

## Commercial Site Mapping – Europe, APAC

The physical layout of a PV system provides a bird's-eye view of the actual placement of each inverter and power optimizer in the site. Mapping the physical location of each component enables quick and easy performance monitoring, site diagnostics and troubleshooting.



### NOTE

If you do not upload a physical mapping of the site, the SolarEdge Monitoring platform will still display the logical layout, indicating which power optimizers are connected to which inverters, but will *not* display the string topology or the physical location of modules and power optimizers.

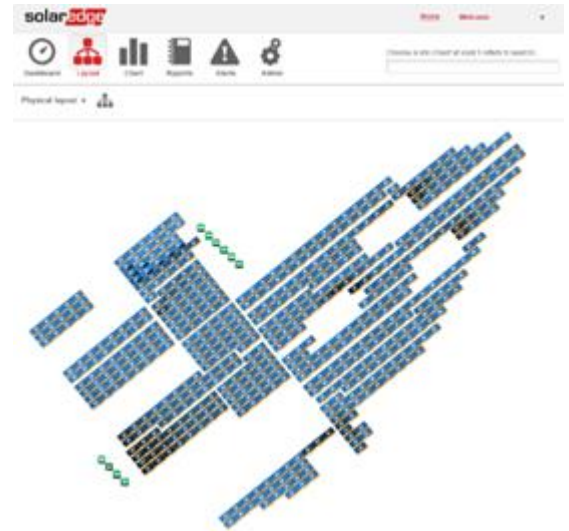


Figure 1: Site photo and monitoring layout as displayed in the SolarEdge monitoring platform

### Step 1: Creating your Site Virtual Layout in the SolarEdge Monitoring Platform

Before you start mapping your site, you should create your site virtual layout and upload it to your account in the SolarEdge monitoring platform. If the site layout has not been created by now, please proceed according to one of the following:

- Use the SolarEdge Physical Layout Editor in the monitoring platform. See [Appendix D](#) for instructions.
- Create a physical layout using AutoCAD, export a DXF file, and upload it to the monitoring platform. See [Appendix E](#) for instructions.
- Use the SolarEdge Site Mapper app ([iOS/Android](#)) to create the site virtual layout (under 1000 kW). Please view this [video tutorial](#) for guidance.
- For sites larger than 1,000 kW: Send the site drawing (see [Appendix B](#)) and any other relevant documents to your SolarEdge Project Manager. You can also upload the documents directly to your account in the monitoring platform (see [Appendix A](#)). SolarEdge site builders will create the virtual layout, which will be accessible in the monitoring platform and in the Site Mapper app.

### Step 2: Mapping your Site

The site mapping process should be carried out during the installation – preferably *before* the PV modules have been mounted. This allows proper access to the optimizer barcodes and ensures that mapping data is available from the moment the site is active.

There are 3 available site mapping options. Check the location of the barcode stickers on the optimizer and consider access limitations before choosing a mapping option.

- [Using the Site Mapper App](#)
- [Sticker Mapping](#)
- [Scanning to Excel Layout](#)

## Option 1: Using the Site Mapper App

Once your site physical layout has been created (see [Step 1](#)), you can start mapping the site using the Site Mapper app.

The Site Mapper App allows users to scan optimizers using a built-in phone camera or an external barcode scanner (capable of 2D scanning). The scanning process can be performed simultaneously by multiple users using different devices, so you can divide the task and complete it in less time.

- NOTE**  
Batteries may run out of power, so make sure to have fully charged devices and extra batteries/battery packs on hand.
1. Download the SolarEdge Site Mapper App ([iOS/Android](#)).
  2. Open the app, and log in using your SolarEdge username and password.
  3. In the app's home screen, search and select the site you wish to scan from the site list. A copy of the site will be downloaded to your device so you can work on it in offline mode as well.
  4. In the site layout screen, tap on the first module you will scan (see the red arrow in Figure 2).
  5. To start scanning, tap the barcode icon (Figure 2) and select your site optimizer-to-module configuration – either 1-to-1 (Figure 3) or 1-to-2 (Figure 4). In 1-to-2 installations, you will be asked to select the second module connected to the same optimizer before you begin (see the red arrow in Figure 4).

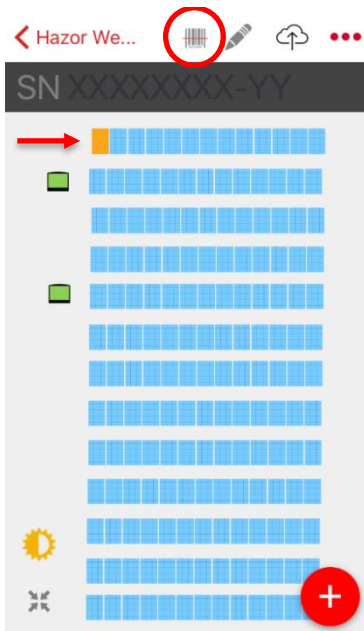


Figure 2: Tap on barcode

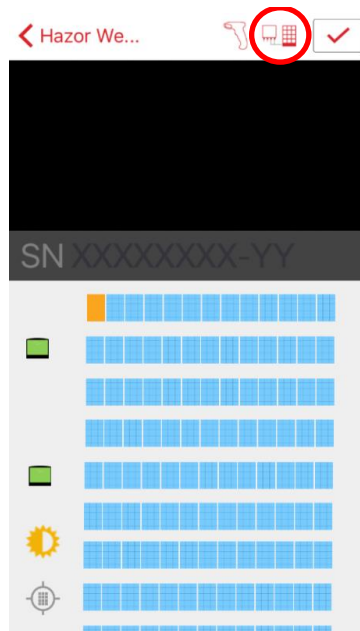


Figure 3: 1-to-1

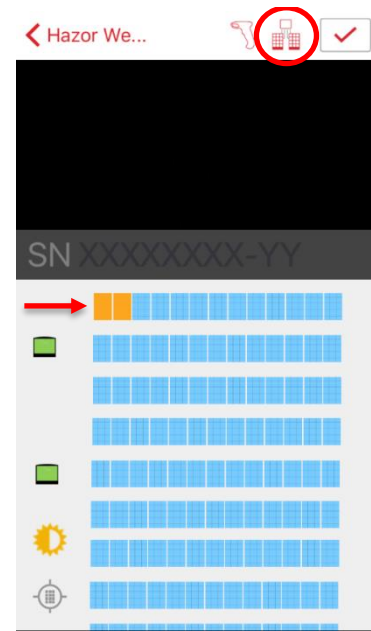


Figure 4: 1-to-2

6. Start scanning the optimizer barcode stickers using your camera or scanner. A successful scan is indicated by a short vibration and audio beep, with the serial number of the optimizer appearing on the screen.
7. After each barcode scan, the app will automatically indicate the next module to be scanned. You can manually select the next module by tapping it.
8. Continue scanning the remaining modules (note: the app will ignore additional attempts to scan the same barcode). Verify that the end of each row in the application matches the end of the actual row in the array.
9. To scan an inverter, tap the inverter icon and scan the barcode sticker on the side of the inverter.
10. To delete a serial number, tap the relevant module and tap the 'X' button next to the serial number.
11. Once you are done scanning, verify that all modules and inverters are assigned with serial numbers (see Figure 5).



Figure 5: Check that modules and inverters are assigned with serial numbers

12. At any stage of the process, tap the cloud icon (iOS) or earth icon (Android) at the top of the screen and select the relevant option to either save your work as a draft in the server or publish it as a complete site map.
13. For more information, please view this [video tutorial](#).

## Option 2: Sticker Mapping

1. Each optimizer and inverter has a removable, 2D barcode sticker. Verify the sticker location before mounting the optimizers to ensure you will be able to access it when needed. If the peel-off sticker will not be accessible after mounting, remove the stickers before you install the optimizers or consider using a different mapping method.
2. Fill in the inverter / Control and Communication Gateway (CCG) index table provided in [Appendix C](#).
  - Number the inverter / CCG in the table according to their number on the site's CAD drawing, to track physical location and wiring.
  - For each inverter/ CCG, record its serial number by using the thumb-sized rectangular sticker located at the side of the inverter / CCG. Peel off the sticker and place it in the correct cell in the table (see Figure 6).
  - Indicate if the inverter / CCG is configured as a master or slave in the RS485 bus and enter the bus number (the bus number is the number of the master inverter, e.g. if inverter number 3 is the master, enter 3 for all slave inverters connected to it).

Inverter & CCG Index			
Inverter / CCG Number	Inverter / CCG Serial Number	Master / Slave	Bus Number
1	1001F005-4B	Master	1
2	1001F005-4C	Slave	1
3	1001F010-CB	Slave	1
4	10020004-4B	Slave	1
5	1001F005-4D	Slave	1
6	1001F105-07	Slave	1

Figure 6: Complete the Inverter & CCG Index table

3. Complete the optimizer mapping table provided [here](#).
  - Enter the string number (the same number used in the CAD drawing) to document the system's wiring.
  - Enter the number of the inverter to which the string is connected
  - Enter the azimuth and tilt values.
  - Use the thumb sized rectangular stickers found on each optimizer to quickly record serial numbers: Peel the stickers off and place them in the table (Figure 7).

### NOTE

Please verify the peel-off sticker location on the optimizer prior to installation. Be aware that in some cases the stickers must be removed before the optimizers are mounted since accessibility will be limited after the installation.

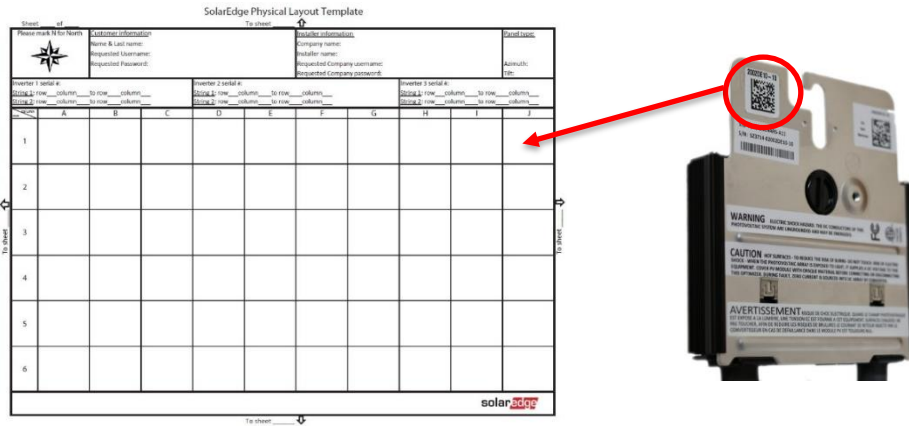


Figure 7: The power optimizer mapping table

- Once you have all 3 tables ready, please follow the instructions in [Appendix A](#) to upload all documents.
- The SolarEdge site-builder staff will upload the mapping data to your site in the monitoring platform.

### Option 3: Scanning to Excel Layout

This option requires a tablet/phone/laptop and a handheld barcode scanner (capable of 2D barcode scanning) to be used onsite. The scanning process can be performed simultaneously by multiple users using different devices, so you can divide the task and complete it in less time.

**NOTE**  
Batteries may run out of power, so make sure to have fully charged devices and extra batteries/battery packs on hand.

Please verify that your scanner issues the enter command after scanning a barcode. If needed, scanners can be pre-configured according to the manufacturer’s product manual.

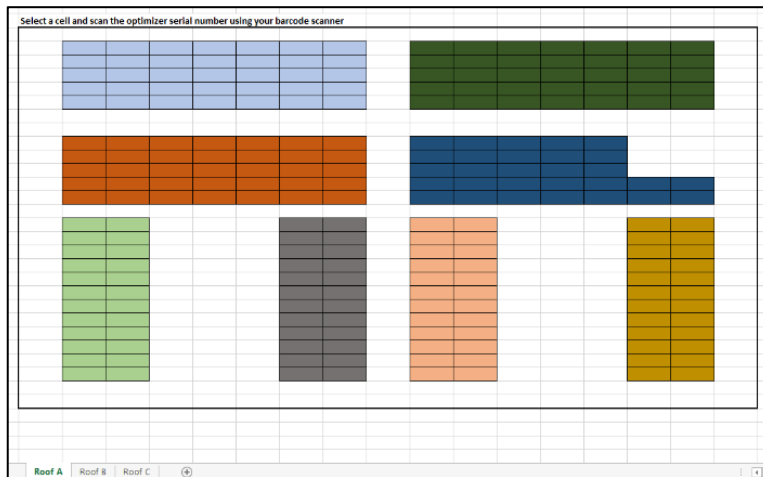


Figure 8: Site layout in Excel Format

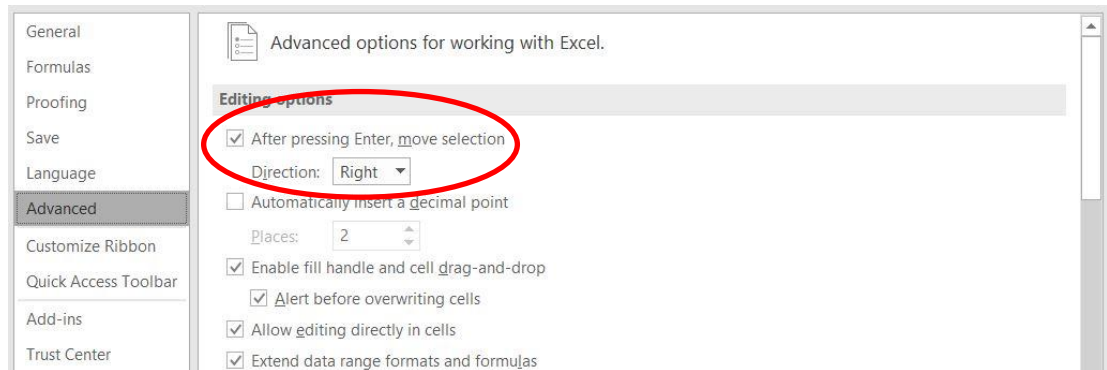
- Connect your scanner to your tablet/phone/laptop (using a wired or wireless connection) and open the layout file that you prepared.
- Make sure to review the layout before beginning the scan and verify directions (north, etc.).

**NOTE**  
If there are any changes in the installation compared to the original drawings, and the layout file does not match the actual layout, please make sure to document these changes clearly.

- Each cell in the layout represents a module. To scan, highlight a specific cell in the spreadsheet and scan the barcode on the optimizer. The optimizer serial number should then appear in the highlighted cell (Figure 9). After scanning a barcode, the next cell will be highlighted automatically. You can also highlight a *group of cells* to scan.

**NOTE**

You can adjust the default movement direction in the Excel sheet to match your order of scanning in **File >> Options >> Advanced** (see Figure 9).



4.

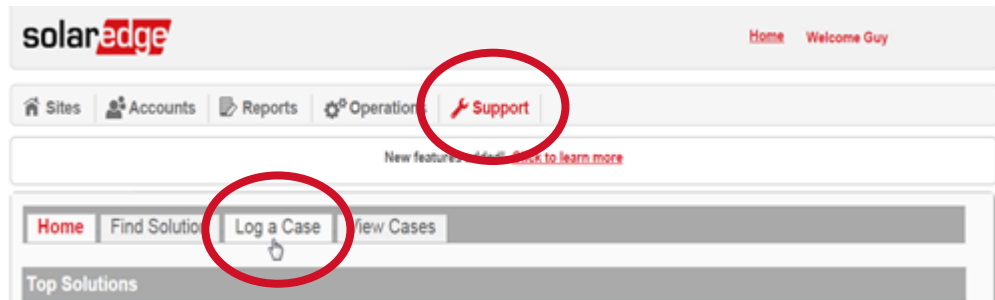
**Figure 9: Adjusting default movement in Excel**

5. If the installation has a 1-to-2 optimizer-to-module configuration, make sure either to define it in advance or to re-scan the same optimizer in the cell corresponding to the second module.
6. Once you are done scanning the site, send the complete layout file to your SolarEdge project manager, and the mapping data will be uploaded to your account in the monitoring platform.

## Appendix A: How to Upload Documents (for Sites Larger than 1,000 kW)

→ Upload the documents to the monitoring platform by logging a case in the support section:

1. Log in to the monitoring platform.
2. Click the **Support** tab.
3. Click the **Log a Case** tab.



4.

Figure 10: Logging a case in the monitoring portal

Fill in the case details:

- Select **Type**: Site setup and update.
- Select **Category**: Site Mapper.
- Under **Subject** and **Site Name** enter the name of the site as it appears in the monitoring platform.
- Use the **Description** field to add any information the site-mapping staff should have when mapping the site.

 A screenshot of the 'Log a Case' form in the SolarEdge monitoring portal. The form is titled 'Log a Case' and has a navigation bar with 'Home', 'Find Solution', 'Log a Case', and 'View Cases'. The form fields are as follows:
 

- Type:** Monitoring Portal (dropdown)
- Category:** Site Registration and Update (dropdown)
- Sub Category:** Add physical layout to existing site (dropdown)
- Subject:** Example Site A - mapping (text input)
- Monitoring Site Name:** Example Site A (text input)
- Severity:** 3- Low (dropdown)
- Error Code Number:** (text input)
- Inverter Serial (Tech. Issues Mandatory):** (text input)
- Serial Numbers (comma delimited):** (text input)
- Description:** ANY IMPORTANT DETAILS (text area)

 At the bottom of the form are 'Submit' and 'Cancel' buttons.

Figure 11: Case details

5. Click **Submit**.
6. Scroll down and click **Add Attachment**.
7. Follow the on-screen instructions to upload all relevant documents required to complete the physical mapping - CAD drawing, wiring diagram and, if applicable, the three SolarEdge tables created in [Option 3](#).

Home Find Solution Log a Case View Cases

### Attach File

- Select the File**  
Type the path of the file or click the Browse button to find the file.
- Click the "Attach File" button.**  
Repeat steps 1 and 2 to attach multiple files.  
( When the upload is complete the file information will appear below. )
- Click the Done button to return to the previous page.**  
( This will cancel an in-progress upload. )

Figure 12: Attaching files to the case

- Once all files have been uploaded, click **Done**.
- In the next screen, scroll down and check that all files you have uploaded are attached to the case.
- 

### Solutions

None Found

### Related Comments

None Found

### Related Attachments

Attachment Name	Size	Last Modified
<a href="#">mapping examples.zip</a>	20.86MB	4/13/2015 4:28 AM

POWERED BY SALESFORCE.COM

Figure 13: Verify all files have been successfully uploaded

## Appendix B: CAD Diagram Requirements

The CAD diagram for your site should include the following information:

- Module placement on site
- Inverter / CCG location (including inverter numbers, if available)
- Meter location
- Sensor location
- Router location
- Other roof or site elements: roof outline, skylights, poles, trees etc.
- Azimuth
- String wiring:
  - Clearly identify strings using different colors
  - Indicate string number and the number of the inverter to which it connects (e.g. 3.1 indicates string #1 connected to inverter #3)
  - Indicate + / - at the string ends (optional)

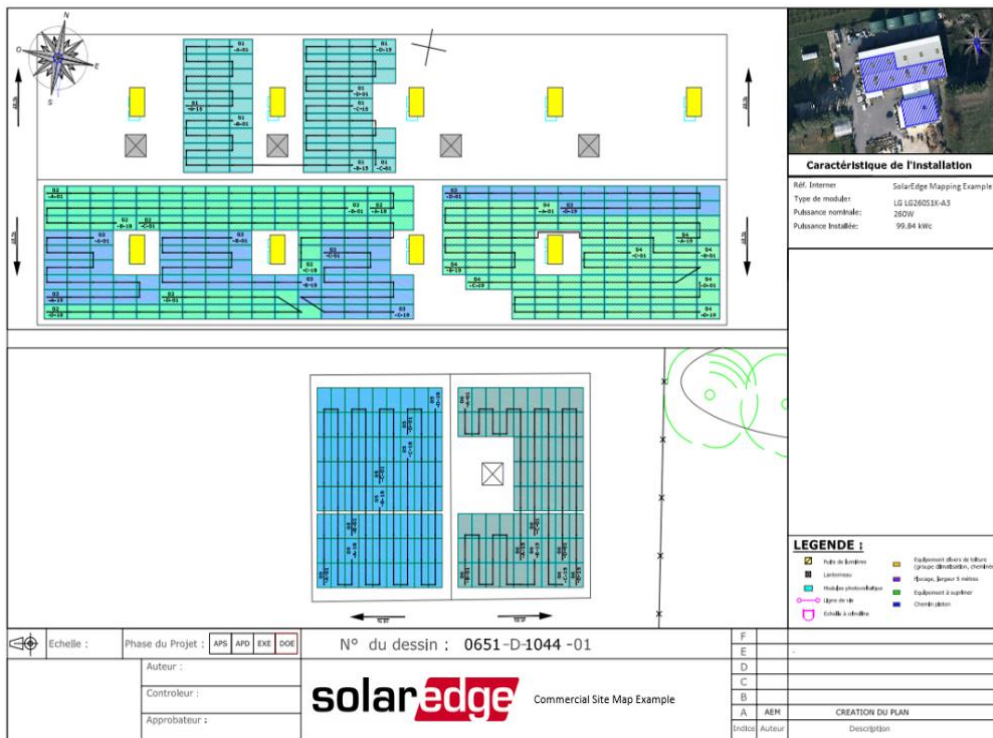


Figure 14: CAD drawing example





## Appendix D: Physical Layout Editor

Using the physical layout editor, you can create and upload the site's physical layout.

→ **To create and upload the physical layout:**

1. Log in to the monitoring platform.
2. Enter the site you wish to map.
3. Click the **Admin** icon.
4. Select the **Physical Layout** tab.
5. Watch this short [instructional video](#) on how to use the physical layout editor.

Once you complete creating or editing the physical layout, you can publish it to the monitoring platform, save it as an image, and print it for offline use.

## Appendix E: Generate Physical Layout using an AutoCAD Design

You can auto-generate the project physical layout by importing an AutoCAD design in DXF file format. This feature is available in the Admin tab, under Physical Layout.

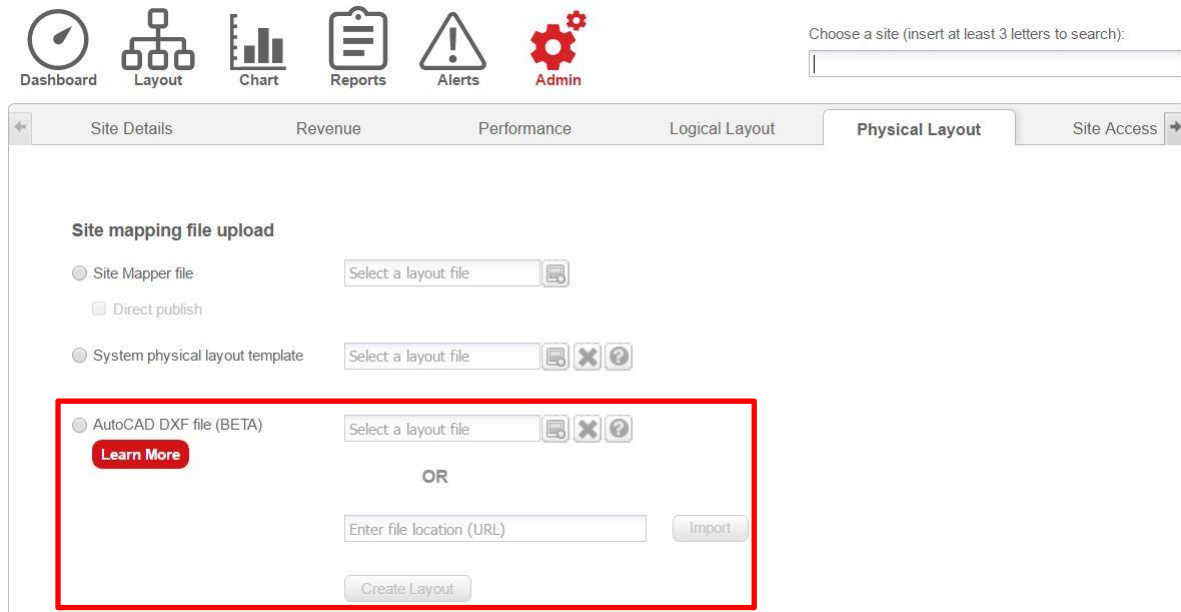


Figure 15: Logging a case in the monitoring platform

### → When creating the AutoCAD design:

- Use flat (2D) poly-line objects or blocks containing poly-line objects.
- Avoid creating nested blocks.
- Make sure all panels are the same size (10% tolerance).

### → To generate a physical layout:

1. Export a DXF file that includes only the layers containing the modules, and make sure the objects in the design do not overlap each other.
2. Import the design and verify that the correct number of modules is identified by the system.
3. Enter the default Azimuth and Tilt (you will be able to modify it later in the editor).