

SU2Odeon version 3.01

SU2Odeon version 3.01 is an ODEON plug-in for SketchUp (SU) version 8 and version 2008 to version 2021 for Windows. SU2Odeon version 3.01 works for the Make as well as for the Pro editions of SketchUp. The plugin creates output files that are compatible with ODEON 15 to 17 and it's capable of importing models from Odeon 17 into Sketchup. For ODEON 14 and older use SU2Odeon1.09.

Downloading the right version of Sketchup

Sketchup Make 2017 is free but may only be used for non-commercial projects whereas Sketchup Pro has to be purchased and may be used for commercial projects as well. In either case, the installers can be downloaded from [Downloading SketchUp | SketchUp Help](#) where the license terms can also be found.

Google Sketchup 8 is free for commercial and non-commercial projects and can be downloaded from various sites on the internet (at own risk), e.g. from [techspot.com](#).

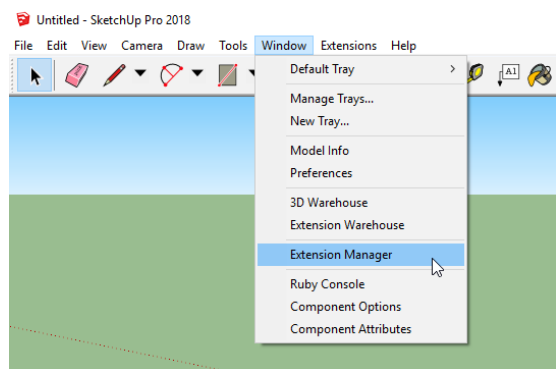
Installation of SU2Odeon 3.01

Since December 2021, the SU2Odeon plugin 3.01 has become available on the **SketchUp Extension Warehouse**. This means you can download it from [this page](#). The plugin is compatible with SketchUp 2008 to 2021. SketchUp 2008 **does not support the format of the plugin**, as found in the Extension Warehouse. Therefore, you should download it directly from our [homepage](#).

- 1) Select Extensions|Extension Warehouse (Window|Extension Warehouse in SketchUp 2020).
- 2) Search for SU2Odeon and click on it.
- 3) Press the Install button.


Alternatively,

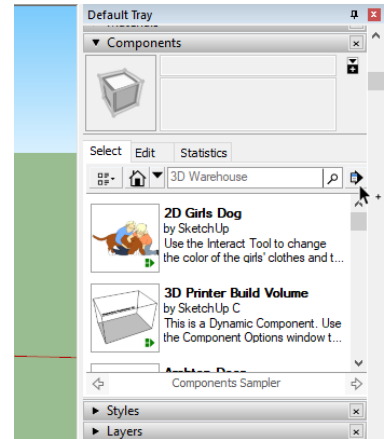
- 1) Click the Download button on the Extension Warehouse to download the plugin.
- 2) Open SketchUp (SU).
- 3) Select Extensions|Extension Manager (Window|Extension Manager in SketchUp 2020).
- 4) Click on the Install Extension button.
- 5) Select the file SU2Odeon.rbz that you downloaded at step 1).



Installing components for source and receiver modelling for ODEON

Enter the Components folder in the SketchUp Default Tray (For older versions of SketchUp, the installation procedure is slightly different, If there is no Default Tray in your SketchUp then select the Window|Components menu).

- 1) Click on the arrow icon  at the left end of the components box.
- 2) Select Open or create a local collection.
- 3) Choose the folder: OdeonComponents.




Installation of SU2Odeon 3.01

If you want to use **SketchUp 8** (which can be found for free) you have to download SU2Odeon 3.01 from Odeon's [download page](#).

- 1) Download the SU2Odeon 3.01 plugin.
- 2) Open SketchUp (SU).
- 3) Select the Window|Preferences menu. In the System Preferences dialog that appears, select Extensions in the left panel.
- 4) Select the file SU2Odeon.rbz that you downloaded in step 1).



Installing components for source and receiver modelling for ODEON

- 1) Click on the arrow icon  at the left end of the components box.
- 2) Select Open or create a local collection.
- 3) Chose the folder: OdeonComponents.
- 4) In Sketchup 8, select C:\Program files (x86)\Google\Google Sketchup 8\Plugins\OdeonComponents\.

Usage

The plug-in can be used for exporting from Sketchup to Odeon as well as importing models from Odeon to Sketchup, so even though the name of the plugin is SU2Odeon it also has Odeon2SU functionality!


The plug-in has a dual export functionality. Once a surface model has been created in SketchUp, it allows for:

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

These two ODEON icons may be floating on their own undocked toolbars - in that case, drag each of the icons to the main toolbar area - this needs only be done once (note that on dual-monitor PC's the ODEON icons are probably located on the primary monitor even if SketchUp is displayed on the secondary monitor). The Icons functionality is also accessible from Odeon in the Plugins menu in SketchUp.

Additionally, any Odeon model can be imported into SketchUp. The model must be a SketchUp compatible .par file that can be generated using the new functionality of Odeon 17.

Export Geometry to Odeon

When clicking the Odeon icon  in SketchUp a standard ODEON .par geometry file is exported from the SketchUp model. The .par file will reside in the same directory as the SketchUp geometry file (.skp). While extending and remodeling the geometry in SketchUp it is perfectly alright to re-export the model from SketchUp 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 SketchUp and the ODEON SU2Odeon plug-in are available at:

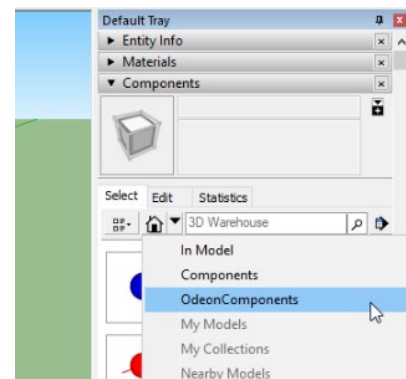
<https://odeon.dk/learn/video-tutorials/import-export/>

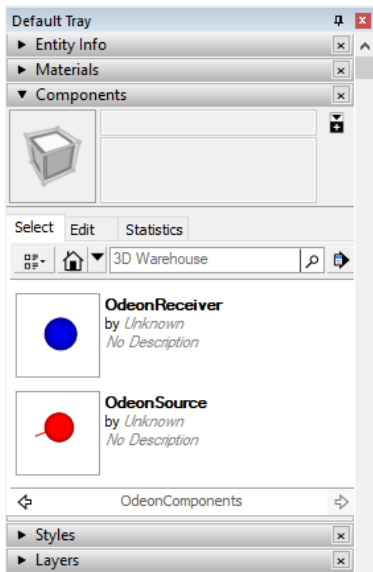
and an extensive number of instruction videos for the SketchUp software is available at the Sketchup homepage at:

<https://learn.sketchup.com/>

Create Sets of Sources and Receivers

Two components: OdeonReceiver and OdeonSource are available in the Components folder of the SketchUp Default Tray, under the sub-folder OdeonComponents. In earlier version of Sketchup e.g. Sketchup 8 and Sketchup Make 2017 there is no Default tray – instead select the Window|Components menu which opens the Components folder including the installed OdeonComponents.






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

Descriptions for sources and receivers can be added to sources and receivers:

- 1) Select the source/receiver
- 2) Right click and select the *Entity Info* option
- 3) Type the desired description in the *Instance* edit box – in older versions of Sketchup use the *Name* edit box

This description will be transferred to ODEON when the *.SouRecScript* file is imported

Export Sources and Receivers to ODEON

Use the source/receiver icon  to create an Odeon *.SouRecScript* file which will reside in the same directory as the SketchUp geometry file (*.skp*) and the ODEON geometry file (*.par*). The exported file can be imported into the room model when loaded in ODEON, using the *Import Source receiver script* option (*Alt+I* shortcut 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 exported separately not as a part of the geometry file.

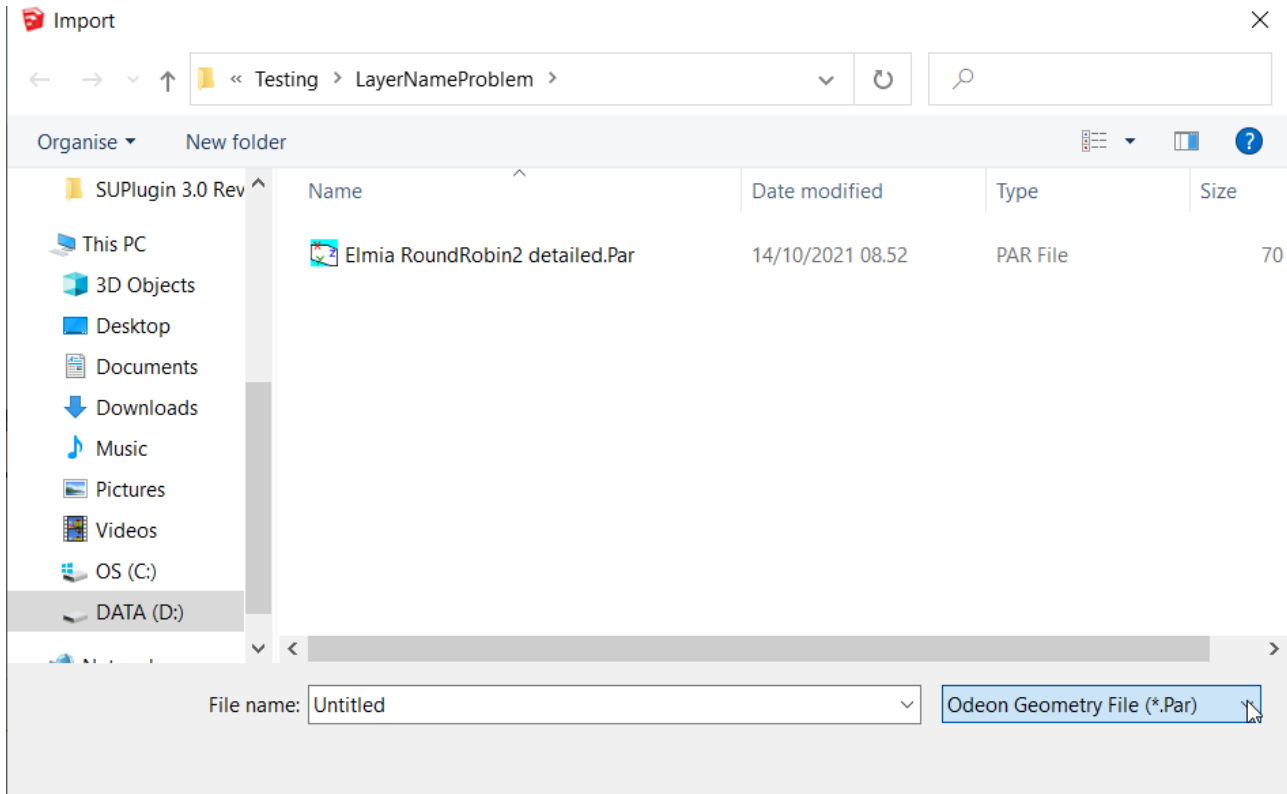
Important; Creating alternative versions of your model


If you wish to create modified versions of your Odeon models in Sketchup e.g., adding reflectors in an auditorium or screens in an Open plan office, then this is possible without losing surface properties assigned in your original model in your revised and extended model (materials, grids, reflectors, surface sources etc.). In this situation, it is important how you created your new modified model. Use the *File|Copy files* menu in Odeon to create a copy of the original Odeon model (select room files when prompted). This copy operation will include the Sketchup file in the copied file set (if your new room becomes *MyRoomCopy1.par* then there will also be a *MyRoomCopy1.skp* file. When editing the newly created *.skp* file either by loading it from Sketchup or by clicking the Sketchup icon from inside Odeon when the room copy is loaded then your Odeon project will preserve material-, grid-, reflector- and surface source -definitions that have already been assigned in the original model and only new surfaces needs to have properties assigned next time the new copy is exported to Odeon. You should not attempt to make a copy from inside Sketchup by saving the *.skp* file with a new name – then all surface properties are lost.

Import Odeon models into SketchUp

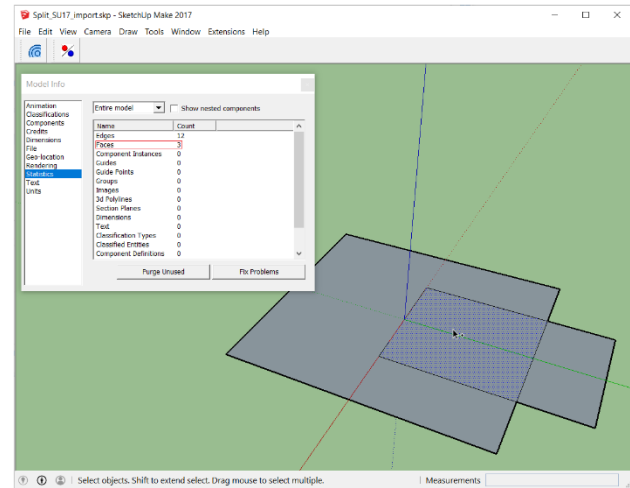
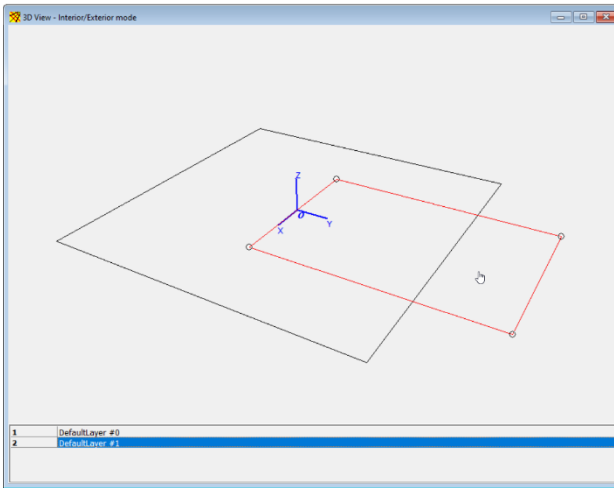
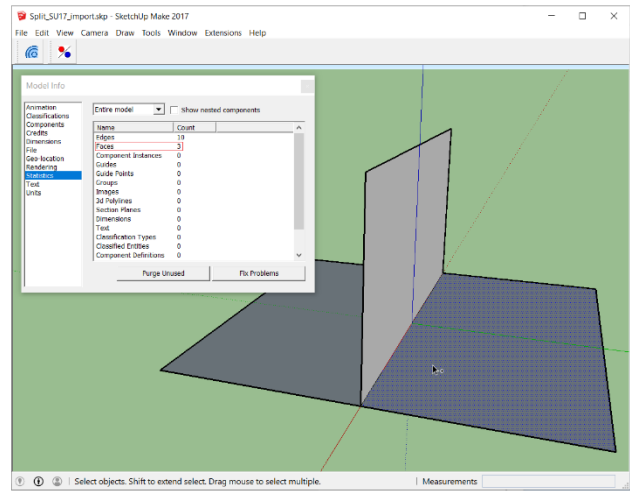
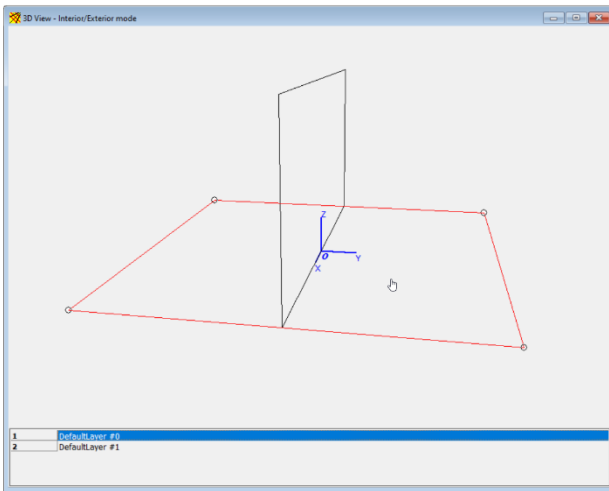
Odeon 17 users can create SketchUp compatible Par files which can be imported in SketchUp. Once a room model is loaded in Odeon 17, select the File|Make .par file (and model) compatible with Sketchup menu.

The resulting Par file can be imported into SketchUp by selecting File|import... functionality. The extension of the file to be imported must be changed to Odeon Geometry File (*.Par) as indicated in the figure below.



Alternatively, users of SketchUp 2019 and newer versions, might drag and drop the Par file into the SketchUp window. Once the model has been imported into SketchUp the user can benefit from that edition's tools in SketchUp to prepare their geometries for use in Odeon. Imported models can be exported back to Odeon clicking on  icon, as usual.

When the Odeon model is imported in SketchUp, the geometry is modified according to SketchUp standards which merge elements from different surfaces co-existing in the same plane. Typical examples of these operations are splitting of surfaces and cleaning of overlapping surfaces (see upper and lower panels respectively on the below figure). Rarely, complex geometries can be triangulated during the import. In general, the resulting SketchUp model looks the same as the original Odeon model but may contain a number of extra surfaces. Most of the new surfaces will retain their original material when exported back into Odeon.



Functionality of the plug-in

In order to make the use of the SketchUp models in ODEON as easy as possible, a number of conversions of and checks on the SketchUp model are automatically performed on the SketchUp model upon export to ODEON or when the model is read into ODEON (the list is not complete):

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 SketchUp model. It is recommended to make use of layers in your SketchUp 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 or simply use the Global assign to layer to assign materials to all surfaces that reside on the same layer as the currently selected surface).

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

Persistent surfaces

Properties assigned to surfaces inside ODEON in terms of; materials, reflector coverage, grids surfaces, and surface sources are maintained even if surfaces have been added or deleted in SketchUp after the model was exported the first time. This is accomplished by the SU2Odeon plug-in by having the *SketchUp* 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 SketchUp. This is a requirement from SketchUp 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 first time the export to ODEON is performed. When a model with Groups and Components is exported, the plugin automatically explodes the geometry and overwrites the .skp file with the exploded geometry. This causes loss of the original geometry with its high-level information provided by Groups and Components. We have included a dialog that announces this upon export and allows saving a copy of the geometry to an alternative filename before the explode operation is performed.

Modifying surfaces for full compatibility with ODEON

Complex surfaces in SketchUp 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.

Since version 15 ODEON supports such loop surfaces with the LSurf surface keyword in the ODEON .par geometry 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 when ODEON reads the geometry file exported from SketchUp.

Known problems and limitations

- Exporting complex geometries with the SU2Odeon plug-in may in special cases take quite a while - SketchUp 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 SketchUp yourself this problem probably doesn't exist - if the model has been imported into SketchUp from another CAD package e.g. in the .dwg, .dxf, .ifc or .ifcxml formats (using some other

plug-in) - it is likely to be the case. Remember; if a CAD model is available in a format supported by ODEON, it is better to import that model directly into ODEON and then export it from there to SketchUp as needed rather than importing e.g. the .dwg or .dxf model into Sketchup – then resulting model is going to be much cleaner and with fewer errors in it as the ODEON CAD import provides extensive model checking!

- In SketchUp, the ODEON export icons may not appear docked immediately after the SU2Odeon installation - if this is the case - search your screen(s) for each of the 1-icon-toolbars - then mouse-drag them to a location on the SketchUp toolbar.

Revisions

Version 3.01 27 June 2022

- Problems importing geometry into SU2017 fixed.

Version 3.00 14 December 2021

- Import ODEON model functionality.

Version 2.03 19 March 2021

- The plugin becomes available on the official SketchUp Extension Warehouse. From now on it can only be downloaded from there and appears as a *Signed* extension in the Extension Manager inside SketchUp.

Version 2.02 14 January 2021

- Sumele and Helen (SU 2021) is not exported. The Sumele figure caused serious problems for the SU2Odeon plugin and caused it to fail because the dress of the figure contains more than 6000 points.
- Fixed issue when trying to export a room when the Sketchup drawing file has not been saved yet (in some cases the backup of the original Sketchup file as well as export failed).
- Warning on script error when loading the SU2Odeon plugin into Sketchup 8 solved.

Version 2.01 April 2020

- Description can be added to sources and receivers from within Sketchup by typing the descriptions in the *Instance* field (or *name* field in older versions of SketchUp) of the inserted source and receiver components.
- Laura (SU 2020) is not exported.

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 Lisanne (SU 2016) are not exported.

Version 1.09 October 2017 (to be used for ODEON 14 and older versions)

- 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 the 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) is 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 exporting 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.