Application Note – Battery Profile Programming on the Monitoring Platform

Version History

- Version 3, February 2023
  - Updated user interface guidelines
  - Homeowner battery mode selection overrides installer selection
- Version 2, January 2019

Contents

Introduction

SolarEdge's Storage Solution can be used for various applications that enable energy independence for system owners, by utilizing a battery to store energy and supply power as needed. One of the main applications of the Storage Solution is Battery Profile programming, in which the system operates according to a configurable charge/discharge profile – supporting, for example, time of use arbitrage (charging the battery from the PV/grid when tariffs are low and discharging the battery when tariffs are high).

A battery profile is created from a yearly calendar that is applied as long as no profile changes are made. The yearly calendar is divided into segments, with a battery mode assigned to each segment. This application note describes how to program a profile using the SolarEdge Monitoring Platform.

A profile is comprised of three components:

- A daily profile type: defines the battery modes throughout a day. Different day types may be defined, for example, winter weekday, spring weekday, weekend, holiday, etc.

- A seasonal profile: defines weekly profiles to use during specified periods of the year. These periods must cover the entire year. A typical use case is creating seasonal profiles corresponding to the seasonal changes of electricity rates.

- Special day type: defines dates that should have a specific daily profile instead of the profile defined for the relevant period. For example, if you defined a seasonal profile from Dec. 15 to Jan. 15 but want the system to have a different daily profile for New Year's Day, define a special day. Special days can be set as one-time events or as recurring events.

The following table describes the supported modes:

Mode	Description	Example Use Case
Solar power only	No battery charging/discharging; for using the system without storage capabilities	To avoid excess battery charge/discharge and prolong battery life; for example, at night-time or during the winter
Charge from clipped solar power	If PV production > inverter maximum production for self-consumption and grid export (up to the grid export limit and never more than inverter nameplate power), charge the battery	When grid export tariff and PV production are high; for example, during the summer and peak daytime production
Charge from solar power	Charge battery from PV production until it is full, and only then use PV production for self-consumption and grid export	When import rate and PV production are low; for example, during the winter and afternoon
Charge from solar power and grid	Charge battery from PV production and grid power (if needed) until it is full. Only then use PV production for self-consumption and grid export	When import rate is low and when AC charge is allowed by local regulations
Discharge to maximize export	If PV production < inverter maximum production (nameplate or limited power), discharge battery for self-consumption and grid export until the inverter reaches its power limit	When grid export tariff is high and PV production is not enough for self-consumption and grid export
Discharge to minimize import	If PV production < consumption, discharge battery only for self-consumption, not for grid export	When grid export is not allowed
Maximize self-consumption	Use PV production for self-consumption, then charge/discharge battery as needed to maximize self-consumption	When grid export tariffs are low or export is not allowed; reduce grid dependency

Configuring a Profile

This procedure can be completed before a system is installed or a site is created on the Monitoring Platform, as the profiles are created in the account level, and can be assigned to any site within your account.

Creating a New Profile

→ **To create a storage profile:**

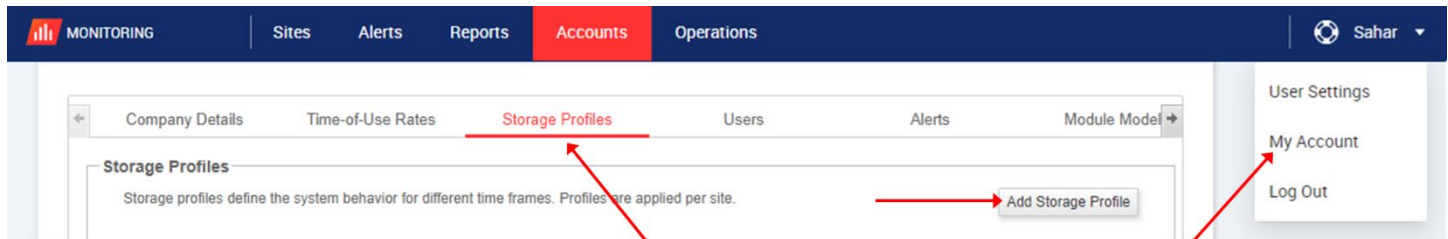1. In the Monitoring Profile home page, click **My Account** and select the **Storage Profiles** tab.

Figure 1: Storage Profiles Tab and Add Storage Profile Button

2. Click on the **Add Storage Profile** button. The following window is displayed:

Figure 2: Add Storage Profiles

3. Enter the profile details: **Name, Country** and optionally a profile **Description**.

4. In the **Backup reserve** field enter the battery capacity portion to reserve for backup (in %). This is applicable only to Storage systems with backup.

5. Create daily profiles:

    a. Click on the **+Add Profile Type** button. The following window is displayed:

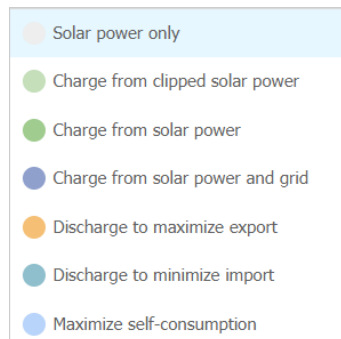**Figure 3: Add Daily Profile**

    b. Enter the Daily Profile **Name** and optionally, the **Description**.

    c. Select the profile **Default mode** from the dropdown list. The default mode will apply to the entire day; you can then set different modes for selected timeslots.

Figure 4: Profile Modes

d. Click on the **Create** button. The Daily Profile Details window is displayed:

Figure 5: Daily Profile Details

e. You can set different modes for selected time slots, either by clicking **Change Schedule**, or by selecting a time slot in the window. The Change Schedule window is displayed.

Figure 6: Changing the Schedule in a Daily Profile

f. Select the mode from the **Schedule** drop down and optionally add a description.

g. Click **Save**.

h. Click **Update** in the Daily Profile Details window.

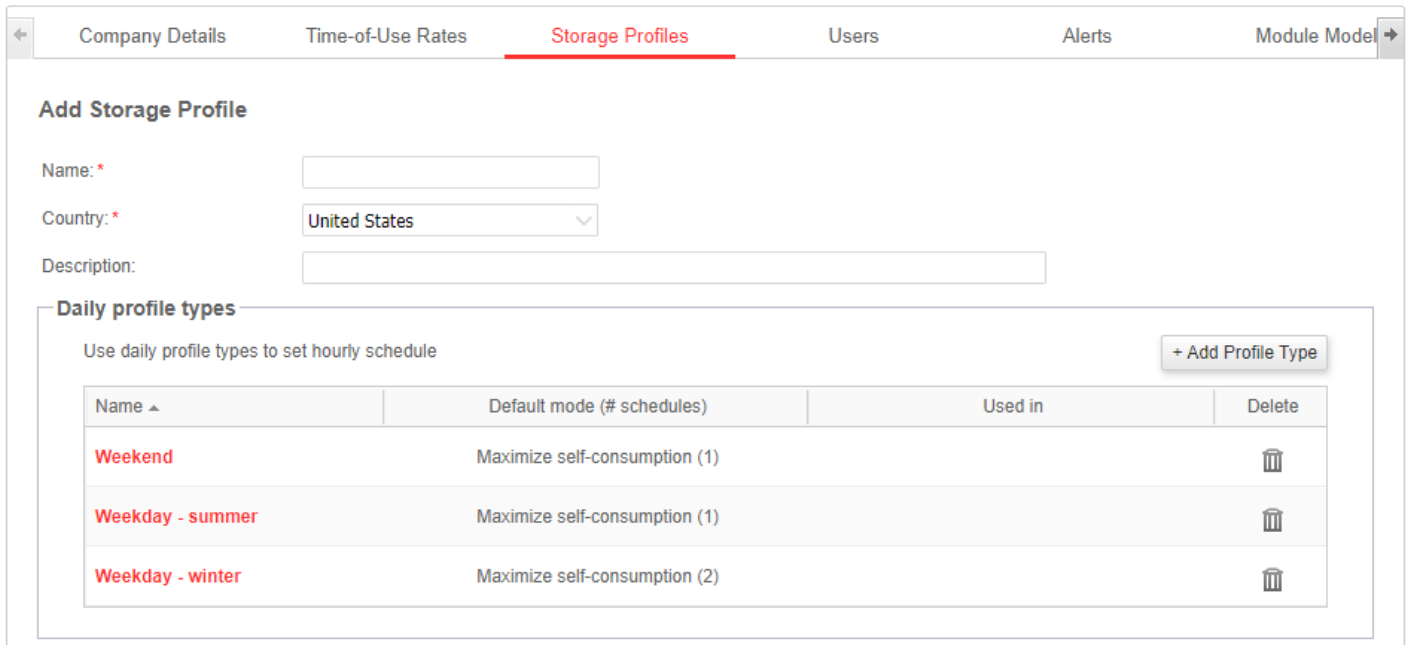i. Click **Create**. The daily profile is added to the Storage Profiles window.

Figure 7: Daily Profile Types

j. To create additional daily profiles, click **+Add Profile Type**. Repeat the steps above to create as many profile types as needed. For example, you can use *Maximize self-consumption* mode on the weekend, *Charge from solar power* mode in summer mornings, or *Charge from solar power* mode in autumn noon hours.

6. Create seasonal profiles:

a. In the Storage Profiles window, click on the **+Add Seasonal Profile** button.

Figure 8: Add Seasonal Profiles in the Storage Profiles Window

The following window is displayed:

Figure 9: Adding Seasonal Profiles

b. Fill in the seasonal profile details **Name**, an optional profile **Description**, and the **From** and **To** dates of the period during which the profile should be used.

c. For each day of the week, select a daily profile from the dropdown list. This weekly profile will recur each week of the defined period.

d. Click **Create**. The profile is added to the Storage Profiles window.

e. To create additional seasonal profiles, click **+Add Profile Type**, and repeat the steps above to create as many profile types as needed.

⚫⚫⚫ NOTE

The seasonal profiles must cover the entire year, from Jan 1st to Dec 31st.

7. Optionally, create specific-day profiles for holidays and other days requiring a different profile:

Figure 10: Add Special Days in the Storage Profiles Window

a. In the Storage Profiles window, click **Add Special Day**. The following window is displayed:

Figure 11: Creating a Special Day Profile

b. Fill in the profile details: **Name** and optionally a profile **Description**.

8. Click in the **Date** field. Enter a single date or click the calendar icon to select a **Specific Date** or a **Date Range** that should be defined with the same settings.
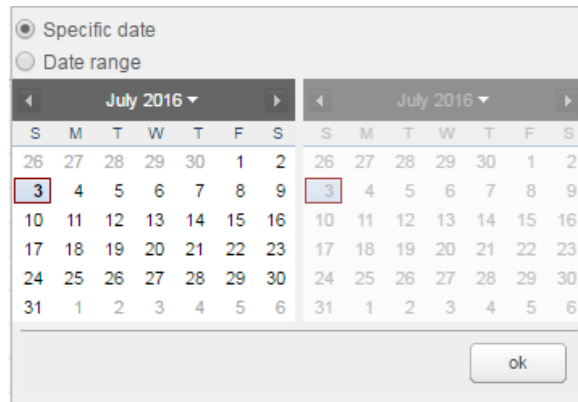

Figure 12: Calendar

a. To repeat the profile yearly, select the **Recurring** check box.

b. Select a daily **Profile** from the dropdown list.

c. Click **Create**. The profile is added to the Storage Profiles window.

9. Click **Create**. The profile is saved.

Editing a Profile

→ **To edit a profile:**

1. In the **Daily Profile Types** list, click the profile name to open a window containing profile details.

2. Edit as required. See steps 3 through 9 in the To create a storage profile procedure.

3. Click Update.

Applying a Profile to a Site

→ **To apply a battery profile to a site:**

1. In the Monitoring platform site page, click **Admin** and select the **Energy Manager** tab.

Figure 13: Energy Manager Tab

2. Select the **My account profiles** dropdown option and select the profile name from the second drop-down list. The profile is automatically applied to all inverters in the site.

3. Click **Save**. Expand the **Active Inverters Battery Modes and Profiles** following information per inverter:

   - The **Battery Mode** column shows the applied battery mode. When a profile is selected, the text 'Profile Name' appears.

   - The **Profile Name** column shows the specific profile that was applied to the site, as reported by each inverter.

4. If the site's system owner has access to the Battery Modes feature on the mySolarEdge app, the Energy Manager tab displays the mode selected by the owner. The mode appears in a view-only format, and cannot be modified by the installer. To allow the installer to modify the battery mode, the homeowner should select the "Default Settings" option in the mySolarEdge Battery Modes page.

![solaredge]

Support Contact Information

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

[QR code]

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.