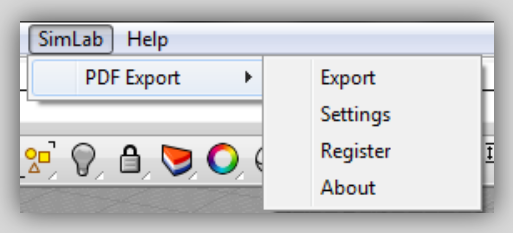
SimLab 3D PDF plugin for Rhino 6

Benefits

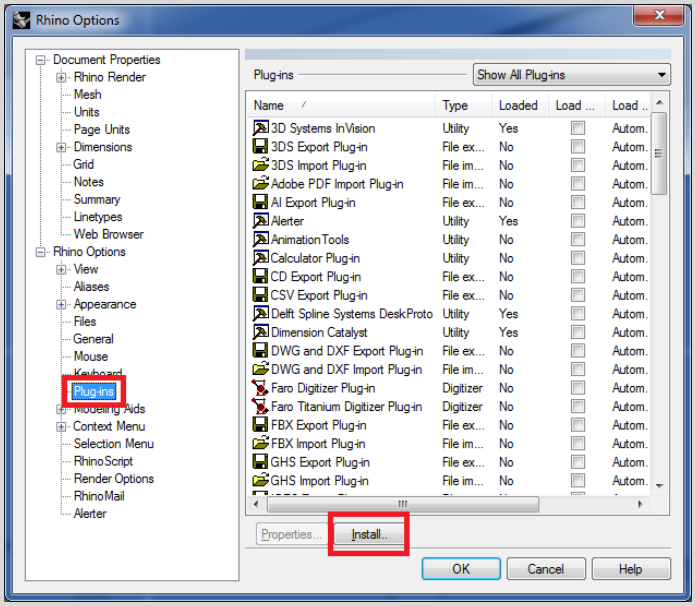
3D PDF is the best way to share 3D models with users without risking losing their details. The file recipient will need a free copy of Adobe Acrobat reader (which is already installed on most Windows and Mac machines).
Navigating the 3D model is very easy and can be mastered by none technical users. The file creator has the option to include multiple cameras in the 3D PDF file, and to make the file recipient switch between those predefined cameras.

Installation

The plugin automatically registers itself with Rhino 4 / 5 when it is installed.
The functionality of the plugin can be accessed from the menu **SimLab** -> **PDF Export**



Manual registration may be needed in some cases. In case the top level menu **Plugins** did not appear, the user can manually register the plugin by clicking **Tools** -> **Options**. From the option dialog the user should select **Plug-ins**.



From the plug-ins options the user should click on **install** and select the RHP file for the plugin (**SimLabPluginPDFFromRhino.rhp**).

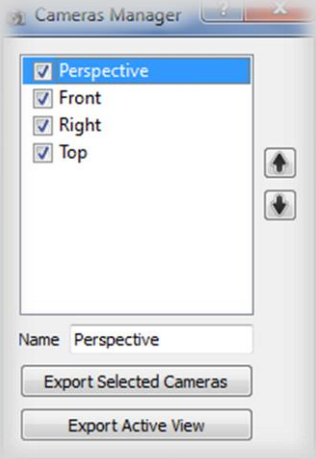
For 64 bit version default location is
C:\Program Files\SimLab\Plugins\SimLab 3D PDF From Rhino\

For 32 bit version default location on windows 64 bit is
C:\Program Files (x86)\SimLab\Plugins\SimLab 3D PDF From Rhino\
The default location of the RHP file in windows 32 bit is
C:\Program Files\SimLab\Plugins\SimLab 3D PDF From Rhino\

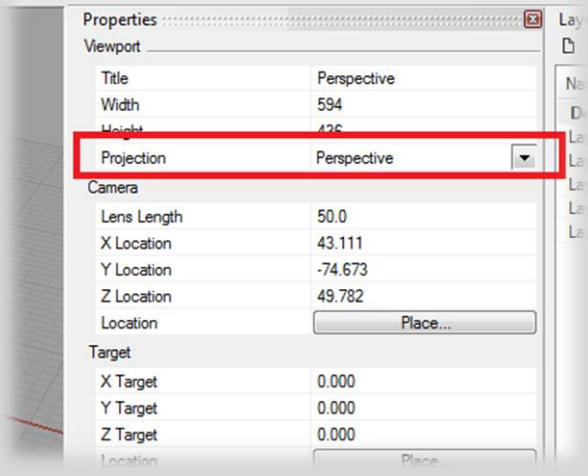
Exporting 3D PDF files from Rhino

Exporting 3D PDF file can be done by clicking **SimLab -> PDF Export -> Export.** The user will then be asked to select the output file name.

After selecting the output file name the **camera manager dialog** will appear. Each view in Rhino will be listed as a camera in this dialog, using the camera manager dialog the user will be able to select the cameras to be included in the generated 3D PDF file, and the order of those cameras. The user will also be able to change the names of the cameras.



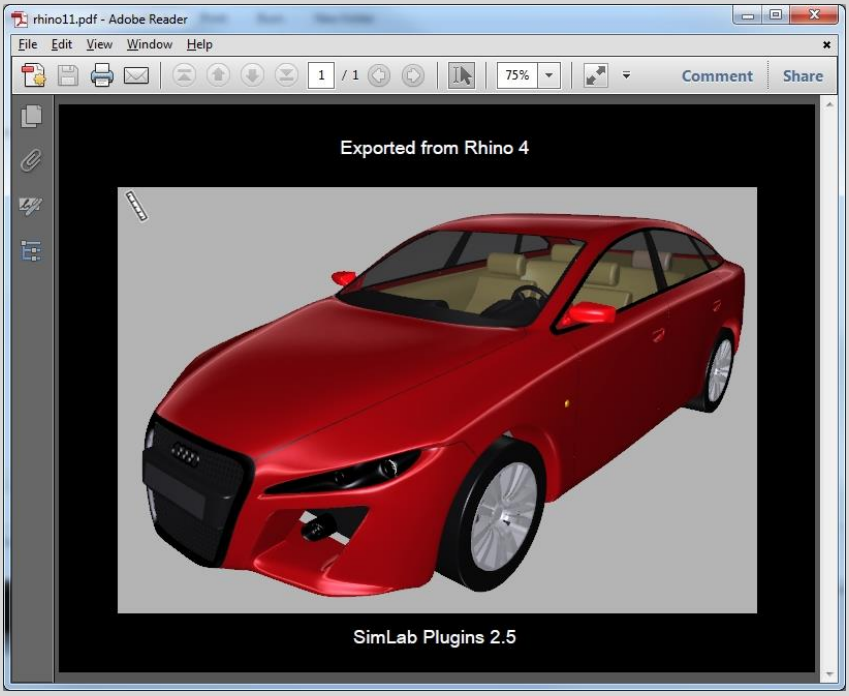
For smooth transition between the different cameras in the 3D PDF file, it is advised to make all the views **perspective**, which can be achieved from Rhino by clicking on the view and changing the projection to be perspective as shown in the following image.



Exporting layer structure

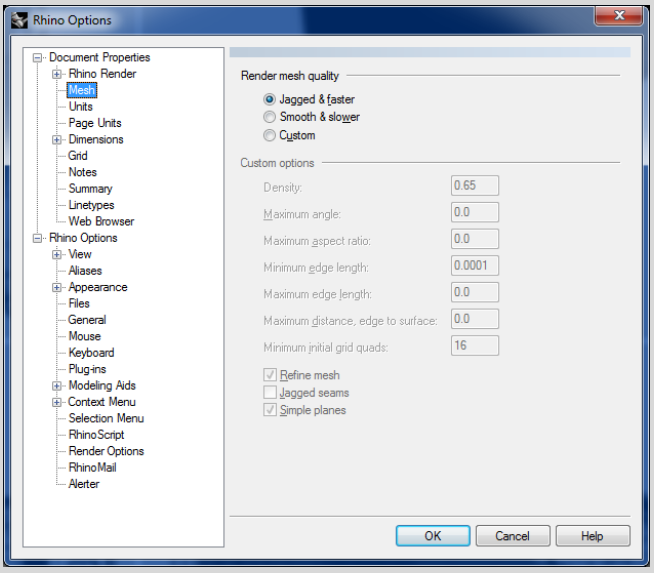
Layer hierarchy inside Rhino are saved in the generated 3D PDF file, the user can view the model hierarchy by clicking the **model tree** button in Acrobat reader. Using the model tree enables the user to hide and show the different parts of the model.

In addition to default material properties the plugin exports bump and environment maps from Rhino, which results in top quality output 3D PDF files.

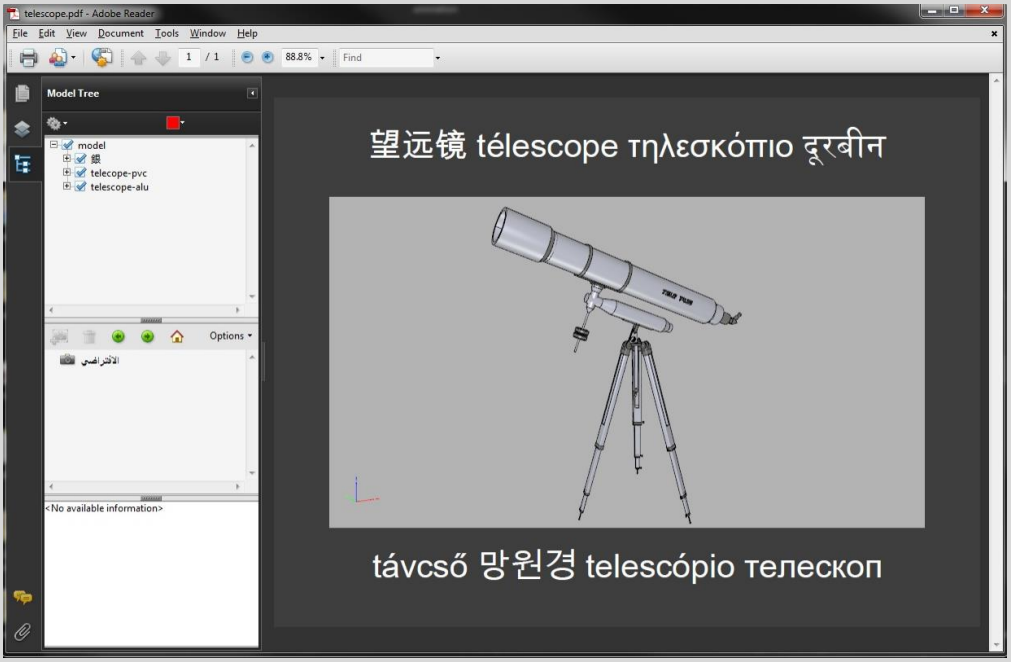


Mesh Quality

The plugin uses the rendering mesh from inside Rhino. In case the rendering mesh was never created, the plugin creates it behind the scene.
The user can control the number of polygons of the rendering mesh from **Tools** -> **Options** -> **Mesh**



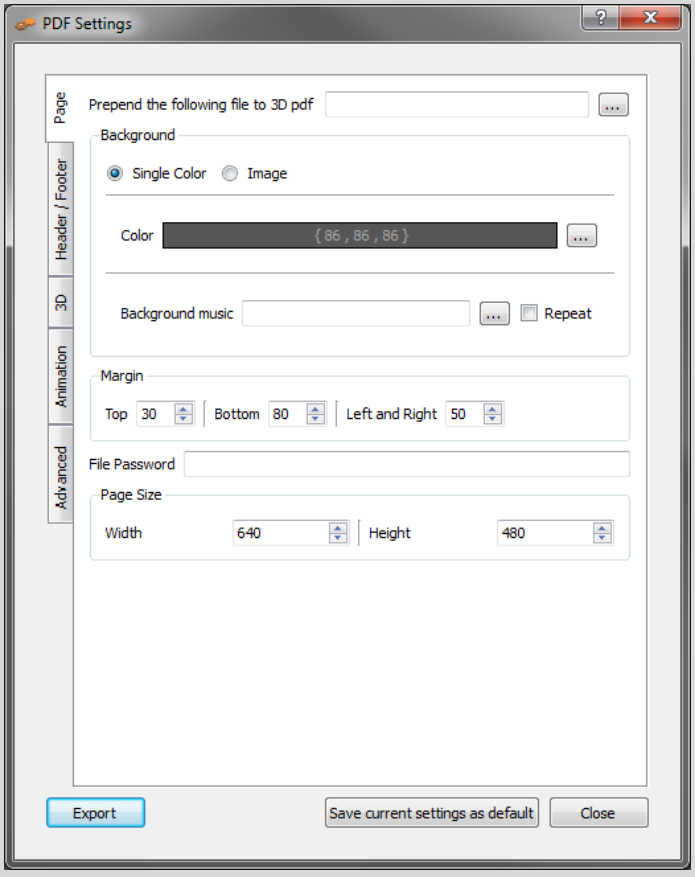
Making the mesh smoother increases the size of the output 3D PDF file.



Creating interactive 3D PDF files

3D PDF Settings dialog enables the user to control the generated 3D PDF file. The dialog can be opened by clicking PDF Settings under the **SimLab** menu.

Page Settings



Prepend the following file to 3D PDF: this option is used for appending two PDF files together. This can be used to append a 3D model to a company's header, or a project description available in PDF format. PDF files can be generated using different programs, such as; Acrobat, WinWord, PowerPoint, or Open Office.

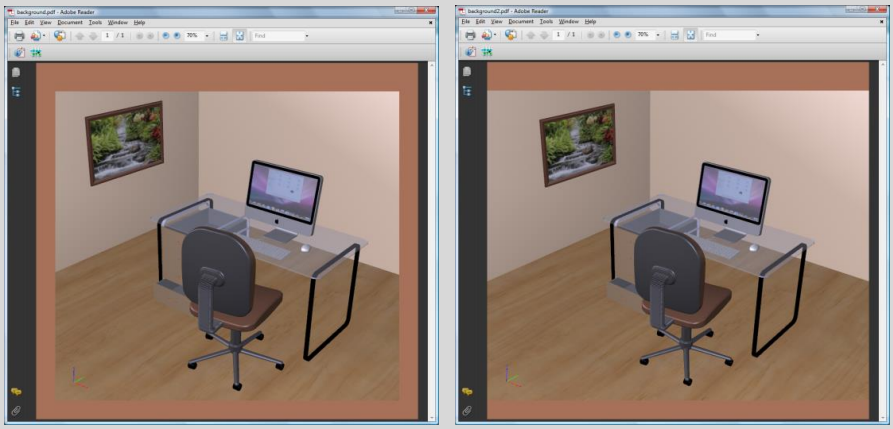
Background: This option controls the appearance of the section of the PDF document out of the 3D area. The user can set the background to be either of a single color, or to be an image. The **Scale To Fit** option is available if the image needs to be scaled to fit the background area.

Background music option is available for users to add music, in '*.mp3' format, to the created 3D PDF files. Selected music will be automatically played while the 3D PDF file is open, the file recipient can optionally turn off the music. Checking the **Repeat** option will cause the mp3 file to automatically repeat itself. The selected mp3 file will be automatically embedded inside the 3D PDF file.

The following example shows a 3D PDF file added to an existing PDF template file.

Margins of the 3D PDF page determine the 3D model area.

In the left image, left and right margins were set to 40, while in the image on the right both left and right margins were set to 0.

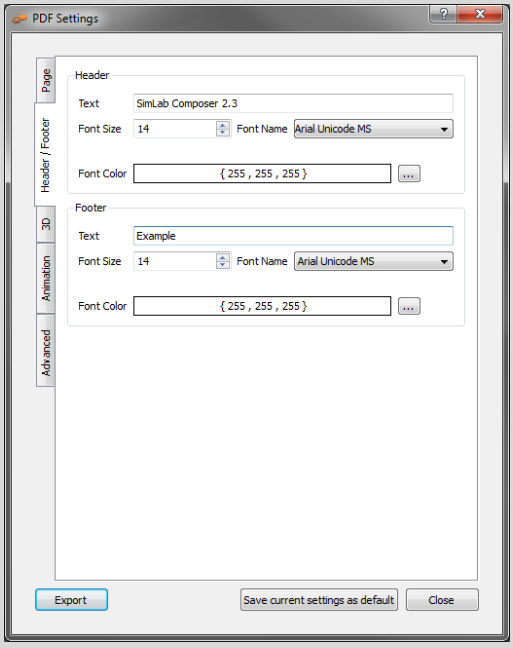


File Password: using the optional password will protect the contents of the generated 3D PDF file; the recipient will need to use the password to view the 3D PDF file.

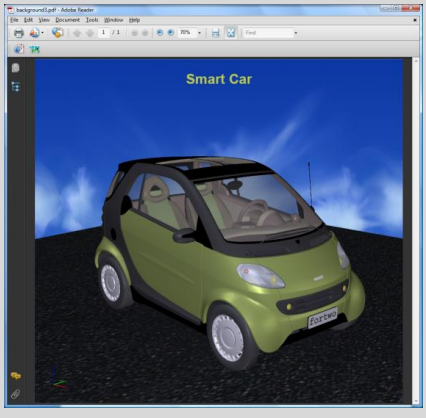
Page Size setting enables the user to input the required page size of the created 3D PDF file.

Header/Footer Settings

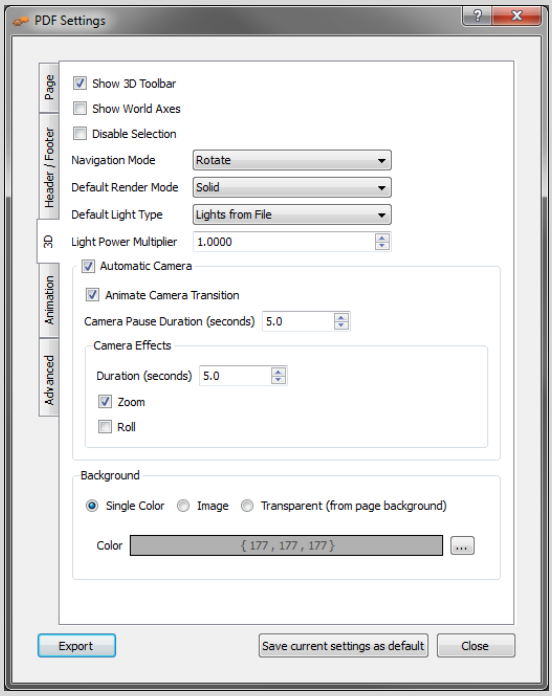
The user can use the header/footer settings to input text, color, font, and font size for both header and/or footer for the created 3D PDF file.



In the image bellow a header was added to the generated file. This file was created by selecting the **Image** option in the **Background** setting, under Page tab. For the image to cover the 3D model's area the **Transparent** option was selected in 3D tab.



3D Settings



Show 3D Toolbar: shows or hides the 3D toolbar in Acrobat reader when opening the 3D PDF file.

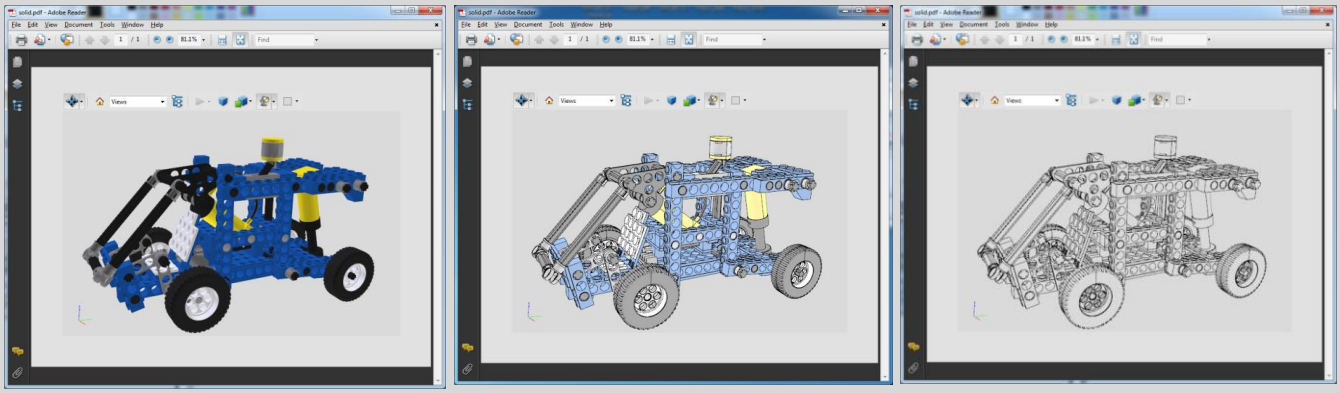
Show World Axes: shows or hides the world access in the lower left part in the 3D PDF file.

Disable Selection: disables or enables selection of geometries in the 3D PDF file.

Navigation Mode: the user can set the default navigation mode when opening the 3D PDF file to be one of the following **rotate**, **spin** or **walk. The user of the 3D PDF file can choose to change this default mode inside the 3D PDF file.**

Default Render Mode: using this option, the user can select the default render mode to be one of the following (Solid, Solid Wireframe, Transparent, Transparent Wireframe, Illustration, Shaded Illustration, Solid Outline, or Bounding Box).

The following images show the same model using different render modes.



Default Light Type: light type can be one of the following **white**, **day**, **night**, **bright**, **CAD optimized**, **cube**, head **lamp.**

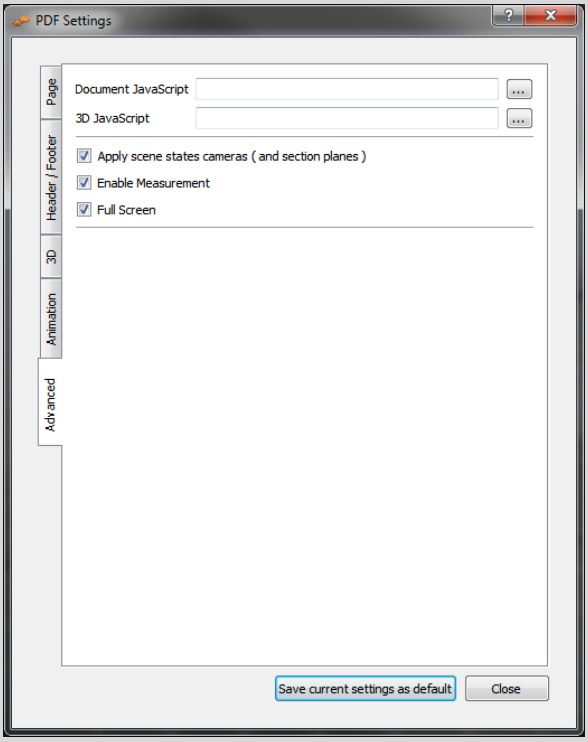
Light Power Multiplier: increasing this value increases the brightness of the generated 3D PDF file.

Automatic Camera: This option enables automatic switching between the different cameras in the scene. When automatic camera is enabled, the user can select the **Camera Pause Duration**, which is the time in seconds for which the camera will stand still before camera effect starts.

The user can select the **camera effect** to be **zoom**, **roll** or the two combined. The camera effect will take place for the **camera effect duration**.

Background option controls the appearance of the 3D area. The user has the option to set the background to either a single color, or an image. If the user wishes the 3D area to use the same background used in the page settings, he can select the **Transparent** option.

Advance settings



Advanced users can use those settings to insert Java scripts to control both, the PDF document, and the included 3D model.

Details about Java script support in 3D PDF files can be found at http://www.adobe.com/devnet/acrobat/javascript.html

Using advanced settings the user can Enable/Disable measurements in the generated 3D PDF file. And make the 3D PDF file start in Full screen mode if needed.