Intesis®
BY HMS NETWORKS

ENGLISH

Configuration Guide

FOR IN485UNI001I100

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Intesis MAPS

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1. 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.

NOTE
Intesis MAPS is compatible with Windows® 7 and higher.

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 computer.
  - Downloading the settings from an already configured gateway.
- Full linkage between the control system and the HVAC installation signals.
- Real-time monitoring of the HVAC network.

2. Prerequisites

For this integration, you will need:

- The items supplied by HMS Networks:
  - Intesis IN485UNI001I100 gateway
  - Gateway documentation:
    - Installation guide
    - User manual
- USB Mini-B type to USB A type cable to connect the gateway and the computer.
- A computer to run the configuration tool Intesis MAPS.

NOTE
Requirements:

- Windows 7 or higher
- Hard disk free space: 1 GB
- RAM: 4 GB

3. 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.

   NOTE
   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 computer.

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 computer:
   a. Read the license agreement and select **I Agree**.
   b. Select the installation folder.
4. Once the installation is completed, click the **Close** button.

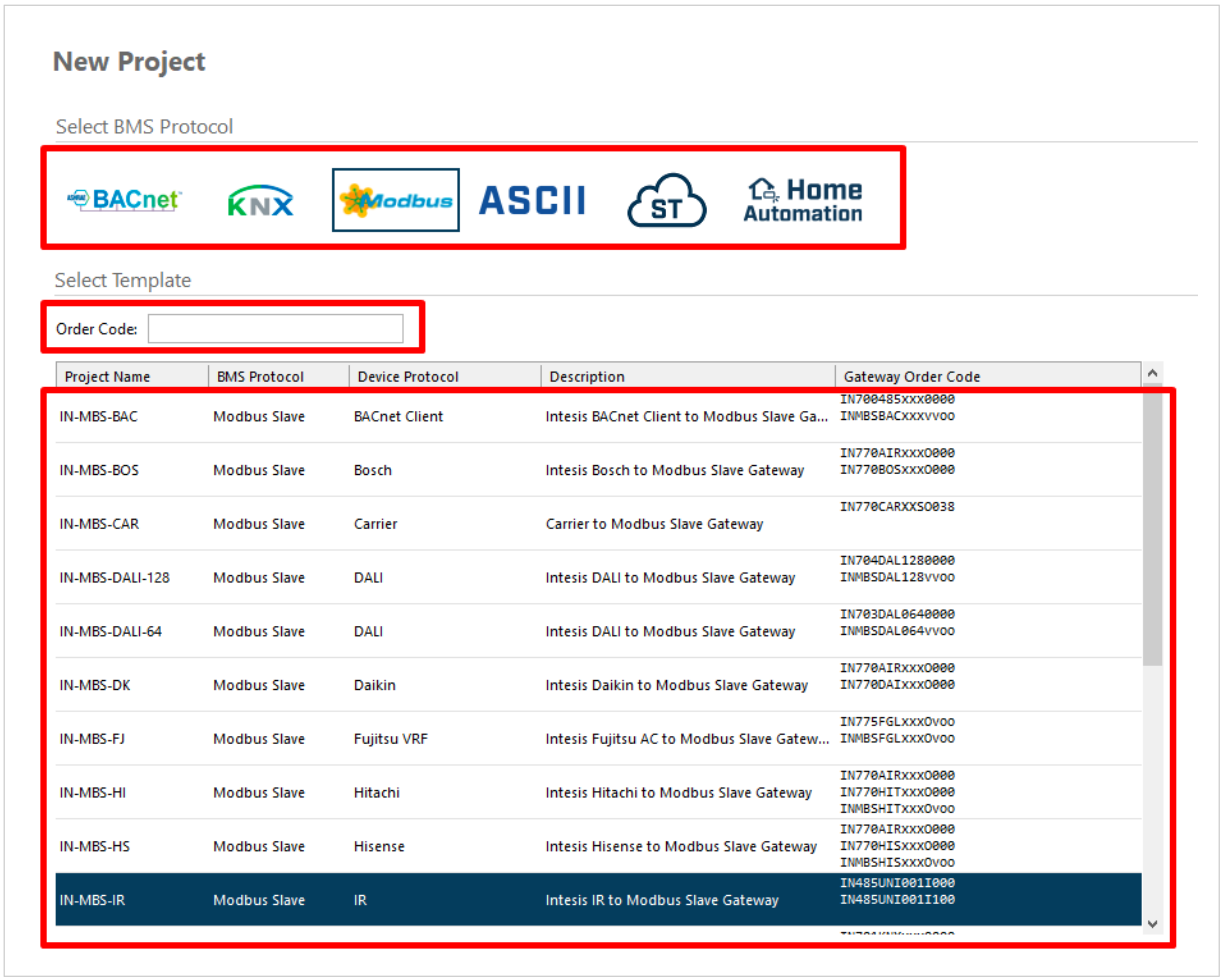
4. Create a New Project from a Template

1. Open Intesis MAPS.
2. Click **Create New Project** in the **Getting started** menu on the left.
   You can create a project from scratch using a template. To find the appropriate template, filter the search by:
   - Clicking BACnet or Modbus on the protocol logos.
   - Typing the order code IN485UNI001I100 in the **Order Code** field.

     NOTE
     The order code is printed on the silver label placed on the gateway's rear side.

   - Looking for the **Project Name** on the list: IN-MBS-IR for Modbus or IN-BAC-IR for BACnet.

Figure 1. Three possibilities for the template selection



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

NOTE
Templates are just a starting point for your integration. Depending on the type of integration, you may have to modify some parameters.

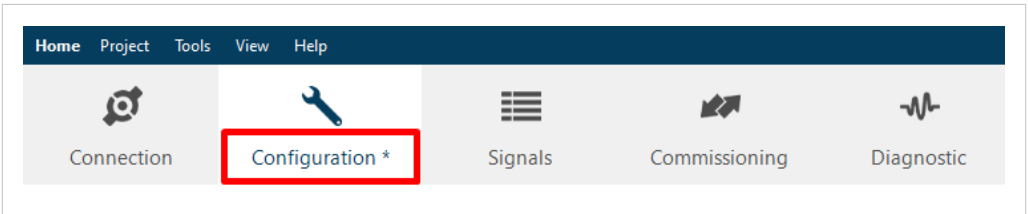
NOTE
Intesis MAPS will automatically update its database of IR remote controllers when loading the selected template.

5. Saving and Opening the Project

SAVING YOUR INTESIS MAPS PROJECT

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

Figure 2. The Configuration tab showing an asterisk

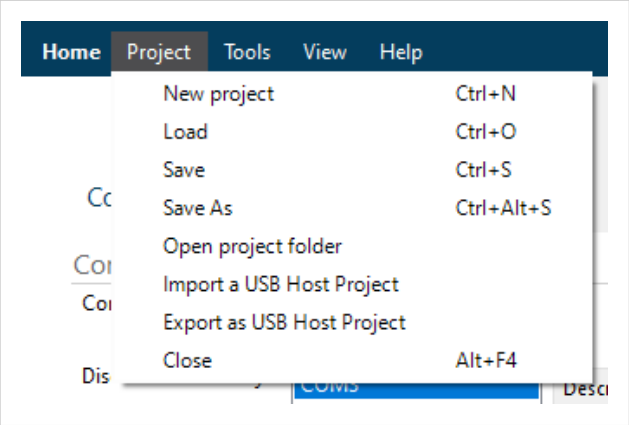


This asterisk reminds you that you have made changes to the project but have not saved them.

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

1. Click **Project**.

Figure 3. Project tab from the top menu



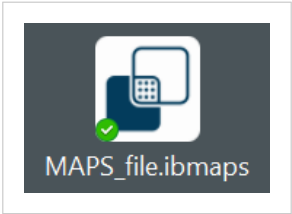
2. Click **Save** or **Save As**.

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

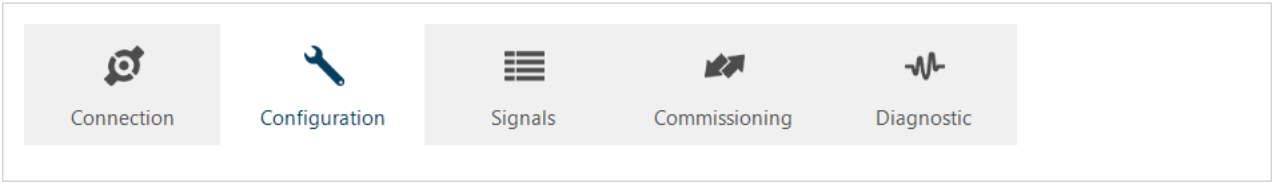
TIP
Double-click a .ibmaps file saved in your computer to automatically open it in Intesis MAPS.



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

6. Main Menu Overview

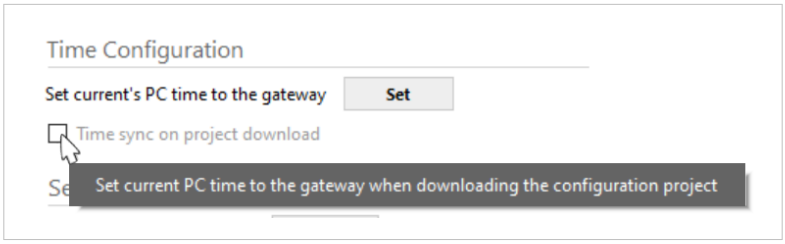
Figure 4. Intesis MAPS main menu



The following sections provide an overview of the five tabs that compose the Intesis MAPS main menu. Through these options, you will configure your project, 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.

Figure 5. Example of a tooltip



7. Configuration Tab

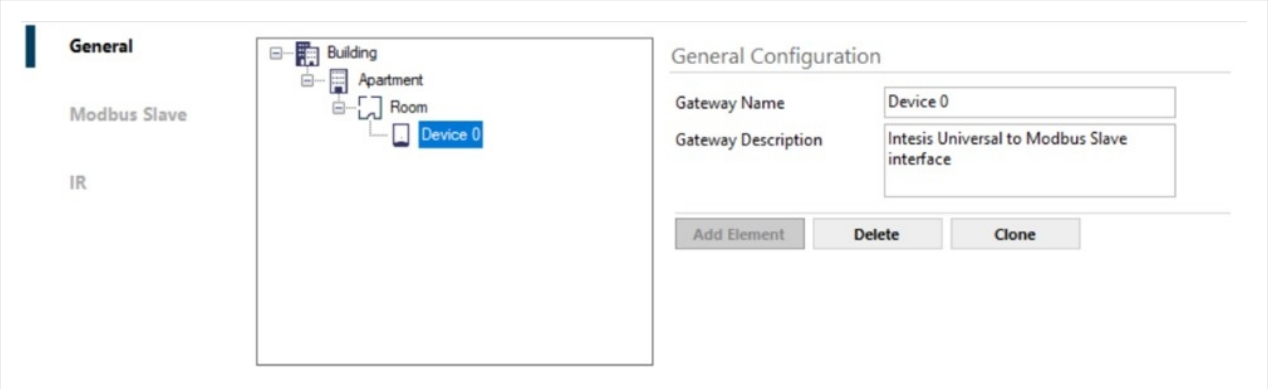
Find a menu with three options on the left side of the **Configuration** tab:

- **General**: Configure the general parameters of the gateway.
- **Building management system (BMS) protocol**: Modbus or BACnet, depending on your current project. In the case of the image on the left, the control system is based on Modbus.
- **IR**: Configure the parameters of the AC unit and its IR remote controller.

7.1. General

From this menu, you can add, modify, clone, and delete any element of the tree area.

NOTICE
The **Building** node is an exception since you can only edit its name.



EDIT THE NAME OF AN ELEMENT

1. Click the element you want to edit.
2. Use the **Name** parameter to type a name.
3. Click anywhere in the tree area to save the changes.

EDIT THE DESCRIPTION OF A DEVICE

TIP
The **Device** nodes correspond to each gateway of the project.

For the **Device** node only, you can type a description.

1. Click the **Device** you want to edit.

2. Use the **Gateway Description** parameter to type a description.
3. Click anywhere in the tree area to save the changes.

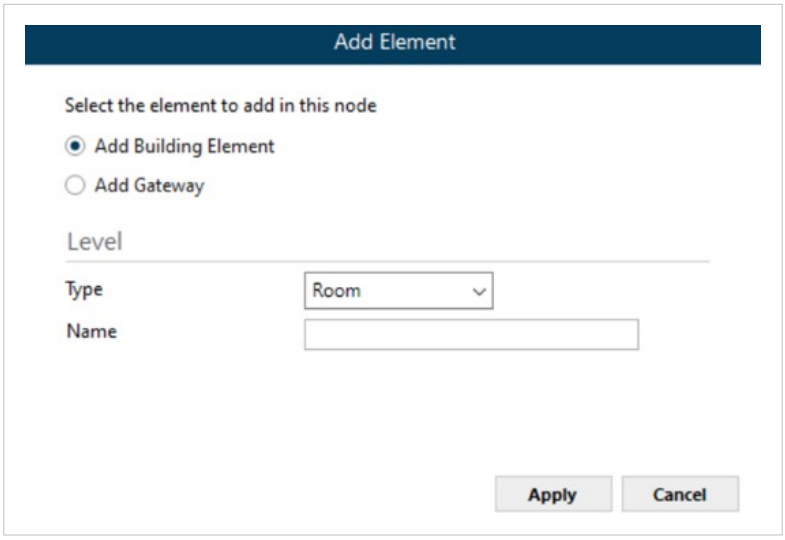
ADD AN APARTMENT

NOTICE
Conversely to rooms and devices, to add an apartment, you must clone an existing one.

1. Select the default **Apartment** level from the tree area.
2. Click **Clone**.

ADD A ROOM

NOTICE
You can add a **Room** as a child element on either the **Building** or an **Apartment** node.



1. Click the **Building** or **Apartment** node where you want to add the **Room**, .
2. Click **Add Element**.
3. Select the **Add Building Element** option.
4. In the **Type** parameter, select **Level_1** or **Level_2**.

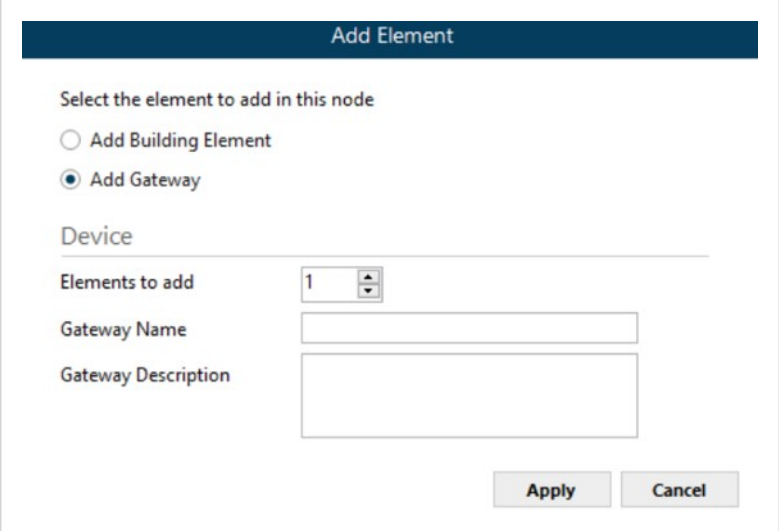
NOTE
From the **Building** node, both **Level_1** and **Level_2** will add a room.

If you are adding the room from an **Apartment** node, the only option available is **Level_2**.

5. Type a **Name**.
6. Click **Apply**.

ADD A DEVICE (GATEWAY)

NOTICE
You can add a **Device** as a child element on either the **Building**, an **Apartment**, or a **Room** node.



1. Click the element where you want to add the **Device**, either the **Building**, an **Apartment**, or a **Room** node.
2. Click **Add Element**.
3. Select the **Add Gateway** option (selected by default).
4. You can add several gateways at once using the **Elements to add** parameter (1 .. 128).

> **NOTICE**
> Even if you can add up to 128 gateways to a project, remember that you will have to physically connect each one to your computer to load the project, as explained in Commissioning (page 19).

5. Use the **Gateway Name** parameter to type a name.
6. Use the **Gateway Description** parameter to type a description.
7. Click **Apply**.

CLONE AN ELEMENT

1. Click the element.
2. Click **Clone**.

> **NOTE**
> This action will replicate the element and its child elements.

DELETE AN ELEMENT

1. Click the element.
2. Click **Delete**.

> **NOTE**
> All the child elements will be deleted too.

> **NOTICE**
> You cannot delete the **Building** element.

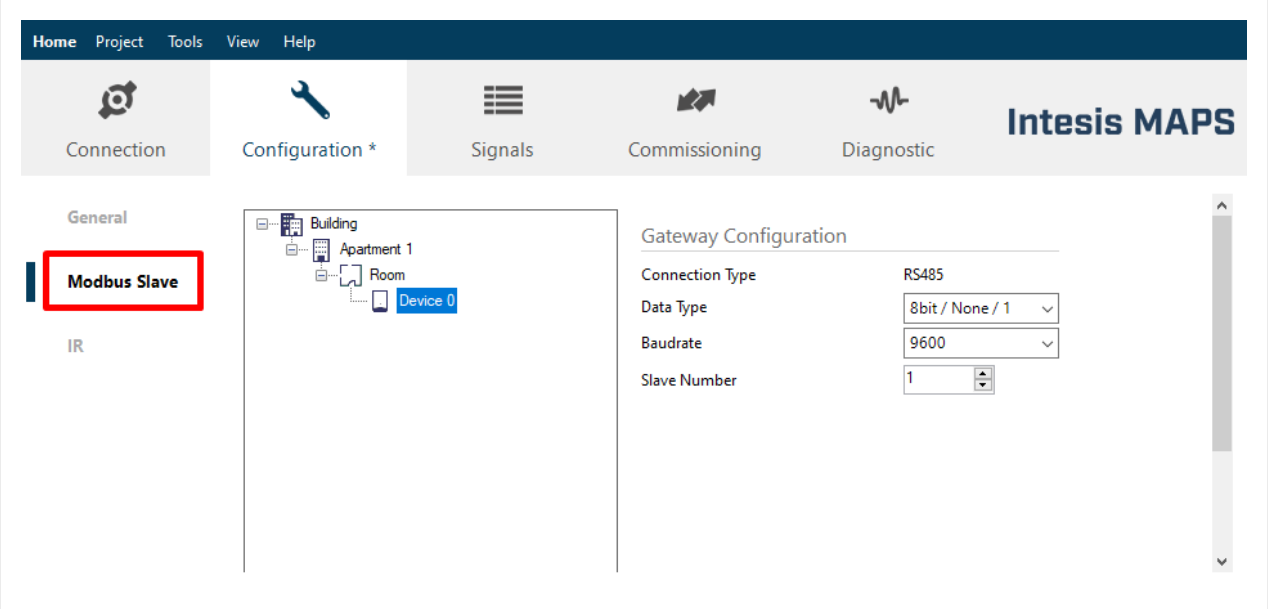
DRAG AND DROP

You can drag and drop rooms and devices to move them from one node to another to configure the project tree.

7.2. BMS Protocol (Modbus Slave/BACnet Server)

Below the **General** menu, you can find the menu of the BMS protocol (**Modbus** in the case of the image below).

Figure 6. Configuration tab with a Modbus project



IMPORTANT
A **Device** from the tree view must be selected to configure the parameters corresponding to the BMS (BACnet or Modbus).

CONFIGURATION PARAMETERS FOR MODBUS

For Modbus, you can configure the following parameters:

- **Connection Type:** The gateway supports communication over RS-485 only.
- **Data Type:**
  - 8 bit / None / 1 (8 bits, no parity, 1 stop bit)
  - 8 bit / Even / 1 (8 bits, even parity, 1 stop bit)
  - 8 bit / Odd / 1 (8 bits, odd parity, 1 stop bit)
  - 8 bit / None / 2 (8 bits, no parity, 2 stop bit)
- **Baudrate:** The supported baudrates are 2400, 4800, **9600** (default value), 19200, 38400, 57600, 76800, and 115200.
- **Slave Number**: Set the Modbus address for the gateway (1 .. 255. Default value: **1**).

CONFIGURATION PARAMETERS FOR BACNET

For BACnet, you can configure the following parameters:

- **Device Instance**: Set the BACnet instance for the gateway (0 .. 4194303. Default value: **246000**).
- **Device Password**: Click the **Change** button to set a BACnet password for the gateway.
  - **Disable BACnet password (not recommended)**: Check this parameter if you want to disable the BACnet password.

> **IMPORTANT**
> For security reasons, we recommend to protect your BACnet project with a password.

- **Baudrate**: The supported baudrates are **Auto** (default value), 9600, 19200, 38400, 57600, 76800, and 115200.
- **Max. Masters**: Set the highest master MAC address in the MS/TP network (1 .. 127. Default value: **32**).
- **Max Info Frames**: Set the maximum number of messages per token pass allowed in the MS/TP network (1 .. 255. Default value: **16**).
- **MAC address**: Set the gateway's MAC address in the MS/TP network (0 .. 127. Default value: **0**).

7.3. IR

DATABASE STATUS

- **Last Update Date**: It indicates when the remote controller firmware (RCF) database was last updated.
- **Update database**: Click the **Update** button to update the RCF database.

> **IMPORTANT**
> You need an internet connection.

GATEWAY CONFIGURATION

Figure 7. Gateway configuration parameters for Modbus

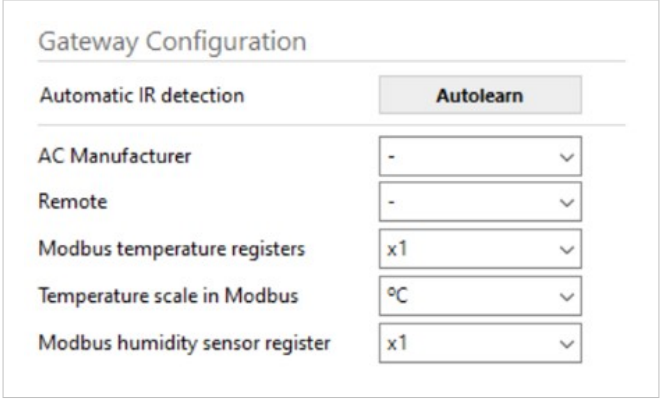
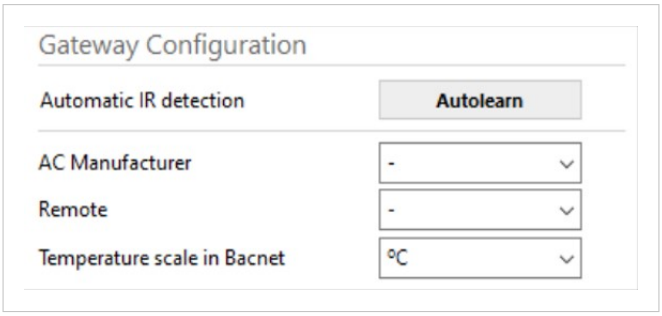


Figure 8. Gateway configuration parameters for BACnet



- **Automatic IR detection**

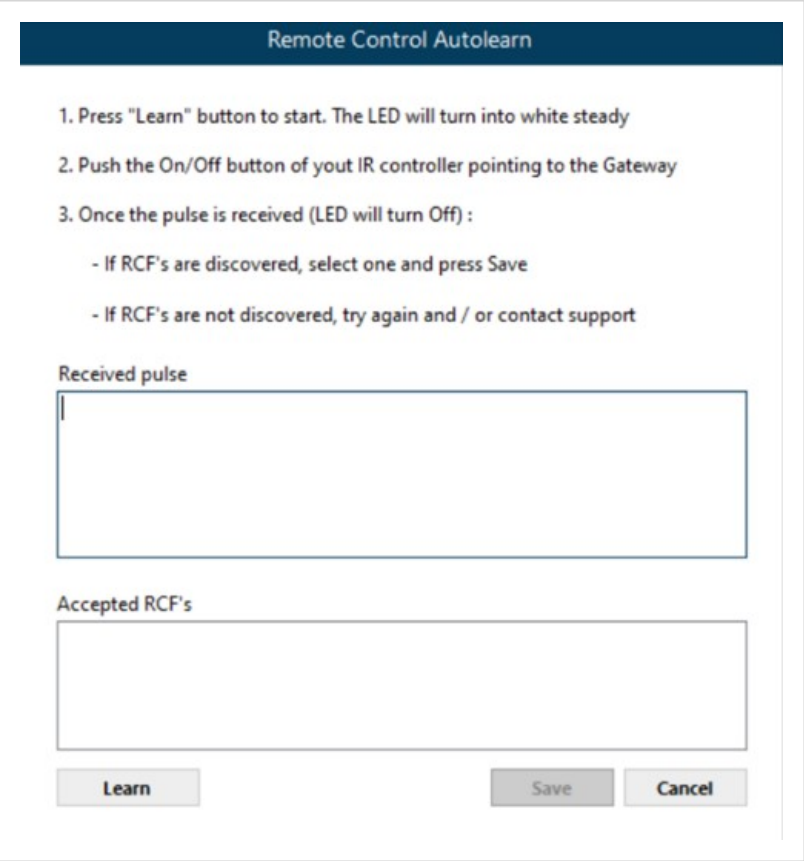
This function allows the gateway to automatically get the RCF of the indoor unit's IR remote control.

TIP
The remote controller firmware (RCF) contains all data related to its indoor unit, like the allowed modes, available fan speeds, if it supports control over the horizontal airflow, etc.

IMPORTANT
To use this function, you need the following:

- The IR remote control of the AC.
- Internet connection.

1. Click the **Autolearn** button.
2. Carefully follow the steps of the **Remote Control Autolearn** window:



3. After pressing the remote control's On/Off button, the fields **Received pulse** and **Accepted RCFs** will show some results.
4. Select one of the RCFs from the **Accepted RCFs** field.
5. Click **Save** to apply the changes.

The Autolearn process autocompletes the following parameters:

- **AC Manufacturer**
- **Remote**

NOTE
Although Autolearn is the recommended process for this configuration, you can do it manually by searching the AC manufacturer and the indoor unit model from the lists.

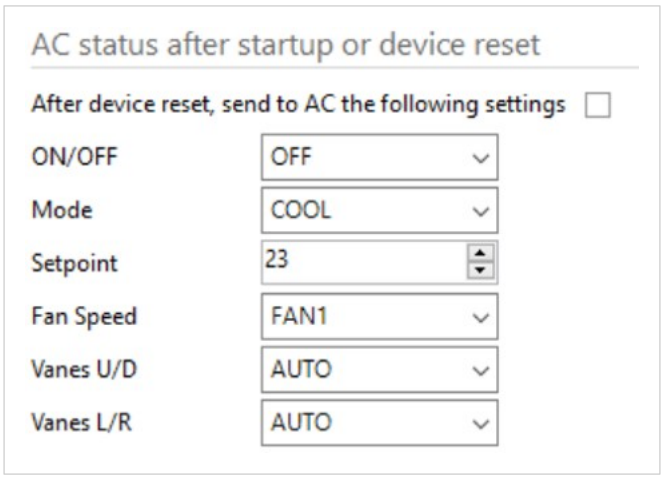
From the **Gateway Configuration** menu, you can also configure:

- **Temperature scale**: Set the temperature scale in Celsius or Fahrenheit degrees.

For Modbus only, you can also configure:

- **Temperature registers**: Set the temperature registers format (x1/x10).
- **Humidity sensor register**: Set the relative humidity registers format (x1/x10).

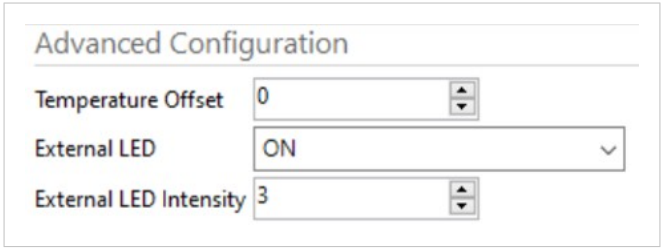
AC STATUS AFTER STARTUP OR DEVICE RESET



By selecting the **After a device reset, send to AC the following settings** option, the gateway will send the status of these parameters to the indoor unit after a reset.

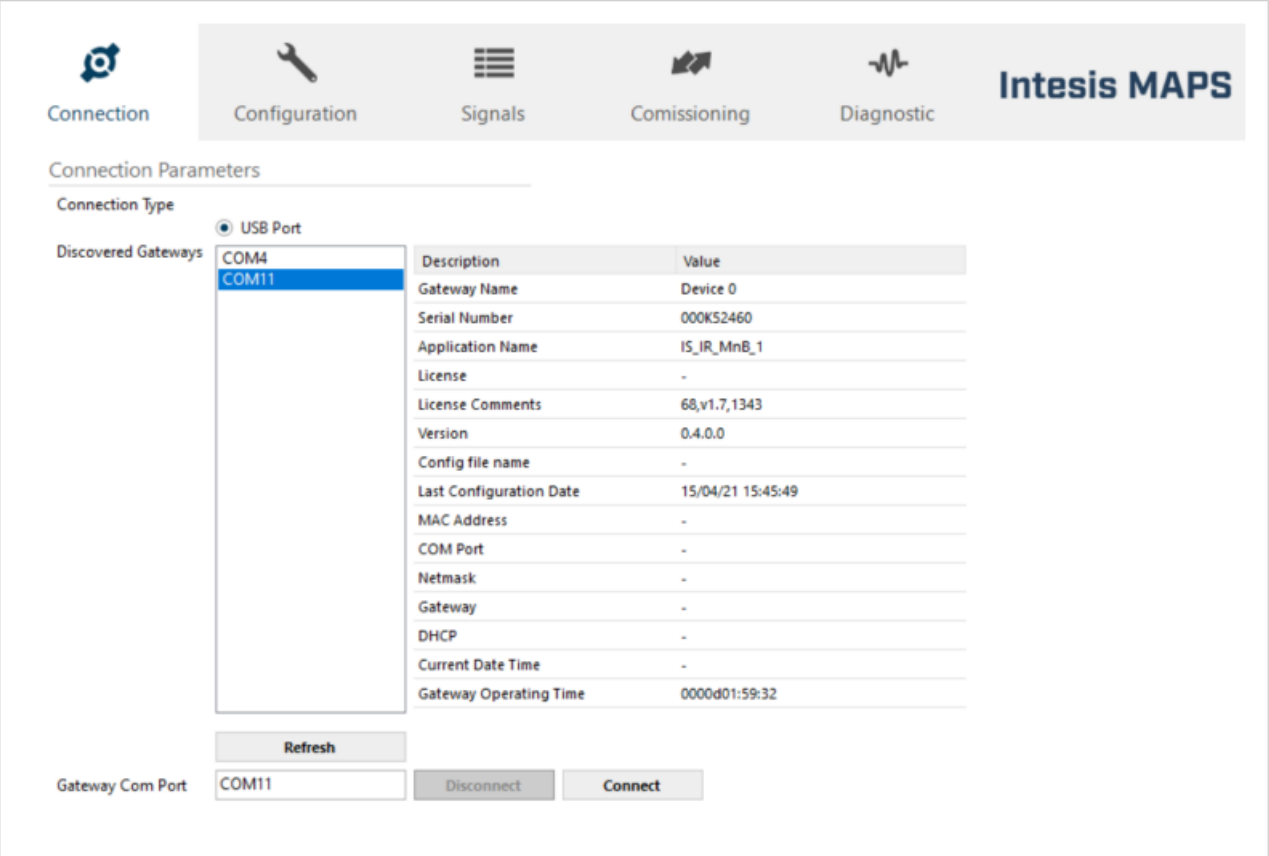
NOTE
The gateway supports these parameters; however, some could not be available in the indoor unit. Consult the indoor unit documentation to know its capabilities.

ADVANCED CONFIGURATION



- **Temperature offset**: Define the temperature offset for the device's built-in temperature probe.
- **External LED**: Set the LED behavior: always off (OFF), always on (ON), or blink only when the IR signal changes (Blinking only on change).
- **External LED intensity**: From 1 (faint) to 5 (bright). The default value is 3.

8. Connection Tab



NOTICE
The **Discovered Gateways** window shows all the gateways connected to the PC.

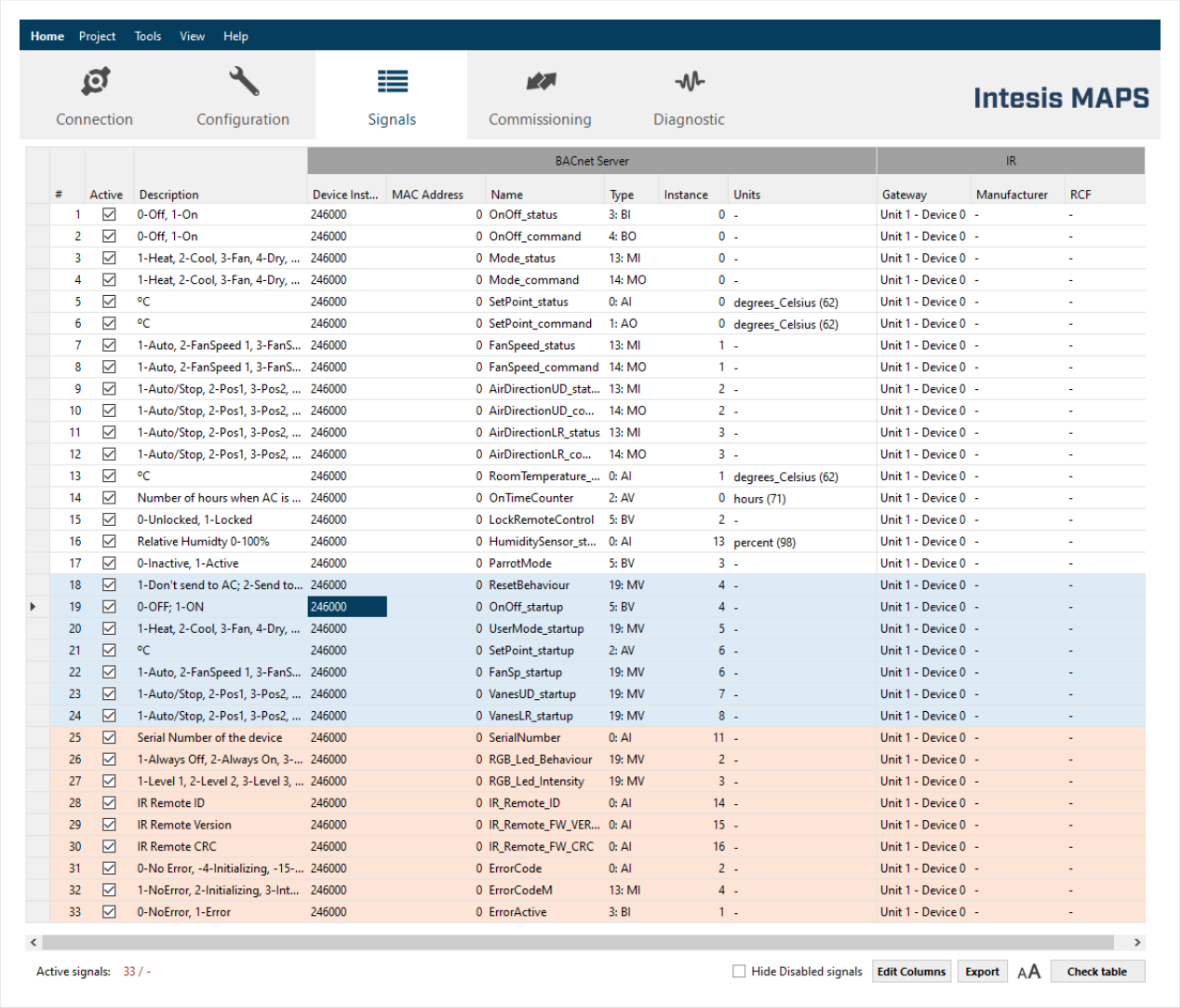
1. In the **Discovered Gateways** window, select the port where the gateway is connected.
2. Click the **Connect** button to establish the connection between Intesis MAPS and the gateway.

TIP
You can create and configure the project offline and, later on, connect the gateway and send the project to it, as explained in Commissioning (page 19). However, to use the Autolearn function, you must have the gateway connected.

9. Signals Tab

This menu lists all available signals and their parameters for both the BMS and the IR protocols.

Figure 9. Signals menu when the gateway is configured for BACnet



NOTICE

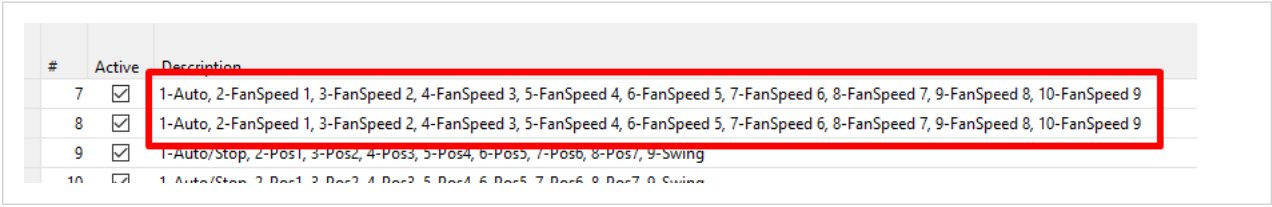
None of these signals can be disabled.

The Modbus register number/BACnet object instance of the signal cannot be edited.

Signals are grouped in three groups with different background colors to easily find them in this view:

- **Background in white**: These signals correspond to the indoor unit parameters and some other signals needed for its integration.
- **Background in blue**: This group of signals is used to configure the behavior of the indoor unit after a startup.
- **Background in orange**: These are the gateway's signals.

The **Description** column shows the maximum possible values for each signal. For example, as shown in the image below, the gateway allows up to ten fan speed positions (nine fan speed positions and a position for the fan auto mode).



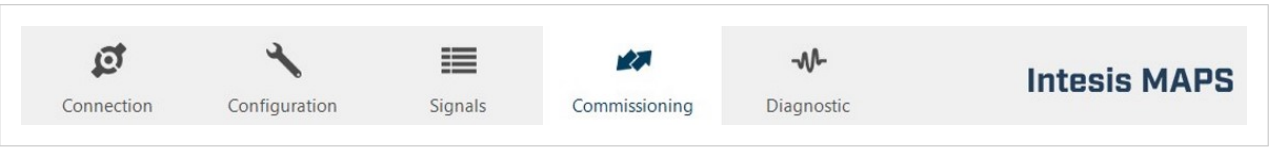
NOTICE
Consult the documentation of the indoor unit to know its capabilities.

At the bottom of the window, these options are available:

- **Active signals**: Number of active signals.
- **Hide Disabled signals**: This option has no function for this gateway since all signals are always enabled.
- **Edit Columns**: Click this button to open the **Select Visible Columns** window, where you can show or hide any column of the table.
- **Export**: Click this button to export the current signals' configuration to an XLSX file.
- **AA**: Increases or decreases the font size.
- **Check table**: Click this button to review the signal's configuration.

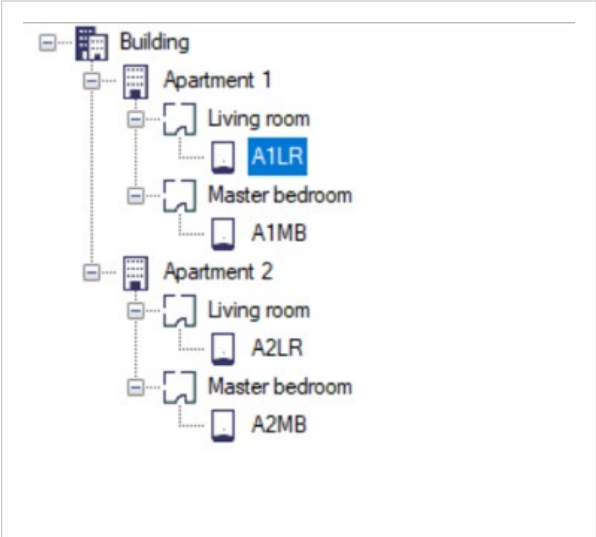
NOTE
If any parameter on any signal is wrong, a message will pop up with specific information about the error.

10. Commissioning

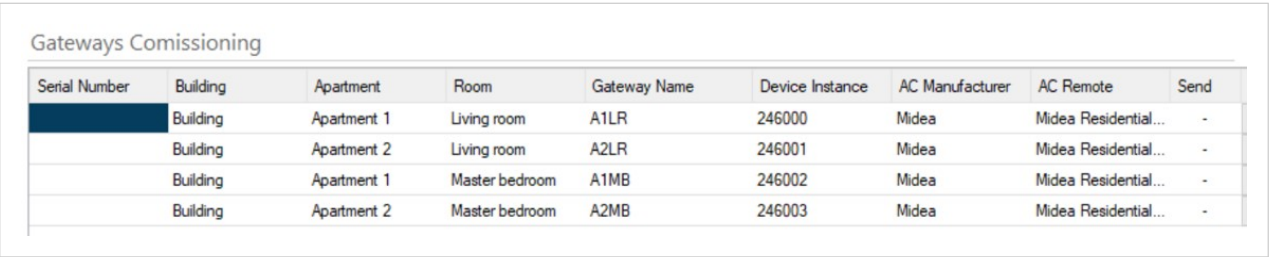


Once the project configuration is completed, the next step is sending the project to the IN485UNI001I100 gateway.

For example, considering this project structure:



You will find the following parameters in the **Commissioning** tab:



Serial Number	Building	Apartment	Room	Gateway Name	Device Instance	AC Manufacturer	AC Remote	Send
	Building	Apartment 1	Living room	A1LR	246000	Midea	Midea Residential...	-
	Building	Apartment 2	Living room	A2LR	246001	Midea	Midea Residential...	-
	Building	Apartment 1	Master bedroom	A1MB	246002	Midea	Midea Residential...	-
	Building	Apartment 2	Master bedroom	A2MB	246003	Midea	Midea Residential...	-

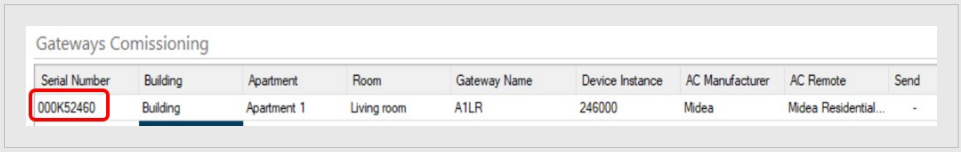
Follow these steps to send the configuration from Intesis MAPS to each one of the gateways:

1. If it's not connected yet, connect the gateway you want to configure to the computer through its mini USB port.
2. Enter the **Connection** tab to establish connection between Intesis MAPS and the gateway. See Connection Tab (page 16).
3. Once the gateway is connected, enter the **Commissioning** tab again.
4. Select the gateway.

5. Click **Send**.

NOTICE

- If you have not saved the project yet, a popup message will prompt you to do so.
- Once the configuration is sent to the gateway, Intesis MAPS will assign the serial number to this gateway.



- Intesis MAPS will disconnect from the gateway after sending the project.

6. Repeat steps 1 to 5 with all the remaining gateways of the project.

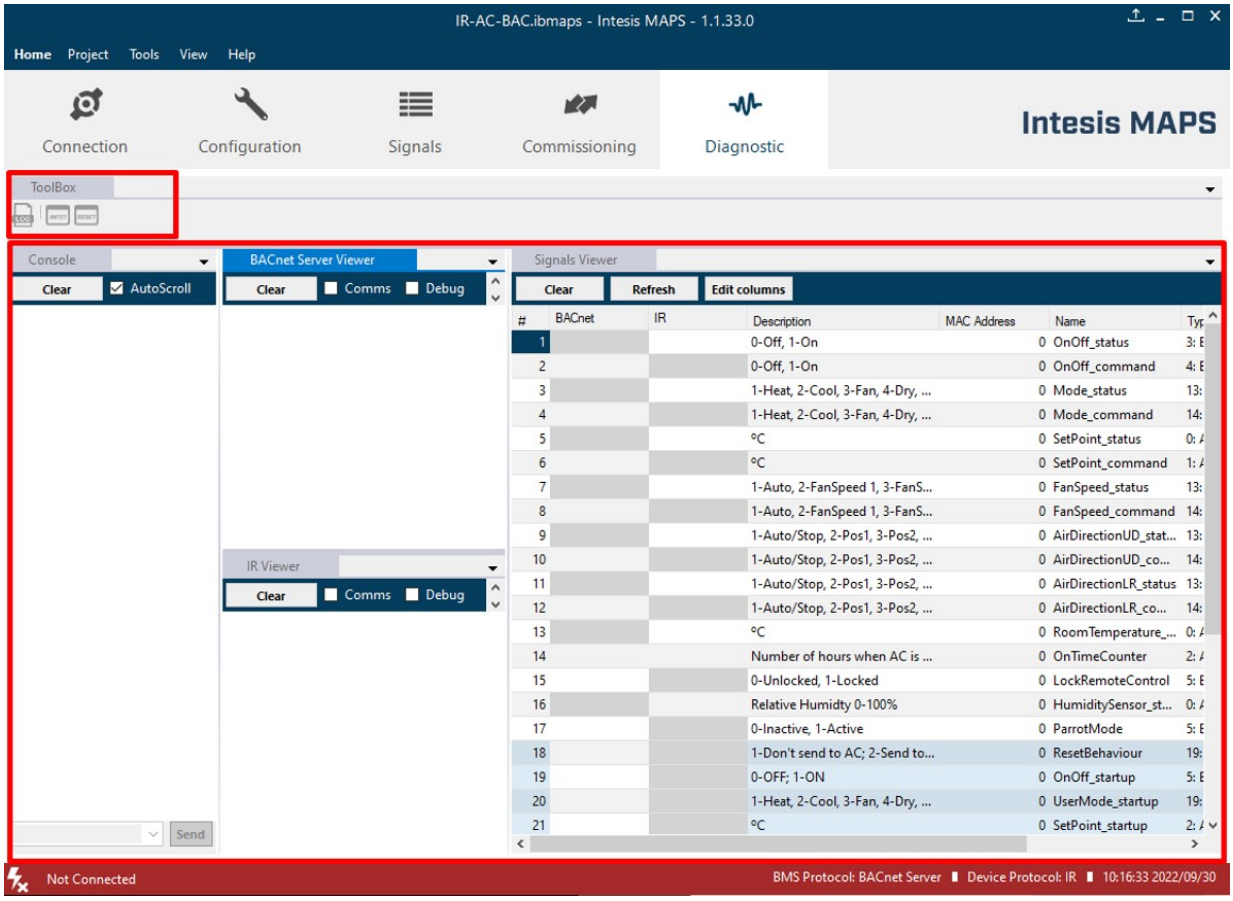
NOTICE

Intesis MAPS will check for firmware updates before sending the project to the gateway. If a new firmware version is available, Intesis MAPS will send it along with the project you have configured. To know more, see Firmware Update (page 24).

11. Diagnostic

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

The Diagnostic tab has two main parts:



TOOLBOX

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

The ToolBox offers the following options (from left to right):

- **LOG**: Set Intesis MAPS in logging mode to record all the information present in the viewers and save it in a .zip file.
- **INFO?:** Get some gateway information.
- **RESET**: Reboot the gateway.

IMPORTANT
After rebooting the gateway, you must connect it again. See Connection Tab (page 16).

VIEWERS

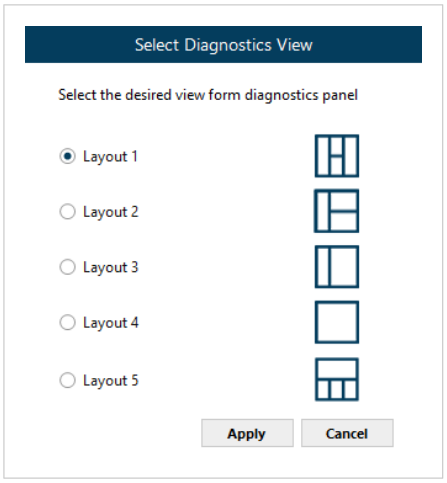
Intesis MAPS provides several viewers:

- A generic **Console** viewer for general information about communications and the gateway status.
- A viewer for both protocols to check their current status. In the image above, you can see, at the center of the screen, the **BACnet Server Viewer** (top) and the **IR Viewer** (below).
- A **Signals Viewer** 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:

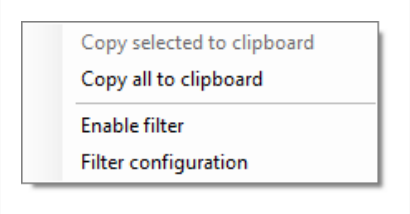
  - Fixed console to the left and tabbed browser for the other viewers
  - Full tabbed browser

- 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.

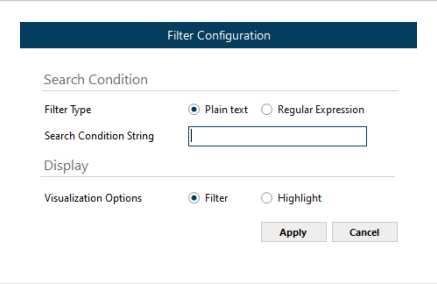
FILTERING

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**.

12. Firmware Update

Intesis MAPS will check for firmware updates before sending the configuration to a connected gateway. If a new firmware version is available, Intesis MAPS will send it along with the project you have configured.

After the update, you can check the new firmware version in the Connection and Diagnostic tabs.

NOTE
You need a connection to the internet to update the gateway's firmware version.

TIP
You can also check if a new firmware version is available using the **Update Database** option from the Configuration tab. See IR (page 13).

IMPORTANT
When updating the firmware version of an already configured and integrated gateway, use the original Intesis MAPS project, i.e., the project you used to configure the gateway. Otherwise, the current configuration in Intesis MAPS may be different from the gateway's and affect the communication with the indoor unit once the gateway is located again to the installation.

IMPORTANT
Any changes made to the gateway's settings from the BMS will be lost after a firmware update. If so, it may be time to update the Intesis MAPS project for that gateway. To do so, check the value for the signals in the BMS protocol and translate its configuration to the Intesis MAPS project.