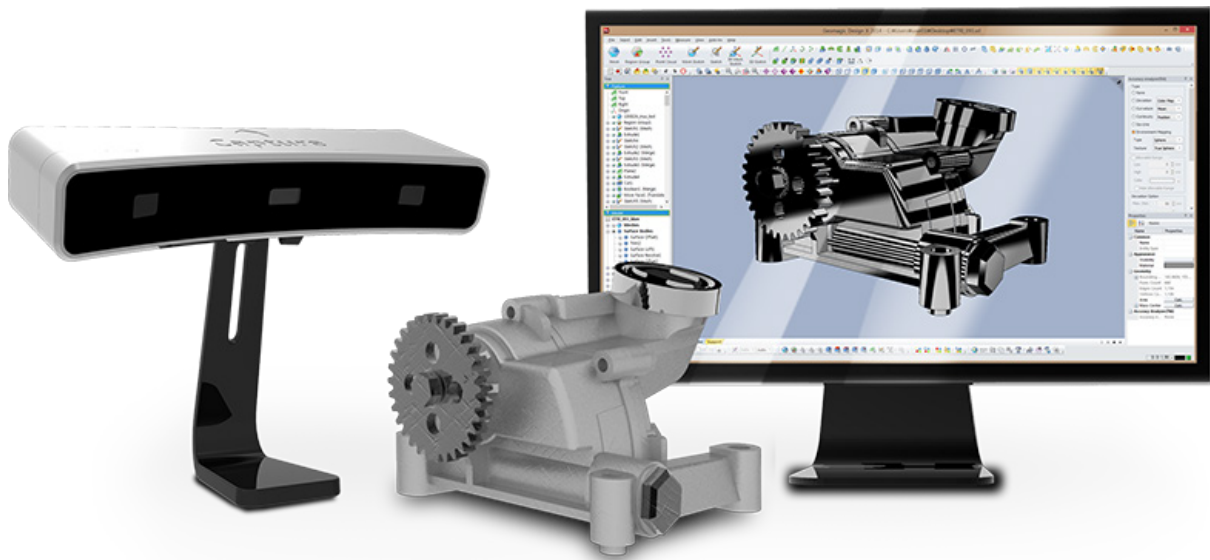
Geomagic Capture Scanner Direct Control

Overview

The ability to use the Geomagic Capture 3D Scanner in the Scanner Direct Control options is now available.

Geomagic Capture is a family of powerful, integrated scanner and software systems for professional Scan-Based Design and quality inspection. It is available in six application-specific configurations, combining the best of Geomagic software with a compact, ultra-precise blue light LED scanner.

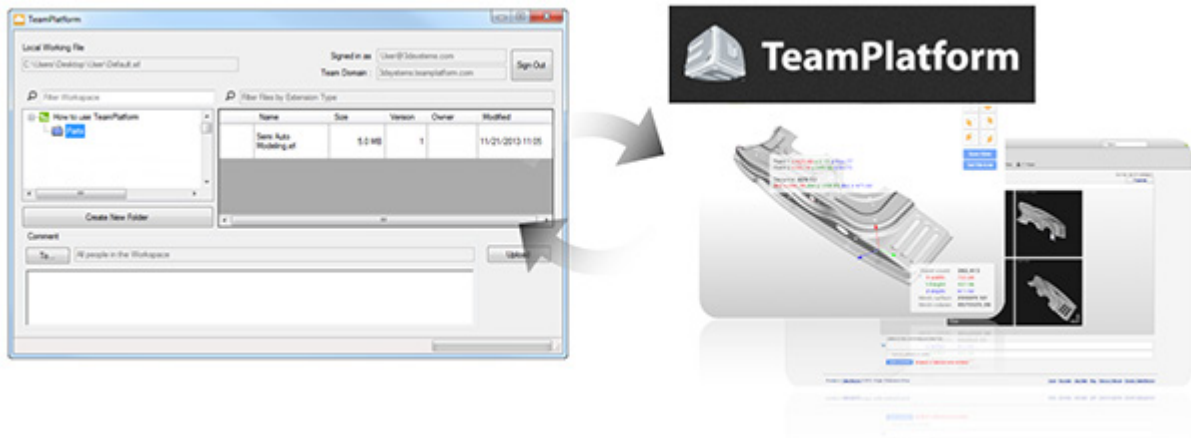
Geomagic Capture enables designers and engineers to incorporate real-world objects into CAD as a seamless part of their engineering workflow. Geomagic Capture for quality inspection delivers precision scanning integrated with Geomagic's high-quality inspection tools in a seamless, push-button manner. With unprecedented performance and affordability, Geomagic Capture ushers in a new era of design-to-manufacturing productivity and utility.



Advantages of Using the Geomagic Capture Scanner Direct Control

- First complete system that combines advanced blue LED scanning technology with easy to use software
- Empowers more creative product design for any industry, because scan-based design connects the real world to a design process
- Provides high-fidelity data that goes directly to CAD
- Includes software or plugins that delivers flexible output for plug-and-play simplicity

Collaboration by TeamPlatform



Overview

Support for TeamPlatform has been included in this version of the application. TeamPlatform is a web-based collaboration tool for discussing projects, sharing files and bringing together people. With TeamPlatform integration in Design X, users can now add, save, and open projects within the application anywhere they go.

Advantages of TeamPlatform Integration

- Allows a user to save, upload, and download a .xrl file into the TeamPlatform system
- Enables the sharing of projects and files in the same workspace by anyone who has Design X, an internet connection and a TeamPlatform account.
- Makes sharing data quick and seamless even if there is a distance or time difference between collaborators

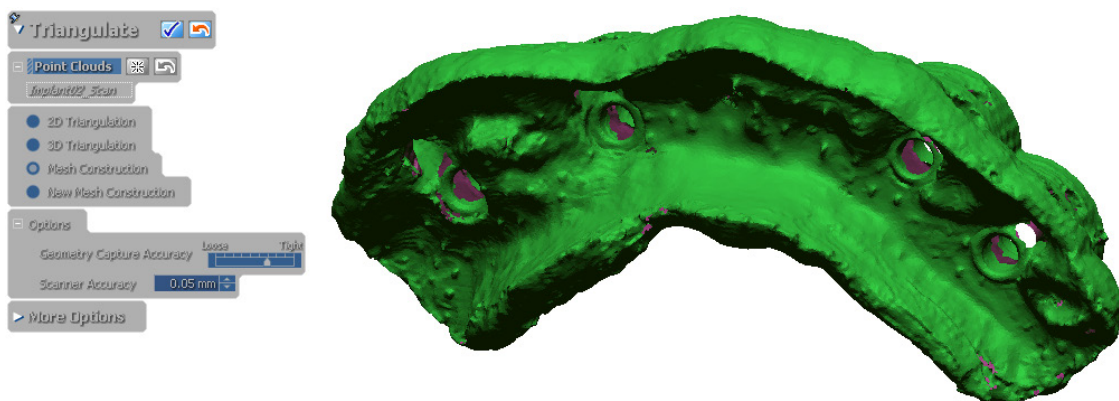
Technical Review

TeamPlatform integration into Design X allows a user to save, upload or download a .xrl file. Design X will automatically convert the file to a .xrl file type during the Save command. If a file is downloaded using the TeamPlatform command, it will be in the .xrl file format.

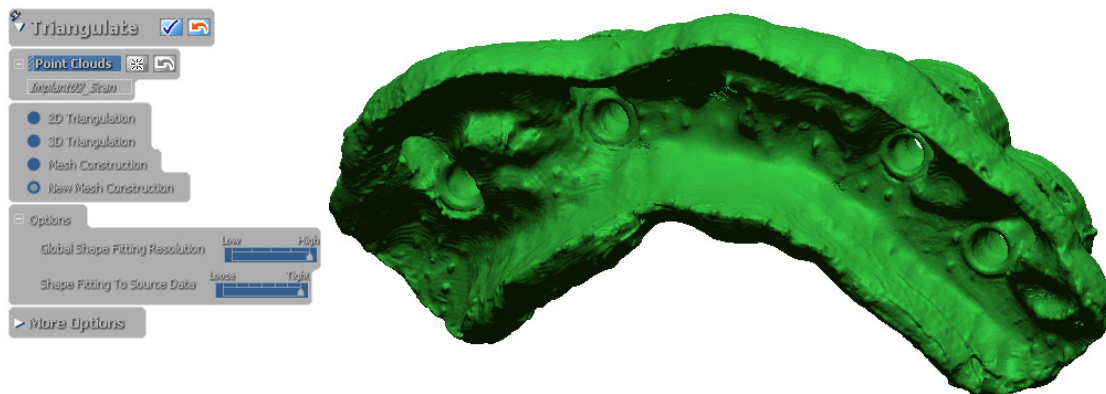
New Mesh Generation Algorithm

Overview

The creation of mesh using the **Triangulate**, **Mesh Buildup Wizard**, **Merge** and **Construct Mesh** commands have been updated and enhanced in Design X. A new option called **New Mesh Construction** has been added along with the existing mesh creation options. This option is based on a brand new algorithm for defining a mesh from point cloud scan data.



Previous Mesh Construction Results



New Mesh Construction Results

Advantages of New Mesh Construction

- Faster results than the previous **Mesh Construction** method
- Can retain more details on a model than the previous method
- Can be useful for creating mesh from long range scanner data

- Useful for noisy data

Technical Review

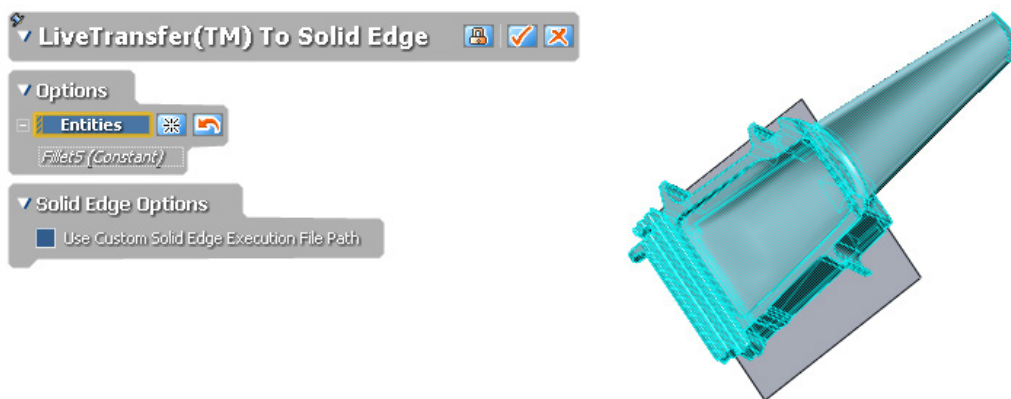
New Mesh Construction Algorithm

The algorithm used for the **New Mesh Construction** option has many benefits over the previously existing method. It is faster, captures more detail, is more accurate, and can be used with scan data that is noisy. However, the previous method remains in the application because there are some situations where the older method might excel. For the **New Mesh Construction** option to create ideal mesh, the points in the scan data must have normal values but the previous method did not require this information. As well, for point clouds that have many boundaries, the resulting mesh will extend boundaries so it is recommended to use the previous **Mesh Construction** method for scans that have a lot of open boundaries. Finally, the algorithm will sometimes over-smooth resulting mesh.

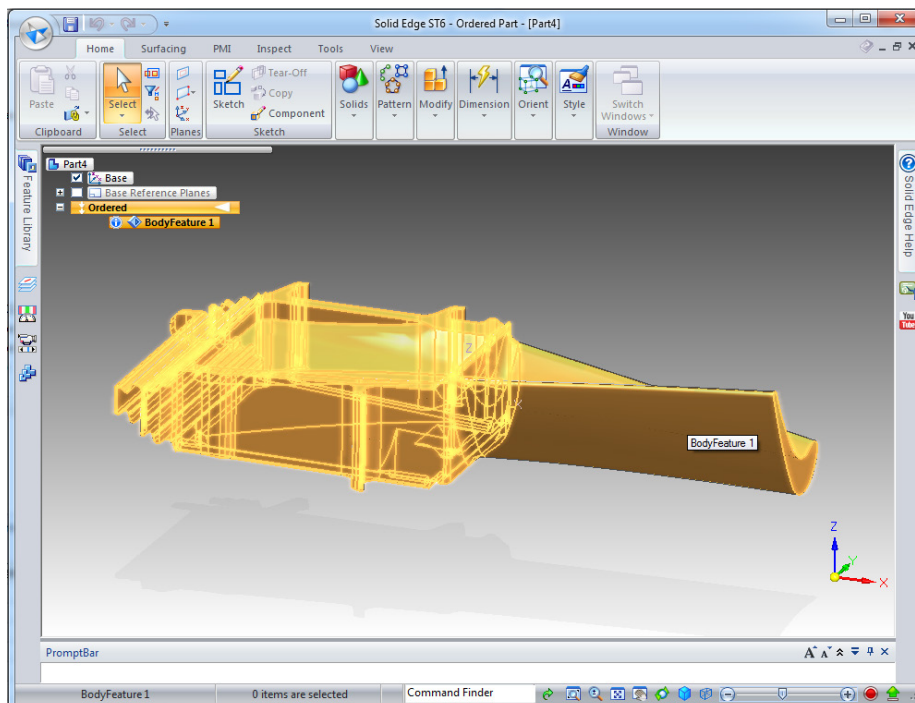
LiveTransfer to Solid Edge

Overview

LiveTransfer is a functionality of Design X used to export models created in Design X to other CAD products. LiveTransfer to Solid Edge is a newly added command in the LiveTransfer family of commands that allows for the transfer of solid and surface bodies from Design X to Solid Edge.



Transferring a Solid Body From Design X to Solid Edge



Final Exported Results

Advantages of LiveTransfer to Solid Edge

- Allows the transfer of any solid or surface bodies from Design X to Solid Edge and the continuation of direct modifications using Synchronous Technology in Solid Edge

Technical Review

The LiveTransfer to Solid Edge command is used to transfer only solid bodies and surface bodies from Design X to Solid Edge. The command supports Solid Edge ST1 to ST6.

III. Enhancements

Healing Wizard

Enhanced Small Area Face Removal

When using the **Healing Wizard**, the application now removes small faces more accurately than the previous version of the application.

Enhanced Folded Face Detection

When using the **Healing Wizard**, the application now can detect folded faces more accurately than the previous version of the application while excluding sharp feature faces.

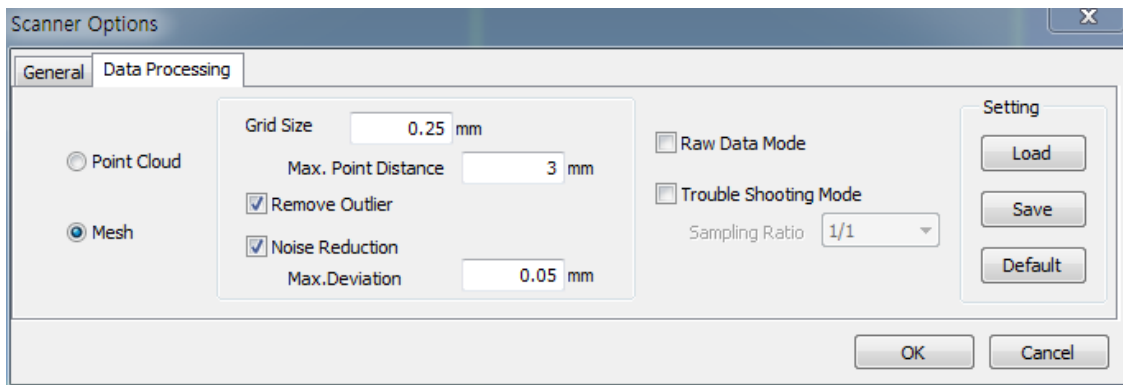
Non-Manifold Vertex Removal

The Non-Manifold Vertex Removal method has been added to the **Healing Wizard**. This method can correctly identify and heal non-manifold vertexes when at least one mesh exists.

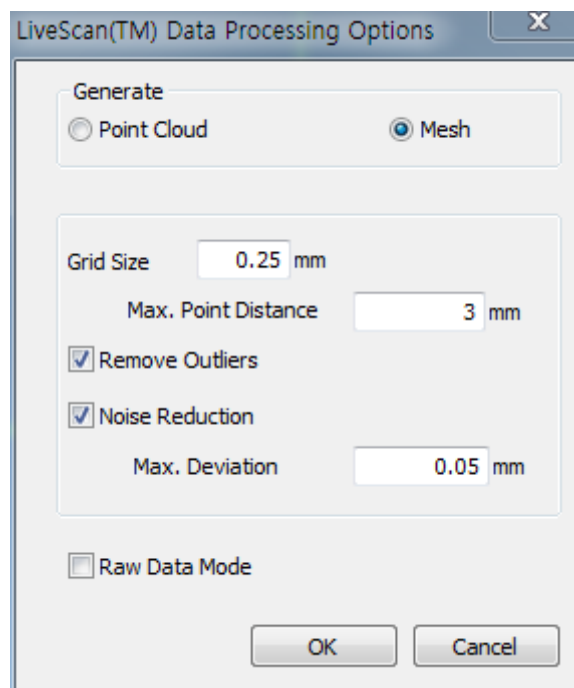
UI/UX Enhancements

Re-adjusting ScanData Settings Option

The Data Processing and import .LSF options in the **Scanner** options for **LiveScan** have been optimized and the dialog boxes are now different. The **Trouble Shooting Mode**, and **Load**, **Save** and **Default Setting** options have been added.



New Data Processing Options Dialog Box



New LSF Import Dialog Box

Mesh Display Mode

The **Mesh Display Mode** option will change to **Flat Face** when entering the **Mesh Mode** if the current setting is **Curvature**.

Performance Enhancements

Volume Merge Multithreaded Performance

The performance of the **Volume Merge** command has been increased for multi-threaded processor support.

Point Cloud Mode

The performance of the **Filter Noise**, **Sampling**, **Smooth**, and **Offset** commands in the **Point Cloud Mode** have been enhanced, as have the **Generate** and **Reverse** commands in the **Scan Tools > Normal Information Manager** command.

IV. Fixed Bugs

Below are a list of bugs found in the previous version of the application:

- Textures were incorrectly displayed when the VBO option was turned on. This bug is now fixed.
- Saving LiveScan preferences then re-loading them would display an error message stating that the file was corrupted or invalid. This bug is now fixed.
- During the LiveScan process in LiveCapture incorrect normal information was sometimes displayed. This bug is now fixed.
- In the LiveScan command when the Scanner Options are set to Point Cloud in the Data Processing tab, the application would sometimes crash during the scanning process. This bug is now fixed.
- If the application was opened with a standard user account in windows instead of the administrator account the application would not autoupdate but for some users it was unclear why. Now when a user attempts to autoupdate using a standard user account, an error message will be displayed informing the user that an administrator account must be used.
- In LiveScan when using a FARO Fusion scanner after doing multiple scan passes the application would crash. This bug is now fixed.
- When starting the application the booting time would sometimes be longer than intended because the application would attempt to communicate to the online support base but would take too long. The bug is now fixed.
- In the preferences if the locale was changed, the application would sometimes take a long time to apply the changes. The bug is now fixed.
- In LiveScan when using a physical scanner, the Data Processing setting options were disabled during the hardware connection process. Now the Data Processing settings can be used when connecting hardware.

- If a user did not have write permissions for a folder containing a SCN file, it could not be imported. This bug is now fixed.
- In the Mesh Buildup Wizard the Find Floor command would not work with point clouds. This bug is now fixed.
- In some cases, when logged in as a Domain User on a company network, the Help contents and Quick Start Guides could not be accessed. This can be fixed by setting a cache folder in Preferences or using the dialog box displayed when trying to access the Help contents or Quick Start Guide.
- Previously if the **Use Shader Programs For Enhanced Rendering** option in the hardware preferences were changed with a standard Windows user account, the settings would not be saved. This bug is now fixed.
- The normal value for vertexes with small neighbor faces would be incorrectly calculated. This bug has been fixed.
- After making a change to the **Language** and **Hardware Multi-thread Rendering Support** options in the **Preferences** and clicking the apply button a dialog box would be displayed. However, the option could then be changed again even if the dialog box was not closed, enabling the creation of many dialog boxes. This bug is now fixed.
- The **Transform Scan Data** command would display a model incorrectly if the **Rotate** value was set to X:-90, Y:0, Z:90 then the method was changed to **By Matrix** and the results were previewed. The bug is now fixed.
- The results of the **Volume** method in the **Mesh Offset** command would create noise and incorrect geometry. This bug has been fixed.
- In previous versions of the application the **Point Cloud Mode** could be exited by using the **Cancel (X)** button at the bottom right-hand corner of the **Model View**. This button has been disabled in this version of the application.
- The **Remove Overlap Region** option did not work in the **Combine** command in the **Scan Tools**. This bug is now fixed.
- When importing Ref. Point using the Import Method in the Add Ref. Point command, the imported point would have millimeters as the measurement unit type, even if a different measurement type was set in preferences. This bug is now fixed.