Geomagic Freeform

Geomagic Freeform Plus

Release Note

Release Date: October, 2022

OQTON

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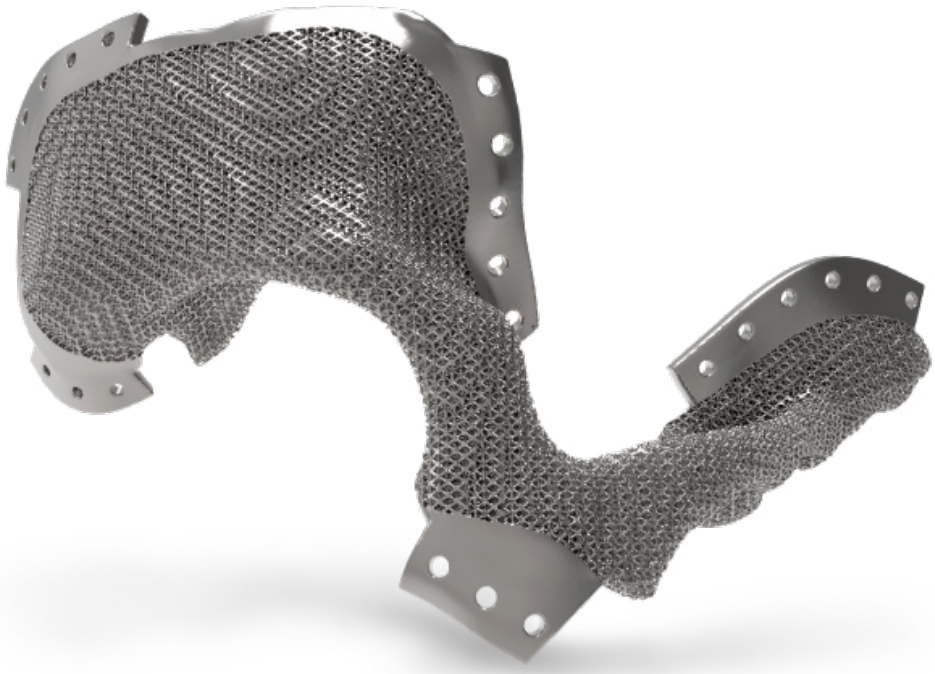
1 INTRODUCTION

INTRODUCING GEOMAGIC® FREEFORM™

Version 2022.1.0



Precise. Organic. Engineered.

3D design software combined with touch-based haptic devices that transforms traditional handcraftsmanship into organic, digital design for custom manufacturing.

Geomagic Freeform® and Freeform Plus™, the industry's most comprehensive organic design solution, enable you solve complex precision-design and manufacturing challenges. As the leading hybrid design platform on the market, it allows you to easily address challenging tasks within existing scan-to-print or CAD-to manufacturing workflows.

What Can You Do with Geomagic Freeform?

Customers are using Geomagic Freeform for a wide range of applications—from large-scale, customized products to highly-detailed, ornate, and artisanal products—across a variety of industries.

Product design & manufacturing

- Creating fast design and reiterations of intricate models in minutes.
- Designing manufacturing-ready models from multiple file formats combining solids and surfaces.
- Defining complex parting lines, removing undercuts and overhangs, and adding finishing details.
- Repairing complex geometry no matter the origin design software.

Healthcare

- Transforming traditional hand fabrication of orthoses and prostheses (O&P) to a digital workflow.
- Designing custom orthotics and prosthetics that are highly-personalized, better-fitting, lighter, and stronger.
- Innovating and personalizing their artisanship with precise, multi-material, engineering-grade manufacturing processes.
- Creating functional cages for applications such as custom medical implants.

2 INSTALLATION

System Requirements

For the Freeform Family of products, the system requirements, can be found on the support website: Freeform Family System Requirements. Note that some users have had success running system configurations that deviate from the supported list. In such cases, these configurations are not officially supported by Oqton, 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 Web site for the latest system requirement information and specific qualified systems.

Supported Graphics Cards

For the Freeform Family of products, the system requirements, including a list of qualified graphics cards, can be found on the support website: Freeform Family System Requirements.

Download and Install Software

You can download and install the software from Getting Started, select the Freeform or Freeform Plus product, select to download Freeform or Freeform Plus.
In addition, automatic software updates are available if you selected **Check for updated versions of the software** in the **Tools>Options>General>Updates dialog**, 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.
If you have a Touch device attached and the Touch Device Driver (TDD) is installed, this option will also prompt you if there is an updated TDD available to download. Deselect this option if you do not want to be informed that updated versions of the software are available.

Activate License

Geomagic Freeform or Freeform Plus product 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 a virtual or physical dongle.
After you start your application, the License Utility window opens. The License Utility allows you to activate and use the Freeform or Freeform Plus 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 Oqton with your activation code. If you have not received an email from Oqton, contact them at geomagic.support.americas@oqton.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 Getting Started, and scroll to the Licensing section.

Licensing Agreement

Please see the End User License Agreement (EULA) located in the *<Installation Directory>\Documentation\License.rtf* folder for complete terms and conditions of the license.

Touch Device Drivers (TDD)

This software is optimized to run with the latest version of the Touch Device Driver. As this version of Freeform is released, the current Touch Device Driver is v2021.9.21, which includes the new Touch Smart Setup Application*, as well as support for the new TouchX USB device. To download and install the latest TDD go to Getting Started, select to download Freeform and then select the most up-to-date device driver that is compatible with your device.

***NOTE: The new Touch User Guide on the product downloads page contains additional information on installing the Touch Device Driver, as well as usage information on the new Touch Smart Setup application. The advanced Setup and Diagnostic applications are still available by way of the Touch Device Driver's application directory should the optional desktop shortcuts not have been chosen during the TDD installation process.**

NOTE: As of v2019.0, the legacy Firewire Omni devices are no longer supported within the Freeform family of products. Please contact your local sales representative for information regarding newer devices and upgrade options, or visit our website: 3D Systems Haptic Device Product Lineup**.**

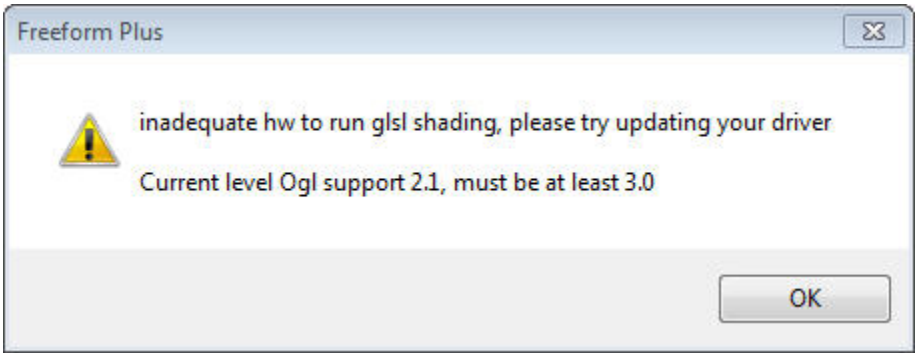
Required Hardware

Freeform v2022 requires a minimum display resolution of 1920 x 1080. As of this release, Freeform will support large screen monitors with high resolution display.

NOTE: Using custom desktop display settings which apply font and icon scaling may cause menu and dynabar contents to not fit properly.

Freeform v2022 also minimally requires a graphics card with OpenGL 3.0 support, and OpenGL 4.3 enables the software to provide additional performance enhancements.

NOTE: You may receive a warning when you launch the product should either your card or driver not support OpenGL 3.0 as required. If you receive the following warning, go to the manufacturer's website and download the most recent driver.



NOTE: Some older graphics cards may not have OpenGL 3.0 compatible drivers available. See your manufacturer's options.

When using cards and drivers that support OpenGL 4.3 you will be able to take advantage of the newer high resolution transparency options and improved framerates added in v2017.0. While the product may still run without this graphics capability, you will not experience the new capabilities.

For the Freeform Family of products, the system requirements, including a list of qualified graphics cards, can be found on the support website: Freeform Family System Requirements.

Operating System

A 64-bit version of Windows 8 or 10 is required to run this version of the software. 32-bit is not supported.

Version Compatibility

Old Files - This version will open models that were created in older versions of Freeform or Freeform Plus, however, models created in this version may not be compatible with previous versions.
When a file is opened in Freeform or Freeform Plus, it is automatically converted to the current format. Once converted and saved, the model may lose compatibility with older versions. We strongly recommend that you save backup copies of all Freeform files from previous versions before opening them in a newer version.

Installing Multiple Copies of Freeform Software

The Freeform installer now allows for side-by-side installations of different versions of Freeform. However, only one version can be run at a time.

3 NEW FEATURES AND ENHANCEMENTS

The following is a summary of new features and enhancements in FreeForm v2022. For a more comprehensive look at the new features and enhancements in the v2022 release see the online Help topic titled “What’s New?” You can access the help from within the FreeForm application by pressing F1 or from the Help Menu.

NOTE: Customer-requested issues are noted with an *.

NOTE: The ‡ symbol indicates features that are only available in Freeform Plus.

What’s New in 2022.1.0

Feature Enhancements

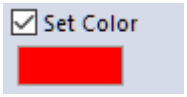
Mesh

Enhancements to Mesh Engraving

The **Engrave Text on Mesh** tool allows you to create an engraved text as a new mesh piece with a desired color.

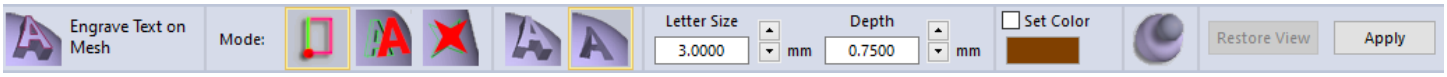
- Added the ability to Create in New Piece.

- Added the ability to apply color to the engraved faces.



This tool may be accessed from the following location:

- Mesh Tools Palette – Engrave Text on Mesh



Construction

Snapping Shapes

Use the new **Magnetize** feature to snap and align objects to the surface of the active piece. This feature is now available for both a mouse and a haptic device.

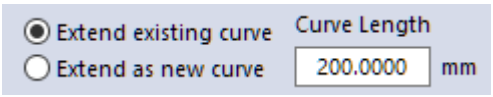
This tool may be accessed from the following location:

- Construct Clay Palette – Basic Shapes

Curves

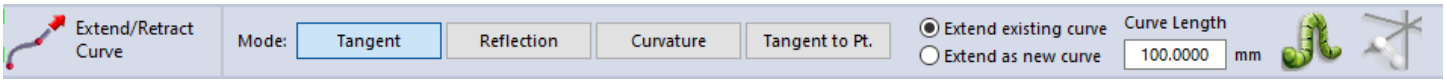
Extend/Retract by value

Use the **Curve Length** value to specify the length of the edit from the selected point.



This tool may be accessed from the following location:

- Curves Palette – Extend/Retract Curve

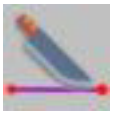


What's New in 2022.0.0

Feature Enhancements

Split Piece Tool

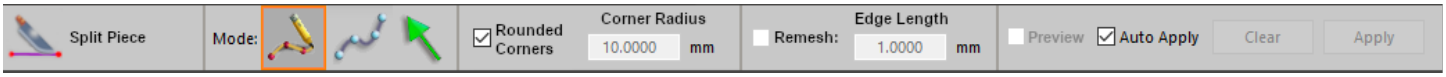
The new **Split Piece** tool enables fast and efficient dividing of mesh and clay pieces.



- Split from projected view
  - Intuitive 2D drawing interface
  - Live preview of cutting surface
  - 2D curve can be edited from any view
- Split using 3D curve

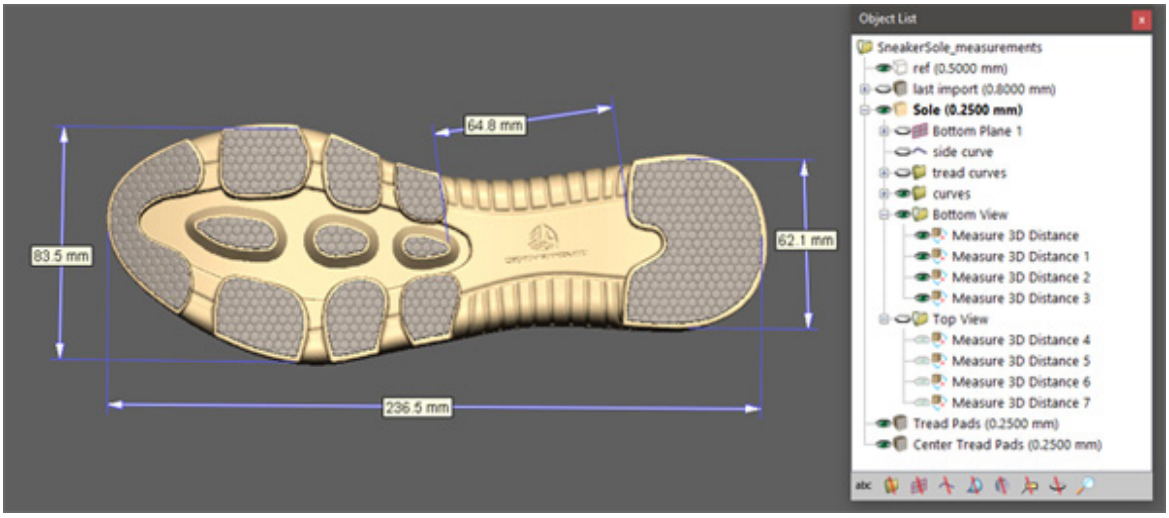
This tool may be accessed from the following location:

- Select/Move Clay – Split Piece



Measurements

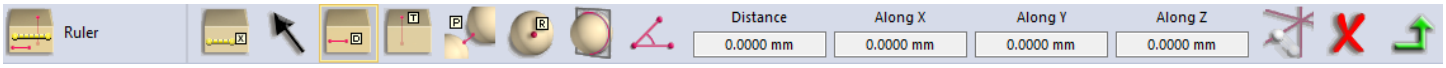
The **Ruler** tool has been updated to produce CAD-like 3D measurements that can be styled, included in screen exports, and saved with the CLY file.



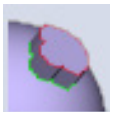
- The new behavior replaces the existing behavior for the following modes:
  - Distance
  - Thickness
  - Between Objects
  - Angular
- Users will be able to clear all measurements created in a session
- Styles for appearance can be created and saved

This tool may be accessed from the following location:

- Analysis Tools – Ruler



Extrude Open Mesh Edges

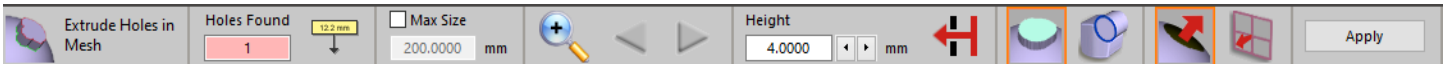


The new **Extrude Open Mesh Edge** tool allows the user to select an open boundary on a mesh piece and extrude new geometry from the edges.

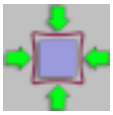
- Creates and projects new faces from an open boundary/hole
  - Perpendicular to the average directions of the boundary
  - Project to a plane
  - Project inward and through the piece

This tool may be accessed from the following location:

- Mesh Tools – Extract Open Mesh Edge



Shrink Wrap Mesh



The new Shrink Wrap mesh tool allows you to:

- Create a single watertight mesh that is based on the external faces of one or more meshes
- Repair gaps and holes as well other mesh topology issues
- Remove internal structures from geometry or assemblies
  - Can be used in conjunction with Mesh Merge feature
- Can be used to retopologize mesh pieces

This tool may be accessed from the following location:

- Object List – Mesh Utilities – Shrink Wrap

Mesh Fixing and Editing

Reduce (Decimation) has second modes for CAD style models

- Create a single watertight mesh that is based on the external faces of one or more meshes
- Dramatic improvements in mesh quality and ability to retain details
- Sharp edges are maintained

Analyze and Repair has second modes for CAD style models

- Choice of fixing engine is available in the dialog
- Fix issues with models without disturbing surface features

Merge Meshes allows you to combine mesh pieces into a single mesh piece while keeping the individual shells and not performing a Boolean operation

- This can be useful when using the new Shrink Wrap feature
- This can also simplify export operations
- Separate Shells command can restore mesh to individual shells

Mesh Boolean has a new option to use the CAD style engine

- This is a global preference that only affects user called Mesh Boolean operations from the Object List

This tool may be accessed from the following location:

- Object List – Mesh Utilities

Register Pieces

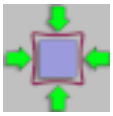
The **Register Pieces** tool has been enhanced to support selections per piece for alignment and includes a new intelligent selection mode

- Support for selection based alignment has been added
- Selections can reduce error in alignment by only evaluating specified regions versus the entire model
  - New Selection to region mode added

These tools may be accessed from the following location:

- Select/Move Clay – Register Pieces

Mesh Select Area



The **Mesh Select Area** tool has been enhanced to include a select planar region option.

- New ability to expand a selection to include all faces that are on the same plane
  - Initial selection only needs to contain enough faces to identify the plane
  - Clicking the **Expand Planar Selection** button will complete the selection

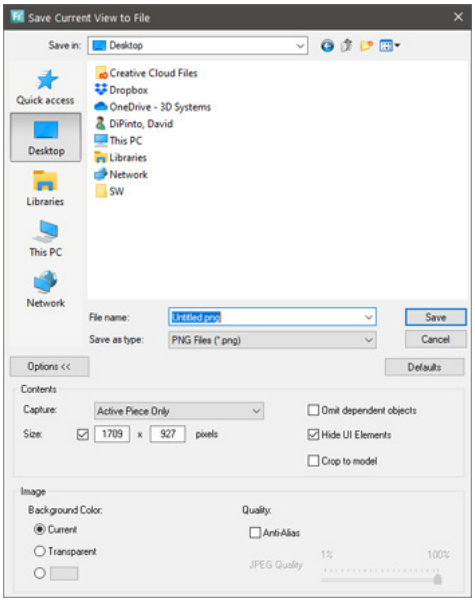
This tool may be accessed from the following location:

- Mesh Tools – Mesh Select Area

Save View Image(s)

The **Save View Image(s)** tools has been upgraded to improve efficiency and to give users faster access to commonly used settings.

- Handling of transparent background
- Anti-Aliasing Settings
- Improvements for file naming
- Automatic image cropping
- Hiding/Showing onscreen widgets and tools
- Turntable improvements
  - Custom names for views
- Added Options to the Save Current View to File dialog
  - Access to commonly used parameters without needing to go to Tools > Options > General > Save View as Image

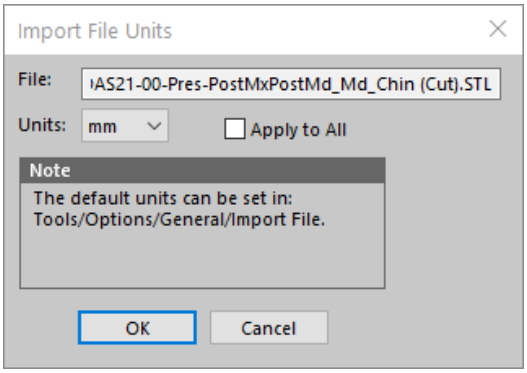


This tool may be accessed from the following location:

- FIle– Save View Images

Import STLs

The import dialog when dragging and dropping STL files into Freeform has been enhanced to include the option to apply units to all files.



4 FIXED BUGS

NOTE: Customer-reported issues that have been resolved are noted with an *.
NOTE: The ‡ symbol indicates features that are only specific in Freeform Plus.

Bug Fixes in 2022.1.0

This section lists issues that have been resolved in the 2022.1 release:

- **GF-9186:** Dynabot - Hotkey Assignment - Play sometimes interrupted by the invoking key press ‡
- **GF-10002:** Dynabot: Variables - Cannot combine number and text variables as text.
- **GF-10623:** Sketch: Round Corner - Intermittent issue where radius does not match input
- **GF-10653:** In FreeForm_2021.1 it is not possible generating solids when you want to stitch patches. ‡
- **GF-10667:** Engrave Text on Mesh: Unable to engrave using Japanese fonts.
- **GF-10704:** DICOM Import: Cannot read file from customer. ‡
- **GF-10710:** Register Pieces: Area selection on clay can take very long time when haptic is connected.
- **GF-10810:** Dynabot: “Turn see through on or off for active piece” task can get out of sync with See Through state.
- **GF-10811:** DICOM Import: Hang case reported by sales ‡
- **GF-10846:** Emboss with Curve disrespecting Parting Line and Pull Direction
- **GF-10859:** Dynabot: Reposition Origin tool does not record choice for Auto Orient Triad. ‡
- **GF-10872:** Engrave Mesh: Add support for Dynabot to set the font. ‡
- **GF-10957:** Dynabot: Clay Fill Voids - Allow the Dynabot to suppress the results dialog. ‡
- **GF-10986:** Export of Solids: Fails to apply chosen units (inches). ‡
- **GF-10992:** Project Curve to Plane: Release lockout of function for modes that project copies ‡
- **GF-10993:** Trim Patch: Optimization of Boundary Selection Step ‡
- **GF-10994:** Split Curves (3D): Request cross-session persistence of the tolerance setting
- **GF-11022:** Select Sketch Object: Editing sketch curve endpoint sometimes selects tangency handle when points are close.
- **GF-11068:** Shell Cut Clay: "Operation resulted an empty piece" in this case
- **GF-11078:** Align Piece to an Axis: Bug in Freeform when aligning parts except the active piece.

Bug Fixes in 2022.0.0

This section lists issues that have been resolved in the 2022 release:

- **GF-10612:** Reading OBJ files: FF should not turn group or object names with spaces into multiple groups or multiple objects.
- **GF-10600:** Reading OBJ files: FF should accept .mtl (material) files that contain leading tabs.
- **GF-10356:** Slow auto-update check can freeze Freeform.
- **GF-10349:** AutoSurface: Message clipped when piece contains a lot of triangles.
- **GF-10347:** Intersect Sketches: Tool does not work.
- **GF-10337:** Curve Network to Piece - Unable to create piece for this case.
- **GF-10334:** The icons in the OL are clipped with DPI scaling above 100%.
- **GF-10318:** Mesh Combine: Combine dialog - Combine Mesh piece into Mesh Piece with Paint, dialog options have no effect.
- **GF-10175:** Save View image: Omit dependent objects option is not hiding some objects.
- **GF-10165:** Save View Image: Current View - App crashes to desktop when trying to open dialog.
- **GF-10160:** Save current View: Contents - The capture and centering options are not working for current view screenshots.
- **GF-10156:** Save View Image: Current View - Setting a custom background color does not fill in the selection control in dialog.
- **GF-10155:** Save View Images: Current View - PNG is not being saved out with transparency.
- **GF-10063:** Freeform v2021 - Intersect Sketches bug
- **GF-10020:** Mesh: Offset - The scaling for mesh offset is not correct.
- **GF-9896:** Save Turntable Views should name front view 'Front' instead of 'angle0'.
- **GF-9823:** Planes: Visibility of images on planes not saved if plane is hidden during file save.
- **GF-9788:** Tools/Options: 3D Printer - Printer Type properties does not update on Add Printer form when items are checked.

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