



RapidWorks

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

Build Version 4.0.0.0

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I. Installation Guide

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

Software Installation

How to install automatically

When the **Update Product Automatically** option is set to **True** in **Preferences**, a valid maintenance code is activated, and a computer is connected to the internet, the application will check if a newer version is available and will download it automatically for installation. Going to **Help > Check For Update** can manually check for updates. This command updates the product to the latest available version.

How to install

Download a setup file from the NextEngine website (<http://support.nextengine.com>) and install it.

After installation, the update can be verified by running RapidWorks and checking the version by going to **Help > About**.

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)

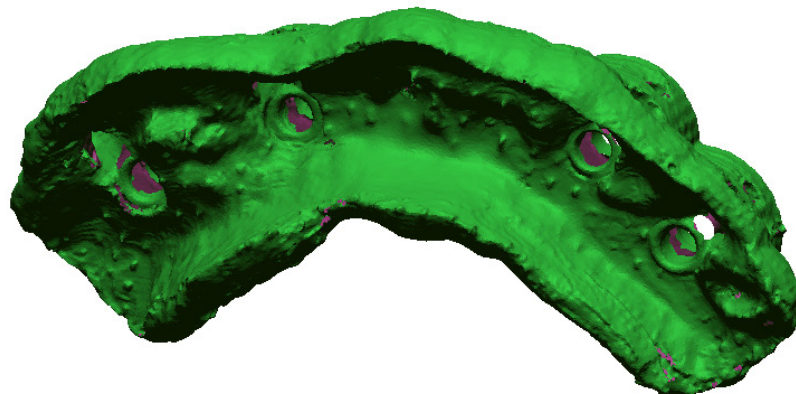
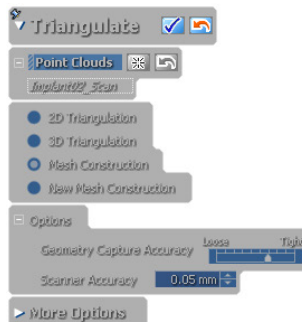
- ✓ Windows 8 (32-bit or 64-bit)

II. Highlighted Functions

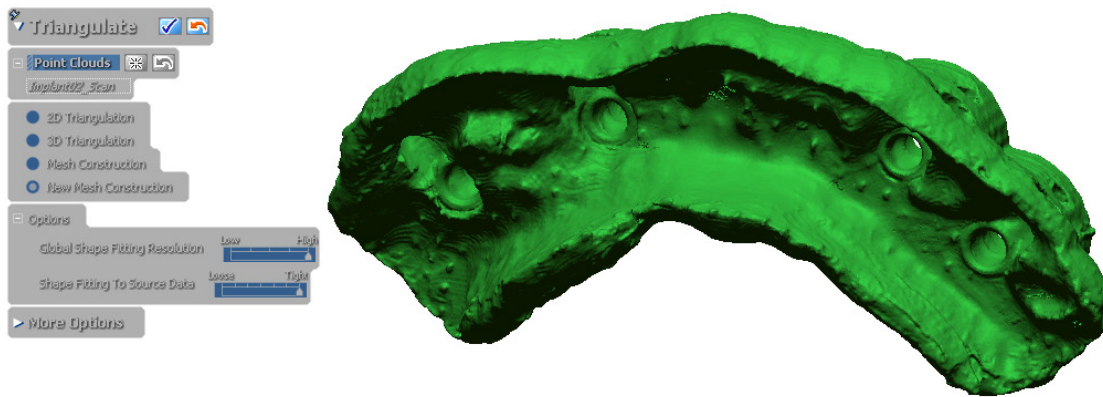
New Mesh Generation Algorithm

Overview

The creation of mesh using the **Triangulate**, **Mesh Buildup Wizard**, **Merge** and **Construct Mesh** commands have been updated and enhanced in RapidWorks. 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

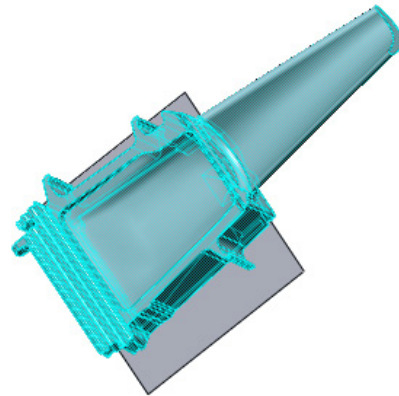
New Mesh Construction Algorithm

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.

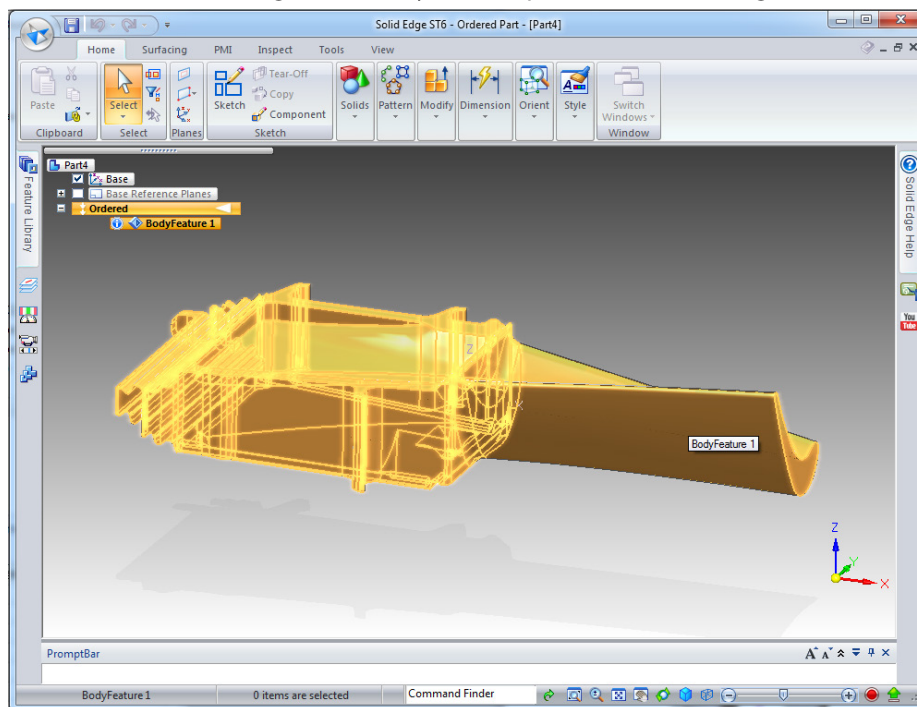
LiveTransfer to Solid Edge

Overview

LiveTransfer is a functionality of RapidWorks used to export models created in RapidWorks 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 RapidWorks to Solid Edge.



Transferring a Solid Body From RapidWorks to Solid Edge



Final Exported Results

Advantages of LiveTransfer to Solid Edge

- Allows the transfer of any solid or surface bodies from RapidWorks 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 RapidWorks 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

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.
- 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.
- 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.
- 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 boxed 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.