

SU2Odeon version 2.00

SU2Odeon2.00 is an ODEON plug-in for SketchUp (SU) version 2008 to 2018 on the Windows platform. The plug-in works for the Make as well as for the Pro editions of SketchUp. SU2Odeon 2.00 creates output files which are compatible with ODEON 15. For older versions of ODEON please use SketchUp 1.09.

Downloading the right version of SketchUp

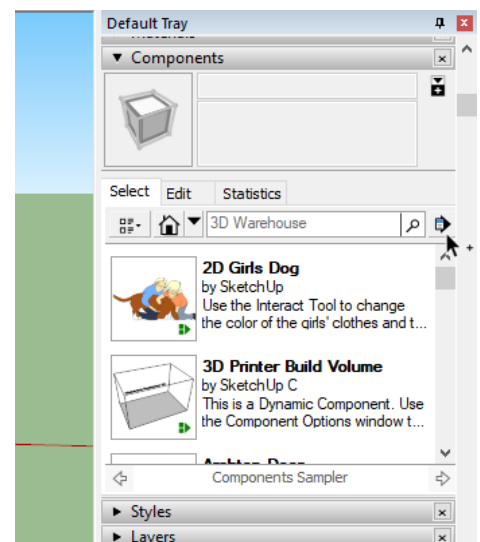
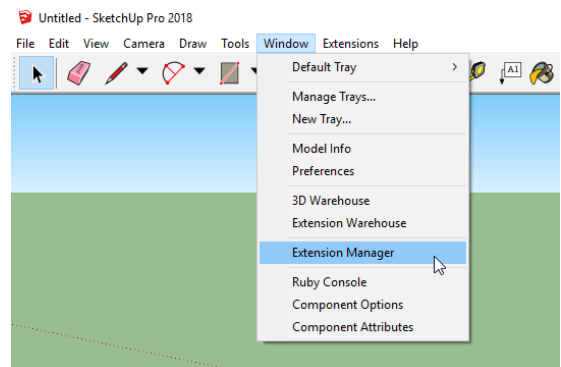
SketchUp Make 2017 is free and may only be used for non-commercial usage whereas SketchUp Pro 2018 has to be purchased and may be used for commercial usage as well. In any case the installers can be downloaded from: <https://www.sketchup.com/download/all> where the license terms can also be found.

Google Sketchup 8 free for commercial and non-commercial use and can be downloaded e.g. from:

<https://google-sketchup.en.uptodown.com/windows/download/22553>.



Installation

- 1) Copy the *SU2Odeon.zbz* file e.g. to the Windows Desktop.
- 2) Open *SketchUp (SU)*.
- 3) For SketchUp Make and Pro (versions newer than Sketchup 8), enter the *Window/Extension Manager* menu entry. For SketchUp 8, enter the *Windows/Preferences menu*. Then in the *System Preferences* menu that appears, select *Extensions* in the left pane of that menu.
- 4) Click on the *Install Extension* button.
- 5) Select the file *SU2Odeon.rbz* (e.g. on the Windows Desktop).
- 6) Enter the *Components* folder in *SketchUp Default Tray* (for older versions of SketchUp, the installation procedure is slightly different). If there is no *Default Tray* in your SketchUp version, enter *Window/Components* menu entry.
- 7) Click on the arrow icon at the left end of the box
- 8) Select *Open or create a local collection*
- 9) Choose the folder:
C:\Program Files\SketchUpXXXX\plugins\OdeonComponents (in Sketchup 8, select *C:\Program files (x86)\Google\Google Sketchup 8\Plugins\OdeonComponents*)




Usage

The plug-in has a double functionality. Once a surface model has been created in *SU*, it allows for:

- 1) Exporting model geometry to ODEON, using the icon 
- 2) Creating a set of sources and receivers in the model, and export them to ODEON using the icon 

These ODEON icons may be floating on its own undocked toolbars - in that case, drag each of them to the main toolbar area. This needs to be done once (note that on a dual monitor PC, the icons are probably located on the primary monitor even if *SU* is displayed on the secondary monitor). The icons are also accessible from the ODEON entry in the *Extensions/Plug-in* menu of *SU*.

Export Geometry to ODEON

The exported file created when clicking the first icon  is a standard ODEON *.par* geometry file, which will reside in the same directory as the *SU* geometry file (*.skp*). While extending and remodeling the geometry in *SU*, it is perfectly alright to re-export the model from *SU* and then reload it into ODEON again. When copying a room project from within ODEON, the *.skp* file is automatically copied with the room files.

A number of tutorial videos showing how to use *SU* and the *SU2Odeon* plug-in are available at:

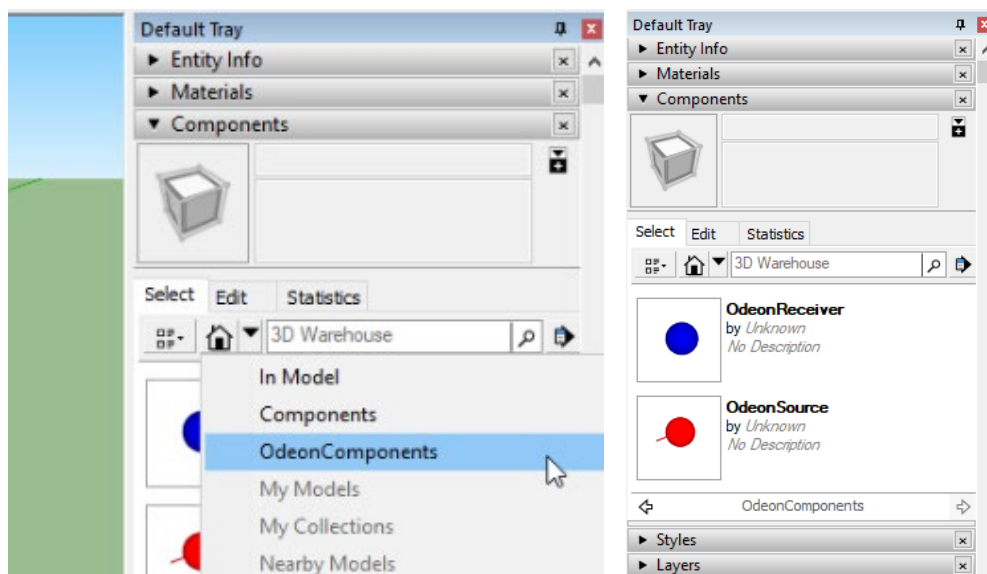
<http://www.odeon.dk/room-modelling-0>



and an extensive number of instruction videos for the *SU* software is available at the Sketchup homepage at:

<http://www.sketchup.com/intl/en/training/videos.html>


Create Sets of Sources and Receivers

Two new components: **OdeonReceiver** and **OdeonSource** are available in the Component folder of SketchUp Default Tray, under the sub-folder **OdeonComponents**.



Insert any number of these components in your model and use the Move  and Rotate  functions of SketchUp to change their positions and orientations.

Export Sources and Receivers to ODEON

Use the second Icon  to create an ODEON *.SouRecScript* file which will reside in the same directory as the *SU* geometry file (*.skp*). The exported file can be imported into the room model when loaded in ODEON, using the *Import Source receiver script* option (*Alt+I* shortcut in the *Source Receiver List*) available in the *Source receiver list* inside ODEON.

Sources and receivers can be grouped in different SketchUp layers, representing different scenarios for simulation. **Disabled layers are not exported to the *.SouRecScript* file. Sources and receivers are not exported to the geometry file.**

Functionality of the plug-in

In order to make use of the *SU* models in ODEON as easy as possible, a number of conversions of and checks on the *SU* model are automatically performed on the *SU* model upon export to ODEON:

Consistency check

- Redundant points are removed, e.g. points almost coinciding are merged.
- Surfaces with no area are not included in the exported geometry.

Point list

A point list is compiled so each coordinate only appears once in the *.par* file.

Layers

Layers are included in the *.par* file if there are any in the *SU*-model. It is recommended to make use of layers in your *SU* models as this can make it easier to assign materials inside the ODEON software (use the **Ctrl+L** shortcut in the *Materials list* in ODEON to enable or disable selected layers).

Only layers that are enabled in *SU* when exporting to ODEON will be included in the exported model – this gives an option to exclude some details or parts of the model you do not wish to see in you model inside ODEON.

Persistent surfaces

Properties assigned to surfaces in terms of materials, reflector coverage, grids surfaces and surface sources inside ODEON are maintained even if surfaces have been added or deleted in *SU* after the model was exported the first time. This is accomplished by the *SU2Odeon* plug-in by having the *SU* model remember the surface numbers as they were exported to ODEON.

Auto explode

Groups and components are automatically ungrouped/exploded - from any level - upon export from *SU*. This is a requirement from *SU* in order to enable the 'persistent surfaces' mentioned above. For this reason, if some groups or components need to be moved or changed – it is highly recommended that this is done before the export to ODEON is performed. Furthermore, since the plugin is saving the model after explode is

performed, you may consider to make a copy of rooms containing groups and components before exporting to ODEON so information about groups and components remains in the copy.

Modifying surfaces for full compatibility with ODEON

Complex surfaces in *SU* are defined by an outer loop, describing the outer perimeter of the surface, and a number of inner loops describing holes in the surface if any.

ODEON 15 supports such Loop surfaces with the *LSurf* surface which can be included in the ODEON *.Par* file.

When ODEON reads a *LSurf*, the outer loop (outer perimeter of a surface) is automatically stitched with the inner loops (if any) of the surface (holes in the surfaces) so each surface is defined inside ODEON by one loop only - inner loops are inserted using an insertion point on the main loop which is estimated by the plug-in to create visual appealing surfaces which are also compatible the way *3DOpenGL* visualizes surfaces in ODEON.

Known problems and limitations

- Exporting complex geometries with the *SU2Odeon* plug-in may take quite a while - *SU* may appear as "Not responding" and you might assume that it has crashed - however be patient - WAIT - the process may succeed if given an hour or two..... If you have modeled the geometries in *SU* yourself this problem probably doesn't exist - if the model has been imported into *SU* from another CAD package e.g. in the *.dxf*, *.ifc* or *.ifcxml* formats (using some other plug-in) - it is likely to be the case.
- In *SU*, the ODEON export icons may not appear docked immediately after the *SU2Odeon* installation - if this is the case - search your screen(s) for each 1-icon-toolbar - then mouse-drag it to a location on the *SU* toolbar.

Revisions

Version 2.00 May 2018

- Support for *SU* 2008 to 2018
- Processing of the surfaces is performed internally in ODEON, and most of the algorithms involved in this procedure have been further developed. Overall gains in speed typically range from 2 to 10 (depending on the room exported).
- Developed algorithm for detecting and repairing self-crossing loops.
- Improved algorithm for removal of redundant points and construction of the Corner List.
- Revised algorithm for stitching the loops of complex surfaces (moved inside ODEON for higher processing speed).
- Full UNICODE support for filenames, paths and layer names (except *SU* 2008 that requires ASCII characters).
- Automatic opening of geometry *.Par* files in ODEON on request.
- Josh and Stacy (*SU* 2018) and Lianne (*SU* 2016) are not exported.

Version 1.09 October 2017

- Full support for any character set.
- Fix for some cases where the plugin froze and no export file was created.
- Not exporting the “Sketchup people” which is by default located at origo in a new Sketchup drawing (the following person components that will currently be omitted in the Odeon2SU export are Sang, Susan, Steve, Sophie, Derrick, Bryce(SU6), Nancy and Chris(SU2017)).

Version 1.08 March 2015

- ODEON will avoid the Steve component (the man at origo) from being transferred with the model to the Odeon .par file.

Version 1.07 March 2014

- Support for SU 2013 and 2014.

Version 1.05 February 2013

- Fixed issue: Occasionally previous versions of the SU2Odeon plug-in failed to export geometry to ODEON when there were no components in the model. This typically happens when the scale figure (named Sang, Susan Derrick or Sang) which by default is present in new drawings has been erased by user.
- Fixed issue: Layer names containing letters such as æ, ø, å... are exported correctly – some character sets e.g. Chinese may still fail – in that case use Standard English characters.

Version 1.04 September 2012

- Automatically saves Sketchup file when exporting model to ODEON – this way it is ensured that the .skp and .par file are always consistent (user does not need to save the .skp file manually).
- Order of point sequence in multi loop surfaces (surfaces with holes) are automatically modified in order to produce correct area estimates in ODEON.

Version 1.03 June 2011

- Enhanced export for better compatibility with OpenGL.

Version 1.02, October 2010

- Updated for *SU* version 8, avoiding to export the *SU* Origo figure (named Susan) to ODEON.
- Fix: repeated points problem fixed (a rare problem occurring in complex geometries). These incorrect surface definitions are automatically corrected or discarded upon export.

Version 1.01, 8. June 2010

- Fixed/improved algorithm for removal of redundant points.

Version 1.00, first release may 2010.