

# CEGASA

Energy you can trust

## **Annex 4:**

### **Configuration of System with EViewer Web App**



## Control of revisions

VERSION	DATE	DESCRIPTION
Version 1.3	26/8/2024	Formatting revision
Version 1.6	10/10/2024	Translation revision (Mk) Formatting revision (Mk) Table of Contents revision (Mk) Screenshots name revision (Mk)

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## A4.1 ACCESS

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Once the connection has been made by any of the methods described (see *Point 5 of the User Manual*), the user accesses the following screen from their mobile device or laptop.



The screenshot shows the login interface for the CEGASA web application. At the top center is the CEGASA logo. Below it, the 'Usuario' field contains the text 'installer' and a 'Seleccionar' dropdown arrow. The 'Contraseña' field is masked with ten dots. The 'Idioma' field contains the text 'Español' and a dropdown arrow. At the bottom, there is a large teal button labeled 'Login'.

Figure 1-1. Web app. Access.

There are two levels of access to the app: **USER and INSTALLER**. The user level (**USER**) has general information both on the Battery System and on each String while users who are installers (**INSTALLER**) have more information on the Battery System as well as permission to modify the configuration.

Below are the user credentials for **USER**. The installer password will be supplied when the modules are purchased.

- **Username:** user
- **Password:** Cegasa

Once connected, the user accesses the **Main** screen directly.

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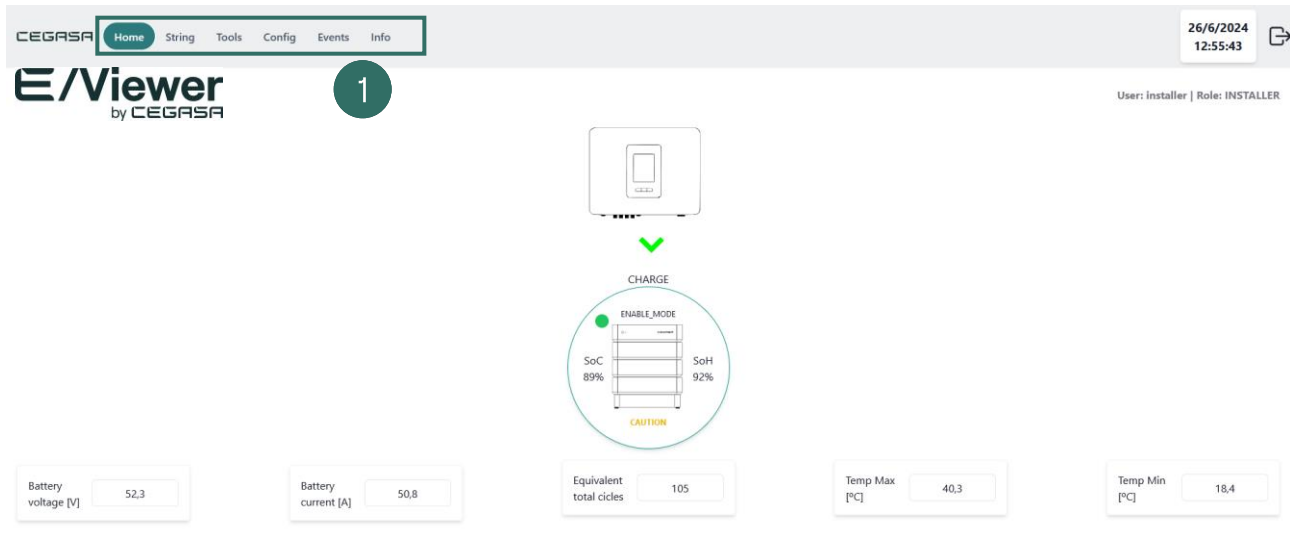


Figure 1-2. Web app. Main Screen.

The application's various menus can be browsed on this screen:

- **Main: Screen with general information in real time on the Battery System.**
- **String: Screen with detailed information on each string.**
- **Tools: Screen where you can download both log and event files.**
- **Config: Screen for configuration of Battery System parameters.**
- **Events: Screen showing the latest Battery System events.**
- **Info: Screen where you can see and update firmware versions.**

## A4.2 CONFIGURATION

During the start-up of the Battery System, the Master unit must be configured to establish the installed topology. The installer must configure the following variables on the **Config** screen:

1. **Battery model**, on the General Configuration tab (1, Figure 2-1). Select the CEGASA Module: For example, EScal
2. **Inverter model**, on the General Configuration tab (2, Figure 2-1). The Battery System can work with various compatible inverter models. These inverters have different communication protocols and logs.

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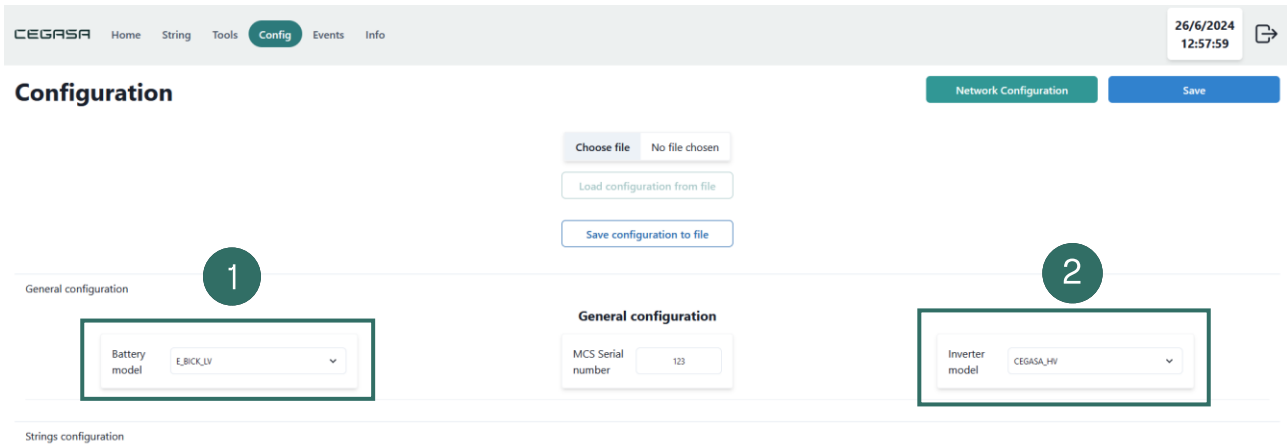


Figure 2-1. Web app. Configuration Screen – General Configuration Tab.

3. **Number of strings connected in parallel**, on the Strings Configuration tab (3, Figure 2-2). It is equivalent to the number of BMUs connected to the system.
4. **Number of Modules connected in series to the string**, in the Configuration tab (4, Figure 2-2). It is equivalent to the number of BMUs connected to the system

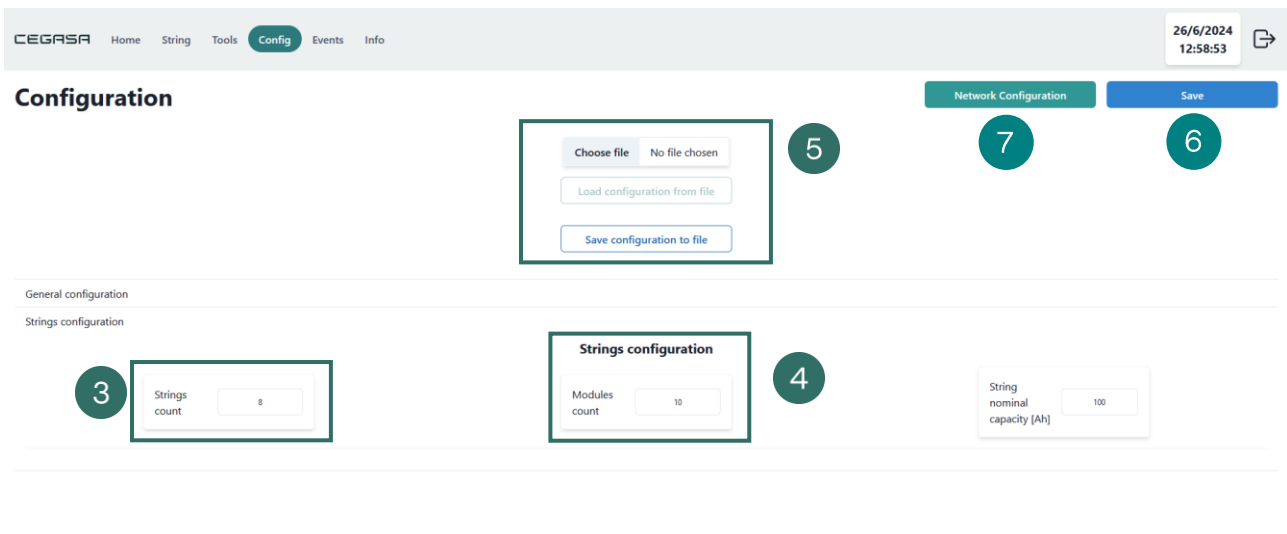


Figure 2-2. Web app. Configuration Screen – Configuration Strings Tab.

Users can save and/or load the configuration file using the file loading and saving options (5, Figure 2-2).

Once the configuration has been completed, users need to click the save button (6, Figure 2-2) to send the configuration to the Master unit. If the installer changes the battery model and/or number of modules, the system will automatically restart. This system reboot may take a few seconds.

On the Config screen there is the option to configure the Ethernet network by clicking the Network Configuration button (7, Figure 2-2). With this configuration you can configure a fixed IP or DHCP.

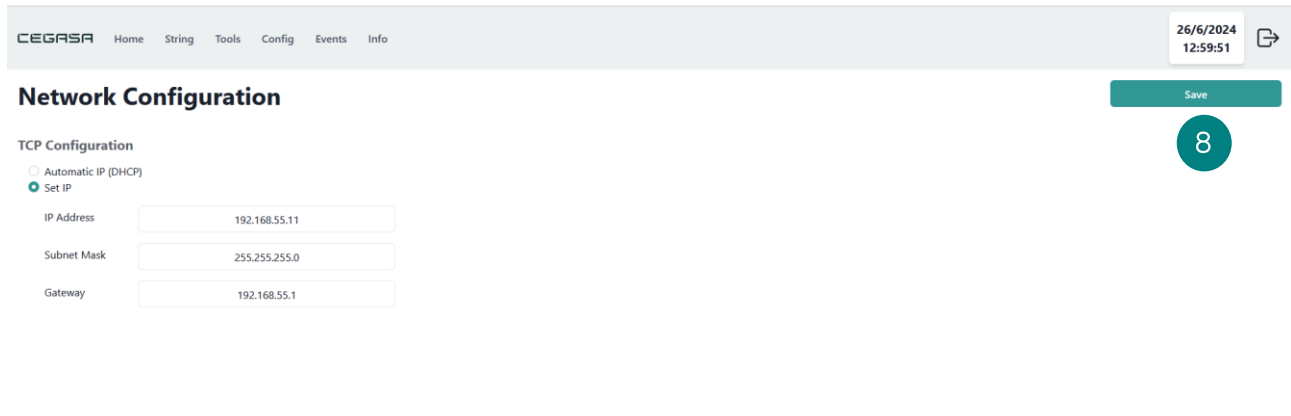


Figure 2-3. Web app. Configuration Screen – Network Configuration.

Click the save button (8, Figure 2-3) to apply the network configuration changes.

## A4.3 MONITORING

Users have information on the Battery System available both in real time from the **Main** and **String** screens and from past events on the Events tab.

### A4.3.1 Main Screen

On the **Main** screen Users have the following information:

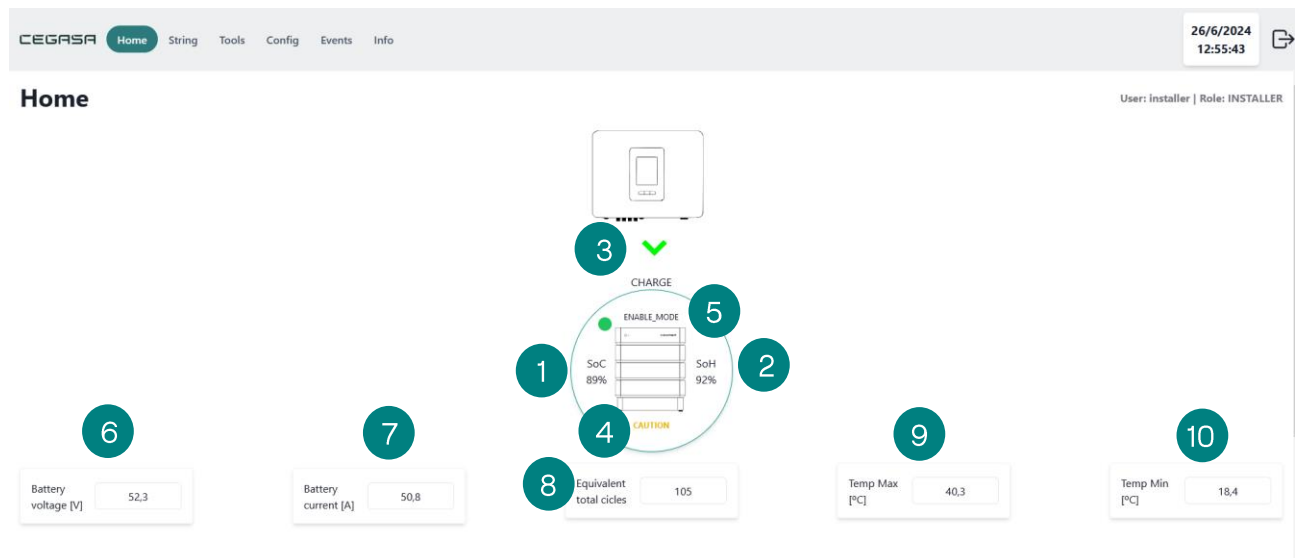


Figure 3-1. Web app. Main Screen.

1. **SoC:** State of charge
2. **SoH:** State of health
3. **State of operation**
4. **State of protection**
5. **Operating mode:** Boot\_mode, Enable\_mode, Disable mode
6. **Battery System Voltage [V]**
7. **Battery System Current [A]**
8. **Total equivalent cycles**
9. **Maximum temperature** of the Battery System [°C]
10. **Minimum temperature** of the Battery System [°C]

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Additionally, installer users have the following extra information available:

The screenshot shows the main configuration screen of the EViewer Web App. The interface is organized into three main sections: REFERENCES, EPASSPORT, and VCELL. Each section contains several input fields with numerical values. The top navigation bar includes the CEGASA logo, a 'Home' button, and menu items for String, Tools, Config, Events, and Info. The date and time are displayed as 26/6/2024 13:00:55.

Section	Parameter	Value
REFERENCES	V_ch	52.6
	V_disch	43.4
	I_ch	102.3
	I_disch	103.1
EPASSPORT	Useful capacity	120
	Efficiency	97
	Equivalent total cycles	105
	Calendar Total [h]	4321
VCELL	Vcell Max [mV]	3333
	String	1
	Module	1
	Cell	5
VCELL	Vcell Min [mV]	3412
	String	1
	Module	2
	Cell	12

Figure 3-2. Web app. Main Screen.

- **V\_ch: Charging voltage reference [V]**
- **V\_dch: Discharge voltage reference [V]**
- **I\_ch: Charging current limit [A]**
- **I\_dch: Discharge current limit [A]**
- **Useful capacity**
- **Efficiency**
- **Total operation [h]: Total run time**
- **Normal operation [h]: Run time within safe temperature range**
- **Cold operation [h]: Run time of the Battery System in cold range**
- **Hot operation [h]: Run time of the Battery System in hot range**
- **VCell Max: Maximum cell voltage [mV]**
  - ✓ **SCL: Maximum voltage String number**
  - ✓ **MCL: Maximum voltage Module number**
  - ✓ **CELL: Maximum voltage Cell number**

- **VCell Min: Minimum cell voltage [mV]**
  - ✓ **SCL: Minimum voltage String number**
  - ✓ **MCL: Minimum voltage Module number**
  - ✓ **CELL: Minimum voltage Cell number**

### **A4.3.2 Battery passport**

In line with the new EU regulation 2023/1542 on storage systems, Cegasa Battery Systems have an integrated digital passport, called Battery passport. This directive requires providing information on different parameters of the Battery System, with the information on SoH, number of total equivalent cycles and the time at rest in cold, normal and warm temperatures being of interest to users.

The SoH algorithm counts times and cycles and under what conditions they occur (DoD and Temp). The appropriate degradation estimate will be made based on the logged values.

This information can be read from both the EViewer web app, and from the CEGASA cloud.

### **A4.3.3 String screen**

On the **String** screen detailed information can be obtained on each string making up the Battery System. Each of the Strings is numbered at the top of the screen, allowing you to choose at any time the String you want to monitor (1, Figure 3-3).

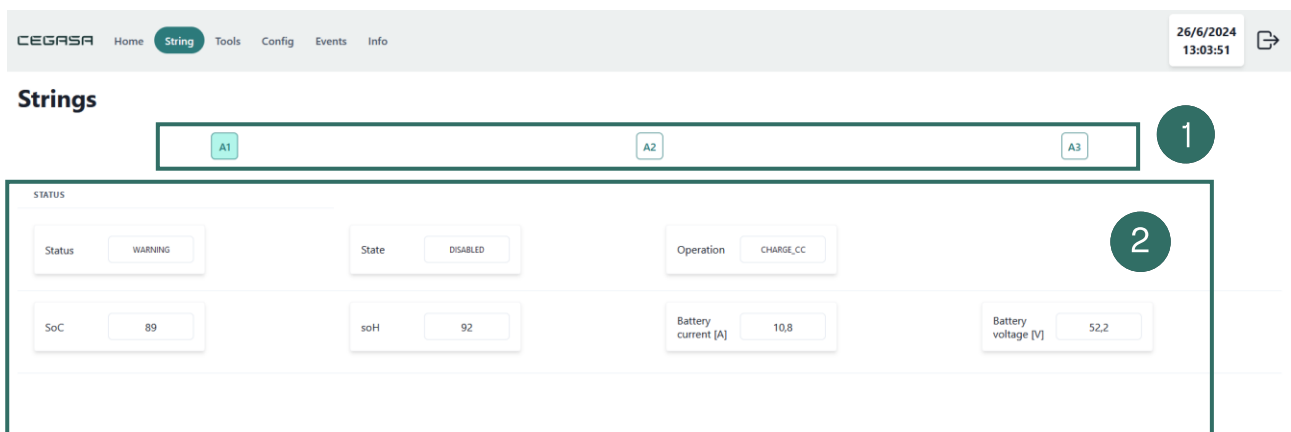


Figure 3-3. Web app. String screen.

On this **String** screen you can see the following information in real time (2, Figure 3-3):

- **Voltage: Total string voltage [V]**

- **Current: Current circulating through the string [A]**
- **SoC: Total string capacity [%]**
- **SoH: State of health of the string [%]**
- **State of operation**
- **State of protection**
- **Operating mode**

In installer mode you can also view the following information:

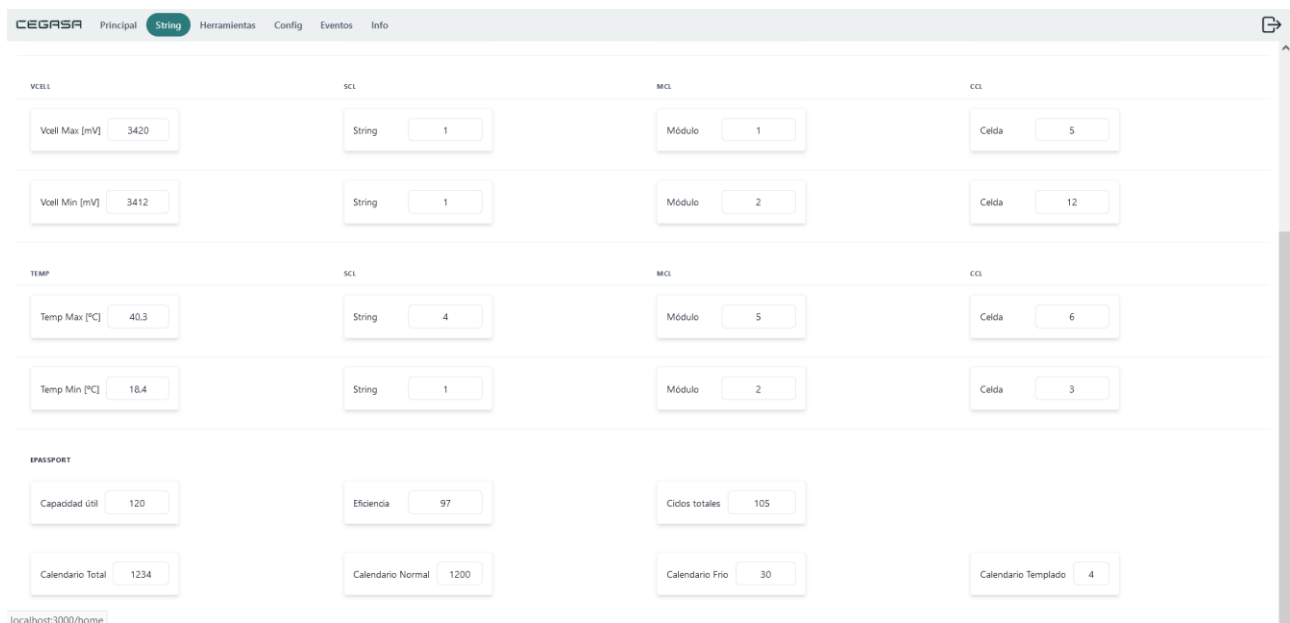


Figure 3-4. Web app. String screen.

- **Vcell min [mV]: Minimum cell voltage and corresponding Module number**
- **Vcell max [mV]: Maximum cell voltage and corresponding Module number**
- **Min temp [°C]: Minimum temperature and corresponding Module number**
- **Max temp [°C]: Maximum temperature and corresponding Module number**
  - ✓ **SCL: String number where the corresponding value is given**
  - ✓ **MCL: Module number where the corresponding value is given**
  - ✓ **CCL: Cell number where the corresponding value is given**

- **Battery passport: Useful capacity, Efficiency, Total Cycles, Total Calendar, Normal Calendar, Cold Calendar, Warm Calendar**

#### **A4.3.4 Events screen**

The **Events** screen generates a list with information on the last notable events that occurred in the Battery System in order to observe the behaviour of the system.

DATE	DEVICE	STRING	MODULE	ID	CODE	DATA0	DATA1
09/01/1970 23:24:00	20	1	3	WARNING_ACTIVE	MODULE_CELL_UNDERVOLTAGE	8	3408

Figure 3-5. Web app. Events screen.

On the **Events** screen the following points are shown:

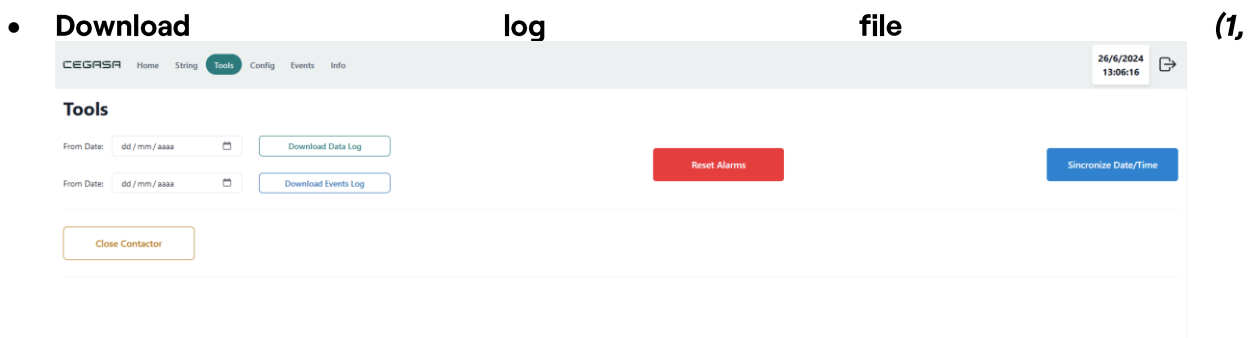
- **Caution events**
- **Warning events**
- **Alarm events**

**Click the read events button to refresh the page (1, Figure 3-5. Web app. Events screen).**

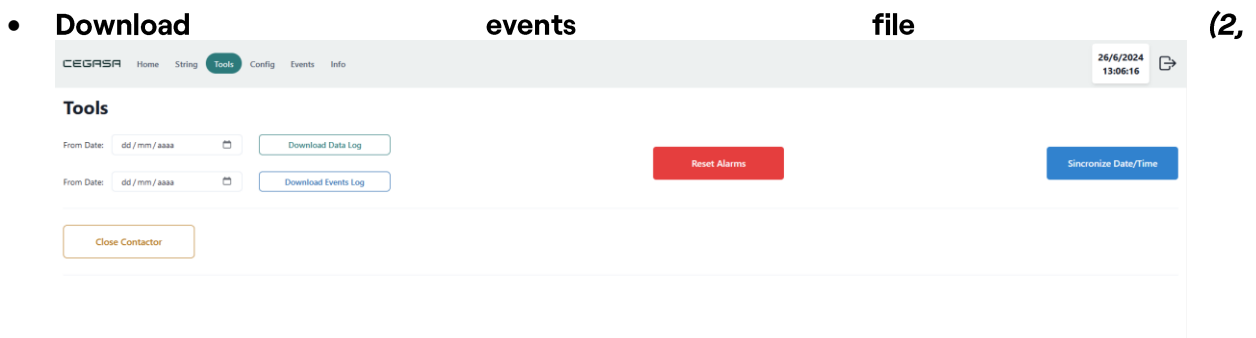
## A4.4 DOWNLOADING LOGS

In addition to being able to view events that have occurred on this screen, the web app allows you to download both the events file and the system logs. These files provide detailed data on the operation of the system to obtain past information such as being able to debug if there is anomalous behaviour.

The system and events log files are downloaded from the **Tools** screen.



**Figure 4-1).** Select the start date from which you wish to download the log, click the **Download Data Log** button and select the PC folder where you want to download the logs.



**Figure 4-1).** Select the start date from which you wish to download the log, click the **Download Log Events** button and select the PC folder where you want to download the logs.

In both cases, the logs will be downloaded from the date selected until the current date.

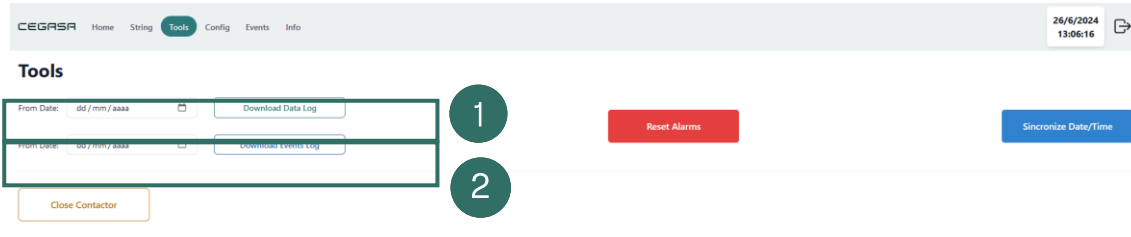


Figure 4-1.

Web app. Tools screen.

## A4.5 OTHER TOOLS

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On this **Tools** screen, installers can also perform the following actions by clicking the corresponding button:

### 1. Reset system alarms.

If the Battery System is in alarm, the equipment can be reset by resetting the alarm. The equipment will exit the alarm state only if the conditions that caused said state have disappeared.

### 2. Synch Date/Time.

The date/time configured for the MCS is shown in the upper left-hand part of the EViewer. By clicking this button, this time can be synched with the date and time of the device on which the app was opened.

### 3. Command the contactor.

Once the Battery System has started up and moved into the Ready state, the contactor can be closed by pressing the start/stop button or clicking the close contactor button on the **Tools** tab.

## A4.6 UPDATING

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The system is updated on the **Info** screen. From here you can see the current software versions and update the system both locally (by entering the corresponding file) and from the cloud, provided the Master unit is connected to the internet.

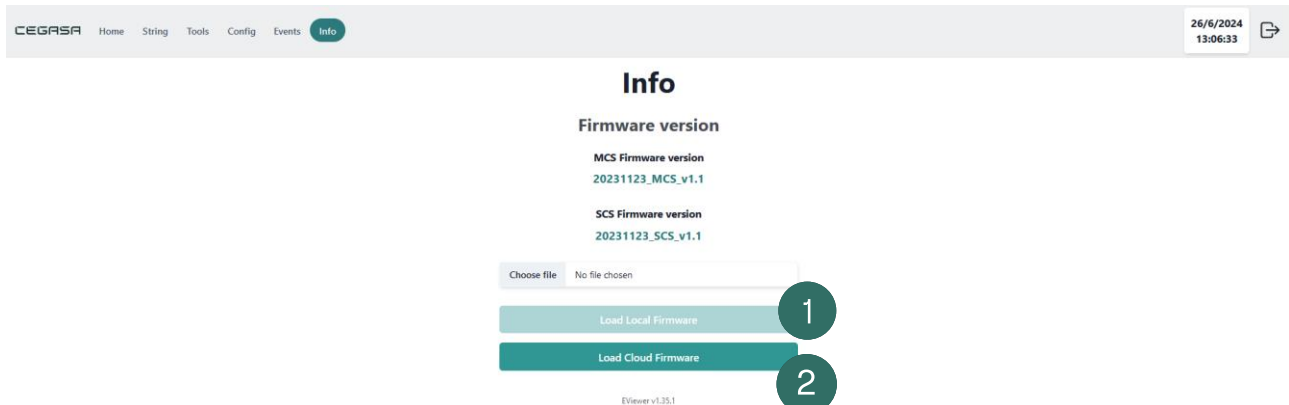


Figure 6-1. Web app. Info screen.

- **Cloud update.**

If the machine is connected to the internet, the system can be updated from the CEGASA cloud server. To do this, click the Cloud Firmware Upload button (2, Figure 1-12). The latest commercial version is always on the server. If the current version of the system is the same as the available update, the system won't be updated.

- **Local update.**

In cases where the system is not connected to the internet, the update can be performed locally. For this the update file is required. Users can request this file from CEGASA by contacting the after-sales department: [aftersales@cegasa.com](mailto:aftersales@cegasa.com)

To complete the update, click the Local Firmware Upload button (1, Figure 1-12) from where the file manager opens and select the corresponding file. Using this method, it is possible to install versions older than the one installed on the system. It is the user's responsibility to ensure that the correct version is installed.

## A4.7 MODBUS TCP/IP SERVER

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The Master has a Modbus server where different internal variables of the Battery System can be read. In addition, the contactor can be commanded and internal errors can be reset.

The user can make the connection using the RJ45 connector called Modbus TCP/IP.

CEGASA Systems adopt the SUNSPEC protocol, model 802, to standardise the addresses of the internal variables. The implemented protocol is detailed in Annex A3 MOD BUS Communications Protocol.

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