

Application Note – Importing DXF Files into SolarEdge Designer Site

Version History

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Contents

Application Note – Importing DXF Files into SolarEdge Designer Site	1
General Information & Guidelines	1
About This Feature.....	1
Layer Guidelines.....	2
Walkthrough: Importing a DXF File	3
Support Contact Information	6

General Information & Guidelines

This feature is currently in Beta Phase. We would appreciate hearing your feedback and comments!

Email us at designer-feedback@solaredge.com

This application note will guide you through the process of importing DXF files generated by AutoCAD software into a site created in SolarEdge Designer.



NOTE

SolarEdge Designer currently supports the importation of files that match the following criteria:

- **Software Compatibility:** compatibility is guaranteed only for files exported from an up-to-date version of AutoDesk AutoCAD. Files generated by other software, including AutoCAD clones, may be supported in certain cases.
- **File Type:** the drawing should be saved in the AutoCAD Drawing Interchange Format (DXF). The DWG format and other proprietary formats are not supported – you may convert them into the DXF format using CAD software or online converters.
- **2D Only:** Designer currently supports only 2-dimensional models of the roof layout and PV module placement.
- **Layer Separation:** The roof layout, PV modules and obstacles within the drawing must be separated into different layers – see “Layer Guidelines”
- **Layer Names:** roof layout, PV modules and obstacles layers should contain only the following characters: A-Z, 0-9 and dashes (-)

About This Feature

SolarEdge Designer allows PV system designers to import a model of a PV site, from a Computer Aided Design (CAD) drawing that is exported from the CAD software in the DXF format. The import can include the site’s roof model and/or PV module placement, as well as optional obstacles that may be found on the roof.

Once a DXF import is successfully completed, you may proceed with the planning and configuration of the site's Electrical Design using SolarEdge Designer, allowing you to utilize Designer's powerful simulation, reporting and financial analysis functionalities, as with any other project created on Designer.

**NOTE**

Importation of electrical design elements (inverters, optimizer models and strings) from the source CAD file is not currently supported. You may use the SolarEdge Designer Auto String functionality to help quickly generate an optimal electrical design.

Layer Guidelines

**NOTE**

We recommend cleaning unrelated objects from the DXF file, such as legends, templates and texts that are easy to remove. This will result in an easier, more accurate import.

SolarEdge Designer supports importation of Roof Layout, PV Module and Obstacle entities from the source DXF file. In order to recognize the different entities, you need to make sure that each of the above entities is placed in a separate layer in the drawing and to indicate which layer describes each entity. This helps create an accurate model including all the information from the DXF file.

Roof Layout

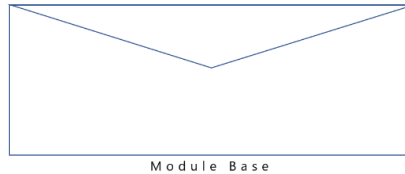
- All roofs and facets should be drawn in one layer.
- Use Polylines or Line objects to draw the roof outline. If the roof polygon is made up from several instances of lines and polylines, they will be automatically connected.
- The original dimensions as they appear in the DXF will be used. You will be able to scale the resulting model later within Designer.
- You may choose not to specify a Roof Layout layer, for situations such as a ground mount site. You will still be able to proceed with the import if you include a PV Module layer.
- If your Roof Layout layer includes unrelated objects that do not pertain to the roof outline, consider that they will still be imported into Designer. We recommend removing any unrelated elements in your CAD software, but you can also delete the irrelevant objects within Designer once the import is complete.

PV Modules

- You can choose not to include a PV module layer, in the event that you are interested in importing the roof layout only.
- You can draw PV modules as Polyline (independent) or Block (template) objects. We recommend defining them once as a Block and re-using it throughout the drawing.
- Designer will scan this layer for rectangular shapes that represent a PV module, with a minimum threshold of 3 modules.
- Module Groups will be generated automatically based on the spacing between modules.
- Ensure that the modules' dimensions as specified in the DXF file accurately represent the dimensions of the make and model of the module you intend to use in this site.

**NOTE**

Designer will attempt to auto-detect the modules' orientation. You can explicitly specify module orientation by adding a triangle inside the module rectangle outline, opposite the direction of the base and pointing towards it. This example demonstrates a landscape orientation PV module:



Obstacles

- Use this layer to specify any obstacles within the roof. Any elements within this layer will be considered as obstacles.
- Imported obstacles will be assigned a default height of 0.5 meters. You will be able to modify the obstacle's height once the import is complete.
- Make sure that obstacles are only represented in this layer. If an obstacle is drawn in the Roof Layout layer, for example, it will be considered part of the roof's layout.
- Designer currently only supports rectangular-shaped obstacles. If any circular objects are detected in the drawing, they will be converted into a rectangular shape.

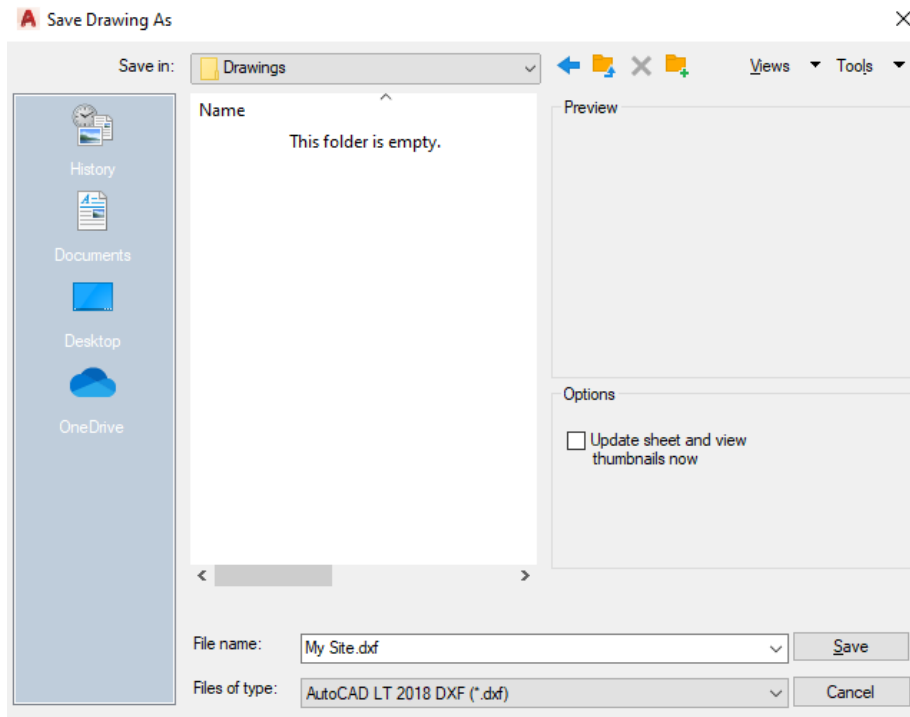
Walkthrough: Importing a DXF File

This section of the application note will guide you through the steps required to complete a successful DXF Import.

Step 1: Exporting from the AutoCAD software

If you have an existing DXF file for the drawing that you wish to import, you may skip this step.

- Open the drawing in your Autodesk AutoCAD software. The steps described below refer to AutoDesk AutoCAD LT 2022 and may vary depending on the version of your CAD software.
- Ensure that the drawing complies with all guidelines described under "Layer Guidelines".
- Click the menu button in the top left-hand corner and select the Save As option
- Under the "files of type" dropdown, select the AutoCAD DXF option. You may see multiple options of this type – select the one with the most recent year value.



Step 2: Import DXF into Designer Site

- Create a new site in SolarEdge Designer or open an existing site into which you want to import the roof model and/or PV module placement.
- In Site Modeling mode, click the DXF Import button in the top toolbar:



- If your site already contains a roof layout and/or PV modules, you will be prompted to confirm whether you want to proceed – note that this will delete all existing layouts and modules.
- Drag and drop or browse your computer to locate the DXF file.



NOTE

The maximum size allowed for a single DXF file is 50mb.

Step 3: Select Layers

- Once analysis of the DXF file has been completed, you will be asked to choose the layers representing each entity: Roof Layout, PV Modules and Obstacles.
- Choose the relevant layer under each dropdown to select where each entity will be imported from.



NOTE

You can proceed with the import process if you specify both the Roof Layout and PV Modules layers, or either one of them. Obstacles are optional.

- Click **Next** to proceed.

Step 4: Module Settings

- Choose the make and model of the PV modules you intend to use in this site.



NOTE

Designer will compare the PV module sizes as detected in the drawing to the actual dimensions of the make and model you chose in this step. If there's a discrepancy, imported entities will be scaled to fit the real-world data. Please note that in this scenario, you may see a difference in the PV modules' placement compared to that in the original drawing – this is expected behavior.

- Choose the racking type that applies for this site.
- For the racking type you chose, choose the relevant settings (Roof Tilt or Mounting Height & Tilt, depending on your selection). If no roof tilt is specified, the default will be 0° (flat roof).
- Click **Next** to continue.

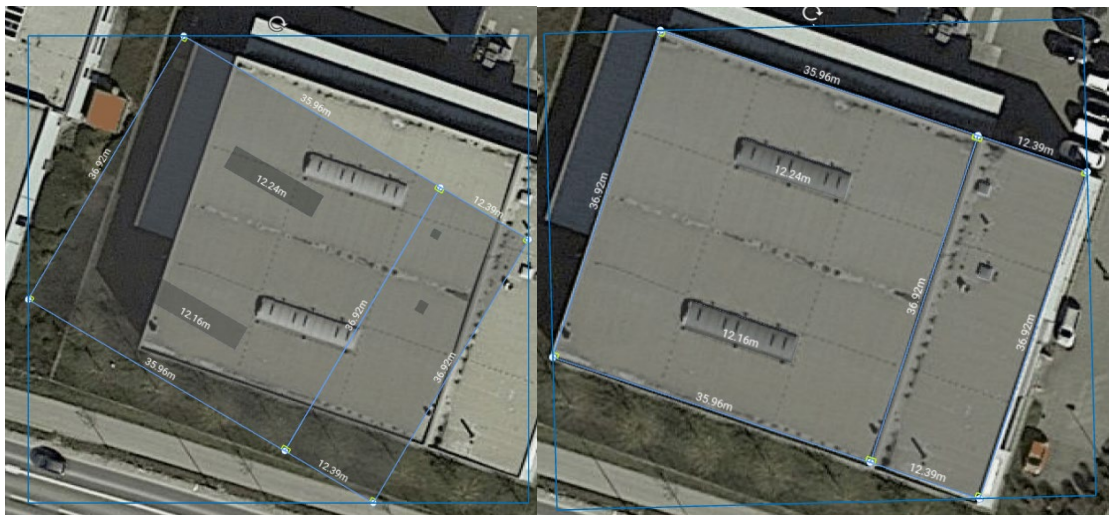


NOTE

If the site contains more than one type of PV module and/or racking configuration, choose the primary, or most common option for each setting. You will be able to change the settings (PV make and model as well as racking settings) per module group within Designer, once the import is complete.

Step 5: Rotate, Adjust and Scale

- Once the file upload has been successfully completed, click **Close** to proceed to the adjustment stage.
- You will find all roof edges selected, so that you can set the azimuth and then position the roof layout in the appropriate place on top of the map or the background image of the site. Use the Rotation Handle to change the azimuth of the entire roof, and click and drag a roof edge while all the roof is selected in order to reposition the entire roof:



- If necessary, use the Scaling Tool to determine and apply a scaling factor to the entire roof. To activate the Scaling Tool:
- Select the Scaling Tool in the top toolbar:



- Choose a roof edge for which you know the real-world size.
- Once an edge has been selected, type the edge's actual dimension and press **Enter**.

- A scaling factor will be calculated and applied for all roof edges. For example, if a certain roof edge originally displays a length of 3.00 meters, and its real-world length is 6.00 meters – all edges' lengths will be multiplied by a factor of 2.

**NOTE**

The Scaling Tool will only adjust roof edge lengths. PV module dimensions will not be affected, as they are determined by the Designer module database.

Support Contact Information

If you have technical problems concerning SolarEdge products, please contact us:



<https://www.solaredge.com/service/support>

Before contact, make sure to have the following information at hand:

- Model and serial number of the product in question.
- The error indicated on the product SetApp mobile application LCD screen or on the monitoring platform or by the LEDs, if there is such an indication.
- System configuration information, including the type and number of modules connected and the number and length of strings.
- The communication method to the SolarEdge server, if the site is connected.
- The product's software version as it appears in the ID status screen.