

3D Assistant

FrameMaker-to-Acrobat TimeSavers Add-on

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Overview

3D models can enrich hardware docs:

- **Installation instructions**
- **Service manuals**
- **User tutorials**
- **Part catalogs**
- **Interactive electronic technical manuals**



Why use 3D (or multimedia)?

- **Accommodate different learning styles (visual demo vs. text-intensive)**
- **International audience; reduces text translation/localization**
- **“Internet generation”**
- **Intuitive knowledge transfer to users**
- **Processes/products can be difficult to describe, but easily understood visually**



Dynamic 3D in hardware docs A

- **Demonstration of part installation/replacement**
- **Part identification**
- **“Physically impossible” demonstrations**
- **Showcasing of color and finish options, configurations**



Dynamic 3D in hardware docs B

- **Empowering users so that they can investigate features, moving parts:**
 - **Dynamic viewpoints / exploded views**
 - **Motion and functional simulations**
 - **Cross-sections**
 - **Measuring**
 - **Translucency & transparency to emphasize a part**



U3D File Format and Support for U3D in FM 8/9



Universal 3D format (U3D)

- Stores the essential 3D data necessary for downstream uses
- Can be viewed on affordable, standard software/hardware platforms



Creating U3D files

- **Export from 3D applications**
- **Convert native 3D models to U3D using Acrobat 3D (3D Toolkit) or Acrobat 9 Pro Extended (PDF Reviewer)**
 - **Possibly simplify the model**
 - **Can add animations to U3D (3D Toolkit or Deep Exploration)**



Support for U3D in FM8/9

- **Insert 3D models (U3D-ECMA1) in FM documents**
(File > Import > File)
- **Set parameters:** (Graphics > 3D Menu)
 - **Background color**
 - **Lighting**
 - **Select default view**
 - **Render modes**
- **Use “Save as PDF” (only) to create PDFs with interactive 3D models**



Additional Features Using TimeSavers + 3D Assistant



TimeSavers + 3D Asst

- **Embed U3D (ECMA1 and ECMA3) through hypertext markers in FM files**
 - **Define related views, bookmarks, links or JavaScript**
 - **Applies to all FM versions**
 - **U3D-ECMA3 features mesh compression (requires Acrobat/Reader 8 or higher)**



TimeSavers + 3D Asst

- **Interactive 3D models, together with specified features, are automatically present in the PDF file upon distilling**



3D state and interactivity

- **Control 3D annotation state –**
3D annotation can be active by default (when visible or when the page is opened)
- **3D-related interactivity**
 - **Optionally add links/bookmarks to 3D models, 3D views, model/part properties**



Defining 3D views

Via a Views file, control:

- **Lighting**
- **Background color**
- **Field of view**
- **Cross-section views**
- **Render mode**
- **Zoom**
- **Node visibility**



3D user interface control

- **Control 3D toolbar – show or suppress toolbar interactivity**
- **Control model tree**



3D JavaScript

- **Model-specific 3D JavaScript can control**
 - Animations
 - Effects such as showing/hiding/highlighting parts, rotating, displaying custom menus
- **3D JavaScript-based interactivity**
 - Built-in/customized 3D JavaScript links/bookmarks
 - May also apply to 3D models inserted in FM8/9 through **File > Import > File**



3D animation

- **Can specify animation style, speed, sequences**



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