EcoStruxure™ EV Charging Expert

User Guide

09/2026





DOCA0358EN-08

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About this guide

Document scope

The purpose of this guide is to provide installers, maintenance personnel and users with the technical information necessary to install, commission and use the EcoStruxure EV Charging Expert.

Introduction

- EcoStruxure EV Charging Expert main features:
  - allocate a current setpoint to the charging stations in operation
  - see in real time the status of the charging stations through the dashboard
  - manage user authentication for charging authorization
  - get the charging sessions history and data from the charging stations in the network
- EcoStruxure EV Charging Expert is compatible with remote supervision from a Charge Point Operator in OCPP 1.6 Json.
- EcoStruxure EV Charging Expert allows two access profiles:

Admin: Access to all configuration parameters and features, dashboard operation and RFID cards management.
User: Dashboard operation.

Related documents

Title of documentation	Reference number
eMobility Infrastructure Design guide for building applications	EVSOL1DG001EN
Instructions sheet for Acti9 Smartlink SI D gateway A9XMWA20 (English, Dutch, French, German, Italian, Portuguese, Spanish, Chinese, Russian)	NVE60007
Instructions sheet for power meter METSEPM5320 (English, Dutch, French, German, Italian, Portuguese, Spanish, Chinese, Russian)	HRB69887
Instructions sheet for power meter A9MEM3250 (English, Dutch, French, German, Italian, Portuguese, Spanish, Chinese, Russian)	NHA15795
Instructions sheet for Enerlin'X IFE gateway LV434002 (English, French)	DOCA0084
Instructions sheet Enerlin'X EIFE communication module LV851001 (English, French)	DOCA0106
Installation guide for EcoStruxure EV Charging Expert (English)	DOCA0164EN
EcoStruxure EV Charging Expert - Rest API	EVINBEMS
eMobility Infrastructure – Commissioning Guide	EVSOLCG001EN

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Safety information

Important information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure**.**



The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation and has received safety training to recognize and avoid the hazards involved.

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Chapter 1.
SYSTEM ENVIRONMENT

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1.1 Glossary

- **EV :** Electrical Vehicle
- **AC:** Alternate Current
- **DC:** Direct Current
- **VIP:** Very Important Person
- **RFID:** Radio Frequence Identification
- **CDR:** Charging Data Record
- **HMI:** Human Machine Interface
- **OCPP:** Open Charge Point Protocol
- **DHCP:** Dynamic Host Configuration Protocol

1.2EcoStruxure EV Charging Expert

1.2.1 Overview

EcoStruxure EV Charging Expert (EVCE) is the necessary tool for optimizing the electricity usage associated with the Electrical Vehicule charging needs of a commercial building or a Multi Familly Home.

EcoStruxure EV Charging Expert main features:

- Allocate a current setpoint to the charging stations in operation.
- See in real time the status of the charging stations through the dashboard.
- Manage user authentication for charging authorization.
- Get the charging sessions history and data from the charging stations in the network.
- Compatibility with remote supervision from a Charge Point Operator in OCPP 1.6 Json.

- EcoStruxure EV Charging Expert allows two access profiles:
  - **Admin**: Access to all configuration parameters and features, dashboard operation and RFID cards management.
  - **User**: Dashboard operation and RFID cards management.

1.2.1.1 Power management functions

For a specific electrical infrastructure, the maximum power available for EV charging is distributed among the connected vehicles.

An electric vehicle needs a minimum setpoint to accept charging and, if this minimum is not available, the charge will temporarily be suspended for this particular charging point.

The Load Management System allows the admin profile to choose between two thresholds (floor values) for AC charging:

- 8A by default for single phase charging and 14A by default for three-phase charging (based on EV/ZE ready)
- 6A by default for both single phase and three-phase (based on IEC 61851)

When a new vehicle connects and there is not enough available power, the system will suspend the charging of another vehicle to allow the new vehicle to charge.

Two options of charging prioritization are available during the configuration of the load management system:

- Energy:

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The system suspends the charging of vehicles which have already consumed the highest amount of energy. This option is set by default.

- Duration:

The system suspends the charging of vehicles with the longest charging time.

In both cases, the EcoStruxure EV Charging Expert reviews these values every 15 minutes and updates charging priorities accordingly.

EcoStruxure EV Charging Expert can manage VIP information with admin profile:

- VIP RFID: Once authenticated as VIP EV driver, the EV gets maximum available* power no matter the charging station.
  Note: VIP RFID card is not available when remote supervision communication is activated
- VIP charging station: The charging station allows any EV to get the maximum available* power.

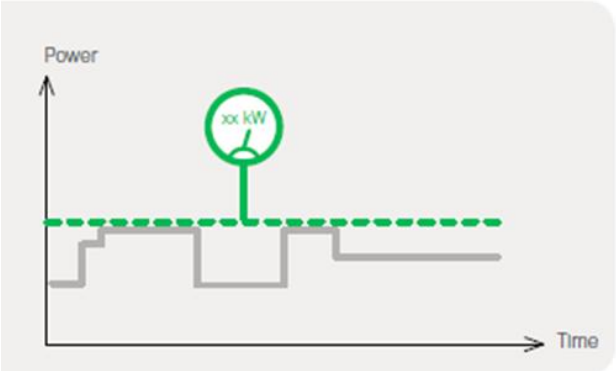
**The maximum available power for VIP status may be lower than the charging station rating depending on the number of simultaneous VIP charging sessions.*

1.2.1.2 Static and dynamic power management

Static mode

The maximum current setpoint for the whole charging infrastructure is a static value depending on the subscribed power supply and limitations of power distribution. This current is distributed between all connected vehicles to limit the risk of installation tripping.

Consumption profile in static mode:

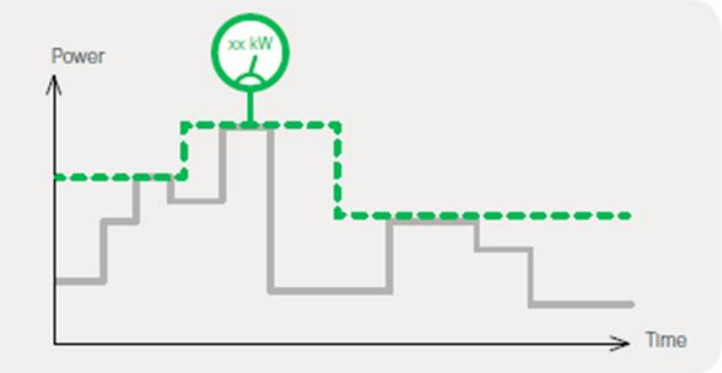


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Dynamic mode

The maximum current setpoint for the whole charging infrastructure changes dynamically according to the building consumption while considering the subscribed power supply and/ or local production. The remaining available current is distributed between all connected vehicles to limit the risk of installation tripping.

Consumption profile in dynamic mode:



In dynamic mode, the EcoStruxure EV Charging Expert must be connected to power meters measuring the consumption of the building and the charging stations.

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1.2.1.3 EcoStruxure EV Charging Expert product range & features

		Load Management License				
		HMIBSCEA53D1EDB	HMIBSCEA53D1EDS	HMIBSCEA53D1EDM	HMIBSCEA53D1EDL	HMIBSCEA53D1EM30
	Supported stations	EVlink Pro AC EVlink Pro DC Schneider Charge Pro	EVlink Pro AC EVlink Pro DC Schneider Charge Pro	EVlink Pro AC EVlink Pro DC Schneider Charge Pro	EVlink Pro AC EVlink Pro DC Schneider Charge Pro	EVlink Pro AC EVlink Pro DC Schneider Charge Pro
Capacity	Max number of charging stations	100	100	100	100	100
Power Management	With a static setpoint	●	●	●	●	●
	With a dynamic setpoint	●	●	●	●	●
Multi zone	Max number of zones	50	50	50	50	50
	Max number of zone levels (Top zone + sub-zones)	4	4	4	4	4
Advanced	Local production Local authentication Transactions logs	●	●	●	●	●

		Load Management License	
		HMIBSCEA53D1EDBSCP	HMIBSCEA53D1EDSSCP
	Supported stations	EVlink Pro AC EVlink Pro DC Schneider Charge Pro	EVlink Pro AC EVlink Pro DC Schneider Charge Pro
Capacity	Max number of charging stations	100	100
Power Management	With a static setpoint	●	●
	With a dynamic setpoint	●	●
Multi zone	Max number of zones	50	50
	Max number of zone levels (Top zone + sub-zones)	4	4
Advanced	Local production Local authentication Transactions logs	●	●

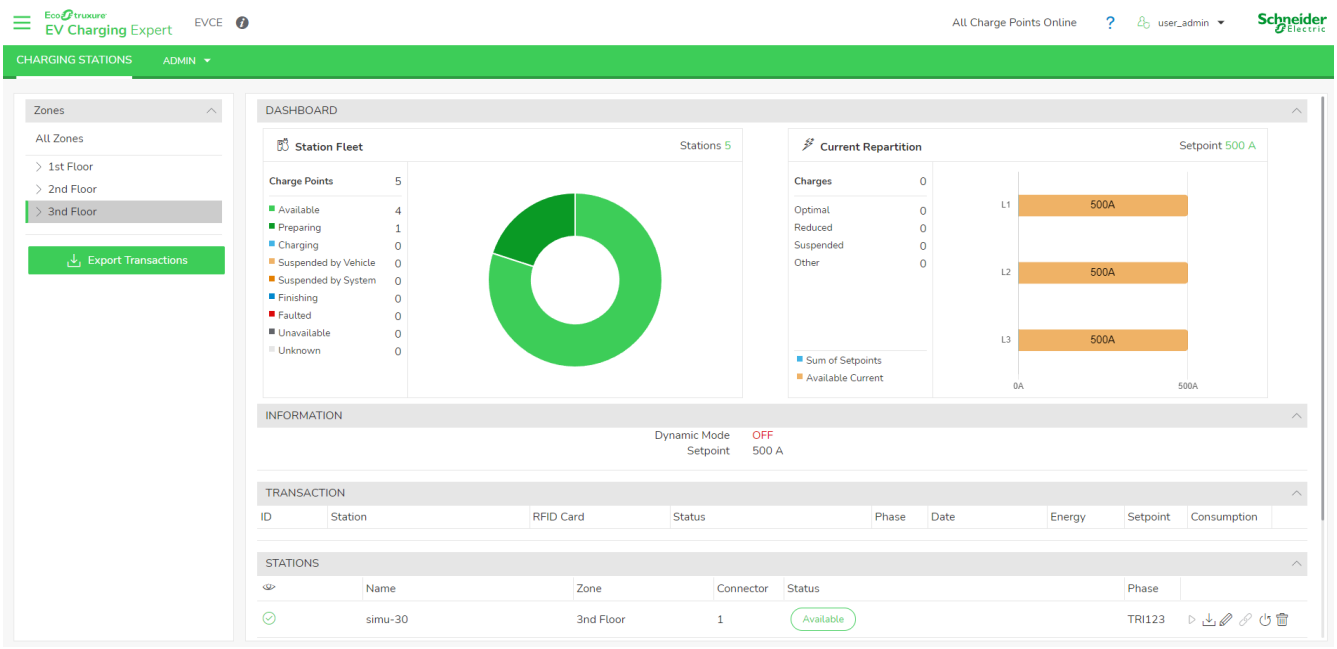
1.2.1.4 User profile features

Operate EcoStruxure EV Charging Expert Dashboard

The dashboard displays:

- The status of all charge points (connectors)
- The power consumption per phase

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Remote control of charging station and transactions

Below actions are available through “Charging Station” tab:

- Remote start*
- Remote stop*
- Remote force stop*
- Reboot (automatic charging resume)
- Reset (charging stopped)
- Access to maintenance report
- Access to webserver (if feature available for charging station)

**Only available when remote supervision is deactivated*

RFID cards management

When the EcoStruxure EV Charging Expert is in standalone mode (remote supervision deactivated), it is possible to:

1. Create authentication group
2. Configure authentication strategy of each group
3. Allocate RFID cards and stations to these groups

Access through “RFID cards management” from the dashboard. See chapter 3.11

Export Charging Data Records (CDR)

On the EcoStruxure EV Charging Expert Dashboard, the user can see the active charging sessions.

EcoStruxure EV Charging Expert can register over 1 million transactions data, also called charging data records, in its internal memory. The charging data records can be exported as an external file in CSV format for all the charging stations.
It is possible to select the period before exporting the file.
Access through “Export transactions” from the dashboard. See chapter 3.2.3

1.2.1.5 Admin profile features

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In addition to the user profile features, the admin profile can change the configuration of the charging stations, and upgrade EcoStruxure EV Charging Expert firmware.

EcoStruxure EV Charging Expert commissioning

All parameters are accessible via the admin/configuration page.

The admin profile sets configuration parameters for:
- Network configuration
- Remote supervision
- Energy management
- Date & Time
- Zone management
- Power meters
- Time of use
- Digital inputs
- Certificates
- Firmwares of charging stations
- Advanced Parameters
- User management
- Logs
- Device report
- Station reports
- Zone/Station configuration

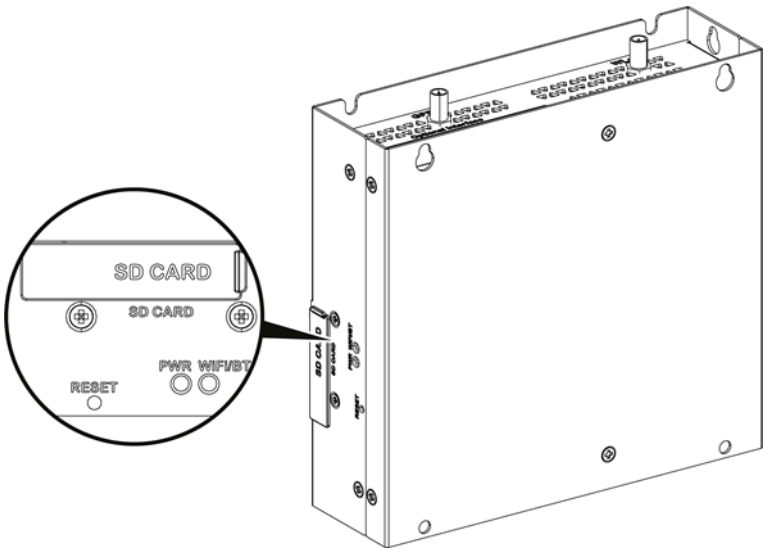
EcoStruxure EV Charging Expert maintenance

The admin profile can:
- Update the EcoStruxure EV Charging Expert firmware
- Get EcoStruxure EV Charging Expert logs
- Operate a “Back to factory”
- Operate a “Save & restore”
- Manage users accounts and passwords
- Download EcoStruxure EV Charging Expert maintenance report
- Download charging station maintenance report
- Access the Wizard that is used for initial commissioning

1.2.1.6 EcoStruxure EV Charging Expert hardware features

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Description

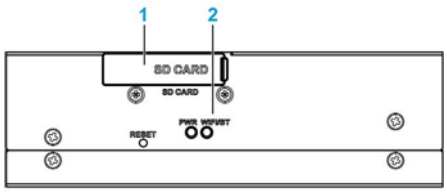


Reset button **(deactivated)** and LEDs

The table below describes the meaning of the status LEDs

Marking	Color	State	Meaning
PWR	Green	On	Active (user operates OS) (state S0)
WiFi/BT	Green	Off	Application failure
		On	Application starting
		Blink	Application running

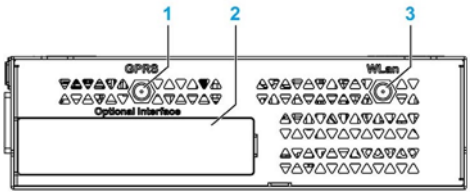
Side view



1 - SD card socket (SD card not delivered with the EcoStruxure EV Charging Expert)
2- LEDs

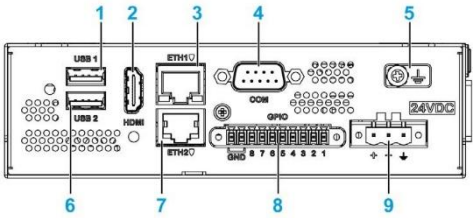
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Front view



1 - SMA connector for the GPRS/4G external antenna (not available)
2 - Optional interface
3 - SMA connector for the WLan external antenna (not available)

Rear view



1 - USB1 (USB 2.0) (RTU ModBus device only)
2 - HDMI port **(deactivated*)**
3 - ETH1 (10/100/1000 Mb/s)
4 - COM port RS-232/422/485 **(deactivated*)**
5 - Ground connection pin
6 - USB2 (USB 2.0) **(only for ModBus communication)**
7 - ETH2 (10/100/1000 Mb/s) **(deactivated*)**
8 - GPIO
9 - DC power connector
*** Hardware deactivation improves cybersecurity**

1.2.1.7 Schneider charging stations

Charging station	Supported	Minimal version
EVlink Pro AC	Yes	1.6.1
EVlink Pro DC 120/150/180	Yes	2.7.02
EVlink Pro DC 60	Yes	2.6.15
EVlink Pro DC 320	Yes	
EVlink Pro DC 720	Yes	
EVlink Parking	Yes	3.4.0.10
EVlink Smart WallBox	Yes	3.4.0.10
EVlink City	Yes	3.4.0.10
24kW DC Charger	Yes	V028.803
Schneider Charge Pro	Yes	2.0.3

Latest releases are available on se.com/download.

For previous releases, contact Schneider Electric Customer Care Center.

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1.2.1.8 Third party charging stations

Charging station	Supported	Charger version	EVCE version
Alfen NG910/NG920	Yes	6.6.2-4351	7.0.0
Wall Box Pulsar PR2-W-2-4-K-002	Yes		7.0.0
Bender	No		
WallBee	No		

The support of the third party station is only tested for the couple of version specified in the table.

1.2.1.9 Power meters

Note: power metering is only required when the EcoStruxure EV Charging Expert is used in dynamic mode.

The table below lists few recommended power meters.

Name	Pole description	Input type	Comment
A9MEM3250 (PAS600+ Acti 9 iEM3000) 	1P + N / 3P / 3P + N	External CT: 1 A or 5 A CT: Current Transformer	
METSEPM5320 (PowerLogic PM5000) 	1P + N / 3P / 3P + N		
A9XMWD20 (PowerTag Link + Power Tags) 	1P + N / 3P / 3P + N	Wireless energy sensor PowerTag up to 630 A	
Compact NSX circuit breaker with embedded metering (with Enerlin'X IFE gateway)	3P / 4P	Modbus TCP	For 3P, If you want to have power per phase with NSX 3-poles, you must add external neutral voltage tap

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Masterpact MTZ circuit breaker with embedded metering (with embedded Enerlin'X EIFE module) 	3P / 4P	Modbus TCP	For 3P, If you want to have power per phase with MTZ 3-poles, you must add external neutral voltage tap

1.2.1.9.1 Modbus registers tables

The following tables show the ModBus registers per type of power meter.

Power meter model	"PM5320, IEM3x5x, Power tag A"
Register @	Description
3000	Current Ph1
3002	Current Ph2
3004	Current Ph3
3054	Power Ph1
3056	Power Ph2
3058	Power Ph3
3060	Total Active Power
3204	Total Active Energy Delivered

Power meter model	"NSX legacy"
Register @	Description
12016	Current Ph1
12017	Current Ph2
12018	Current Ph3
12038	Power Ph1
12039	Power Ph2
12040	Power Ph3
12041	Total Active Power
12050	Total Active Energy Delivered

Power meter model	"NSX"
Register @	Description
32028	Current Ph1
32030	Current Ph2
32032	Current Ph3
32077	Power Ph1
32074	Power Ph2
32076	Power Ph3
32078	Total Active Power
32096	Total Active Energy Delivered

Power meter model	"MTZ"
Register @	Description
32028	Current Ph1
32030	Current Ph2
32032	Current Ph3
32077	Power Ph1
32074	Power Ph2
32076	Power Ph3
32078	Total Active Power
32096	Total Active Energy Delivered

Other power meters that are not part of this selection (refer to chapter 1.1.1.8) are compatible with EcoStruxure EV Charging Expert as well. When commissioning the power meter, select from the drop-down list on "Model" field the corresponding model of power meter matching the appropriate registers list.

See chapter 3.6 for more information.

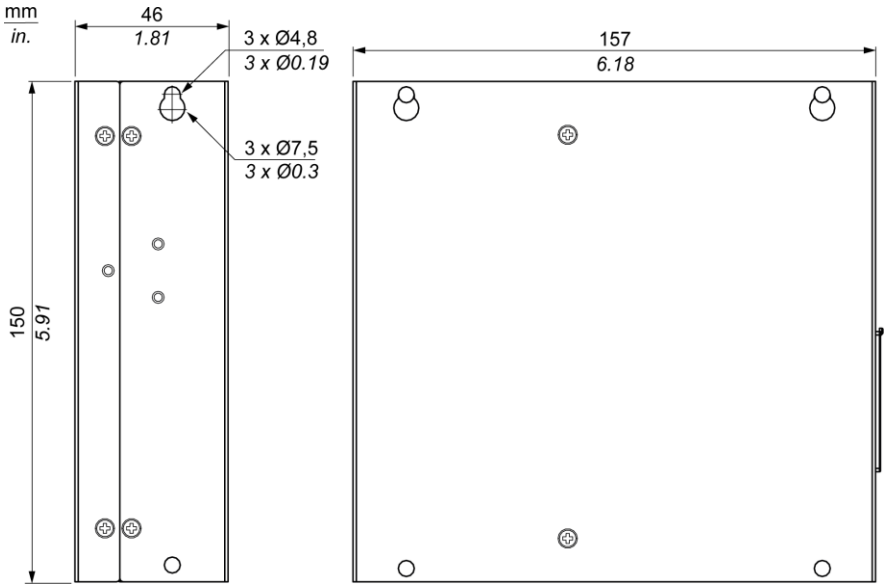
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1.3 EcoStruxure EV Charging Expert characteristics

1.3.1 General characteristics

Element	Characteristics
Operating System	Linux Yocto
Cooling method	Natural air flow
Weight	1 kg (2.2 lbs)

1.3.1.1 Dimensions



1.3.2 Environmental characteristics

Characteristics	Value
Degree of protection	IP 40
Pollution degree	For use in pollution degree 2 environment
Operating temperature	0…50 °C
Operating temperature for horizontal mounting	0...50 °C
Storage temperature	0...50 °C
Operating altitude	2,000 m (6,560 ft) max
Random vibration	5...500 Hz: 2 G_{rms}
Storage humidity	10...95 % RH at 40 °C (104 °F), no condensation

1.3.3 Power supply characteristics

Element	Characteristics
Rated voltage	24 Vdc
Inrush current	1,5 A
Power consumption	16 W

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1.3.4 Communication modules

1.3.4.1 USB interface

Element	Characteristics
Type	USB 2.0
Current load	Maximum 0.5 A
Connection	Type A

1.3.4.2 Ethernet interface

Element	Characteristics
Type	RJ45
Speed	10/100/1000 Mb/s base-T

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1.4 Set up of EcoStruxure EV Charging Expert system environment

1.4.1 EcoStruxure EV Charging Expert installation

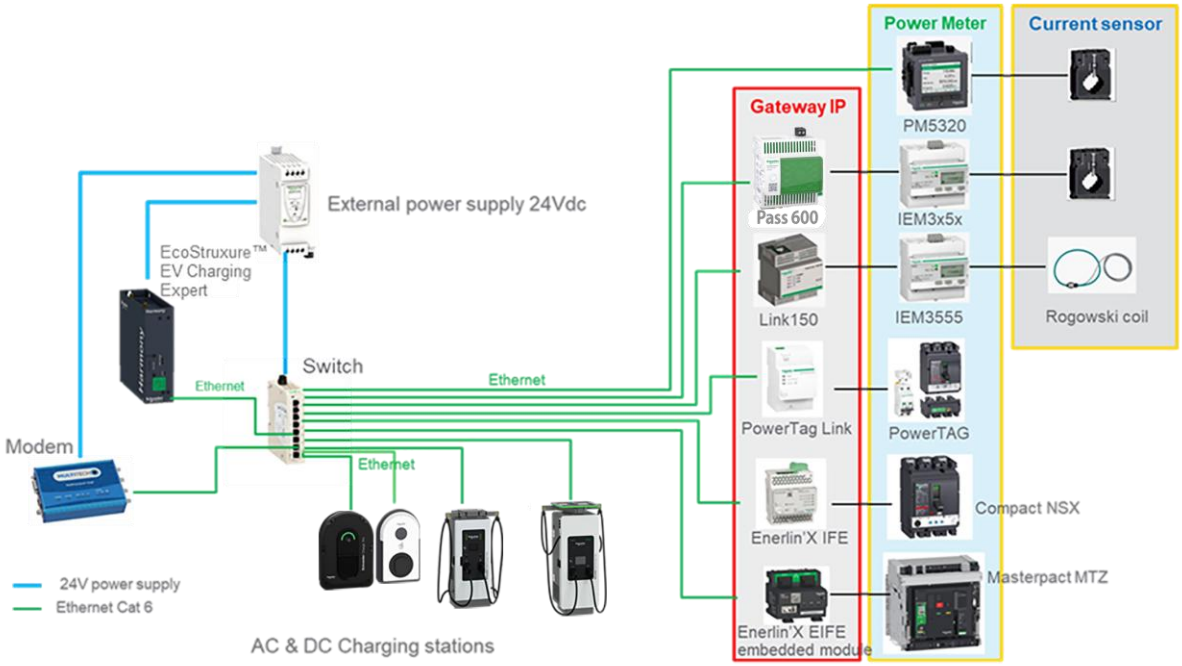
See DOCA0164EN EcoStruxure EV Charging Expert installation guide" available on the EcoStruxure EV Charging Expert packaging and on se.com/download.

1.4.1.1 Ethernet connection: charging station connection

EcoStruxure EV Charging Expert is connected to the charging station network through ethernet ETH1.
Use an ethernet straight cable between EcoStruxure EV Charging Expert and the charging station Ethernet network.

NOTICE
IMPOSSIBLE TO COMMISSION A CHARGING STATION INTO ECOSTRUXURE EV CHARGING EXPERT • Connect the charging station network only ETH 1 • ETH 2 network must be activated through UI (see 3.3 Network Configuration) **Failure to follow this instruction will not enable EcoStruxure EV Charging Expert connectivity and expected functionalities.**

1.4.1.2 Power meter connection



Gateways and power meters must be set correctly before starting the EcoStruxure EV Charging Expert commissioning. Please check the relevant documentation to perform this step.

Note: power metering is only required when the EcoStruxure EV Charging Expert is used in dynamic load management mode.

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1.4.1.3 Connection to EMA

EVCE can be connected to EMA using the REST API (see related documents) and the user “EBMS”.

NOTICE
It is not possible to use the same user account at the same time for REST API and on the EVCE webpages interface.

1.4.1.4 Connection to EBO (EcoStruxure Building Operation)

EVCE can be connected to EBO with an EBO plugin called “EVCE SmartConnector”. Please contact the EBO support for more information.

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1.5 Electrical zone definition

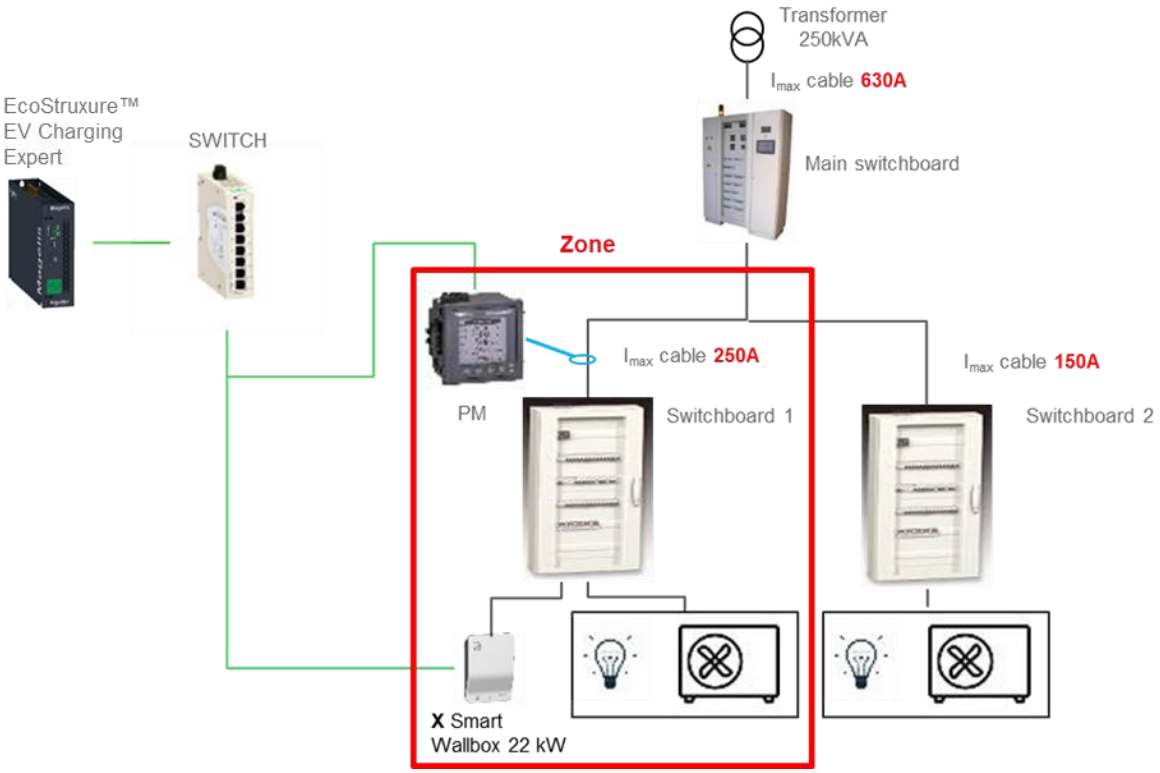
An electrical zone is made of one switchboard:

- directly supplying charging stations and possibly other electrical loads,
- or supplying other switchboards of which at least one is supplying charging stations and possibly other electrical loads. This latter forms a sub-zone. The total installed current of all sub-zones must be at least equal to the maximum current that can be delivered by the upper zone switchboard. A maximum of three levels of sub-zones is possible.

For a dynamic zone, a maximum degraded current should be defined in case of power meter disconnection. This maximum degraded current corresponds to the among of available current that is always guaranteed for EV charging.

Example #1: one single zone

In this example, the main switchboard can supply both switchboards at the maximum current. Energy management is required in the zone if the switchboard #1 cannot supply all charging stations and other electrical loads at the same time at the maximum current.
In case of a power meter disconnection, if the maximal building electrical load of the zone is estimated to ~150A, the maximal available current for EV charging in this zone is 100A.



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Example #2: one zone with one sub-zone

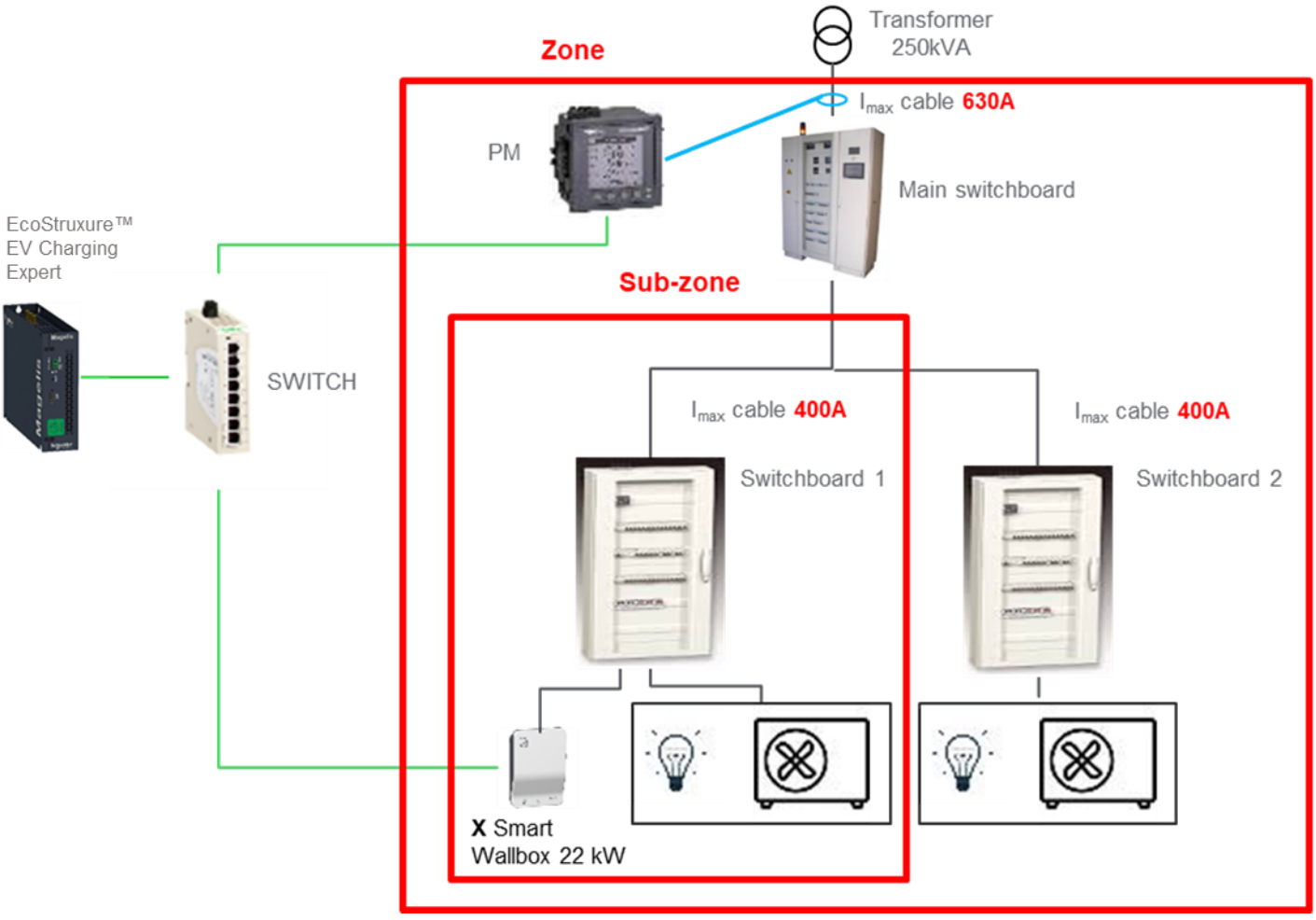
In this example, the main switchboard cannot supply both switchboards at the maximum current. In the same way, the switchboard #1 cannot supply all charging stations and other electrical loads at the same time at the maximum current.

The current available for EV charging depends on:

- the total consumption of other electrical loads supplied by switchboards #1 and #2 due to the current limitation of the main switchboard (630 A),
- the consumption of other electrical loads supplied by switchboard #1 due to its current limitation (400 A)

In case of power meter disconnection, the maximum degraded current of the top zone should be defined regarding the estimation of the maximum building electrical loads of switchboards #1 and #2.

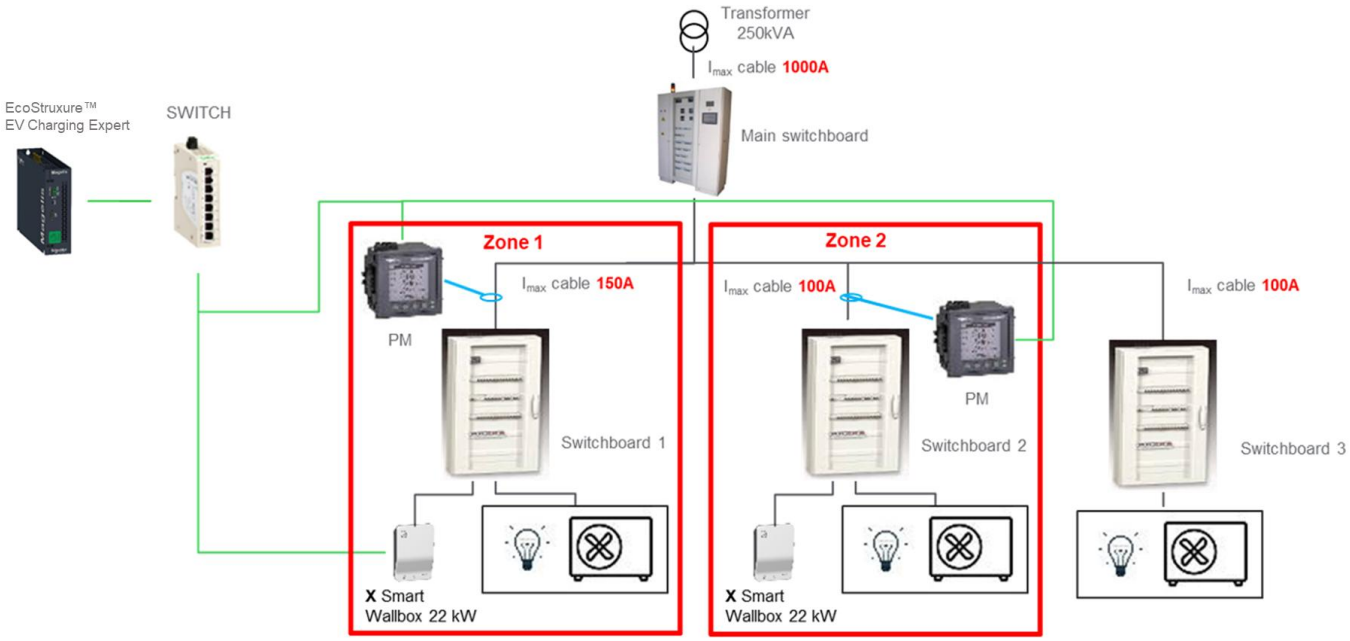
As a result, it is necessary to define a zone (main switchboard) with a sub-zone (switchboard #1).



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Example #3: two zones at the same level

In this example, the main switchboard can supply switchboards #1 & #2 at the maximum power. Energy management is required in each zone if switchboards #1 and #2 cannot supply all charging stations and other electrical loads at the same time at the maximum power.



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Chapter 2.
EcoStruxure EV Charging Expert COMMISSIONNING

*During the first commissioning, a configuration assistant (**wizard**) will guide the installer to set the EcoStruxure EV Charging Expert. If you have already done the first commissioning, please go to chapter 3 OPERATION INTERFACE.*

NOTICE
IMPOSSIBLE TO COMMISSION IN ECOSTRUXURE EV CHARGING EXPERT A CHARGER WITH ONGOING CHARGING SESSION. • Stop all ongoing charging session • Unplug all cars connected to the charging station • Start the EcoStruxure EV Charging Expert commissioning or re-commissioning **Failure to follow these instructions can block the stations pairing with EV Charging Expert.**

2.1 Starting with EcoStruxure EV Charging Expert

2.1.1 Computer configuration

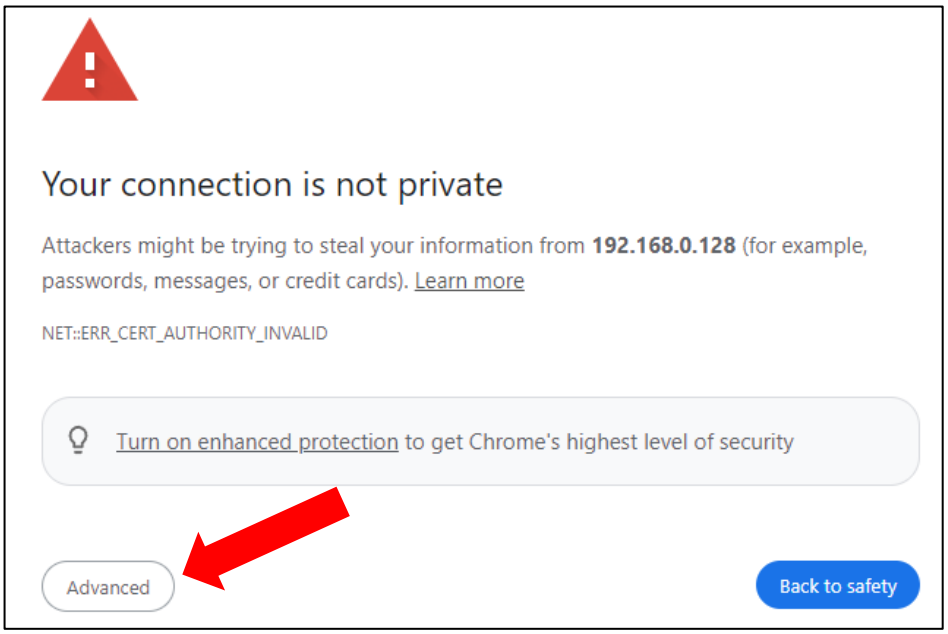
Step	Action
1	Connect your computer to the EcoStruxure EV Charging Expert Ethernet network
2	Open the local network properties menu on your computer
3	Open Internet Protocol TCP/IP v4 properties.
4	Set the static IP address properties as follows: IP address: 192.168.0.x (where x is a number between 50 and 100) Subnet mask: 255.255.255.0 No default gateway No DNS server No proxy

2.1.2 Login to the EcoStruxure EV Charging Expert

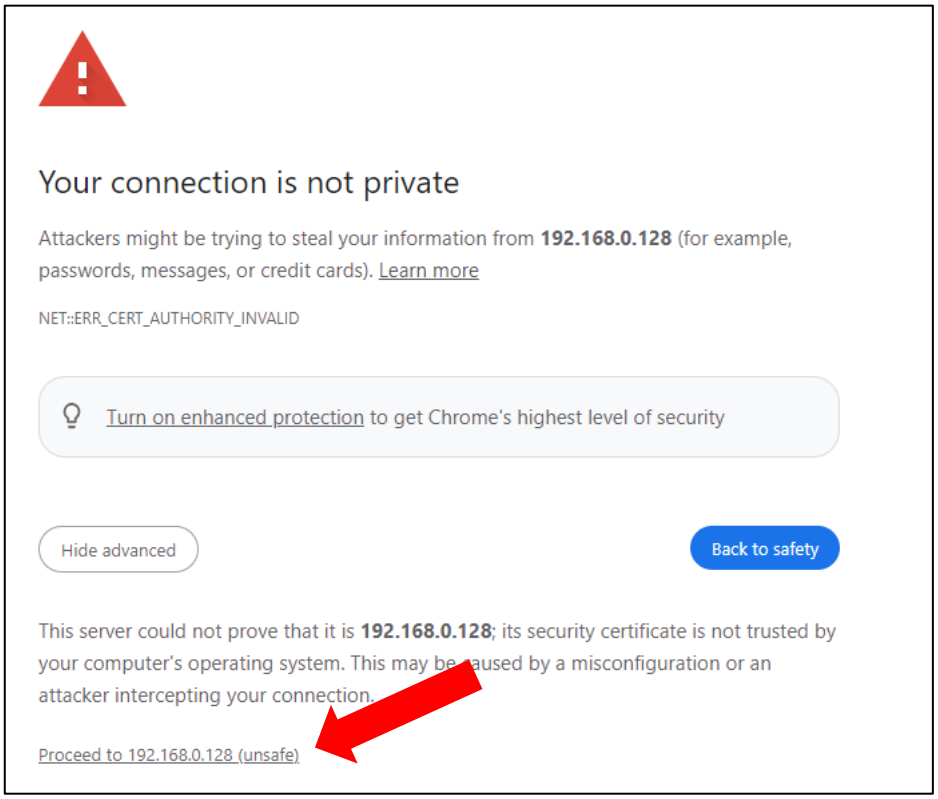
Step	Action
1	Open a web browser and type 192.168.0.128 in the URL field

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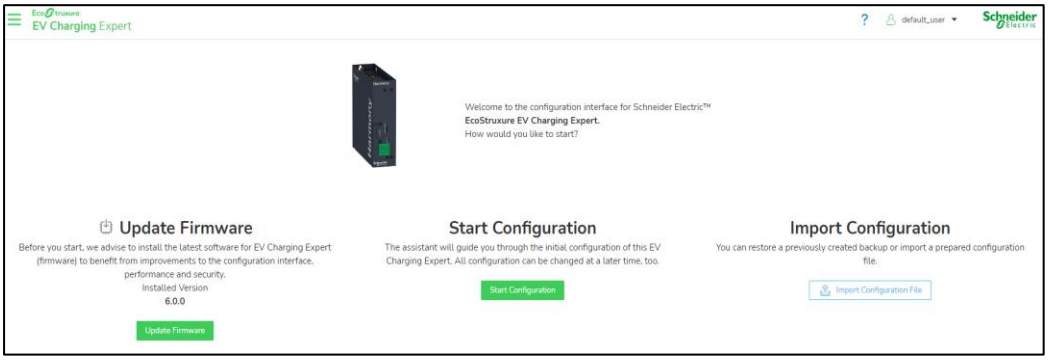
Step	Action
	A security warning may be displayed: click on “Advanced” button if this occurs (see capture below)



Then click on “Proceed to @ …"



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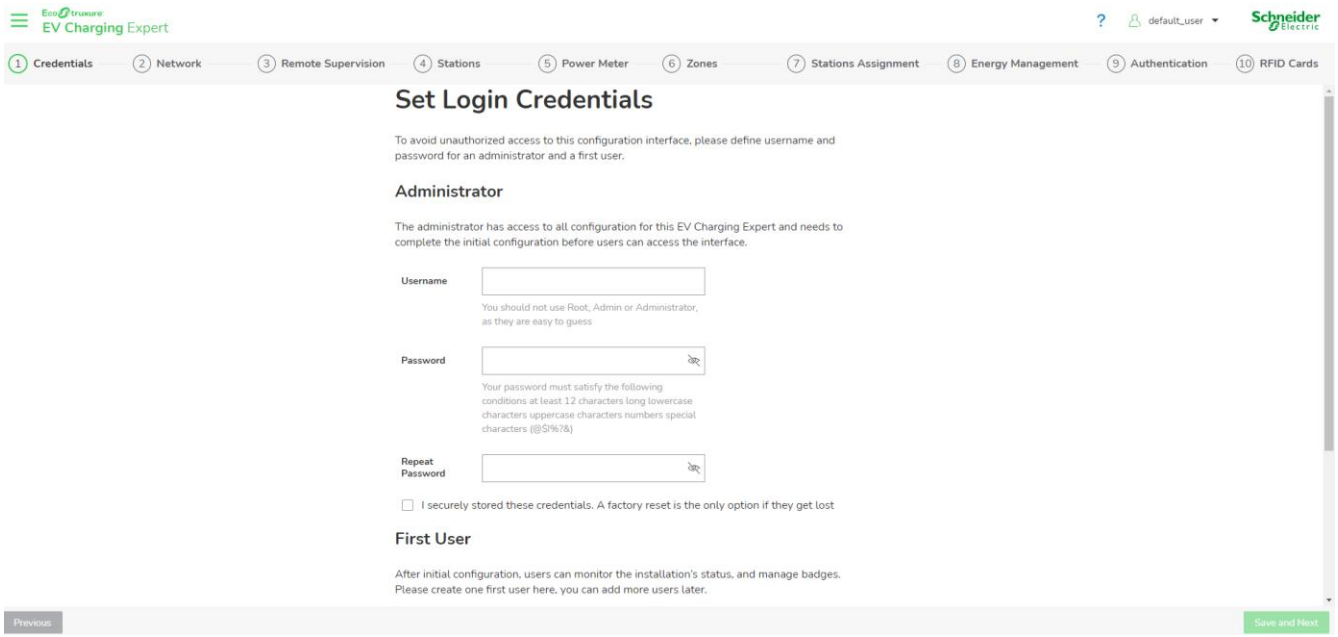
Step	Action
2	To start with EcoStruxure EV Charging Expert, there are 3 options:  • Update the firmware: It is recommended to update the product with the latest version of firmware that has been issued. The file needs to be available locally, hence the installer needs to download it previously from se.com. • Start new configuration : chapter 2.3 • Import EcoStruxure EV Charging Expert: chapter 3.20.2

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2.2Credentials configuration

In EcoStruxure EV Charging Expert there are two different user profiles:

- **Administrator**: Access to all configuration parameters and features, dashboard operation and RFID card management.
- **Operator**: Dashboard operation and RFID card management.



At the credentials step, the installer is asked to create an administrator profile and a user profile.

The passwords must satisfy the following conditions:

- at least 12 characters long lowercase
- characters uppercase
- characters numbers
- special characters (@$!%?&).

The login cannot be “Root”, “Admin” or “Administrator”.

2.3 Wizard steps

The wizard allows to configure EcoStruxure EV Charging Expert with only 10 steps.

2.3.1 Network

See chapter 3.3

2.3.2 Remote supervision

See chapter 3.4

2.3.3 Date & Time

2.3.4 Energy management

See chapter 3.5

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2.3.5 Stations configuration

See chapter 3.6

2.3.6 Power meter configuration

See chapter 3.7

2.3.7 Zones configuration

See chapter 3.8

2.3.8 Station assignment

See chapter 3.8.5

2.3.9 Authentication group

See chapter 3.11.1

2.3.10 RFID Cards

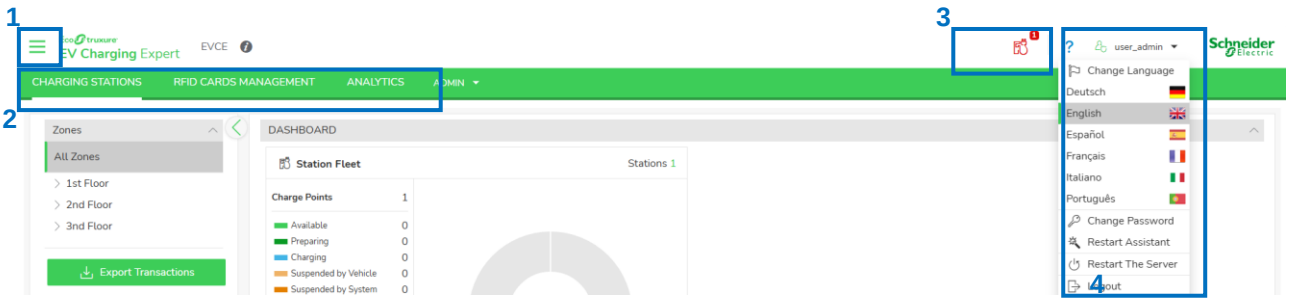
See chapter 3.11.2

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Chapter 3.
OPERATION INTERFACE

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3.1 Menu and status bar



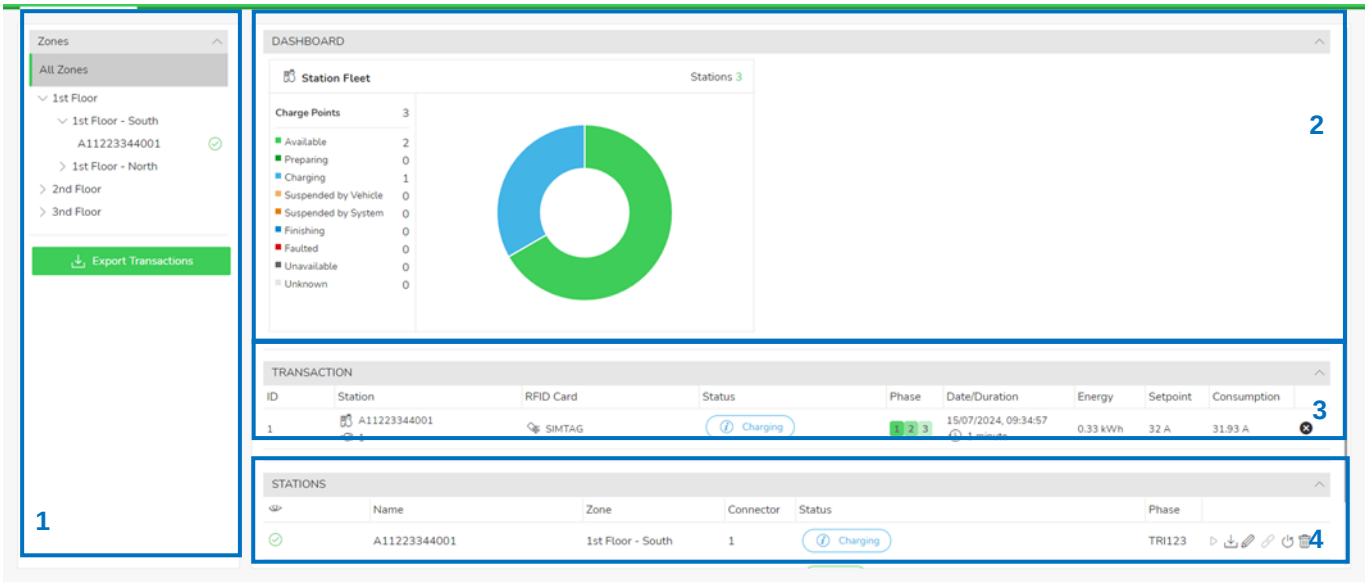
Mark	Description
1	Menu to update EcoStruxure EV Charging Expert and upgrade licence
2	Administrator menu to manage configurations
3	Charging station status (Online/Offline/Faulted state)
4	User management: • Change language • Update password • Restart assistant: restart wizard menu • Logout

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3.2 Dashboard

3.2.1 Global view

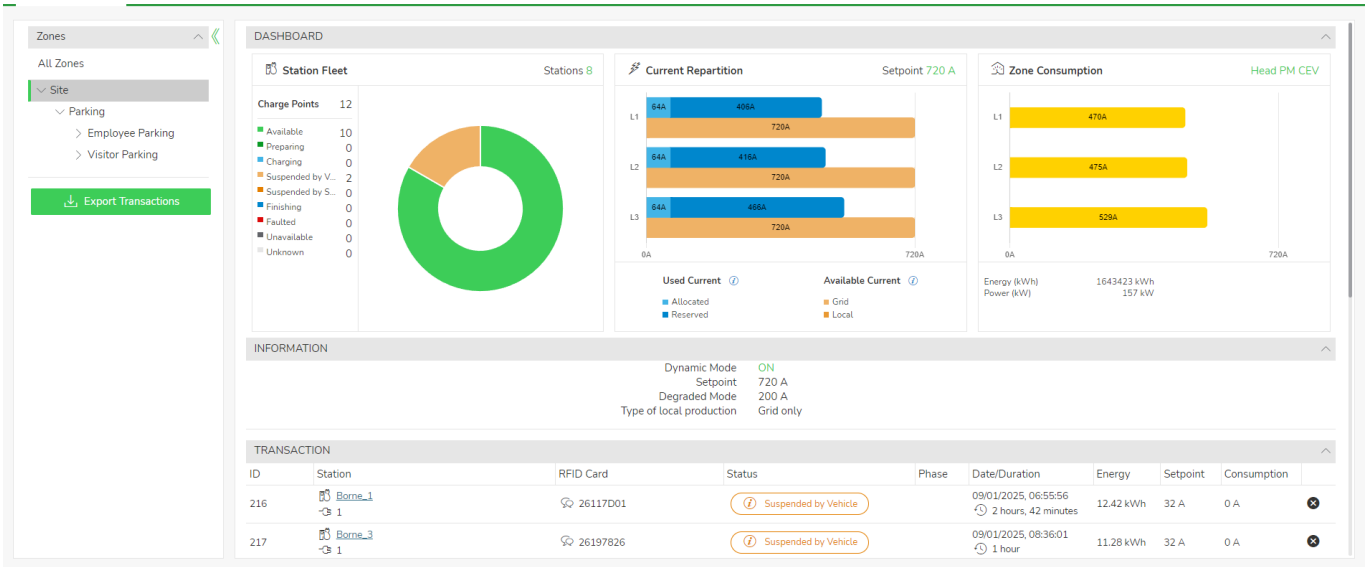
This page displays the ongoing status of the charging stations, load transaction information and zone configuration. Furthermore, it's possible to manage charging stations (reboot/remote start&stop/diagnostic report).



The global view is made of four parts:

1. Electrical zone topology and transactions exports information.
2. Dashboard with zones and charging stations information.
3. Transaction information and management.
4. Stations assignation and management.

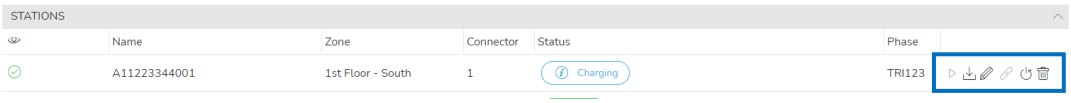
3.2.2 Zone view



Zone view is available when a zone is selected in the zone topology panel. The zone view provides below data:

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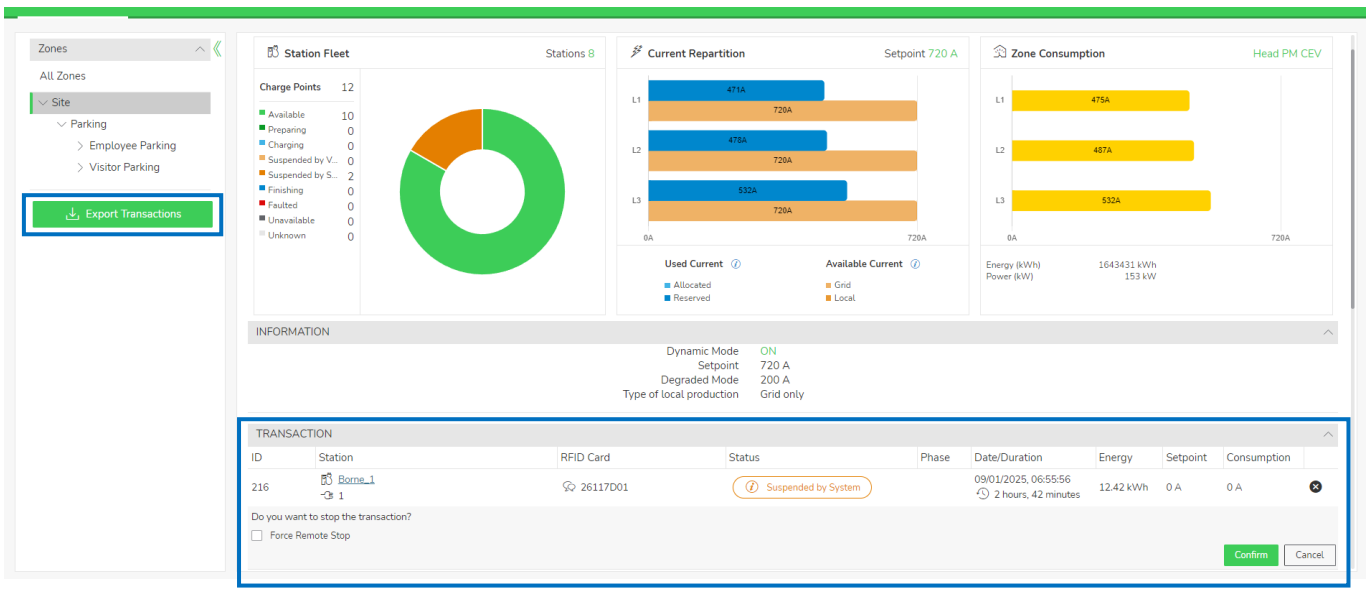
- **Station Fleet**: Status of charging stations assigned to the zone.
- **Current Repartition**: Charging setpoint available according to the active zone maximum current, zone consumption and transactions information.
  - **Allocated:** Allocated current to charging stations during transaction
  - **Reserved:** Reserved current for building consumptions and disconnected stations (degraded setpoint apply to charging station).
  - **Grid:** Available current from grid (with reduction)
  - **Local:** Available current from local production
- **Zone Consumption** (only for dynamic zone): Consumption of the zone reported by assigned power meter.



Zone view is enabling charging stations management:

- **Remote start** : Start a charging session (deactivated when supervision is configured).
- **Diagnostic** : Generate a manual charging station report of the charging station (see chapter 3.16.3 for download page).
- **Configuration** : Update charging station configuration (see chapter 3.2.4)
- **Webserver** : Webserver of the charging station (option available only for charging station supporting web pages interface).
- **Reboot**
- **Delete** : Delete charging station configuration into EcoStuxure EV Charging Expert (impossible to delete a charging station with an ongoing transaction).

3.2.3 Transaction view



Transaction view provides all information for an active transaction:

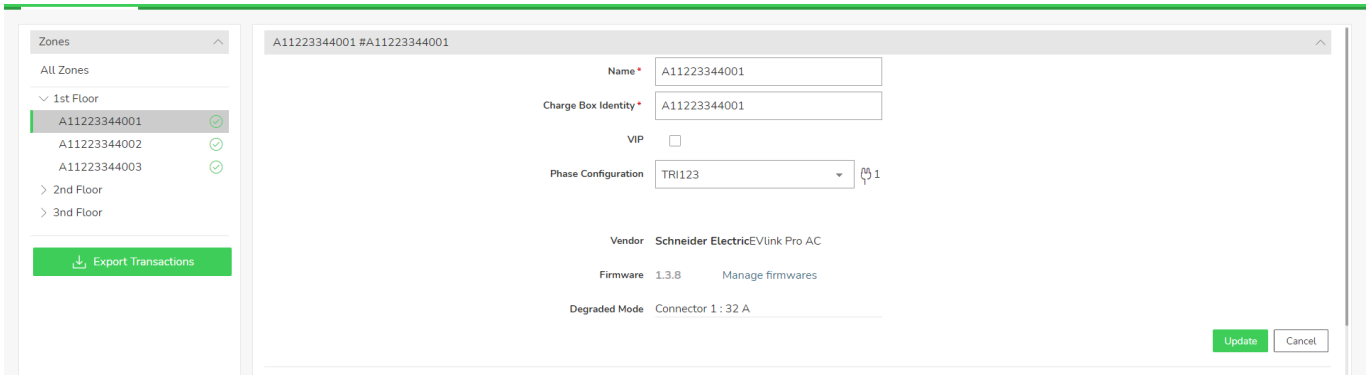
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- **ID**: Unique identifier of the transaction
- **Station**: Station name and connector used for the charging session
- **RFID Card**: Card which launch the transaction.
- **Status**: Status of the transaction according to OCPP standard (Charging / SuspendedEV / SuspendedEVSE / Finishing)
- **Phase**: Selected phases by EV (mono-phase or tri-phased)
- **Date/Duration**: Transaction start date and effective charging duration (time passed in charging state)
- **Energy**: Energy consumed by the ongoing transaction
- **Setpoint**: Current setpoint (intensity or power allocated to the charging station).
- **Consumption**: Consumption of the charging station.

At the left of ongoing charging session, it's possible to remotely stop the charging sessions with the button ⊗, a **Force Remote Stop** option is available to stop a charging session if there are some troubles with this charging session.

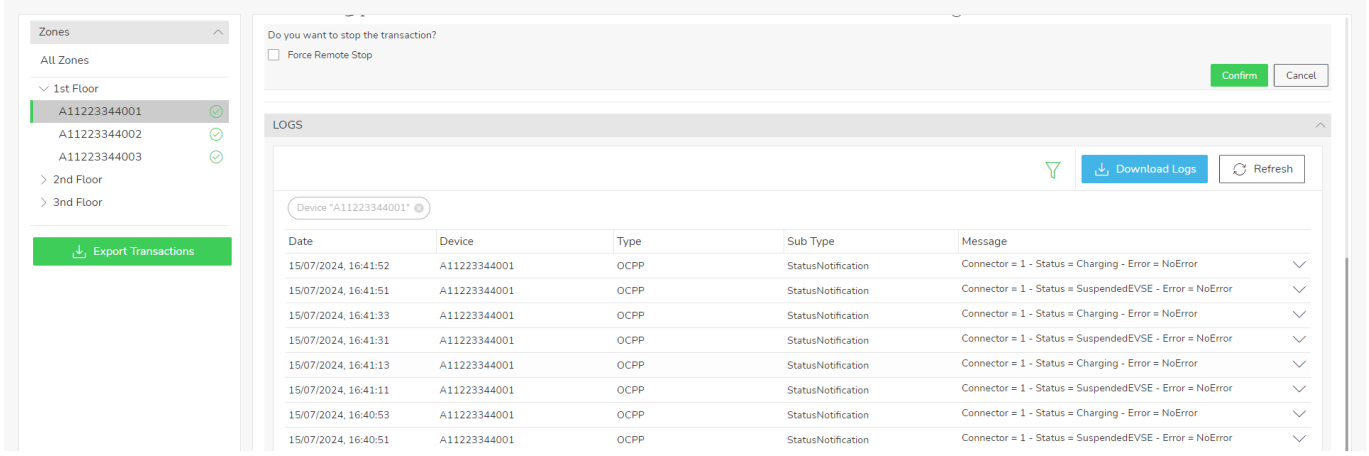
Transaction logs are available for download by using **Export Transactions** button. Select a start and end date to make a partial transaction export.

3.2.4 Station view



To access the station details, select the charging station in zones hierarchy. Below information is accessible:

- **Name**: Name of the charging station into EcoStruxure EV Charging Expert.
- **Charge Box Identity**: Name of the charging station for the remote supervision.
- **VIP**: Select this option to activate VIP for the charging station.
- **Phase configuration**: Electrical configuration of charging station (see chapter 3.5.4)
- **Vendor**: Vendor of the charging station.
- **Firmware**: Firmware version and management (see chapter 3.13).
- **Degraded Mode**: Current allocated to the charging station in degraded mode (see chapter3.7.4).



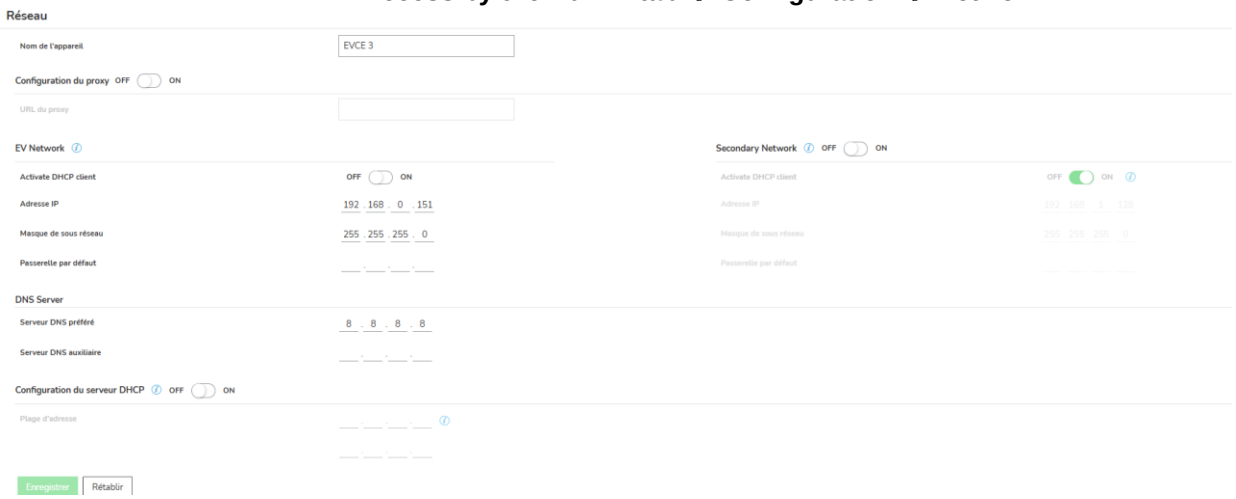
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In station view, a log section displays all OCPP commands received by EcoStruxure EV Charging Expert from the selected charging station.

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3.3Network configuration

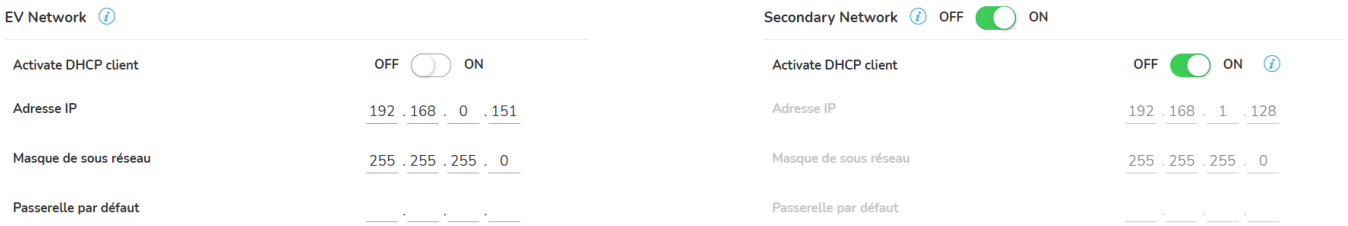
Access by the Admin tab → Configuration → Network



3.3.1 EcoStruxure EV Charging Expert name

It is mandatory to define a name to EcoStruxure EV Charging Expert.

3.3.2 Network configuration



Fields	Factory setting	Description
EV network		
Activate DHCP client	Activated	Activate or not the DHCP client. The device IP address will change based on the DHCP if you activate this.
IP address	192.168.0.128	EcoStruxure EV Charging Expert IP address
Network mask	255.255.255.0	EcoStruxure EV Charging Expert sub-network mask
Default gateway (1)	192.168.0.254	Gateway IP address. Mandatory to connect two networks so that devices on one network can communicate with the devices of another network.
Preferred DNS server (2)	8.8.8.8	Preferred DNS server IP address (2)
Alternative DNS server	-	Other DNS server IP address (2)
Secondary Network	Deactivated	Activate another subnetwork on the second ethernet port to access the web pages

(1) Address of the modem used for the connection to the supervision, if any. All charging stations on the same sub-network than EVCE must be configured with the same gateway IP address.

(2) DNS Server is used to convert URL to IP address. May be provided by the remote supervision (through a dedicated SIM card for example). Google DNS server by default.

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NOTICE
PRESENCE OF CHARGING STATIONS IN A DIFFERENT SUBNETWORK OF ECOSTRUXURE EV CHARGING EXPERT Configure for each charging station gateway and DNS information **Failure to follow these instructions can result in a network issue for all connected devices.**

3.3.3 Proxy configuration

Proxy URL: Proxy URL when proxy is used as an intermediary between a user's device and the internet, enhancing security by masking the user's IP address, allowing organizations to control and monitor internet usage, and enabling access to geo-blocked or restricted content.

3.3.4 DHCP server configuration

DHCP: Dynamic Host Configuration Protocol is a protocol used to provide quick, automatic, and central management for the distribution of IP addresses within a network.

EcoStruxure EV Charging Expert can be configured to act as a DHCP server to assign IP addresses to charging stations in the defined range.

by-default sub-network (192.168.0.0-255) is being used. The use of 192.168.0.0, 192.168.0.254 and 192.168.0.255 are to avoid.

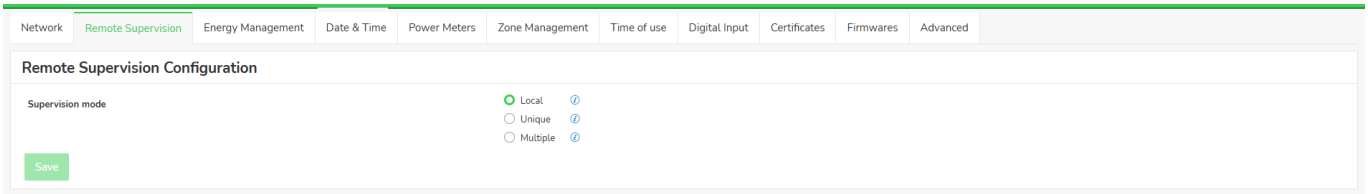
NOTICE
PRESENCE OF A DHCP SERVER ON THE NETWORK WHICH CONFLICTS WITH ECOSTRUXURE EV CHARGING EXPERT DHCP SERVER. Deactivate EcoStruxure EV Charging Expert DHCP server **Failure to follow these instructions can result in a network issue for all connected devices.**

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3.4 Remote supervision configuration

Access by the Admin tab → configuration → remote supervision

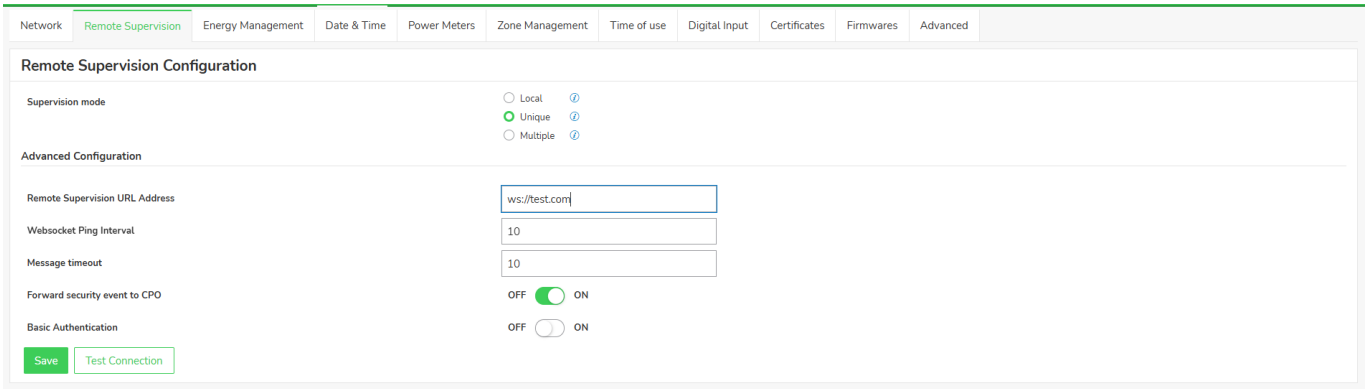
3.4.1 Supervision selection



There are 3 types of EcoStruxure EV Charging Expert supervision:

- **Local**: EcoStruxure EV Charging Expert is managing authentication rules and badges. See chapter 3.11
- **Unique**: One supervision is managing authentication rules and badges of the complete installation
- **Multiple**: Charging stations are divided in groups managed by a specific supervision or by EcoStruxure EV Charging Expert

3.4.2 Unique supervision



3.4.2.1 Prerequisites

Remote supervision must be enabled to allow its configuration. Enter the URL to be used by the charging stations to establish communication with the remote supervision. The communication protocol **must be OCPP 1.6 Json.**

3.4.2.2 Supervision configuration

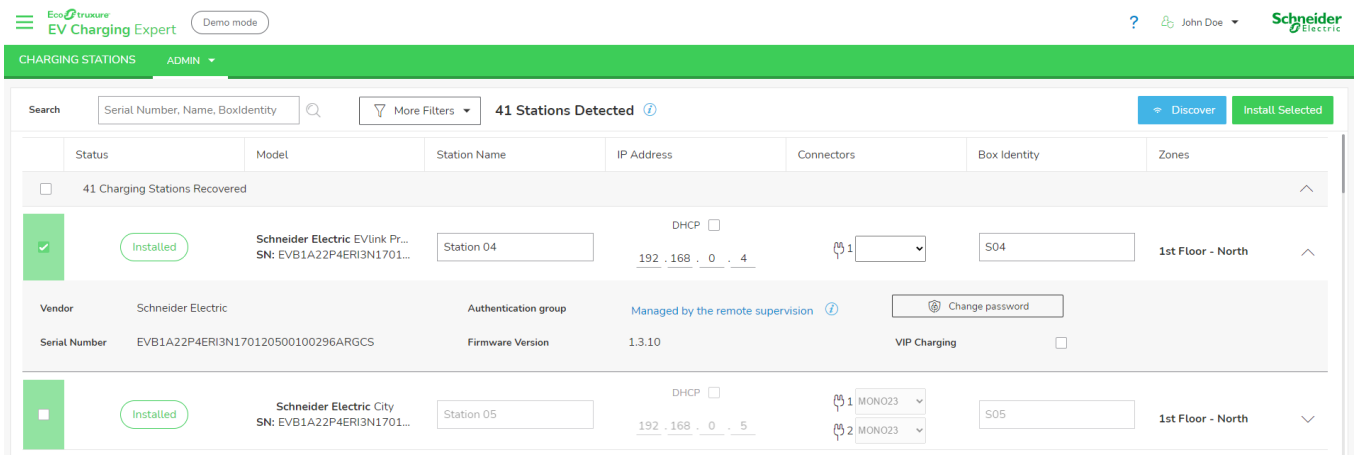
- **URL Address**: Enter WebSocket (ws) or WebSocket Secure (wss) URL. It is recommended to use a WebSocket secure as a good practice of cybersecurity. In this case, it is necessary to add a certificate after commissioning steps, see chapter 3.12.
- **Websocket Ping Interval**: Positive values are interpreted as number of seconds between pings. Value must be between 1 and 60s
- **Message timeout**: Interval between request and response OCPP message before considering the connection lost. Value must be between 1 and 60s
- **Forward security event to CPO**: Authorize to forward security event to supervision

3.4.2.3 Basic authentication

Add a Basic Authentication password for all charging stations to secure communication between EcoStruxure EV Charging Expert and supervision. There are 2 options:

- **One password by station**: One unique password for each station. To add or change basic authentication password, it's necessary to select charging station into installation page and click on **Change password**.

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- **Same password for all charging stations:** Once the option is selected, a popup will appear offering the possibility to add basic authentication key according to 2 formats (ASCII or HEXA format). Password is used for all stations and can be changed later by supervision through OCPP commands.

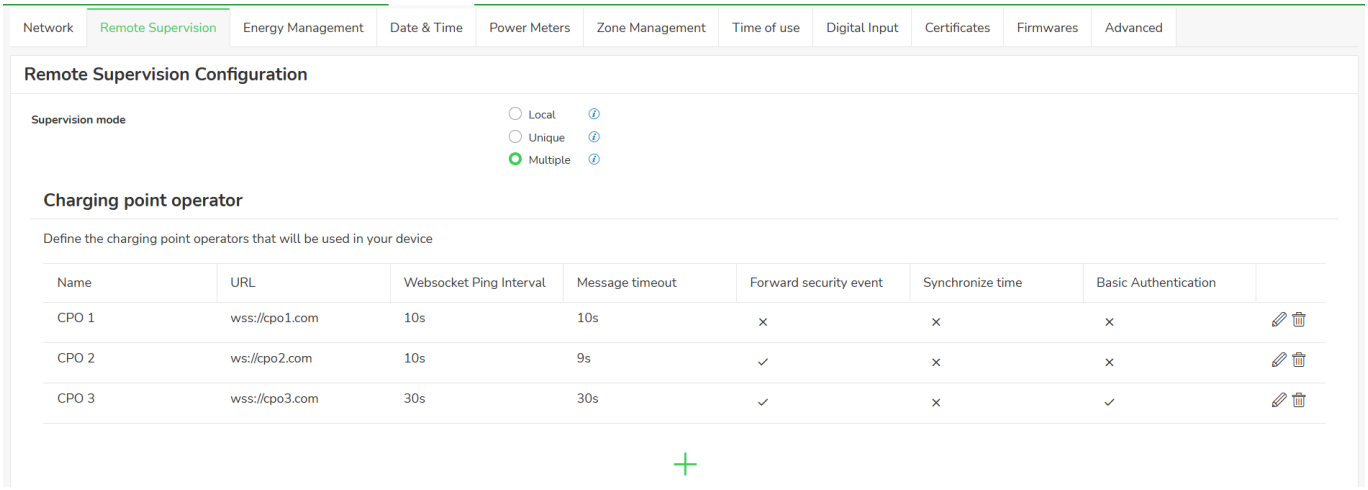
3.4.2.4 Restrictions

If remote supervision option is activated, it is the responsibility of the remote supervision system to handle EV driver authentication and to consider charging station specific keys for authentication management.

When the remote supervision is activated, the date and time are provided by the remote supervision even if time zone still has to be configured in the next panel (Date & Time).

3.4.3 Multiple supervision

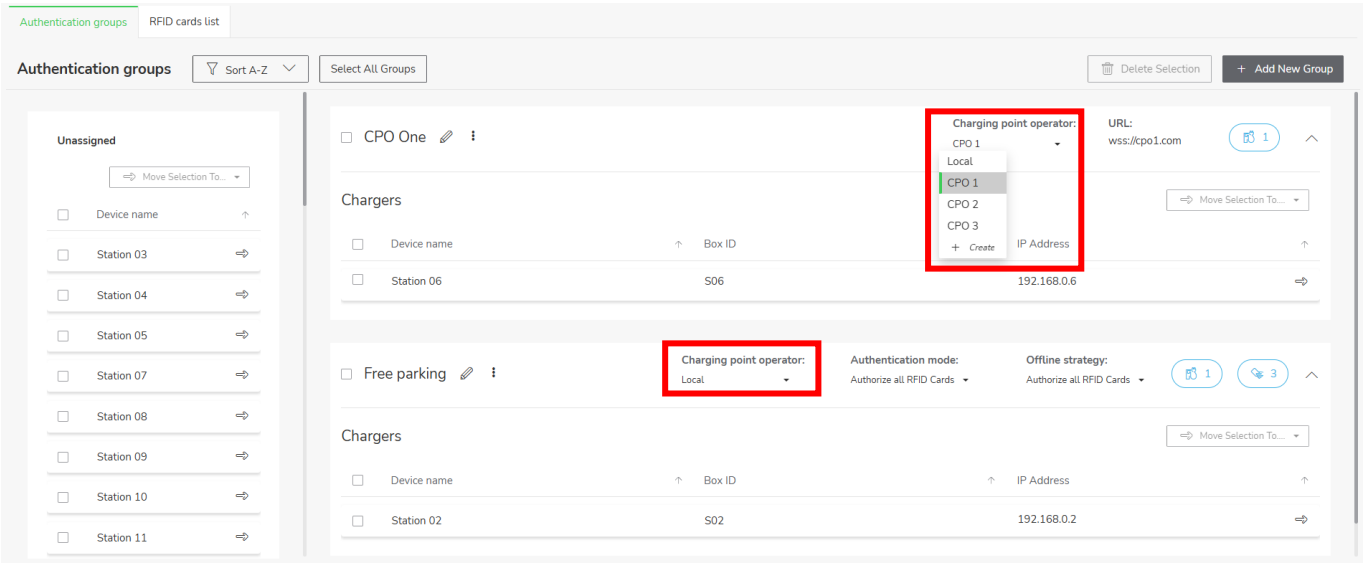
3.4.3.1 Supervision configuration



To manage supervisions, it is necessary to click on **+** and refer to chapter 3.4.2 to configure a supervision.

3.4.3.2 Supervision management

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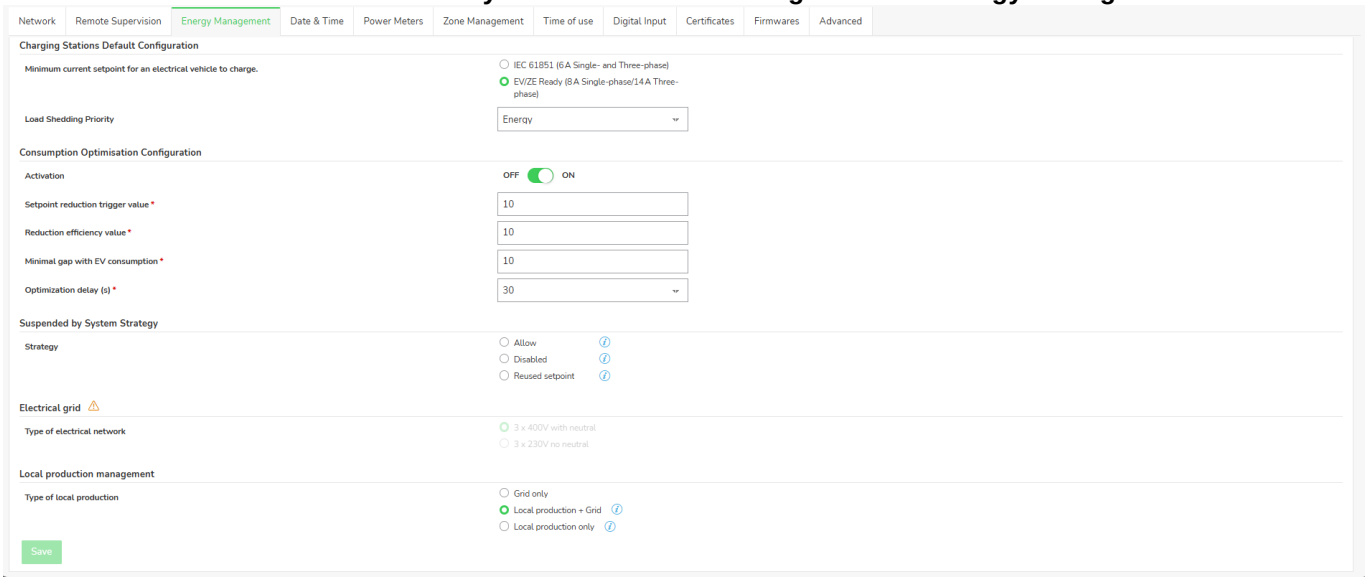
Multiple supervisions option offers the possibility to manage authentication strategy according to supervision or local strategy. To manage the installation, it is necessary to create authentication groups and assigned charging stations to a group. An authentication group is a selection of charging stations associated with to a charging point operator. There are 2 charging point operator options:

- Select a **supervision as charge point operator**: select in the list the supervision already configures.
- Select **local as charge point operator**: please see chapter 3.11.1.2 and to manage RFID card, please see chapter 3.11.2.

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3.5Energy management configuration

Access by the Admin tab → configuration → energy management



3.5.1 Load shedding configuration

Load shedding mechanism is activated once there is not enough available current in a zone to provide floor value to all charges simultaneously. When such a situation happens, chose between energy or duration priority: to favour the newest transactions or the transactions that delivered the lowest amount energy:

- **Energy**: Proportional to the energy consumed (kWh). Favour transaction which has delivered the lowest amount energy. This option is set by default.
- **Duration**: Proportional to the charging time. Favour transaction which has the lowest charging time

The charging station floor value is defined by IEC 61851 and EV/ZE standard for AC installation:

- IEC 61851 (6A in both single and 3-phases connection)
- EV/ZE ready (8A in single-phase, 14A in 3-phase connection)

3.5.2 Consumption optimisation configuration

Consumption optimization mechanism is activated to manage energy management with different parameters:

- **Setpoint reduction trigger value**: Difference between decreasing EV consumption and setpoint before triggering the optimization.
- **Reduction efficiency value**: Gap between the consumption and the new setpoint calculated by the optimization.
- **Minimal gap with EV consumption**: Gap between the increasing EV consumption and the setpoint triggering more power allocation to the charging station.

3.5.3 Allow Suspended by System

If a transaction stop consuming energy (current lower than 1A), EcoStruxure EV Charging Expert can pause the transaction (Suspended by System) and restart transaction after a wake-up interval defined in second.

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3.5.4 Local production management

3.5.4.1 Prerequisites

To manage local production there are 3 options:

- **Grid only** (selected by default): Power coming only from grid
- **Local production + grid**: Local solar production is added to power coming from utility for higher consumption capacity.
- **Local production only**: Enable green charging by considering solar energy only as available power for your EV charging installation

3.5.4.2 Local production

If 2nd or 3rd option are chosen, then it is necessary to add power meter dedicated to solar production. Please see chapter 3.7.2 to add a power meter and chapter 3.8.3 to associate the local production to an electrical zone.

For reduction, when it is applied with EBMS, time of use or DI it concerned only the maximum current of the zone, additional current provides by local production are not consider.

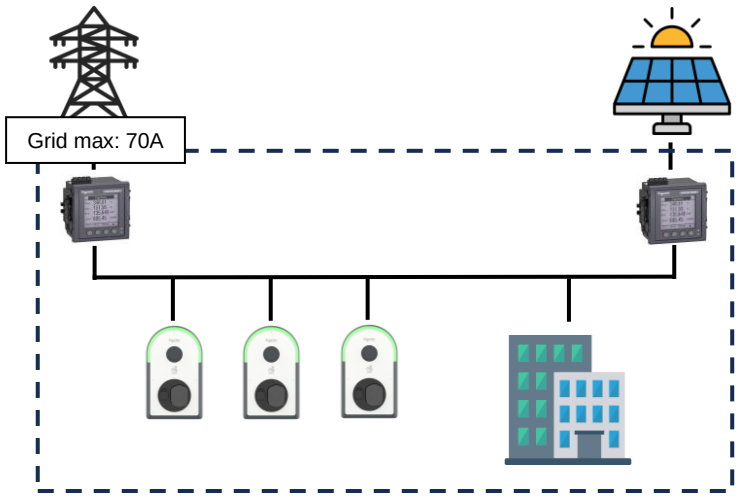
For example, a zone with 100A a reduction to 70% with a solar production of 20A. After energy management computation there is 90A available for the charging stations.

Note: The power meter wiring must include a neutral and be wired in the correct direction. Failure to follow these instructions can result in an installation trip.

3.5.4.3 Example

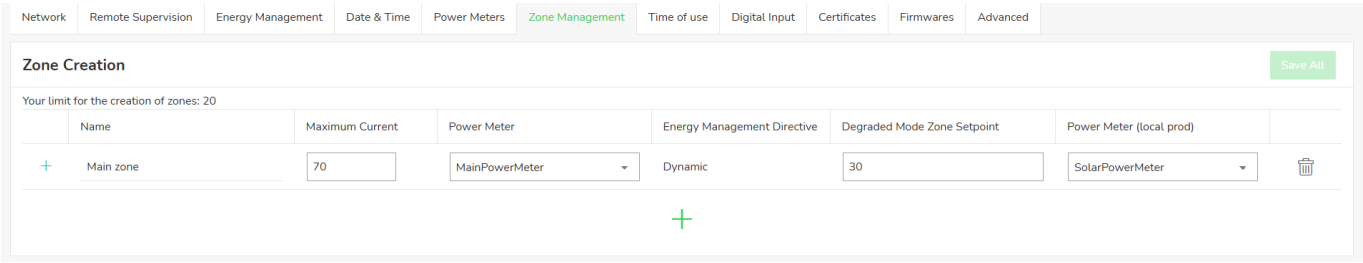
For the example, there is a dynamic electrical zone on 70A with solar production and 3 charging stations associate to the electrical zone.

The schematic of the installation:

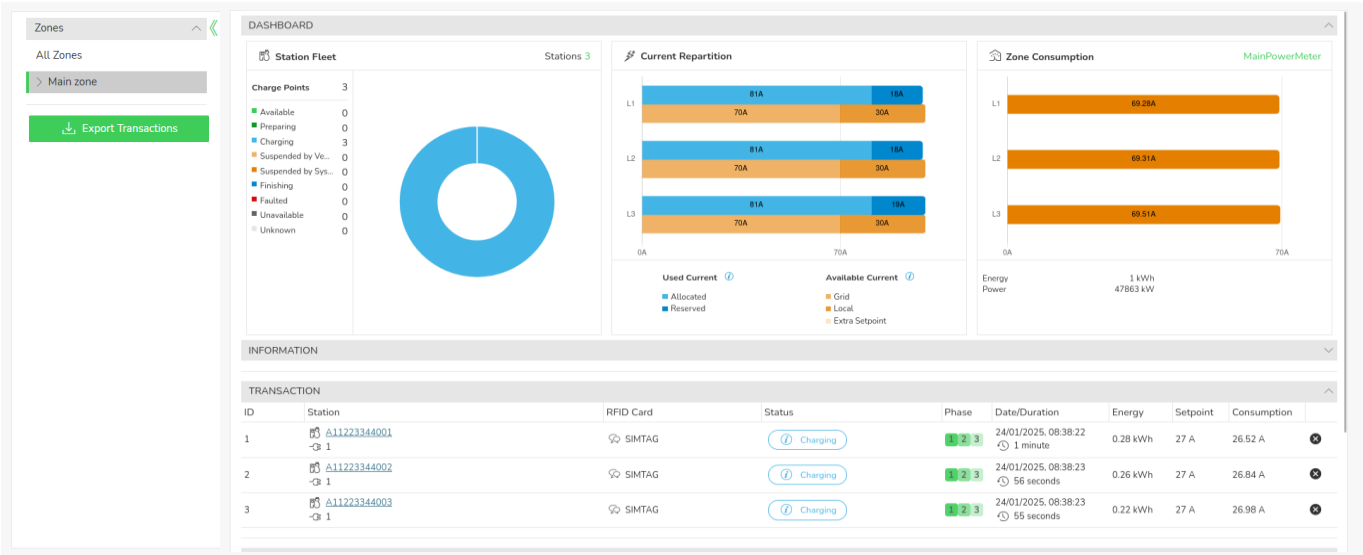


Zone configuration: Main zone has 70A maximum current and MainPowerMeter is the power meter associate to the electrical zone to compute consumption of charging stations and building. SolarPowerMeter is the power meter associate to the local production into the electrical zone.

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Dashboard:



On the dashboard there is 3 transactions in progress, maximum current of the zone is 70A but it is increase to 100A with 30A of local production. And the building consumes 19A. So the energy management computation gives 27A for each transaction:

$$\frac{(Max\ current + Local\ production) - Building\ consumption}{Number\ of\ transaction} = \frac{(70A + 30A) - 19A}{3} = 27A$$

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3.6 Charging stations commissioning

Access by Admin tab → configuration → Installation

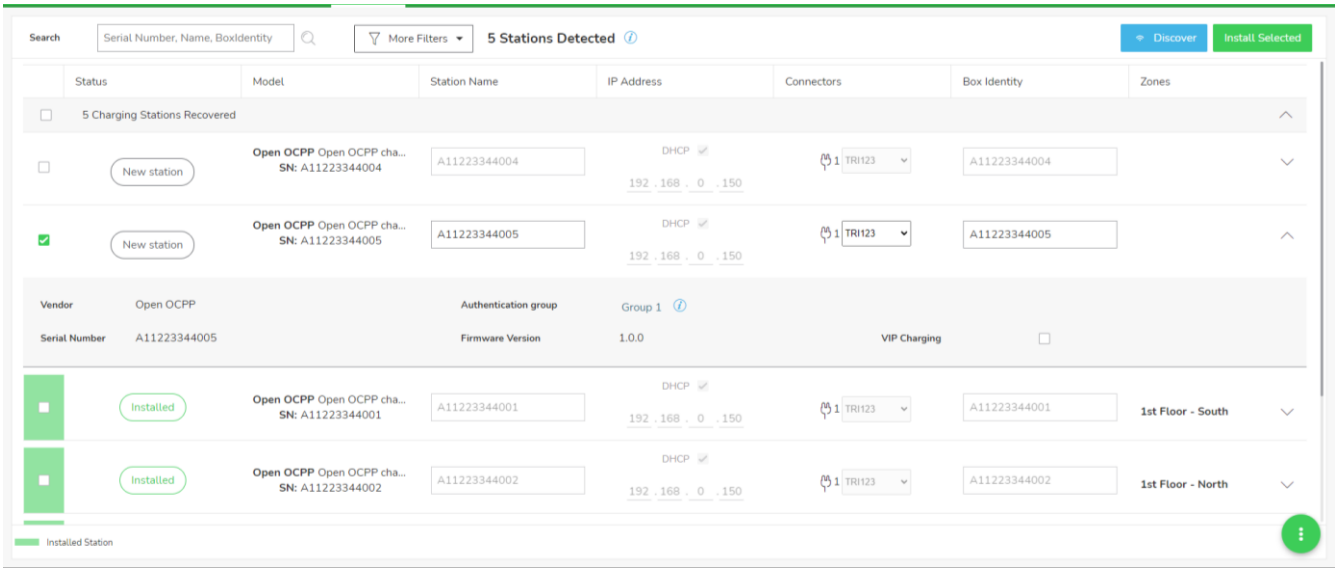
3.6.1 Prerequisites

Charging stations must be powered on and connected to the network before the EcoStruxure EV Charging Expert commissioning. Charging stations must have a compatible firmware version, see chapter **1.1.2.1 EVlink charging stations**

NOTICE
IMPOSSIBLE TO INSTALL CHARGING STATION WITH WEBSERVER OPENED. Close charging station webserver **Failure to follow these instructions can result in an impossibility of installing a charging station.**

NOTICE
RESTRICTIONS ON CHARGING STATIONS IP ADDRESSES AND BOX IDENTITIES • Avoid the use of sub-network addresses +0, +MAX, +MAX-1. If the by-default sub-network (192.168.0.0-255) is being used, avoid the use of 192.168.0.0, 192.168.0.254 and 192.168.0.255. • Charging stations box identities must contain only a-z, A-Z, 0-9, '*', '-', '_', '=', '+', '|', '@', '.' • Charging stations box identities should not contain any space • Charging stations box identities must not exceed 30 characters • Charging stations box identities must by unique by station. **Failure to follow these instructions can result in an impossibility of installing a charging station.**

3.6.2 Charging station installation page



All charging stations already installed are present into the installation page before to launch a network discovering. To detect all new charging stations and proceed to installations, first click on **Discover** button to launch a network scan of all stations.

3.6.3 Charging station status

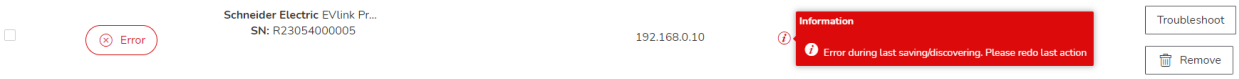
In charging station installation page after a discovery, some stations may not be installed. Below are the possible reasons:

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- Current charging station version is not supported by EcoStruxure EV Charging Expert (see chapter 1.1.2.1). In this case the station must be upgraded to a compatible version first.



- It is impossible to establish a connection with charging station. Try to perform a manual installation (see chapter 3.5.5) or perform a back to factory of the charging station.



- Charging station is newly discovered and ready to be installed into EcoStruxure EV Charging Expert.

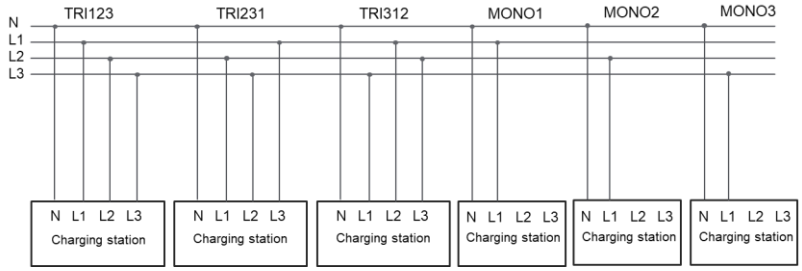
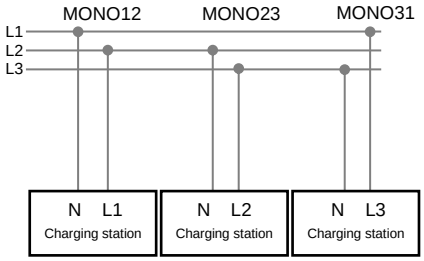


- Charging station already installed into EcoStruxure EV Charging Expert.



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3.6.4 Charging station configuration

Steps	Description
1	Click on Discover to discover new charging station to install and present into the network
2	Update charging station settings: • **Station name**: Select a name to identify your charging station. (max 30 characters) • **IP Address**: 2 options: ○ DHCP activated: Select DHCP if there is a DHCP server activated (in EcoStruxure EV Charging Expert or local network). ○ DHCP deactivated: Set IP address according to network architecture. • **Connector(s)**: Select the phase wiring of each connector in charging station according to electrical cabling. *example for 3 x 400V with neutral:*  *example for 3 x 230 without neutral:*  • **Box identity**: If a supervision is activated, select the name configured by supervision to identify the charging station. Otherwise select a name to identify the charging station. • **Zones**: Zone assignment, see chapter 3.7.5
3	Advanced details and configuration: • **Vendor**: Charging station vendor • **Serial number** • **Authentication group**: Authentication group assignment, see chapter 3.11.1 • **Version**: Charging station firmware version • **VIP Charging**: Check the box to activate the VIP status of the charging station. Note: a VIP station status provides VIP privileges on load balancing. It means maximum energy will always be allocated to this station before the others. • **Change password**: when one password by station is selected, there is the possibility to add a password for each charging station with hexa or ascii format.

3.6.5 Manual charging station configuration

If a charging station is not detected automatically during scan, it is possible to declare it manually with OCPP or IP address (only for EVlink Pro AC, Schneider Charge Pro or EVlink City / Parking / Smart Wallbox).

3.6.5.1 OCPP configuration

To install a new charging station with OCPP, it is mandatory to first update charging station configuration:

- **Supervision URL**: add EcoStruxure EV Charging Expert URL. For unsecure connection:
  - ws://XXX.XXX.XXX.XXX:9979 – No security profile

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For secure connection, add **OCPP certificate** (see chapter 3.12) and update supervision URL:

- wss://XXX.XXX.XXX.XXX:9980 – Activate security profile 0 with WebSocket secure.
- wss://XXX.XXX.XXX.XXX:9981 – Activate security profile 1.
- wss://XXX.XXX.XXX.XXX:9982 – Activate security profile 2.

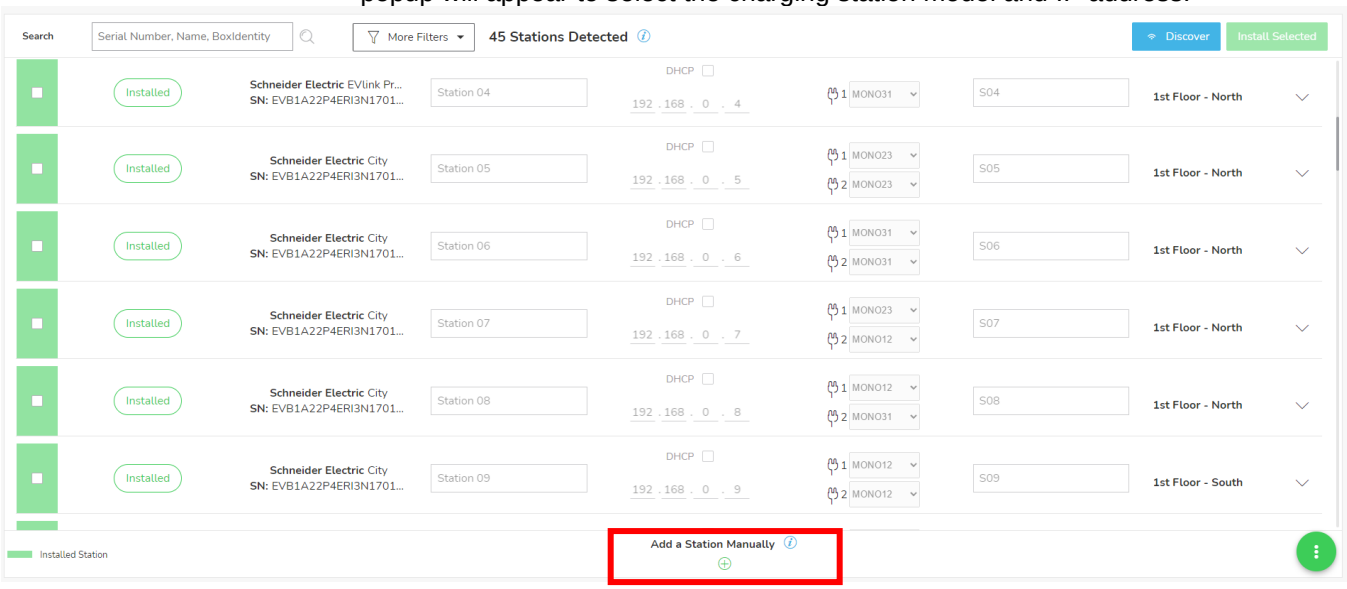
Replace: XXX.XXX.XXX.XXX by EcoStruxure EV Charging Expert IP address.

- **Webserver certificate**: mandatory to get maintenance report and update charging station.

To complete the installation, please return to the installation page.

3.6.5.2 IP adress configuration

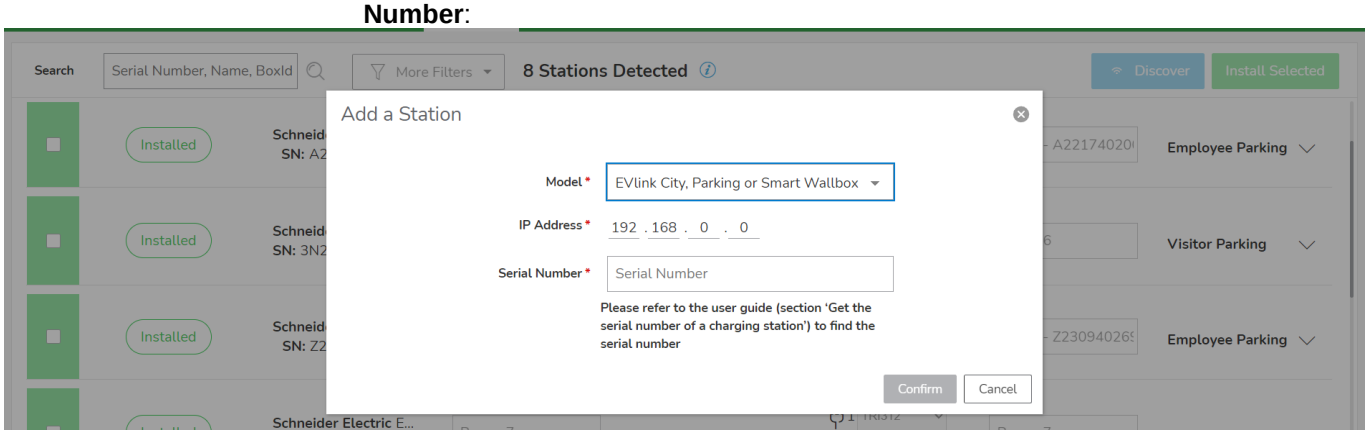
Install a new charging station with IP address is available only for EVlink Pro AC, Schneider Charge Pro or EVlink City / Parking / Smart Wallbox. After clicking on **+**, a popup will appear to select the charging station model and IP address.



Once information is confirmed, to complete the installation, please return to the installation page to see charging station.

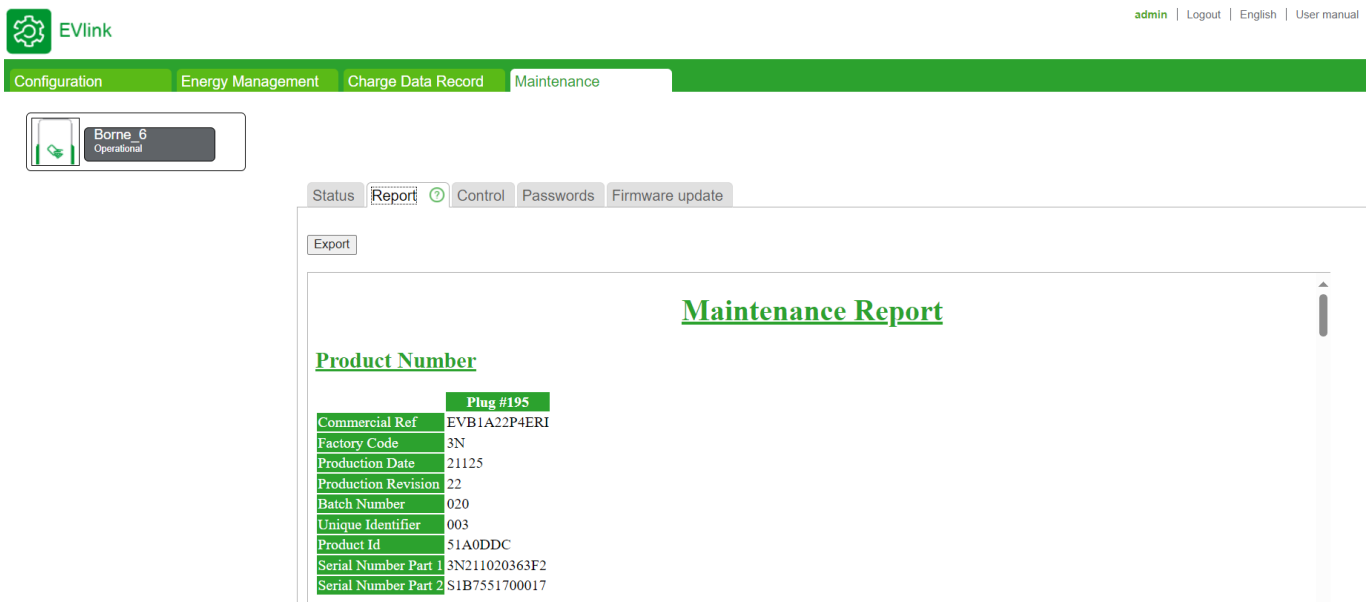
3.6.5.3 Get the serial number of a chaging station

For EVlink Parking, EVlink Smart WallBox and EVlink City it is mandatory to add **Serial Number**:



To add Serial number, it is necessary to connect to the webserver interface of the charging station : Maintenance > Report. The concatenation of Serial Number Part 1 & Serial Number Part 2 gives the serial number of the charging station.

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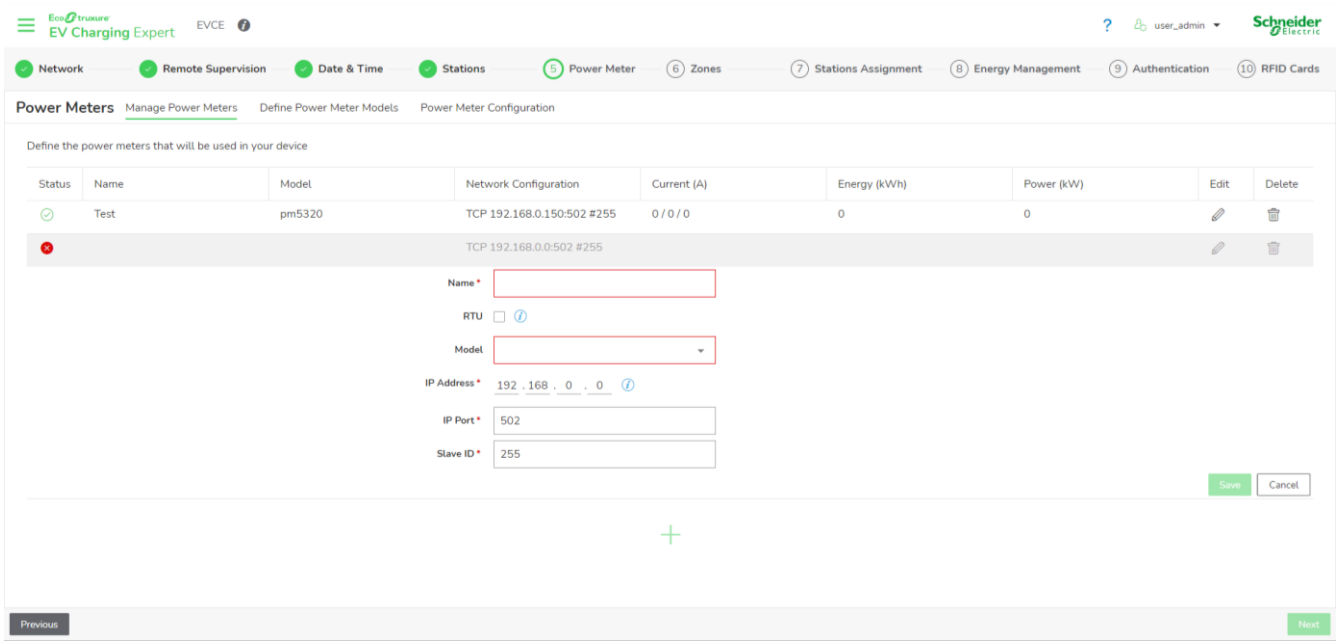


ei. :
With this image above the concatenation of the serial number will be the following: 3N211020363F2S1B7551700017

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3.7 Power meter configuration

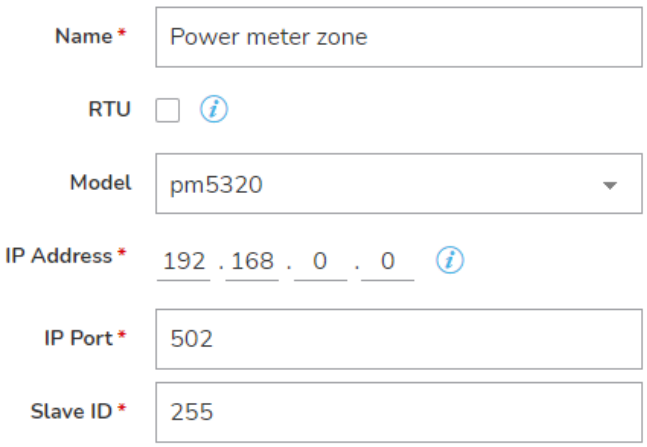
Access by Admin tab → configuration → Power meters



3.7.1 Prerequisites

Power meters are only required in EcoStruxure EV Charging Expert dynamic mode. Ethernet connection must be configured (see chapter 1.3.1.2) regardless of the EcoStruxure EV Charging Expert and prior to the commissioning.

3.7.2 Manage Power Meters



Two options to connect power meter EcoStruxure EV Charging Expert:

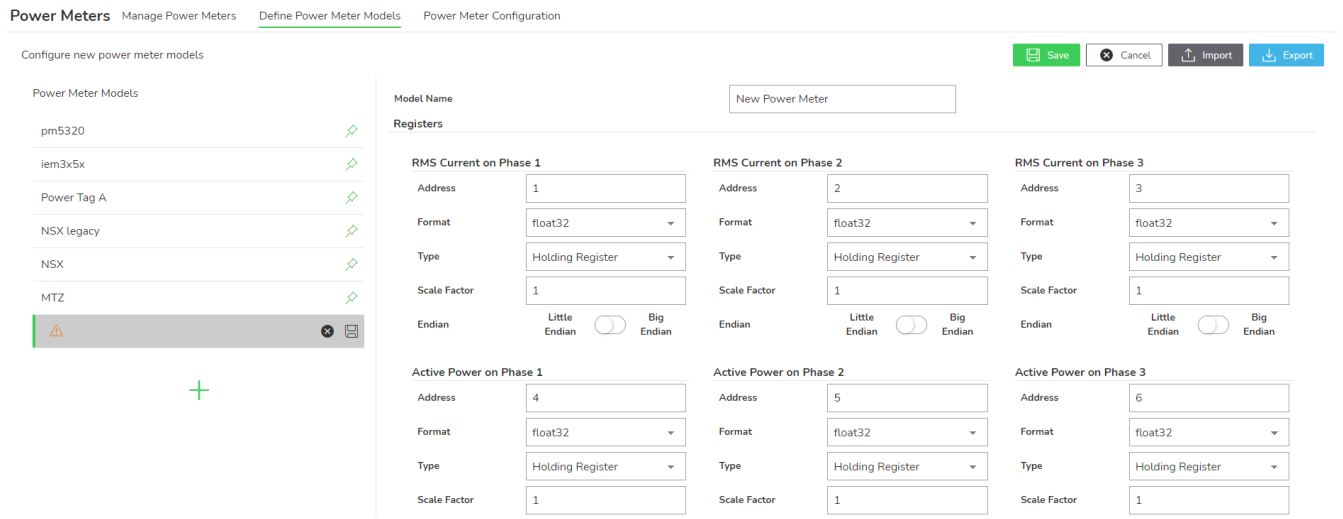
- TCP: Connection is made directly with the product through the network. It is mandatory to provide the IP address and port of power meter.
- RTU: The connection is established directly with power meter using RS485 cable and USB adaptor. The power meter configuration should be:
  - **Baud Rate**: 19200 bits per second (bps). This determines the speed at which data is transmitted over the serial communication line.
  - **Data Bits**: 8. Each character is represented by 8 bits of data.
  - **Parity**: None. No parity bit is used for error checking.
  - **Stop Bits**: 1. One stop bit is used to signal the end of each character.

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For both solutions, it's mandatory to select a supported model (see chapter 1.1.1.8) or customized model (see chapter 3.6.3). Power meter slave id matches the power meter Modbus configuration at this IP address (see chapter 1.3.1.2).

As soon as the power meter(s) are defined and updated, status column indicate connection status of device with EcoStruxure EV Charger Expert.

3.7.3 Define a new power meter model



1. Click on + to create a new power meter model.
2. Enter a name to the new model.
3. Fill the fields in each register:
   - Modbus register address
   - Format (float32, int64, int32, int16, uint64, uint32, uint16)
   - Type (Holding or Input register)
   - Scale factor. In case "Scale factor" is 1, values are expected as units:
     - Amps for current measurements (10 000 as RMS current with Scale factor 0.001 is considered as 10Amps)
     - kW for power measurements (1 000 as active power with Scale factor 0.1 is considered as 100kW)
     - kWh for energy measurements
4. Save the new power meter model.

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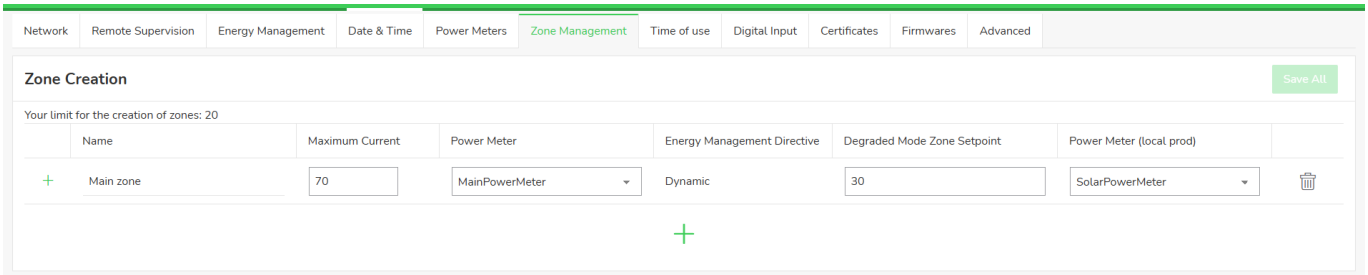
3.8 Zone configuration

Access by the Admin tab → configuration → zone management

3.8.1 Prerequisites

At zone or subzone creation, it is important to define a maximum current limitation. To declare a zone as dynamic (for dynamic load balancing), simply assign a power meter to the electrical zone (configured power meter chapter 3.6.2).

3.8.2 Zone configuration



EcoStruxure EV Charging Expert can manage different zones and subzones based on the electrical architecture deployed in the installation. Please refer to chapter 1.4.

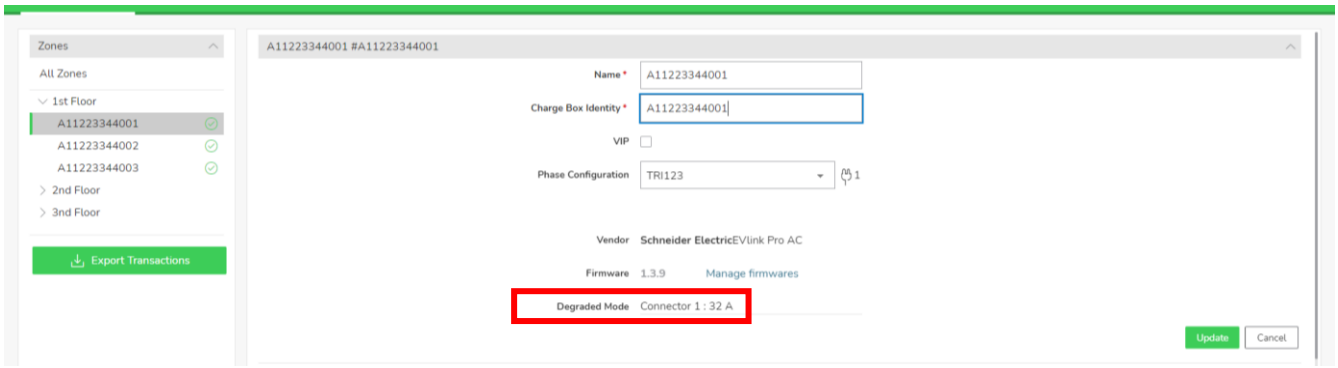
3.8.3 Zone creation

Step	Comments
1	Click on + to create a zone.
2	Click on + next to **Zone name** to create a **subzone**.
3	Set the maximum current allowed in zone or subzone. ***Note:*** • **The value must be lower or equal to the electrical capacity of the installation.** • **Max intensity in a sub-zone cannot be higher than the maximum intensity in the related zone.**
4	To create a **dynamic zone**, select the **power meter** measuring the zone current. A power meter is assigned to a single zone and **cannot be shared**.
5	For the dynamic zone, set a **Degraded Setpoint**, it's used when the communication is lost with the power meter. This corresponds to the amount of power that is always available for EV charging, irrespective of other electrical loads in the same zone.
6	Only for local production, select the **power meter** measuring the local production energy. **A power meter cannot be shared**.

To delete an electrical zone, it is necessary to delete previously all charging stations assigned to this electrical zone.

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3.8.4 Degraded Mode



Degraded mode allows charging stations to continue charging, even if there is communication loss with EcoStruxure EV Charging Expert. For each charging station connector, an offline maximum current is calculated according to:

- Maximum current of static zone
- Degraded Mode Zone Setpoint of a dynamic zone (refer below)

For a dynamic zone, a **Degraded Mode Zone Setpoint** defines the maximum current that is always available for EV charging irrespective of other loads in same electrical zone. Ensure degraded mode zone setpoint defined for dynamic zone is enough to manage charging stations even if EcoStruxure Charging Expert loses building consumption information. For dynamic zone, offline management is active when communication is lost with charging station or power meter dedicated to the zone.

Examples:

Static zone:
Static zone characteristics:

- *Maximum current: 60A*
- *3 EVlink Pro AC (1 connector)*

Degraded calculation: 60/3 = 20, for each connector 20A should be available even if connection is lost with EcoStruxure EV Charging Expert.

Static zone with reduction:
Static zone characteristics:

- *Maximum current: 60A*
- *3 EVlink Pro AC (1 connector)*
- *Reduction to 80% – Only 48A are now available.*

Degraded calculation: 48/3 = 16, for each connector 16A should be available even if connection is lost with EcoStruxure EV Charging Expert.

Dynamic zone:
Dynamic zone characteristics:

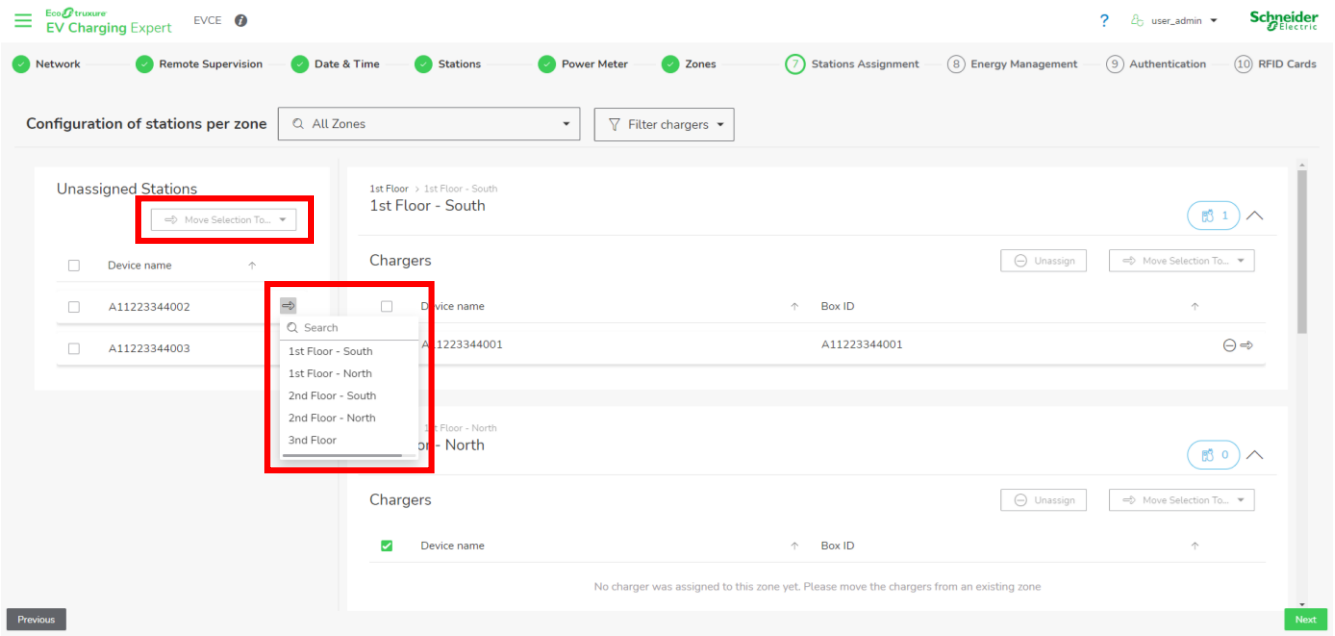
- *Degraded Mode Zone Setpoint: 30A*
- *3 EVlink Pro AC (1 connector)*

Degraded calculation: 30/3 = 10, for each connector 10A should be available even if connection is lost with power meter.

3.8.5 Charging station electrical zone assignation

To manage charging stations, it is required to assign charging stations to electrical zone previously configured. A station can be assigned only to a terminal zone (zone without subzone).

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To assign station in an electrical zone:

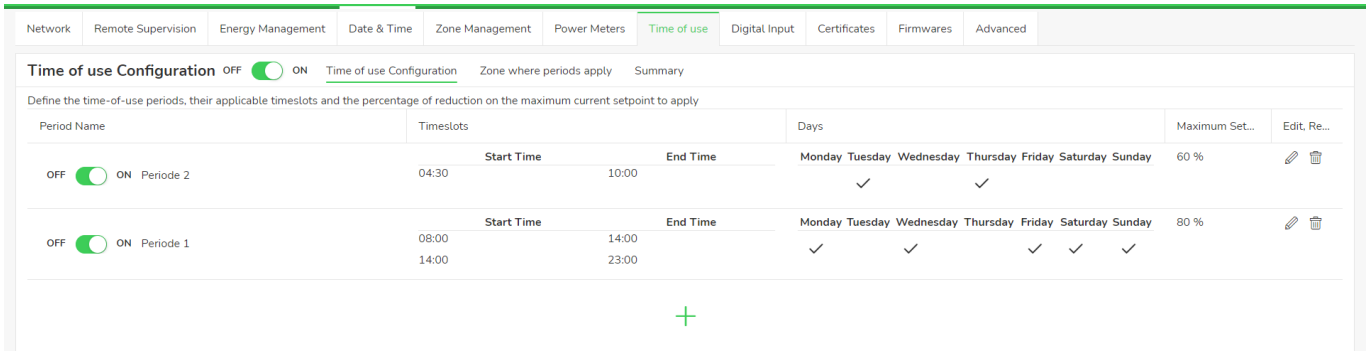
- Select multiple charging stations, click on **Move Selection To** and select an electrical zone.
- Click on charging station ⇨ and select an electrical zone.

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3.9 Time Of Use

Access: Admin tab → Configuration → Time-of-use

3.9.1 Definition



Use Time Of Use (TOU) configuration to reduce the power capacity per zone depending on day/time to match the local tariff policy.

A total of 5 periods and 20 timeslots can be configured. A period is defined by:

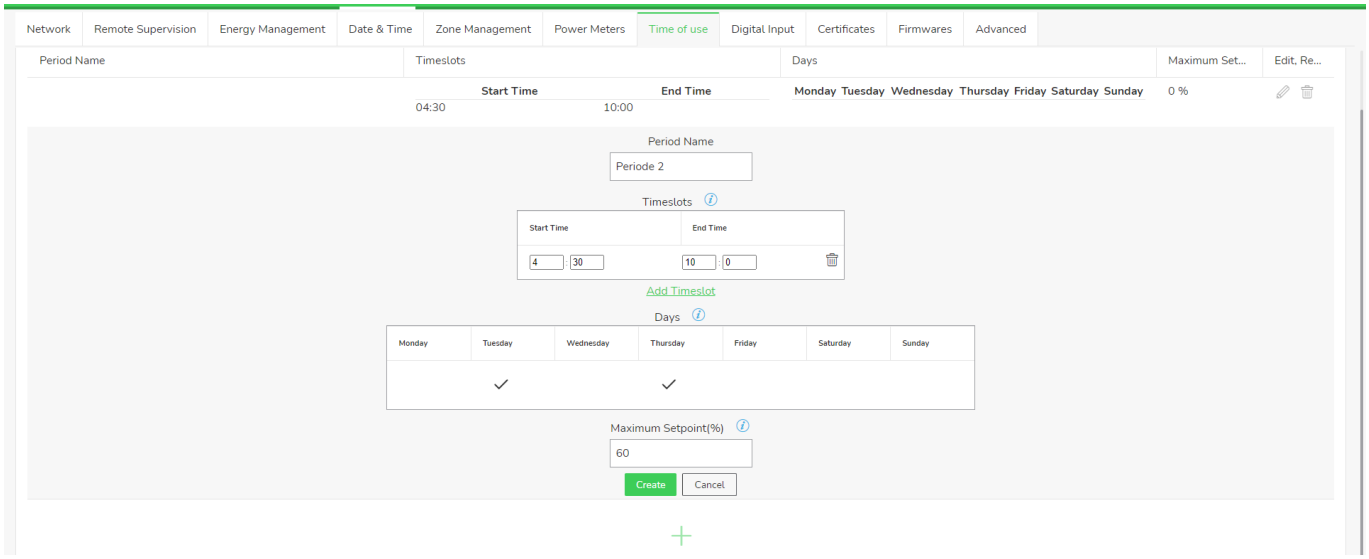
- **Days**: Selected days where timeslots are applied.
- **Timeslots**: Start and stop time when reduction is applied.
- **Reduction**: Ratio of the maximum current of a zone. For example, for a zone with a maximum setpoint of 100A, if a ratio at 80% is applied then the new maximum setpoint is 80A for the zone.

When digital input functionality is activated, the time of use configuration is no more considered.

3.9.2 Prerequisites

At least one zone must be created (see chapter 3.7).

3.9.3 Time Of Use configuration tab



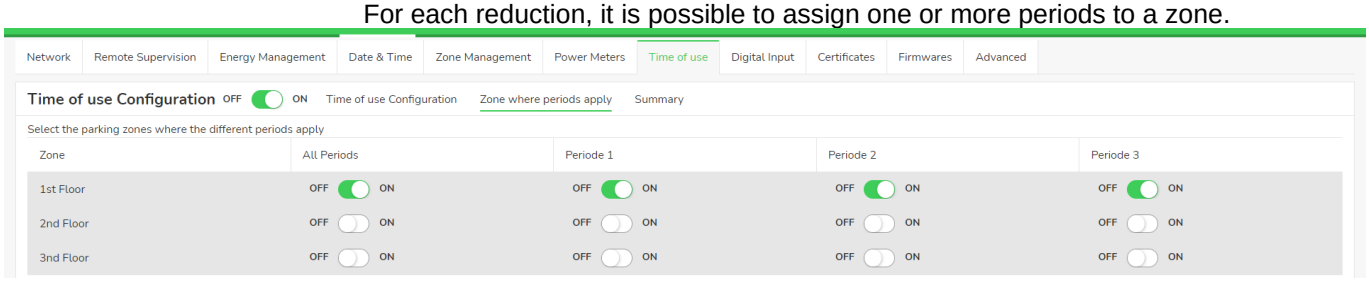
step	comments
1	Click on + icon to create a tariff period.

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2	Enter period **Name**
3	Define **Timeslots**: • Start time • Stop time • Clicking on ‘Add a timeslot’ to add another timeslot for this reduction
4	Define Days when timeslots are applied
5	Define a ratio (percentage) of **Maximum setpoint** reduction

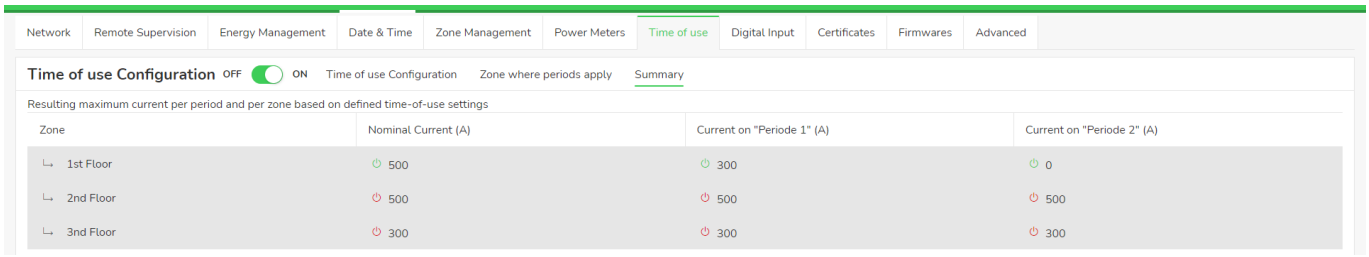
3.9.4 Zone configuration tab

For each reduction, it is possible to assign one or more periods to a zone.



3.9.5 Summary tab

Summary tabs displays maximum current reduction applied to each zone and period.



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3.10 Digital Inputs

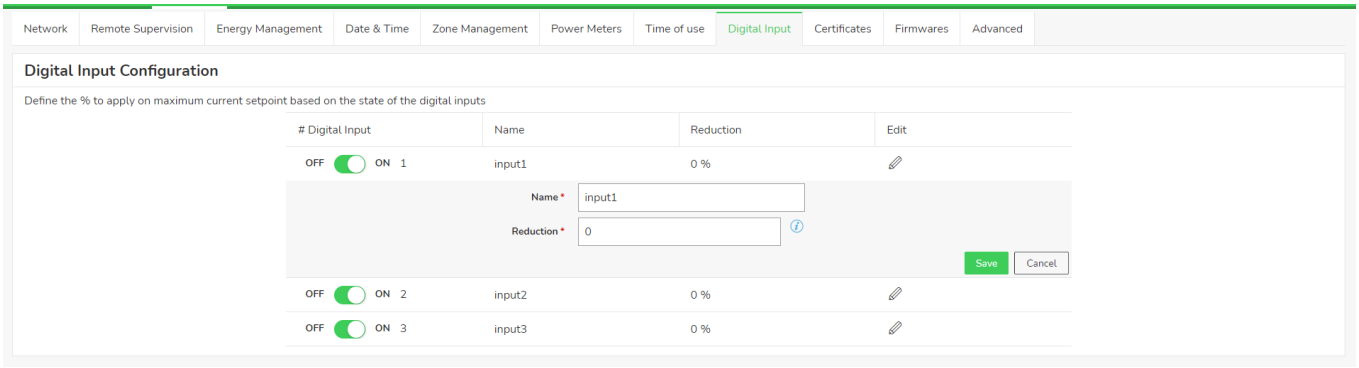
Access: Admin tab → Configuration → Digital Input

3.10.1 Definition

EcoStruxure EV Charging Expert digital inputs (DI) are accessible through GPIO connections located on the rear side. Activation of a digital input reduces maximum zone current according to its configuration.



3.10.2 Commissioning

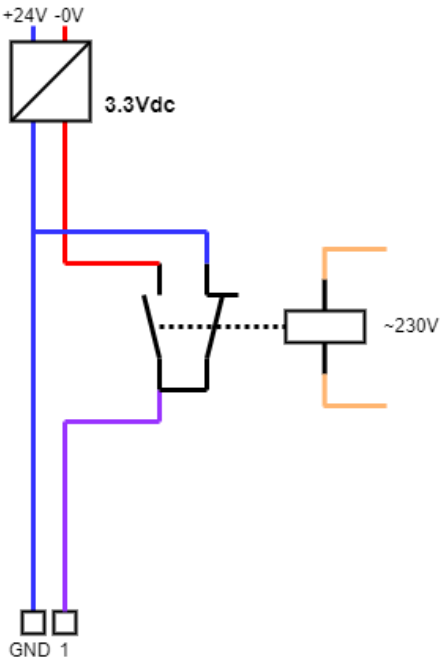


Each digital input can be activated or deactivated separately. Settings:

- **Name**
- **Maximum Setpoint**: Reduction (percentage) applied to EcoStruxure EV Charging Expert zones.

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3.10.3 Electrical connection



.

Only digital inputs 1, 2 & 3 are driven by GPIO channels 1, 2 & 3. To activate a digital input, it must be powered to 3.3 Vdc TTL.

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3.11 Local authentication management

When there is no configured supervision, the EcoStruxure EV Charging Expert offers the possibility to manage authentication strategy to grant access to the charging stations.

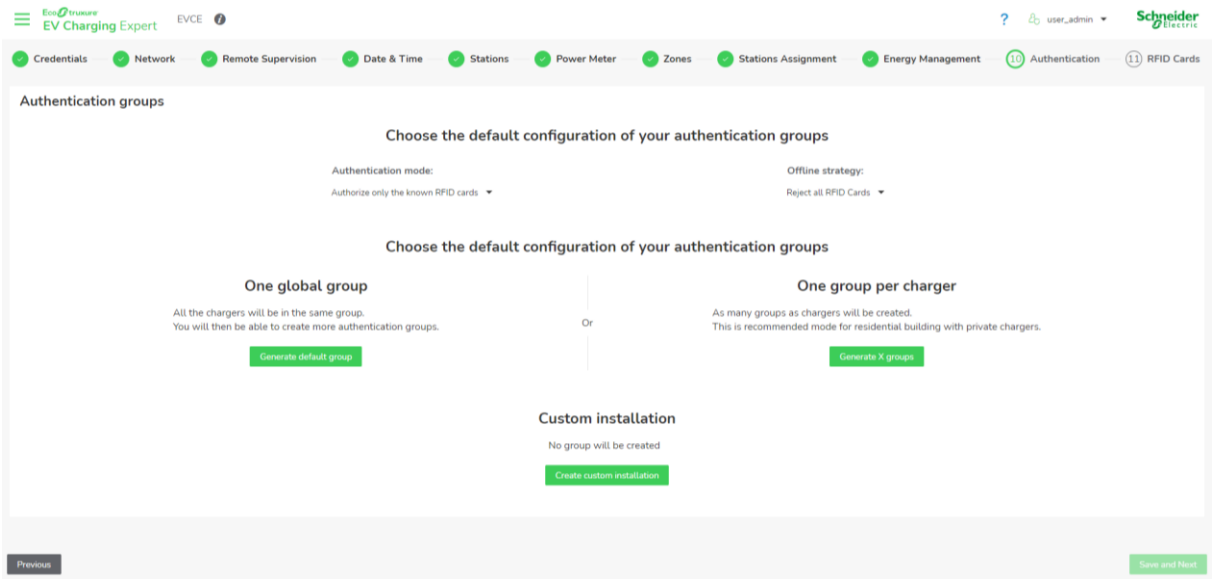
The RFID cards management feature is made of two parts:

- Authentication groups of chargers
- RFDI cards

3.11.1 Authentication group

An authentication group is a selection of charging stations associated with a list of RFID cards. Each authentication group has its own online and offline authentication strategies.
Each charging station can only be associated with a single authentication group when RFID cards can be assigned to several groups (see chapter 3.11.2).

3.11.1.1 First installation



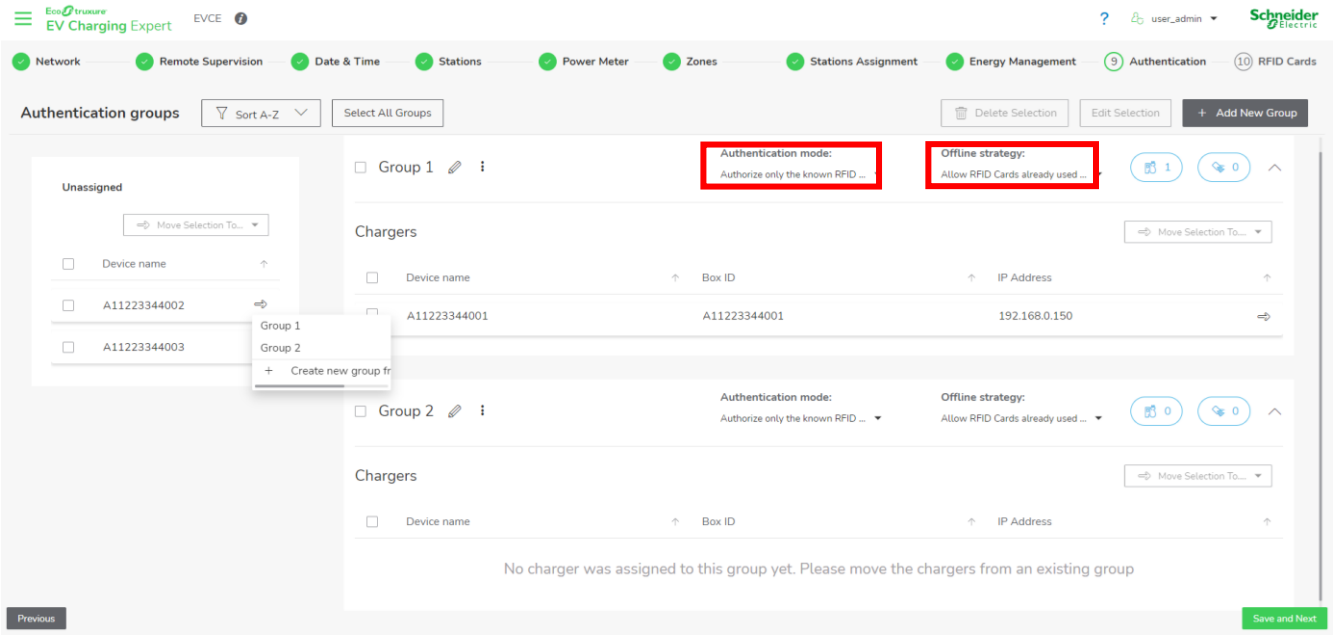
At first installation, three options are proposed:

- One global group: All installed chargers will be assigned to one authentication group.
- One group per charger: An authentication group is created for each charging station (best solution to manage one RFID badge for one charging station).
- Custom installation: Create one or multiple authentication groups according to installation needs.

After configuration, it is possible to change authentication configuration from **Admin** panel.

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3.11.1.2 Authentication group management



In authentication group management, **online** and **offline** authentication strategies are defined.

About **Authentication mode**:

- **Authorize all RFID cards**: Charging station starts a transaction only if EV driver uses a RFID card on the charging station (whatever is RFID).
- **Authorize only the known RFID cards**: Charging station starts a transaction only if EV driver uses a RFID card known by EcoStruxure EV Charging Expert.
- **Disable RFID card reader**: Charging station starts a transaction when EV is plugged without any other action.

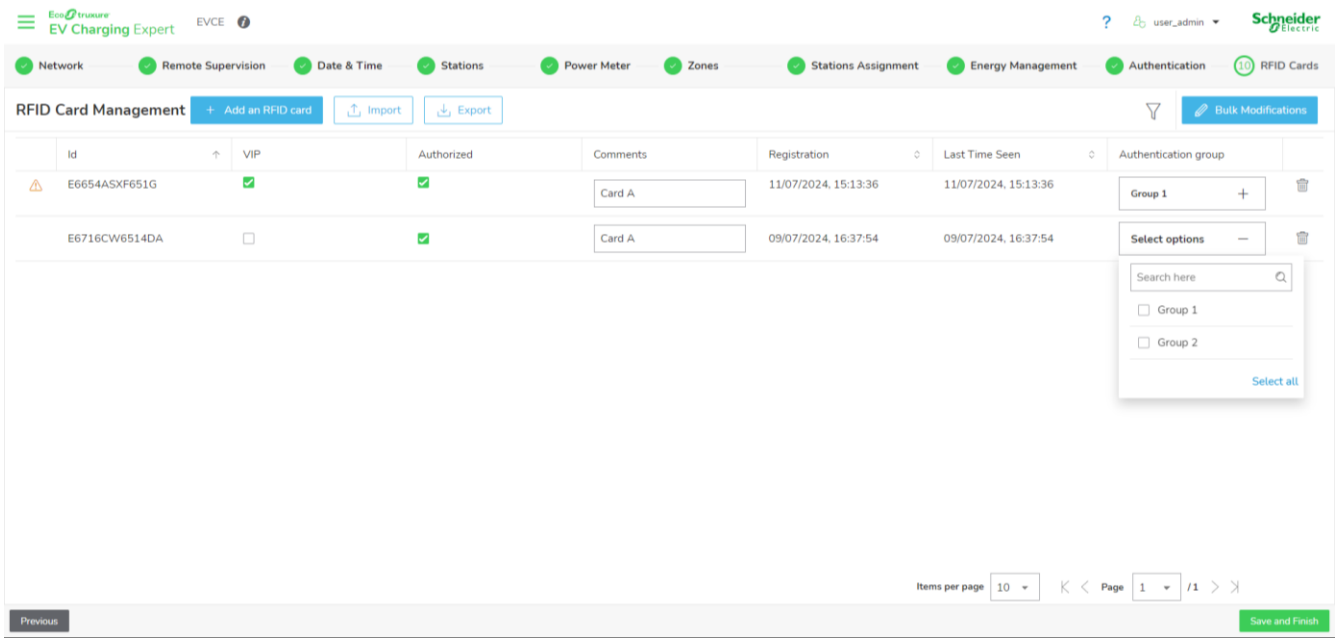
About **Offline strategy**, the charging station disconnected from EcoStruxure EV Charging Expert behaves as below:

- **Authorize all RFID cards**: Charging station starts a transaction only if EV driver uses a RFID card on the charging station.
- **Reject all RFID cards**: No transaction is allowed when charging station is disconnected from EcoStruxure EV Charging Expert.
- **Using cache**: Offline charging station starts a transaction only if RFID card was already used on the charging station when it was online and accepted by EcoStruxure EV Charging Expert.

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3.11.2 RFID cards

The maximum of RFID cards is 10000.



3.11.2.1 Add RFID card

In the EcoStruxure EV Charging Expert, a RFID card is added with below details:

- **VIP**: Provide VIP privileges, EV driver will have priority in load management system. Disabled by default.
- **Authorized**: Authorize EV driver to start a transaction with this RFID card. Only used for assigned authentication group with **Authorize only the known RFID cards** authentication strategy. Unauthorized by default.
- **Name**: Associate a name to a RFID card.
- **Comments**: Associate a comment to a RFID card.
- **Authentication group**: Assign a RFID card to one or more authentication groups (see chapter 2.9.1.2)

3.11.2.2 Import/Export RFID card

RFID cards list can be exported or imported from web interface. The file format supported by EcoStruxure EV Charging Expert is a CSV file with 4 columns:

- **id_tag**: String type, that corresponds to RFID card information.
- **is_blocked**: Integer type (only 0 and 1 value accepted), that corresponds to authorize (0) or not (1).
- **vip_level**: Integer type (only 0 and 1 value accepted), that corresponds to VIP activation (1) or VIP deactivation (0). A VIP badge gets priority on power allocation before the other charging stations.
- **name**: String type, that correspond to the name associated to the RFID card.
- **comments**: String type, that corresponds to comment associate to RFID card.

CSV file example:

```
id_tag;is_blocked;vip_level;name;comments
E6716CW6514DA;0;0;Name A;Card A
E6654ASXF651G;0;1; Name B;Card A
```

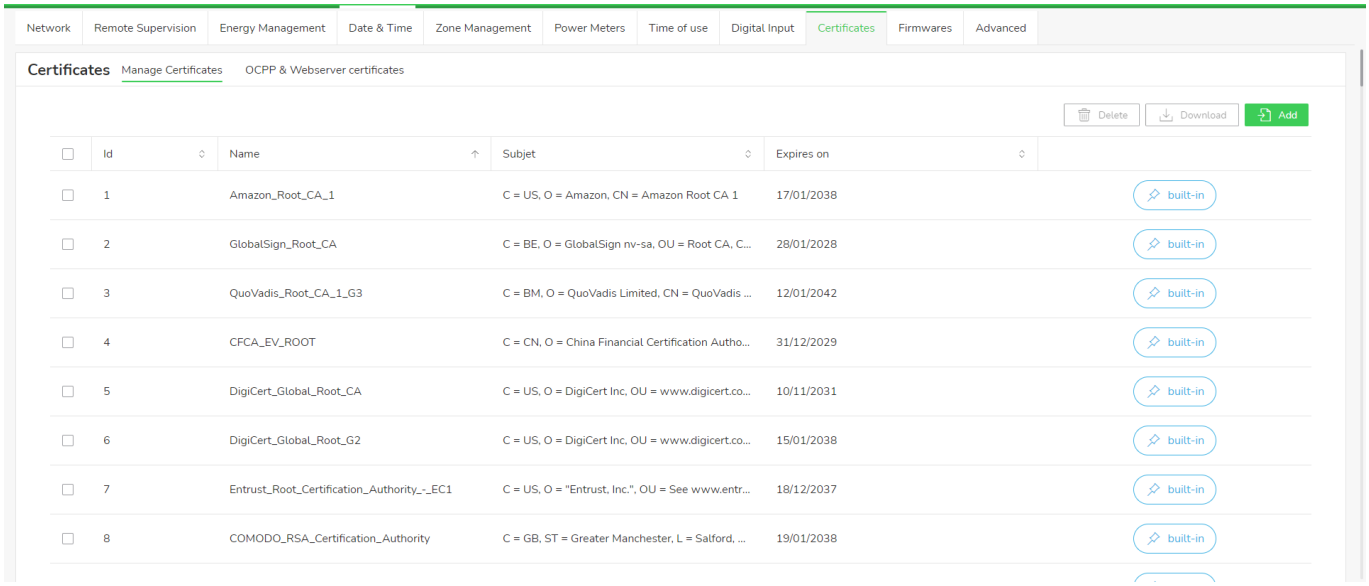

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NOTICE
IMPOSSIBLE TO IMPORT RFID CARD LIST FROM ECOSTRUXURE EV CHARGING VERSION BELLOW 6.0.0. Export csv file from previous EcoStruxure EV Charging Expert version change the format to respect new format and import RFID card list. **Failure to follow these instructions can result in an impossibility recovery RFID card list.**

3.12 Certificates

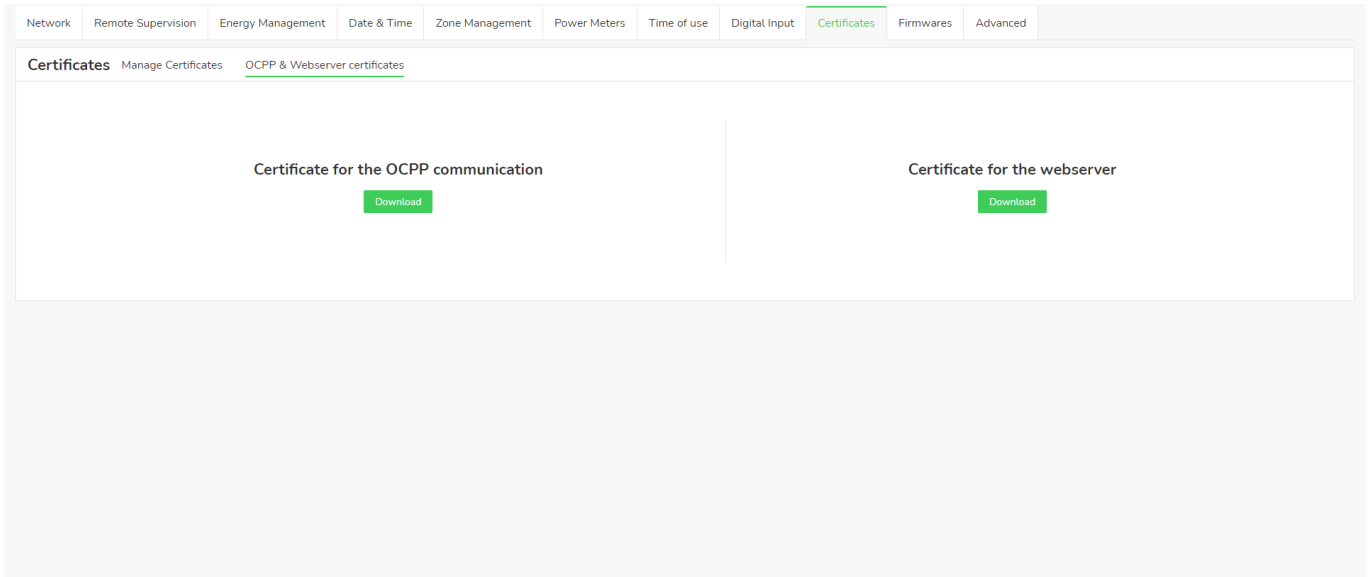
Access by Admin tab → Configuration → Certificates

3.12.1 Manage Certificates



Addition or deletion of certificates are allowed in **Manage Certificates** page. For instance, a new remote supervision certificate is uploaded in this bank of certificates to perform a WebSocket secure connection.

3.12.2 Device certificates



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OCPP & Webserver certificates page provides EcoStruxure EV Charging Expert certificates to establish a secure communication between device and charging stations:

- **OCPP certificate**: This certificate is uploaded in the charging station to generate a WebSocket secure connection and manage charging station with OCPP security profiles 1 & 2.
- **Webserver certificate**: This certificate is uploaded in the charging station to establish a HTTPs connection and perform firmware update or get maintenance report in EcoStruxure EV Charging Expert.

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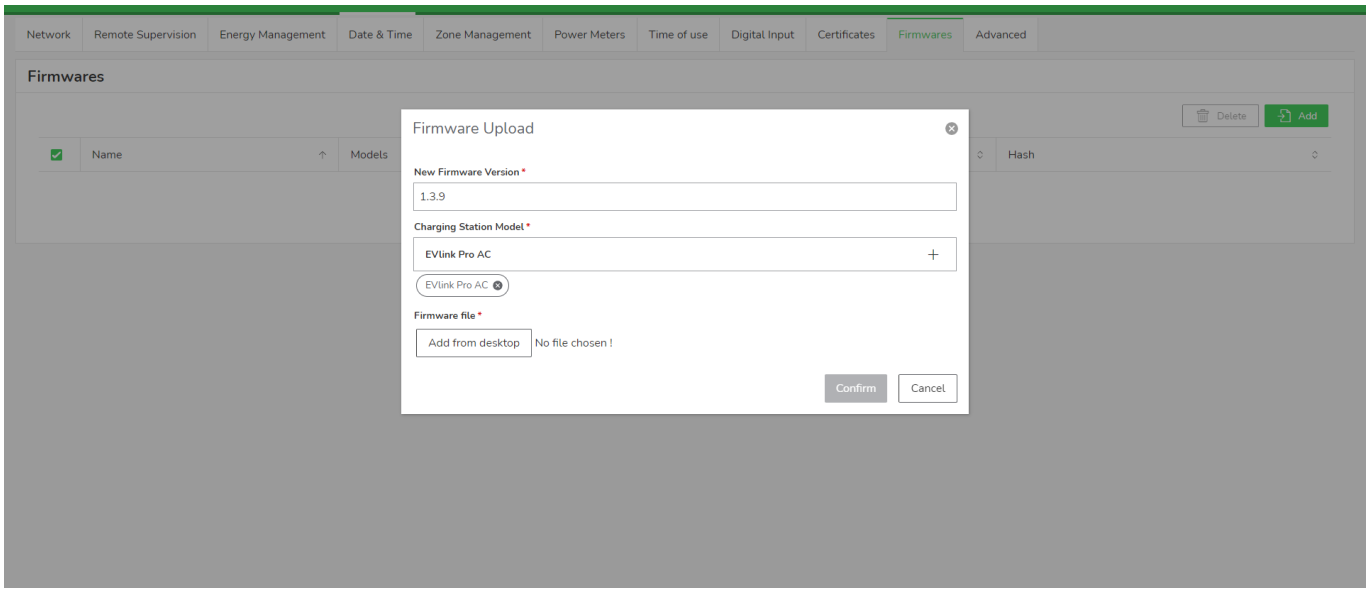
3.13 Charging station firmware

Access by Admin tab → Configuration → Firmware

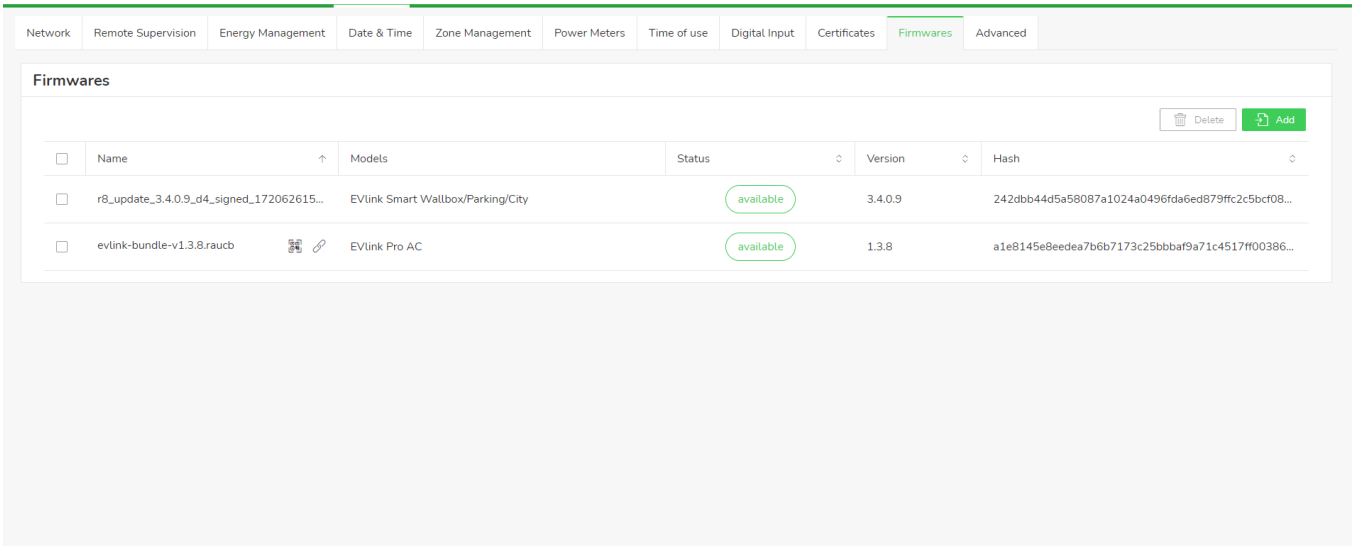
3.13.1 Manage charging station firmware

To update a charging station through EcoStruxure EV Charging Expert, it is required first to add its firmware file in local storage:

- Click on the **Add** button
- Add a firmware version
- Select the charging station model
- Choose the firmware file on your computer
- **Confirm** to start uploading the file into EcoStruxure EV Charging Expert.



Upload progression is displayed as percentage. At the end of the upload, firmware status is displayed as **Available** (Ready for a firmware upgrade operation) or **Upload error** (impossible to upload the firmware file).



EcoStruxure EV Charging Expert doesn't accept more than one firmware per charging station model. There cannot be more than 6 firmware files at a time.

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3.13.2 Internal HTTP server

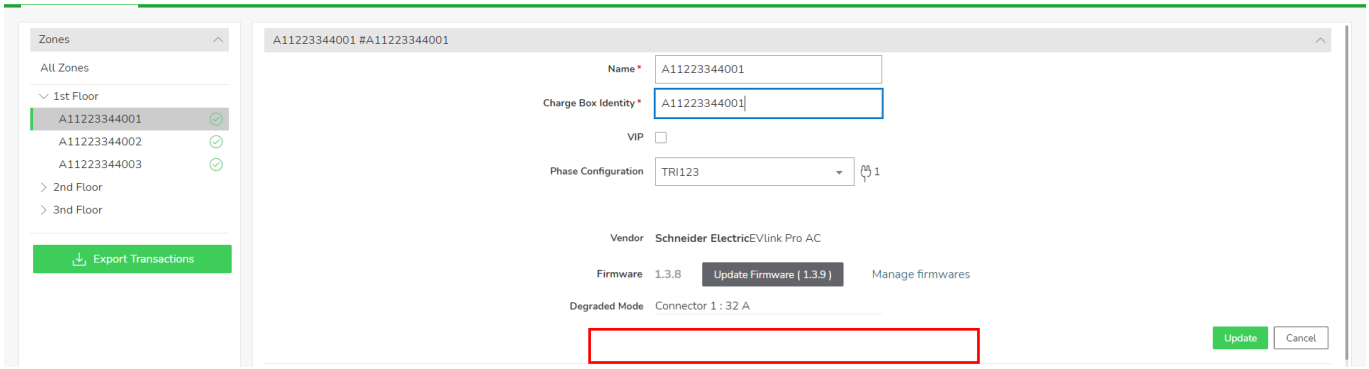
EcoStruxure EV Charging Expert includes an internal HTTP server, allowing locally connected charging stations to be updated directly from an application or a monitoring system by copying the server URL link.

The URL link is available on firmware station management page and there are two options to get the URL link:

- QR code:
- Copy/Past:

It is also possible to manage HTTP unsecure server, see chapter 3.14.

3.13.3 Perform charging station update

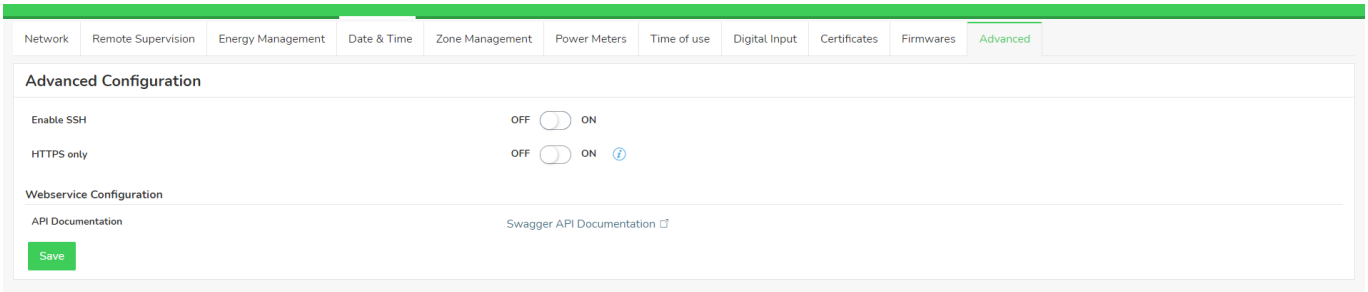


When a new firmware version is available into EcoStruxure EV Charging Expert, **Update Firmware** button appears. The charging station can be upgraded to this new suggested version only when there is no transaction in progress.

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3.14 Advanced configuration

Access by Admin tab → Configuration → Advanced



In this section are configured EcoStruxure EV Charging Expert advanced parameters related to SSH and access to API. API documentation is accessible as Swagger format to describe all possible commands to integrate EV charging infrastructure into an Energy or Building Management Software.

With **HTTPS only**, it is possible to deactivate HTTP server and manage EcoStruxure EV Charging Expert communication with charging station only in secure way.

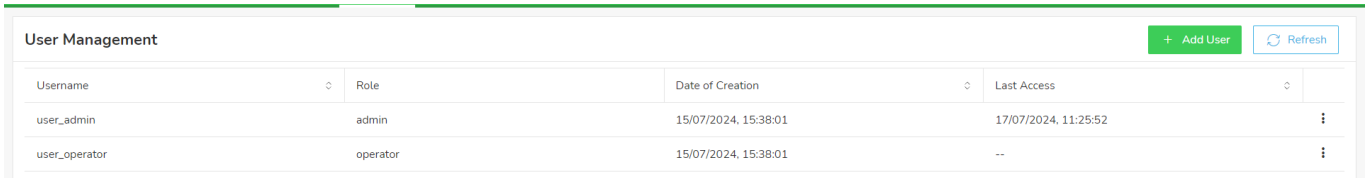
For cybersecurity reasons, it is recommended to activate SSH only for maintenance purpose. Please contact Schneider Electric support prior to use this option.

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3.15 User management

Access by the Admin tab → Users management

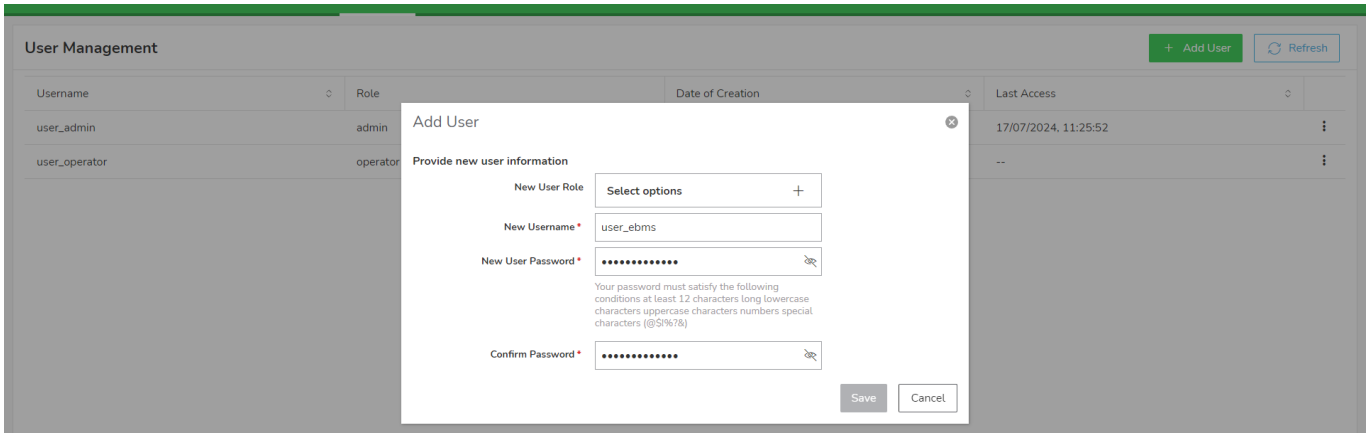
3.15.1 User management landing page



During the wizard, two default users are created (see chapter 2.2):

- Admin user
- Operator user

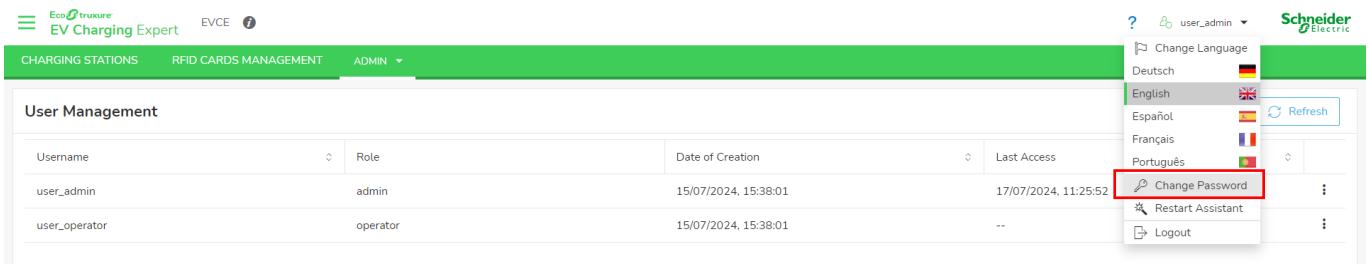
3.15.2 User addition



To create a user, click on **Add User** and fill below information:

- **New User Role**:
  - Admin: Manager of the installation. This role has access to all settings.
  - EBMS (Building Management System): Role used for Energy of Building Management Softwares, capable of managing charging stations directly through the REST API of EcoStruxure EV Charging Expert.
  - Operator: Role used for dashboard operations.
- **New Username**
- **New User Password / Confirm Password**: The password must be at least 12 characters long and must contain lowercase characters, uppercase characters, numbers, special characters (@$!%?&)

3.15.3 Change the user password

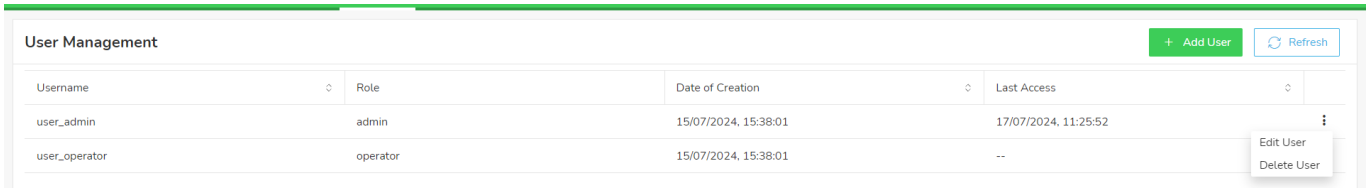


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A user can change webpage password anytime from personal menu.

3.15.4 Edit a user

Users can be edited from the user administration webpage, only accessible to administrators.

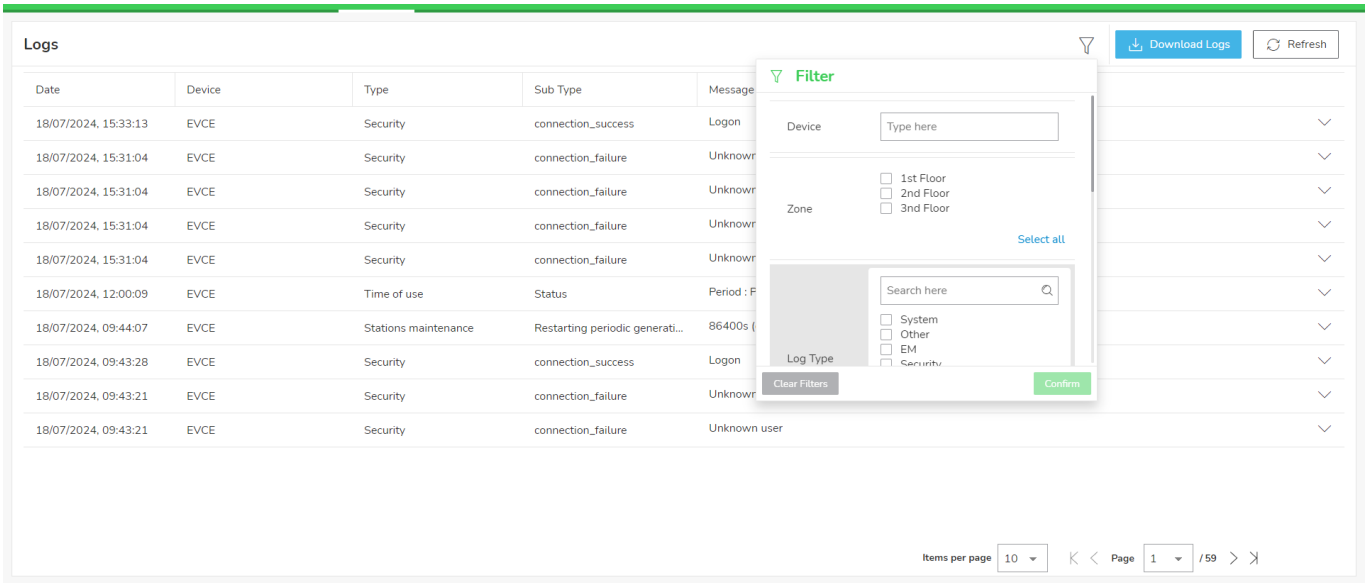


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3.16 Maintenance

3.16.1 Device logs

Access by the Admin tab → Logs

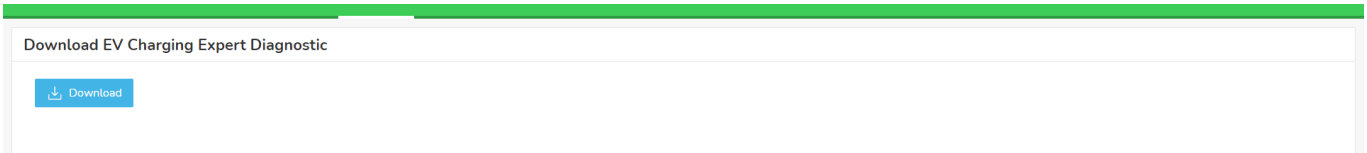


In log tab, all information related to security events, communication and load balancing are available. The logs can be filtered and exported according to charging stations, zones and log types.

EV Charging Expert can store up to 100,000 entries.

3.16.2 Device maintenance report

Access by the Admin tab → Device Report

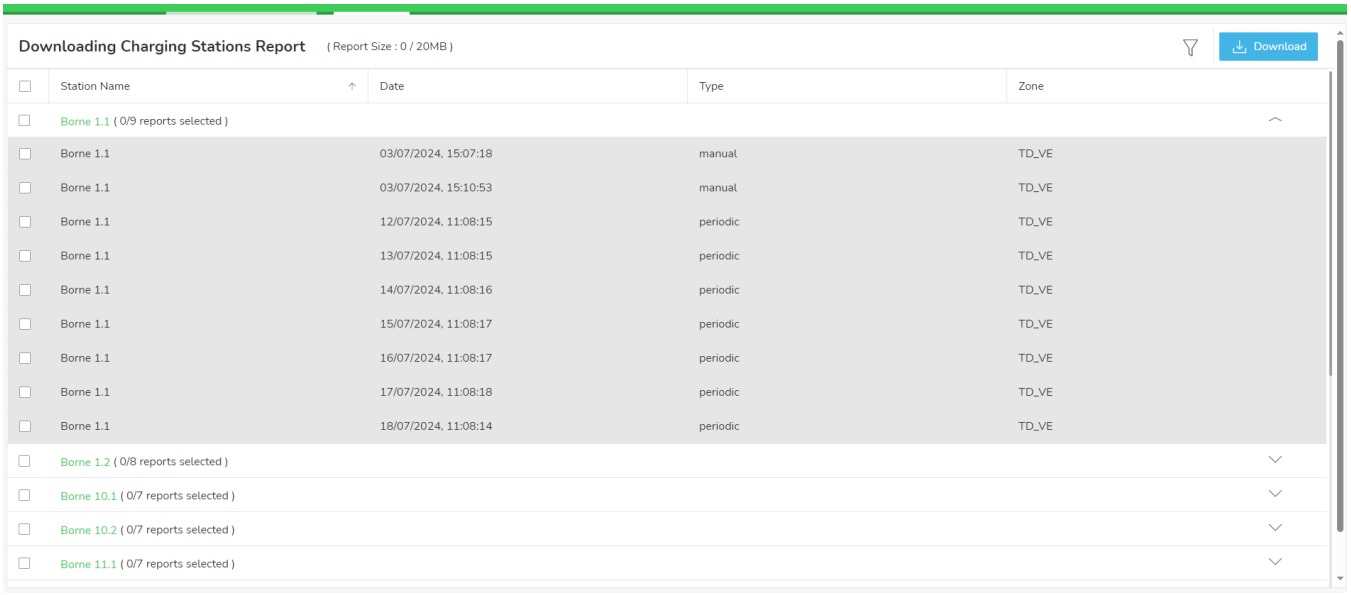


EcoStruxure EV Charging Expert diagnostic is a file containing all information about the device (identification, firmware version, logs etc.).

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3.16.3 Charging station maintenance report

Access by the Admin tab → Station reports



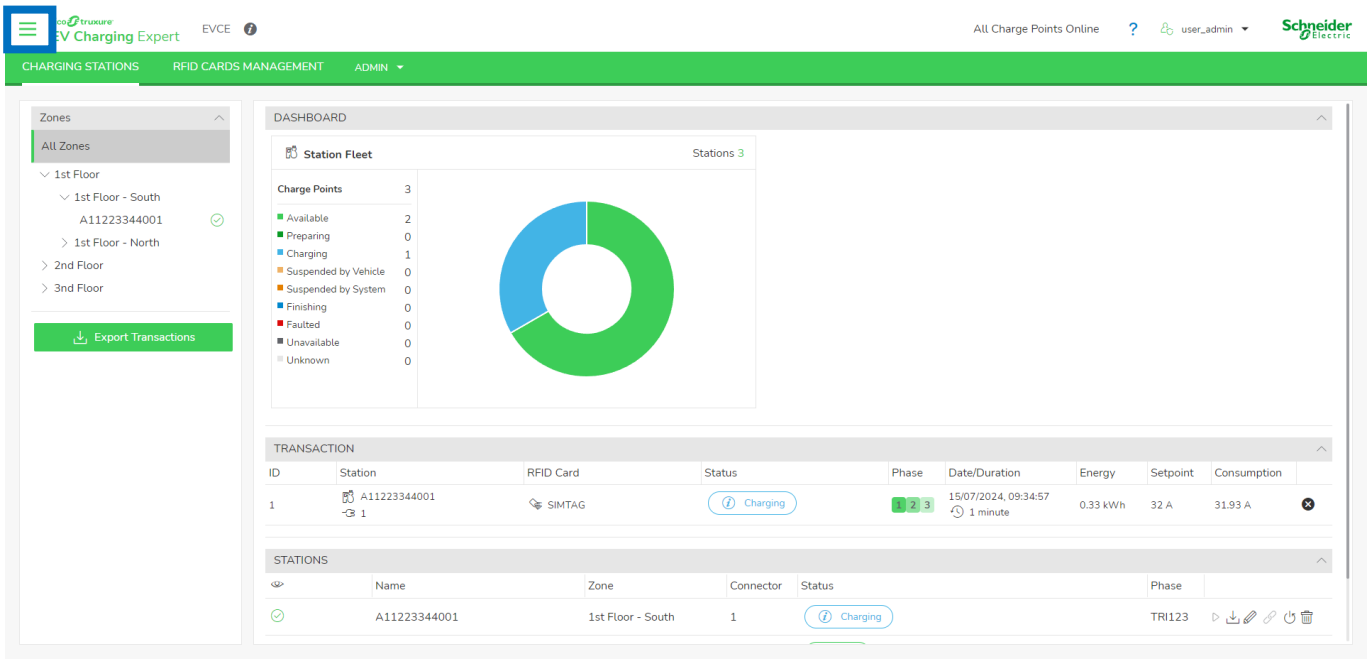
For each charging station with maintenance reports generation feature, EcoStruxure EV Charging Expert saves periodically a device report. From 5 to 10 periodic / manual reports can be stored. To generate a report manually, see chapter 3.2.2.

To download device report, please select device reports and click on **Download**.

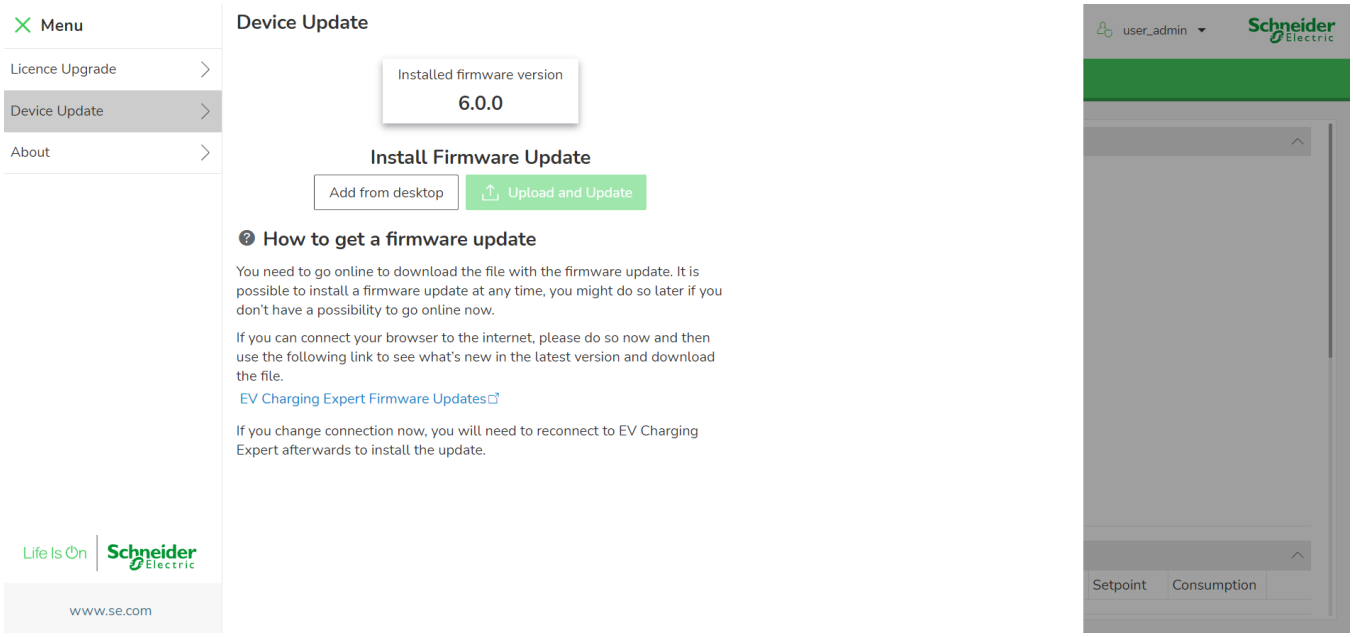
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3.17 EV Charging Expert Firmware update

Access by hamburger menu → Firmware Update



To upgrade EcoStruxure EV Charging Expert, select bundle from desktop. An update page appears while new version gets installed. Around one minute after the upgrade start, an automatic reboot happens to apply the new firmware.



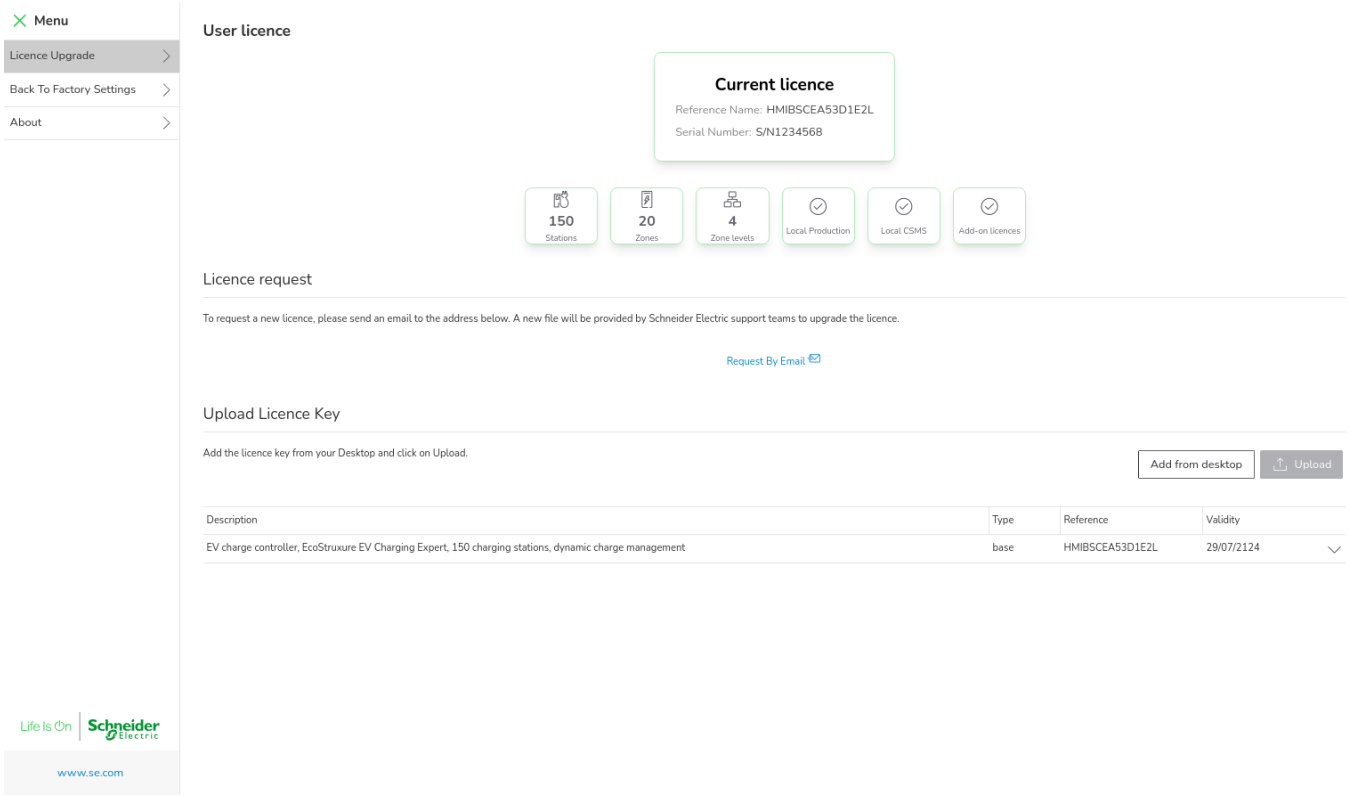
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3.18 License upgrade

EcoStruxure EV Charging Expert license can be upgraded (for example, from a 15 charging stations reference, to a 50 charging stations license). Please contact your Schneider Electric commercial partner.

Access by hamburger menu → Firmware Update

EcoStruxure EV Charging Expert serial number is required to get an upgrade package. All information is present on licence page and should be provided to Schneider Electric.



Request By Email link will automatically open your email software and prepare a message with all required product information.

A license upgrade can:

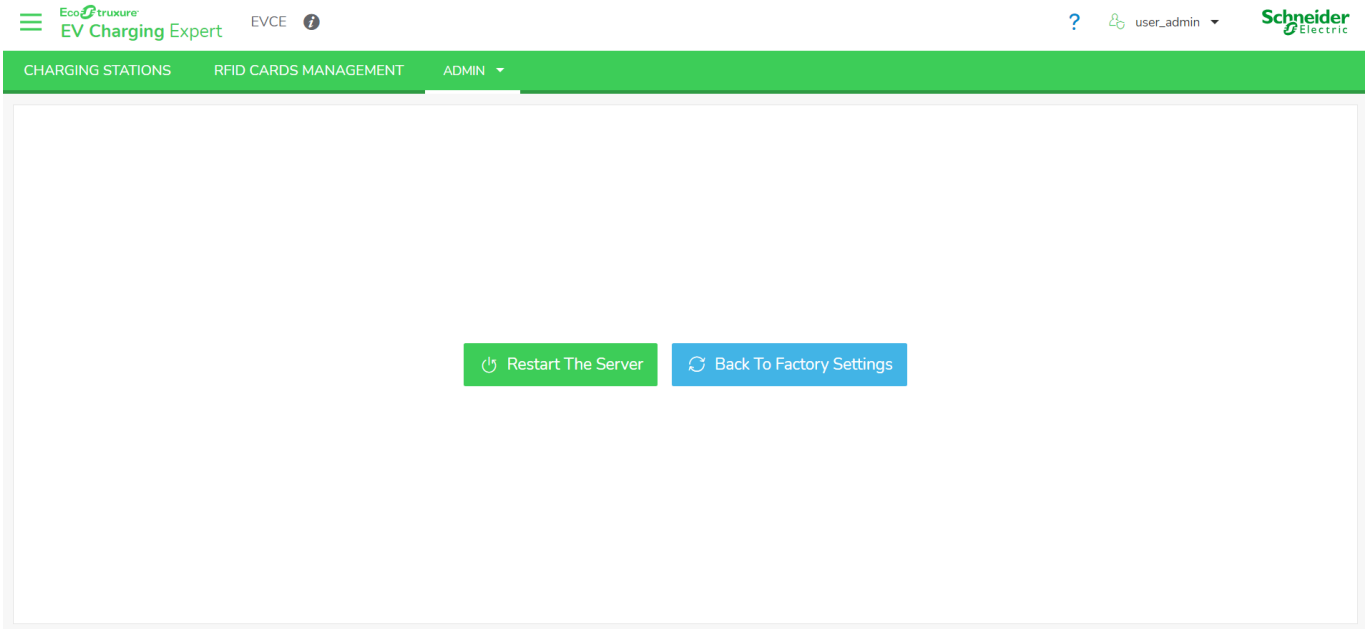
- Increase the number of charging stations in EVCE.
- Add zones.
- Add features: local production, local CSMS.
- Add new models of charging stations.

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3.19 Reboot and back to factory settings

Access by the Admin tab → Restart or Factory Reset

3.19.1 Reboot and back to factory settings from the webserver



When **Restart The Server** is selected, the EcoStruxure EV Charging Expert reboots. During the reboot, the communication with supervision and charging stations is lost.

When **Back To Factory Settings** is selected, all information stored into the EcoStruxure EV Charging Expert is erased. This action is irreversible.

3.19.2 Hardware back to factory settings

This procedure describes the steps to flash an EcoStruxure EV Charging Expert using industrial SD Card. This is the only procedure to run a complete reset of the product to version 6 and more.

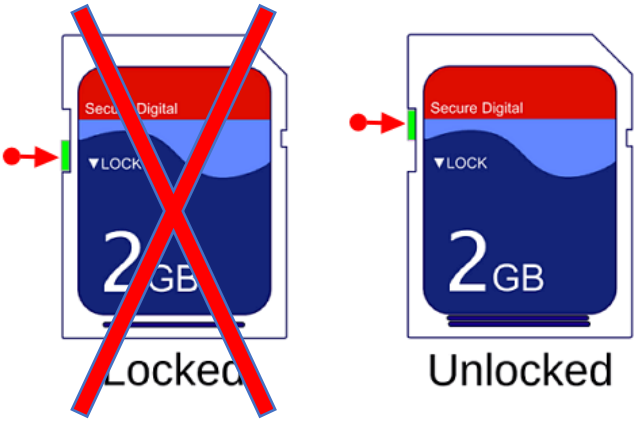
3.19.2.1 Prerequisites

The following material is required:

- An SD Card of at least 8 GB (can be a microSD card with an SD card adapter)
- A Windows computer with an SD Card reader and administrative rights

3.19.2.2 SD Card preparation

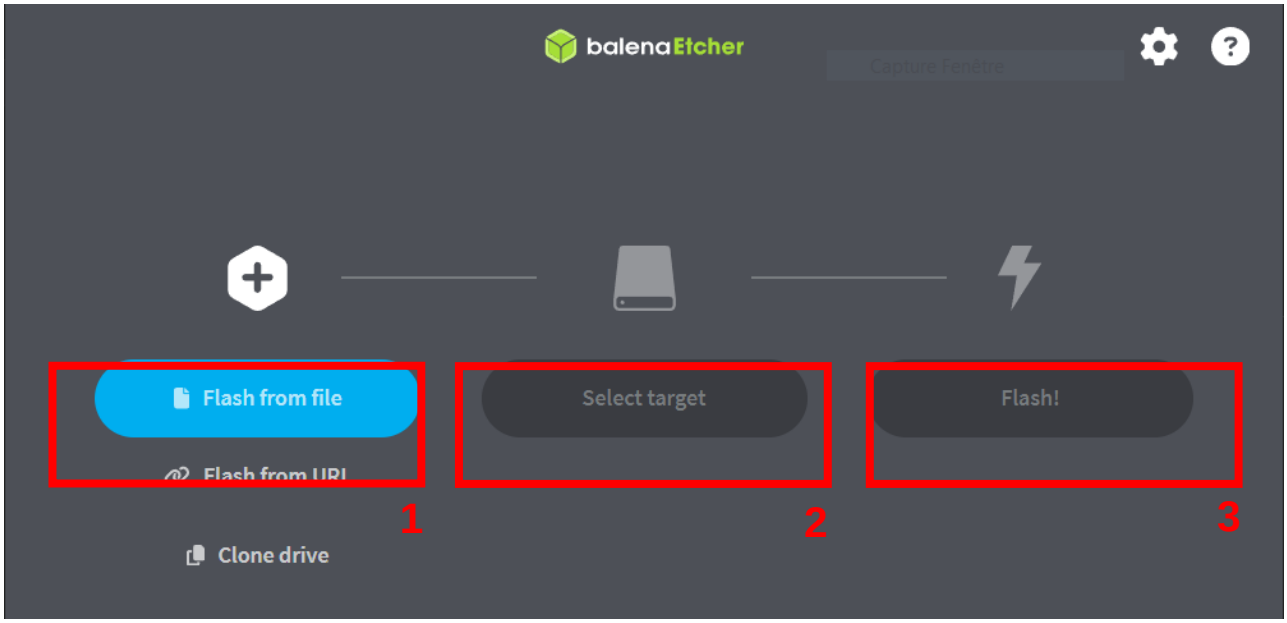
The SD card / SD card adapter side latch should be “Unlocked” position:



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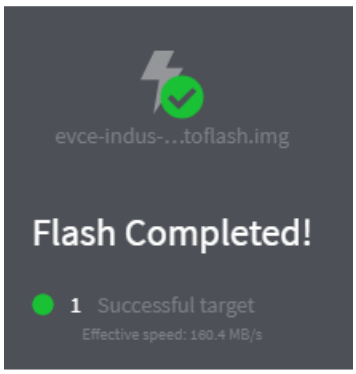
Plug the SD Card to the Windows computer using an internal SD card reader or an external USB SD card reader. Download Balena Etcher software from https://etcher.balena.io/

Install the downloaded software on your computer (administrative rights may be required). Launch the Etcher software:



1. Download the EcoStruxure EV Charging Expert SD card back to factory image on se.com, click on “Flash from file” and select the image.
2. Click on “Select target” and select your SD card.
3. Click on “Flash”. The SD card content will be erased and replaced by the EcoStruxure EV Charging Expert back to factory image. Wait for the Decompressing, Flashing and Verifying process to end with success.

   At the end you should get the following message:



If you have an error, try again by using another SD card or another SD card reader.

3.19.2.3 Flashing the EcoStruxure EV Charging Expert

1. Unplug the device from power source.
2. Insert the prepared SD Card into the EcoStruxure EV Charging SD card slot (see chapter 1.1.1.6).
3. Plug the device from power source.
4. Led start blinking quickly.
5. At the end of the installation, led blinks slowly.
6. Don’t forget to remove the SD Card and restart your device.

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3.20 Save and Restore

3.20.1 Save configuration

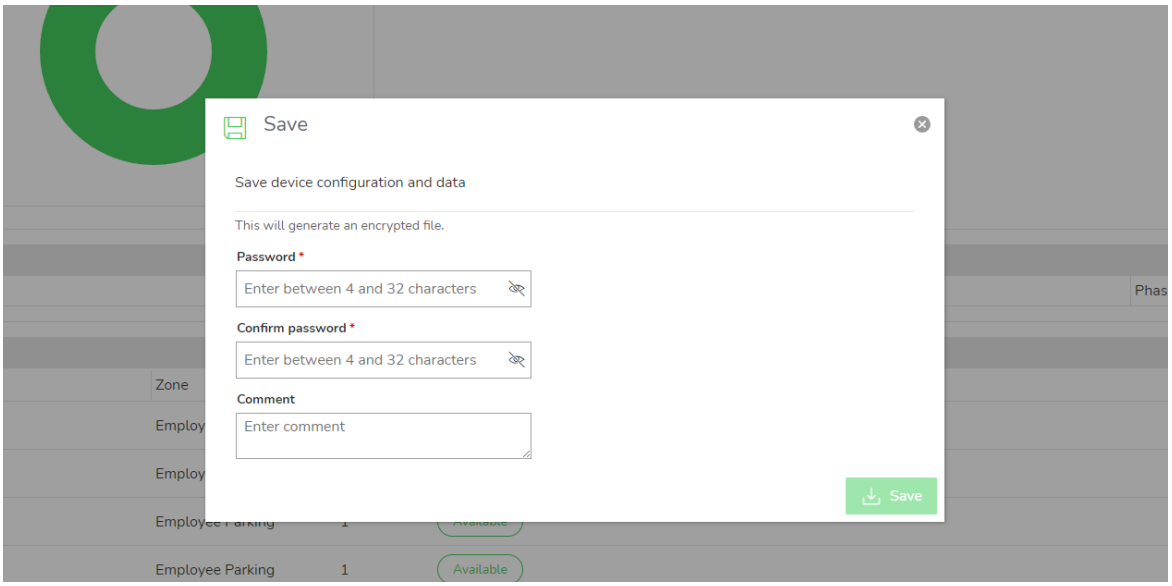
Access by the Admin tab → Save

The EcoStruxure EV Charging Expert allows to save a backup of the current system configuration. This configuration can be imported later to automatically restore a lost configuration.

Configuration export content:

- Admin and user profiles credentials
- Charging stations configuration
- Zones configuration
- Power meters configuration
- Network configuration
- Authentication strategies
- List of RFID cards
- Authentication groups

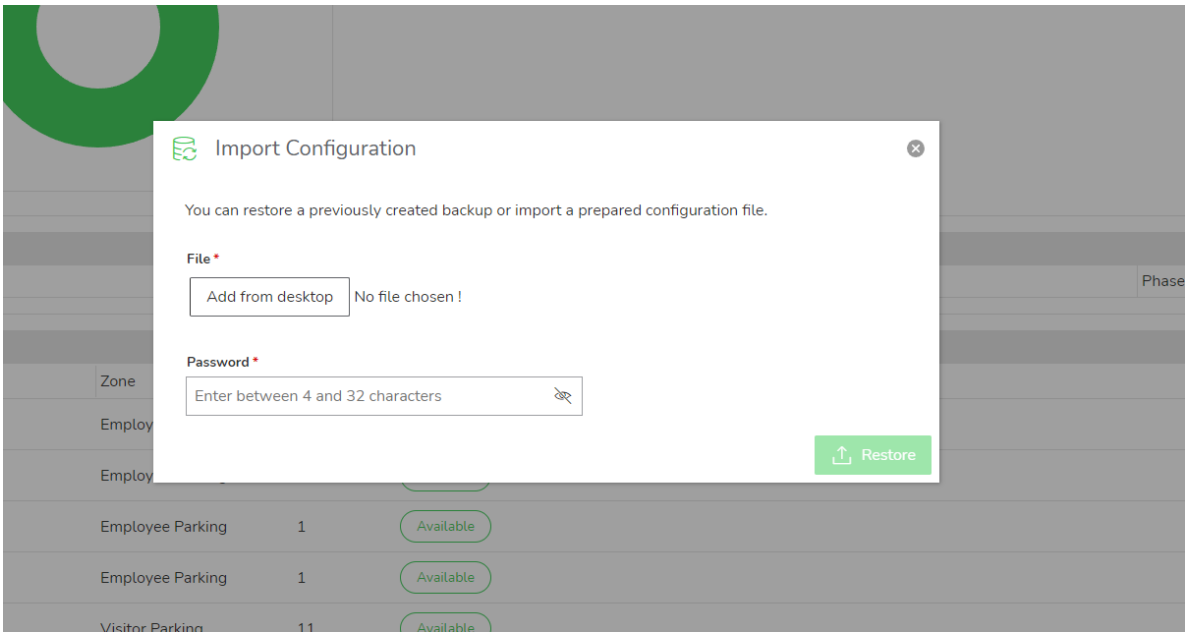
When clicking **Save** button, a password and comment are required to generate the backup file. To guarantee the security of your information, exported file is encrypted and signed. It is strongly recommended to save the exported file in a safe repository.



3.20.2 Restore configuration

Restore pop-up allows to recover a configuration from a previous configuration export. Only configuration file from version 6.0.0 or upper are compatible. This requires configuration file password to be installed.

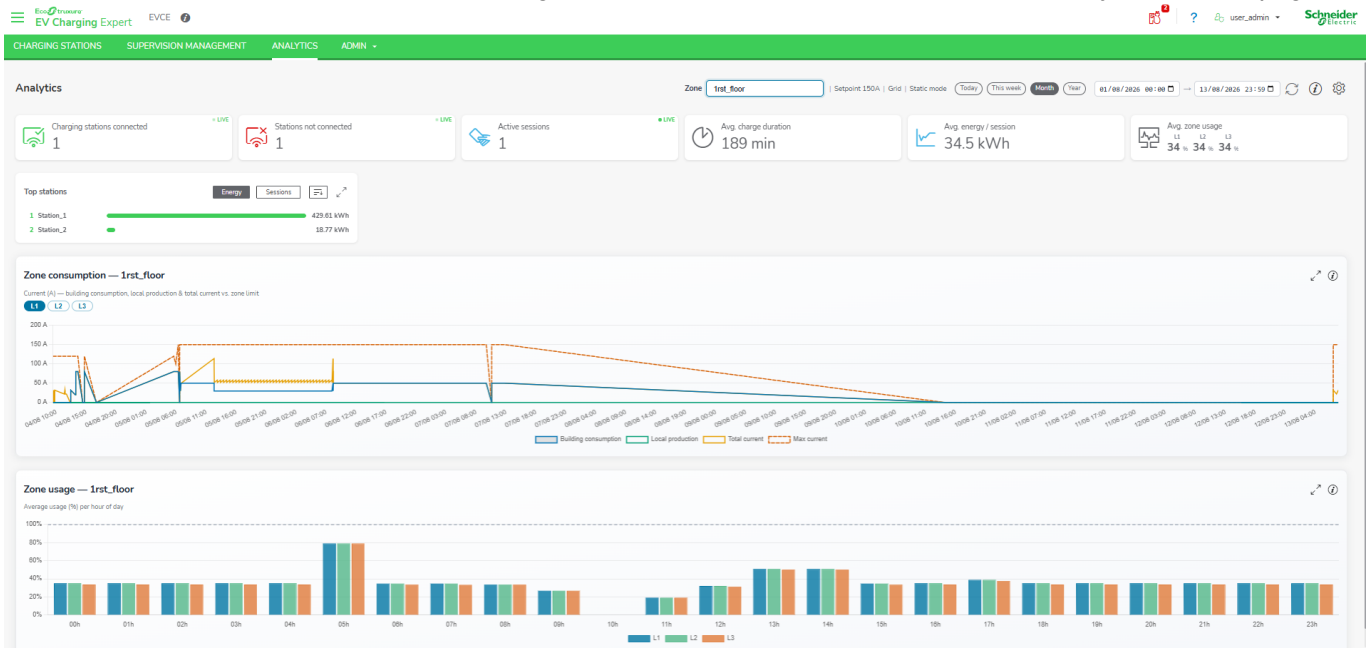
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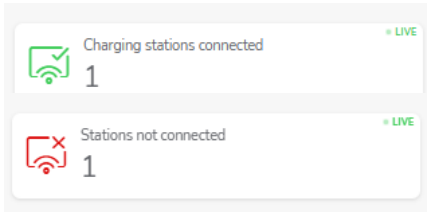
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3.21 Analytics

An interactive guide to the different features is available directly on the web page.

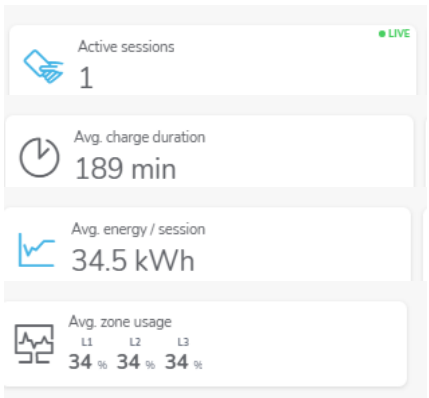


The KPI bar at the top of the Analytics page gives, for the selected zone, an at-a-glance summary:



Charging stations connected: number of charging stations in the zone currently connected to EcoStruxure EV Charging Expert (real-time value).

Stations not connected: number of charging stations in the zone currently disconnected from EcoStruxure EV Charging Expert (real-time value).



Active sessions: number of charging sessions currently in progress in the zone (real-time value).

Avg. charge duration: average duration of charging sessions completed in the zone, over the selected period

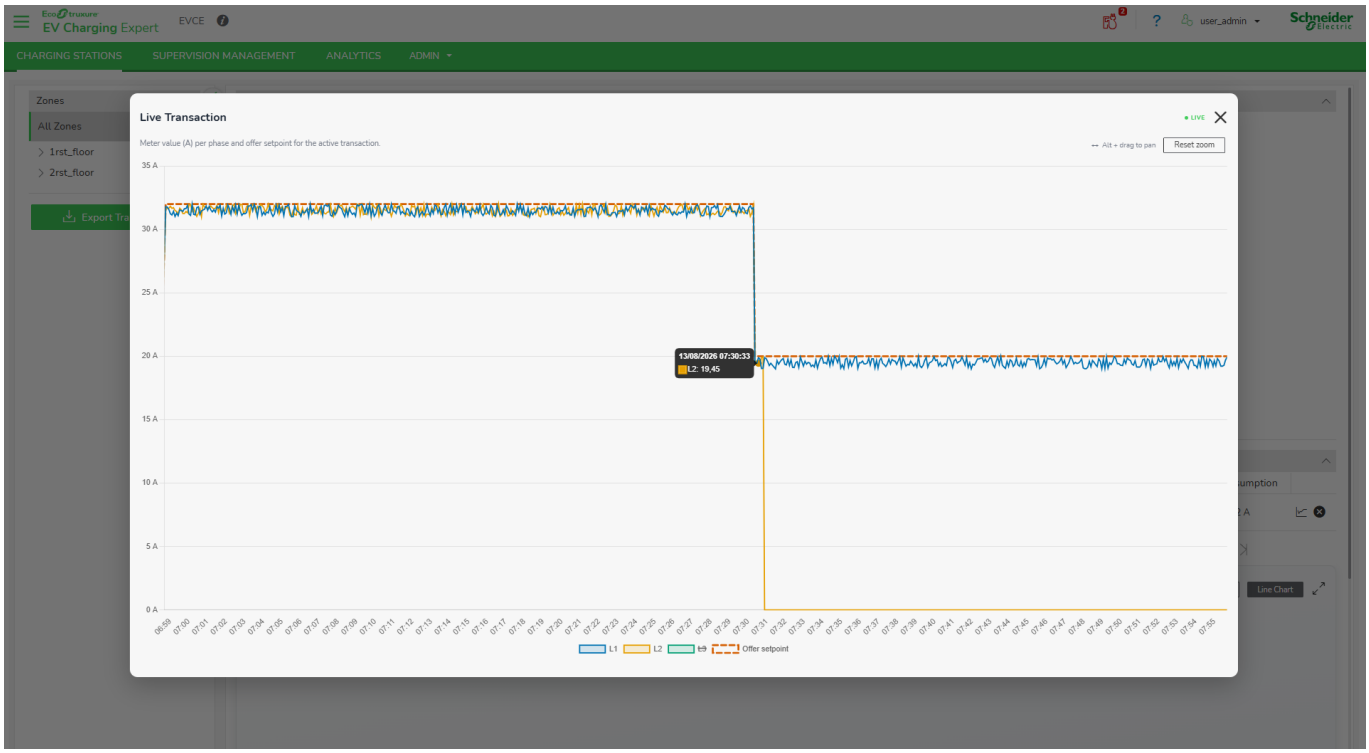
Avg. energy / session: average amount of energy delivered per charging session in the zone, over the selected period.

Avg. zone usage: average usage rate of the zone over the selected period, expressed as a percentage and broken down by electrical phase (L1, L2, L3).

The first three indicators (marked with the LIVE badge) are updated in real time; the next three are calculated over the selected period (Today, This week, Month, Year, or a custom date range).

Allows visualizing information and graphs about zones over a specific duration or about ongoing transactions

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Chapter 4. REGULATORY INFORMATION



RCM certification

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