ADLINK Technical Document

Abstract	OCPP Quick Start Guide		
OS	N/A		
Keyword	OCPP		
Related Products	EMU-200 Series		
Date	2025.3.6	No.	

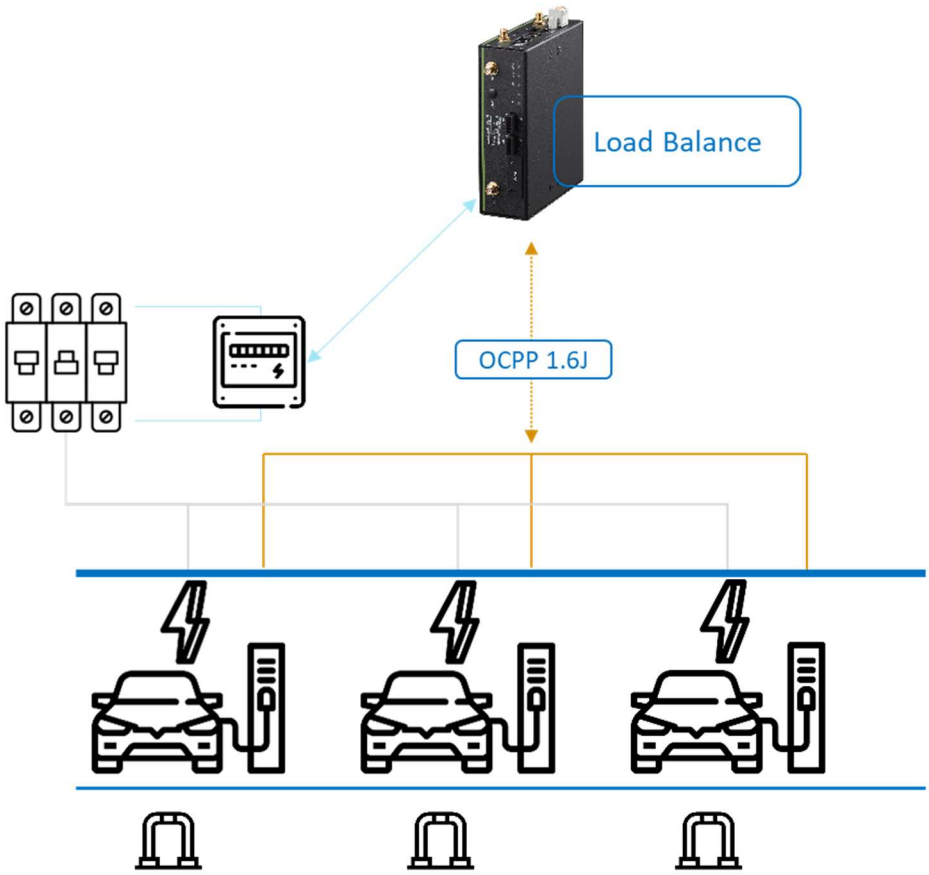
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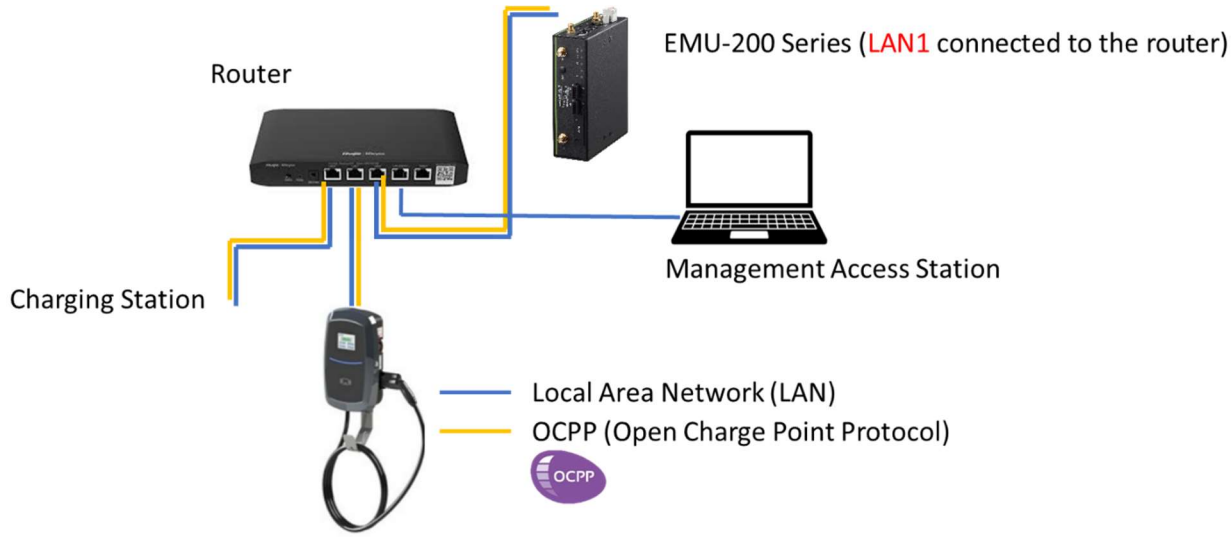
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1 Application Scenario Architecture

The EMU-200 series serves as a local controller with a built-in OCPP server and connects to charging stations. The system architecture is as follows:



- **The network architecture used in applications is shown below:**



Application Function Description

1. **EMU-200 Series:** Controls and retrieves information from charging stations on the local network via the OCPP communication protocol.
2. **Charging Stations**: Responsible for charging electric vehicles and communicating with the EMU-200 series through the OCPP communication protocol.
3. **Management Access Station:** Used to access the built-in charging station management interface in the EMU-200, serving as a tool for site management.

Connection Steps

1. Connect the **LAN1 port of the EMU-200 series** to a LAN port on the router.
2. Connect the **LAN port of the charging station** to a LAN port on the router.
3. Connect the **management access station** to a LAN port on the router.

2 Core Local Controller Functions of the EMU-200

Management Interface

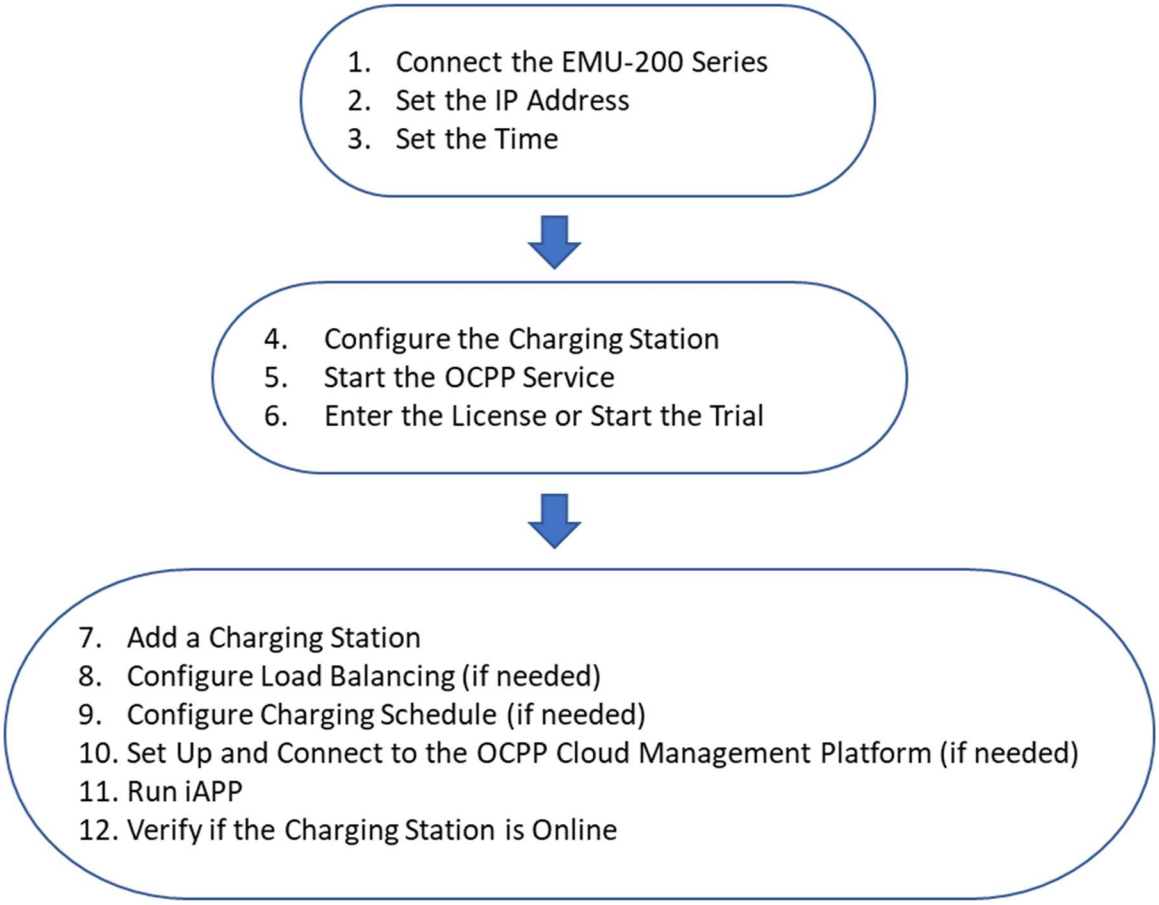
1. Display the status information of connected/disconnected charging stations.
2. Provide detailed specifications of connected charging stations.
3. Support authorization management mechanisms for charging stations.
4. Provide data monitoring during the charging process.
5. Generate power usage data reports.

Control Interface

1. **OCPP Communication Settings**: Manage communication settings with each charging station.
2. **Power Limitation and Scheduling**: Support power control and scheduling for charging stations.
3. **Load Balancing**: Optimize power distribution during the charging process.
4. **External I/O Control**: Connect to external devices such as circuit breakers and meters via serial port and Modbus TCP/RTU protocols.

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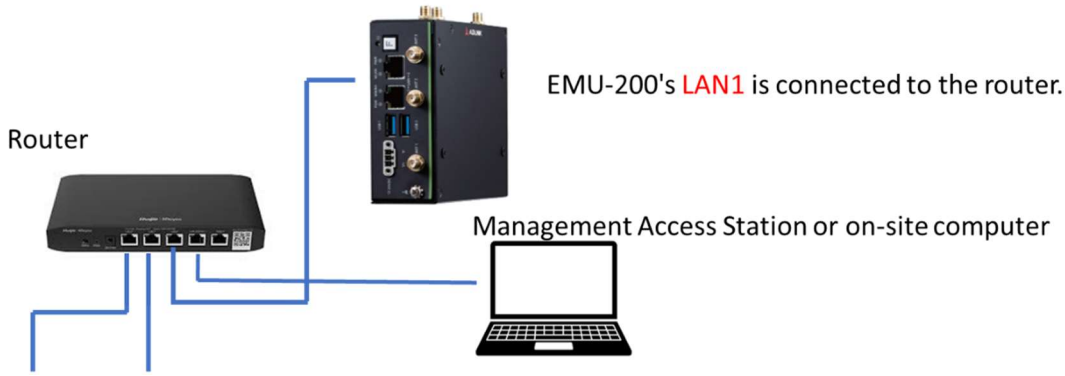
3 Usage Instruction Flow



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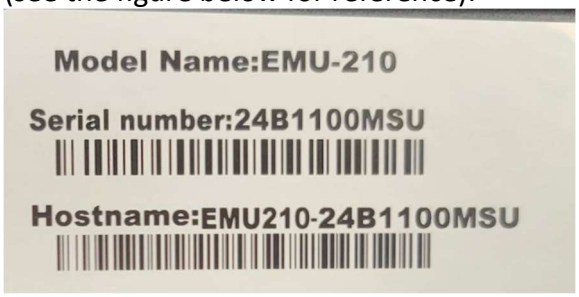
Step 1: Connect the EMU-200 Series

1. Connect the management access station or an on-site computer to the router in the local network.
2. Connect the LAN1 port of the EMU-200 Series to the router in the local network.

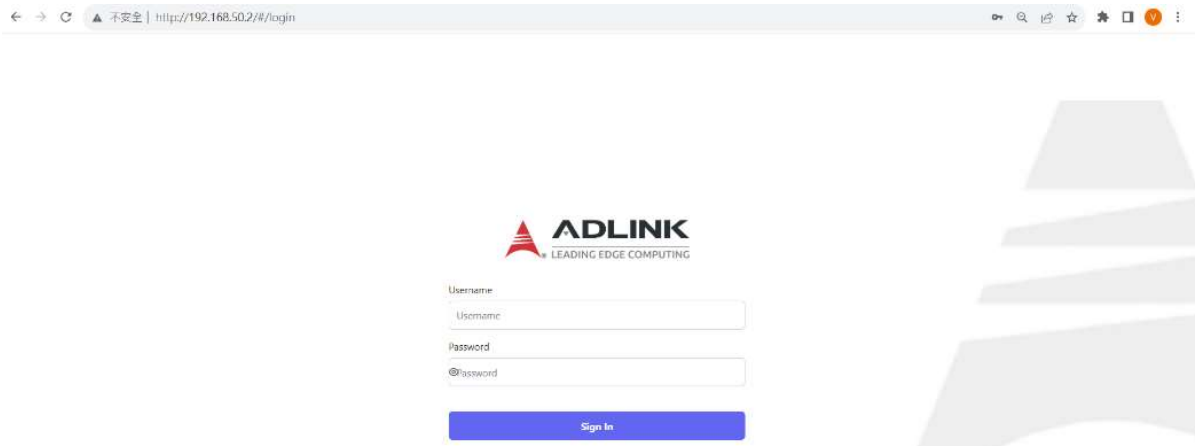


3. Open a web browser (preferably Google Chrome) and enter the following URL format:
   - **URL Format:** http://Hostname.local
     Example: http://EMU210-24B11MSU.local

   Each EMU-200 has a unique Hostname, which is printed on the casing of the EMU-200 series (see the figure below for reference):

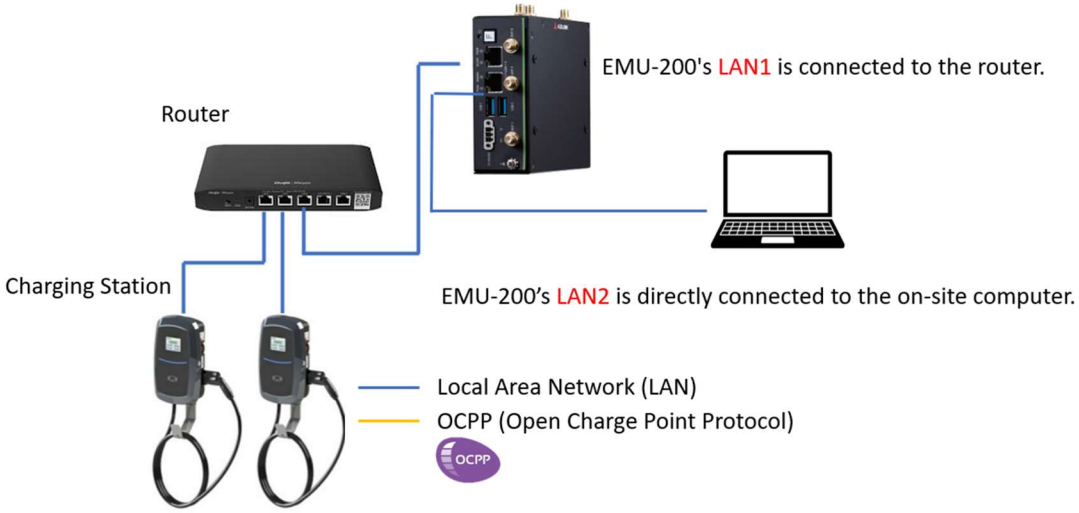


4. Use the default login credentials to log in:
   - **Username:** admin
   - **Password:** adlink



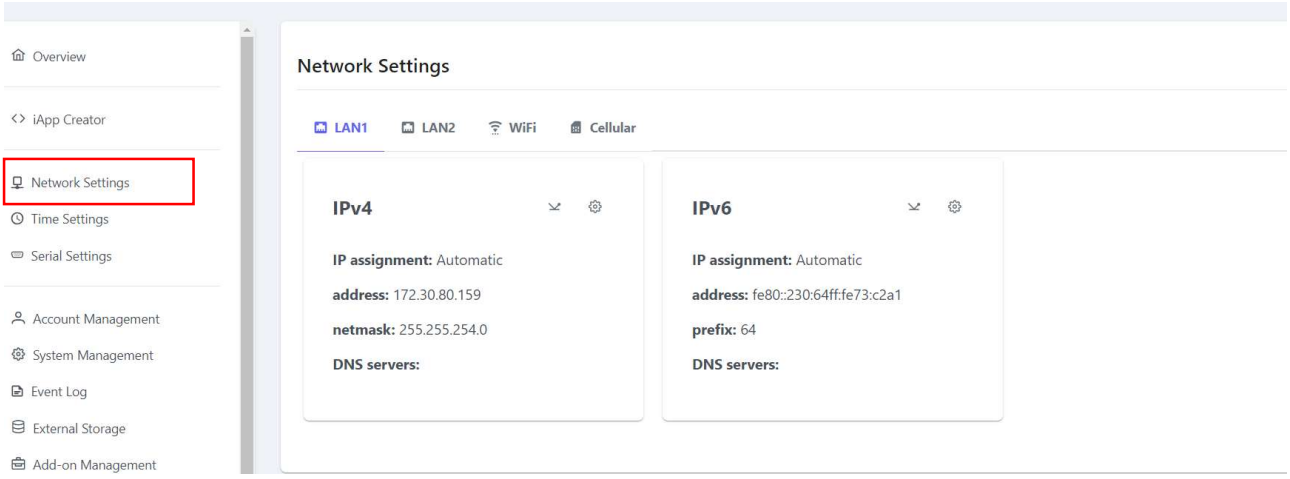
If you still cannot log in to the EMU-200 series, use the following connection steps:

1. Connect the **LAN2 port** of the EMU-200 series to the **host computer**.
2. Set the host computer's IP address to **192.168.50.xx**.
3. Set the **Subnet Mask** to **255.255.255.0**.
4. On the host computer, open a web browser (Google Chrome is recommended) and enter: http://192.168.50.2.
5. Use the default login credentials:
   - Username: admin
   - Password: adlink



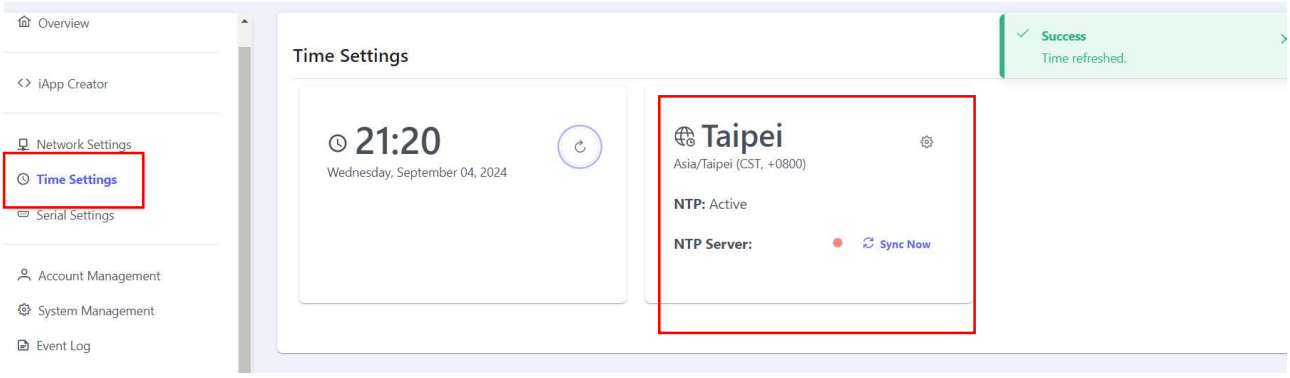
Step 2: Set the IP Address

1. Set the LAN1 port to a designated IP address within the local network that connects to the charging station. Since the EMU-200 serves as the OCPP server, it is recommended that this IP be configured as static in the router.
2. This IP address will serve as the OCPP service IP, allowing OCPP charging stations within the local network to connect to this service.



Step 3: Set the Time

1. Please manually set the current time zone; when the network is available, the system will synchronize time via NTP.



Step 4: Configure the Charging Station

1. **Refer to the dedicated app or webpage for the charging station** and configure it as follows:

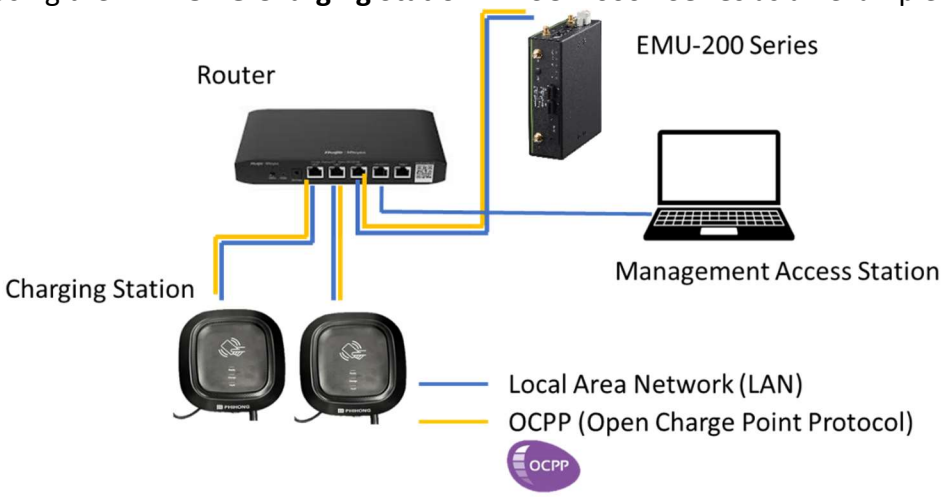
   - **Charge Point ID**: The ID of the charging station.
   - **IP**: The IP address of the EMU-200.
   - **Port**:

     - If using **encrypted WebSocket (wss)**, set the port to **9002**.
     - If the charging station does not support **wss**, use an **unencrypted WebSocket (ws)** and set the port to **9001**.
       - **wss**: Connect using encrypted WebSocket (Port **9002**).
       - **ws**: Connect using unencrypted WebSocket (Port **9001**).

   Example 1
   - **URL Format**: wss://IP:Port
     Examples:
     - wss://172.30.80.159:9002
     - ws://172.30.80.159:9001

Scenario

Using the **PHIHONG Charging Station AWSC770001 Series** as an example:

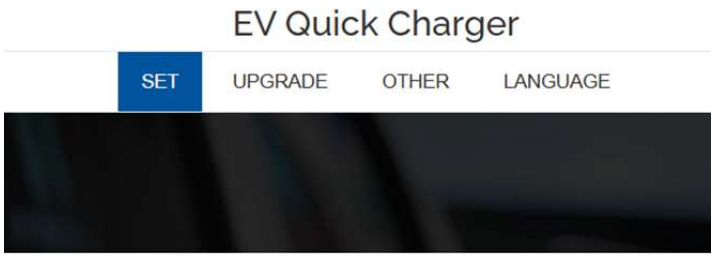


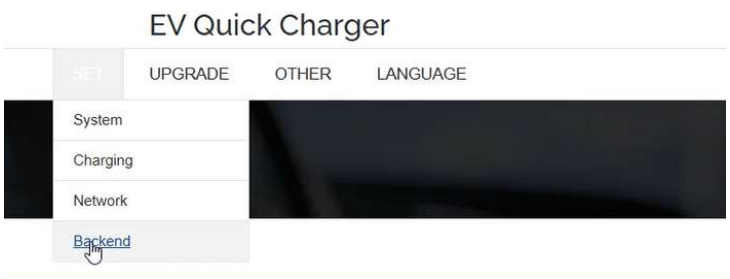
1. Use the router to obtain the **IP address** of the **PHIHONG** charging station and log in with the IP address.
2. On the host computer, open a web browser and enter the URL in the following format:
   - **URL Format**: https://IP

   Example: https://192.168.1.207

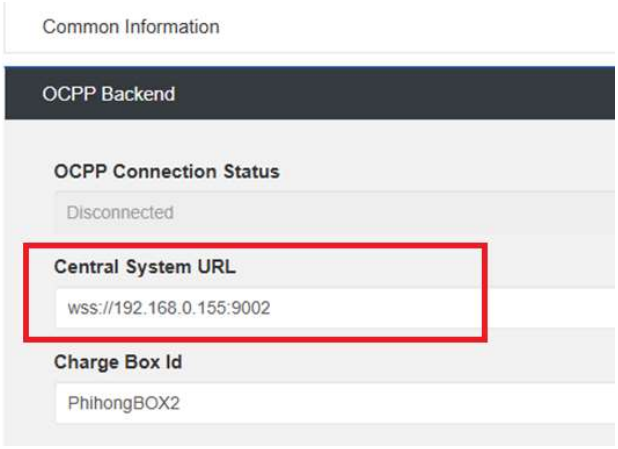
3. Enter the default login credentials according to the official **PHIHONG** manual:
   - **Username:** admin
   - **Password:** 1231231238

4. Navigate to the settings page and modify the **OCPP server URL**.
   - **Path**: *Set → Backend*





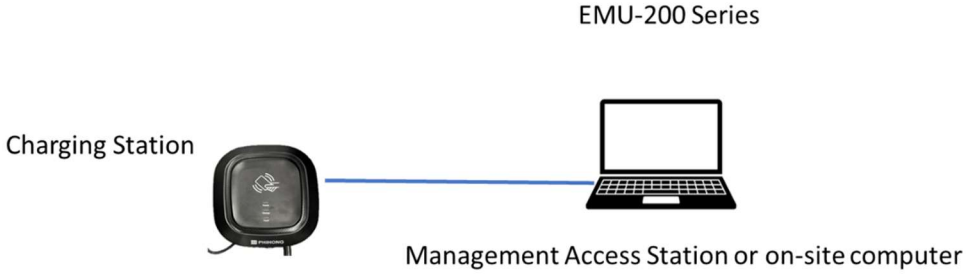
5. Enter the OCPP server URL.
   - **Example**: wss://192.168.1.114:9002



6. **Click "Set" (or "Apply")**, and a message indicating "Update Successful" will be displayed.



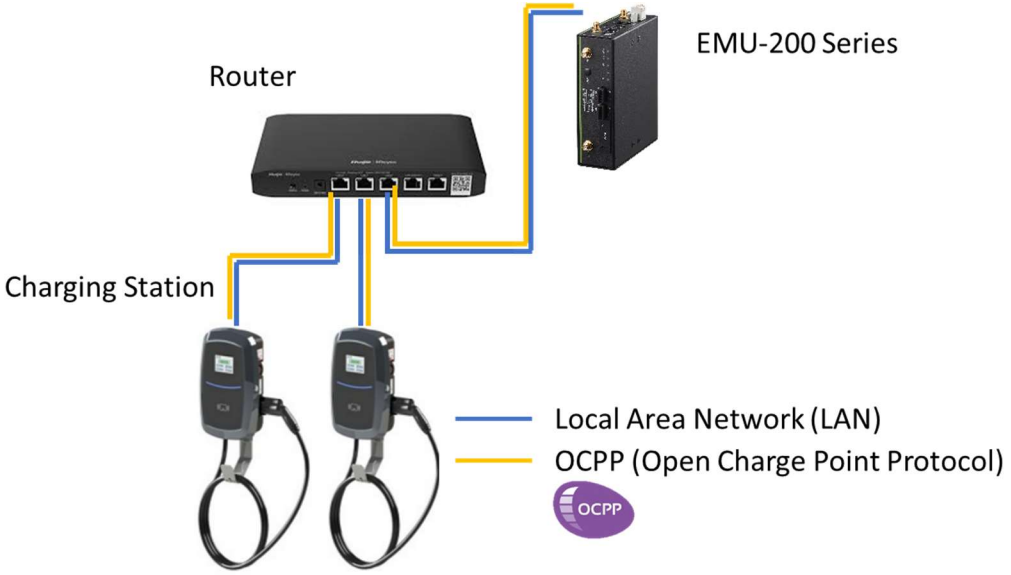
If you still cannot log in to the PHIHONG charging station, use the following connection steps:



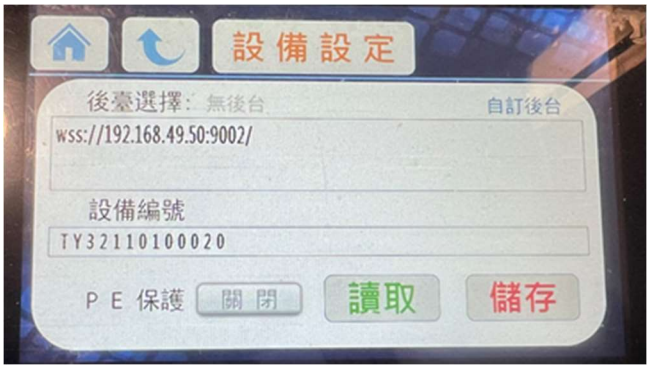
1. Connect the PHIHONG charging station directly to the computer.
2. Set the host computer's IP address to **192.168.1.1**.
3. Set the **Subnet Mask** to **255.255.255.0**.
4. On the host computer, open a web browser and enter the URL:
   - http://192.168.1.10
5. According to the PHIHONG official manual, use the default login credentials:
   - **Username:** admin
   - **Password:** 1231231238

Scenario

Using the **Tongya CA-32U Series charging station** as an example:



1. The Tongya charging station can be configured via its touchscreen panel. Simply tap the screen to enter the device settings page and complete the operation.



2. Modify the URL under "**Backend Selection**."
   - **Example:** wss://192.168.1.114:9002/
   - **Note:** A slash (/) must be added at the end of the URL.

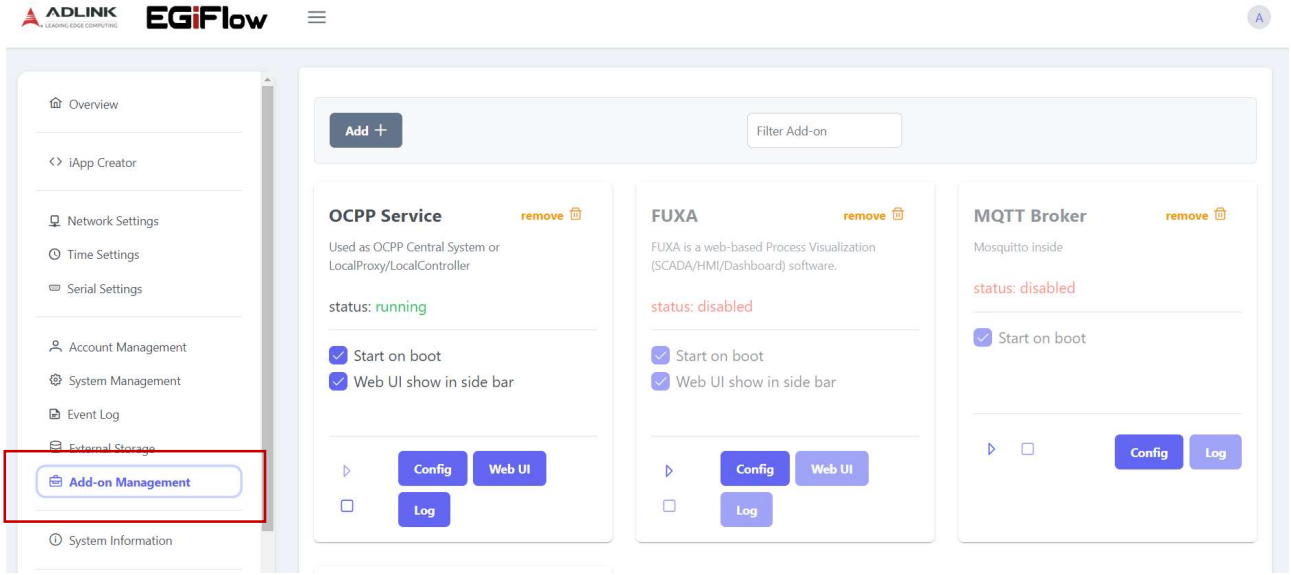


3. Press **Save**.

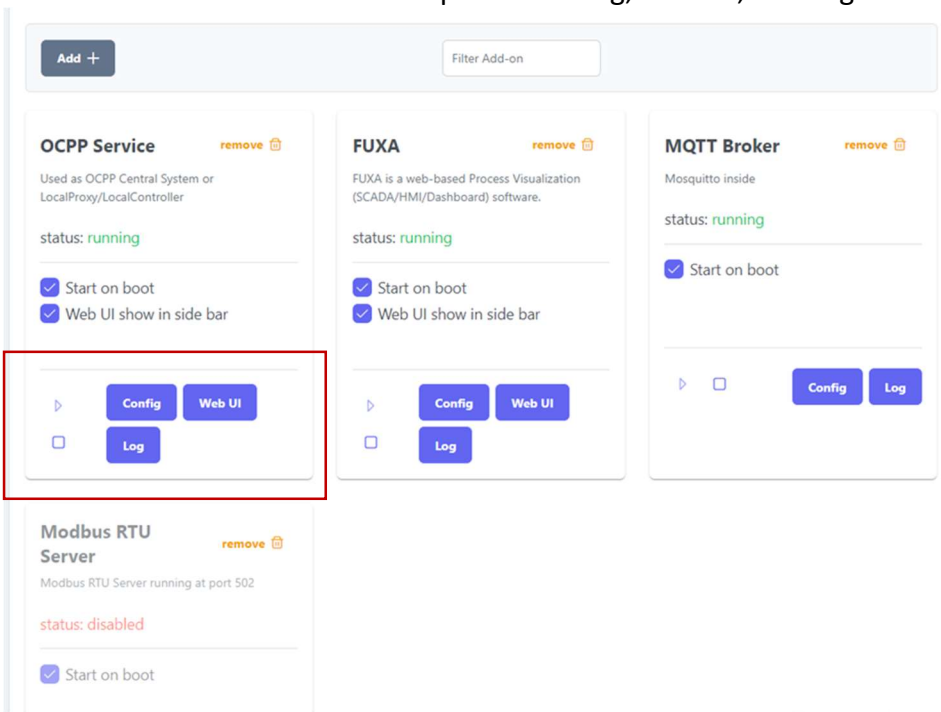


Step 5: Start the OCPP Service

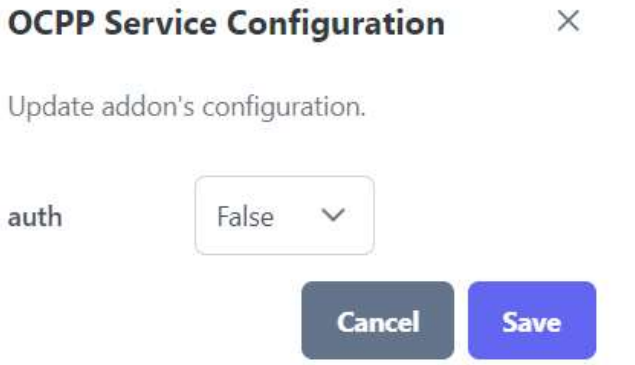
1. Click on **Add-on Management** on the left side. All supported add-ons are displayed here.



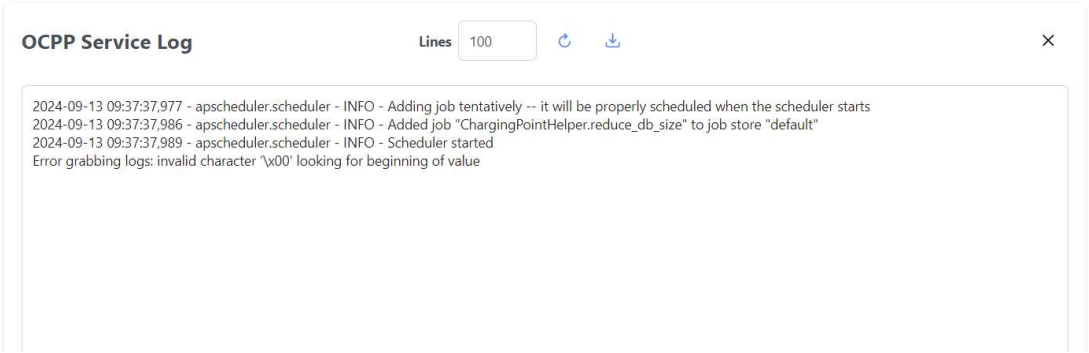
2. Below the OCPP service card, you will find the **Play** and **Pause** buttons to start or stop the add-on. Click the **Play** button to start the service.
3. There are three buttons in sequence: Config, Web UI, and Log:



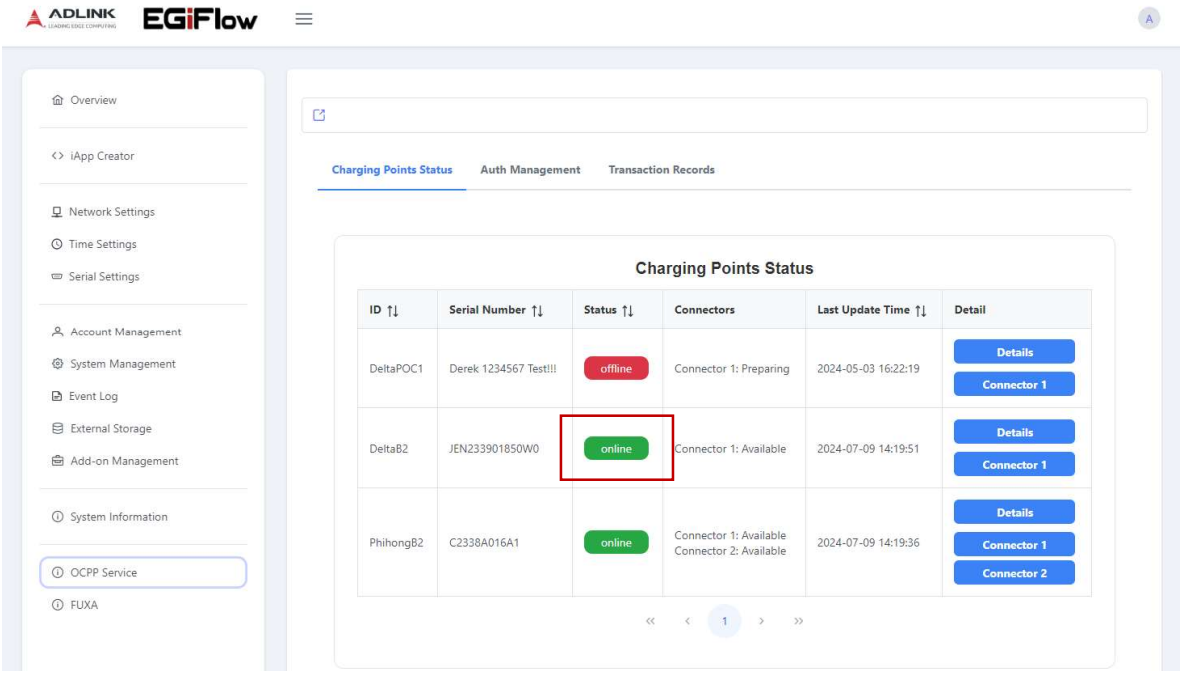
- **Config:** Used to set charging authorization. If 'Auth' is set to False, the charging station can charge directly without authorization; if set to True, an authorization card is required.



- **Log:** Displays the communication content of OCPP, primarily used for debugging messages.



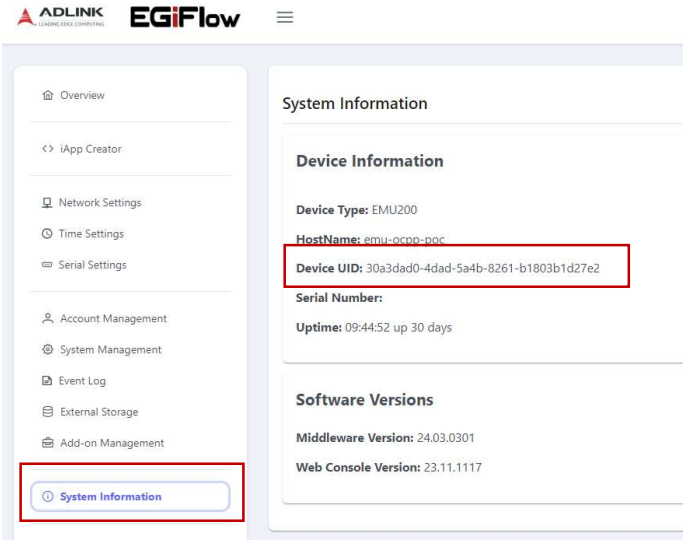
- **Web UI:** Displays information for all connected charging stations. Charging station details appear on this page once the connection setup is completed in the iApp's Source section and the station is successfully connected. Charging stations that are active will show 'Online' status. To be considered active, a heartbeat signal must be received from the station within the past 5 minutes. This information can also be viewed on the Log page.



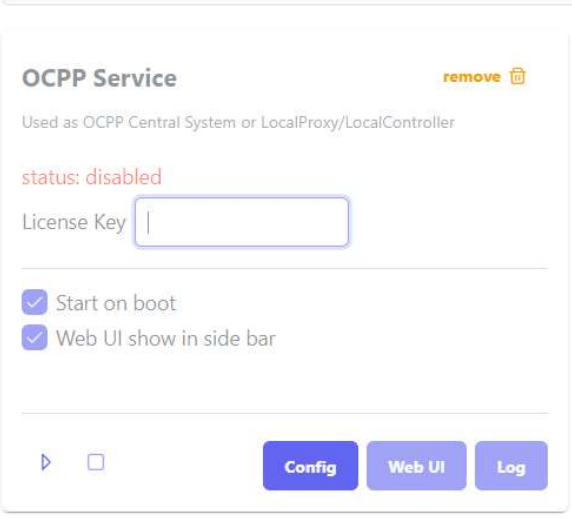
Step 6: Enter the License or Start the Trial

(Skip this step if you purchased the license together with the EMU-200 series hardware.)

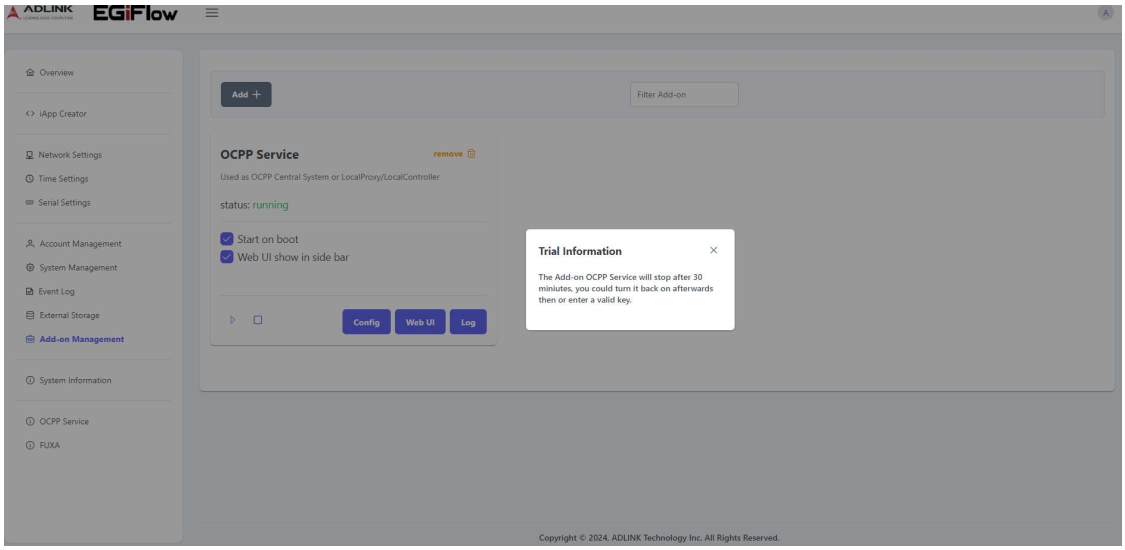
1. Send the device UID to your sales representative.



2. The sales representative will respond with a license key. Enter the license key into the designated field to activate the service.

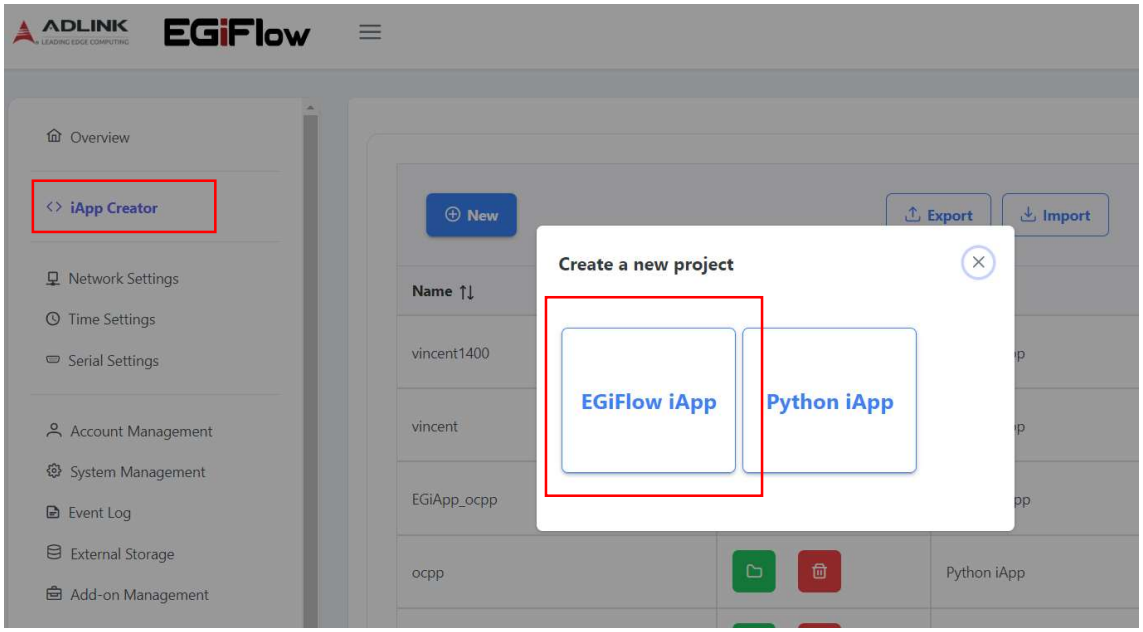


3. If you do not have a license, you can still use the OCPP service. However, the service will automatically stop after 30 minutes. To continue using it, click the **Start** button to restart the service.

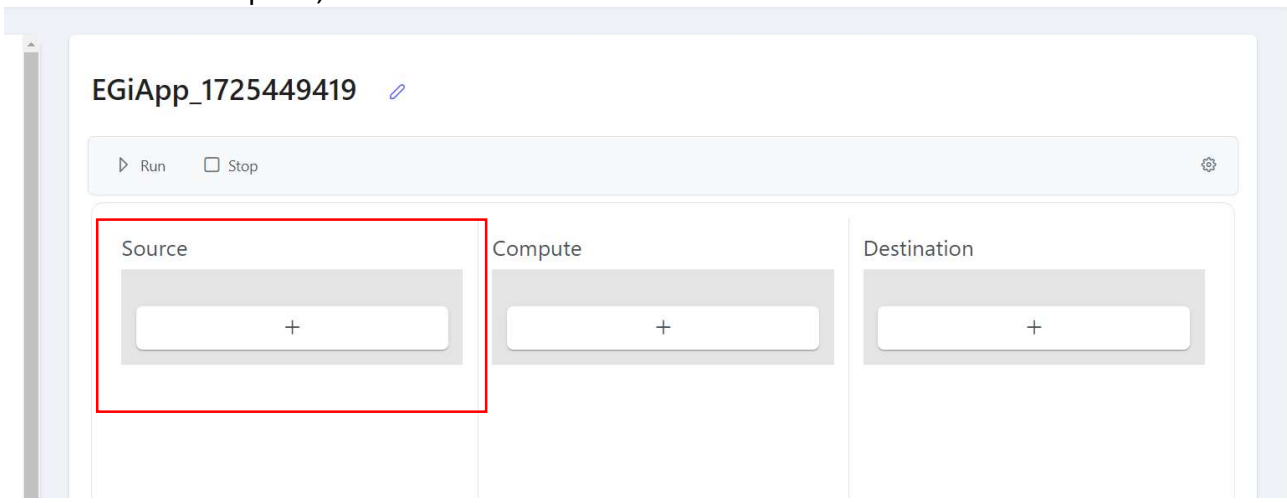


Step 7: Add a Charging Station

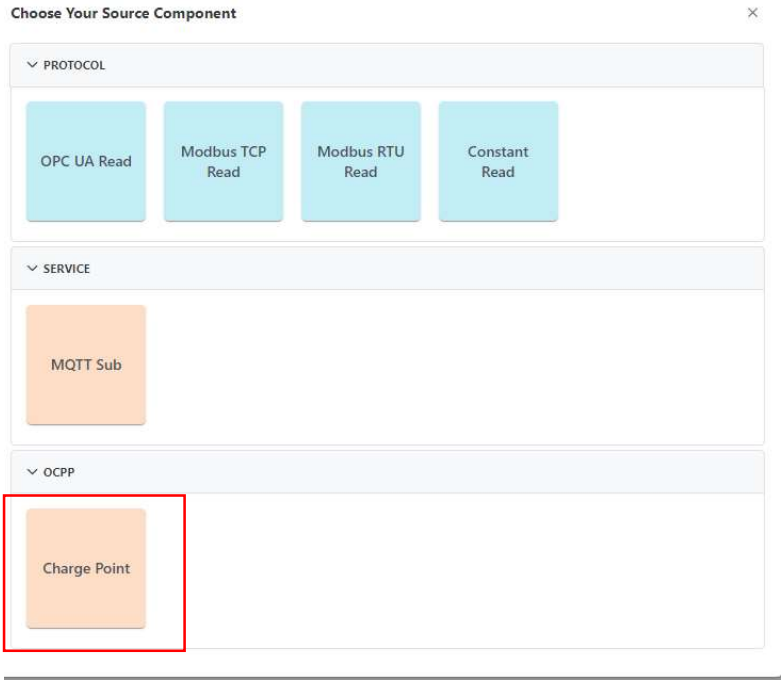
1. Click on **iApp Creator**.
2. Select **Create a new project**.



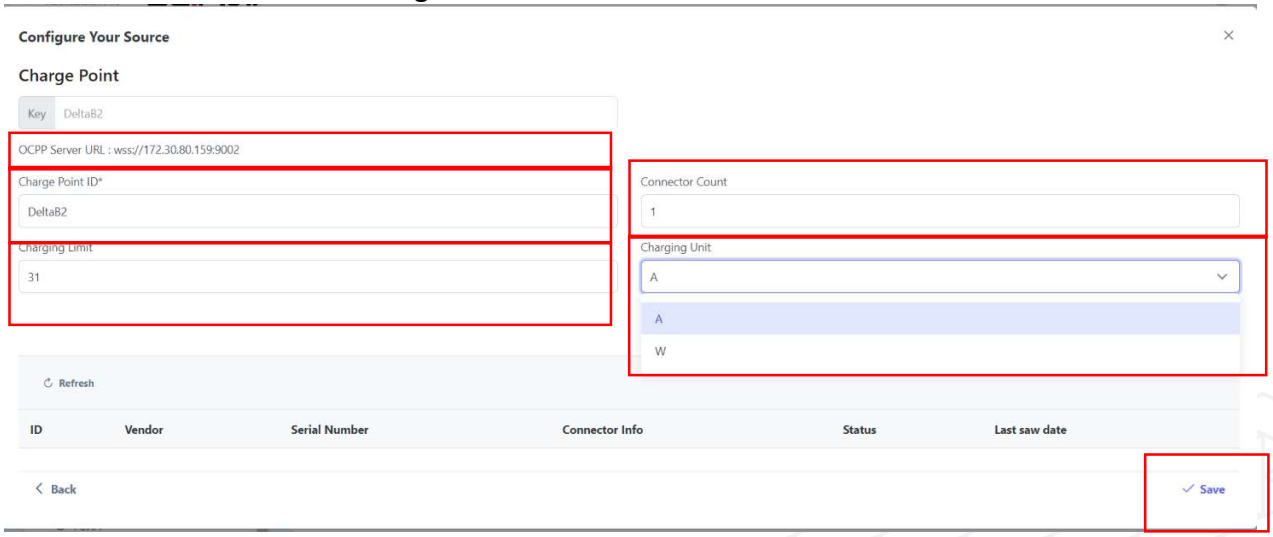
3. In the Source option, click **+** to add a new item.



4. Select **Charge Point**.



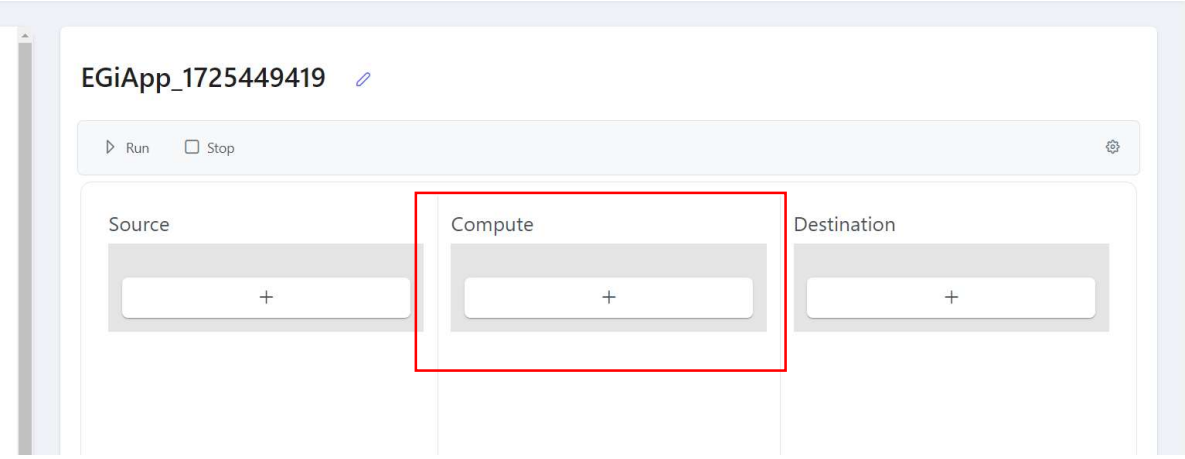
5. Enter the Charging Point ID; this ID must match the internal ID of the charging station.
6. Enter a value in the Charging Limit based on the specifications of the charging station to set station's maximum charging capacity.
7. Enter a value in the Connector Count to specify the number of charging connectors.
8. Verify if the OCPP Server URL on the charging station matches the information displayed on this page.
9. Click **Save** to save the settings.



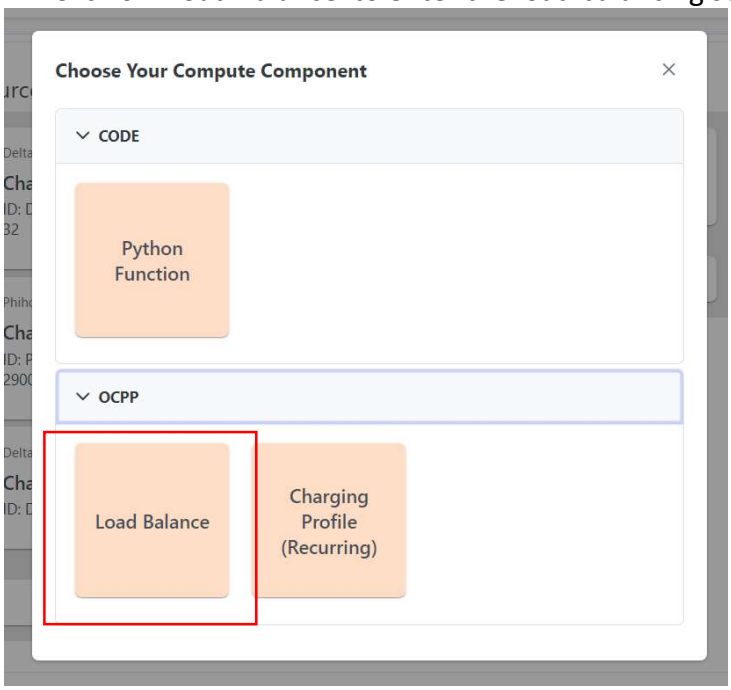
Step 8: Configure Load Balancing (if needed)

The load balancing mechanism balances power distribution based on the selected charging stations and the set charging limit.
For example, if two charging stations are selected and the charging limit is set to 32 amps, the system will automatically divide the 32 amps equally between the two stations when either one starts charging a vehicle.

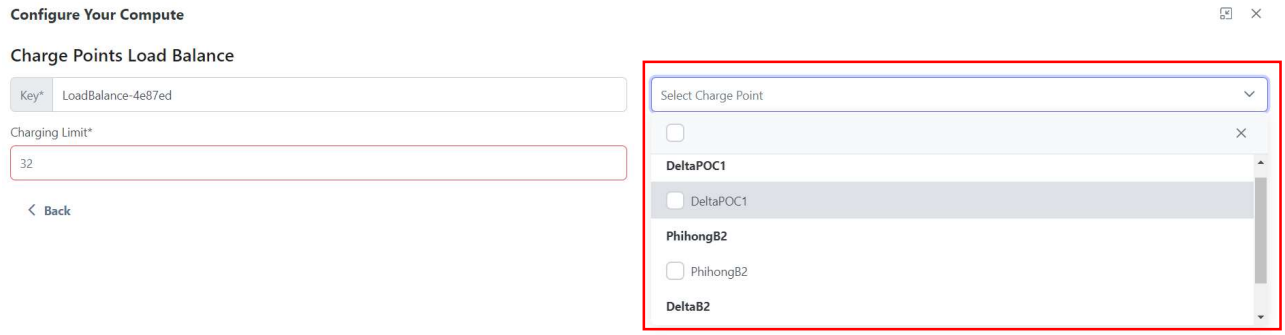
1. In the Compute option, click '+' to add a new load balancing setting.



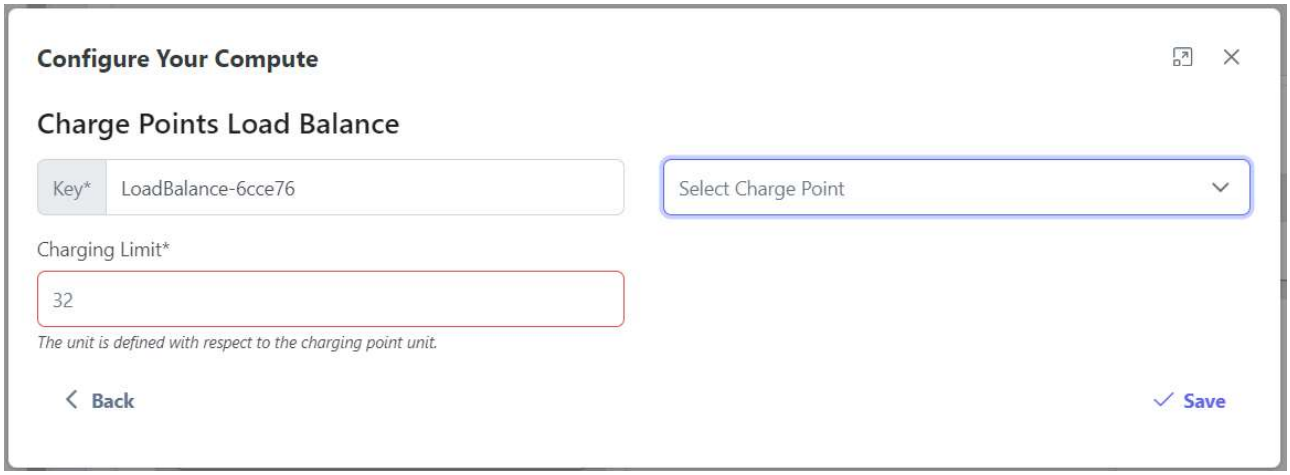
2. Click on 'Load Balance' to enter the load balancing settings page.



3. Select the multiple charging stations you created in the Source section.



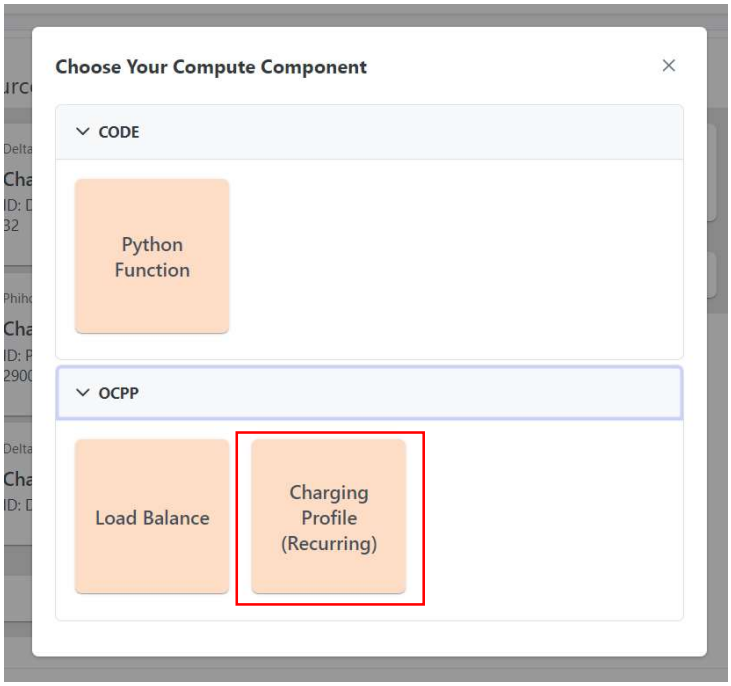
4. Set the charging limit for each station as needed.



Step 9: Configure Charging Schedule (if needed)

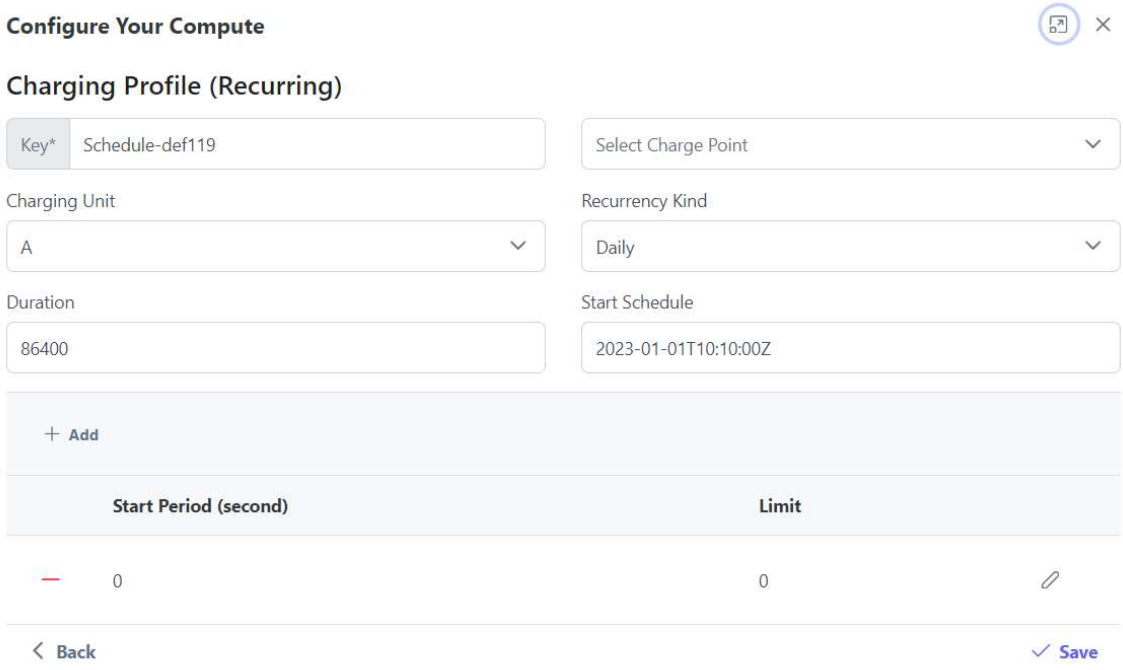
This step sets up a recurring charging schedule to optimize the operational efficiency of the charging station, reduce energy costs, and meet the demands of the local power grid.

1. Click on **Charging Profile (Recurring)** to enter the recurring charging schedule settings page.



2. There are two options for **Recurrency Kind**: Daily and Weekly. Select Daily to automatically reset once each day.
3. **Duration** specifies the length of time the Charging Profile will remain active (in seconds). Set this to 86,400 seconds to keep the profile active for a full day.

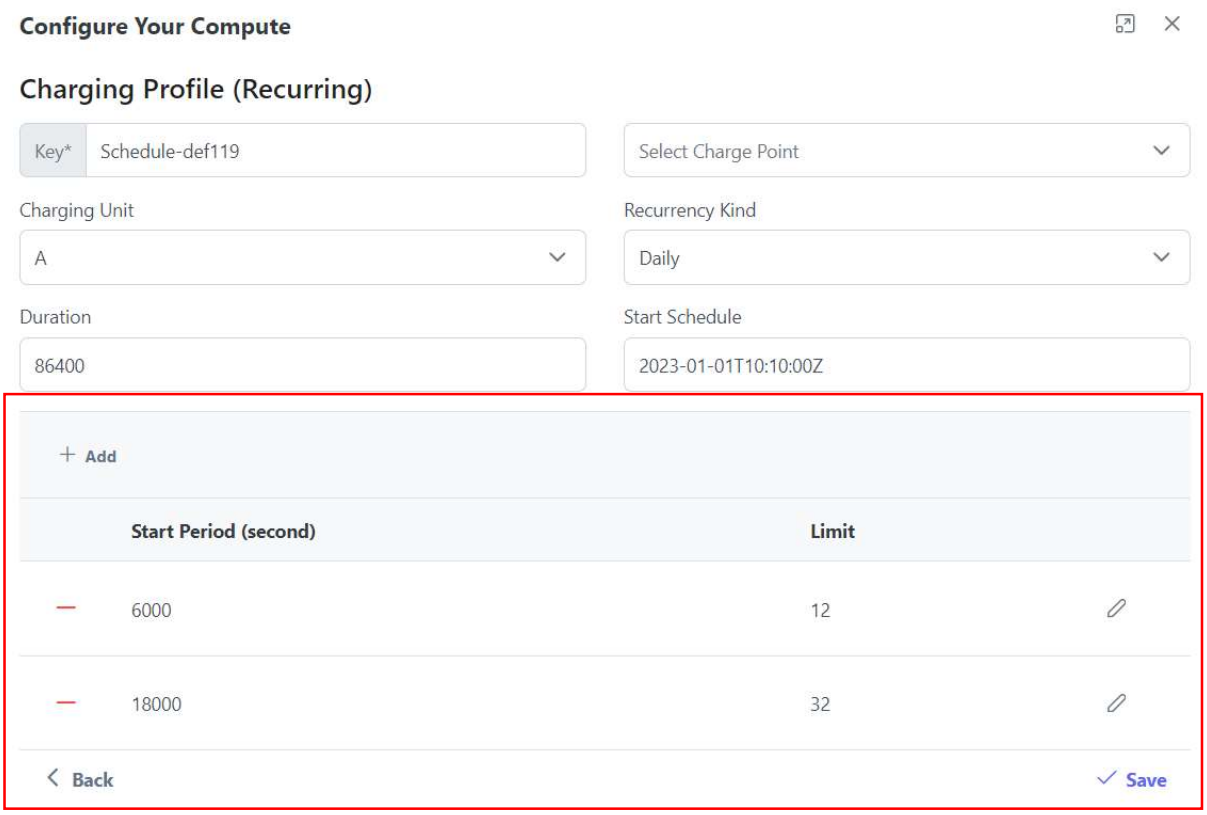
4. **Start Schedule:** Once you set the start date, the charging schedule will begin on that date.



Example:

Assume the settings are as follows:

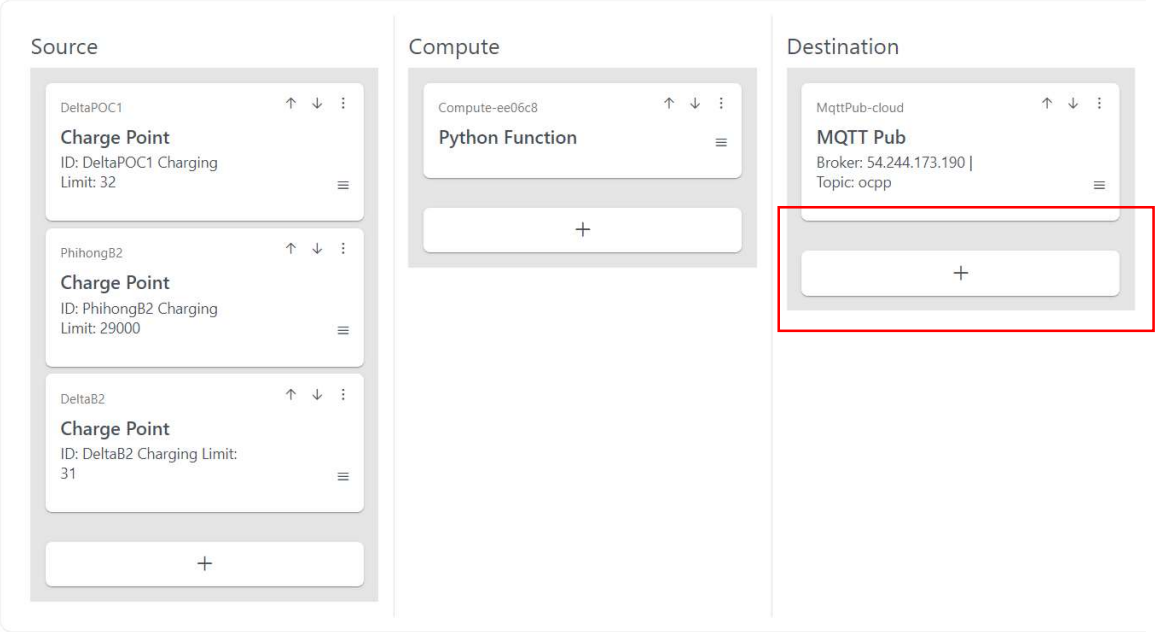
- Within the time range between 0 to 6000 seconds, the system will prioritize load balancing. If configured, the system will adjust according to the set range; otherwise, it will operate within the initial maximum charging limit.
- From 6000 to 18000 seconds, the charging limit is set to 12 amps.
- From 18000 seconds to the end of the day (86400 seconds), the charging limit is set to 32 amps.



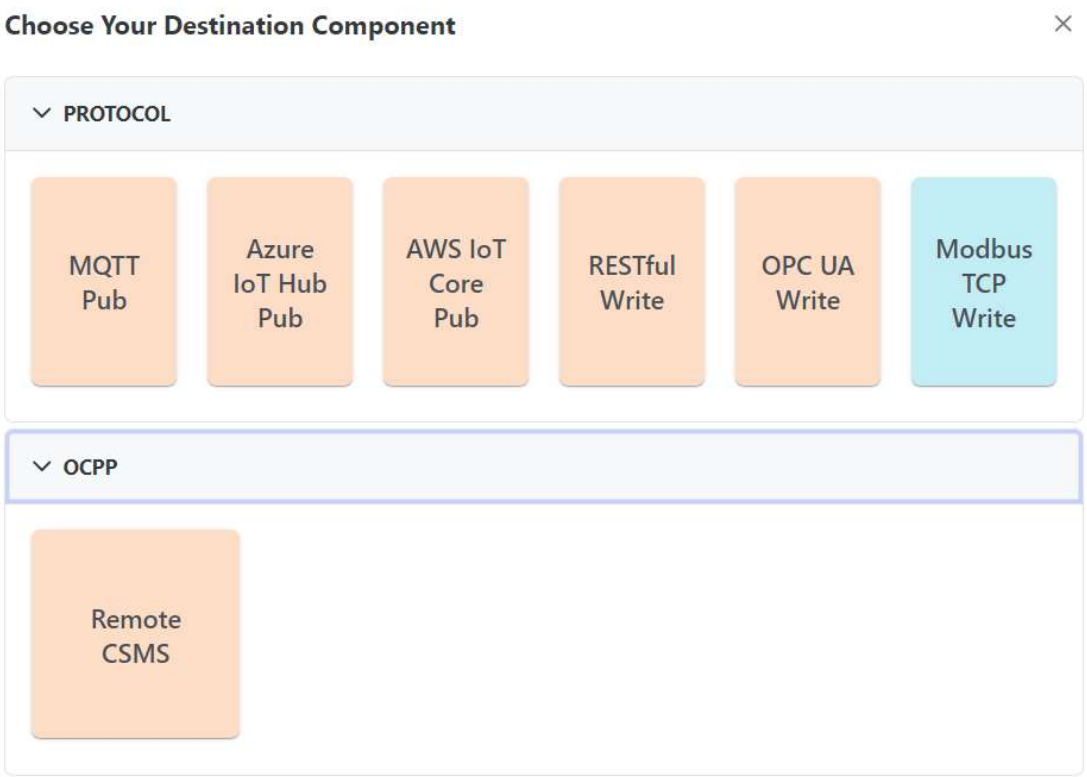
Step 10: Set Up and Connect to the OCPP Cloud Management Platform (if needed)

If an OCPP cloud management platform is already in place within the application environment, you can integrate the EMU-200 series using this feature. The EMU-200 series acts as a relay station, allowing direct integration without modifying existing programs, while still supporting local features.

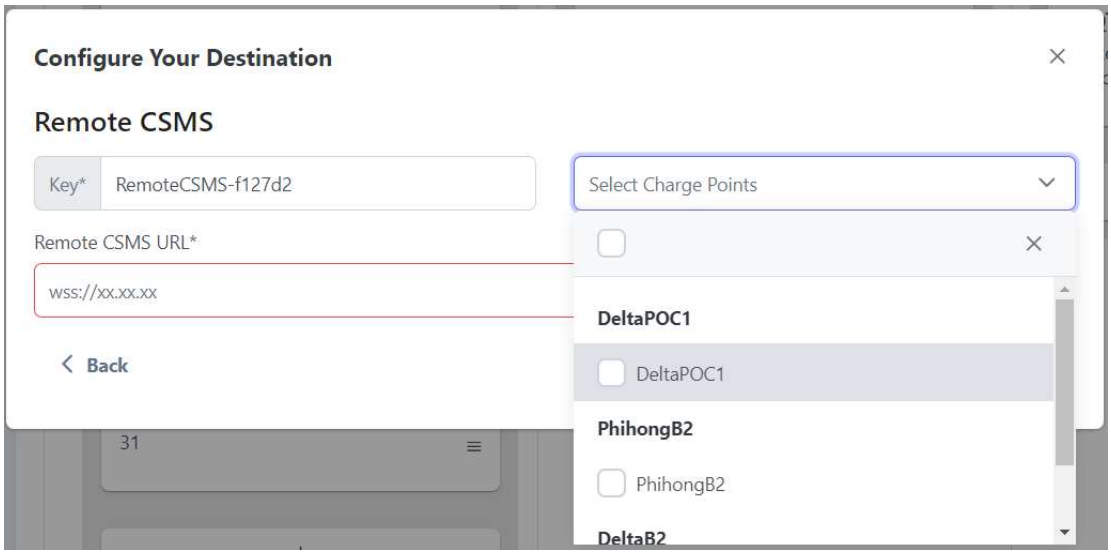
1. In the Destination option, click **+** to add a new connection target.



2. Click on **Remote CSMS** to set up the remote cloud management system.

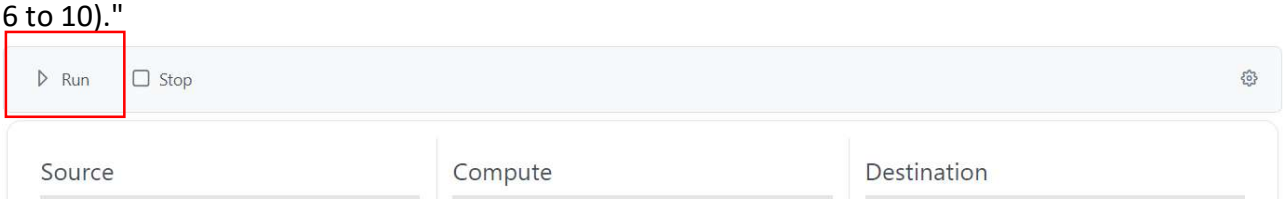


3. Enter the URL of the Remote CSMS.
4. Select the charge points from the dropdown list to configure the charging stations.



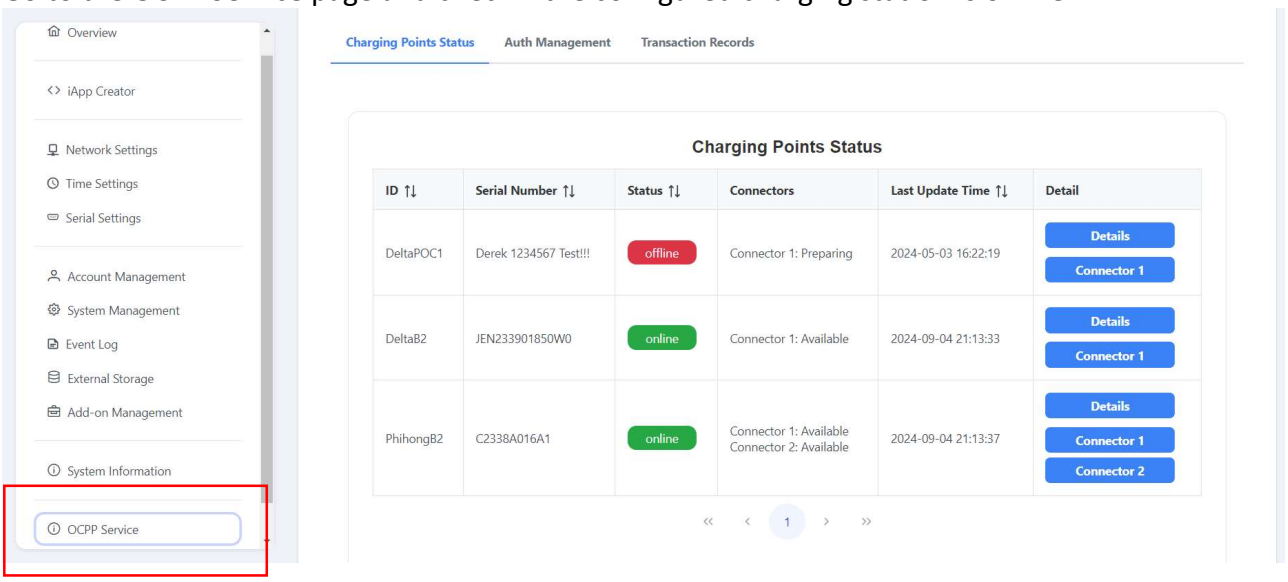
Step 11: Run iAPP

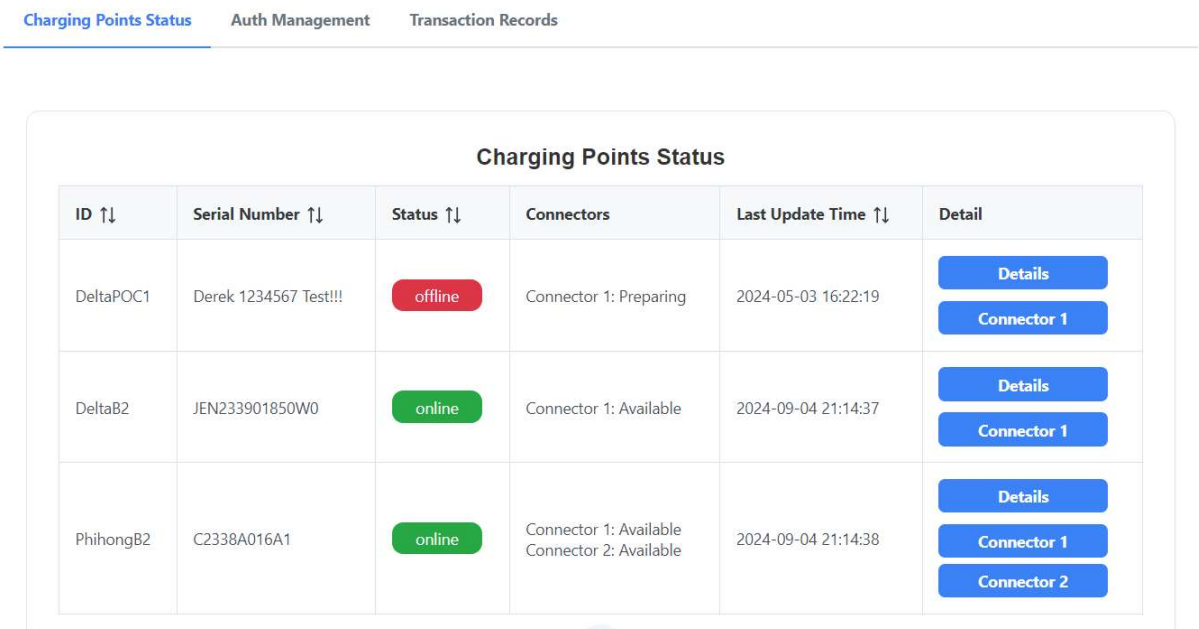
Click the **Run** button to execute activate all configured parameters and processes (including Steps 6 to 10)."



Step 12: Verify if the Charging Station is Online

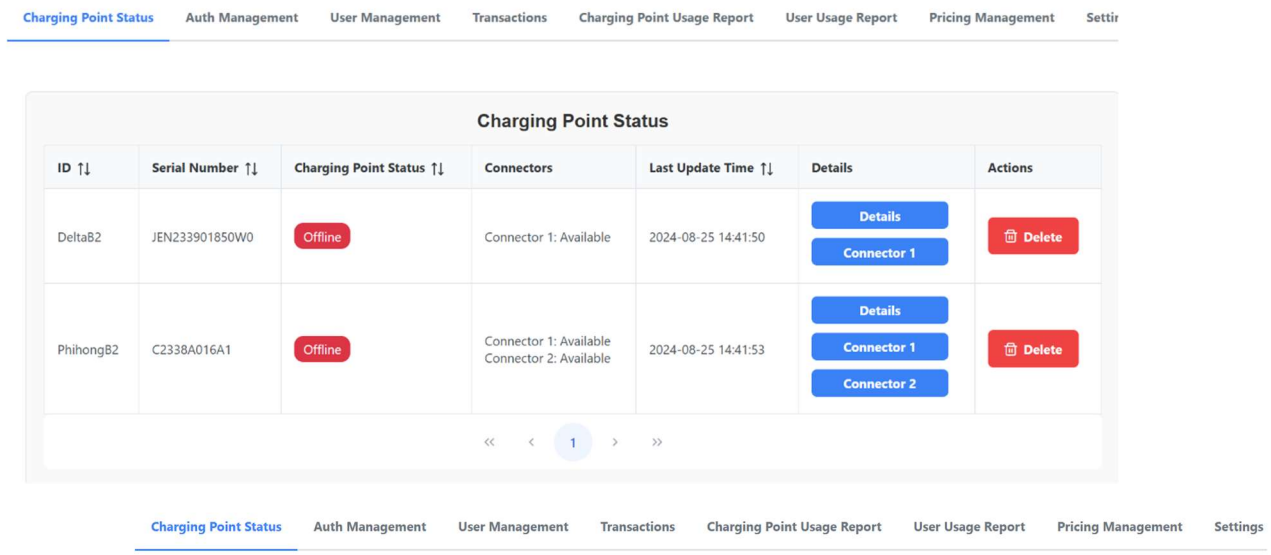
Go to the OCPP Service page and check if the configured charging station is online.





4 User Interface

Upon entering the OCPP Service page, you will see the function tabs at the top of the screen.



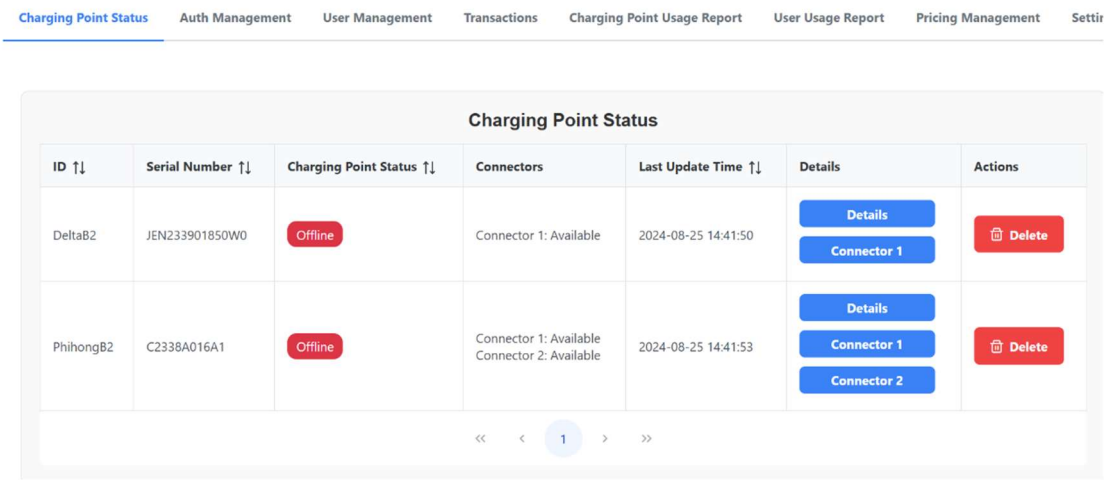
Functions are divided into the following items:

1. Charging Point Status
2. Auth Management
3. User Management
4. Transaction
5. Charging Point Usage Report
6. User Usage Report
7. Pricing Management
8. Settings

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1. Charging Point Status

Displays the charging point details.

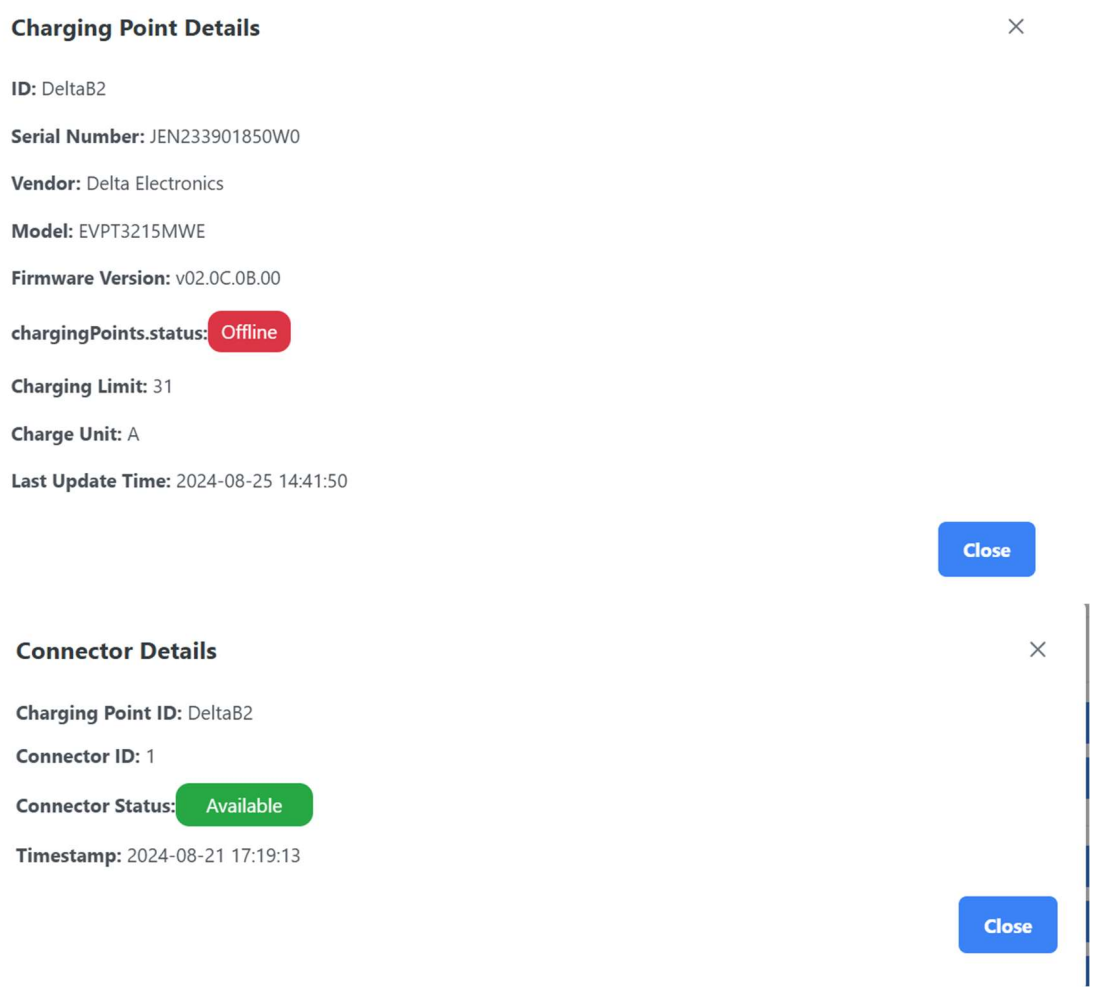


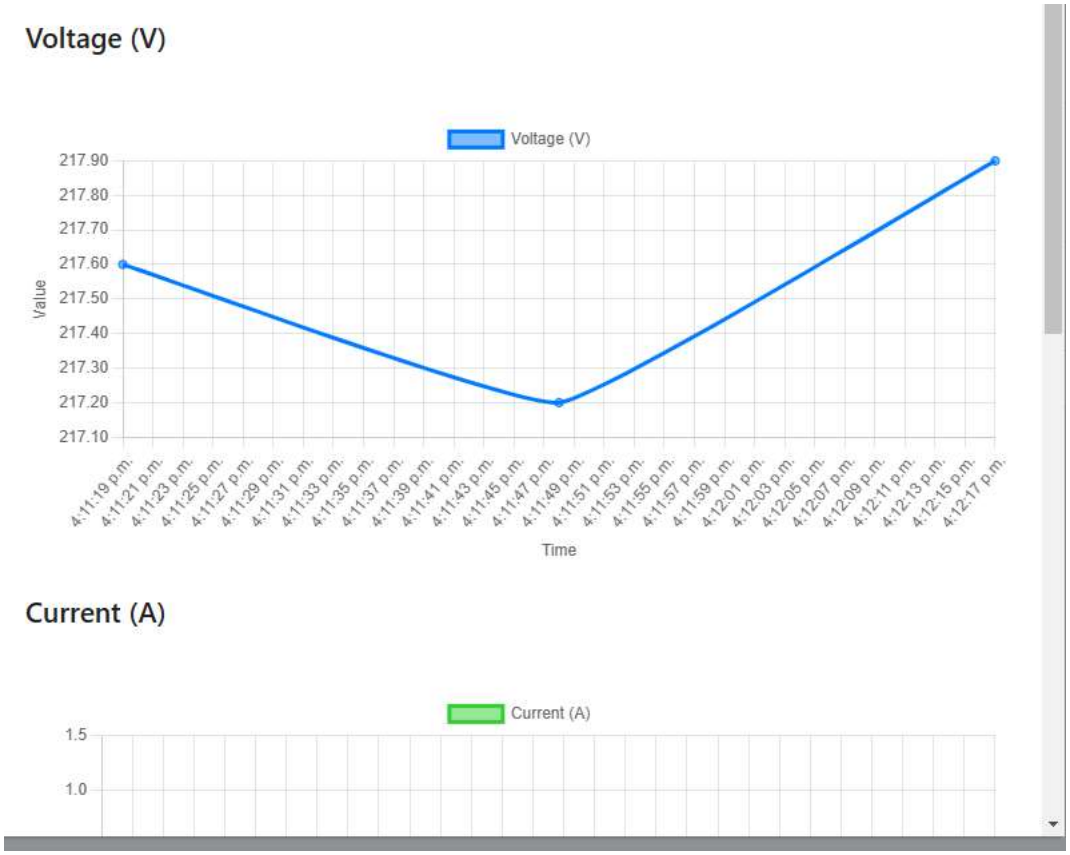
Item Description

- **ID:** The Charge Point ID.
- **Serial Number:** The production serial number of the charging point.
- **Charging Point Status:** Indicates whether the charging point is online or offline.
- **Connectors:** Shows whether the charging connector is currently in use.
- **Last Update Time:** Displays the time when the system last received a message from the charging point.

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- **Details:** Aggregates information about the charging point and its connectors; if charging is in progress, real-time voltage and current data are displayed

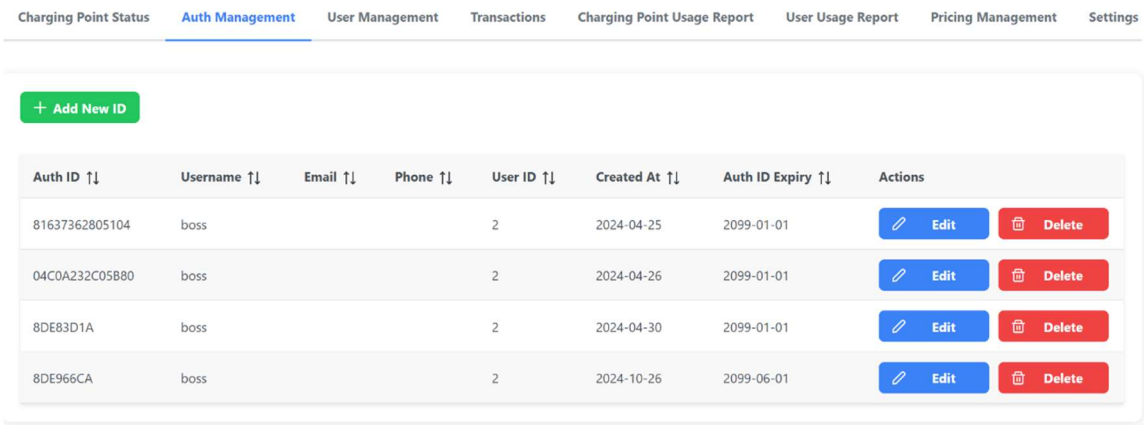




- **Action:** Remove the specified charging point data.

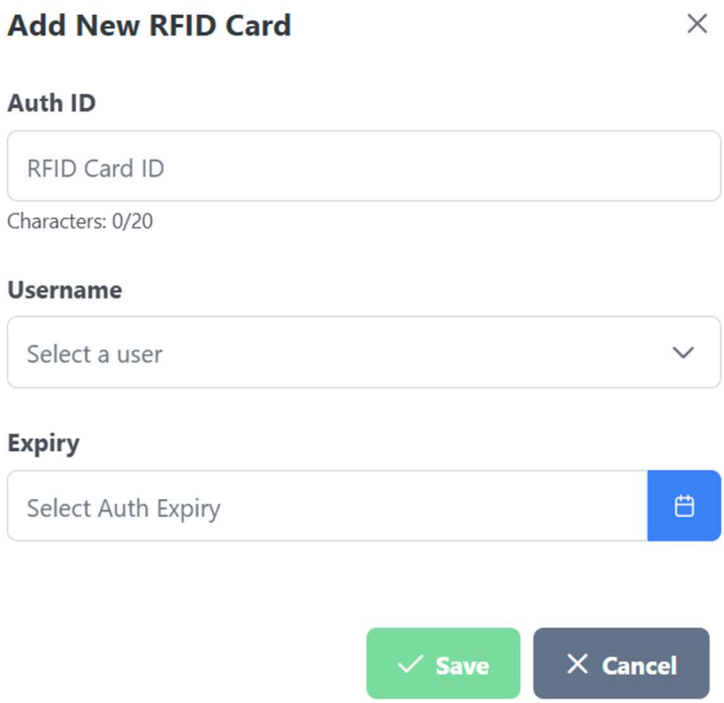
2. Auth Management

Add and edit RFID authorization information to manage RFID card usage permissions.



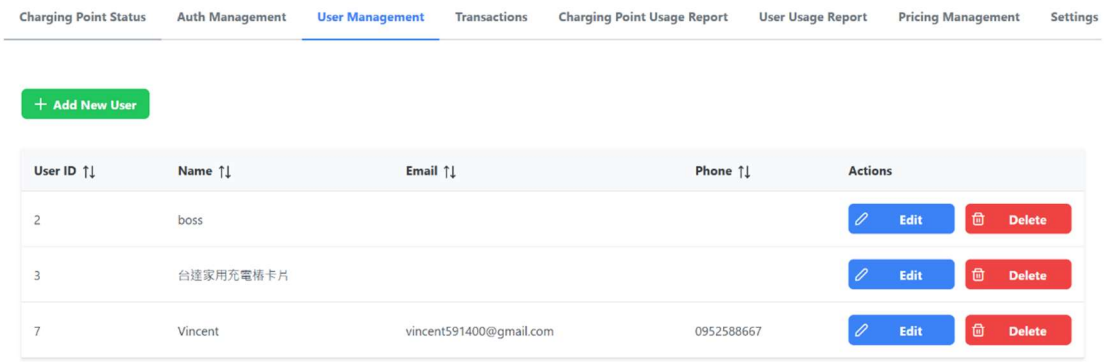
Item Description

- **Add New ID:** Enter all required information for the new RFID card to authorize it for charging services.



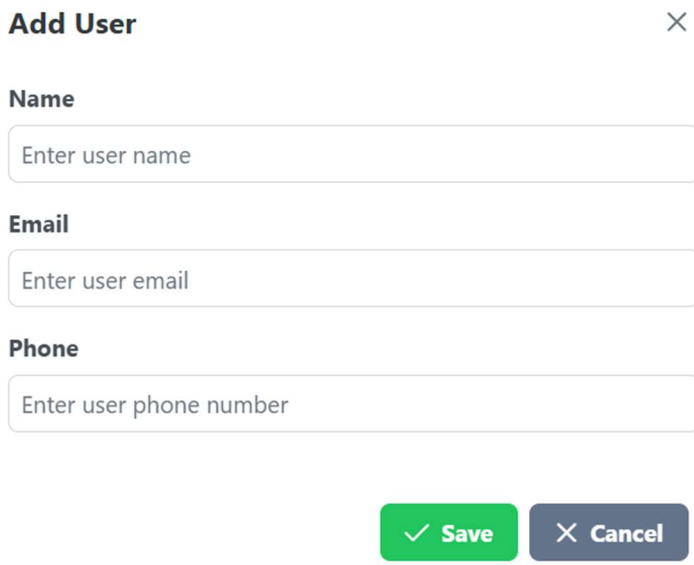
3. User Management

Add and edit user details for managing RFID card authorizations.



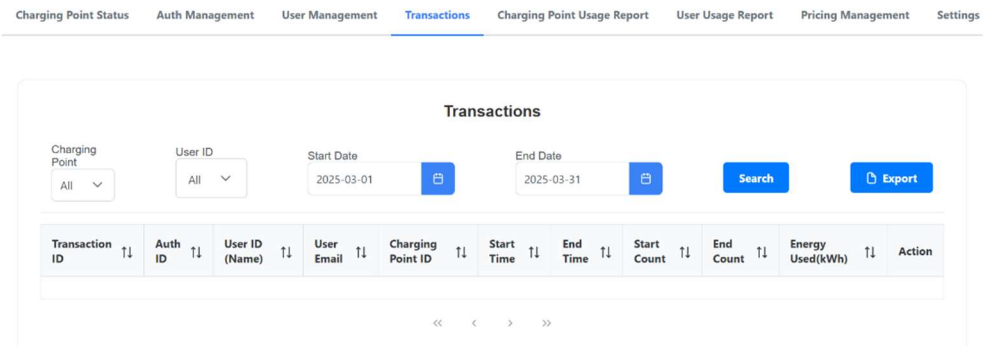
Item Description

- **Add New User:** Add relevant user information.



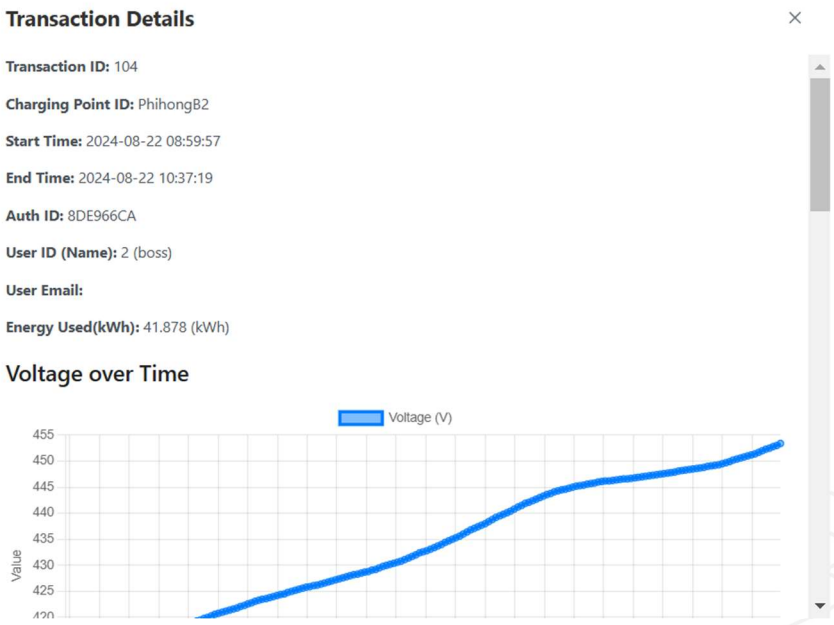
4. Transaction

Access complete information for each charging transaction.



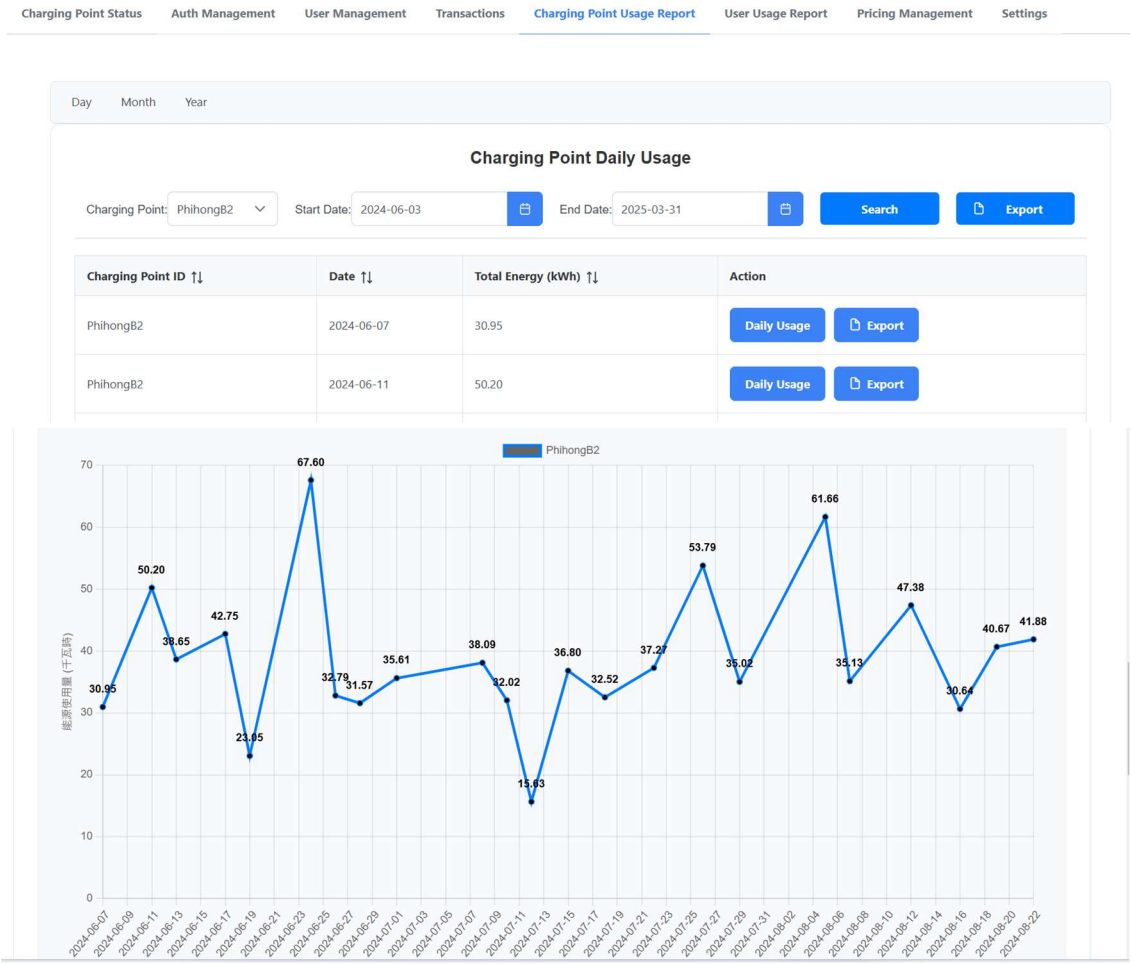
Item Descriptions

- **Charging Point:** Select the charging point to query.
- **User ID:** Select the user to query.
- **Start Date:** Choose the starting date for the query.
- **End Date:** Choose the ending date for the query.
- **Search:** Begin the query.
- **Export:** Export the query results as a CSV file.
- **Transaction Details:** Displays detailed information about voltage and current variations over time during the charging process.



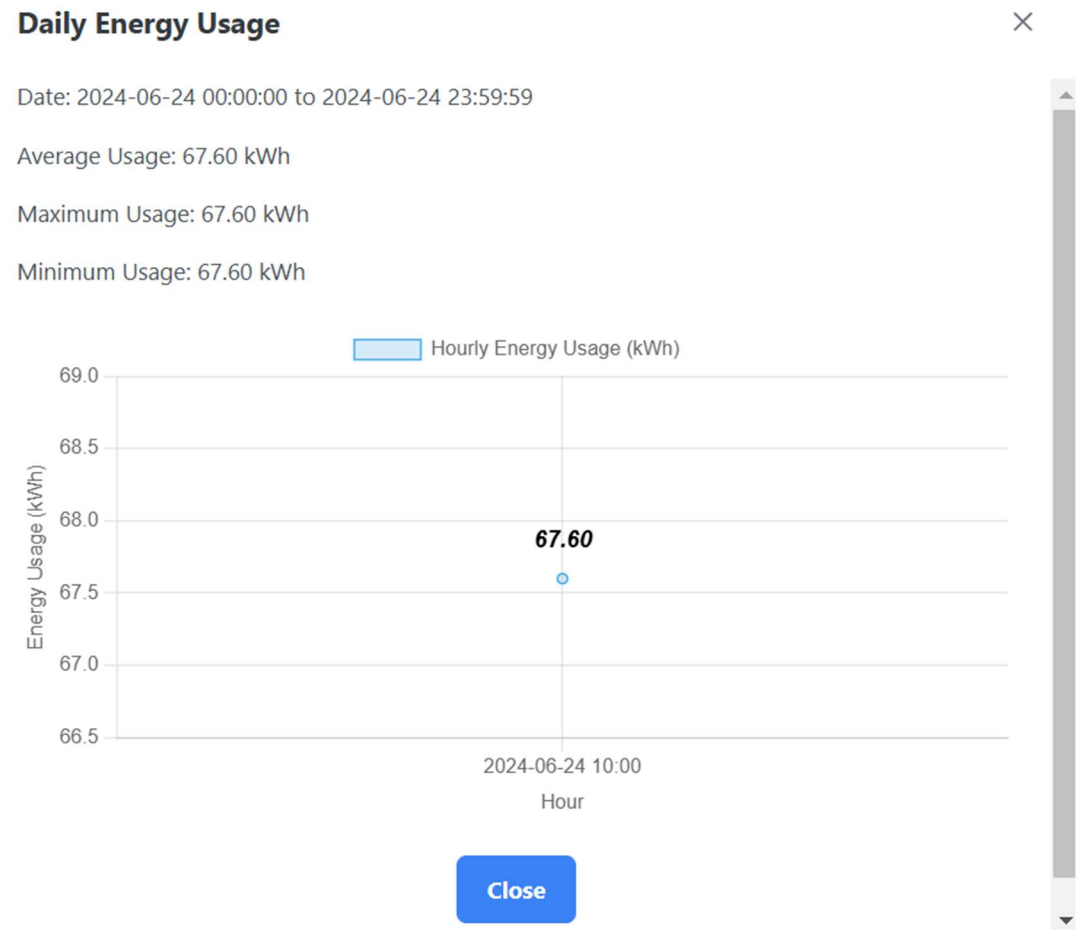
5. Charging Point Usage Report

Summarize and analyze the energy consumption data recorded during charging point usage.



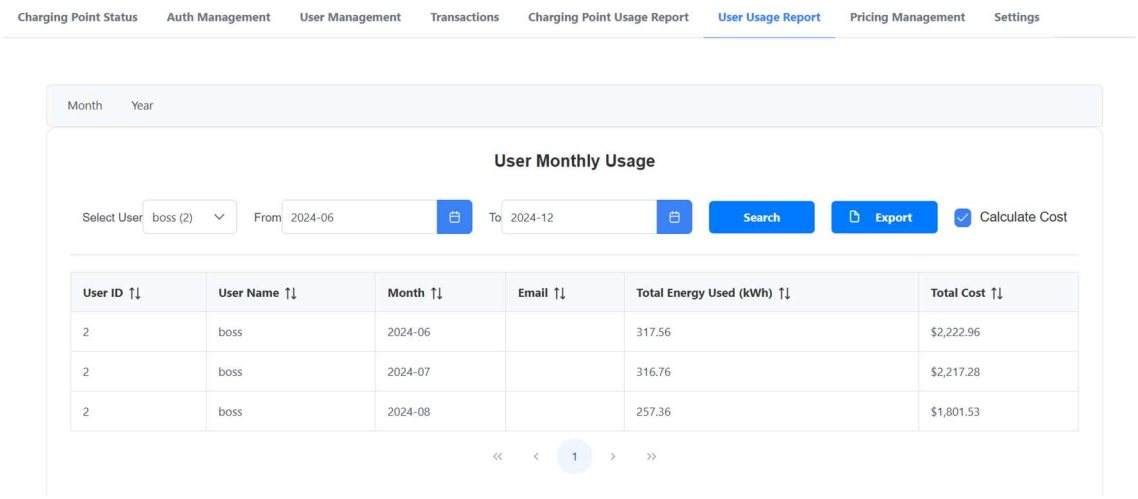
- **Charging Point:** Select the charging point to query.
- **Start Date:** Choose the starting date for the query.
- **End Date:** Choose the ending date for the query.
- **Search:** Begin the query.
- **Export:** Export the query results as a CSV file.

- **Daily Usage:** Summarize the daily energy consumption data.



6. User Usage Report

Summarize the electricity expense information incurred by users during charging point usage.

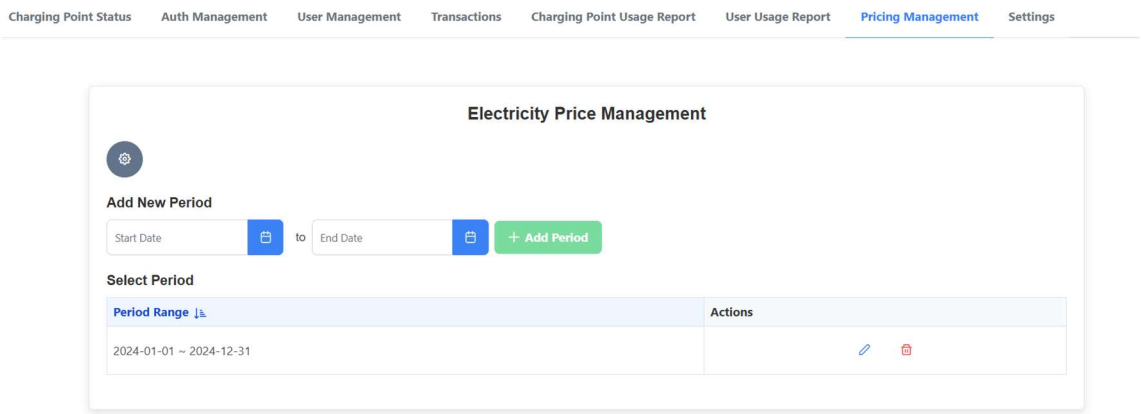


- **User ID:** Select the user to query.
- **Start Date:** Choose the starting date for the query.
- **End Date:** Choose the ending date for the query.
- **Search:** Begin the query.
- **Export:** Export the query results as a CSV file.
- **Calculate Cost:** Convert energy consumption into electricity cost.

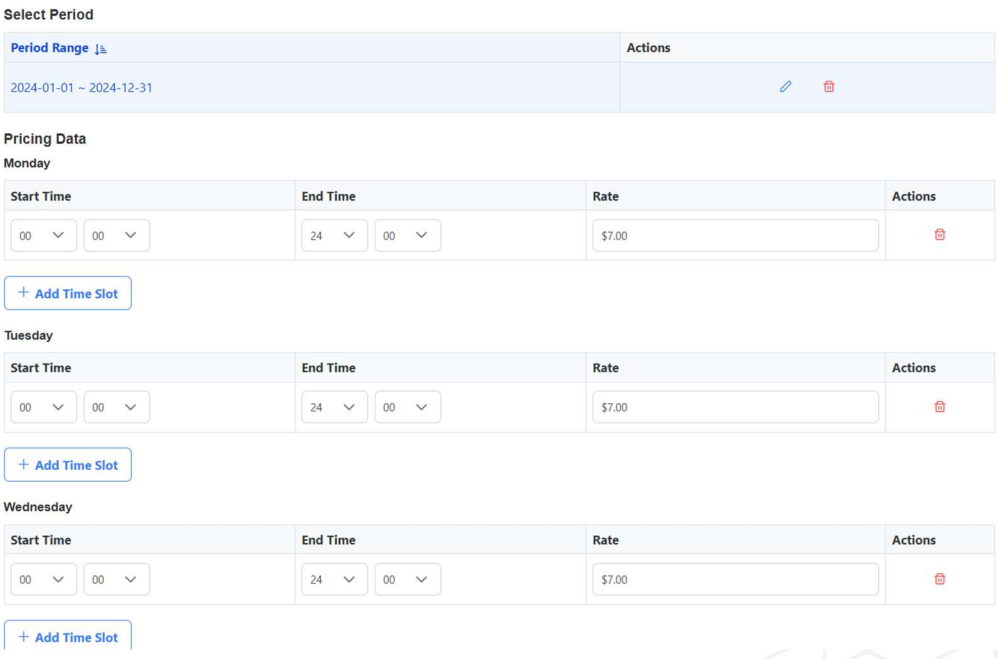
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7. Pricing Management

Configure the electricity pricing information for each time period.

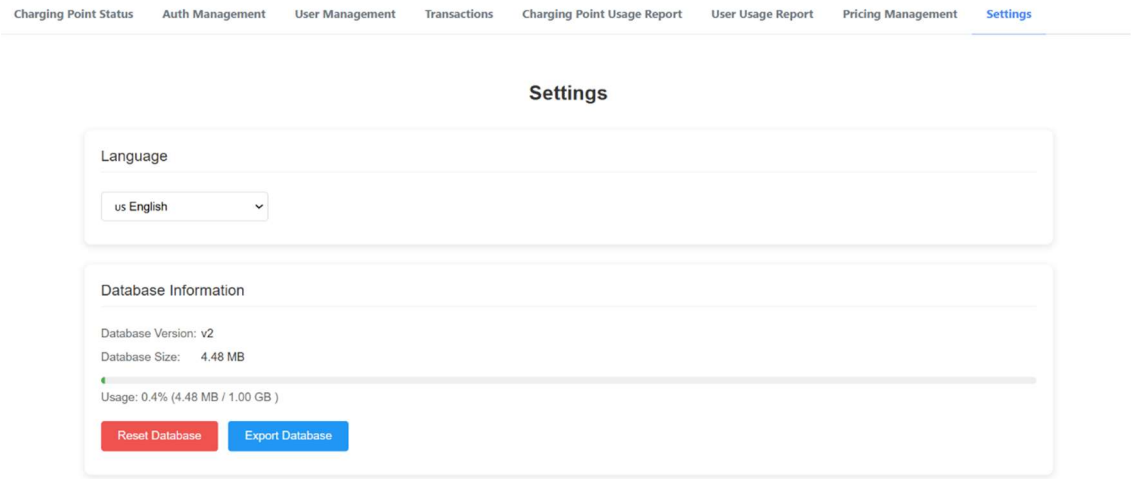


- **Add New Period:** Set the start and end cycles for the electricity pricing period. After configuring the cycle, you can adjust the start and end times for each day of the week (Monday to Sunday) in the pricing data, and add or edit the corresponding rates.



8. Settings

Language selection and displays database information.



- **Language:** Change the interface's display language.
- **Reset Database:** Clear all transaction records.
- **Export Database:** Export all transaction records.