ENGLISH

INMBSOCP0**0100 GATEWAY

Configuration Guide

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Intesis MAPS

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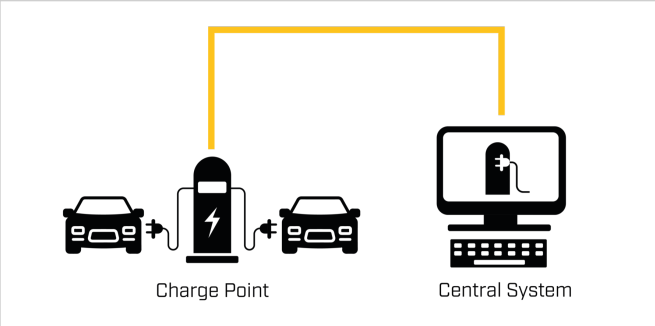
1. Before Starting

IMPORTANT
The Intesis INMBSOCP0xx0100 gateway is compatible with OCPP 1.6 only. Ensure the OCPP installation is compatible with that version.

During the installation of the gateway, you will need to know and/or modify some parameters of the OCPP network. Read the documentation of your charge points and your central system to grant your access to its configuration.

1.1. Understanding an OCPP Installation

Figure 1. Typical structure of an OCPP installation



This figure represents a very simple OCPP installation: one central system and one charge point with two connectors.

A typical OCPP installation includes the following elements:

CENTRAL SYSTEM (CS)

This is the brain of the system. It is usually specific software, running either on a computer or in the cloud, that manages the charge points and stores information for authorizing users to use the installation's charge points.

NOTE
The central system is also known as the charging station management system (CSMS). In this manual, we use the term "central system."

CHARGE POINT

The physical system where an electric vehicle can be charged. It also stores some data, like the authorization cache, which contains all the latest received identifiers. A charge point has one or more connectors.

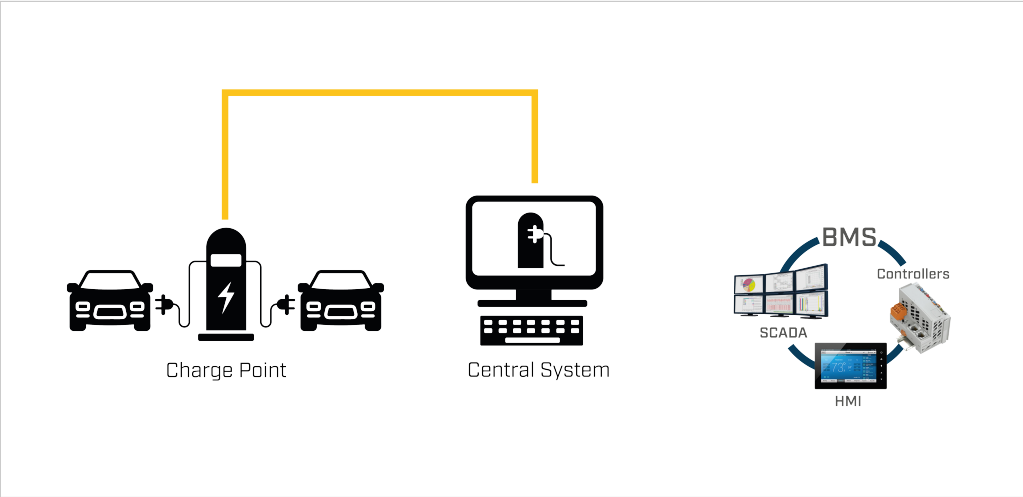
NOTE
The charge point is also known as a charger, charging station, or electric vehicle supply equipment (EVSE). In this manual, we use the term "charge point."

CONNECTOR

An electrical outlet used to physically connect the electric vehicle to the charge point.

1.2. Integrating an OCPP Installation into a BMS

Figure 2. An OCPP installation and a BMS

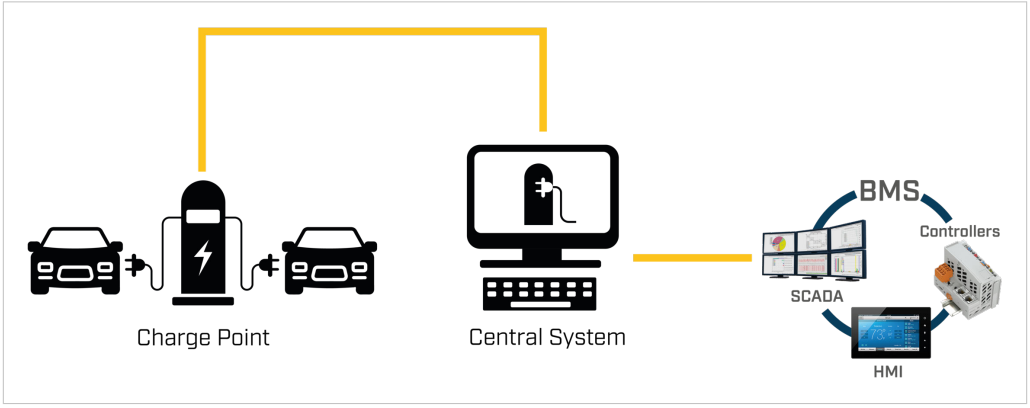


In some cases, the OCPP installation is part of a building equipped with a building management system (BMS). The BMS is responsible for controlling some systems of the building, like HVAC, lighting, blinds, etc.

Great benefits arise when linking the BMS and the OCPP installation:

- The BMS gets relevant data from the OCPP installation, like loading schedules, charging times, number and duration of charging sessions, etc.
- The BMS can control the OCPP installation, for example, limiting the amount of energy in every charging session depending on the daytime and the energy available in the building.

Figure 3. An OCPP installation integrated into a BMS



It is in this context that the Intesis INMBSOCPxxx0100 gateway plays its role in two different ways.

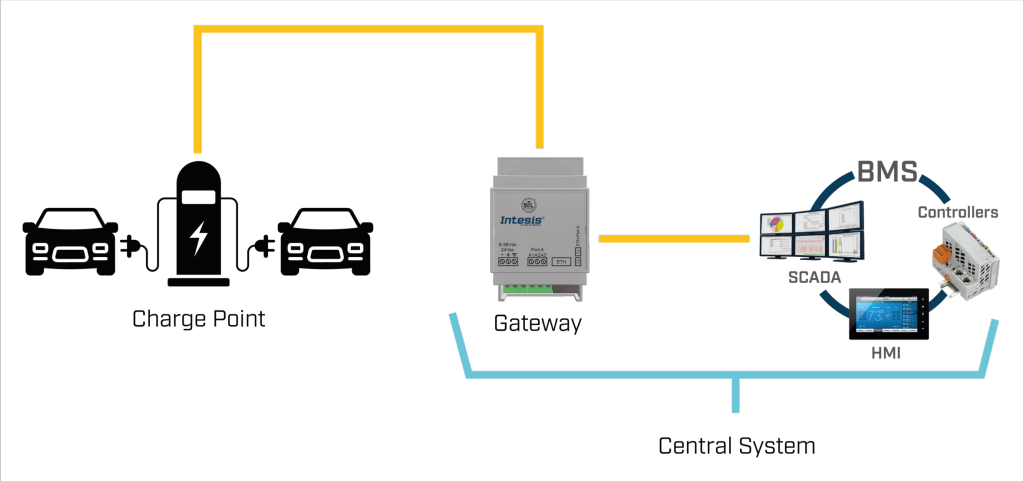
IMPORTANT
The logic of the gateway has been developed to be supported and complemented by the logic of a BMS[1]. The gateway cannot work on its own and the presence of a BMS is mandatory.

[1]We use the term "BMS" to refer to any kind of Modbus controller acting as a BMS, such as a SCADA system, a PLC, etc.

1.3. Two Possible Roles for the Gateway

BMS CENTRAL SYSTEM MODE: THE GATEWAY AS A SUBSTITUTE OF THE OCPP CENTRAL SYSTEM

Figure 4. The gateway and the BMS act as the OCPP central system



In this first case, the gateway, together with the BMS, substitutes the central system of the OCPP installation.

When working under this mode, the gateway offers a large number of registers to the BMS. Consequently, the capabilities of the OCPP installation are not restricted by a central system; instead, they rely on the BMS.

Consult the complete list of registers in ANNEX: Modbus Registers (page 67).

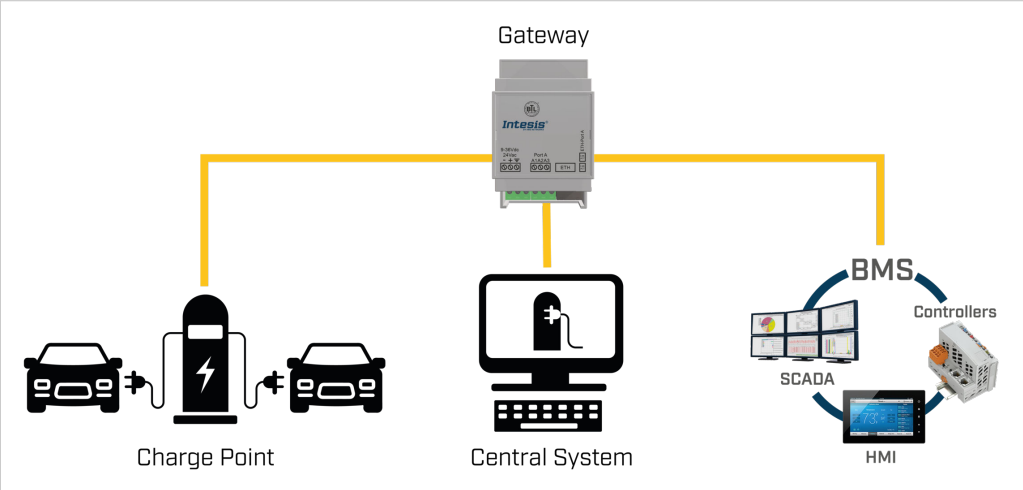
IMPORTANT
These registers must also be available on the BMS and must be written through the BMS side following the sequence described in the diagrams you can find in the section Programming the BMS (page 51).

NOTE
When set in the BMS Central System mode, the functionalities of the OCPP installation will depend not only on the gateway itself but also on the capabilities of the charge points and the BMS.

MODBUS, OCPP, AND BMS PROGRAMMING SKILLS
You should be familiar with Modbus, OCPP, and BMS technologies to install the gateway in this mode.

OCPP CENTRAL SYSTEM MODE: THE GATEWAY AS A BRIDGE BETWEEN THE OCPP ELEMENTS AND THE BMS

Figure 5. The gateway acts as a bridge between the OCPP elements and the BMS



In this second case, the gateway links the OCPP charge points, the OCPP central system, and the BMS.

Under this mode, the main function of the gateway is to monitor the OCPP installation and allow the transfer of data between the OCPP installation and the BMS; all management processes remain under the control of the OCPP central system, except for the operations listed in the following note.

NOTICE

From Intesis MAPS version 1.2.12.0 with firmware version 1.0.5.0 onwards, the gateway's **OCPP Central System** mode also allows you to manage operations from the BMS, such as:

- Smart Charging Operations
- Remote Start Transactions
- Remote Stop Transactions
- Reservation

These operations are added to the operations already supported in the previous versions:

- Meter Values
- Availability
- Charger Information

NOTE

When set in the OCPP Central System mode, the functionalities of the OCPP installation will depend not only on the gateway itself but also on the capability of the charge points and the OCPP central system.

The different features of these two modes are explained in more detail in: Choose the Best Mode for your Project (page 20).

1.4. Adjusting the Charge Point's Settings

The charge points of an OCPP installation are set up through a configuration tool usually in the form of a web or mobile application.

Two of the most important parameters of these settings are the URL of the OCPP central system to which the charge point is connected and the charge point ID.

NOTE
Refer to the charge points documentation, which contains all the information related to their configuration.

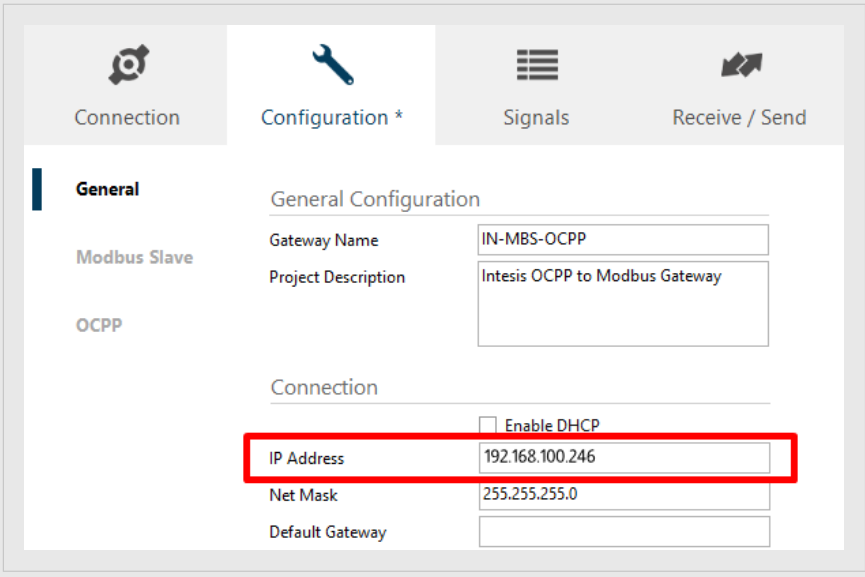
SETTING THE OCPP SERVER'S URL

When integrating the Intesis gateway in the installation, the charge point must point to the gateway instead of the OCPP central system. The URL of the OCPP server must be set accordingly. To do so, the way to proceed varies depending on the gateway's role:

BMS CENTRAL SYSTEM MODE

Since in this mode the gateway substitutes the central system, the URL to provide here includes the IP address and the port of the gateway. For example, you should type **ws://192.168.100.246:9000**

NOTE
The IP address of the gateway is set in the **General** menu inside the **Configuration** tab. See Connection (page 34).



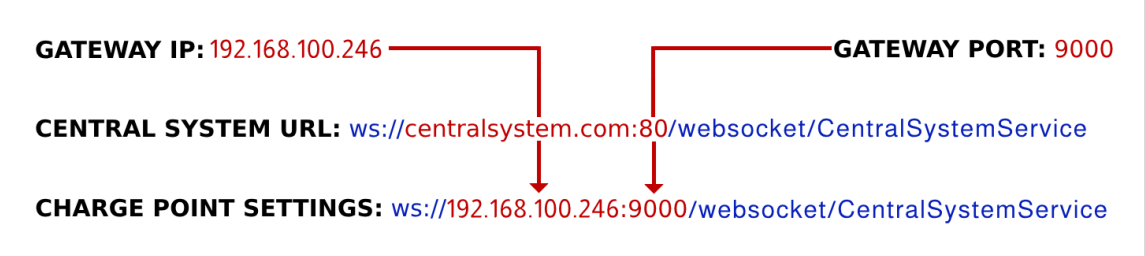
OCPP CENTRAL SYSTEM MODE

In this case, the URL of the OCPP server is more complex and comprehends:

- The IP address and the port of the gateway. For example the IP address **192.168.100.246** and the port **9000**.
- The URL of the OCPP central system. For example **ws://centralsytem.com:80/websocket/CentralSystemService/**

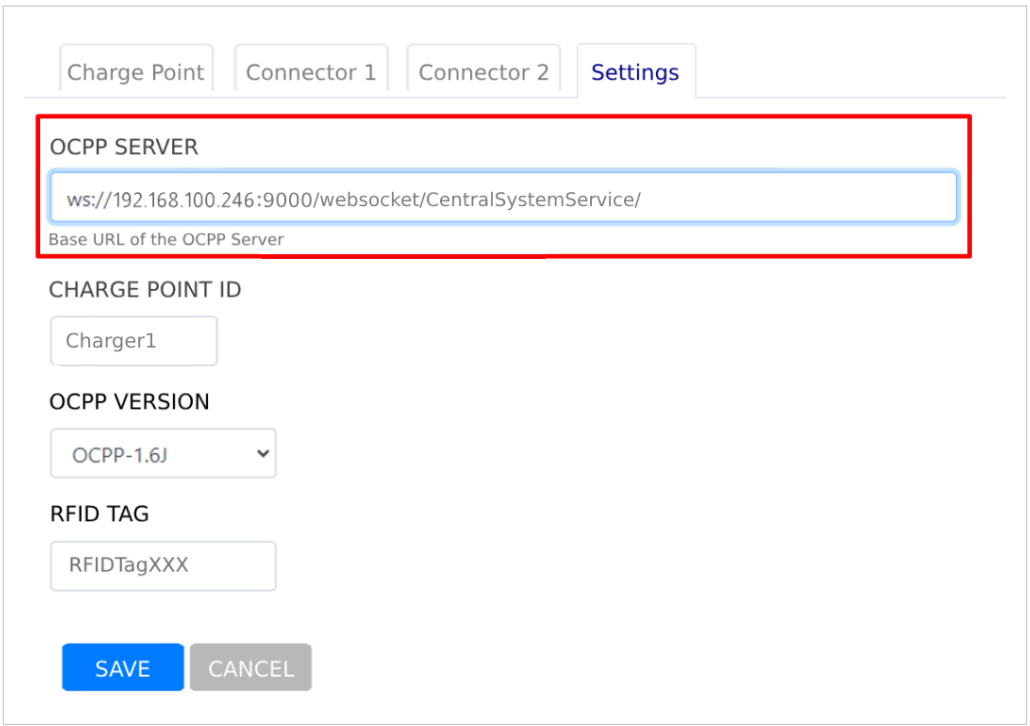
NOTE
This URL should be found in your OCPP central system documentation.

The hostname and the port of the central system's URL are replaced with the IP address and the port of the gateway:



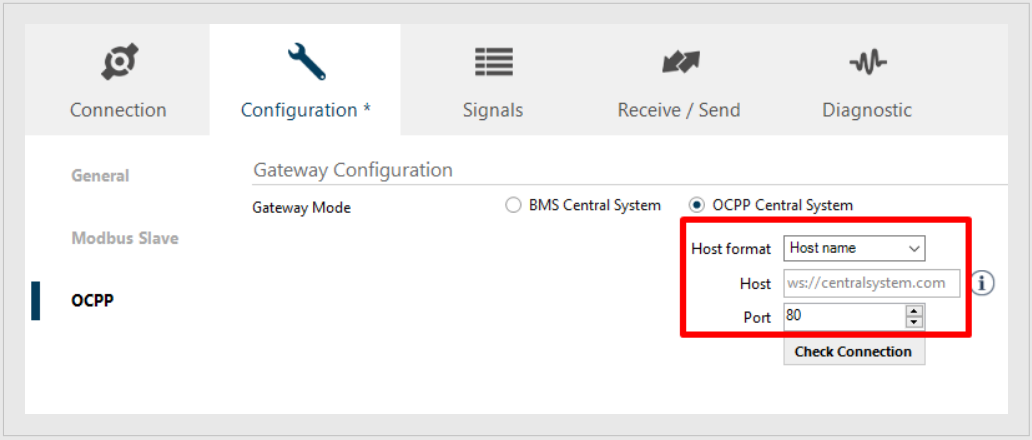
So the URL you should type in this case is **ws://192.168.100.246:9000/websocket/CentralSystemService/**, as shown in the **OCPP SERVER** field of the mockup below:

Figure 6. Mockup of a charge point configuration tool



TIP

Notice that in the URL of the OCPP central system given in the example above (**ws://centralsytem.com:80/websocket/CentralSystemService/**) you have the information needed for the **Gateway Configuration** parameters **Host** and **Port** explained in Gateway Configuration (page 22).



IMPORTANT

The gateway only supports URLs based in the WebSocket protocol (**ws://**).

CHARGE POINT ID

The information you have to provide in this field is the name of the charge point. In the mockup above, used as an example, this name is **Charger1**.

1.5. Configure the Project Offline

Save time creating your project before having actual access to the installation, thanks to the configuration tool Intesis MAPS.

IMPORTANT

To get the most out of this configuration option, you should know the values for the most essential parameters:

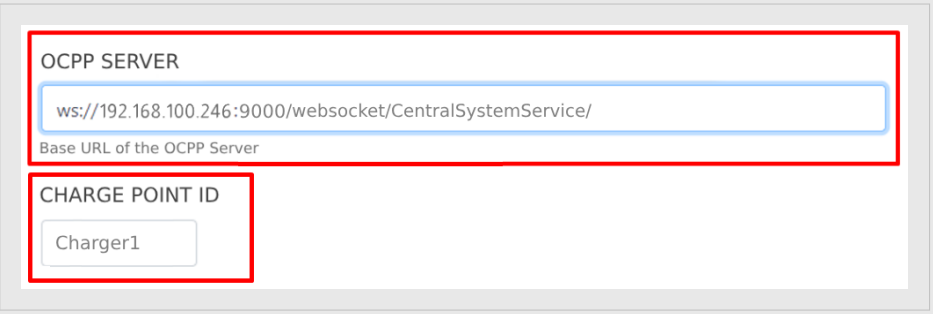
- Number of charge points and number of connectors of each charge point.
- IP address of the OCPP network.
- Charger id for each charge point.

Main steps to configure the project offline:

1. Open Intesis MAPS on your PC.
2. Connect the gateway to your PC.
3. Create a new project by selecting the **IN-MBS-OCPP** template.
4. Use the **Connection** tab to establish a connection with the gateway.

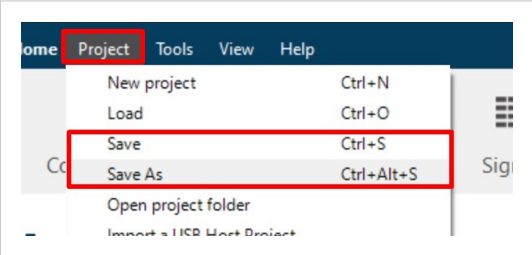
5. In the **Configuration** tab (**General**), set these values, keeping in mind the values for the OCPP network:
   - **IP Address**
   - **Net Mask**
   - **Preferred DNS Sever**
6. In the **Configuration** tab (**Modbus Slave**), set the desired parameters referring to the BMS side.
7. In the **Configuration** tab (**OCPP**), set the **Chargers Configuration**:
   a. Select the needed number of chargers depending on the number of charge points in the OCPP installation.
   b. For each charger, type the **Charger Id**.

NOTICE
The Charger Id is composed with the final part of the OCPP server's URL (the part after the port) and the name of the charger. Given the previous section example:



The **Charger Id** is: **websocket/CentralSystemService/Charger1**

   c. Type the number of **Connectors** for each charge point.
8. In the **Configuration** tab (**OCPP**), set the **Heartbeat Interval**, the **Meter Value Sample configuration**, and the **TCP Configuration**, keeping in mind the values for the OCPP network.
9. Use the **Receive/Send** tab to **Send** the configuration to the gateway
10. You can also use the top menu to save the project on your PC.



TIP
You can even configure your project in Intesis MAPS without actually having the gateway: create and configure the project and save it on your computer. You'll be able to send it to the gateway later. In this case, you can skip steps 2, 4, and 9 of the procedure.

NOTE
Even when the option to configure the project offline is allowed, the most powerful features of Intesis MAPS have been developed with the project's field configuration in mind.

2. Introduction to Intesis MAPS

Intesis MAPS© is a software tool for configuring and monitoring the Intesis® gateways. Intesis MAPS has been designed and developed in-house, assuring an up-to-date tool to get all the potential of Intesis gateways.

The design of this configuration tool focuses on four main pillars:

- A user-friendly interface.
- Multiple ways to create your project:
  - From scratch, using a template.
  - Importing data from your PC.
  - Downloading the settings from an already configured gateway.
- Real-time monitoring of the network.
- Full linkage between the control system and the OCPP charger signals.

3. Prerequisites

To configure the gateway, you need:

- The items supplied by HMS Networks:
  - Intesis INMBSOCP0**0100 gateway
  - Gateway documentation:
    - Installation Guide
    - User Manual
- A PC to run the configuration tool Intesis MAPS.

RECOMMENDED REQUIREMENTS:

- OS: Windows 11
- Display resolution:
  - minimum supported: 1280×720 at 100% scaling (no scaling applied)
  - Recommended resolution: 1920×1080
    (Optimized for 100% scaling; higher scaling may cause layout issues)
- Storage: Minimum 1 GB free space
- RAM: 4 GB

4. Installation

Downloading the software

1. Enter the Intesis MAPS webpage.
2. Click the **Download now** button. The page will scroll down to the download form.
3. Fill out the form.

   NOTICE
   You can review the privacy policy section for more information about how HMS processes the form data.

4. Click the **Download** button.
5. A .zip file will be downloaded to your PC.

Installing the software

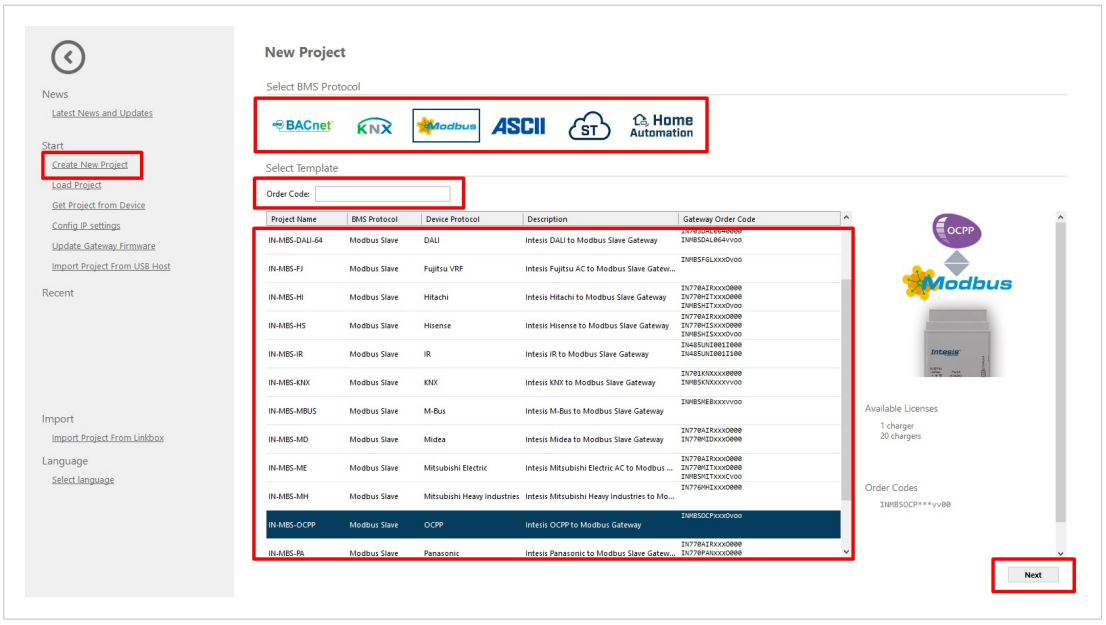
1. Click the .zip file to open it.
2. Double-click the EXE file.
3. The Intesis MAPS Setup Wizard will guide you through the steps required to install Intesis MAPS on your PC:
   a. Read the license agreement and select **I Agree**.
   b. Select the installation folder.
4. Once the installation is completed, click the **Close** button.

5. Create a New Project from a Template

1. Open Intesis MAPS.
2. Click **Create New Project** in the **Start** menu on the left.
   Create a new project using a template. To find the appropriate template, filter the search by:
   - Clicking Modbus on the protocol logos.
   - Typing the order code in the **Search** field.
     Besides the order code, you can also search by any value from the other columns: **Project Name**, **BMS Protocol**, **Device Protocol**, or **Description**.

     NOTE
     Selecting a **BMS protocol** will limit the search results to that protocol.

   - Looking for the **Project Name** on the list: IN-MBS-OCPP.

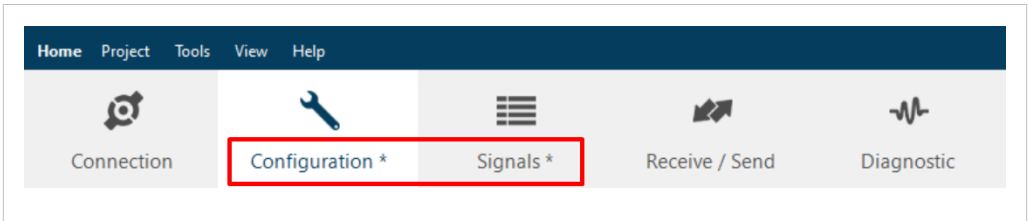


3. Select the desired template.
4. Click **Next** or **double-click the template** on the list.

6. Saving and Opening a Project

While working on your project with Intesis MAPS, an asterisk appears on the **Configuration** tab, as shown in this picture below:

Figure 7. The Configuration tab showing an asterisk



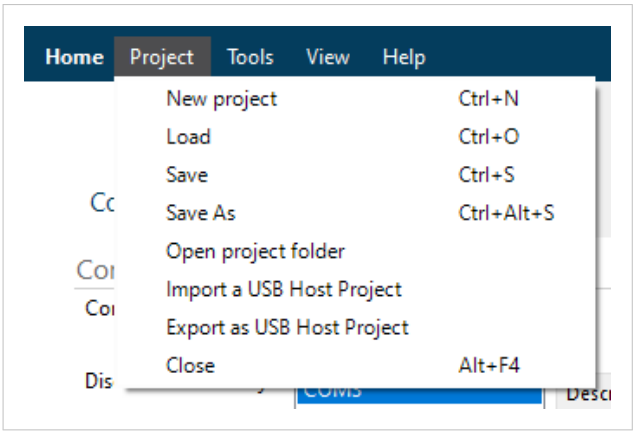
This asterisk reminds you that you have made changes to the project but have not saved them or sent the project to the gateway yet. To know how to send your project to the gateway, see Receive/Send Tab (page 40).

SAVING YOUR INTESIS MAPS PROJECT

IMPORTANT
Remember to save your project periodically to keep your changes.

1. Click **Project**.

Figure 8. Project tab from the top menu



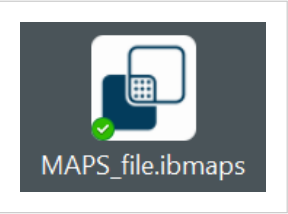
2. Click **Save** or **Save As**.

TIP
Instead, you can use the shortcut **Ctrl+S** (Save) or **Ctrl+Alt+S** (Save As).

3. On the **Save file** menu, type a **File name** and select where to save the file.
4. Click **Save**.

OPENING AN INTESIS MAPS PROJECT FROM YOUR COMPUTER

TIP
Double-click a .ibmaps file saved in your computer to automatically open it in Intesis MAPS.

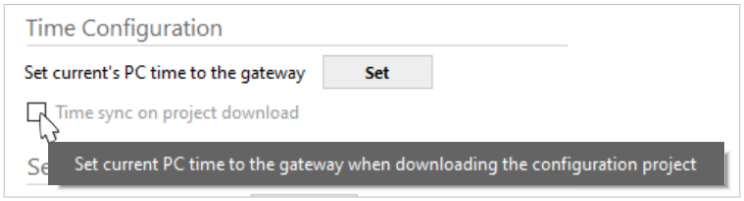


1. Click **Project**.
2. Click **Load**.
3. On the emergent window, select the desired file from your computer.
4. Click **Open**.

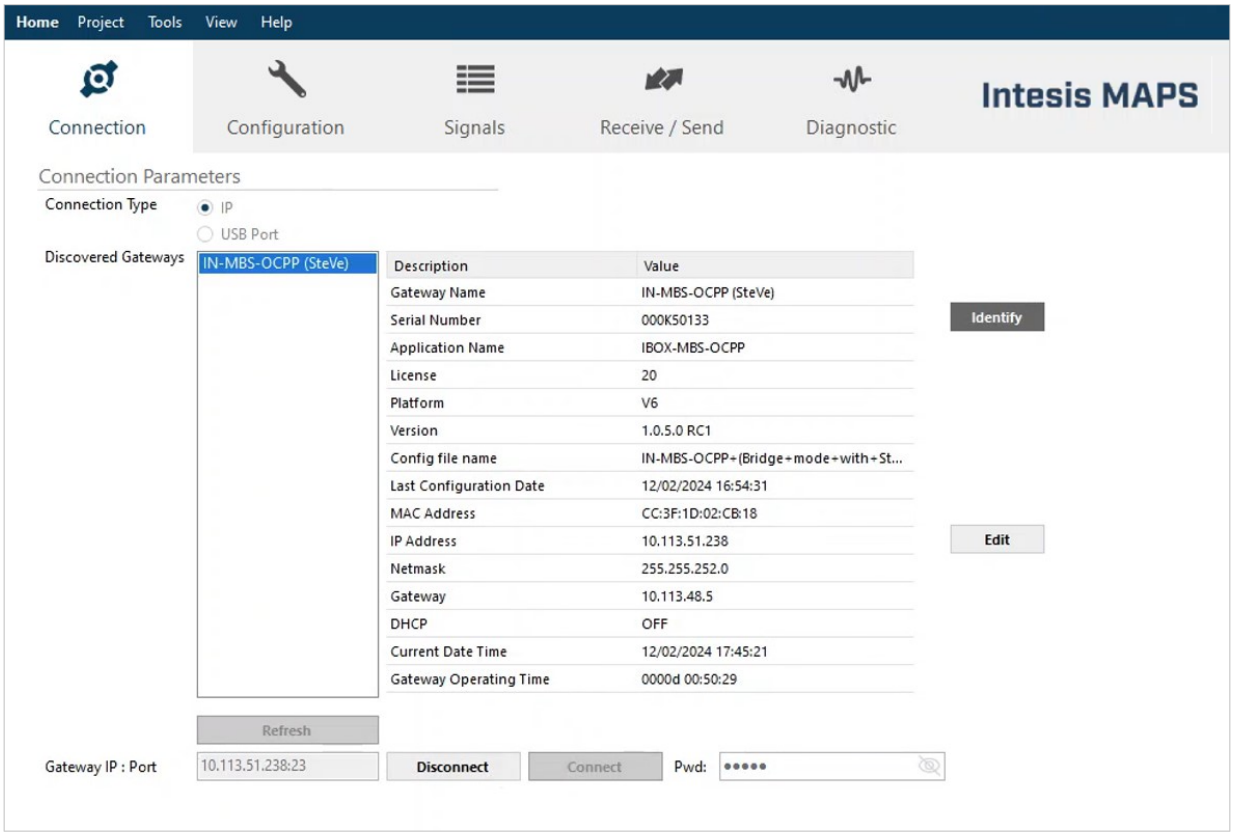
7. Main Menu Overview

The following sections provide an overview of the five tabs that compose the Intesis MAPS main menu. Through these options, you will establish a connection between the gateway and the PC, set up your project through the **Configuration** and **Signals** tabs, send it to the gateway, and monitor that everything works fine using the **Diagnostic** tab.

TIP
Tooltip: Hover the cursor over a field, and a message will appear indicating the purpose of the parameter.



8. Connection Tab



1. Connect the gateway to your computer through the **Ethernet port**.

> **IMPORTANT**
> For this type of connection, some considerations must be taken into account. Consult the Troubleshooting section at the end of the document. See Connecting the Gateway to the PC through Ethernet.

2. If the gateway is not powered on yet, turn it on.

> **IMPORTANT**
> Use an adequate power supply. Consult the gateway's User Manual or Installation Guide.

> **TIP**
> If the gateway still has its factory settings or has been factory reset, wait a few seconds for it to initialize and become ready before continuing.

3. On the **Connection Type** parameter, select **IP**.

NOTE

- The default password when connecting via IP is **admin**.

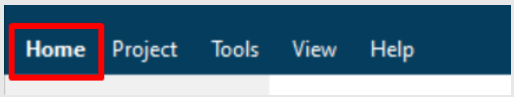
  You can change this password as explained in Configuration Tab → General → Connection (page 34).

- When the gateway still has its factory settings or has been factory reset, it appears in the **Discovered Gateways** field as **Gateway (no config)**.

IMPORTANT

The gateway's name should appear in black. If it appears in red:

- The gateway is not compatible with the selected template. To solve the problem, click **Home** in the upper menu to go to the **New Project** page, and make sure you select the correct template, as explained in Create a New Project from a Template (page 12).

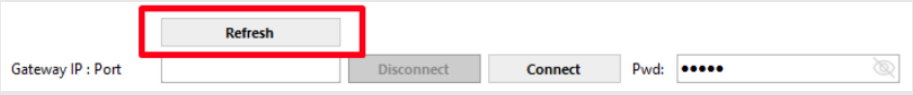


- There is a problem with the gateway IP address. Make sure you are correctly following the instructions explained in Connecting the Gateway to the PC through Ethernet.
- If the problem persists, try to update the gateway's firmware as explained in the **GENERAL QUESTONS** topic you can find in FAQ and Troubleshooting (page 45).

TIP

If your gateway does not appear in the **Discovered Gateways** window:

- Wait a minute for the gateway to initialize and become ready.
- Click the **Refresh** button.



- Deactivate the Wi-Fi connection on your computer.
  - On rare occasions, having the Wi-Fi connection activated causes the Windows system to bypass the Ethernet connector, preventing the computer from finding the gateway.
- If the problem persists, follow the instructions explained in the **CONNECTION TAB** topic you can find in FAQ and Troubleshooting (page 45).

4. Select your gateway from the **Discovered Gateways** list.

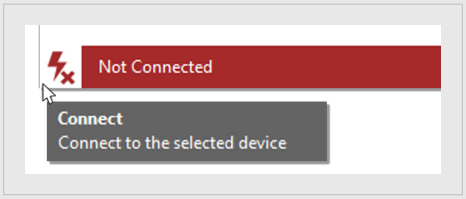
NOTICE

All data from the **Value** column on the right will be automatically populated when the correct gateway is selected.

The IP address and port of the gateway will also be displayed in the **Gateway IP : Port** option below the **Refresh** button.

5. Click the **Connect** button.

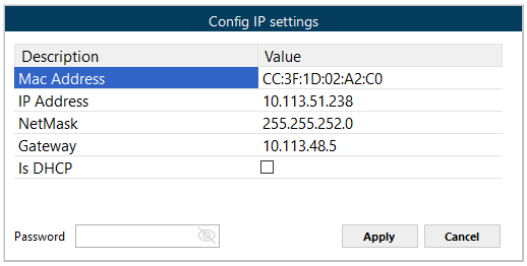
TIP
You can also connect to the gateway using the button from the lower bar:



NOTICE
When the connection is established, the lower red bar will turn blue.

Two additional buttons will appear once the connection is established:

- **Identify**: Click the **Identify** button and then enter the project password to make the gateway's LEDs blink for 10 seconds.
- **Edit**: Click the **Edit** button to open the **Config IP settings** window.

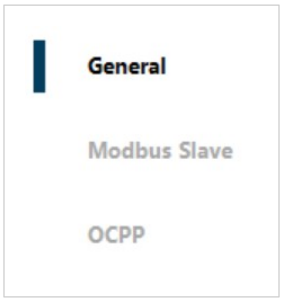


When DHCP is not enabled, you can edit the **IP Address**, **NetMask**, and Default **Gateway** IP. Enter the project password and click the **Apply** button to save the changes.

NOTICE
These parameters can also be edited in the **Configuration** tab. See Configuration Tab → Connection (page 34).

9. Configuration Tab

A menu with some options appears on the left side of the window:



- **General**: Configure the general parameters of the gateway.
- **Modbus Slave:** Configure the parameters for the building management system (BMS) protocol.
- **OCPP**: Configure the parameters for the OCPP protocol.

NOTE

The next section explains all the parameters and options of the **OCPP** menu.

Consult the parameters and options of the **General** menu in General Configuration Menu (page 34).

Consult the parameters and options of the **Modbus Slave** menu in Modbus Configuration Menu (page 36).

10. OCPP Configuration Menu

10.1. Two Modes of the Gateway

The INMBSOCP0**0100 gateway can be set in two different working modes:

- **BMS Central System**: The gateway, together with the BMS, substitutes the central system of the OCPP installation.
- **OCPP Central System**: The gateway acts as a bridge between the OCPP charge points, the OCPP central system, and the BMS.

NOTE
The configuration of this gateway for both modes is almost identical. A note will indicate if a parameter is specifically intended for one of the modes.

10.2. Choose the Best Mode for your Project

To choose the mode that best suits your project, consider the following aspects:

BMS CENTRAL SYSTEM MODE

By using the BMS Central System mode, the BMS becomes the central system of the installation and manages all aspects of the EV charging process: authorization, starting and stopping of transactions, user management, tracking of electricity usage, billing, etc.

Also, when configured in this mode, the gateway provides a wide range of registers to the BMS. Consequently, the capabilities of the OCPP installation are not restricted by the central system; instead, they rely on the BMS.

Consult the complete list of registers available in: ANNEX: Modbus Registers (page 67).

MODBUS, OCPP, AND BMS PROGRAMMING SKILLS
When using the gateway in the BMS Central System mode, some registers must be written through the BMS side following a particular sequence to grant proper communication between the OCPP installation and the BMS.

You should be familiar with Modbus, OCPP, and BMS technologies to install the gateway in this mode.

USE THE BMS CENTRAL SYSTEM MODE WHEN:

- You want the OCPP installation to be exclusively managed by the BMS.
- You want the billing for energy usage to be managed by the BMS.
- You have enough knowledge of Modbus and OCPP protocols and BMS programming.

OCPP CENTRAL SYSTEM MODE

If you set the gateway in the OCPP Central System mode, the OCPP installation will be managed by the central system, so the capability of the installation will mainly depend on its central system.

When using this mode, the gateway acts as a bridge between the installation elements (the OCPP charge points, the OCPP central system, and the BMS). The main function of the gateway is to monitor the OCPP installation and allow the transfer of data between the OCPP installation and the BMS; all management processes remain under the control of the OCPP central system, except for the operations listed in the following note.

NOTICE

From Intesis MAPS version 1.2.12.0 with firmware version 1.0.5.0 onwards, the gateway's **OCPP Central System** mode also allows you to manage operations from the BMS, such as:

- Smart Charging Operations
- Remote Start Transactions
- Remote Stop Transactions
- Reservation

These operations are added to the operations already supported in the previous versions:

- Meter Values
- Availability
- Charger Information

NOTE

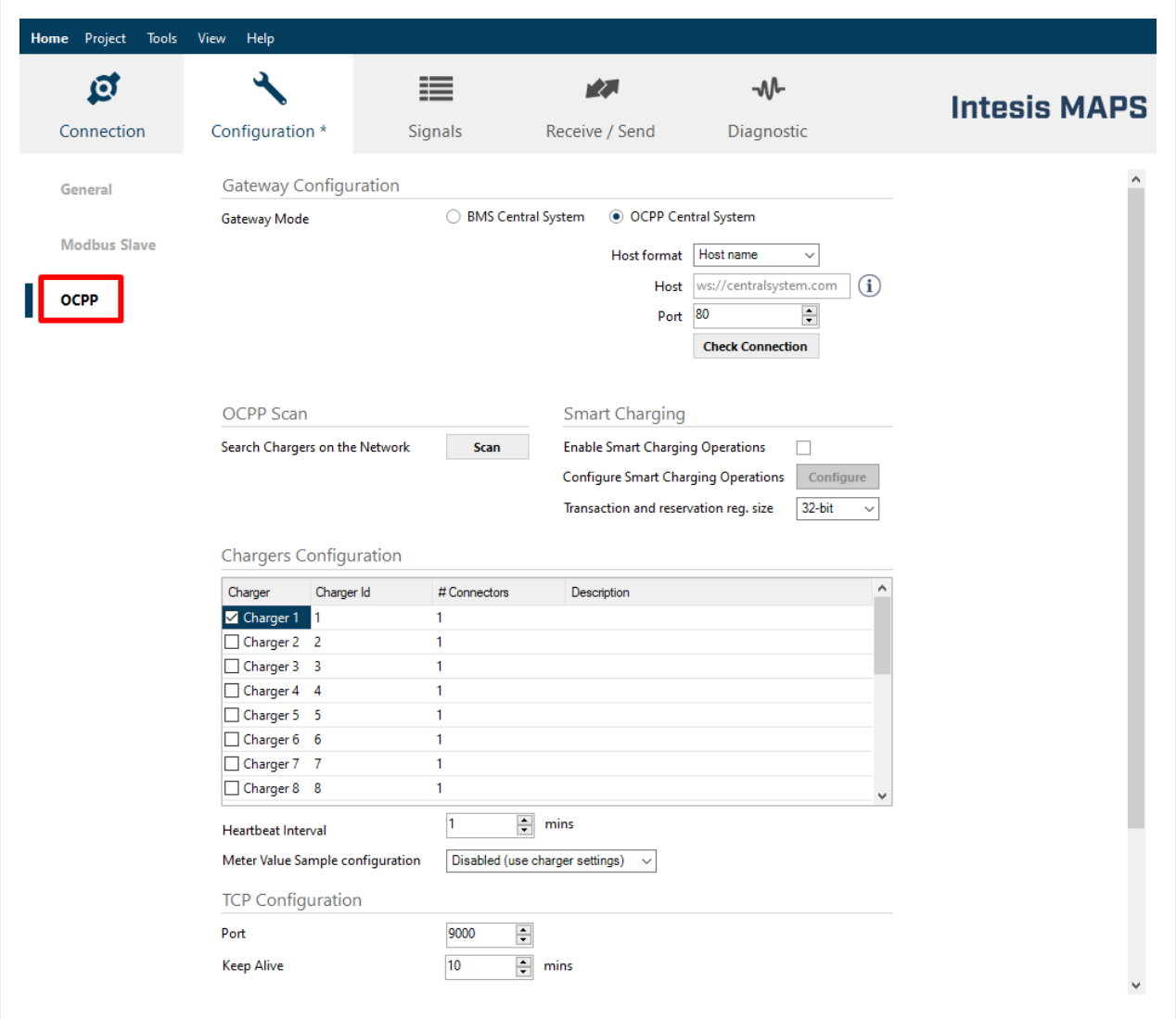
Having an OCPP central system simplifies the gateway integration process.

USE THE OCPP CENTRAL SYSTEM MODE WHEN:

- The installation has a central system.
- The main focus of your project is allowing the BMS to collect data, and need some interaction with the BMS, such as helping users with reservations, remote start and stop transactions, or smart charging operations for load balancing.
- You want the billing for energy usage to be managed by the OCPP central system or a cloud system connected to the central system.

10.3. Gateway Configuration

Figure 9. OCPP configuration parameters



Gateway Mode. Use this parameter to select the role of the gateway:

- **BMS Central System** (default value): The gateway and the BMS substitute the OCPP central system.

> **IMPORTANT**
> The logic of the gateway has been developed to be supported and complemented by the logic of a BMS. This means that the presence of a BMS is mandatory since the gateway cannot work on its own.

> **MODBUS, OCPP, AND BMS PROGRAMMING SKILLS**
> When using the gateway in the BMS Central System mode, some registers must be written through the BMS side following a particular sequence to grant proper communication between the OCPP installation and the BMS.
>
> You should be familiar with Modbus, OCPP, and BMS technologies to install the gateway in this mode.

- **OCPP Central System**: The gateway acts as a bridge between the installation elements (the OCPP charge points, the OCPP central system, and the BMS). The main function of the gateway is to monitor the OCPP installation and allow the transfer of data between the OCPP installation and the BMS; all management processes remain under the control of the OCPP central system, except for the operations listed in the following note:

  NOTICE
  From Intesis MAPS version 1.2.12.0 with firmware version 1.0.5.0 onwards, the gateway's **OCPP Central System** mode also allows you to manage operations from the BMS, such as:

  – Smart Charging Operations
  – Remote Start Transactions
  – Remote Stop Transactions
  – Reservation

  These operations are added to the operations already supported in the previous versions:

  – Meter Values
  – Availability
  – Charger Information

  When selecting this parameter, the following options are activated:

  – **Host format**: Use this parameter to determine the method by which the gateway establishes communication with the OCPP central system, either by its **Host name** or its **IP** address:

    - **Host name**

      IMPORTANT
      – This parameter admits no spaces and may only contain letters, numbers, periods, or hyphens.
      – When using the hostname, make sure the DNS server is correctly set. See Connection (page 34).

      – **Host**: In this parameter, type the hostname portion of the OCPP central system's URL. For example **ws://centralsystem.com**

        IMPORTANT
        Do not type the prefix "ws://" since it is already written in the parameter.

      – **Port**: Port of the OCPP central system. (Default value: **80**).

    - **IP**

      – **Host**: In this parameter, type the IP address of the central system after the prefix "ws://". For example **ws://192.168.100.200**
      – **Port**: Port of the OCPP central system. (Default value: **9000**).

    NOTE
    See an example of how to find this information in Adjusting the Charge Point's Settings (page 5).

  – Click the **Check Connection** button to test the connection between the gateway and the OCPP central system.

IMPORTANT
The configuration process for the gateway itself is almost identical for its two modes, as explained throughout this manual. Even so, when using the **BMS Central System** mode, you will have to configure not only the gateway but also some registers of the BMS. The BMS programming process is explained in more detail in Programming the BMS (page 51).

10.4. OCPP Scan

This function scans the OCPP network to discover all the charge points in the installation.

IMPORTANT
To use the scan function, ensure:

- The OCPP charge points are powered and turned on.
- The IP address in the OCPP charge points' host URL is the same as the IP address of the gateway*.
- You have correctly set the charge point's URL for all the charge points.

NOTE
* Find each charge point's host URL in the charge points' configuration tool. To know more, see Adjusting the Charge Point's Settings (page 5).

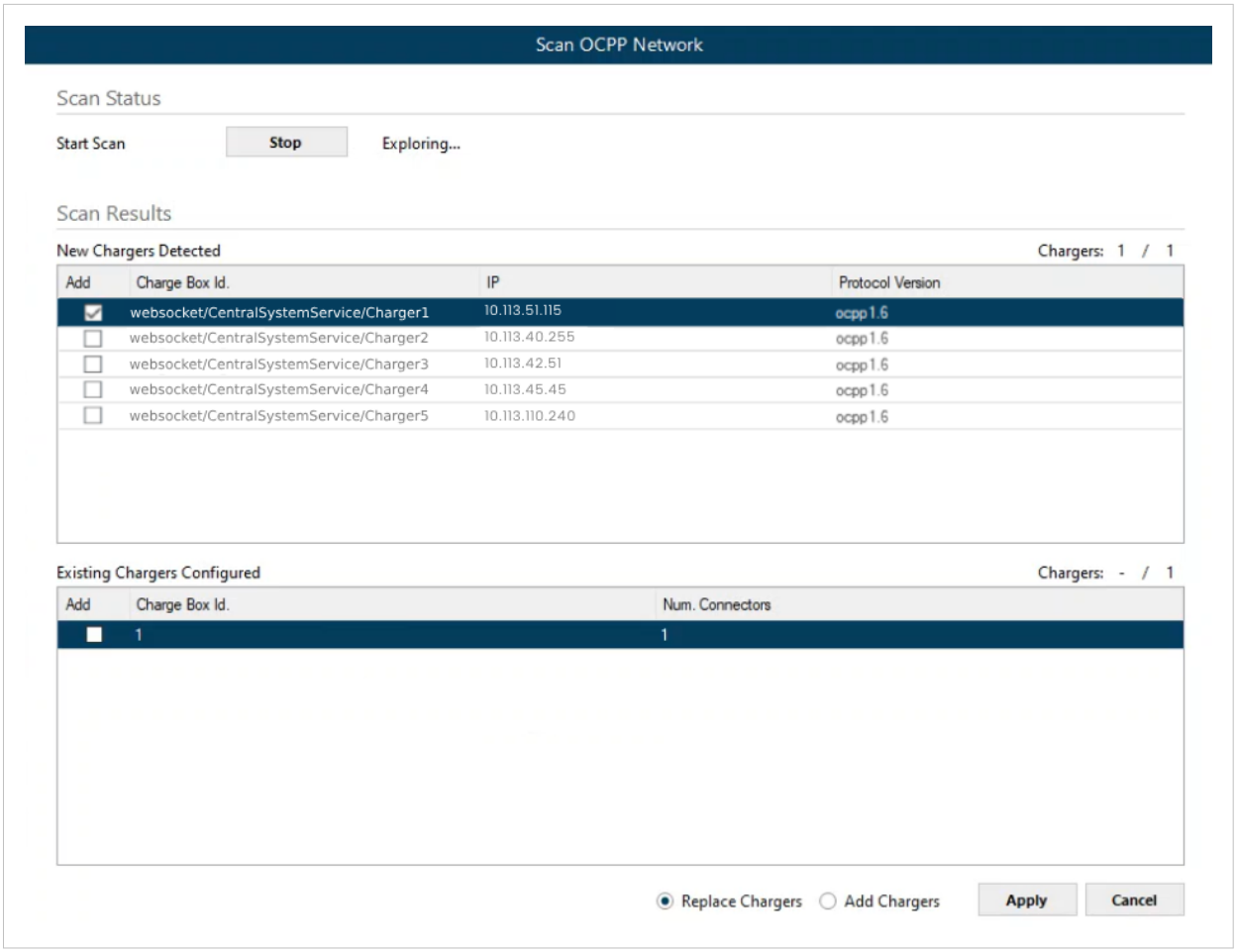
IMPORTANT
The Scan function only discovers charge points. The number of connectors of each charge point must be manually edited. See Chargers Configuration (page 31).

Search Chargers on the Network: Click the **Scan** button to open the **Scan OCPP Network** window.

- **Start Scan**: Click **Start Explore** to start the scanning process.

  NOTE
  The scanning process may take a long time, depending on the number of charge points in the installation.

  After the scanning process, all the charge points in the installation appear listed in the **New Chargers Detected** table.



IMPORTANT
Charge points highlighted in grey have already been configured in this gateway previously.

Allowed actions for the discovered devices:

- **Replace Chargers**: Replace charge points currently listed in the **Chargers Configuration** table with newly discovered charge points.
  The order of replacement is ascending. Given this case:

Figure 10. Charge points previously configured

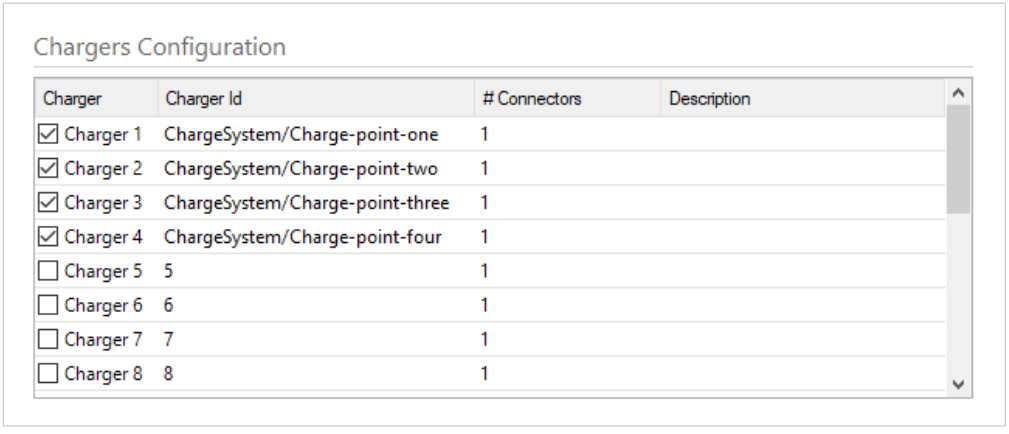
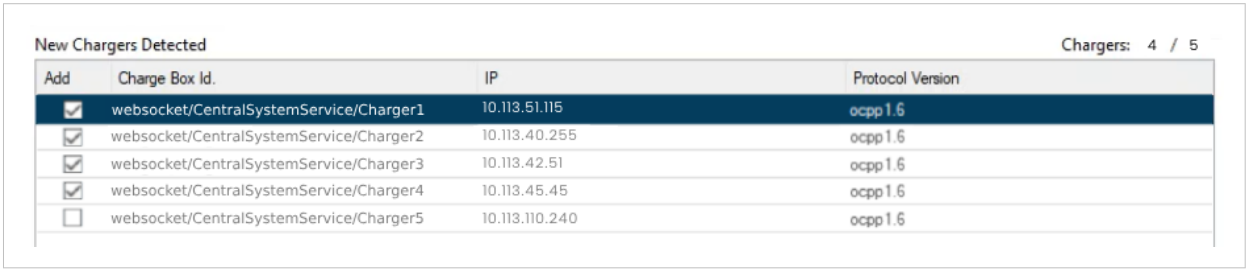


Figure 11. Charge points discovered after the scan process

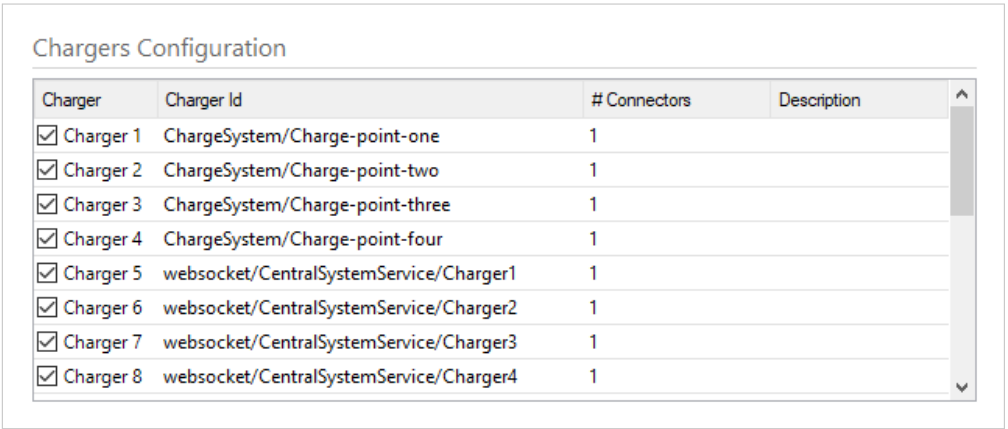


The order of replacement is the following:

Chargers Detected		Chargers Configuration
websocket/CentralSystemService/Charger1	←Replaces→	ChargeSystem/Charge-point-one
websocket/CentralSystemService/Charger2		ChargeSystem/Charge-point-two
websocket/CentralSystemService/Charger3		ChargeSystem/Charge-point-three
websocket/CentralSystemService/Charger4		ChargeSystem/Charge-point-four

- **Add Chargers**: Add newly discovered charge points to the current charge points already listed in the **Chargers Configuration** table.
  New charge points will be added after the already configured charge points, as shown in this image below:

Figure 12. Discovered charge points added to the already configured charge points



The procedure to replace or add charge points is the same:

1. Select the discovered charge points you want to import to the project by clicking their checkboxes.
2. Click **Apply**.

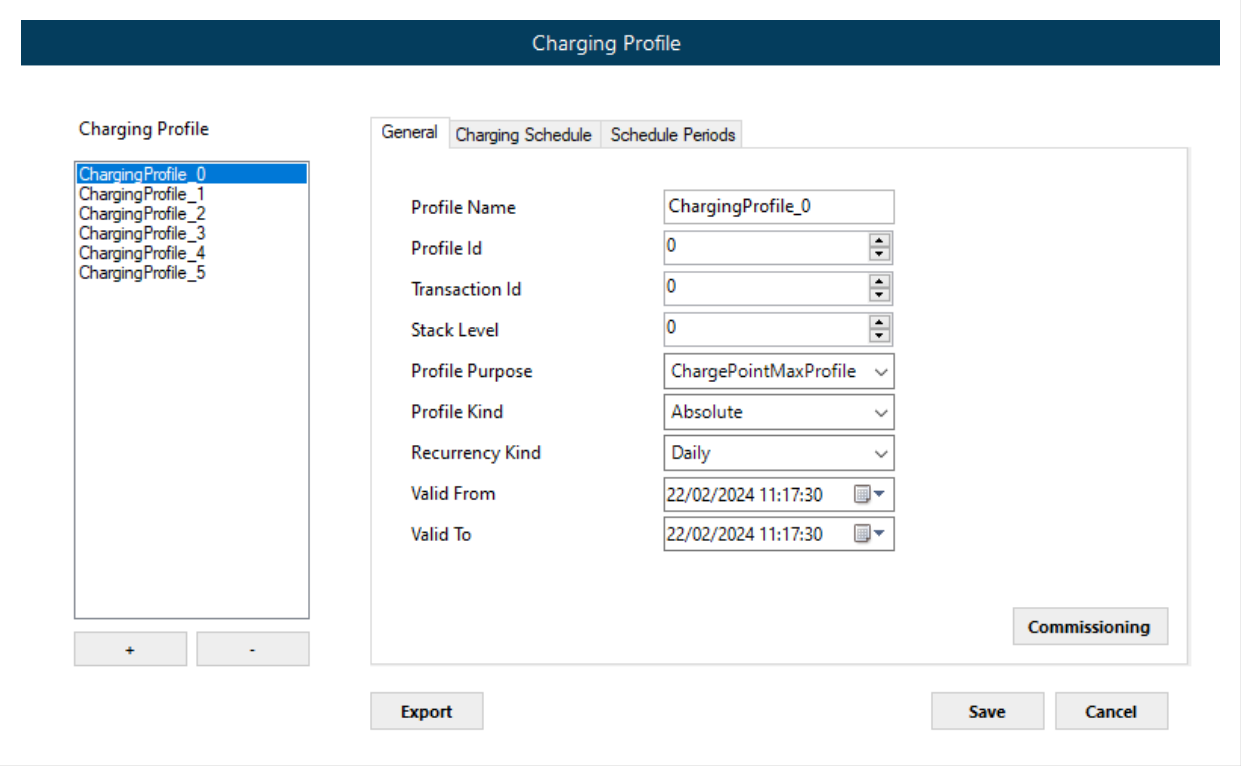
10.5. Smart Charging

The smart charging feature influences the OCPP installation's charging power or current based on different aspects, like the energy available on the grid of a building at a specific time, for example.

NOTE
This section explains how to create and configure charging profiles via Intesis MAPS. However, and despite the mode you choose for the gateway (**OCPP Central System** mode or **BMS Central System** mode), you can also add, set, and clear charging profiles manually, directly from the BMS, as explained in Programming the BMS: Charging Profiles (page 58).

IMPORTANT
The smart charging profiles, which contain information related to smart charging, must be set in one place only, either in the central system of the OCPP installation or in the BMS.

- **Enable Smart Charging Operations**: click the checkbox to enable this function.
- **Configure Smart Charging Operations**: click **Configure** to open the **Charging Profile** window.
  Charging profiles determine how and when to influence the charge power or current.



– **Adding charging profiles**: Click the + button.

NOTE
Add up to 25 charging profiles (ChargingProfile_0 .. ChargingProfile_24).

– **Deleting charging profiles**:

1. Select the charging profiles you want to delete.
2. Click the − button.

The Charging Profile window displays three menus:

General tab:

- **Profile Name**: Type a name for this profile.
- **Profile Id**: Set a unique identifier for this profile (0 .. 65535).
- **Transaction Id**: Only valid when the **Profile Purpose** is set to **TxProfile**. Is used to match the profile to a specific transaction (0 .. 65535).
- **Stack Level**: Determines the precedence of this charging profile. Higher values take precedence over lower values (0 .. 65535).
- **Profile Purpose**:
  - **ChargePointMaxProfile**: Limit the maximum power available on the entire charge point.

    IMPORTANT
    Consider the combined limit for all the charge point's connectors to ensure optimal performance.

  - **TxDefaultProfile**: Set default limits for a transaction (not the current transaction).
  - **TxProfile**: Set a power limit for the current transaction.
- **Profile Kind**:
  - **Absolute**: Schedule periods are relative to a fixed point in time defined in the schedule.
  - **Recurring**: The schedule restarts periodically at the first schedule period.
  - **Relative**: Schedule periods are relative to a situation-specific start point (such as the start of a session) that is determined by the charge point.
- **Recurrency Kind**:
  - **Daily**: The schedule restarts at the beginning of the next day.
  - **Weekly**: The schedule restarts at the beginning of the next week (defined as Monday morning).
- **Valid From**: Select the date and time at which the profile starts to be valid.
- **Valid To**: Select the date and time at which the profile stops to be valid.

Charging Schedule tab: Contains limits for the available power or current over time.

- **Duration (optional)**: Set the duration of the charging schedule in seconds (0 .. 86400).
- **Start Schedule (optional)**: Select the starting point of an absolute schedule.
- **Charging Rate Unit**:
  - **Watts (power)**
  - **Amperes (current)**
- **Min Charging Rate (optional)**: Minimum charging rate supported by the electric vehicle (0 .. 65535).

  NOTE
  The unit of measure is defined by the **Charging Rate Unit**.

Schedule Periods tab:

- **Adding schedule periods**: Click the + button.

NOTE
Add up to 50 schedule periods (SchedulePeriod_0 .. SchedulePeriod_49).

- **Deleting schedule periods**:
  1. Select the schedule period you want to delete.
  2. Click the − button.
- **Schedule Period Name**: Type a name for this schedule period.
- **Schedule Period Id**: Set a unique identifier for this schedule period (0 .. 65535).
- **Start Period**: Start of the period, in seconds, from the start of the schedule (0 .. 86400).

NOTE
The value of the **Start Period** also defines the stop time of the previous period.

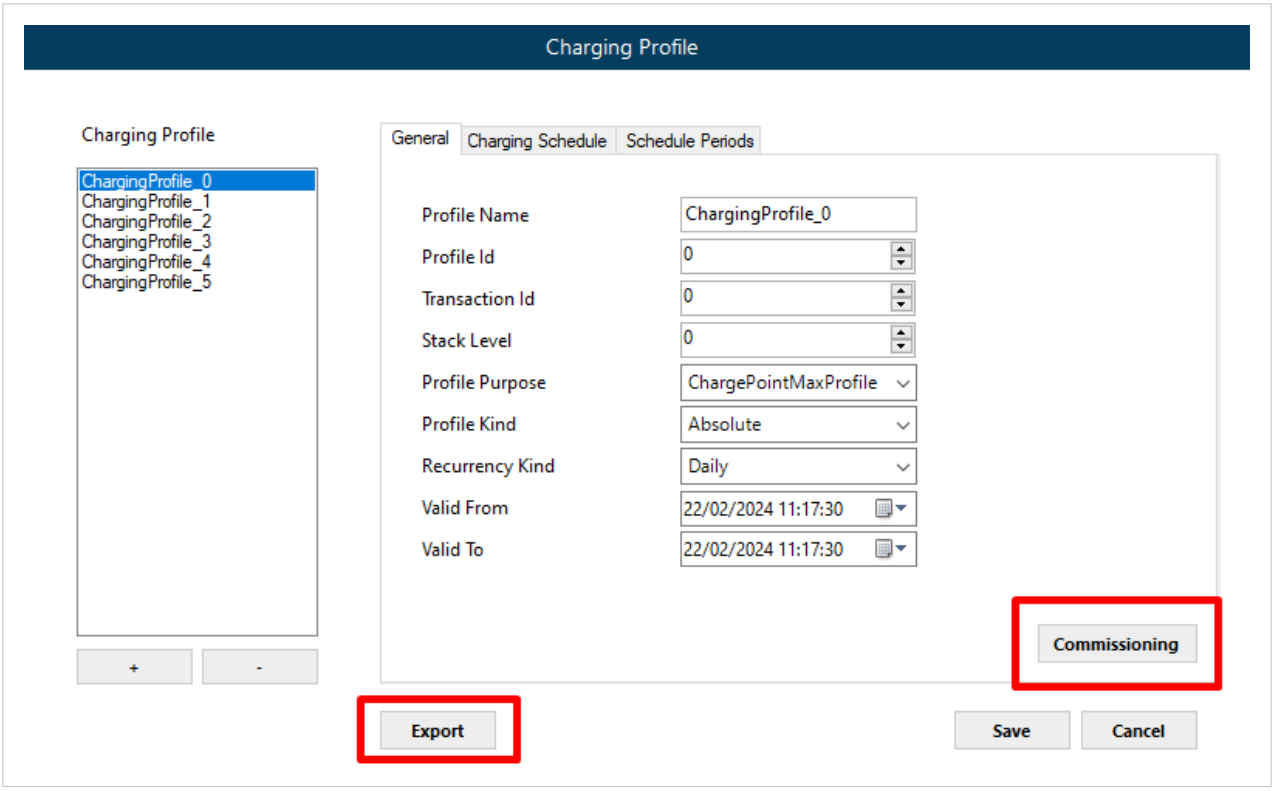
- **Limit**: Set a power limit during the schedule period in amperes or watts (**A/W**) (0 .. 86400).

NOTE
The unit of measure is defined by the **Charging Rate Unit**.

- **Number of phases (optional)**: Set the number of phases that can be used for charging (1 .. 3. Default: **3**).

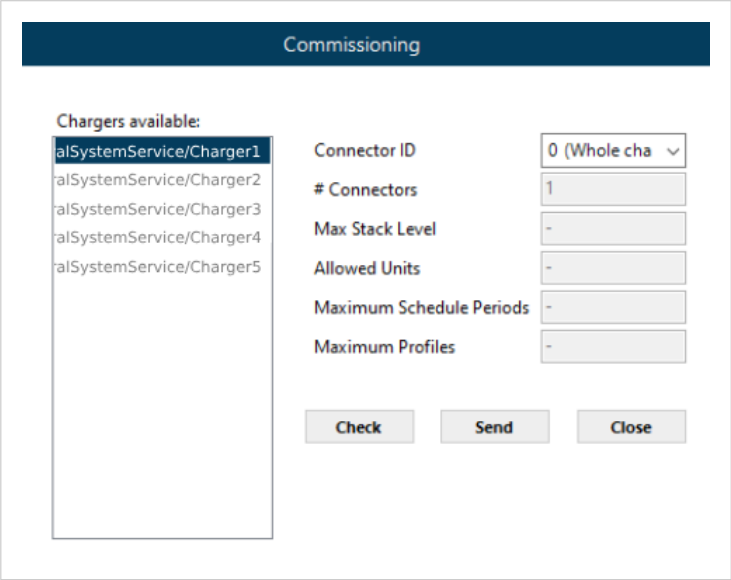
IMPORTANT
The amount of phases used during charging is limited by the capabilities of the charge point, the EV, and the cable between the charge point and the EV. If any of these elements is not capable of three-phase charging, the EV will be charged using one phase only.

Figure 13. Commissioning and Export options



- **Export**: Click the **Export** button to save an xlsx file.
- **Commissioning**: Use this option to assign charging profiles to charge points.

1. Click **Commissioning**.



The gateway searches for the charge points on the network.

> **NOTE**
> This process may take some time.

Once found, all charge points are listed in **Chargers available**.

2. Select the charge point you want to assign the current charging profile to by clicking on it.
The gateway connects with that charge point.

> **NOTE**
> This process may take some time.

3. Click the **Check** button to compare the values you set for this charging profile and the values permitted by the charge point.

> **IMPORTANT**
> The values permitted by the charge point vary depending on the manufacturer.

> **NOTE**
> If the configuration of a parameter is not permitted by the charge point, a message pops up indicating which parameter has the unpermitted value.

> **TIP**
> Don't skip this checking step since it allows you to know which particular parameter has the wrong value.

4. Click the **Send** button to assign the current charging profile to the selected charge point.

> **NOTE**
> If the configuration of a parameter is not permitted by the charge point, a message pops up indicating **Rejected**.

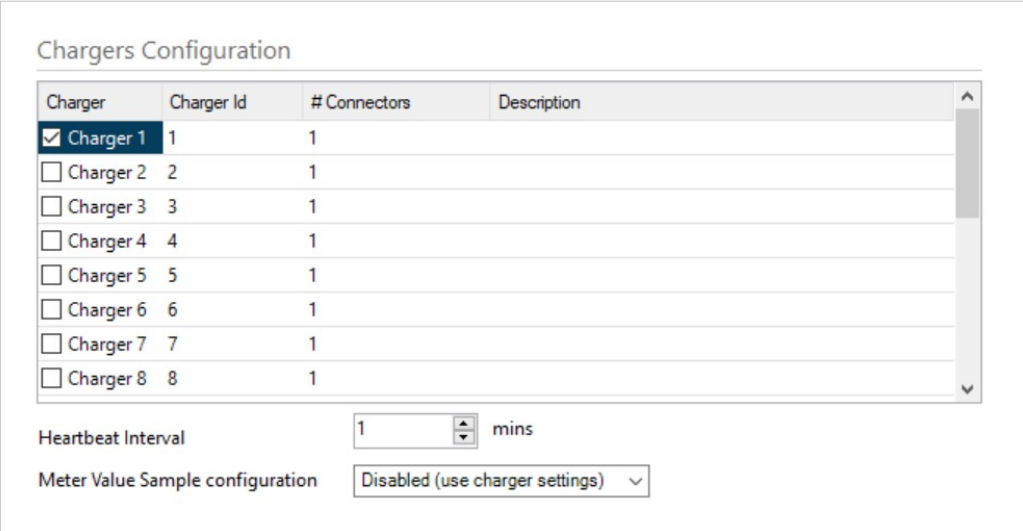
- **Transaction and reservation reg. size**: Select the register size for the transaction and reservation IDs (16-bit or 32-bit. Default: **32-bit**).

> **IMPORTANT**
> For projects created before Intesis MAPS version 1.2.17, the size of these registers is 16-bit. If you set this parameter to 32-bit, it will change the address of all the transaction and reservation ID registers, so you will need to update these addresses in the BMS.

10.6. Chargers Configuration

> **NOTICE**
> Remember that the INMBSOCPxx0100 gateway is offered in two versions:
>
> - INMBSOCP0010100: Supports one charge point and up to seven connectors for that charge point.
> - INMBSOCP0200100: Supports up to 20 charge points and up to seven connectors for each charge point.

> **NOTE**
> This topic explains how to manually fill in the charge points information.
>
> When configuring the gateway in the field and having access to the OCPP network, the best way to proceed is to scan the OCPP network. The gateway will automatically find and list all charge points in the network and get their configuration. See OCPP Scan (page 24).

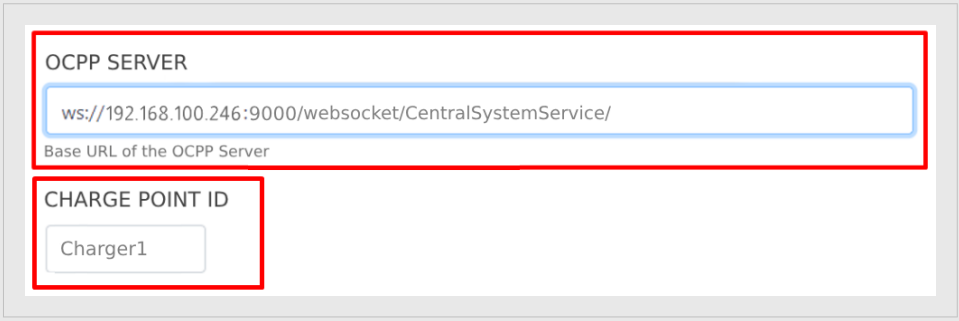


- **Chargers Configuration**: Use this table to type the needed information for each charge point.

1. In the **Charger** column, select the number of charge points present in the OCPP network by clicking their checkboxes.

2. Use the **Charger Id** column to type the name for that charge point.

NOTICE
The Charger Id is composed with the final part of the OCPP server's URL (the part after the port) and the name of the charger. Given this example:



The **Charger Id** is: **websocket/CentralSystemService/Charger1**

3. In the **# Connectors** column, type the number of connectors for each charge point.*
4. Use the **Description** column to type a description for the charge point.

- **Heartbeat Interval**: Set the interval of inactivity, in minutes, after which the charge point sends a Heartbeat message (0 .. 1000. Default value: **1 min**).
- **Meter Value Sample configuration**: Enable/disable the configuration of the meter values.
  - **Disabled (use charger settings)** (Default value).
  - **Enabled**. When enabled, this parameter shows two more options:
    - **Meter Value Sample Interval**: Set the interval, in seconds, between sampling of metering (or other) data intended to be transmitted by "MeterValues" (0 .. 3600. Default value: **60 seconds**). If the value is 0, no sampled data will be transmitted.
    - **Meter Value Data**:
      1. Click the ... button.
      2. In the **Meter Values Data** window, select the desired measurands by clicking their checkboxes. See the table below.
      3. Click **Apply**.

NOTE
Read the charge points documentation to know the available measurands.

The configuration of the meter values is also possible through the charge points configuration interface.

Table 1. Allowable measurands

Value	Description
Current Export	Instantaneous current flow from the EV.
Current Import	Instantaneous current flow to the EV.
Current Offered	Maximum current offered to the EV.
Energy Active Export Interval	Energy exported by the EV (Wh or kWh).
Energy Active Export Register	Energy exported by the EV (Wh or kWh).
Energy Active Import Interval	Energy imported by the EV (Wh or kWh).
Energy Active Import Register	Energy imported by the EV (Wh or kWh).
Energy Reactive Export Interval	Reactive energy exported by the EV (varh or kvarh).
Energy Reactive Export Register	Reactive energy exported by the EV (varh or kvarh).
Energy Reactive Import Interval	Reactive energy imported by the EV (varh or kvarh).
Energy Reactive Import Register	Reactive energy imported by the EV (varh or kvarh).
Frequency	Instantaneous reading of powerline frequency.
N Voltage	Instantaneous AC root-mean-square (RMS) supply voltage.
Power Active Export	Instantaneous active power exported by the EV (W or kW).
Power Active Import	Instantaneous active power imported by the EV (W or kW).
Power Factor	Instantaneous power factor of total energy flow.
Power Offered	Maximum power offered to the EV.
Power Reactive Export	Instantaneous reactive power exported by the EV (var or kvar).
Power Reactive Import	Instantaneous reactive power imported by the EV (var or kvar).
RPM	Fan speed in RPM.
SoC	State of charge of the charging vehicle in percentage.
Temperature	Temperature reading inside the charge point.

10.7. TCP Configuration

- **Port**: Set the TCP port of the OCPP network (1 .. 65535. Default value: **9000**).
- **Keep Alive**: Set the time of inactivity, in minutes, before sending a keep-alive message (1 .. 1440. Default value: **10 mins**).

NOTE
Set the value to 0 (numerical zero) to disable this function.

11. General Configuration Menu

11.1. General Configuration

- **Gateway Name**: Type a descriptive name for your gateway (max. 32 characters).
- **Project Description**: Type a short description of your project (max. 255 characters).

11.2. Connection

- **Enable DHCP (selected by default)**.
  When sending the project to the gateway, the status of this parameter determines how the IP address is assigned:
  - The parameter is selected: No IP address is assigned to the gateway, which will be permanently waiting for a DHCP server to assign an IP address.
  - The parameter is deselected: A static IP address must be assigned to the gateway through the following parameters:
    - **IP Address**: Set the static IP address (default value: **192.168.100.246**).

      IMPORTANT
      When setting the **Gateway Mode** to **OCPP Central System**, the gateway and the OCPP central system IP address must be within the same range.

      IMPORTANT
      Change the gateway's default IP address before integrating it at the final installation site to prevent security issues and IP conflicts.

    - **Net Mask**: Set the subnet mask (default value: **255.255.255.0**).
    - **Default Gateway**: Type the access point/router IP address.

      NOTE
      The **Default Gateway** parameter is a networking concept that is not related to the Intesis gateway. It refers to the IP address of the device (usually a router) that serves as the access point for sending data from the local network to other networks, including the Internet. Therefore, this field only needs to be filled in if the Intesis gateway is connected outside the local network.

    - **Preferred DNS Server**: Type the DNS server IP address.
    - **Alternate DNS Server**: Type the IP address of an alternative DNS server.

      NOTE
      The gateway connects with this alternative DNS server if there is no communication with the **Preferred DNS Server**.

- **Password**. Use this option to visualize the gateway's password and set a new one.

> **IMPORTANT**
> Change the default password before sending the project to the gateway. Follow the instructions below.

1. Click the **Change** button.
2. Type a new password.
3. Go to the **Receive/Send** tab.
4. In the **Send** menu, click the **Send** button.
5. Go to the **Connection** tab.
6. Select the gateway from the **Discovered Gateways** window.
7. Click **Connect**.

11.3. Security

- **Edit Security Configuration**: Click the **Edit** button to open the **Security Configuration** window.

> **IMPORTANT**
> We recommend keeping the predetermined configuration.

  - **Disable UPD Discover Service** (disabled by default): If selected, the gateway is not discoverable through UDP communication.
  - **Disable TCP Console Service** (disabled by default): If selected, the gateway stops communicating with the configuration and diagnostic software through TCP. This only applies to gateways supporting connection to the PC via both Ethernet and console ports.
  - **Use custom UDP/TCP port** (disabled by default): Enable to set the UDP/TCP port manually.
  - **Disable HTTPS Certificates Auto Update** (enabled by default): If selected, automatic updates for HTTPS certificates are not allowed. If deselected, you can set the update time period using the parameter below.

Click **Save** to save the changes.

12. Modbus Configuration Menu

12.1. Modbus Configuration

- **Type**: Select the communication type.
  - **RTU**: Serial communication over the EIA-485 bus.
  - **TCP**: IP communication over Ethernet.
  - **RTU + TCP**: Simultaneous communication (serial over the EIA-485 bus and IP over Ethernet at the same time).
- **Byte Order 32 bits registers**: Select the byte order for the BMS configuration.
  - **Big Endian**
  - **Little Endian**
  - **Word Inv BE** (Word Inverted Big Endian)
  - **Word Inv LE** (Word Inverted Little Endian)
- **Notification on MB Write**: Select when to send Modbus writing notifications to the device protocol.
  - **Always** (default value)
  - **On Change of Value**

12.2. TCP Configuration

By selecting TCP as the communication type, you can configure:

- **Port**: Set the port for communication between the gateway and the Modbus TCP system (1..65535).

  NOTE
  The default port is 502.

- **Keep Alive**: Set the time in minutes before sending a keep-alive message (1..1440. Default value: **10 minutes**).

  NOTE
  Set the parameter to 0 to disable this function.

- **Slave Number**: Set the server address (1..255. Default value: **1**).

12.3. RTU Configuration

The RTU communication type is configured through the following parameters:

- **Baudrate**: Select the communication speed: 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 bps.

NOTE
The baud rate is set to 9600 bps by default.

- **Data type**: Select the frame format (Default format: **8bit/None/1**).

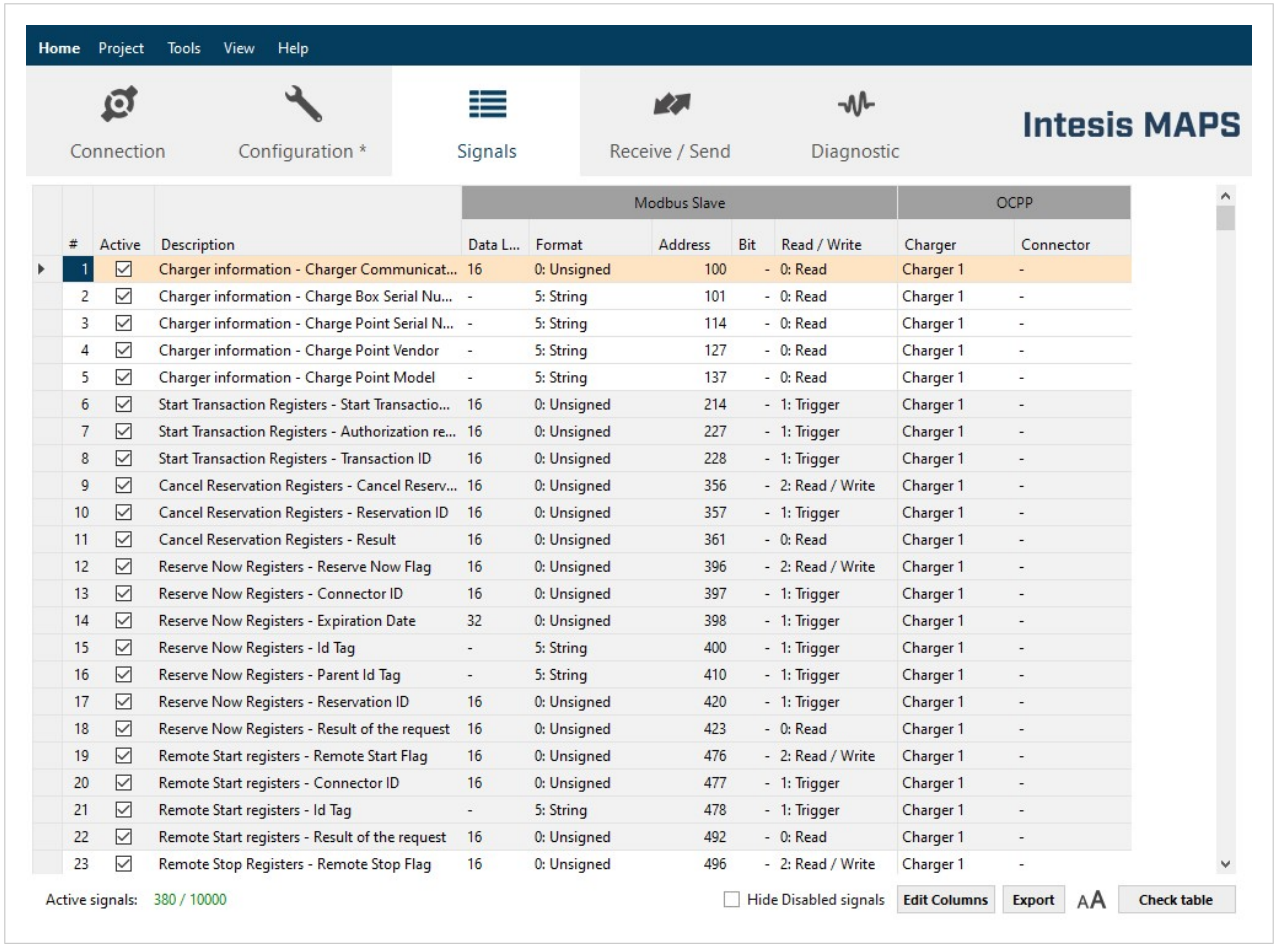
Data bits	Parity	Stop bits
8bit	None Even Odd	1 2

- **Slave Number**: Set the server starting address (1..255. Default value: **1**).

13. Signals Tab

This menu lists all available signals and their parameters for both Modbus and OCPP protocols.

Figure 14. Signals tab for Modbus and OCPP



Below the list of signals, these options are available:

- **Active signals**: Number of active signals / total number of signals.

> **TIP**
> You can use the checkbox at the column header to select or deselect all signals at once.

- **Hide Disabled signals (disabled by default)**: Show/hide all disabled signals from the list.
- **Edit Columns**: Click this button to hide/show any column of the table.
- **Export**: Click this button to export the current signals' configuration to an XLSX file for later import, helping to reduce commissioning time.

> **TIP**
> The **Import** and **Export** options can help you reduce commissioning time. However, you can also export and import the whole project's configuration, including the signal's settings, as explained in Saving, Opening, Importing, and Exporting the Project.

- **AA**: Increases or decreases the font size.
- Click the **Check table** button to review the signals' configuration.

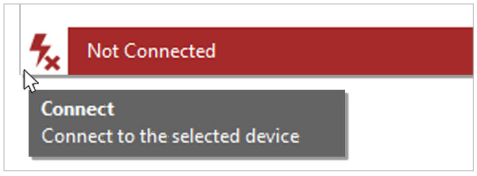
NOTE
If any signal parameter is incorrect, a message will pop up with specific error information.

14. Receive/Send Tab

SEND

NOTE
Once you have finished setting all the necessary parameters for your Intesis MAPS project, you must load the project onto the gateway to configure it. The gateway will not be configured until the Intesis MAPS project is sent to it.

1. Click the **Send** button.
   a. If the gateway is still factory-set, you will be prompted to save the project on your PC. Once saved, the configuration is automatically sent to the gateway.
   b. If you have already saved the project, the configuration is automatically sent to the gateway.
2. Connect again with the gateway after sending the file.



NOTICE
The gateway reboots automatically once the new configuration is loaded. This process may take a few seconds.

Once the configuration is completed and sent, the gateway is already operative. Even so, you should review that everything works correctly by entering the **Diagnostic** tab.

RECEIVE

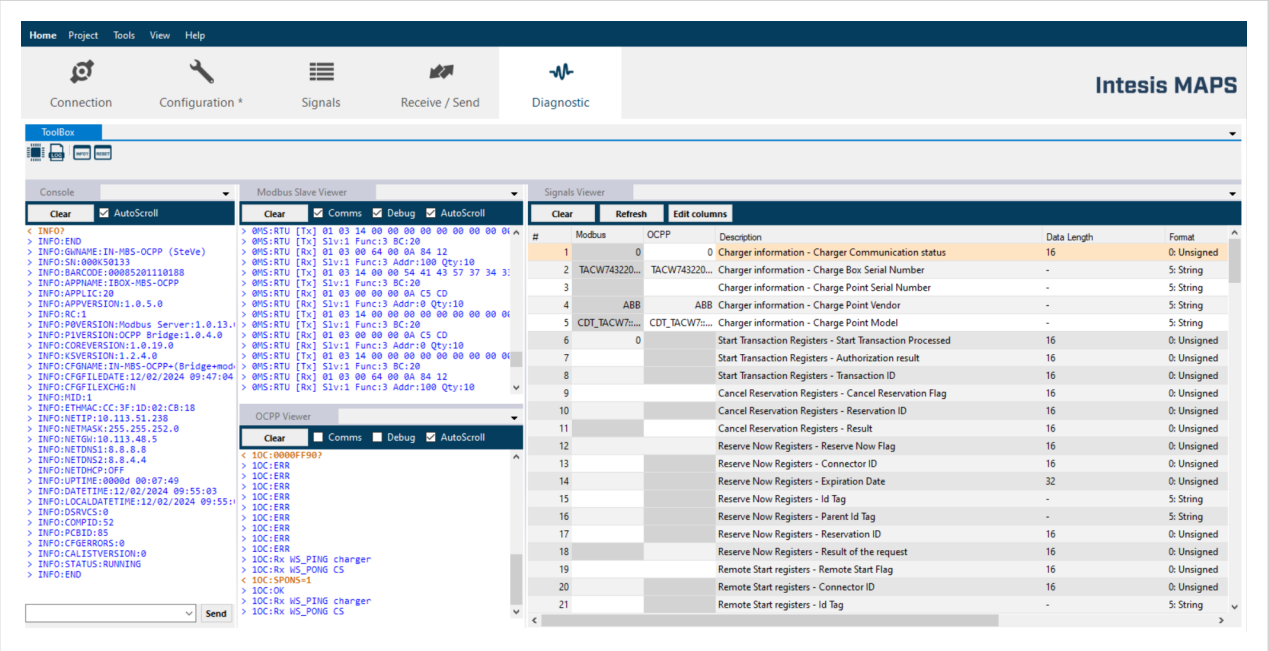
Use this function to load the configuration of a gateway to Intesis MAPS.

TIP
This function may be helpful when you need to change some parameters of an already configured gateway or to clone the project loaded in a gateway.

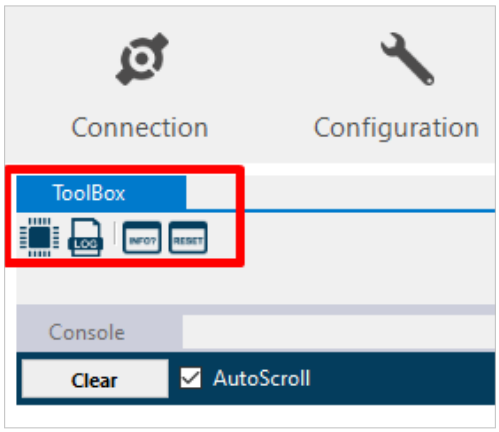
15. Diagnostic Tab

IMPORTANT
Connection with the gateway is required to use the diagnostic tools.

Figure 15. Diagnostic tab window. Find the ToolBox between the upper tabs bar and the Console view. Below it, from left to right: Console viewer, Protocol viewers (one above the other), and the Signals viewer



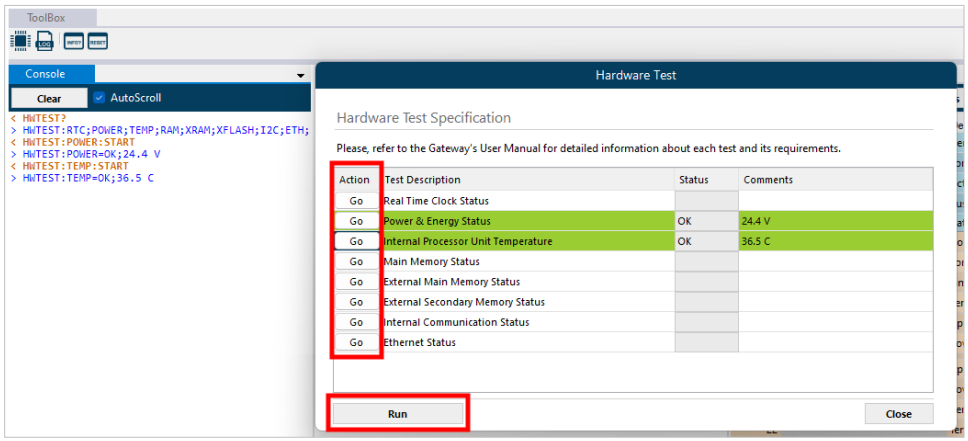
TOOLBOX



IMPORTANT
Depending on your screen resolution, the **ToolBox** icons may appear partially hidden behind the **Viewers** window.

Options in the **ToolBox** menu, from left to right:

- **Microprocessor icon**: Run a hardware test for each component of the gateway.



  - Use the **Go** buttons to run a test for each specific element.
  - Use the **Run** button to run a test for all hardware elements.

> **NOTICE**
> The information will be displayed in both the **Hardware Test** dialog and the **Console** viewer.

- **LOG**: Set Intesis MAPS in logging mode to record all the information present in the viewers and save it in a .zip file.

> **NOTICE**
> - Once the recording starts, the **LOG** icon turns red.
> - You can stop the recording at any moment by clicking the **LOG** icon.
> - When the recording stops, a dialog appears allowing you to run a hardware test and include it in the log file.

- **INFO?**: This option shows the gateway information in the **Console** viewer.
- **RESET**: Reset the gateway.

VIEWERS

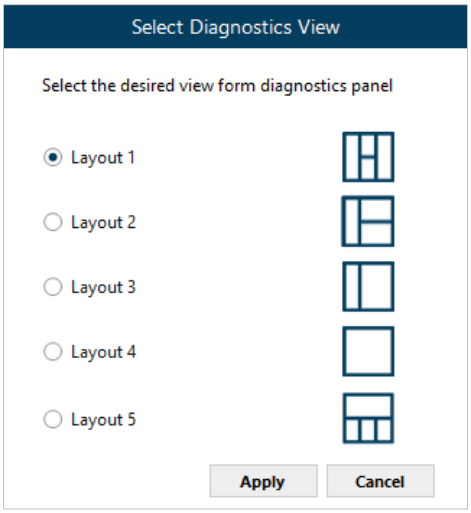
Intesis MAPS provides several viewers:

- A generic console viewer for general information about communications and the gateway status.
- A viewer for both protocols to check their current status.
- A signals viewers to simulate the BMS behavior or check the system's current values.

> **NOTE**
> Use the refresh button to get updated values on the signals viewer.

The layout of these viewers can be modified:

- Using the **Select Diagnostics View** option from the **View** menu:



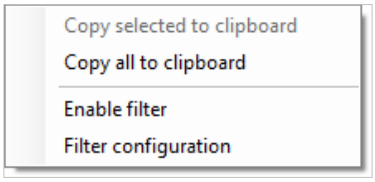
> **NOTE**
> Layouts 3 and 4 offer two different tabbed options:
>
> – Fixed console to the left and tabbed browser for the other viewers
>
> – Full tabbed browser

- Clicking and dragging the border of a viewer. To do so, place the cursor over the edge of a viewer. On the vertical edges, the cursor changes to ↔ to adjust the width, and on the horizontal edges, the cursor changes to ↕ to adjust the height.

Viewers can also be arranged manually by clicking and dragging them from their title bar, to use them as independent windows or to position them in relation to other viewers.

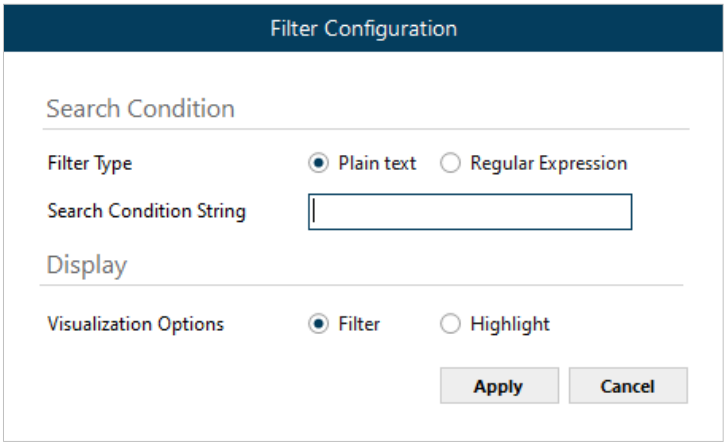
FILTERING

A filtering tool is available for the console and the bus viewers to find the desired information more efficiently. To use this tool, right-click on the viewer.



The options available for this tool are:

- **Copy selected to clipboard**: It copies the selected text into the clipboard. If no text is selected, this option is disabled.
- **Copy all to clipboard**: It copies all the information from the viewer to the clipboard.
- **Enable filter**: This option enables or disables the configured filter. To use this option, a filter must be defined beforehand under Filter configuration.



- **Filter configuration**: The filter itself is defined here, using some additional options:
  - **Search Condition**:

- **Filter Type**:
  - **Plain text**: It searches all the communication frames that include the text specified in the **Search Condition String** below.
  - **Regular Expression**: It searches all the communication frames that match the regular expression specified in the **Search Condition String** below.

NOTE
A regular expression is a sequence of characters that specifies a match pattern in text. If you are not familiar with regular expressions, use the **Plain text** option instead.

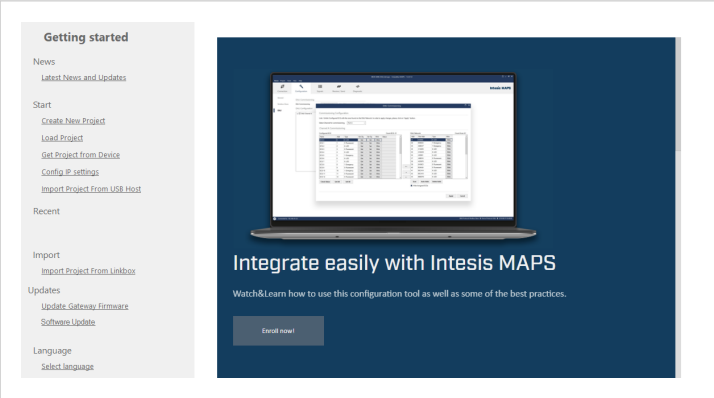
- **Display**:
  - **Visualization Options**:
    - **Filter**: It removes all the communication frames that do not fulfill the filter condition specified in the **Search Condition String**.
    - **Highlight**: It highlights the communication frames that fulfill the filter condition specified in the **Search Condition String**.

16. FAQ and Troubleshooting

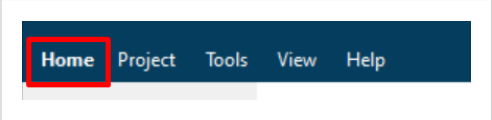
GENERAL QUESTIONS

- If the installation's charge points don't allow the smart charging feature, could your gateway make it available?
  - No. Even if the INMBSOCP0**0100 gateway supports it, this functionality depends on the charge point and is mandatory for the charge point to implement it.
- My template for the **IN-MBS-OCPP** project substantially differs from the template shown in this configuration guide.
  - Make sure you are running an up-to-date version of Intesis MAPS (1.2.17.0 or higher).
- How do I update Intesis MAPS?

1. Enter the Intesis MAPS home page.
   - This page appears when opening Intesis MAPS.



   - If you are already creating a project, select **Home** in the top menu.



2. Click the **Software Update** option you can find in the **Getting started** section on the left.

> **NOTICE**
> If you are already using the latest version available, a dialog appears informing you that the software is up to date.

3. If there is a new version available, a dialog will show the information about the new version and an **Update** option.

- What is the default password of the gateway?
  - admin
- How do I change the password of the gateway?

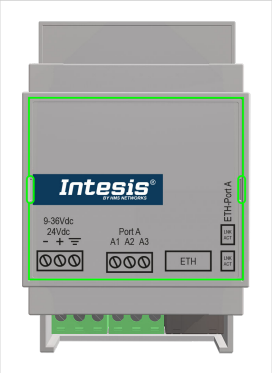
1. Go to the **Configuration** tab.
2. In the **Connection** section, click the **Change** button next to the **Password** parameter.
3. Type a new password.

4. Go to the **Receive/Send** tab.
5. In the **Send** menu, click the **Send** button.
6. Go to the **Connection** tab.
7. Select the gateway from the **Discovered Gateways** window.
8. Click **Connect**.

- I don't know the gateway's password.
  - Try the default password: **admin**.
  - Perform a factory reset (see below).
- I exhausted all the attempts to write the correct password.
  - After waiting for one minute, you will have three more attempts. If you exhaust these three new attempts, you'll need to wait another minute before having one more attempt. If you enter a wrong password again during this attempt, you'll have to wait ten minutes. After these ten minutes, the sequence starts anew.
  - Perform a factory reset (see below).
- How do I perform a factory reset?

IMPORTANT
This action will restore the gateway to its original state, erasing all project data and settings.

1. Disconnect the power supply to the gateway.
2. Using a small flat screwdriver, remove the gateway's main front cover to access the push button.

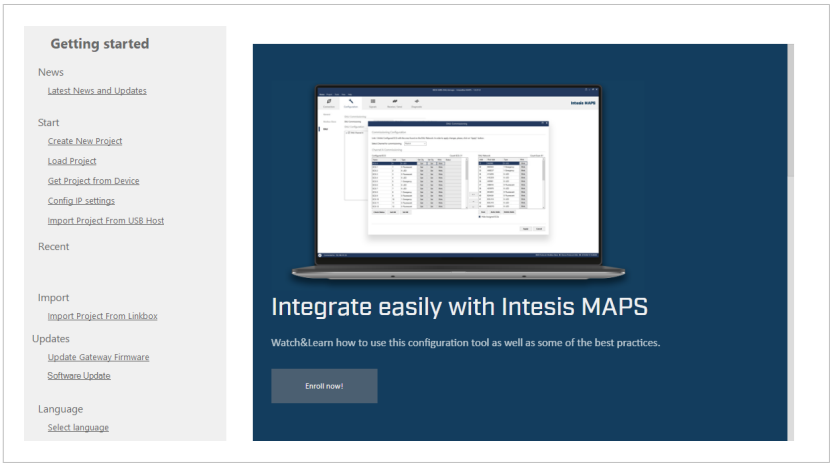


3. Locate the push button on the PCB's right side, below the DIP switches.
4. Press and hold the button.
5. Reconnect the power supply to the gateway (keep the button pressed).
6. After five seconds, release the button.
7. The LEDs on the PCB board will follow a short blinking sequence. The process is completed once the blinking sequence ends.
8. Place the cover back on.

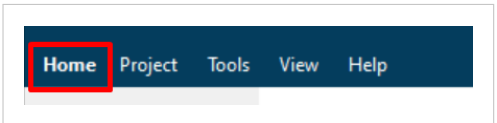
- How do I update the gateway's firmware version?

> **NOTE**
> When connecting to the gateway, Intesis MAPS will automatically detect if a new firmware version is available. If so, a new dialog appears showing the firmware version number, the release date, and what's new for this version. Through the **Download** and **Later** buttons, you can update the firmware immediately or postpone the update.

1. Enter the Intesis MAPS home page.
   - This page appears when opening Intesis MAPS.



   - If you are already creating a project, select **Home** in the top menu.



2. Click the **Update Gateway Firmware** option you can find in the **Getting started** section on the left.
3. On the **Select Discovery Mode** dialog, select **IP**.
4. Select the gateway name from the list.

> **NOTICE**
> If the gateway name does not appear, click the **Refresh** button.
>
> If the problem persists, ensure the gateway and the computer are correctly connected. See the **CONNECTION TAB** topic below.

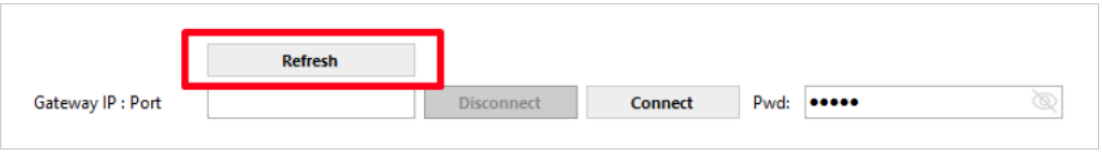
5. All data from the **Value** column on the right will be automatically populated when the correct gateway is selected.
6. Click **Update Firmware**.
7. The **Firmware Manager** dialog offers two options to update the gateway's firmware:
   - **Update from File**: Use this option if you have a file with the new firmware version stored locally on your computer.
   - **Check for Update**: Use this option if you want to update the firmware online:

> **IMPORTANT**
> You need an internet connection to use this option.

> **NOTE**
> After creating or loading a project, the firmware manager is also available through the **Tools - Firmware** option in the top menu.

CONNECTION TAB

- The gateway does not appear in the **Discovered Gateways** field.
  - Wait a minute for the gateway to initialize and become ready.
  - Click the **Refresh** button.



  - Deactivate the Wi-Fi connection on your computer.

> **TIP**
> On rare occasions, having the Wi-Fi connection activated causes the Windows system to bypass the Ethernet connector, preventing the computer from finding the gateway.

  - Make sure:
    - All connectors are correctly plugged.
    - If you connected the gateway and the computer through a DHCP-enabled network, make sure the Ethernet settings on your computer are configured in **Automatic (DHCP)** mode.

    - If you connected the gateway directly to the computer, make sure the Ethernet settings on your computer are configured in **Manual** mode and using the IP version **IPv4**. Besides, ensure that the IP address of the gateway and the computer are within the same subnet.

> **NOTE**
> The gateway's default IP address is **192.168.100.246**

    - You are using an Ethernet CAT5 or higher cable.

TIP

Modern hardware often detects the Ethernet cable's pinout configuration and adjusts accordingly. However, if you still have problems discovering the gateway after following the instructions above, try using this specific type of cable, depending on how you connected the gateway to the computer:

- The gateway and the computer are connected through an Ethernet network: Use a straight-through Ethernet cable.
- The gateway is directly connected to the computer: Use a crossover Ethernet cable.

CONFIGURATION TAB

- Why does an asterisk appear next to the menu title?
  - This is a reminder that you made some changes to the project's configuration but have not saved them yet.
  - In the top menu, click on **Project** → **Save** (or press Ctrl + S) or **Project** → **Save As** (or press Ctrl + Alt + S).

CONFIGURATION TAB (OCPP MENU IS SELECTED ON THE LEFT)

- When clicking **Check Connection**, an error message pops up.
  - Make sure:
    - All connectors are correctly plugged.
    - The IP or the HostName of the OCPP central system is correctly written in the **Host** parameter.
    - The **Port** you set corresponds to the port of the OCPP central system.
    - The gateway has access to the internet or the host.
    - The gateway is correctly configured.
- When using the **OCPP Scan** function, no charge points are found.
  - Make sure:
    - The charge points are powered and turned on.
    - The charge points are correctly configured. See Adjusting the Charge Point's Settings (page 5).
    - All connectors are correctly plugged.
    - The network settings for the gateway, the charge points, and the central system are correctly set.
- When using the **OCPP Scan** function, only one of the installation's charge points appears.
  - Consult your gateway's order code. If the order code is INMBSOCP0010100, your gateway only supports one charge point. If you need more capacity, you should buy the gateway with the order code INMBSOCP0200100, which supports up to twenty charge points.
  - Make sure:
    - All connectors are correctly plugged.
    - The not-found charge points are powered and turned on.
    - The not-found charge points are correctly configured. See Adjusting the Charge Point's Settings (page 5).
    - The network settings for the gateway, the charge points, and the central system are correctly set.
- When using the **OCPP Scan** function, the number of connectors listed doesn't match the real number of connectors in the installation.

  - The Scan function only finds charge points. Adjust the number of connectors manually. See Chargers Configuration (page 31).

- I configured the **Meter Value Data** in Intesis MAPS correctly, but their values are not applying.
  - The meter values function is related to the charge points. While the gateway permits the configuration of all possible values, it's essential to consult the documentation for your charge points to determine if they also support this feature. Your charge points may support all of the meter values measurands, only some of them, or none at all.

CONFIGURATION TAB (GENERAL MENU IS SELECTED ON THE LEFT)

- Is the parameter **Time Configuration** from this menu the same as the **Time synchronization** operation explained in the **Programming the BMS** section?
  - No. The **Time Configuration** parameter from the **Configuration tab (General)** will set the clock of the gateway to the same time as the clock on your PC, while the **Time synchronization** operation will synchronize the gateway with the BMS.

CONFIGURATION TAB (MODBUS SLAVE MENU IS SELECTED ON THE LEFT)

- When selecting the **Modbus Configuration Type** as **TCP** or **RTU+TCP**, a **Port** parameter appears. Should this port match with the port for the charge points?
  - No, this parameter refers to the port of the BMS.

DIAGNOSTIC TAB

- No signals related to smart charging appear.

  Make sure:
  - The **Enable Smart Charging Operations** option is selected. See Smart Charging (page 27).
  - The **Charging Profiles** are correctly configured. See Smart Charging (page 27).
  - You sent the project's configuration from Intesis MAPS to the gateway.

- No data is received from the charge points.
  - Make sure:
    - The charge points are powered and turned on.
    - The charge points are correctly configured. See Adjusting the Charge Point's Settings (page 5).
    - All connectors are correctly plugged.
    - The network settings for the gateway, the charge points, and the central system are correctly set.
  - Try to reboot every charge point.

17. Programming the BMS

When using the gateway with the BMS Central System mode, the OCPP central system is removed from the installation and all functions it manages are trespassed to the gateway and the BMS. The BMS becomes the main control element of the installation.

This means that once the gateway is configured, you have to do some programming in the BMS.

NOTE
We use the term "gateway+BMS" in the following topics to name the combination of the gateway and the BMS.

17.1. Time Synchronization

The BMS can periodically synchronize the time with the Intesis gateway so that the gateway can do the same with the charge points.

The date and time can be set using the dedicated Modbus registers. See ANNEX: Modbus Registers (page 67).

IMPORTANT
These registers must be written in a particular order and within 15 seconds.

All time registers must be written; partial dates are not valid.

IMPORTANT
Date and time are essential for functions like smart charging and must be synchronized with the gateway.

Consult the Sequence Diagrams (page 61).

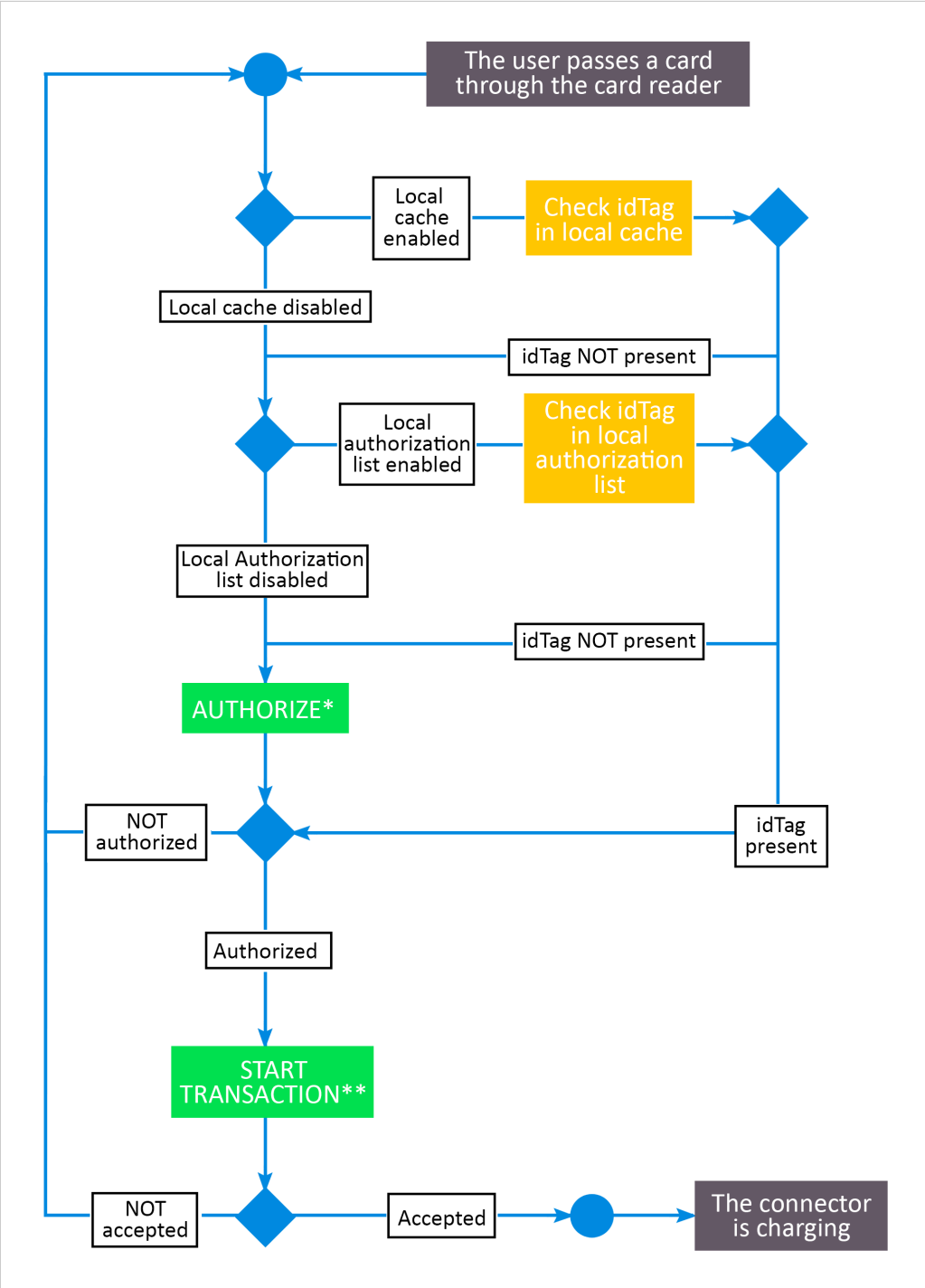
17.2. Local Start Transaction Operation

Typically, the user initiates the charging transaction locally by presenting an RFID card at the charge point. After this action, the charge point will try to authorize the user by checking their card ID number with its local authorization list (in case this option is available in the charge point).

If the local authorization cannot be performed, an authorization message is triggered to the gateway+BMS, and it is the gateway+BMS that authorizes the user's ID card or not.

If the user is not authorized, the charging operation is canceled.

If the user is authorized, the charge point initiates another operation with the user's information and sends a notification to the gateway+BMS to start the charging operation.



* See the diagram explaining the Authorize sequence: Authorize sequence diagram (page 62).

** See the diagram explaining the Start Transaction sequence: Start transaction sequence diagram (page 63).

17.3. Local Stop Transaction Operation

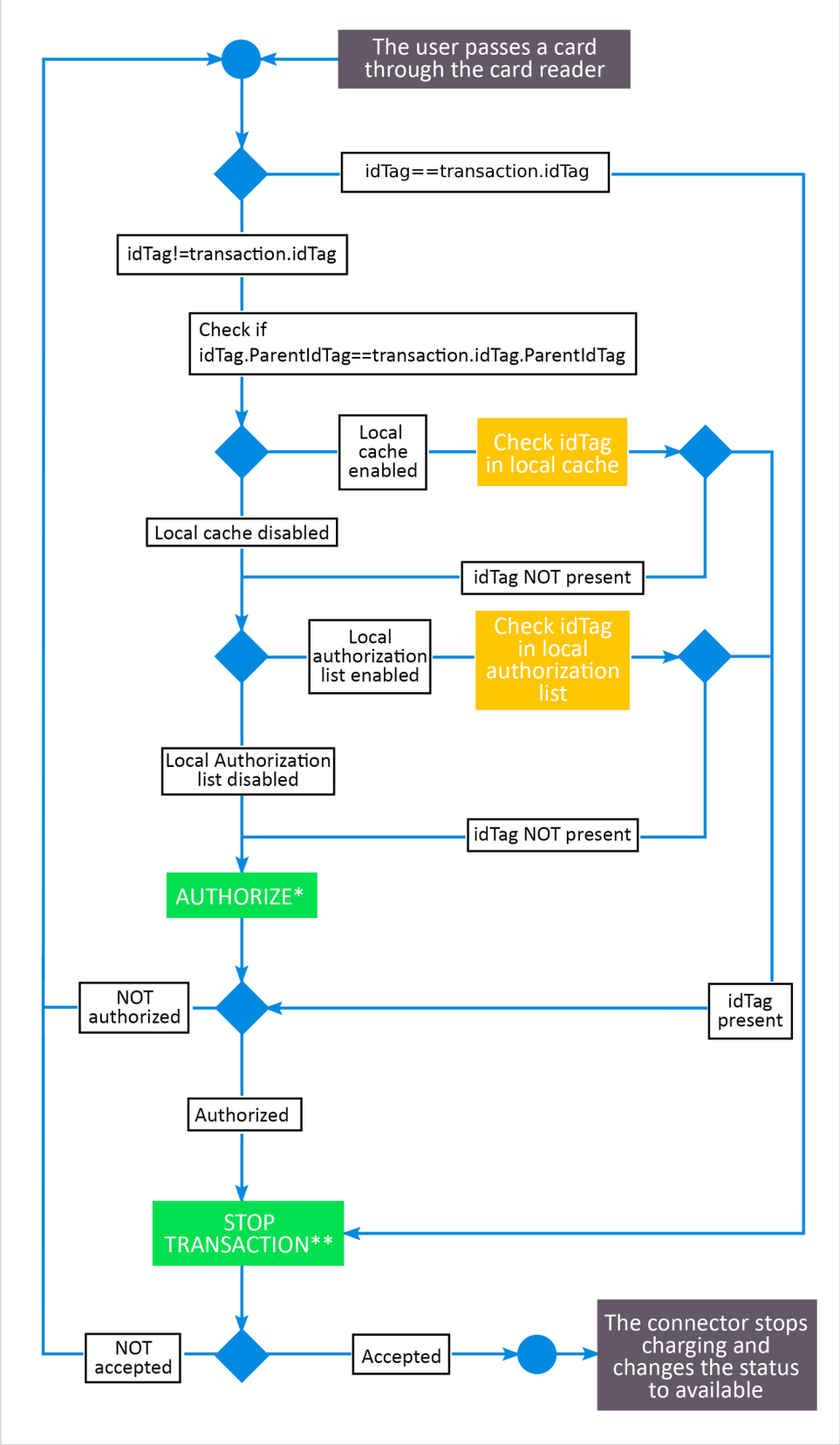
Typically, the user stops the charging operation locally by presenting an RFID card at the charge point. After this action, the charge point checks if the user who is requesting the stop of the operation is the same one who initiated it.

If that is the case, the stop operation is triggered directly.

If that is not the case, the charge point should check if the user who is requesting the stop operation belongs to the same user's group (parentIdTag) through the local cache list, the local authorization list, and, lastly, through the standard authorization process with the gateway+BMS.

If, after this authentication process, the user is denied, the stop operation will be canceled.

If the user is accepted, the charger sends another message to the gateway+BMS so it can stop the charging operation.



* See the diagram explaining the Authorize sequence: Authorize sequence diagram (page 62).

** See the diagram explaining the Stop Transaction sequence: Stop transaction sequence diagram (page 64).

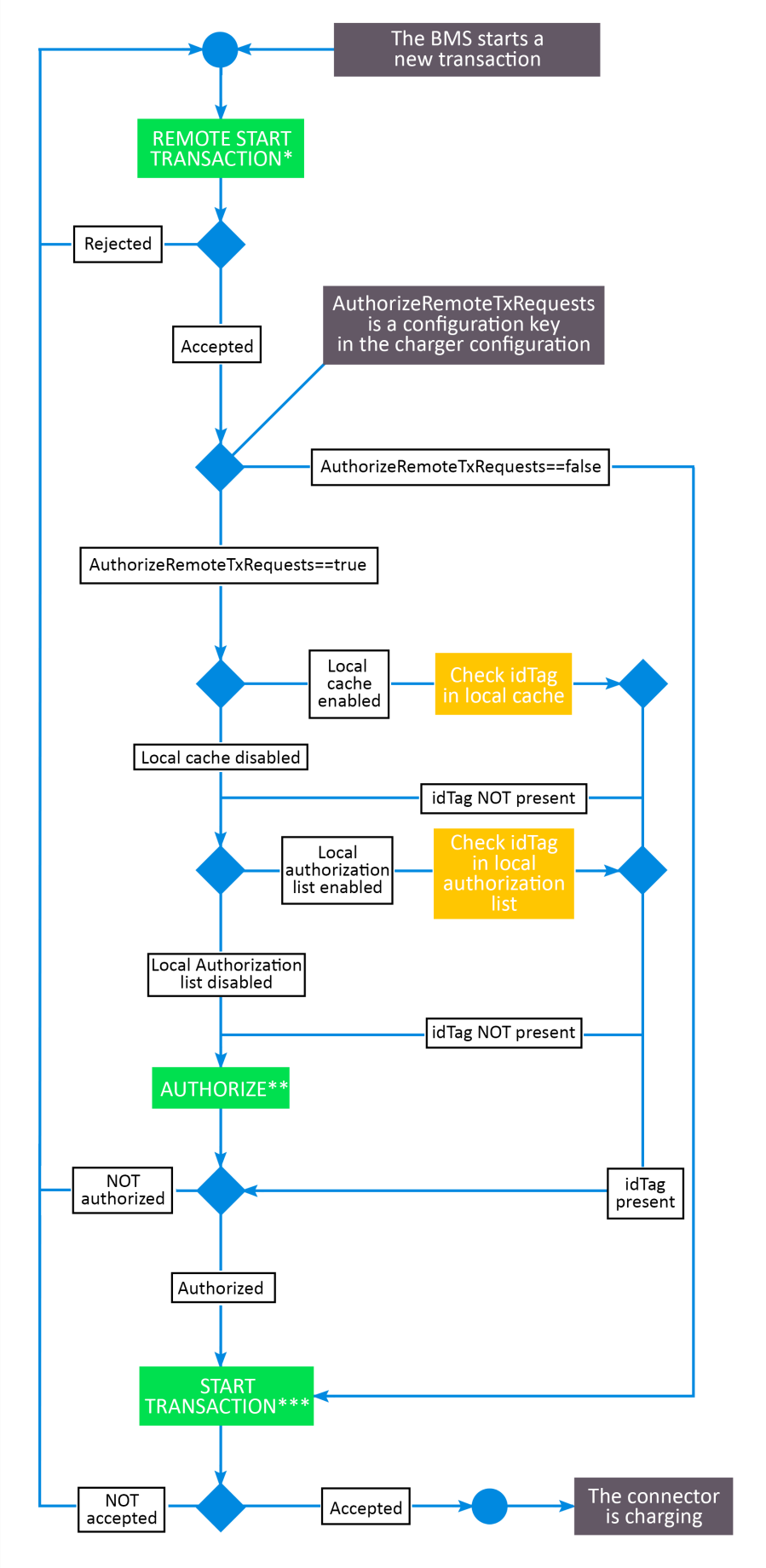
17.4. Remote Start Transaction Operation

NOTICE
Typical use cases for Remote Start Transaction:

- Enable a CPO operator to help a user with problems starting a transaction.
- Enable mobile apps to control charging transactions via the gateway+BMS.
- Enable the use of SMS to control charging transactions via the gateway+BMS.

The remote start of a transaction begins when the gateway+BMS requests a charge point to start a new transaction for a specific user (idTag).

If the charge point accepts this transaction, it could require initiating a completely new authorization process or starting the transaction, depending on its configuration.


The BMS starts a new transaction
REMOTE START TRANSACTION*
Rejected
Accepted
AuthorizeRemoteTxRequests is a configuration key in the charger configuration
AuthorizeRemoteTxRequests==false
AuthorizeRemoteTxRequests==true
Local cache enabled
Check idTag in local cache
Local cache disabled
idTag NOT present
Local authorization list enabled
Check idTag in local authorization list
Local Authorization list disabled
idTag NOT present
AUTHORIZE**
NOT authorized
idTag present
Authorized
START TRANSACTION***
NOT accepted
Accepted
The connector is charging

* See the diagram explaining the Remote Start Transaction sequence: Remote start transaction sequence diagram (page 64).

** See the diagram explaining the Authorize sequence: Authorize sequence diagram (page 62).

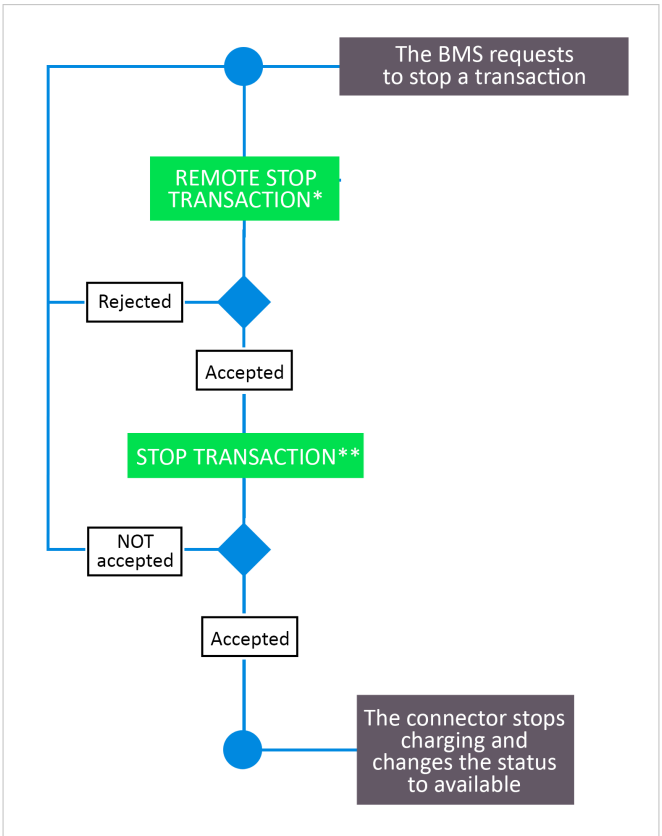
*** See the diagram explaining the Start Transaction sequence: Start transaction sequence diagram (page 63).

17.5. Remote Stop Transaction

NOTICE
Typical use cases for Remote Stop Transaction:

- Enable a CPO operator to help a user with problems stopping a transaction.
- Enable mobile apps to control charging transactions via the gateway+BMS.

The remote stop of a transaction begins when the gateway+BMS requests a charge point to stop a transaction. This remote request to stop a transaction is equal to a local action to stop a transaction.



* See the diagram explaining the Remote Stop Transaction sequence: Remote stop transaction sequence diagram (page 65).

** See the diagram explaining the Stop Transaction sequence: Stop transaction sequence diagram (page 64).

17.6. Local Authorization List Management

The Local Authorization List contains identifiers, their authorization status, and the authorization status/ expiration date. This list is usually stored by charge points and the central system (the gateway+BMS in this case). The gateway+BMS can synchronize this list by sending to the charge points a list of changes (add, update, delete) to apply to the Local Authorization List.

This management is performed through the Send Local List and Get Local List Version operations.

Consult the sequence diagrams in Sequence Diagrams (page 61).

17.7. Charging Profiles

This section explains how to configure the charging profiles used for the smart charging function from the BMS side.

NOTE
From Intesis MAPS version 1.2.12.0 with firmware version 1.0.5.0 onwards, the gateway's OCPP Central System mode also allows you to adjust smart charging operations from the BMS.

TIP
You can configure the charging profiles using the Intesis MAPS configuration tool instead. See Smart Charging (page 27).

TIP
Read the description of the charging profiles' parameters in the Smart Charging (page 27) section to understand the concepts and terminology involved.

Configuring charging profiles from the BMS

Follow this sequence to configure the charging profiles in the BMS:

IMPORTANT
The values supported by the charge points vary depending on the manufacturer. Consult the documentation of the charge points to know the values they support.

1. Set the ID for the charge point and its connectors.

   NOTE
   The charge point ID number starts from 1, and connectors are numbered with IDs from 0 to 7. The ID 0 in a connector means the operation applies to the entire charge point.

2. Set the profile parameters required by the charge point:
   Mandatory parameters:
   - Profile Id
   - Stack Level
   - Profile Purpose
   - Profile Kind

   Optional parameters:
   - Transaction Id
   - Recurrency Kind
   - Valid From
   - Valid To

   IMPORTANT
   Do not write in the **Set Charging Profile** register. This register must be written at the end of the procedure only.

3. Set the charging schedule signals:
   Mandatory parameters:
   - Charging Rate Unit

   Optional parameters:
   - Duration
   - Start Schedule (only required for Profile Kind: Absolute).
   - Min Charging Rate

4. Write a value of 1 in the Set Charging Schedule register.
5. Set the Charging Schedule Period Index.
6. Set the Charging Schedule Period signals:
   Mandatory parameters:
   - Start Period
   - Limit

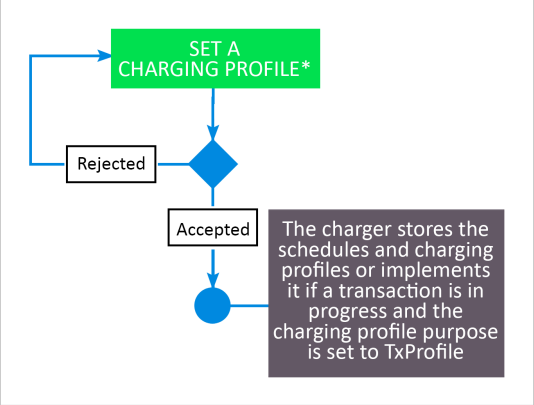
   Optional parameters:
   - Number of Phases.

7. Write a value of 1 in the Set Schedule Period.

   NOTE
   Repeat steps 5 to 7 to add as many schedules as you need.

   IMPORTANT
   Review all parameters to ensure they are all correct.

8. Write a value of 1 in the Set Charging Profile register.



* See the diagram explaining the Set Charging Profile sequence: Set a charging profile sequence diagram (page 66).

Clearing a charging profile

Write these registers to clear a charging profile:

1. Select the Charger Id (register 40129).
2. Select the Connector Id (register 40130).
3. Select the Profile Purpose (register 40103).
4. Select the Stack Level (register 40102).
5. Set the Clear Function (register 40111).

17.8. Reading Meter Values in Modbus

NOTE
The meter values configuration can be done through the charge points configuration interface or through Intesis MAPS (see Chargers Configuration (page 31)).

The standard proceeding of charger points is to send meter values notifications only when there is an active transaction. To request a value at any time, use the Trigger Message Modbus register. See Modbus Registers: Trigger Message (page 101).

17.9. Sequence Diagrams

Figure 16. Time synchronization sequence diagram

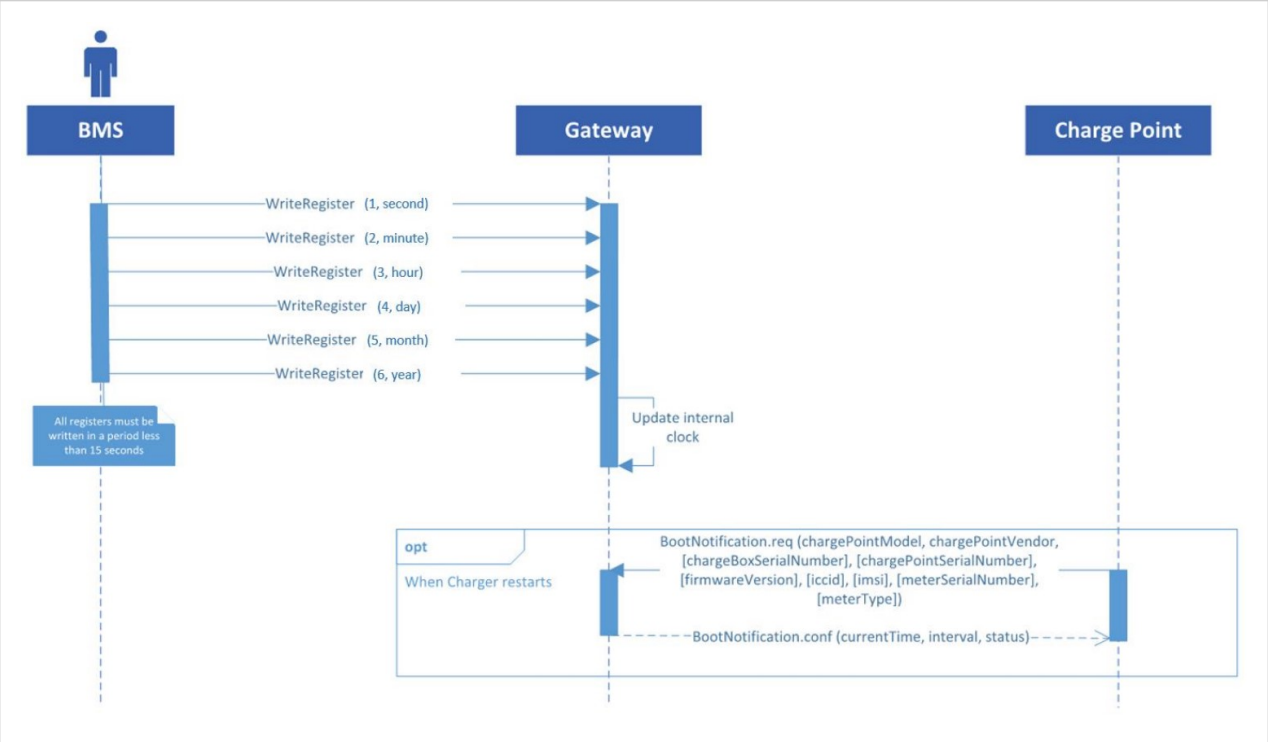


Figure 17. Authorize sequence diagram

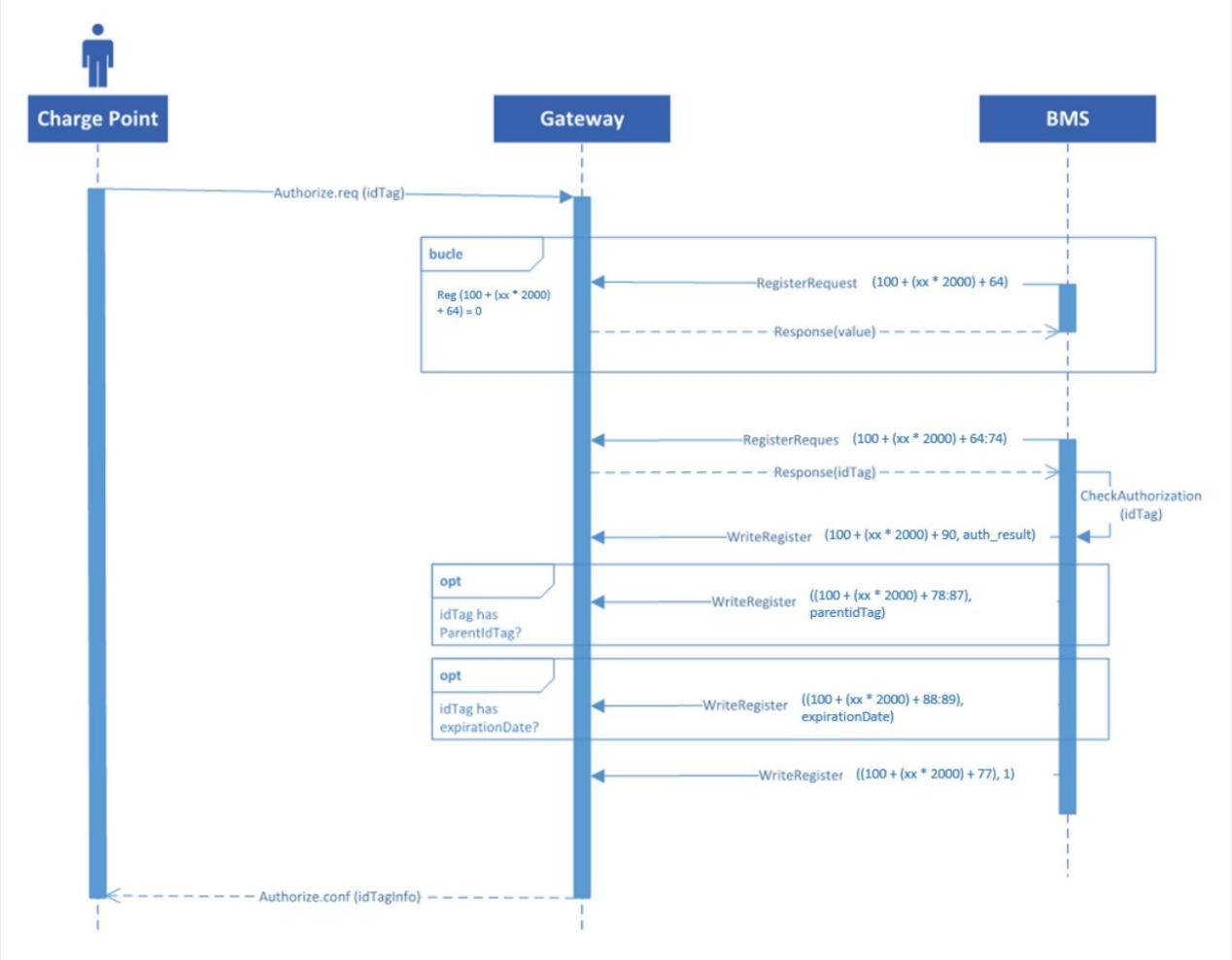


Figure 18. Start transaction sequence diagram

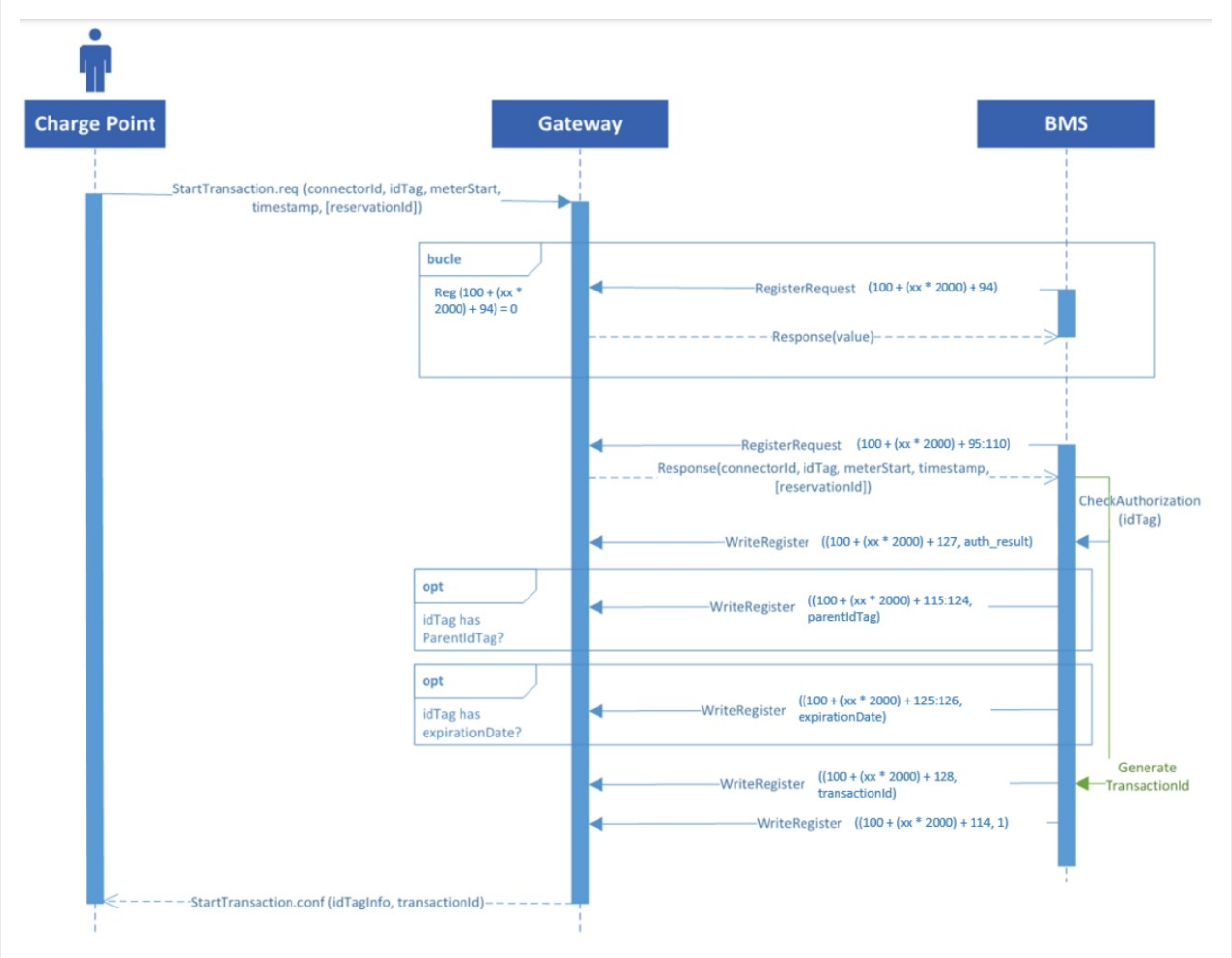


Figure 19. Stop transaction sequence diagram

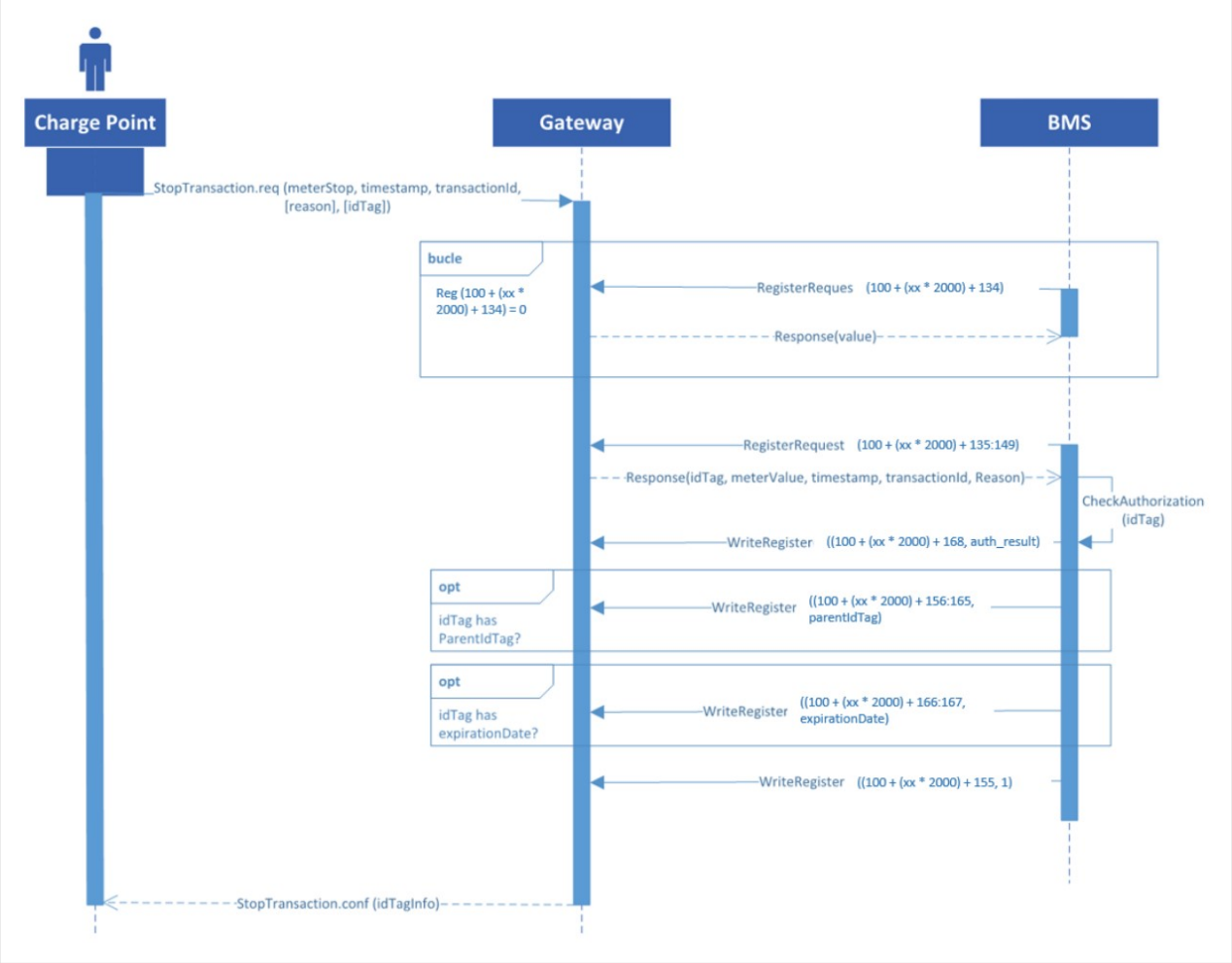


Figure 20. Remote start transaction sequence diagram

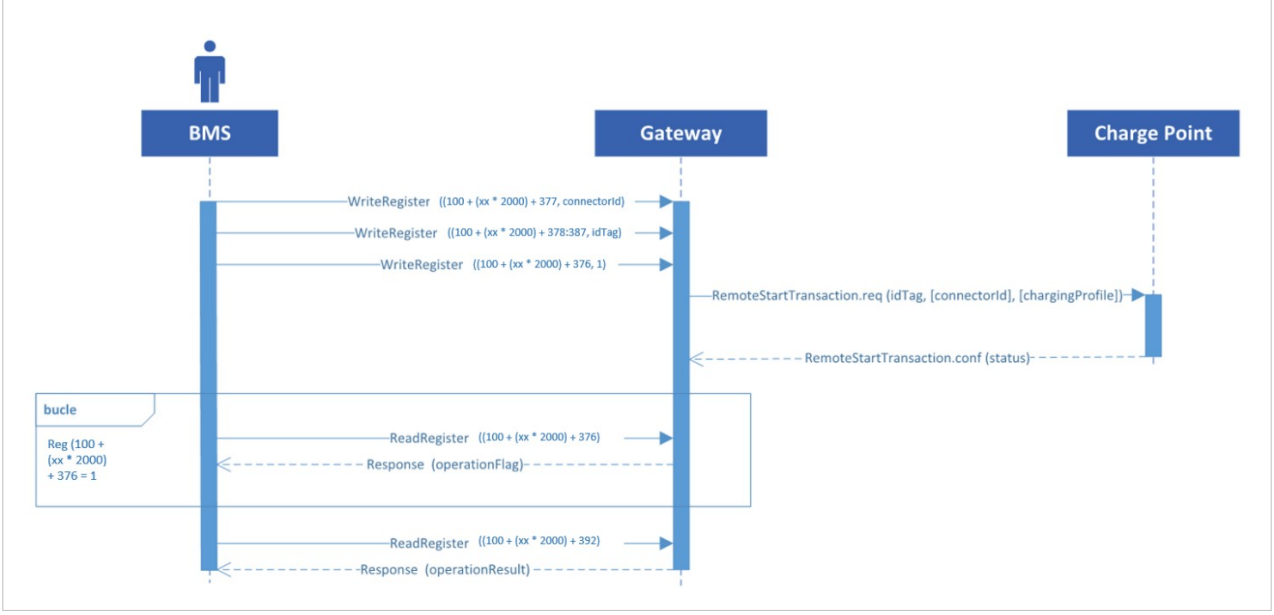


Figure 21. Remote stop transaction sequence diagram

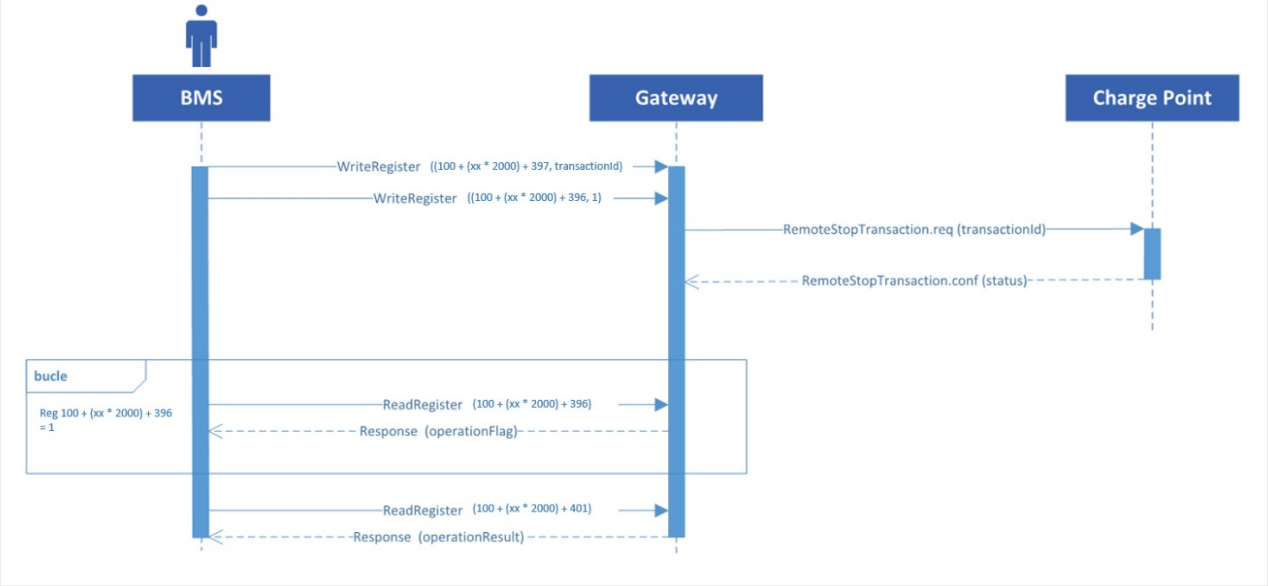


Figure 22. Send local list sequence diagram

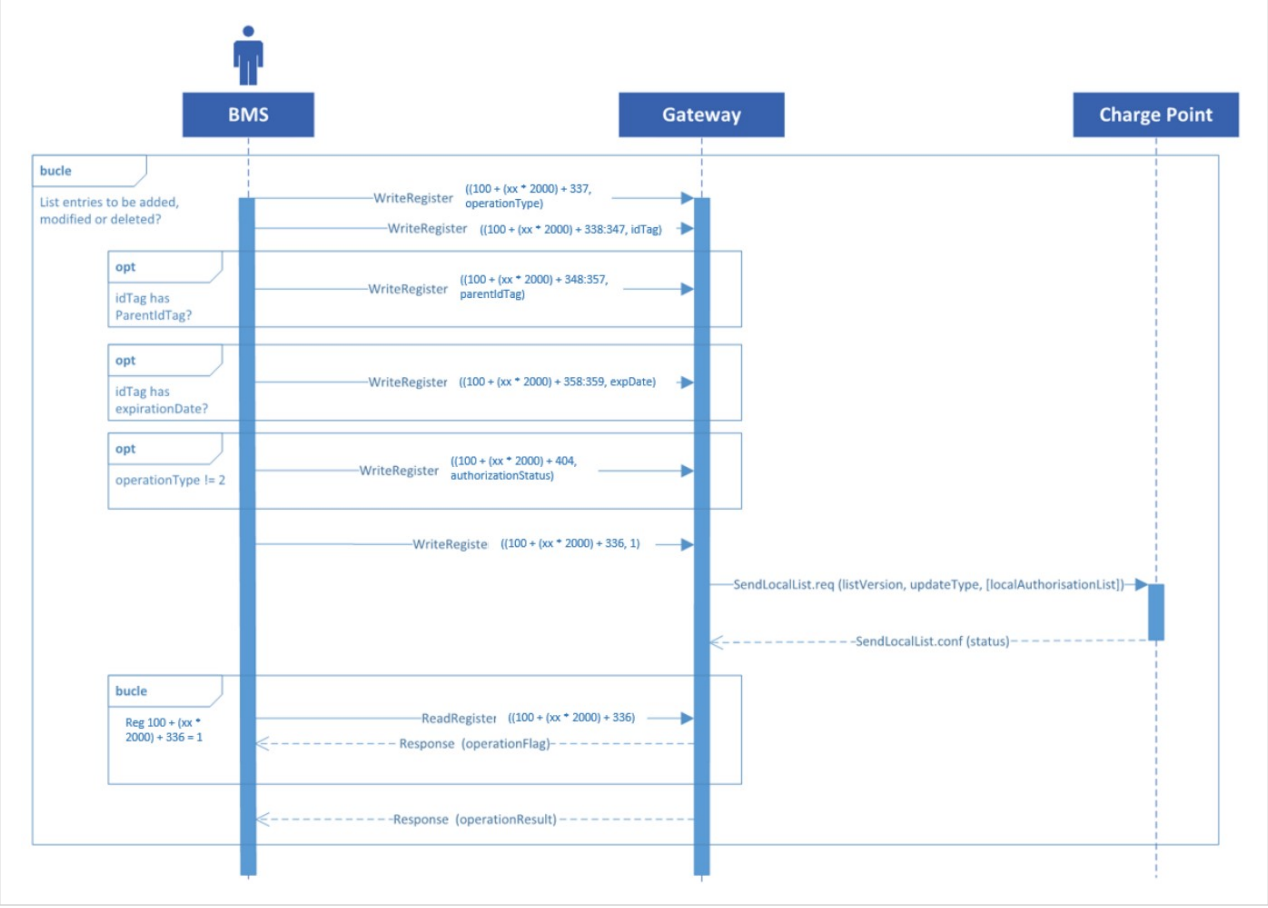


Figure 23. Get local list sequence diagram

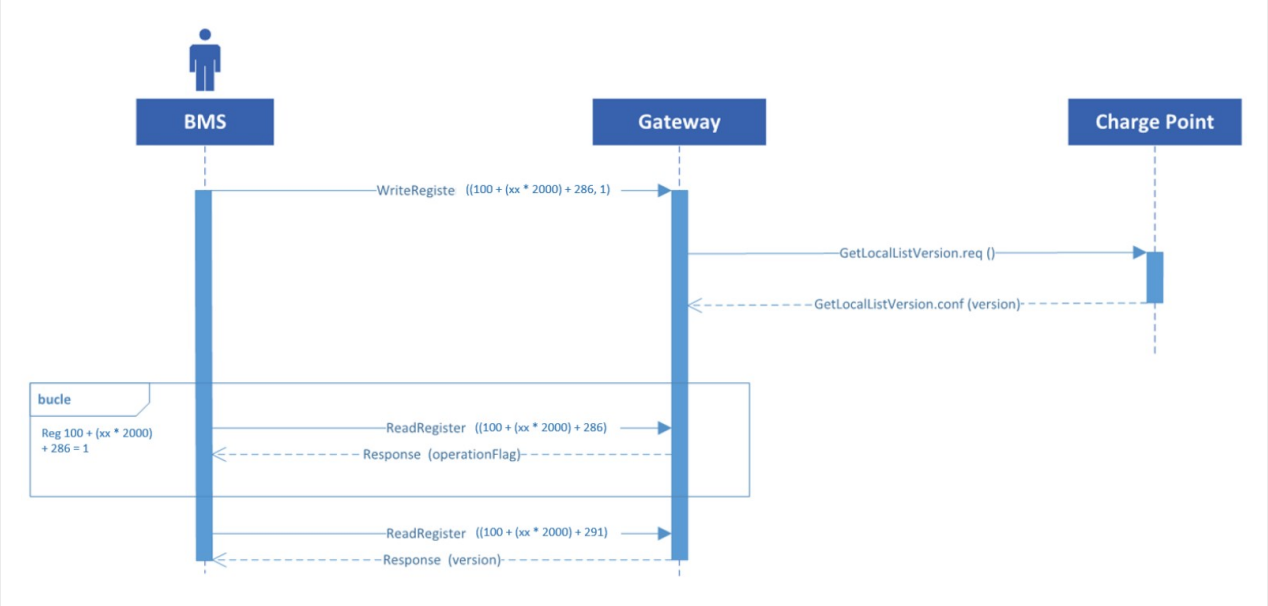
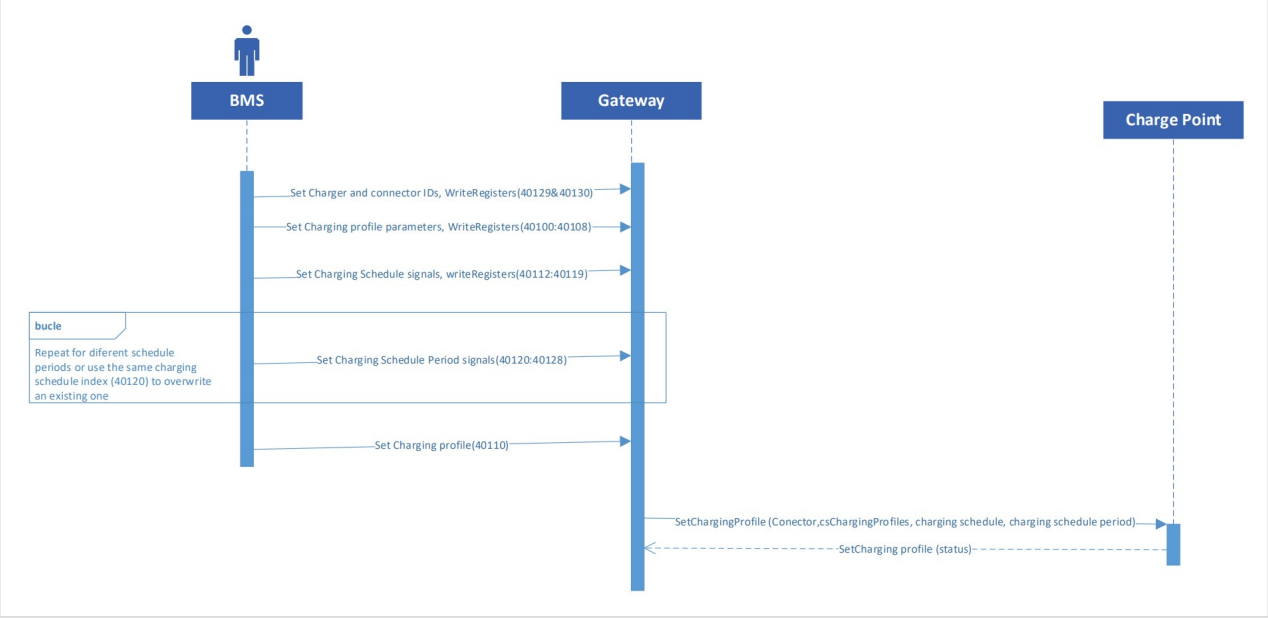


Figure 24. Set a charging profile sequence diagram



18. ANNEX: Modbus Registers

18.1. Modbus Registers: BMS communication

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
0	BMS Communication & Time sync - Heartbeat	Unsigned	RW	BMS should set it to 1 periodically and the gateway will set it to 0 to check communication is open.	X	X		

18.2. Modbus Registers: Time Synchronization

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Available for these modes			
				BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
1	BMS Communication & Time sync - SECOND	Unsigned	RW	X	X		
2	BMS Communication & Time sync - MINUTE	Unsigned	RW	X	X		
3	BMS Communication & Time sync - HOUR	Unsigned	RW	X	X		
4	BMS Communication & Time sync - DAY	Unsigned	RW	X	X		
5	BMS Communication & Time sync - MONTH	Unsigned	RW	X	X		
6	BMS Communication & Time sync - YEAR	Unsigned	RW	X	X		

18.3. Modbus Registers: Charger Information

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
xx: charge point number (0 .. 19)

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/ W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 0	Charger Communication status	Unsigned	R	0: OK 1: Communication Error	X	X	X	X
100 + (xx * 2000) + 1	Charger information - Charge Box Serial Number	String	R		X	X	X	X
100 + (xx * 2000) + 2								
100 + (xx * 2000) + 3								
100 + (xx * 2000) + 4								
100 + (xx * 2000) + 5								
100 + (xx * 2000) + 6								
100 + (xx * 2000) + 7								
100 + (xx * 2000) + 8								
100 + (xx * 2000) + 9								
100 + (xx * 2000) + 10								
100 + (xx * 2000) + 11								
100 + (xx * 2000) + 12								
100 + (xx * 2000) + 13								
100 + (xx * 2000) + 14	Charger information - Charge Point Serial Number	String	R		X	X	X	X
100 + (xx * 2000) + 15								
100 + (xx * 2000) + 16								
100 + (xx * 2000) + 17								
100 + (xx * 2000) + 18								

Address	Signal	Format	R/RW/ W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 19								
100 + (xx * 2000) + 20								
100 + (xx * 2000) + 21								
100 + (xx * 2000) + 22								
100 + (xx * 2000) + 23								
100 + (xx * 2000) + 24								
100 + (xx * 2000) + 25								
100 + (xx * 2000) + 26								
100 + (xx * 2000) + 27	Charger information - Charge Point Vendor	String	R		X	X	X	X
100 + (xx * 2000) + 28								
100 + (xx * 2000) + 29								
100 + (xx * 2000) + 30								
100 + (xx * 2000) + 31								
100 + (xx * 2000) + 32								
100 + (xx * 2000) + 33								
100 + (xx * 2000) + 34								
100 + (xx * 2000) + 35								
100 + (xx * 2000) + 36								
100 + (xx * 2000) + 37	Charger information - Charge Point Model	String	R		X	X	X	X
100 + (xx * 2000) + 38								
100 + (xx * 2000) + 39								

Address	Signal	Format	R/RW/ W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 40								
100 + (xx * 2000) + 41								
100 + (xx * 2000) + 42								
100 + (xx * 2000) + 43								
100 + (xx * 2000) + 44								
100 + (xx * 2000) + 45								
100 + (xx * 2000) + 46								

18.4. Modbus Registers: Authorization

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 64	Authorization Registers - Authorization Flag	Unsigned	R	0: No operation pending 1: Operation pending	X	X		
100 + (xx * 2000) + 65	Authorization Registers - Id Tag Authorization	String	R		X	X		
100 + (xx * 2000) + 66								
100 + (xx * 2000) + 67								
100 + (xx * 2000) + 68								
100 + (xx * 2000) + 69								
100 + (xx * 2000) + 70								
100 + (xx * 2000) + 71								
100 + (xx * 2000) + 72								
100 + (xx * 2000) + 73								
100 + (xx * 2000) + 74								
100 + (xx * 2000) + 75	Not used							
100 + (xx * 2000) + 76	Not used							
100 + (xx * 2000) + 77	Authorization Registers - Authorization processed	Unsigned	T	0: Not processed 1: Processed	X	X		
100 + (xx * 2000) + 78	Authorization Registers - Parent Id Tag	String	T		X	X		
100 + (xx * 2000) + 79								
100 + (xx * 2000) + 80								

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 81								
100 + (xx * 2000) + 82								
100 + (xx * 2000) + 83								
100 + (xx * 2000) + 84								
100 + (xx * 2000) + 85								
100 + (xx * 2000) + 86								
100 + (xx * 2000) + 87								
100 + (xx * 2000) + 88	Authorization Registers - Expiration Date	Unsigned	T	Epoch Unix time format (in seconds)	X	X		
100 + (xx * 2000) + 89								
100 + (xx * 2000) + 90	Authorization Registers - Authorization result	Unsigned	T	0: Accepted 1: Blocked 2: Expired 3: Invalid 4: Concurrent Transaction	X	X		
100 + (xx * 2000) + 91	Not used							
100 + (xx * 2000) + 92	Not used							
100 + (xx * 2000) + 93	Not used							

18.5. Modbus Registers: Start Transaction

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 94	Start Transaction Registers - Start Transaction Flag	Unsigned	R	0: No operation pending 1: Operation pending	X	X		
100 + (xx * 2000) + 95	Start Transaction Registers - Connector ID	Unsigned	R		X	X		
100 + (xx * 2000) + 96	Start Transaction Registers - Id Tag	String	R		X	X		
100 + (xx * 2000) + 97								
100 + (xx * 2000) + 98								
100 + (xx * 2000) + 99								
100 + (xx * 2000) + 100								
100 + (xx * 2000) + 101								
100 + (xx * 2000) + 102								
100 + (xx * 2000) + 103								
100 + (xx * 2000) + 104								
100 + (xx * 2000) + 105								
100 + (xx * 2000) + 106	Start Transaction Registers - Meter Value	Float	R		X	X		
100 + (xx * 2000) + 107								
100 + (xx * 2000) + 108	Start Transaction Registers - 16-bit Reservation ID	Unsigned	R		X	X		
100 + (xx * 2000) + 109	Start Transaction Registers - Timestamp	Unsigned	R	Epoch Unix time format (in seconds)	X	X		
100 + (xx * 2000) + 110								

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 111	Start Transaction Registers - 32-bit Reservation ID	Unsigned	R		X	X		
100 + (xx * 2000) + 112								
100 + (xx * 2000) + 113	Not used							
100 + (xx * 2000) + 114	Start Transaction Registers - Start Transaction Processed	Unsigned	T	0: Not processed 1: Processed	X	X		
100 + (xx * 2000) + 115	Start Transaction Registers - Parent Id Tag	String	T		X	X		
100 + (xx * 2000) + 116								
100 + (xx * 2000) + 117								
100 + (xx * 2000) + 118								
100 + (xx * 2000) + 119								
100 + (xx * 2000) + 120								
100 + (xx * 2000) + 121								
100 + (xx * 2000) + 122								
100 + (xx * 2000) + 123								
100 + (xx * 2000) + 124								
100 + (xx * 2000) + 125	Start Transaction Registers - Expiration Date	Unsigned	T	Epoch Unix time format (in seconds)	X	X		
100 + (xx * 2000) + 126								

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 127	Start Transaction Registers - Authorization result	Unsigned	T	0: Accepted 1: Blocked 2: Expired 3: Invalid 4: Concurrent Transaction	X	X		
100 + (xx * 2000) + 128	Start Transaction Registers - 16-bit Transaction ID	Unsigned	T		X	X		
100 + (xx * 2000) + 129	Start Transaction Registers - 32-bit Transaction ID	Unsigned	T		X	X		
100 + (xx * 2000) + 130								
100 + (xx * 2000) + 131	Not used							
100 + (xx * 2000) + 132	Not used							
100 + (xx * 2000) + 133	Not used							

18.6. Modbus Registers: Stop Transaction

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 134	Stop Transaction Registers - Stop Transaction Flag	Unsigned	R	0: No operation pending 1: Operation pending	X	X		
100 + (xx * 2000) + 135	Stop Transaction Registers - Id Tag	String	R		X	X		
100 + (xx * 2000) + 136								
100 + (xx * 2000) + 137								
100 + (xx * 2000) + 138								
100 + (xx * 2000) + 139								
100 + (xx * 2000) + 140								
100 + (xx * 2000) + 141								
100 + (xx * 2000) + 142								
100 + (xx * 2000) + 143								
100 + (xx * 2000) + 144								
100 + (xx * 2000) + 145	Stop Transaction Registers - Meter Value	Float	R		X	X		
100 + (xx * 2000) + 146								
100 + (xx * 2000) + 147	Stop Transaction Registers - Timestamp	Unsigned	R	Epoch Unix time format (in seconds)	X	X		
100 + (xx * 2000) + 148								
100 + (xx * 2000) + 149	Not used							
100 + (xx * 2000) + 150	Stop Transaction Registers - Reason	Unsigned	R	0: DeAuthorized 1: Emergency Stop 2: EV Disconnected	X	X		

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
				3: Hard Reset 4: Local 5: Other 6: Power Loss 7: Reboot 8: Remove 9: Soft Reset 10: Unlock Command				
100 + (xx * 2000) + 151	Stop Transaction Registers - 16-bit Transaction ID	Unsigned	T		X	X		
100 + (xx * 2000) + 152	Stop Transaction Registers - 32-bit Transaction ID	Unsigned	T		X	X		
100 + (xx * 2000) + 153								
100 + (xx * 2000) + 154	Not used							
100 + (xx * 2000) + 155	Stop Transaction Registers - Stop Transaction Processed	Unsigned	T	0: Not processed 1: Processed	X	X		
100 + (xx * 2000) + 156	Stop Transaction Registers - Parent Id Tag	String	T		X	X		
100 + (xx * 2000) + 157								
100 + (xx * 2000) + 158								
100 + (xx * 2000) + 159								
100 + (xx * 2000) + 160								
100 + (xx * 2000) + 161								

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 162								
100 + (xx * 2000) + 163								
100 + (xx * 2000) + 164								
100 + (xx * 2000) + 165								
100 + (xx * 2000) + 166	Stop Transaction Registers - Expiration Date	Unsigned	T	Epoch Unix time format (in seconds)	X	X		
100 + (xx * 2000) + 167								
100 + (xx * 2000) + 168	Stop Transaction Registers - Authorization result	Unsigned	T	0: Accepted 1: Blocked 2: Expired 3: Invalid 4: Concurrent Transaction	X	X		
100 + (xx * 2000) + 169	Not used							
100 + (xx * 2000) + 170	Not used							
100 + (xx * 2000) + 171	Not used							
100 + (xx * 2000) + 172	Not used							
100 + (xx * 2000) + 173	Not used							

18.7. Modbus Registers: Cancel Reservation

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 256	Cancel Reservation Registers - Cancel Reservation Flag	Unsigned	RW	0: No operation pending 1: Operation pending	X	X		
100 + (xx * 2000) + 257	Cancel Reservation Registers - 16-bit Reservation ID	Unsigned	T		X	X		
100 + (xx * 2000) + 258	Cancel Reservation Registers - 32-bit Reservation ID	Unsigned	T		X	X		
100 + (xx * 2000) + 259								
100 + (xx * 2000) + 260	Not used							
100 + (xx * 2000) + 261	Cancel Reservation Registers - Result	Unsigned	R	0: Accepted 1: Rejected	X	X		
100 + (xx * 2000) + 262	Not used							
100 + (xx * 2000) + 263	Not used							
100 + (xx * 2000) + 264	Not used							
100 + (xx * 2000) + 265	Not used							

18.8. Modbus Registers: Clear Cache

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 266	Clear Caché Registers - Clear Caché Flag	Unsigned	RW	0: No operation pending 1: Operation pending	X	X		
100 + (xx * 2000) + 267	Not used							
100 + (xx * 2000) + 268	Not used							
100 + (xx * 2000) + 269	Not used							
100 + (xx * 2000) + 270	Not used							
100 + (xx * 2000) + 271	Clear Caché Registers - Result	Unsigned	R	0: Accepted 1 : Rejected	X	X		
100 + (xx * 2000) + 272	Not used							
100 + (xx * 2000) + 273	Not used							
100 + (xx * 2000) + 274	Not used							
100 + (xx * 2000) + 275	Not used							

18.9. Modbus Registers: Get Local List Version

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Central System	OCPP Central System	OCPP Central System + Central System
100 + (xx * 2000) + 286	Get Local List Registers - Get Local List Flag	Unsigned	RW	0: No operation pending 1: Operation pending	X	X		
100 + (xx * 2000) + 287	Not used							
100 + (xx * 2000) + 288	Not used							
100 + (xx * 2000) + 289	Not used							
100 + (xx * 2000) + 290	Not used							
100 + (xx * 2000) + 291	Get Local List Registers - Get Local List Version	Signed	R	-1: Not supported 0: Empty Any other value: Version number	X	X		
100 + (xx * 2000) + 292	Not used							
100 + (xx * 2000) + 293	Not used							
100 + (xx * 2000) + 294	Not used							
100 + (xx * 2000) + 295	Not used							

18.10. Modbus Registers: Reserve Now

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 296	Reserve Now Registers - Reserve Now Flag	Unsigned	RW	0: No operation pending 1: Operation pending	X	X		X
100 + (xx * 2000) + 297	Reserve Now Registers - Connector ID	Unsigned	T		X	X		X
100 + (xx * 2000) + 298	Reserve Now Registers - Expiration Date	Unsigned	T	Epoch Unix time format (in seconds)	X	X		X
100 + (xx * 2000) + 299								
100 + (xx * 2000) + 300	Reserve Now Registers - Id Tag	String	T		X	X		X
100 + (xx * 2000) + 301								
100 + (xx * 2000) + 302								
100 + (xx * 2000) + 303								
100 + (xx * 2000) + 304								
100 + (xx * 2000) + 305								
100 + (xx * 2000) + 306								
100 + (xx * 2000) + 307								
100 + (xx * 2000) + 308								
100 + (xx * 2000) + 309								
100 + (xx * 2000) + 310	Reserve Now Registers - Parent Id Tag	String	T		X	X		X
100 + (xx * 2000) + 311								
100 + (xx * 2000) + 312								

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 313								
100 + (xx * 2000) + 314								
100 + (xx * 2000) + 315								
100 + (xx * 2000) + 316								
100 + (xx * 2000) + 317								
100 + (xx * 2000) + 318								
100 + (xx * 2000) + 319								
100 + (xx * 2000) + 320	Reserve Now Registers - 16 bit Reservation ID	Unsigned	T		X	X		X
100 + (xx * 2000) + 321	Reserve Now Registers - 32 bit Reservation ID	Unsigned	T		X	X		X
100 + (xx * 2000) + 322								
100 + (xx * 2000) + 323	Reserve Now Registers - Result of the request	Unsigned	R	0: Accepted 1: Rejected 8: Faulted 9: Occupied	X	X		X
100 + (xx * 2000) + 324	Not used							
100 + (xx * 2000) + 325	Not used							

18.11. Modbus Registers: Reset

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 326	Reset Registers - Reset Flag	Unsigned	RW	0: No operation pending 1: Operation pending	X	X		
100 + (xx * 2000) + 327	Not used							
100 + (xx * 2000) + 328	Not used							
100 + (xx * 2000) + 329	Not used							
100 + (xx * 2000) + 330	Not used							
100 + (xx * 2000) + 331	Reset Registers - Status	Unsigned	R		X	X		
100 + (xx * 2000) + 332	Not used							
100 + (xx * 2000) + 333	Not used							
100 + (xx * 2000) + 334	Not used							
100 + (xx * 2000) + 335	Not used							

18.12. Modbus Registers: Send Local List

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 336	Send Local List Registers - Send Local List Flag	Unsigned	RW	0: No operation pending 1: Operation pending	X	X		
100 + (xx * 2000) + 337	Send Local List Registers - Operation	Unsigned	T	1: Add new entry 2: Delete entry 3: Modify entry	X	X		
100 + (xx * 2000) + 338	Send Local List Registers - Id Tag	String	T		X	X		
100 + (xx * 2000) + 339								
100 + (xx * 2000) + 340								
100 + (xx * 2000) + 341								
100 + (xx * 2000) + 342								
100 + (xx * 2000) + 343								
100 + (xx * 2000) + 344								
100 + (xx * 2000) + 345								
100 + (xx * 2000) + 346								
100 + (xx * 2000) + 347								
100 + (xx * 2000) + 348	Send Local List Registers - Parent Id Tag	String	T		X	X		
100 + (xx * 2000) + 349								
100 + (xx * 2000) + 350								
100 + (xx * 2000) + 351								

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 352								
100 + (xx * 2000) + 353								
100 + (xx * 2000) + 354								
100 + (xx * 2000) + 355								
100 + (xx * 2000) + 356								
100 + (xx * 2000) + 357								
100 + (xx * 2000) + 358	Send Local List Registers - Expiration Date	Unsigned	T	Epoch Unix time format (in seconds)	X	X		
100 + (xx * 2000) + 359								
100 + (xx * 2000) + 360	Send Local List Registers - Authorization Status	Unsigned	T	0: Accepted 1: Blocked 2: Expired 3: Invalid 4: Concurrent Transaction	X	X		
100 + (xx * 2000) + 361	Not used							
100 + (xx * 2000) + 362	Not used							
100 + (xx * 2000) + 363	Send Local List Registers - Result of the request	Unsigned	R	0: Accepted 3: Not Supported 8: Failed 12: Version Mismatch	X	X		

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 364	Not used							
100 + (xx * 2000) + 365	Not used							

18.13. Modbus Registers: Trigger Message

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

NOTICE
The following signals are available for the **OCPP Central System** mode and the **OCPP Central System + Smart Charging** mode from Intesis MAPS version 1.2.26.0 and gateway firmware version 1.0.7.0.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 366	Trigger Message Registers - Trigger Message Flag	Unsigned	RW	0: No operation pending 1: Operation pending	X	X	X	X
100 + (xx * 2000) + 367	Trigger Message Registers - Requested Message	Unsigned	W	0: Boot Notification 1: Diagnostic Status Notification 2: Firmware Status Notification 3: Heartbeat 4: Meter Values 5: Status Notification	X	X	X	X
100 + (xx * 2000) + 368	Trigger Message Registers - Connector ID	Unsigned	W		X	X	X	X
100 + (xx * 2000) + 369	Not used							
100 + (xx * 2000) + 370	Not used							
100 + (xx * 2000) + 371	Trigger Message Registers - Status	Unsigned	R	0: Accepted 1: Rejected 11: Not Implemented	X	X	X	X
100 + (xx * 2000) + 372	Not used							
100 + (xx * 2000) + 373	Not used							
100 + (xx * 2000) + 374	Not used							
100 + (xx * 2000) + 375	Not used							

18.14. Modbus Registers: Remote Start Transaction

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 376	Remote Start Registers - Remote Start Flag	Unsigned	RW	0: No operation pending 1: Operation pending	X	X		X
100 + (xx * 2000) + 377	Remote Start Registers - Connector ID	Unsigned	W		X	X		X
100 + (xx * 2000) + 378	Remote Start Registers - Id Tag	String	W		X	X		X
100 + (xx * 2000) + 379								
100 + (xx * 2000) + 380								
100 + (xx * 2000) + 381								
100 + (xx * 2000) + 382								
100 + (xx * 2000) + 383								
100 + (xx * 2000) + 384								
100 + (xx * 2000) + 385								
100 + (xx * 2000) + 386								
100 + (xx * 2000) + 387								
100 + (xx * 2000) + 388	Not used							
100 + (xx * 2000) + 389	Not used							
100 + (xx * 2000) + 390	Not used							
100 + (xx * 2000) + 391	Not used							
100 + (xx * 2000) + 392	Remote Start Registers - Result of the request	Unsigned	R	0: Accepted 1: Rejected	X	X		X

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 393	Not used							
100 + (xx * 2000) + 394	Not used							
100 + (xx * 2000) + 395	Not used							

18.15. Modbus Registers: Remote Stop

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
100 + (xx * 2000) + 396	Remote Stop Registers - Remote Stop Flag	Unsigned	RW	0: No operation pending 1: Operation pending	X	X		X
100 + (xx * 2000) + 397	Remote Stop Registers - 16-bit Transaction ID	Unsigned	W		X	X		X
100 + (xx * 2000) + 398	Remote Stop Registers - 32-bit Transaction ID	Unsigned	W		X	X		X
100 + (xx * 2000) + 399								
100 + (xx * 2000) + 400	Not used							
100 + (xx * 2000) + 401	Remote Stop Registers - Status	Unsigned	R	0: Accepted 1: Rejected	X	X		X
100 + (xx * 2000) + 402	Not used							
100 + (xx * 2000) + 403	Not used							
100 + (xx * 2000) + 404	Not used							
100 + (xx * 2000) + 405	Not used							

18.16. Modbus Registers: Connectors

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
xx = 0 .. 19

yy = 0 .. 7

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 0	Connector xx - Unlock Connector	Unsigned	RW		X	X		X
(512 + 100 + (xx * 2000) + (100 * yy)) + 1	Connector xx - Availability	Unsigned	RW	0: Inoperative 1: Operative	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 2	Connector xx - Status	Unsigned	R	0: Available 1: Preparing 2: Charging 3: Suspended EVSE 4: Suspended EV 5: Finishing 6: Reserved 7: Unavailable 8: Faulted	X	X	X	X

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 3	Connector xx - Error Code	Unsigned	R	0: Connector Lock Failure 1: EV Communication Error 2: Ground Failure 3: High Temperature 4: Internal Error 5: Local List Conflict 6: No Error 7: Other Error 8: Over Current Failure 9: Over Voltage 10: Power Meter Failure 11: Power Switch Failure 12: Reader Failure 13: Reset Failure 14: Under Voltage 15: Weak Signal	X	X	X	X
1501 + (xx * 2000) + (yy *50) + 3	Connector xx - Current Export *For single-phase chargers*	Float	R		X	X	X	X
1501 + (xx * 2000) + (yy *50) + 4								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 4	Connector xx - L1 Current Export *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 5								
(512 + 100 + (xx * 2000) + (100 * yy)) + 6	Connector xx - L2 Current Export *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 7								
(512 + 100 + (xx * 2000) + (100 * yy)) + 8	Connector xx - L3 Current Export *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 9								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 10	Connector xx - Current Export Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
1501 + (xx * 2000) + (yy *50) + 5	Connector xx - Current Import *For single-phase chargers*	Float	R		X	X	X	X
1501 + (xx * 2000) + (yy *50) + 6								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 11	Connector xx - L1 Current Import *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 12								
(512 + 100 + (xx * 2000) + (100 * yy)) + 13	Connector xx - L2 Current Import *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 14								
(512 + 100 + (xx * 2000) + (100 * yy)) + 15	Connector xx - L3 Current Import *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 16								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 17	Connector xx - Current Import Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
1501 + (xx * 2000) + (yy *50) + 7	Connector xx - Current Offered *For single-phase chargers*	Float	R		X	X	X	X
1501 + (xx * 2000) + (yy *50) + 8								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 18	Connector xx - L1 Current Offered *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 19								
(512 + 100 + (xx * 2000) + (100 * yy)) + 20	Connector xx - L2 Current Offered *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 21								
(512 + 100 + (xx * 2000) + (100 * yy)) + 22	Connector xx - L3 Current Offered *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 23								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 24	Connector xx - Current Offered Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 25	Connector xx - Energy Active Export Register	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 26								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 27	Connector xx - Energy Active Export Register Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 28	Connector xx - Energy Active Import Register	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 29								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 30	Connector xx - Energy Active Import Register Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 31	Connector xx - Energy Reactive Export Register	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 32								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 33	Connector xx - Energy Reactive Export Register Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 34	Connector xx - Energy Reactive Import Register	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 35								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 36	Connector xx - Energy Reactive Import Register Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 37	Connector xx - Energy Active Export Interval	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 38								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 39	Connector xx - Energy Active Export Interval Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 40	Connector xx - Energy Active Import Interval	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 41								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 42	Connector xx - Energy Active Import Interval Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 43	Connector xx - Energy Reactive Export Interval	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 44								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 45	Connector xx - Energy Reactive Export Interval Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 46	Connector xx - Energy Reactive Import Interval	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 47								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 48	Connector xx - Energy Reactive Import Interval Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 49	Connector xx - Frequency	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 50								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 51	Connector xx - Frequency Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 52	Connector xx - Power Active Export	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 53								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 54	Connector xx - Power Active Export Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 55	Connector xx - Power Active Import	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 56								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 57	Connector xx - Power Active Import Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 58	Connector xx - Power Factor	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 59								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 60	Connector xx - Power Factor Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 61	Connector xx - Power Offered	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 62								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 63	Connector xx - Power Offered Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 64	Connector xx - Power Reactive Export	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 65								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 66	Connector xx - Power Reactive Export Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 67	Connector xx - Power Reactive Import	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 68								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 69	Connector xx - Power Reactive Import Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 70	Connector xx - RPM	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 71								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 72	Connector xx - RPM Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 73	Connector xx - SoC	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 74								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 75	Connector xx - SoC Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 76	Connector xx - Temperature	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 77								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 78	Connector xx - Temperature Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X
1501 + (xx * 2000) + (yy *50) + 9	Connector xx - Voltage	Float	R		X	X	X	X
1501 + (xx * 2000) + (yy *50) + 10	*For single-phase chargers*							

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 79	Connector xx - L1-N Voltage *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 80								
(512 + 100 + (xx * 2000) + (100 * yy)) + 81	Connector xx - L2-N Voltage *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 82								
(512 + 100 + (xx * 2000) + (100 * yy)) + 83	Connector xx - L3-N Voltage *For three-phase chargers*	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 84								

Address	Signal	Format	R/RW /W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
(512 + 100 + (xx * 2000) + (100 * yy)) + 85	Connector xx - Voltage Units	Unsigned	R	0: Wh 1: kWh 2: varh 3: kvarh 4: W 5: kW 6: VA 7: kVA 8: var 9: kvar 10: A 11: V 12: °C 13: °F 14: °K 15: %	X	X	X	X

18.17. Modbus Registers: Current Transaction Data

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/ W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Central System	OCPP Central System	OCPP Central System + Central System
(512 + 100 + (xx * 2000) + (100 * yy)) + 86	Connector xx - Id Tag	String	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 87								
(512 + 100 + (xx * 2000) + (100 * yy)) + 88								
(512 + 100 + (xx * 2000) + (100 * yy)) + 89								
(512 + 100 + (xx * 2000) + (100 * yy)) + 90								
(512 + 100 + (xx * 2000) + (100 * yy)) + 91								
(512 + 100 + (xx * 2000) + (100 * yy)) + 92								
(512 + 100 + (xx * 2000) + (100 * yy)) + 93								
(512 + 100 + (xx * 2000) + (100 * yy)) + 94								
(512 + 100 + (xx * 2000) + (100 * yy)) + 95								
(512 + 100 + (xx * 2000) + (100 * yy)) + 96	Connector xx - Meter Value on Start	Float	R		X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 97								
(512 + 100 + (xx * 2000) + (100 * yy)) + 98	Connector xx - Timestamp	Unsigned	R	Epoch Unix time format (in seconds)	X	X	X	X
(512 + 100 + (xx * 2000) + (100 * yy)) + 99								
1500 + (xx * 2000) + (yy * 50) + 0	Connector xx - 16-bit Last transaction ID	Unsigned	R		X	X	X	X
1500 + (xx * 2000) + (yy * 50) + 1	Connector xx - 32-bit Last transaction ID	Unsigned	R		X	X	X	X

18.18. Modbus Registers: Smart Charging

NOTE
Availability of the registers depending on the gateway's mode.

- **BMS Central System**: Register available when the gateway is configured in BMS Central System mode.
- **BMS Central System + Smart Charging**: The register is available when the gateway is configured in BMS Central System mode and the Smart Charging function is enabled.
- **OCPP Central System**: The register is available when the gateway is configured in OCPP Central System mode.
- **OCPP Central System + Smart Charging**: The register is available when the gateway is configured in OCPP Central System mode and the Smart Charging function is enabled.

NOTE
Read/Write Column (**R/RW/W/T**).

- **R**: Read
- **RW**: Read/Write
- **W**: Write
- **T**: Trigger*

* A trigger type is a Modbus read/write register that can be written, but its value will return to the default status after being transmitted.

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
40100	Profile Id *Unique identifier for this profile*	Unsigned	RW			X		X
40101	Transaction Id *Only valid if Charging Profile Purpose is set to TxProfile*	Unsigned	RW			X		X
40136	16-bit Transaction ID	Unsigned	RW			X		X
40137	32-bit Transaction ID	Unsigned	RW			X		X
40102	Stack Level	Unsigned	RW	Value ≥ 0 *Higher values have precedence over lower values*		X		X
40103	Profile Purpose	Unsigned	RW	1: Charge Point Max Profile 2: Tx Default Profile 3: Tx Profile		X		X
40104	Profile Kind	Unsigned	RW	1: Absolute 2: Recurring 3: Relative		X		X
40105	Recurrency Kind	Unsigned	RW	1: Daily 2: Weekly		X		X
40106	Valid From	Unsigned	RW	Date		X		X

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
				Epoch Unix time format (in seconds)				
40108	Valid To	Unsigned	RW	Date *Epoch Unix time format (in seconds)*		X		X
40110	Set Charging Profile *Trigger to set (only after setting all parameters)*	Unsigned	W(T)	0, 1		X		X
40111	Clear Charging Profile *Trigger to clear (requires ProfileId and Charger+Conector IDs)*	Unsigned	W(T)	0, 1		X		X
40112	Schedule Id *Unique identifier for this schedule*	Unsigned	RW			X		X
40113	Duration (opt) *Duration of the charging schedule in seconds. If the duration is left empty, the last period will continue indefinitely or until the end of the transaction in case Start Schedule is absent.*	Unsigned	RW			X		X
40115	Start Schedule (opt) *Starting point of an absolute schedule. If absent, the schedule will be relative to start of charging.*	Unsigned	RW			X		X
40117	Charging Rate Unit	Unsigned	RW	1: W Watts (Power)		X		X

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
				2: A Amperes (Current)				
40118	Min Charging Rate (opt) *Decimal minimum charging rate supported by the EV*	Unsigned	RW			X		X
40119	Set Charging Schedule *Trigger to Set*	Unsigned	W(T)	0, 1		X		X
40120	Charging Schedule Period Index *Unique identifier for this period*	Unsigned	RW			X		X
40121	Not used							
40123	Start Period *Duration of the charging schedule in seconds*	Unsigned	RW			X		X
40125	Limit *Required. Charging rate limit during the schedule period, in the applicable Charging Rate Unit (Amperes or Watts)*	Unsigned	RW			X		X
40127	Number of phases (opt)	Unsigned	RW	1 .. 3 *If not defined, 3 will be assumed*		X		X
40128	Set Schedule Period *Trigger to Set*	Unsigned	W(T)	0, 1		X		X
40129	Charger Id	Unsigned	RW	1 .. 20		X		X

Address	Signal	Format	R/RW/W/T	Values	Available for these modes			
					BMS Central System	BMS Central System + Smart Charging	OCPP Central System	OCPP Central System + Smart Charging
	Id for the charger where the profile applies							
40130	Connector Id *Id for the connector where the profile applies*	Unsigned	RW	0 .. 7		X		X
40131	Max Stack level *Information provided by the charger*	Unsigned	R			X		X
40132	Schedule Allowed Charging Rate Unit *Information provided by the charger*	Unsigned	R			X		X
40133	Schedule Max Periods *Information provided by the charger*	Unsigned	R			X		X
40134	Max Charging Profiles Installed *Information provided by the charger*	Unsigned	R			X		X
40135	Smart Charging Operation Error	Unsigned	R	1 .. 65535		X		X