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Manufacturing Data Extension Module '3-D Printing'

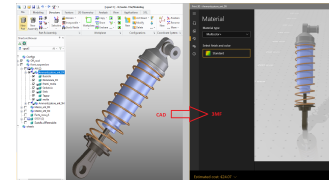
3D Printing Extension Data Sheet

The *3d_printing* extension module for *Modeling* provides tools for the 3-D printing process chain. It adds utilities and dialogs to import, export and work with manufacturing data in the industry standard formats *STL* and *3MF*.

Feature Overview

Manufacturing Data Export

3D CAD Models can be exported in popular manufacturing data formats *STL* and *3MF*:

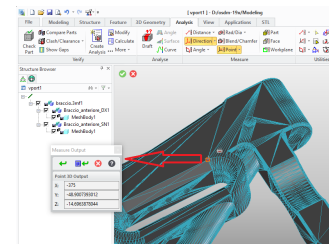


- Manufacturing data can be generated from CAD models with full control of linear and angular precision of the triangular mesh.
- 3MF data export supports:
 - Assembly structures and part positioning
 - Geometry sharing (Shared parts)
 - Part colors
 - Custom metadata

Manufacturing Data Import

STL and *3MF* data can be imported to *Modeling* as:

- Lightweight graphical model supporting geometry inspection
- 3D CAD model supporting modeling operation (depending on the data quality)
- 3MF data import supports:
 - Metadata
 - Component Structure (represented as assembly structure)
 - Shared Components (represented as shared parts)
 - Color



Reverse Engineering of Analytic Surfaces

- Higher level surface regions are reconstructed from the triangular facet model with automatic or manual precision control.
- Based on supervised machine-learning algorithms.
- Significant data reduction



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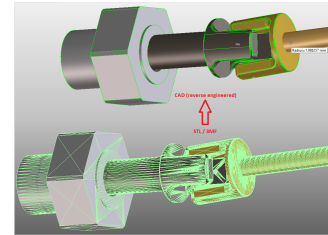
Lisp API

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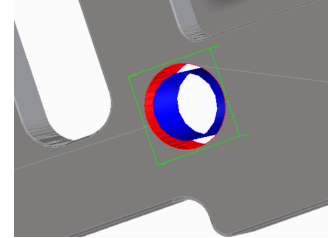
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- Model and surface manipulation (depending on the data quality)



Mesh Quality Assessment

Compare manufacturing models (STL or 3mf) with their original CAD models to detect quality issues introduced during mesh postprocessing.



Getting Started

- [Extension Module Installation and Startup](#)
- [Extension Module Customization Overview](#)
- [The Extension Module User Interface](#)
- [Known Limitations](#)
- [Import Examples](#)
- [Package Release Notes](#)

Programming Interfaces

Lisp packages in this module

Name	Summary
3d-printing	Primary package of the <code>3d_printing</code> extension module for <i>Modeling</i> .
3d-printing.data-exchange	The package <code>:3D-PRINTING.DATA-EXCHANGE</code> (nicknamed <code>:3DP.X</code>) contains a LISP API and dialogs to import or export manufacturing data such as <i>STL</i> or <i>3MF</i> with optional reverse-engineering of facet-data into analytical surfaces.

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