ENGLISH

IN790NIB100A000 Configuration Guide

700 Series Water

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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.

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.
- Full linkage between the control system and the NIBE installation signals.
- Real-time monitoring of the NIBE system.

2. Prerequisites

To configure the gateway, you need:

- The items supplied by HMS Networks:
  - Intesis IN790NIB100A000 gateway
  - Gateway documentation:
    - Installation Guide
    - User Manual
  - USB Mini-B type to USB A type cable to connect the gateway to the computer.

NOTICE
You can use an Ethernet cable instead (not included).

- 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

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.

> **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.

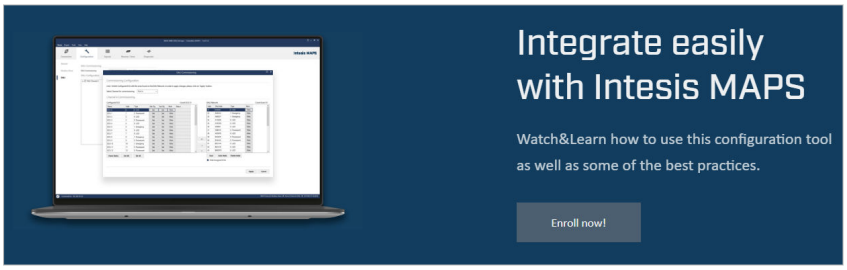
4. First steps in Intesis MAPS

Upon launching Intesis MAPS, you will be greeted with the home screen. This window is divided into two sections: The **Getting Started** column on the left and the **Latest News and Updates** section in the main body.

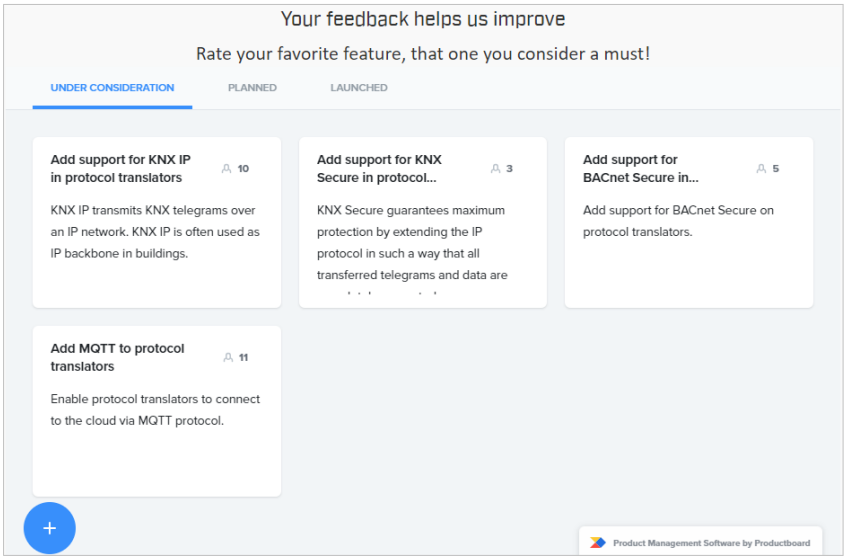
4.1. Latest News and Updates

Through this section, you can:

- Get access to an Intesis MAPS online course.



- Get information about features under consideration for implementation, planned, or recently launched in the features board of the middle section.



NOTE

Click a feature to expand it and rate it. To share a feature, expand it, click the icon, and click on **Copy private link**.

This board also gives the option to submit ideas and suggestions for future features. To submit an idea, click the button and fill out the form.

- You can also enter the HMS Support Portal by clicking the **HMS Support Portal** button at the bottom section.

4.2. Getting Started

This section allows direct access to some of the most commonly used features of Intesis MAPS. These are:

NEWS

- **Latest News and Updates**: Click this option to load the **Latest News and Updates** section.

START

- **Create New Project**: Click this option to open the **New Project** menu.

> **NOTE**
> To know more about creating a new project, consult the section Create a New Project from a Template (page 8).

- **Load Project**: Click this option to load an Intesis MAPS project (.ibmaps file) to Intesis MAPS.

1. Use the new dialog to look for the file and select it.
2. Click **Open** or double-click the file.
3. The project will be loaded to Intesis MAPS.

> **NOTE**
> For more information about file management, consult the section Saving, Opening, Importing, and Exporting the Project (page 9).

- **Get Project from Device**: Click this option to import the Intesis MAPS project file (.ibmaps file) directly from a gateway.

1. Connect the gateway to the computer.
2. On the **Discovered Devices** dialog, select the way you connected the gateway:
   a. **IP**: If you are using the **Ethernet Port** of the gateway.
   b. **USB**: If you are using the **USB** port of the gateway.
3. Select the gateway name (for IP) or the computer COM port (for USB) from the list.

> **NOTICE**
> If the gateway name or the computer COM port does not appear, click the **Refresh** button.
>
> If the problem persists, ensure the gateway and the computer are correctly connected.

4. Once selected, the options on the right will autofill.
5. Click **Import Project**.
6. Once downloaded, use the **Save file** dialog to type a name for the file and select a folder to save it.

> **NOTE**
> For more information on connecting the gateway to your computer, consult the section Connection Tab (page 13).

- **Config IP settings**: This section lists the devices discovered on the network. Select a gateway from the list to view its properties and to access the **Identify** and **Edit** functions.

NOTE
These two functions are covered in the section Connection Tab (page 13).

- **Import Project From USB Host**: Opens a file browser to select an Intesis MAPS project file in USB MAPS Project format (.expmaps) to load.

NOTE
For more information about file management, consult the section Saving, Opening, Importing, and Exporting the Project (page 9).

RECENT

- **Recent**: A list of up to the last five saved projects is available here. To load one of these recent projects, click its name.

NOTICE
To check the location path of a recent file, simply hover your cursor over it.

IMPORT

- **Import Project From Linkbox.**

NOTICE
This option does not apply to the IN790NIB100A000 gateway.

UPDATES

- **Update Gateway Firmware**: Use this option to check for updates and load a new firmware version to your gateway.

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. Click **Update Gateway Firmware**.
2. On the **Discovered Devices** dialog, select the way you connected the gateway to your computer:
   a. **IP**: If you are using the **Ethernet Port** of the gateway.
   b. **USB**: If you are using the **USB C** port of the gateway.
3. Select the gateway name (for IP) or the computer COM port (for USB) from the list.

NOTICE
If the gateway name or the computer COM port does not appear, click the **Refresh** button.

If the problem persists, ensure the gateway and the computer are correctly connected.

4. Once selected, the options on the right will autofill.
5. Click **Update Firmware**.

6. 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.

- **Software Update**: Click this option to update Intesis MAPS.
  - If you are already using the latest version available, a dialog appears informing you that the software is up to date.
  - If there is a new version available, a dialog will show the information about the new version and three options:
    - **Skip this version**: Click this option to avoid the software update.

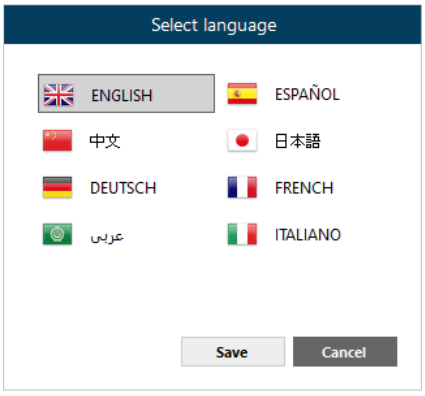
> **IMPORTANT**
> Each new version of Intesis MAPS includes improvements, issue fixes, support for new products, and more. It is recommended to keep the software up to date.

    - **Remind me later**: When clicking this option, a new dialog appears, allowing you to select the time lapse for the reminder or to download the update now.
    - **Update**: The new software version will be downloaded to your computer, and the setup wizard will be launched.

LANGUAGE

Select language: Click this option to change the language.

1. Select a language from the dialog.
2. Click **Save**.
3. To apply the new selected language, close Intesis MAPS and open it again.



5. Create a New Project from a Template

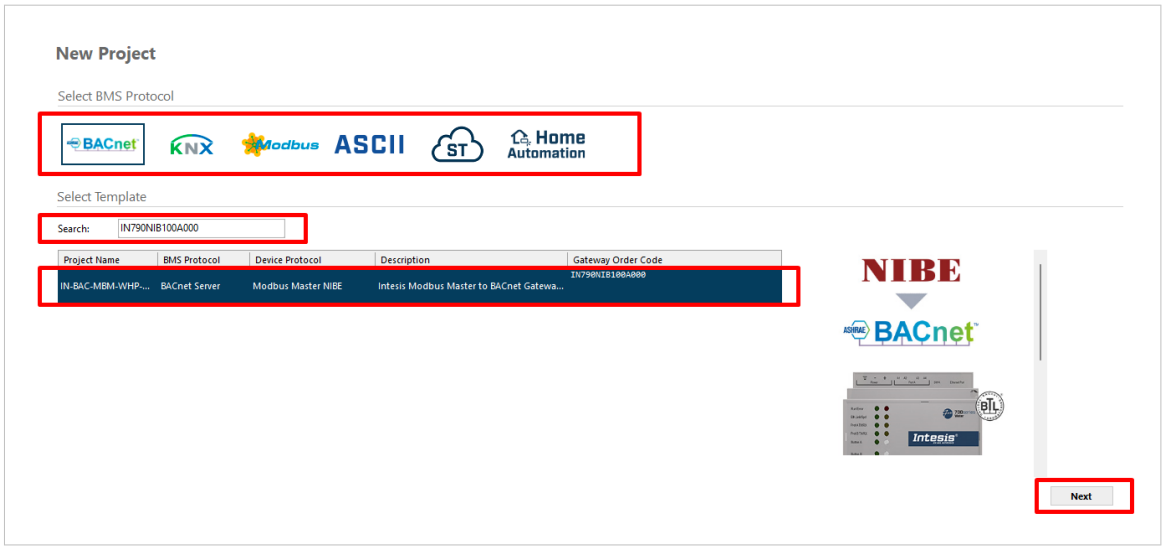
1. Open Intesis MAPS.
2. Click **Create New Project** in the **Start** menu on the left.
   Create a new project using a template. To find the appropriate template, filter the search by:
   - Clicking BACnet or KNX on the protocol logos, depending on the desired configuration.
   - Typing the order code IN790NIB100A000 in the **Search** field.

     NOTE
     The order code is printed on the silver label attached to the gateway's housing.

     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-BAC-MBM-WHP-NIBE for BACnet or IN-KNX-MBM-WHP-NIBE for KNX.



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

NOTICE
This procedure will load a scratch NIBE project into Intesis MAPS. Later, you will load another template for the specific NIBE model, as explained in NIBE (Modbus) (page 40).

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

6. Saving, Opening, Importing, and Exporting the Project

NOTE
This topic describes processes regarding Intesis MAPS files and the Intesis MAPS software. Alternatively, it is also possible to load an Intesis MAPS project from a USB flash drive to the gateway or load the configuration of a gateway to a USB flash drive by configuring and using the gateway's buttons. For more information, see USB Host (page 23).

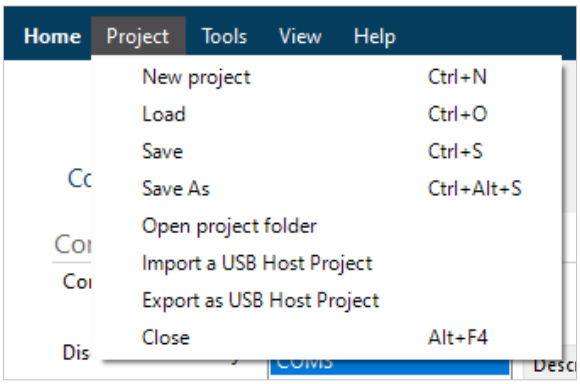
After editing any option from the **Configuration** and **Signals** tabs, an asterisk appears to indicate that you have made changes to the project but have not saved them or sent the project to the gateway yet:

To know how to send your project to the gateway, see Receive/Send Tab (page 50).

- **SAVING YOUR INTESIS MAPS PROJECT**

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

1. Click **Project**.



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 PC**

> **TIP**
> Double-click a .ibmaps file saved on your PC to automatically open it in Intesis MAPS.

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

- **EXPORTING YOUR INTESIS MAPS PROJECT TO A USB FLASH DRIVE**

> **NOTE**
> Save your project as explained in the previous section SAVING YOUR INTESIS MAPS PROJECTS (page 9) before exporting. Otherwise, you will be prompted to do so when beginning the export process.

1. Click **Project**.
2. Click **Export as USB Host Project**.
3. On the **Save file** dialog window, type a **File name** and select your USB flash drive.
4. Click **Save**.

- **IMPORTING A USB HOST PROJECT FROM A USB FLASH DRIVE TO INTESIS MAPS**

1. Click **Project**.
2. Click **Import a USB Host Project**.
3. On the **Open file** dialog window, select the desired .expmaps file from your USB flash drive.
4. Click **Open**.
5. You will be prompted to save a .ibmaps file associated with the USB host project.

> **NOTE**
> This .ibmaps file contains the USB host project information. If a saved project is already open in MAPS, you will be prompted to save the .ibmaps project file associated with the imported USB host project as a new file, or to overwrite the currently open .ibmaps file instead.

> **NOTICE**
> When using a USB device to export or import your project, take into consideration:
>
> - The gateway only supports USB flash drives. External HDDs are not supported.
> - The gateway supports USB flash drives with FAT32 and exFAT file systems.

7. Checking the NIBE Unit's Local Settings

NOTICE
If you need help configuring the NIBE unit's Modbus settings, contact the NIBE support department.

IMPORTANT
NIBE units include some Modbus TCP/IP parameters. To avoid conflicts with the gateway's integration, review the following information.

NOTE
Refer to the NIBE documentation to verify the following information, which may change depending on the NIBE unit's software.

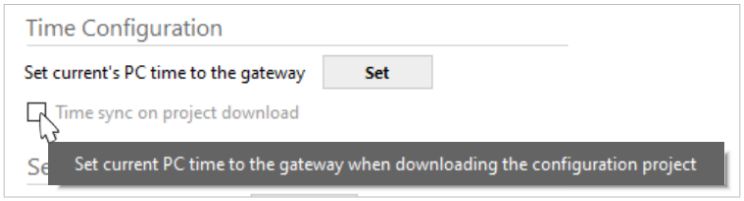
The following procedure must be performed using the NIBE unit's own controller:

1. Activate the **Modbus TCP/IP** option of the NIBE unit. This option is usually located in the **Installer settings**.
2. If possible, disable the **IP address restriction** option. If, for security reasons, this option must remain enabled, enter the Intesis gateway's IP address in the **Trusted IP** field. The settings for the gateway's IP address are explained in Connection (page 18).
3. Enter the NIBE unit's **Network settings** to configure the **Ethernet** settings. This option is usually located in the **Connection** menu.
    a. If the NIBE unit and the gateway are connected to an Ethernet network featuring a DHCP server, ensure that the NIBE unit's **DHCP** option is enabled. The Intesis gateway's DHCP option must also be enabled, as explained in Connection (page 18).
    b. If the network does not have a DHCP server, disable the **DHCP** option in both the NIBE unit and the gateway, and assign them valid IP addresses. You may also need to set valid values for other Ethernet-related parameters, such as **DNS** and **Default Gateway**.

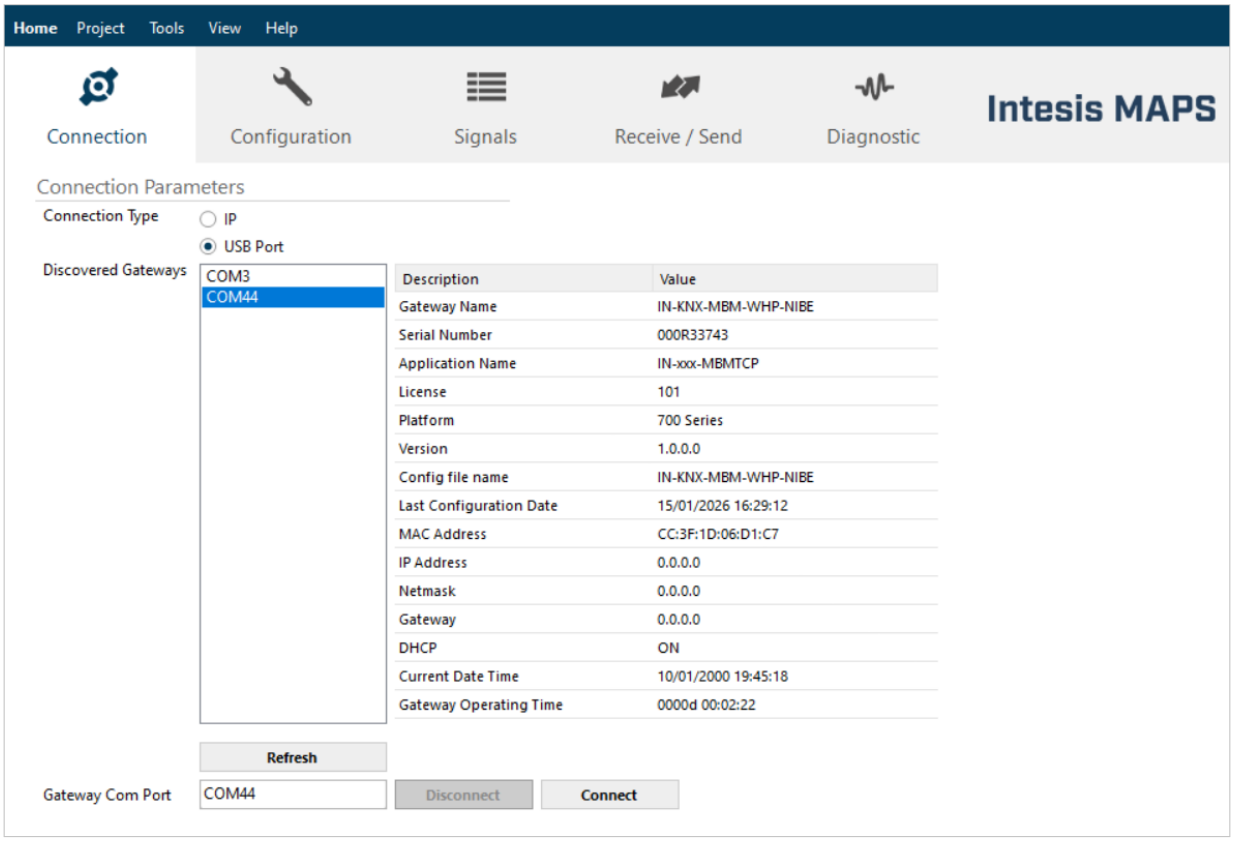
8. Main Menu Overview

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.



9. Connection Tab



1. Connect the gateway to your computer. Two possibilities are available:
   - Use the **Console** port and the supplied USB Mini-B type cable.
   - Use the gateway's **Ethernet port**.

   IMPORTANT
   When using the Ethernet port, 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 (page 56).

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.

   NOTICE
   If the gateway still has its factory settings or has been factory reset, the LEDs will perform a down-and-up starting cycle for a few seconds. Once finished, only the Run LED (green) and the Ethernet link/speed LEDs (green and orange) will remain on, indicating that the gateway is ready.

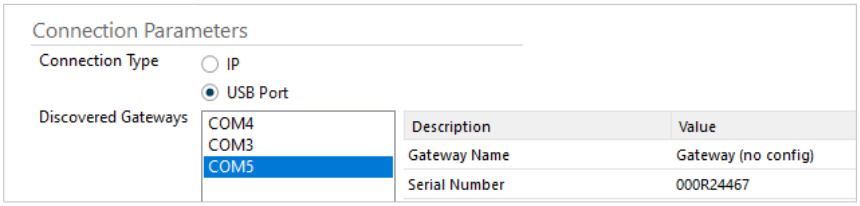
3. On the **Connection Type** parameter, select the way you connected the gateway to your computer:

   a. Select **USB Port** if you are using the **Console** port of the gateway.

> **TIP**
> No password is needed when connecting via USB.

> **NOTICE**
> When using the USB connection, the active ports of your computer will appear in the **Discovered Gateways** field as **COM** + the number of the port (**COM5** in the image below).

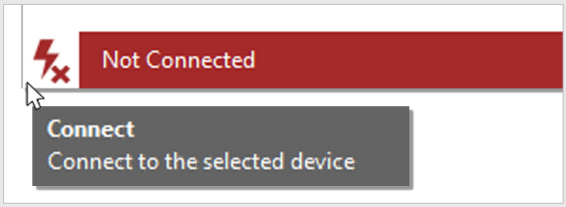
   i. In the **Discovered Gateways** field, select the port of the computer where the gateway is connected.



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

   ii. Click the **Connect** button.

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

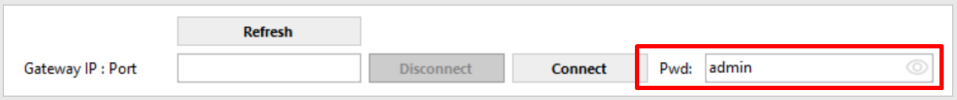


> **NOTICE**
> When the connection is established, the lower red bar will turn blue.

b. Select **IP** if you are using the **Ethernet port** of the gateway.

NOTE

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



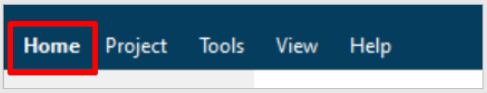
  You can change this password as explained in Configuration Tab → General → Connection (page 18).

- 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

When using the IP connection, 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 8).

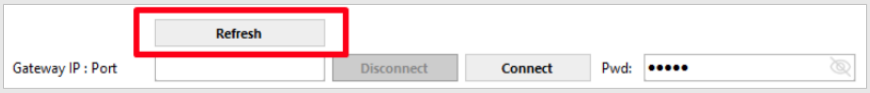


- There is a problem with the gateway IP address. Consult the Troubleshooting section at the end of the document. See Connecting the Gateway to the PC through Ethernet (page 56).
- If the problem persists, try to update the gateway's firmware as explained in Getting Started → UPDATES → Update Gateway Firmware (page 6).

TIP

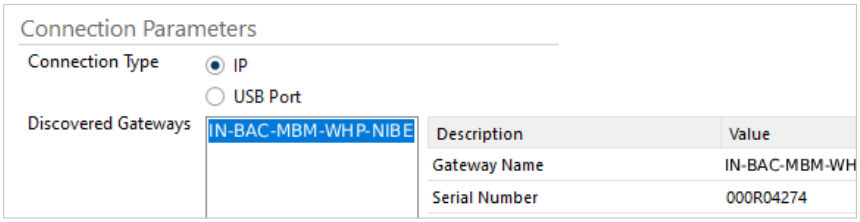
If your gateway does not appear in the **Discovered Gateways** field:

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



- Deactivate the Wi-Fi connection on your computer.
  - 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.

i. Select your gateway from the **Discovered Gateways** field.

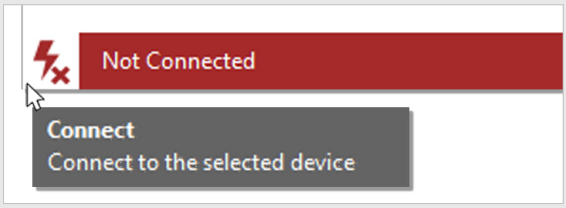


NOTICE
All data from the **Value** column on the right will be automatically populated when the correct gateway is selected.

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

ii. Click the **Connect** button.

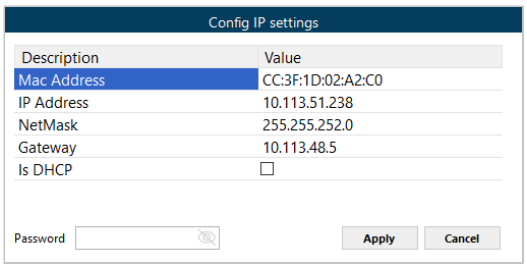
TIP
You can also connect to the gateway using the button from the lower bar:



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

When selecting IP as the connection type, 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.

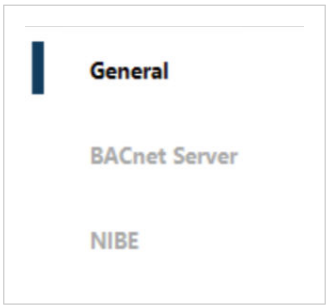


When DHCP is not enabled, you can edit the **IP Address**, **NetMask**, and Default **Gateway** IP. Enter the project password and click the **Apply** button to save the changes.

NOTICE
These parameters can also be edited in the **Configuration** tab. See Configuration Tab → Connection (page 18).

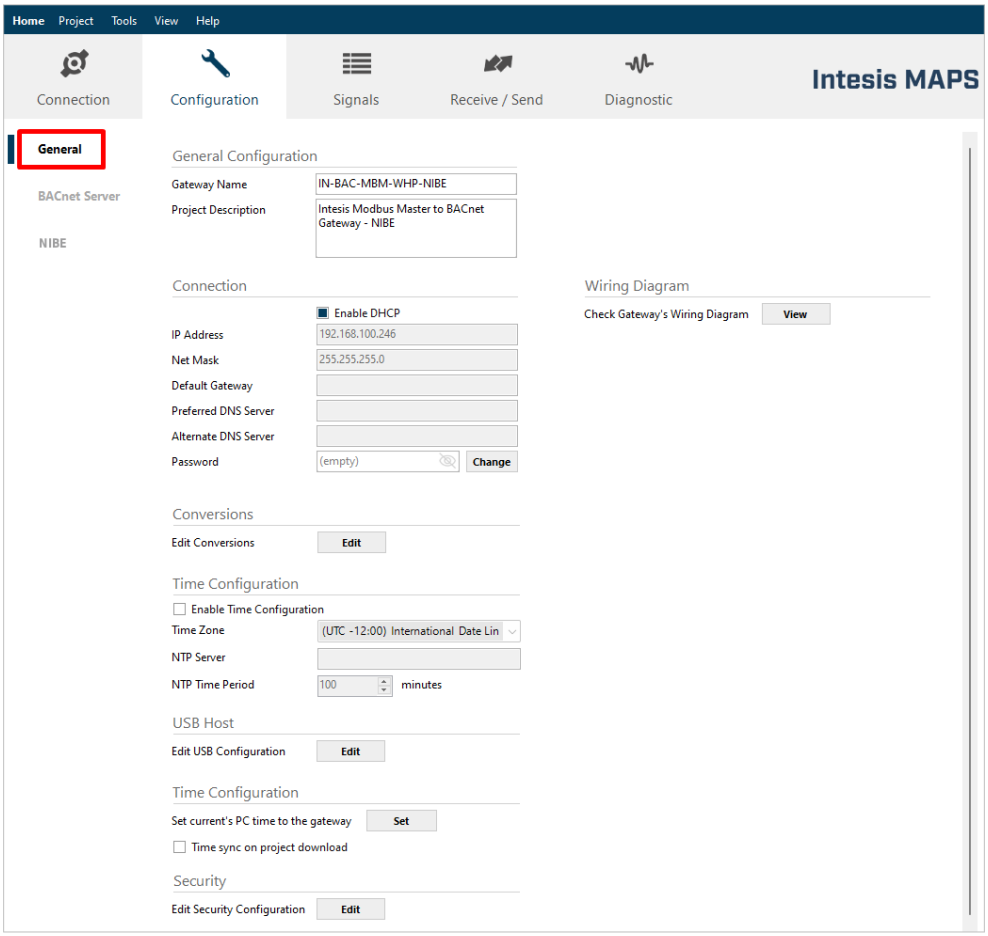
10. Configuration Tab

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



- **General**: Configure the general parameters of the gateway.
- **BMS protocol**: **BACnet Server** or **KNX**, depending on the selected project template. In the case of the image on the left, the control system is based on BACnet.
- **NIBE**: Configure the parameters for the NIBE system.

10.1. General Configuration Menu



10.1.1. 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).

10.1.2. 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
      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**.

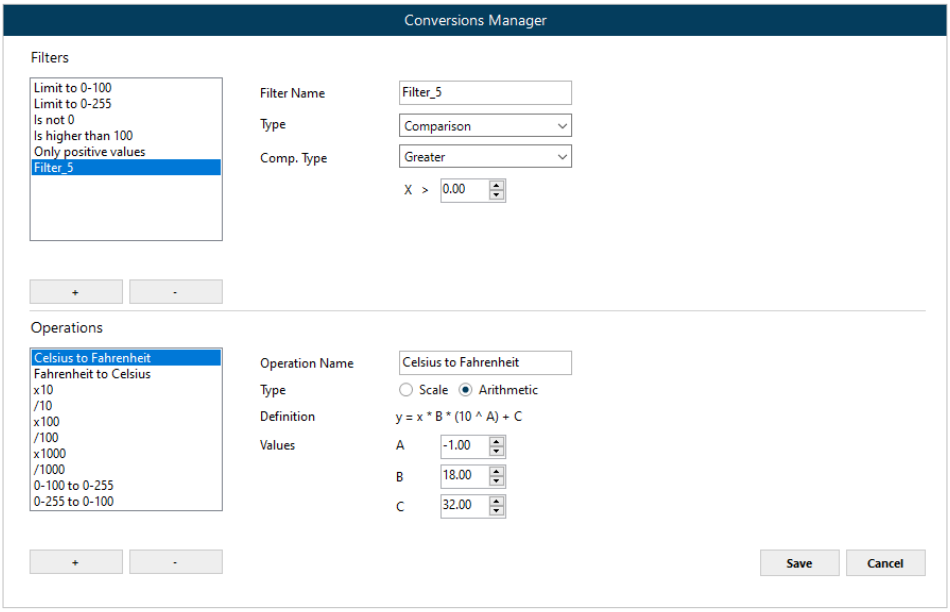
- **Password**. Use this option to visualize the gateway's password and set a new one.

  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**.

10.1.3. Conversions

Click the **Edit** button to open the **Conversions Manager**.



Use this menu to create and configure filters and operations to be applied to any customizable signal later.

IMPORTANT
Only the five customizable, extra signals support the conversions feature.

Filters:

By default, five filters appear listed:

- **Limit to 0-100**
- **Limit to 0-255**
- **Is not 0**
- **Is higher than 100**
- **Only positive values**

Click the + button to add more filters.

Select a filter and click the — button to delete it.

For each filter, you can set:

- **Filter Name**: Type a name for the filter.
- **Type**: Select the filter type.
  - **Comparison**
  - **Non-limited Filter**
  - **Limited Filter**

- **Comp. Type**: Set the comparison type for this filter and set the value(s) to complete each formula.
  - **Equal**: X== Set a value
  - **Different**: X != Set a value
  - **Less**: X < Set a value
  - **Greater**: X > Set a value
  - **InRange**: Set a value ≤ X ≤ Set a value
  - **OutOfRange**: X < Set a value or X > Set a value

Operations:

By default, 10 operations appear listed:

- **Celsius to Fahrenheit**
- **Fahrenheit to Celsius**
- **x 10**
- **/ 10**
- **x 100**
- **/ 100**
- **x 1000**
- **/ 1000**
- **0-100 to 0-255**
- **0-255 to 0-100**

Click the + button to add more operations.

Select an operation and click the — button to delete it.

For each operation, you can set:

- **Operation Name**: Type a Name for the operation.
- **Type**: Choose Scale or Arithmetic.
  Scale

  Set the **Values** for:

  - **min**imum **In**put / **max**imum **In**put
  - **min**imum **Out**put / **max**imum **Out**put

  Arithmetic

  Considering the **Definition** formula $\mathbf{y = x \times B \times (10^{A}) + C}$, set the **Values** for:

  - **A**
  - **B**
  - **C**

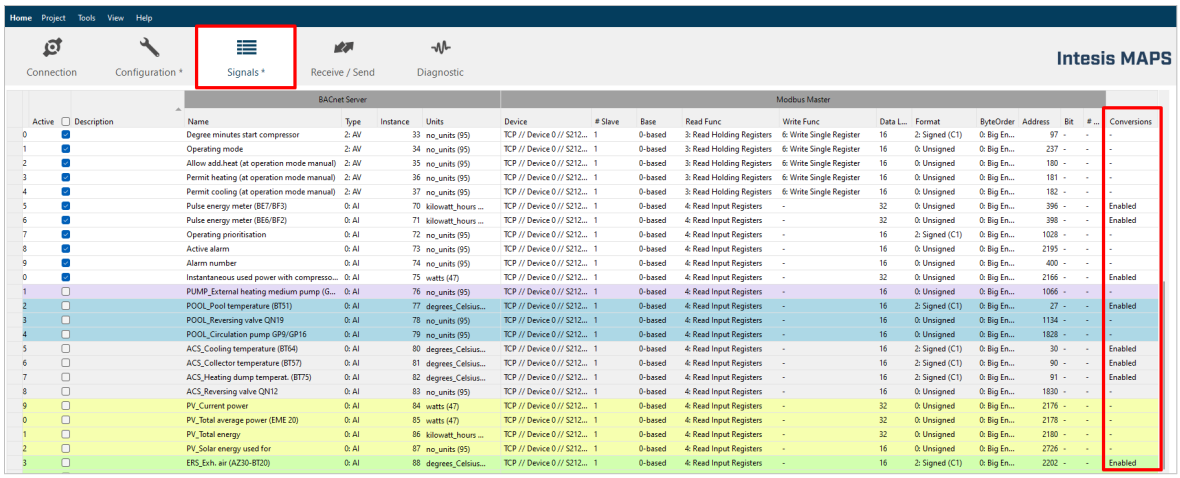
Click **Save** to save the changes.

10.1.3.1. Enabling Conversions in a Signal

NOTICE
To better understand this topic on conversions, we are moving from the **Configuration** tab to the **Signals** tab.

Once the needed filters and operations are created and configured, follow these steps to enable them in a signal:

1. Go to the **Signals** tab.
   The **Conversions** column is at the end.



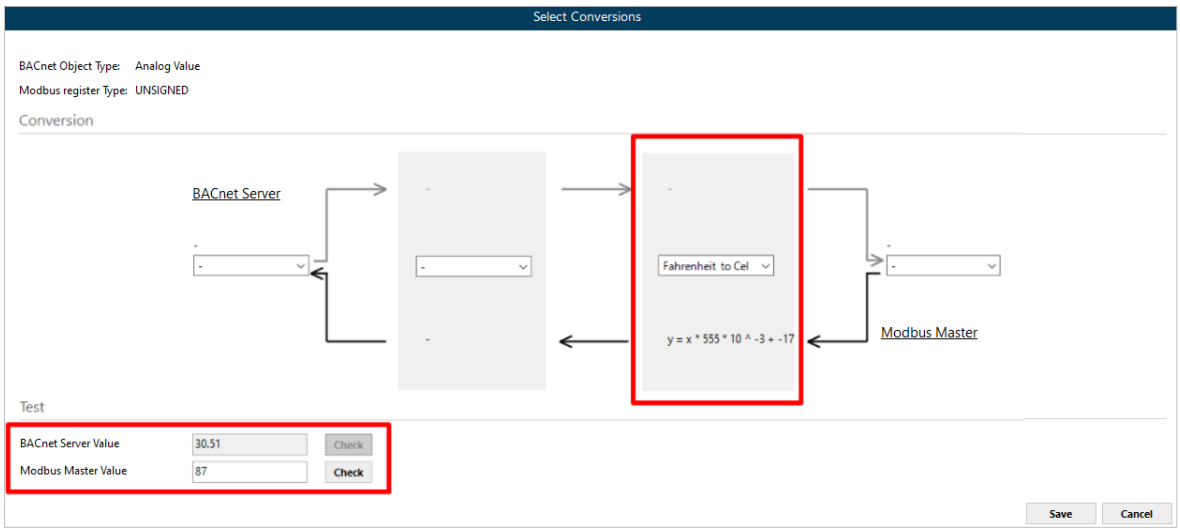
NOTICE
If the **Conversions** column does not appear, use the **Edit Columns** button from the bottom menu to enable it.

2. Choose the signal you want to apply the conversion to and click the ... button at the end.
   The **Select Conversions** window appears.
3. Use the dropdown menus to choose the needed filters and operations.

NOTICE
The direction of the conversion depends on the type of the selected object and is indicated by the black arrows.

This also determines the active text input in the **Test** section.

For example, if you need to convert a Modbus newly added temperature signal from degrees Fahrenheit to degrees Celsius, use the second dropdown menu starting from the right to select the desired operation:



4. Test the configuration by writing a value in the appropriate option and clicking the **Check** button.
   For example, we typed **87** (degrees Fahrenheit) in the **Modbus Master Value** option, which is converted to **30.51**(degrees Celsius) in the **BACnet Server Value** option.
5. Click **Save** to apply the changes.
   The word **Enabled** appears in the **Conversions** column for the signals with an assigned conversion.

10.1.4. Time Configuration (NTP)

This gateway supports Network Time Protocol (NTP) time servers. To define a time server, check the **Enable Time Configuration** checkbox and use the following parameters:

- **Time Zone**: Select the correct time zone for your project.
- **NTP Server**: You can define an NTP server using either an IPv4 address or a domain name.

> **NOTICE**
> The domain name format requires an operative DNS server. This server must be defined manually when DHCP is disabled. See Connection (page 18).

- **NTP Time Period**: Select the interval, in minutes, at which the gateway synchronizes its internal clock with the NTP server. Valid range: 1 to 65535 minutes. Default value: **100 minutes**.

> **TIP**
> Having configured this section, synchronization with the NTP server can be triggered at any time through the **Console** viewer in the **Diagnostic** tab. To do so, enter **ntpsync** in the console. The possible responses are:
>
> - **NTP - SUCCESS [timestamp]**: Synchronization successful. Gateway time updated to *[timestamp]*.
> - **NTP - ERROR [error description]**: Synchronization failed. Reason: *[error description]*.
>
> For more information about the **Diagnostic** tab, see Diagnostic Tab (page 51).

10.1.5. USB Host

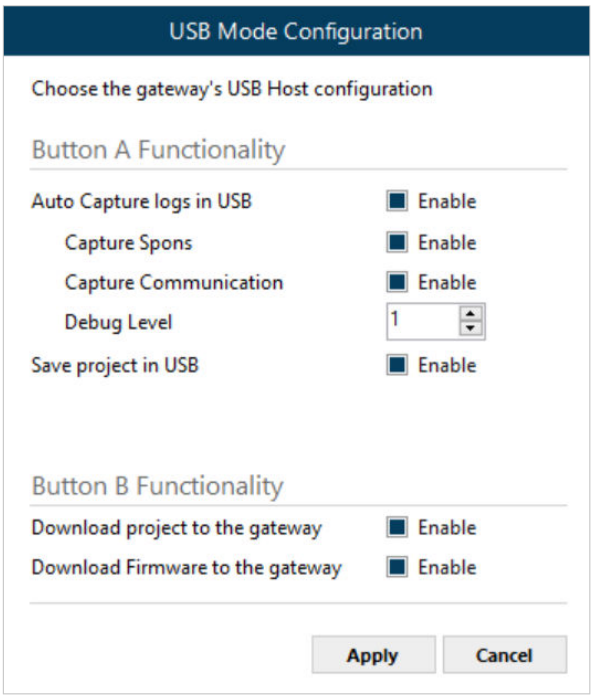
Click the **Edit** button to open the **USB Mode Configuration**.

Button A Functionality

- **Auto Capture logs in USB** (enabled by default): Save logs to a USB flash drive by pressing the gateway's button A.
  - **Capture Spons** (enabled by default): Spontaneous values are logged.
  - **Capture Communication** (enabled by default): Protocol communication is logged.
  - **Debug Level**: Choose the debug level (0 .. 255. Default value: **1**).

> **NOTE**
> Keep the **Debug Level** to 1. Higher levels are only used for technical support issues.

- **Save project in USB** (enabled by default): Save the project to a USB flash drive by pressing the gateway's button A.



Button B Functionality

- **Download project to the gateway** (enabled by default): Load a project from a USB flash drive to the gateway by pressing the gateway's button B.
- **Download Firmware to the gateway** (enabled by default): Load a firmware version from a USB flash drive to the gateway by pressing the gateway's button B.

Click **Apply** to save the changes.

> **NOTICE**
> - The gateway only supports USB flash drives. External HDD are not supported.
> - The gateway supports USB flash drives with FAT32 and exFAT file systems.

> **NOTE**
> When using Button A and Button B functions related to a USB flash drive, track the process via the **Diagnostic** tab's **Console** viewer.

How to capture logs and save the gateway configuration to a USB flash drive

1. Connect the USB flash drive to the gateway through its USB port.

> **NOTE**
> The Console viewer message "USB: Storage Device Attached" informs that the USB device has been detected.

2. The LEDs next to the buttons start to blink alternatively for 15 seconds.

NOTICE
Button A will be active during these 15 seconds. Press it before the LEDs turn off.

NOTE
The Console viewer message "USB: [some specific USB device information] mounted" informs that the USB device is ready.

3. Press Button A once to save the current gateway's configuration to the USB flash drive and to start capturing logs.
The LED of Button A blinks while data is being loaded from the gateway to the USB device.

NOTE
The Console viewer message "USB: Project written successfully to USB" informs that the project has been downloaded to the USB device.

NOTE
The Console viewer message "USB: Writing logs started" informs that logs are being downloaded to the USB device.

4. Press and hold Button A for five seconds to stop capturing logs.

NOTE
The Console viewer message "USB: USB logging canceled by user" informs that logs are no longer being downloaded to the USB device.

5. Disconnect the USB flash drive from the gateway.

NOTE
The Console viewer message "USB: Storage Device Detached" informs that the USB device has been disconnected.

How to load an Intesis MAPS project and a firmware version from the USB flash drive to the gateway

1. Connect the USB flash drive to the gateway through its USB port.

NOTE
The Console viewer message "USB: Storage Device Attached" informs that the USB device has been detected.

2. The LEDs next to the buttons start to blink alternatively for 15 seconds.

NOTICE
Button B will be active during these 15 seconds. Press it before the LEDs turn off.

NOTE
The Console viewer message "USB: [some specific USB device information] mounted" informs that the USB device is ready.

3. Press Button B once to load the Intesis MAPS project and the firmware version stored on the USB flash drive to the gateway.
   The LED of Button B blinks while data is being loaded from the USB device to the gateway.

   NOTICE
   If more than one project is stored in the USB device, the gateway will load the last saved project. The project/firmware must be located in the pen drive root directory, not inside a folder.

   NOTE
   The Console viewer message "USB: Saving project from the storage device" informs that the project has been uploaded to the gateway.

   NOTE
   The Console viewer message "FWUPDATE: DONE" informs that the firmware update process has been successful.

4. Disconnect the USB flash drive from the gateway.

   NOTE
   The Console viewer message "USB: Storage Device Detached" informs that the USB device has been disconnected.

10.1.6. Time Configuration

- **Set current PC time to the gateway**: Connect the gateway to your PC and click the **Set** button to set the gateway's time to your PC's current time.
- **Time sync on project download** (disabled by default): When enabled, the clock on the gateway is set to the time on your PC when the project is downloaded to it.

10.1.7. Security

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

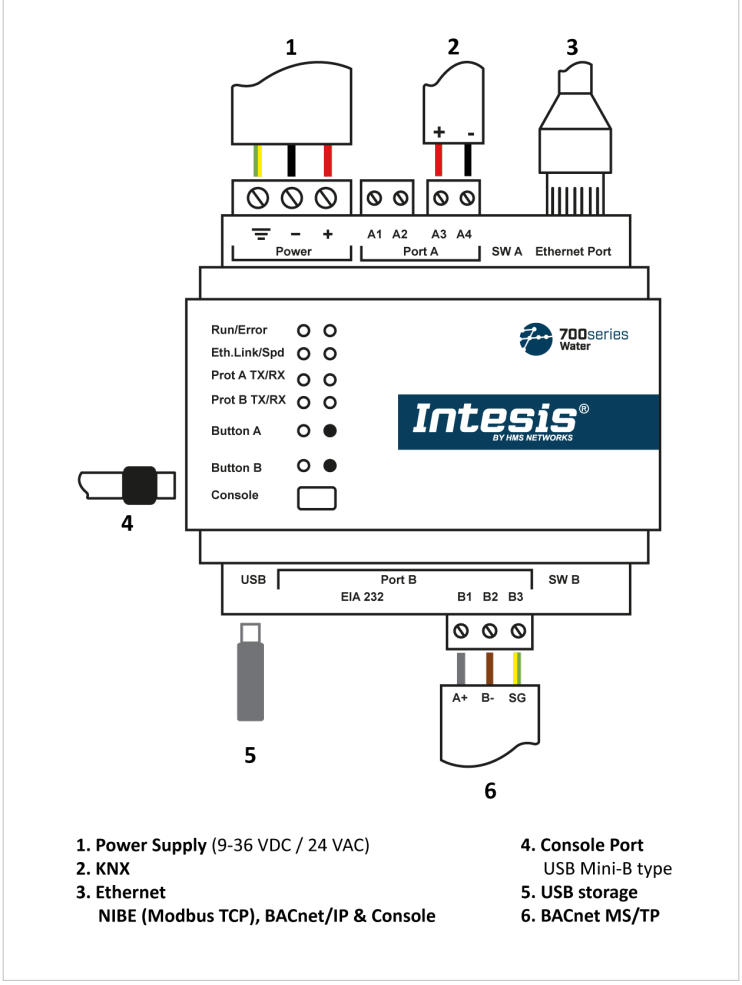
  IMPORTANT
  We recommend keeping the predetermined configuration.

  – **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.

10.1.8. Wiring Diagram

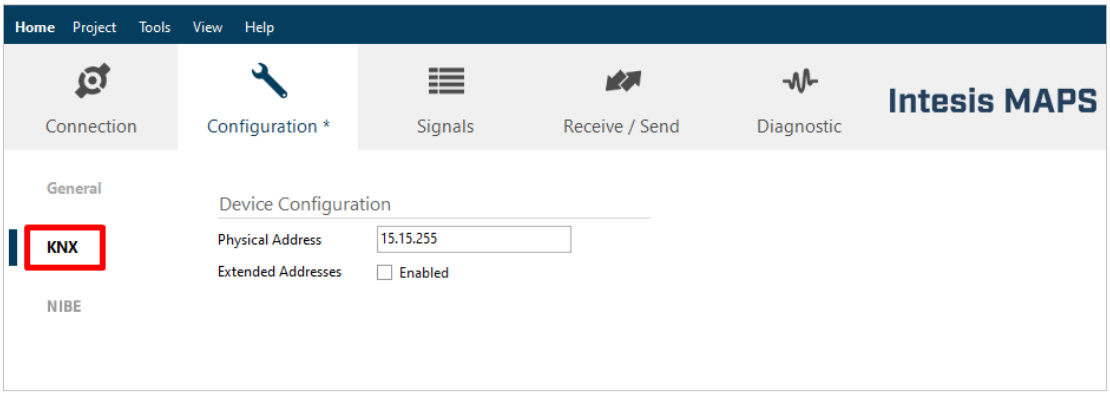
- **Check Gateway's Wiring Diagram**: Click the **View** button to open the schematic image showing how to wire the gateway.



1. Power Supply (9-36 VDC / 24 VAC)
2. KNX
3. Ethernet
NIBE (Modbus TCP), BACnet/IP & Console
4. Console Port
USB Mini-B type
5. USB storage
6. BACnet MS/TP

10.2. BMS Protocol: KNX

For this protocol combination, the gateway acts as a KNX device on the KNX installation.



10.2.1. Device Configuration

- **Physical Address**: Set the physical address for the gateway.

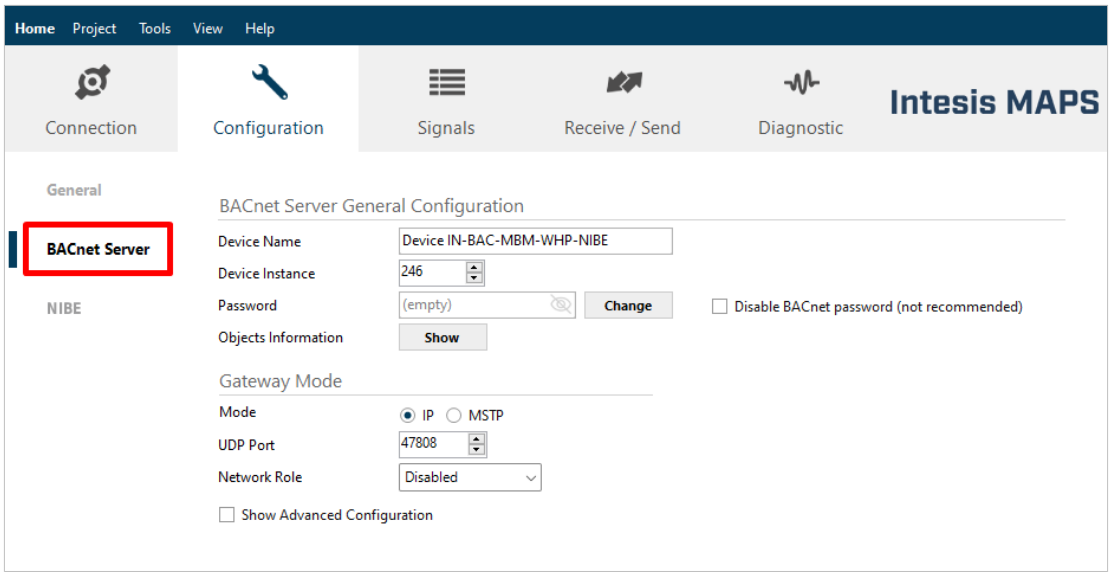
> **NOTE**
> The address by default is **15.15.255**

- **Extended Addresses**: Allow extended addresses (disabled by default). This extends the group address range from the standard 0/0/1 .. 15/7/255 up to 31/7/255.

> **IMPORTANT**
> This option should only be used in very large projects. Do not enable it unless required.

10.3. BMS Protocol: BACnet

For this protocol combination, the gateway acts like a BACnet server device on the BACnet control system.



10.3.1. BACnet Server General Configuration

- **Device Name**: Type a descriptive name for the gateway.
- **Device Instance**: Set the BACnet device object instance property. This is a unique identifier for the gateway inside a single BACnet network segment (0 .. 4194302. Default value: **246**).
- **Password**: Click the **Change** button and follow the instructions to set a password for the gateway.
- **Objects Information**: Click **Show** to see a table with the type of objects available.
- **Disable BACnet password (not recommended)** (parameter disabled by default): Disable the BACnet password.

> **IMPORTANT**
> Keep the BACnet password enabled to ensure the security of the gateway and the installation.

10.3.2. Gateway Mode

- **Mode**: Select the communication type.
  - **IP** (default option): IP communication over Ethernet. Use this option if you are connecting the gateway to a BACnet/IP control system.
    - **UDP Port**: Select the UDP port for the BACnet/IP communication (1 .. 65535).

      NOTE
      The UDP port is set to 47808 (BAC0 in hexadecimal) by default.

    - **Network Role**: Define the gateway behavior regarding other network elements.

      IMPORTANT
      If you are unfamiliar with these options, please leave the parameter as **Disabled** to avoid issues with the BACnet communication/configuration.

      - **Disabled** (default option): The gateway provides no special service regarding network communication or settings.
      - **Foreign Device**: The gateway acts as a foreign device. For this option, two new parameters appear:
        - **BBMD IP**: Set the IP Address of the gateway's subnet's BBMD.
        - **TTL Registration**: Set the time in seconds for the Time-to-Live timer (0 .. 32767. Default value: **300 sec**).

          TIP
          The BACnet system adds a fixed 30-second grace period to this timer.

      - **BBMD**: The gateway acts as a BACnet Broadcast Management Device (BBMD) on the BACnet network. When this option is enabled, a table appears, allowing you to configure the needed parameters.
  - **MS/TP**: Serial communication over the EIA-485 bus. Use this option if you are connecting the gateway to a BACnet MS/TP control system.
    - **Baud rate**: Select the communication speed: Auto, 9600, 19200, 38400, 57600, 76800, or 115200 bps.

      NOTE
      The baud rate is set to **Auto** by default.

    - **Max. Masters**: Set the highest master MAC address on the MS/TP network (1 .. 127. Default value: **127**).
    - **Max. Info Frames**: Set the maximum number of messages that can be sent onto the MS/TP network per token pass (1 .. 100. Default value: **1**).
    - **MAC Address**: Set the MAC address of the gateway on the MS/TP network (0 .. 127. Default value: **1**).
    - **Edit MSTP Timeouts**: Click **Edit** to open the **MSTP Timeouts Configuration** window.
      - **PFM Timeout**: Set the polling for master timeout in milliseconds (20 .. 100 ms. Default value: **60 ms**).
      - **TP Timeout**: Set the token passing timeout in milliseconds (20 .. 100 ms. Default value: **60 ms**).

10.3.3. BACnet Advanced Configuration

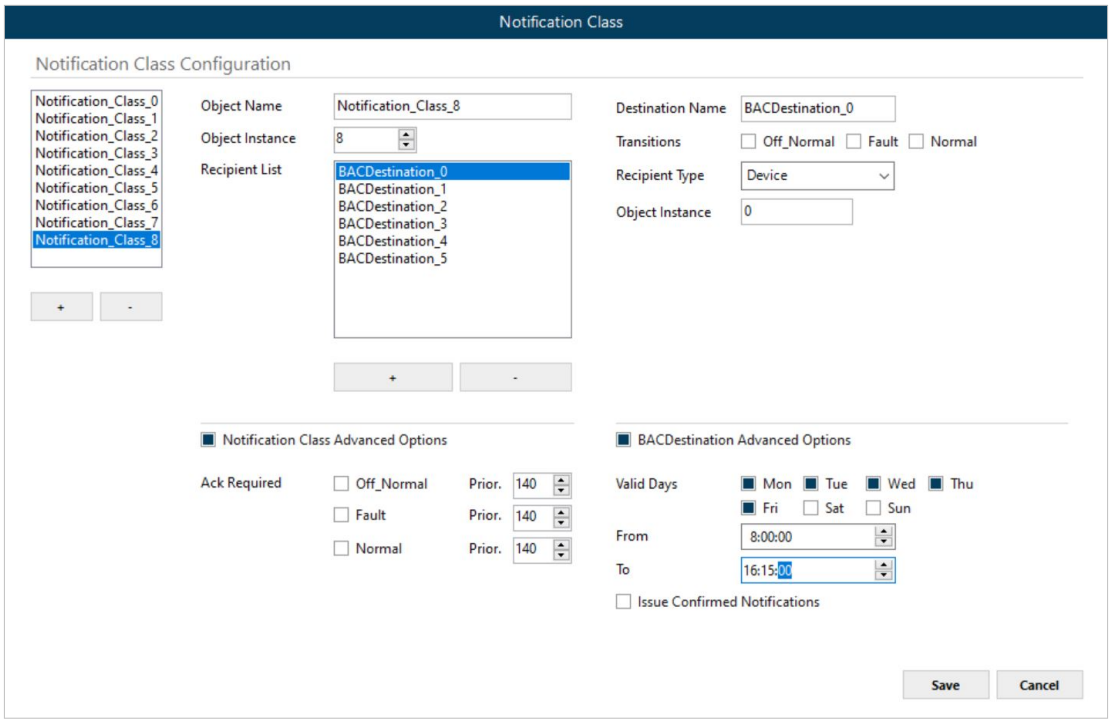
Show Advanced Configuration (disabled by default): Open advanced configuration parameters.

IMPORTANT
These menus provide advanced functionalities intended for expert users.

We recommend keeping these options set to their default values.

10.3.3.1. Notification Class

Click **Edit** to open the **Notification Class Configuration** parameters.



Click the + button to create up to 10 Notification_Class objects. For each one, you can set:

- **Object Name**: Type a name for the Notification_Class.
- **Object Instance**: Set the BACnet object instance for the Notification_Class.
- **Recipient List**: Click the + button to create up to eight different BACnet destinations. For each one, you can set:
  - **Destination Name**: Type a descriptive name for the BACnet destination.
  - **Transitions**: Select which transitions will force this Notification_Class to be active:
    - **Off_Normal** (disabled by default): When the status changes from off to normal.
    - **Fault** (disabled by default): When the status changes to fault.
    - **Normal** (disabled by default): When the status changes from fault to normal.
  - **Recipient Type**: Select the type of destination:
    - **Device** (default value): The recipient is a device.
      - **Object Instance**: Select the object instance number for this device.
    - **Address (IP)**: The recipient is set using the specific address on BACnet/IP. New parameters appear for this option:

  - **Network Number** (0 .. 65535. Default value: **0**).
  - **IP** address (192.168.100.10 by default) and **Port** (47808 by default) for the destination.
  - Set the destination as a **Global Broadcast** (disabled by default).
  - Set the destination as a **Broadcast** (disabled by default).
- **Address (MS/TP)**: The recipient is set using the specific address on BACnet MS/TP. New parameters appear for this option:
  - **Network Number** (0 .. 65535. Default value: **0**).
  - **MS/TP MAC Address** (0 .. 255. Default value: **0**).
  - Set the destination as a **Global Broadcast** (disabled by default).
  - Set the destination as a **Broadcast** (disabled by default).
- **Address (Other):** The recipient is set using another type of address. New parameters appear for this option:
  - **Network Number** (0 .. 65535. Default value: **0**).
  - **Other Address** (HEX string. Default value: **ff**).
  - Set the destination as a **Global Broadcast** (disabled by default).
  - Set the destination as a **Broadcast** (disabled by default).

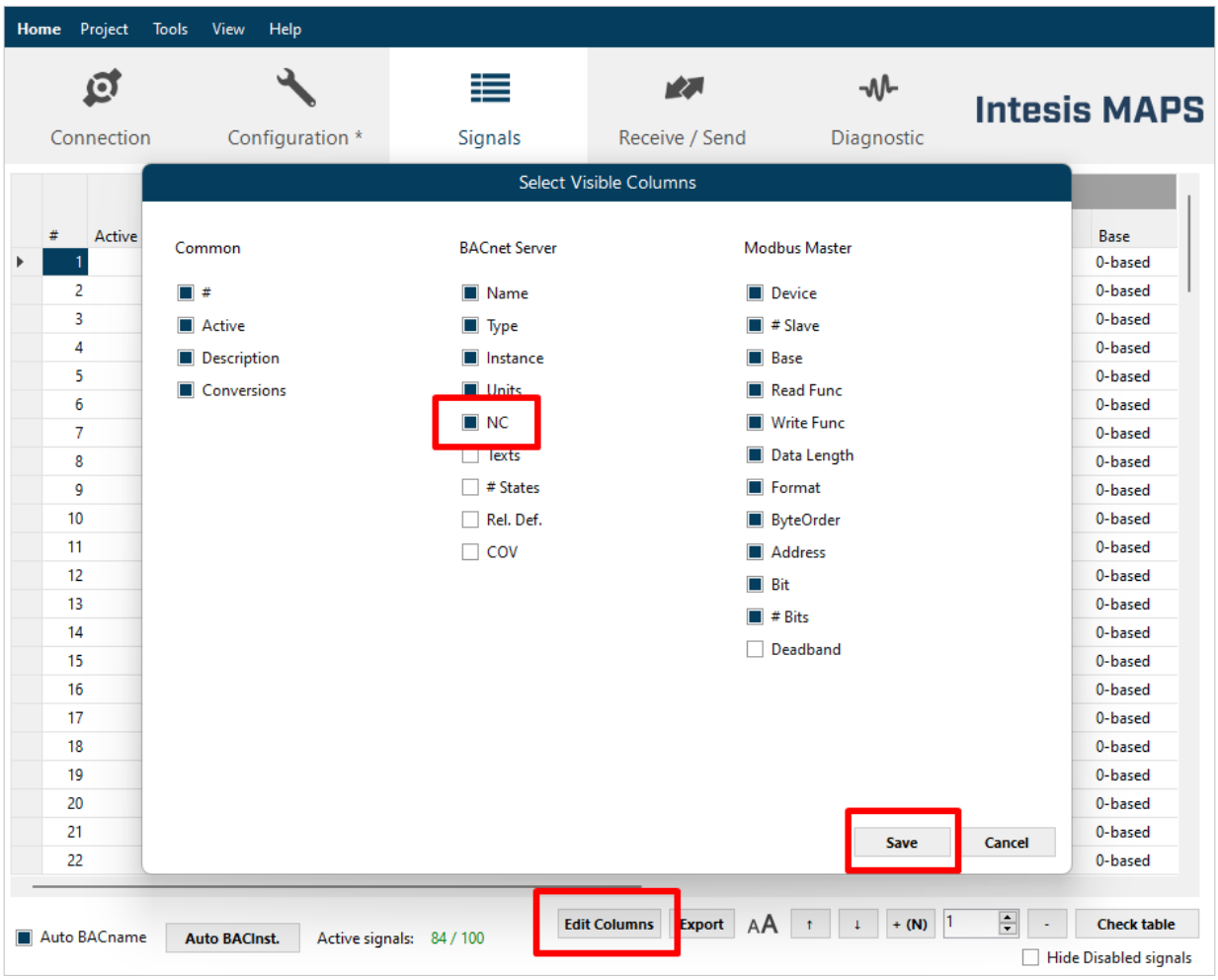
- **BACDestination Advanced Options** (disabled by default): Check this option to show some advanced options.
  - **Valid days:** Sets the days for receiving the notification.
  - **From**: Sets the starting point for the valid period.
  - **To**: Sets the ending point for the valid period.
  - **Issue Confirmed Notifications** (disabled by default): Determines if notification events are sent as Confirmed or Unconfirmed to the BACnet destination.

    IMPORTANT
    Sending them as Confirmed requires Ack.

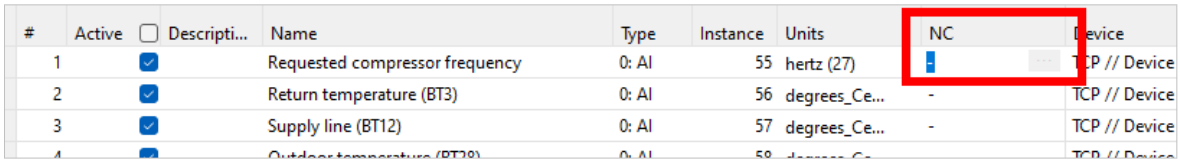
- **Notification Class Advanced Options** (disabled by default): Check this option to show the **Ack Required** options.
  - **Off_Normal** (disabled by default): Enable the acknowledgment for the TO_OFF_NORMAL event.
  - **Fault** (disabled by default): Enable the acknowledgment for the TO_FAULT event.
  - **Normal** (disabled by default): Enable the acknowledgment for the TO_NORMAL event.
  - **Prior.**: Set the priority for each parameter (0 .. 255. Default value: **140**).

After creating and configuring the needed Notification_Class objects, the next step is to assign them to signals:

NOTICE
To better understand the assignment of Notification_Class objects to signals, we are moving from the **Configuration** tab to the **Signals** tab.



1. Go to the **Signals** tab.
2. Click the **Edit Columns** button from the bottom menu.
3. In the **Select Visible Columns** window, select **NC**.
4. Click **Save**.
   A new column named **NC** is now visible.
5. Look for the signal to which you want to assign the Notification_Class object and click the corresponding cell in the NC column.



6. Click the ... button.
7. In the **Select Notification Class** window, uncheck the **Empty** parameter.
8. Use the dropdown menu to select the Notification_Class object.

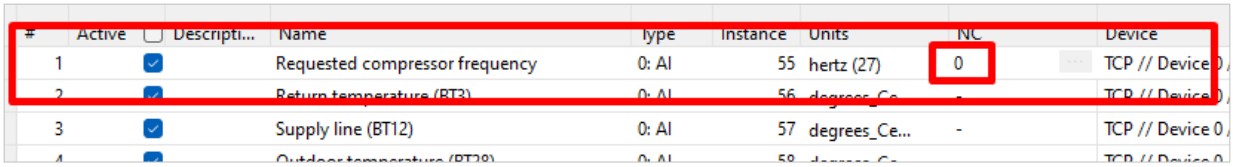
9. Set the rest of the parameters:

> **NOTICE**
> These parameters vary depending on the signal type.

- **Notify Type**: Choose if the notification is sent as an **Alarm** (default) or an **Event**.
- **Time Delay**: Set the time in seconds before launching the notification (0 .. 65535. Default value: **0 seconds**).
- **Event Enable**: Click in the field to enable/disable the following options:
  - **TO_OFF_NORMAL** (enabled by default): Enable/disable the TO_OFF_NORMAL event.
  - **TO_FAULT** (enabled by default): Enable/disable the TO_FAULT event.
  - **TO_NORMAL** (enabled by default): Enable/disable the TO_NORMAL event.
- **High Limit** (Disabled by default): Enable this parameter to set the upper boundary for normal operation. If this value is surpassed, the notification will be launched.
- **Low Limit** (Disabled by default): Enable this parameter to set the lower boundary for normal operation. If this value is surpassed, the notification will be launched. (0.00 .. 999.00).
- **Deadband**: Set the deadband for the notification.

10. Click **Save** to save the changes.

Once assigned, the instance number of the Notification_Class object appears in the **NC** column.



10.3.3.2. Binary Active/Inactive Text

> **NOTICE**
> This information applies only to binary-type objects. None of the default signals included in the available NIBE templates use this type of object, but it may apply to the five extra signals that you can customize.

Use this menu to create new text pairs for binary-type objects, edit existing ones, or delete unused pairs.

1. Click **Edit** to open the **Binary Active/Inactive Text** editor.
2. Click any text cell to edit its content. The maximum length for any text is 24 characters.
3. Type the desired text.
4. +: Add a new row to the table.

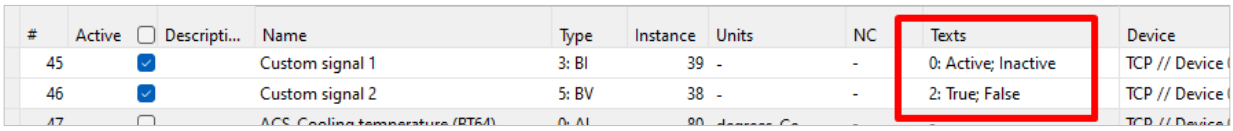
> **NOTE**
> You can add up to 100 string pairs.

5. —: Delete the selected row from the table.
6. Click **Save** to save the changes.

After creating or editing the desired text pairs, the next step is to assign them to the corresponding binary-type signals. To do so, select **Texts** as a visible column in the **Signals** tab.

NOTICE
For more information on adding visible columns to the Signals tab, refer to Steps 1 to 3 of the Notification Class section (page 31). In this case, however, select the **Texts** column from the BACnet Server section instead of **NC**.

Having done that, click the three-dotted button on the **Texts** cell of any binary object to invoke the **Binary State Selector** window. Select the desired option. Once the assignment is complete, the currently selected text pair appears in the corresponding **Texts** column of the **Signals** tab.



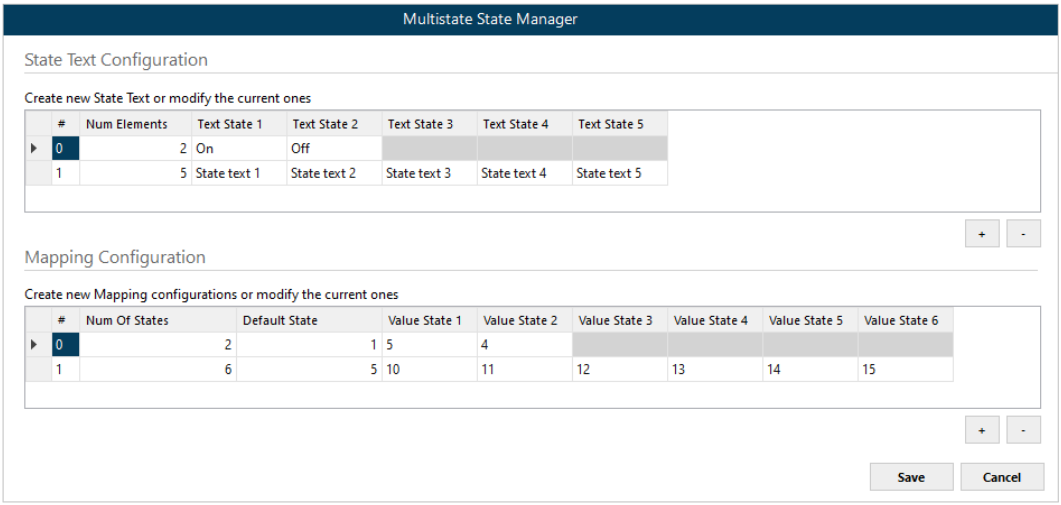
#	Active	Descripti...	Name	Type	Instance	Units	NC	Texts	Device
45	☑		Custom signal 1	3: BI	39	-	-	0: Active; Inactive	TCP // Device
46	☑		Custom signal 2	5: BV	38	-	-	2: True; False	TCP // Device
47	☐		ACS_Cooling temperature (RT64)	0: AI	80	degrees_Ce			TCP // Device

10.3.3.3. Multistate States

Use this menu to create state text lists to be applied to Multistate Objects.

NOTICE
This information applies only to multistate-type objects. None of the default signals included in the available NIBE templates use this type of object, but it may apply to the five additional signals that you can customize.

1. Click **Edit** to open the **Multistate State Manager**.



   a. Use the **State Text Configuration** table to create new state text lists or modify existing lists.

   b. Use the **Mapping Configuration** table to create a secondary mapping for the states to create custom conversions between the BACnet states received and the values that the gateway will transmit to the BMS protocol.

2. Click any cell in either table to edit its text.

3. Type the desired text. The maximum length for any state text is 24 characters.

4. +: Add a new row in the table above the button.

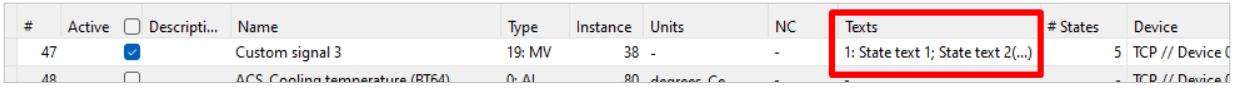
> **NOTE**
> You can add up to 100 lists, each one with a maximum of 100 elements.

5. —: Delete the selected row of the table above the button.
6. Click **Save** to save the changes.

After creating or editing the desired state texts, the next step is to assign them to the corresponding multistate-type signals. To do so, select Texts as a visible column in the Signals tab.

> **NOTICE**
> For more information on adding visible columns to the Signals tab, refer to Steps 1 to 3 of the Notification Class section (page 31). In this case, however, select the **Texts** column from the BACnet Server section instead of **NC**. The **# States** column can also be added to provide additional information.

Having done that, click the three-dotted button on the **Texts** cell of any multistate object to invoke the **Multi State Selector** window. Select the desired option. Once the assignment is complete, the currently selected state texts appear in the corresponding **Texts** column of the **Signals** tab.



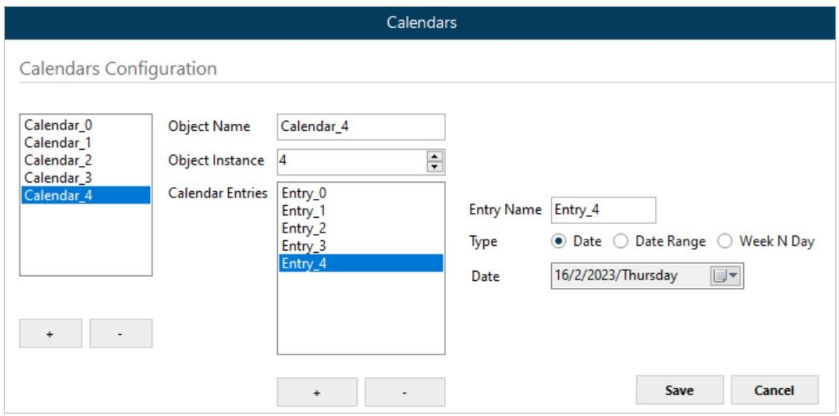
> **NOTICE**
> If the **# States** column is also visible, it will display the number of elements of the currently selected state text. Alternatively, the **# States** column can also be used to enter the number of elements for the currently selected object manually, but only when no state texts are being used.

10.3.3.4. Calendars

Click **Edit** to open the **Calendars Configuration** parameters.

Click the + button to create up to 10 calendars. For each one, you can set:

- **Object Name**: Type a name for this calendar.
- **Object Instance**: Set the BACnet object instance for the calendar (0..4194303. Default value: **0**).



- **Calendar Entries**: Click the + button to determine the number of calendar entries (patterns). Create up to 32 different entries per calendar. For each entry, you can set:
  - **Entry Name**: Type the name for that pattern.

- **Type**: Set the date type for that pattern:
  - **Date** (default value): The pattern applies to a specific day.
  - **Date Range**: The pattern applies within a date range. Set the starting day (**From**) and the ending day (**To**).
  - **Week N Day**: The pattern applies to a specific **Month**, **Week of the Month**, and/or **Day of the Week**.

> **NOTE**
> Select an asterisk (*****) to apply the rule to all cases, i.e., an asterisk in the **Month** option will make the pattern apply to every month.

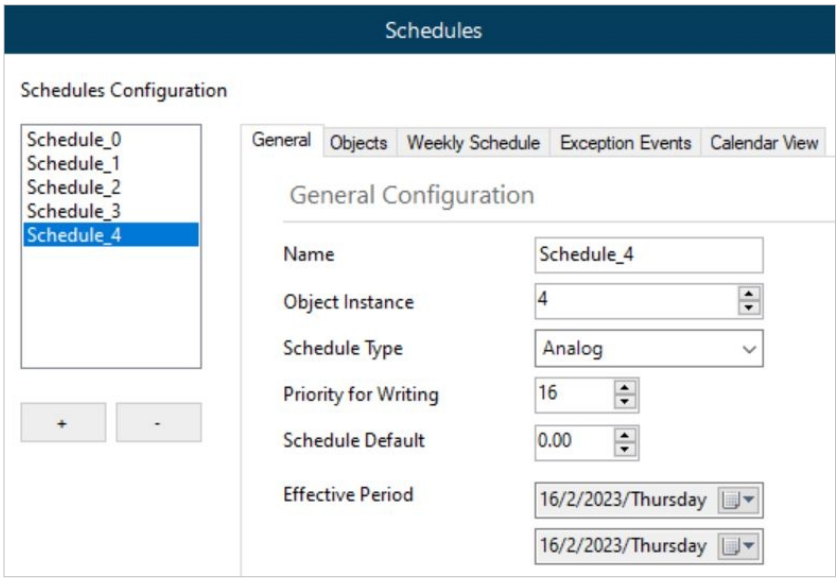
10.3.3.5. Schedules

Click **Edit** to open the **Schedules Configuration** parameters.

Click the + button to create up to ten schedules. For each one, you can edit the following menu's parameters:

GENERAL

- **Name**: Type a name for this schedule.
- **Object Instance**: Set the BACnet object instance for the schedule (0 .. 4194303. Default value: **0**).
- **Schedule Type**: Set it as an **Analog** (default), **Binary**, or **Multistate** object.



> **IMPORTANT**
> Use the type that best suits this particular schedule. For example, if this schedule is used to turn a device ON, select **Binary**.

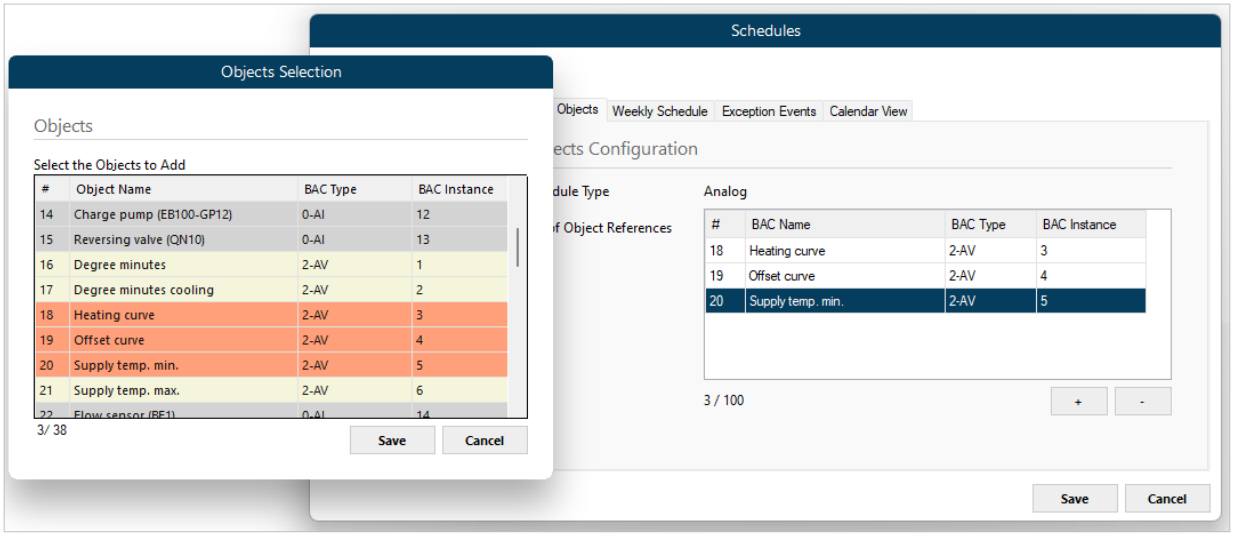
- **Priority for Writing**: Select the writing priority of the schedule value (1..16. Default value: **16**).
- **Schedule Default**: Set the default value for the schedule.

> **NOTICE**
> The range of values allowed depends on the type of object previously selected:
>
> - **Analog**: 0.00..65535.00
> - **Binary**: 0, 1
> - **Multistate**: 0..65535

- **Effective Period**: Set the starting and ending date. The schedule will be in effect during this period.

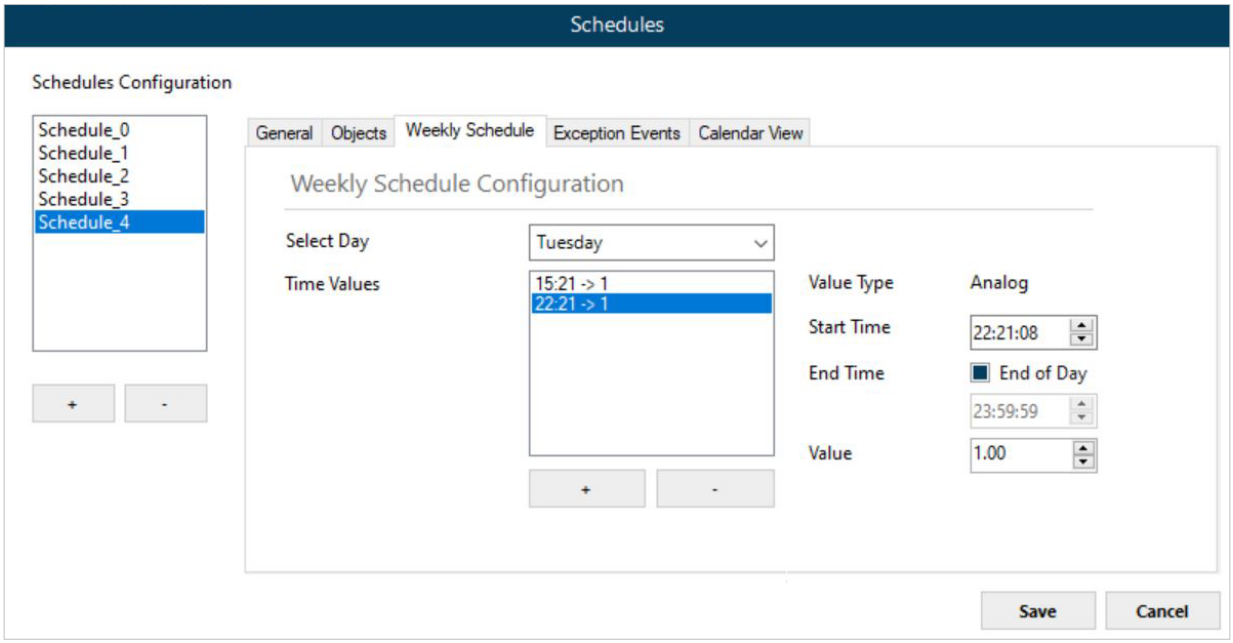
OBJECTS

Include BACnet objects in a specific schedule.



- **Schedule Type**: It shows the previous **Schedule Type** object you selected: Analog, Binary, or Multistate.
- **List of Object References**: Click the + button to open the **Objects Selection** dialog. The background color of each object indicates its status as follows:
  - **Grey**: Not allowed. This object type does not match the **Schedule Type** you previously selected.
  - **Yellow**: Allowed.
  - **Orange**: Already applied.

WEEKLY SCHEDULE

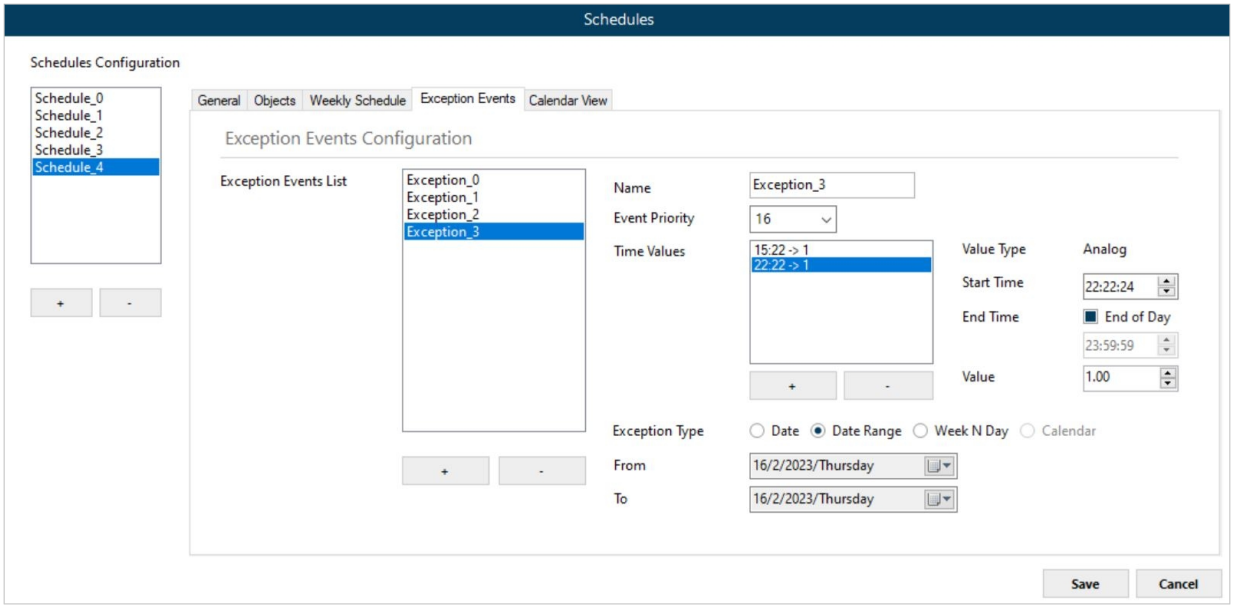


- **Select Day**: Select which day of the week the schedule applies.

- **Time Values**: Click the + button to create up to six time periods. For each one, set the **Start Time**, the **End Time**, and the **Value**.

EXCEPTION EVENTS

Create exceptions to the schedules.



- **Exception Events List**: Click the + button to create up to 16 different exceptions. For each one, you can set:
  - **Name**: Type a name for the exception.
  - **Event Priority**: Set a priority for the exception (1 [maximum priority] .. 16 [minimum priority]. Default value: **16**).
  - **Time Values**: Click the + button to create up to six time periods. For each one, set the **Starting Time**, the **End Time**, and the **Value**.
  - **Exception Type**: Set the type of date for the exception:
    - **Date** (default): Select a single day.
    - **Date Range**: Select a date range. Set the starting day (**From**) and the ending day (**To**). The exception will be in effect during this period.
    - **Week N Day**: Set the date by selecting a **Month**, a **Week of the Month**, and/or a **Day of the Week**.

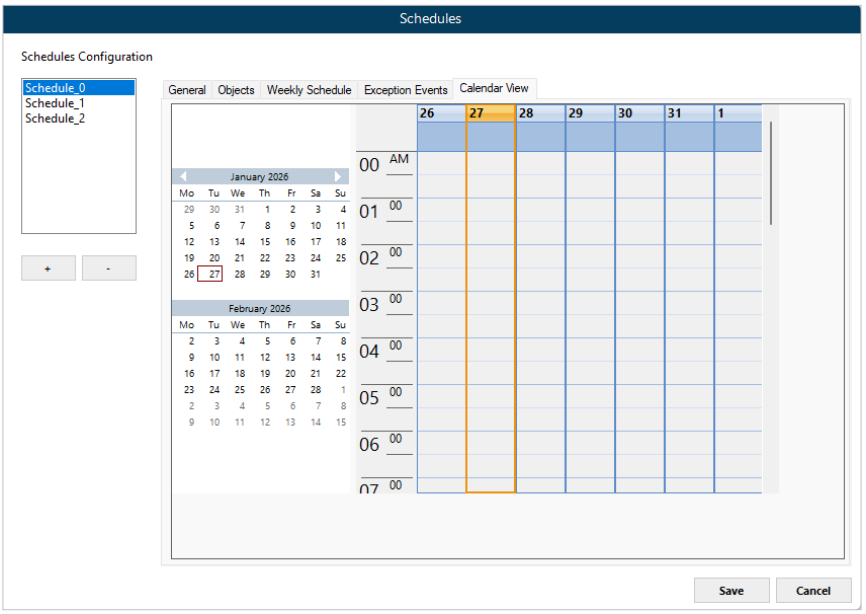
      NOTE
      Select an asterisk (*) to apply the rule to all cases.

    - **Calendar**: Select a Calendar to apply its values to the exception event.

      NOTE
      This option is only enabled when at least one Calendar has been previously created. See Calendars (page 34).

CALENDAR VIEW

Display a calendar to consult all the configured schedules.

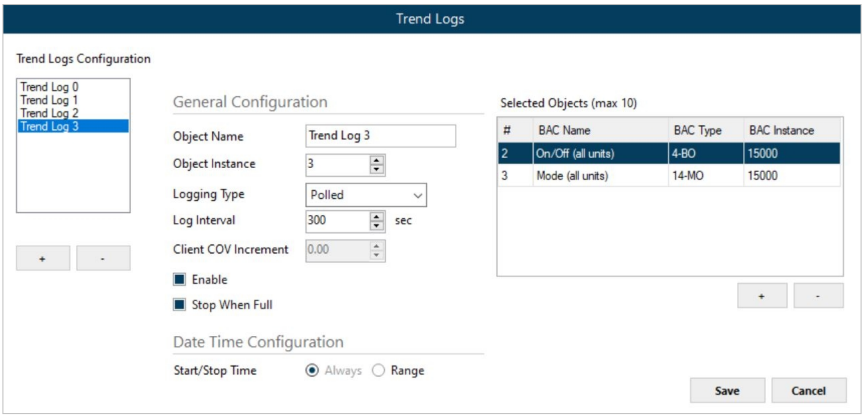


You can also create and modify **Weekly** and **Exception** schedules from this menu:

1. Use the calendar miniatures on the left to select the desired week.
2. Use the schedule view on the right to select the desired day and hour.
3. Right-click to open the settings menu. From this menu, the following options are available:
   - **Create Weekly Schedule**: Create a new weekly schedule.
   - **Create Exception Schedule**: Create a new exception event.
   - **Settings**: Edit an already created weekly schedule or exception event.
   - **Delete Event**: Delete the selected weekly schedule or exception event.

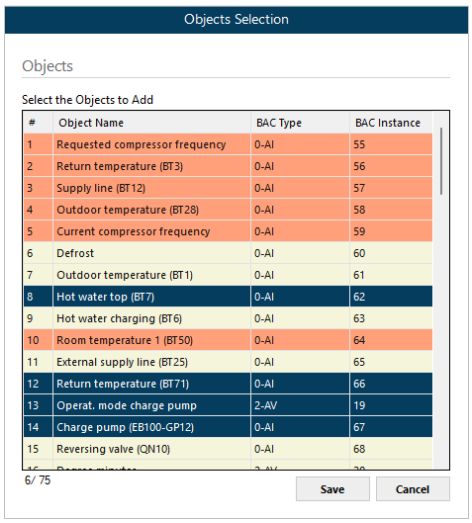
10.3.3.6. Trend Logs

Click **Edit** to open the **Trend Logs** parameters.



Click the + button to create up to five trend logs. For each one, you can set:

- **Object Name**: Type a name for the trend log.
- **Object Instance**: Set the BACnet object instance for the trend log (0..4194303. Default value: **0**).
- **Logging Type**: Select the trend log type:
  - **Polled** (default value): The trend log is triggered when polling.
    Use the **Log Interval** parameter to set the poll cadence in seconds (1..65535. Default value: **300 sec**).
  - **COV**: The trend log is triggered when there is a change of value.
    Use the **Client COV Increment** parameter to set (0.00..100000.00. Default value: **0.00**).
  - **Triggered**: The trend log is triggered by the BACnet system.
- **Enable** (enabled by default): Enable/disable the specific trend log even if the trend log is in the valid time range.
- **Stop When Full** (enabled by default):
  - If **enabled**, it will stop the trend log when the buffer is full.
  - If **disabled**, it will keep the last 2880 valid values.
- **Date Time Configuration**: Set the period when trend logs are active.
  - **Always** (default value).
  - **Range**: Use the **Start Time** and **End Time** parameters to set a time range.
- **Selected Objects (max 10)**: Click the + button to include up to ten BACnet objects in a trend log. To remove previously added objects, use the − button.



TIP
To select multiple items in both the **Selected Objects** and the **Objects Selection** tables, press and hold the **Shift** key when clicking for consecutive objects or the **Control** key for non-consecutive objects.

NOTE
Objects that have already been added are displayed with an orange background.

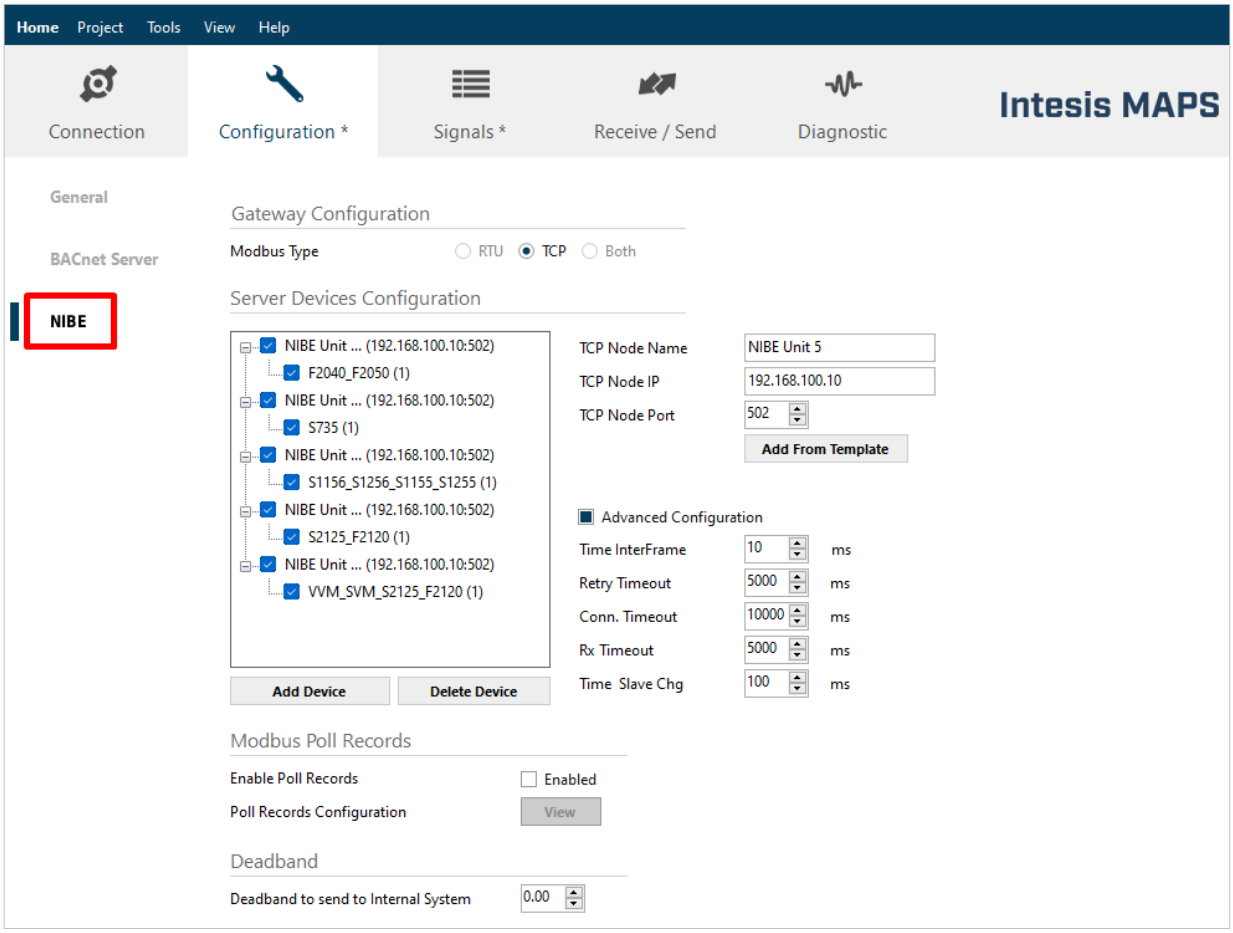
10.3.3.7. BACnet Description

Click **Edit** to open the **BACnet Description** window. You can add an editable **Description** column in the **Signals** tab table.

- **Disabled (By default)**: The Description column is not added.
- **Enable BACnet Description (96 bytes)**: The Description column is added, allowing a description up to 96 characters long.

NOTE
Some special characters may use three bytes each.

10.4. NIBE (Modbus)



Use this menu to configure the parameters of the NIBE units.

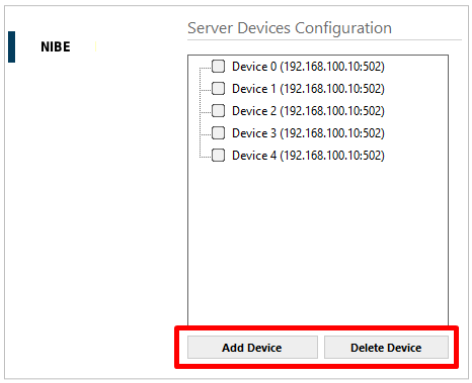
NOTICE
The parameters in this menu are based on Modbus TCP because the gateway and the NIBE unit communicate using this protocol.

10.4.1. Gateway Configuration

NOTICE
The only possible option for the **Modbus Type** parameter is **TCP**, because the gateway communicates with the NIBE unit through Modbus TCP over Ethernet.

10.4.2. Server Devices Configuration

ADDING AND DELETING NIBE UNITS TO THE PROJECT



To add a NIBE unit, click **Add Device**.

NOTICE
You can add up to five NIBE units to the project. However, the gateway's capacity is also limited by the total number of Modbus registers. To learn more about the gateway's capacity, refer to the User Manual.

To delete a NIBE unit, select it from the list and click **Delete Device**.

CONFIGURATION OF THE NIBE UNIT (DEVICE LEVEL)

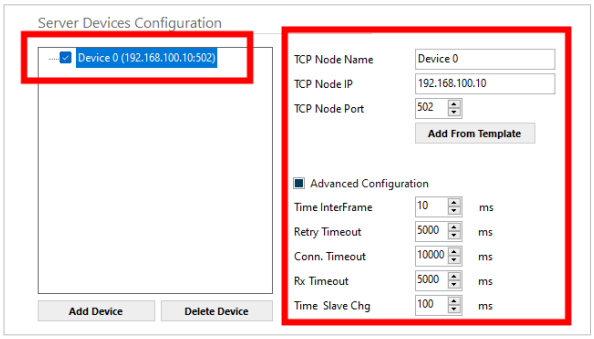
Select a unit to open the configuration parameters.

TIP
Each NIBE unit is linked to a Modbus node, so for the parameters below, think of nodes as NIBE units.

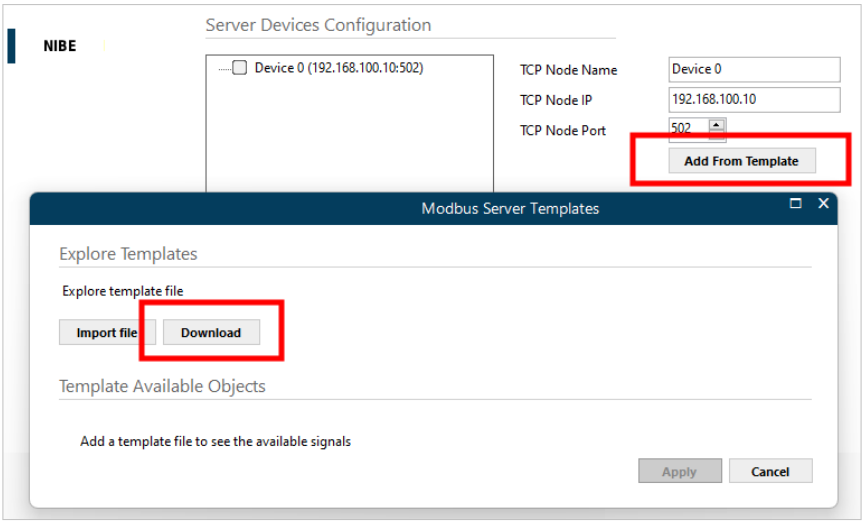
- **TCP Node Name**: Type a name for the NIBE unit.

  IMPORTANT
  This name must be unique.

- **TCP Node IP**: Type the IP of the NIBE unit (default IP: **192.168.100.10**).
- **TCP Node Port**: Type or set the port for the NIBE unit (default port: **502**).



ADDING A TEMPLATE FOR THE NIBE UNIT

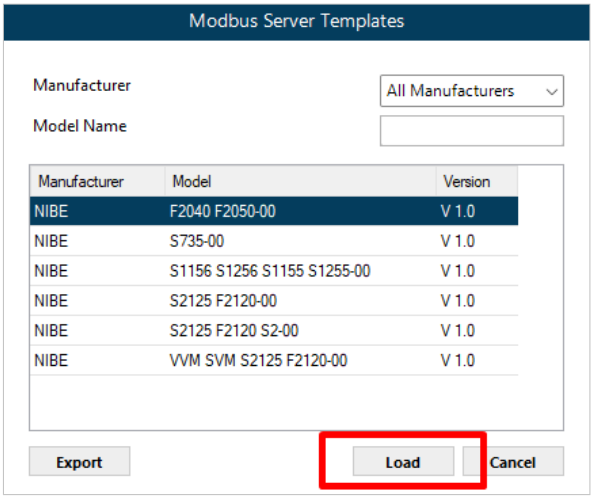


1. Click the **Add From Template** button.
2. In the **Modbus Server Templates** window, click **Download**.

> **IMPORTANT**
> You need a connection to the Internet to use this option.

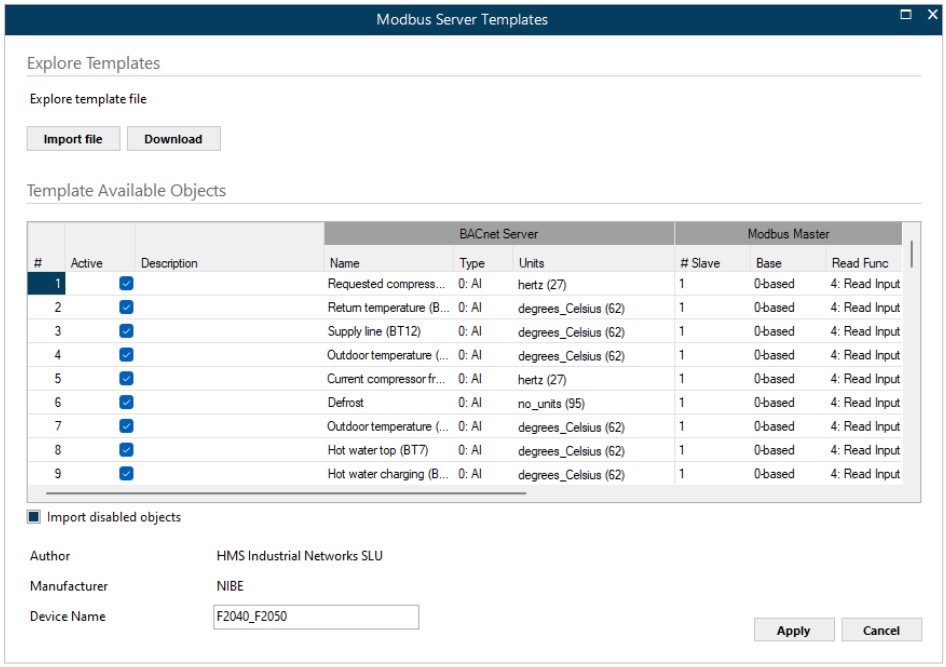
> **TIP**
> If you have the template stored on your PC, click the **Import file** option and select the file instead. An internet connection is not needed.

3. After clicking **Download**, a list of the six available templates for NIBE appears. Select the template for the NIBE model you are integrating and click **Load**.



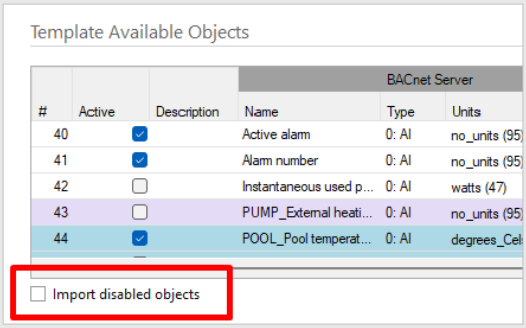
> **TIP**
> You can save the template in your local storage using the **Export** option instead.

4. The **Template Available Objects** section will populate with the signals of the selected template.

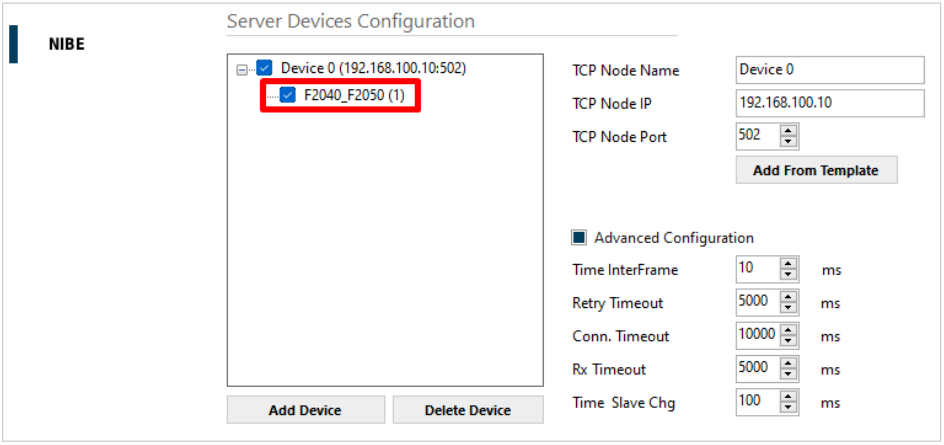


5. Click **Apply** to import the template into your project.

TIP
All the objects listed in the table will be added, including those not marked as **Active**. By deselecting the **Import disabled objects** option below the table, only **Active** objects will be added.



6. The tree view is now showing a second level with the selected template's name.

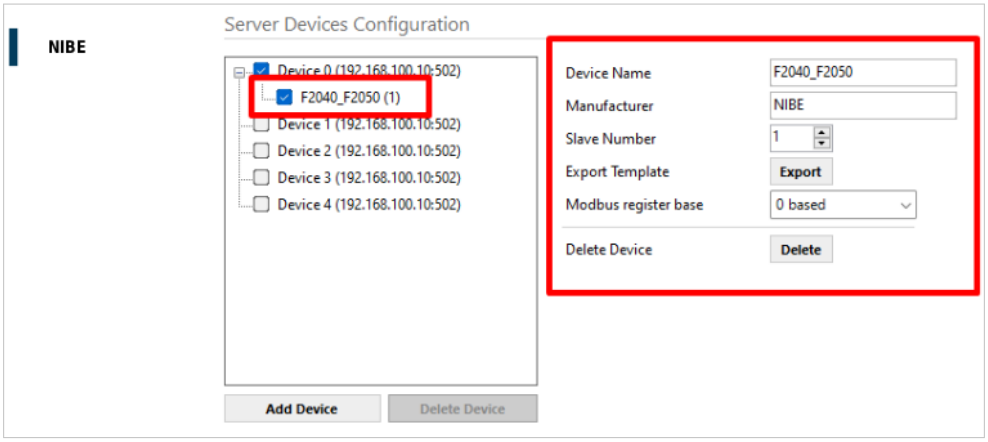


NOTICE
The configuration parameters for this level are explained below. See **CONFIGURATION OF THE NIBE UNIT (TEMPLATE LEVEL)**, after the **Advanced Configuration** section.

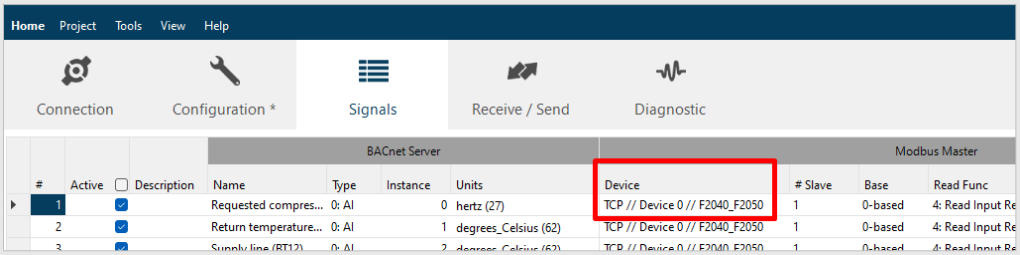
- **Advanced Configuration (enabled by default)**: Enable/disable the advanced configuration options.
  - **Time Interframe**: Type or select the minimum time in milliseconds between received and sent frames (0 .. 100000. Default value: **10 ms**).
  - **Retry Timeout**: Type or select the minimum time in milliseconds before launching a retry frame after no response on the TCP connection (0 .. 30000. Default value: **5000 ms**).
  - **Conn. Timeout**: Type or select the minimum time in milliseconds before launching an error message after no response on the TCP connection (100 .. 30000. Default value: **10000 ms**).
  - **Rx Timeout**: Type or select the minimum time in milliseconds before launching an error message when the TCP connection is OK but no TCP frames are received (100 .. 30000. Default value: **5000 ms**).
  - **Time Slave Chg**: Type or select the minimum time of silence in milliseconds when changing from one server device to another (100 .. 10000. Default value: **100 ms**).

CONFIGURATION OF THE NIBE UNIT (TEMPLATE LEVEL)

Select the template level of a unit to open the configuration parameters.



- **Device Name**: Type a name.

> **NOTICE**
> This parameter uses the template's name by default.
>
> The **TCP Node Name** and the **Device Name** appear together in the **Signals** tab **Device** column.
>
> 
>

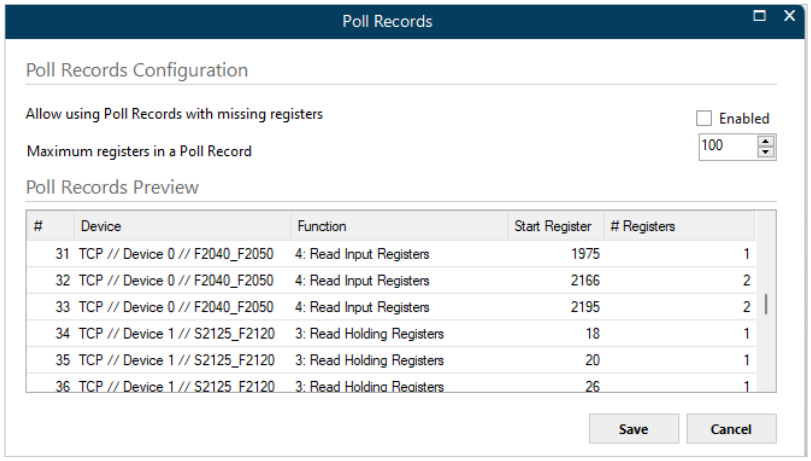
- **Manufacturer**: NIBE.
- **Slave Number**: Type or set the device's server number (0 .. 255).
- **Export Template**: Save the template in your local storage.
- **Modbus register base**: Select the Modbus addressing type.
  - **0 based** (default option).
  - **1 based**
- **Delete Device**: Click **Delete** to delete the selected template.

10.4.3. Modbus Poll Records

This option allows polling multiple Modbus registers on a single request, even if they are non-contiguous.

- **Enable Poll Records (disabled by default)**: Enable/disable the functionality.
- **Poll records configuration**:

1. Click **View**.



   - **Allow using Poll Records with missing registers (disabled by default)**: Select this option to group non-contiguous registers in the same poll.
   - **Maximum registers in a Poll Record**: Type or set the maximum number of registers per device to group in a single poll (2 .. 255. Default value: **100**).
   - **Poll Records Preview**: This table shows a preview of the Modbus devices and registers that will be included in the poll according to the current configuration.

> **NOTICE**
> Each device's registers are added and configured through the **Signals** tab. See Signals Tab (page 46).

2. Click **Save** to save the changes.

10.4.4. Deadband

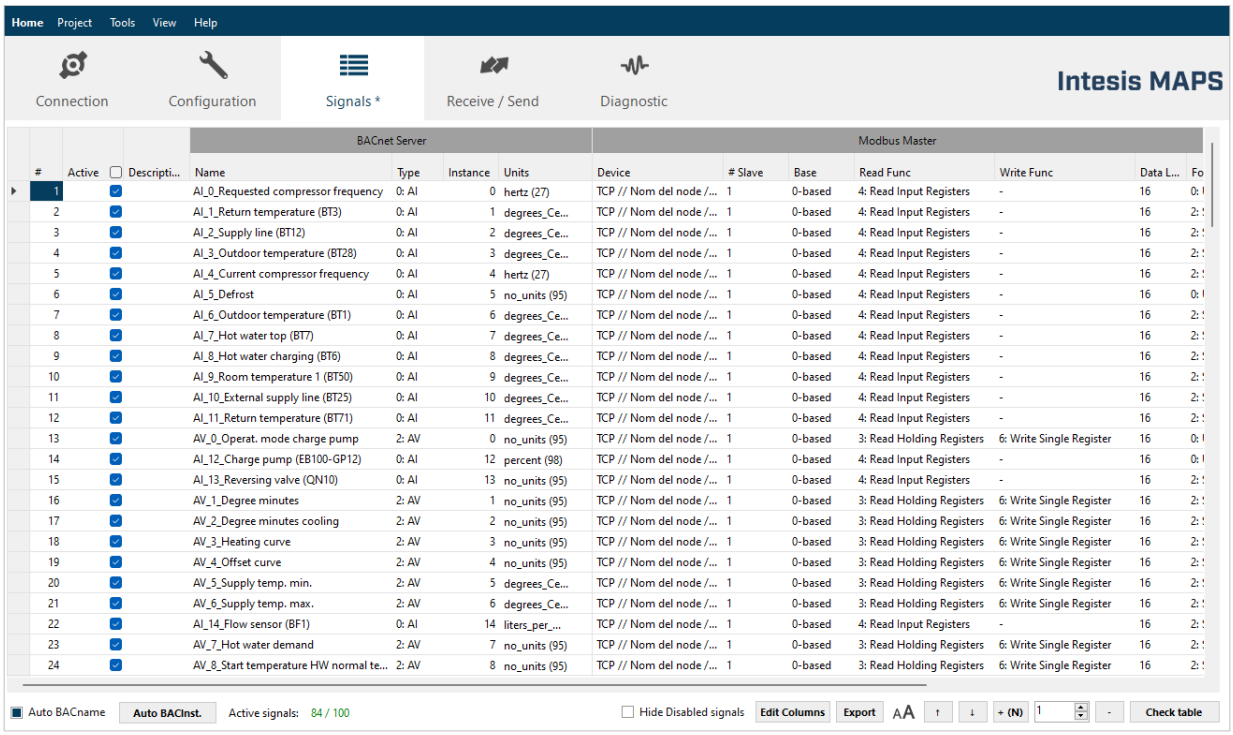
Deadband to send to Internal System: Minimum difference required between a new value and a previous value before the new value is reported to the control system (0.00 .. 1.00. Default value: **0.00**).

> **NOTICE**
> The deadband only applies to non-boolean signals.

11. Signals Tab

The **Signals** menu shows a table used to define and configure the signals needed for the project.

Figure 1. Signals tab for a BACnet BMS.

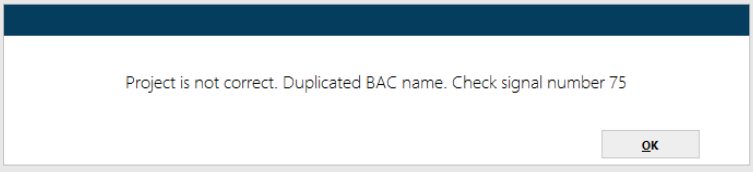


In the bottom menu placed below the table of signals, these options are available:

- **Auto BACname (enabled by default)**: Uncheck this parameter to edit signal names.

> **NOTE**
> This parameter is only available for **BACnet**.

> **IMPORTANT**
> Unchecking this option is not recommended. If so, many BACnet objects will share the same name, causing an error notified when trying to check the table.



- **Auto BACInst.**: Generates all BACnet instance numbers automatically, avoiding the risk of duplicate values.

> **NOTE**
> This parameter is only available for **BACnet**.

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

- **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**
> 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 (page 9).

- AA: Increases or decreases the font size.
- ↑ Move the selected row one position up.
- ↓ Move the selected row one position down.
- + (N) Add rows.
- 1 Type or select the number of rows to add.
- - Delete the selected rows.
- Click the **Check table** button to review the signals' configuration.

> **NOTE**
> If any parameter on any signal is wrong, a message will emerge with specific information about the error.

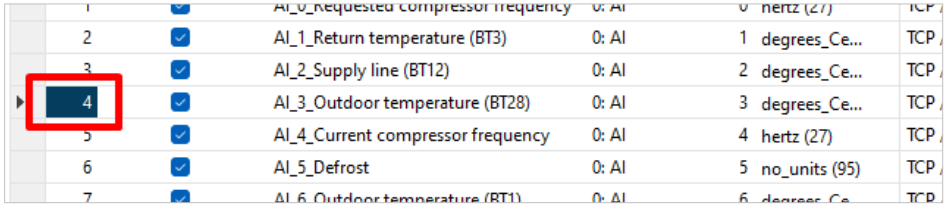
11.1. Adding and Deleting Signals

ADDING SIGNALS

> **NOTICE**
> You can add up to five customizable, extra signals.

> **TIP**
> New signals are added below the row you have currently selected.

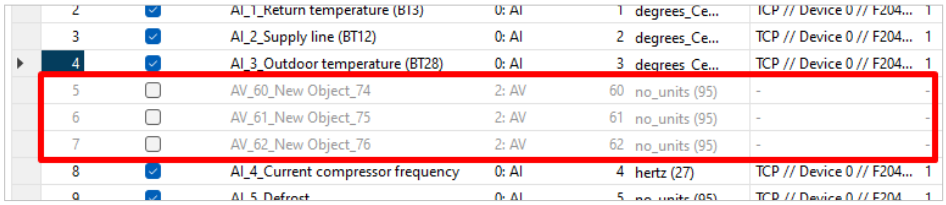
1. Select any cell from the desired row.
   For example, given this case, the new signal will be added below row 4:



2. Use the option 1 from the bottom menu to type or select the number of rows to add.

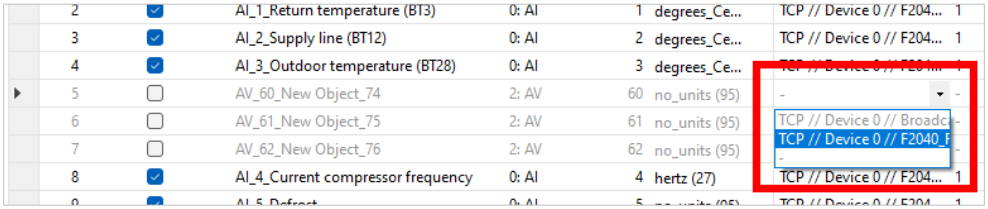
> **NOTE**
> Add one row for each signal you want to add.

3. Click the + (N) button from the bottom menu to add the needed rows.
   For example, after adding three rows, these appear numbered 5, 6, 7:



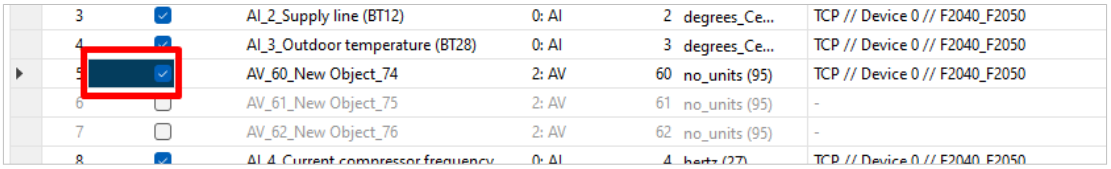
As shown in the image before, once added, new signals appear with dimmed text. Once you assign a device to the new signal, the text turns black.

For example, we are adding the BACnet object named **AV_60_New Object_74** to the **Device** named **TCP // Device 0 // F2040_F2050**:



TIP
You can assign multiple signals to the same device using a multiple selection. To know more, see Editing Signals (page 49).

Don't forget to select the new signal's checkbox in the **Active** column to include the signal in your project:



DELETING SIGNALS

NOTICE
Only the newly added signals can be deleted. If you want to exclude any other signal from the project, just deselect its **Active** checkbox.

1. Select any cell from the signal you want to delete.
2. Click the - button from the bottom menu.

IMPORTANT
This action cannot be undone.

TIP
You can delete multiple signals using a multiple selection. To know more, see Editing Signals (page 49).

11.2. Editing Signals

All templates include a column called **Description**, whose cells are editable fields.

TIP
Use the **Description** column to type a text that makes the signal easily recognizable.

MULTIPLE SELECTION

- **Selecting multiple contiguous cells**:

1. Click the first cell of your selection to select it.
2. Press and hold the shift key on your keyboard.
3. Click the last cell of your selection.

TIP
You can click a cell and drag the cursor over the other cells instead.

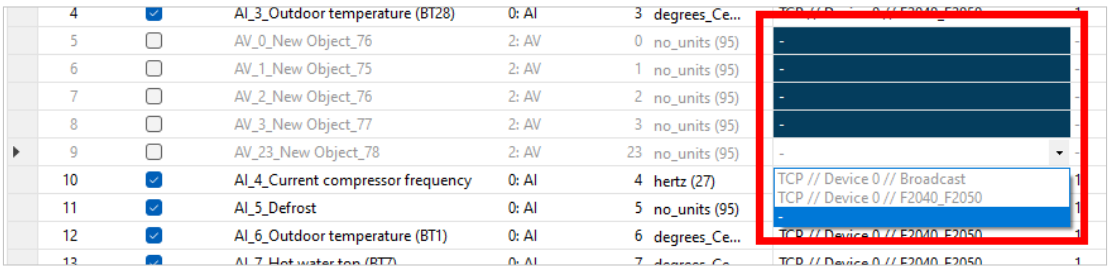
- **Selecting multiple non-contiguous cells**:

1. Click the first cell of your selection to select it.
2. Press and hold the Ctrl key on your keyboard.
3. Click the rest of the cells of your selection one by one.

EDITING MULTIPLE PARAMETERS

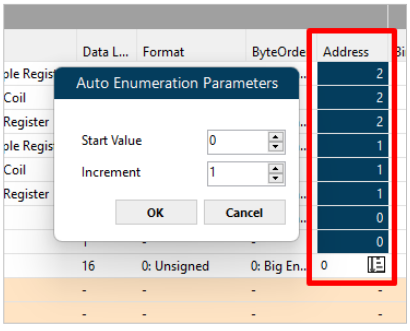
Once you have multiple parameters selected, you can edit them simultaneously:

For example, we are adding signals 5 to 9 to the **TCP // Device 0 // F2040_F2050**:



Together with the multiple selection, you can use the **Auto Enumeration Parameters** functionality for some parameters.

For example, we are setting the address for these Modbus registers, starting from address 0 and incrementing the subsequent registers by 1 through this functionality.

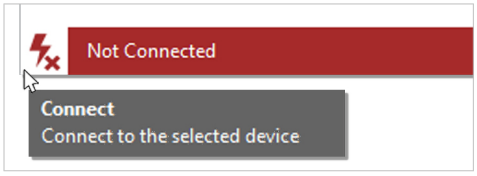


12. Receive/Send Tab

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

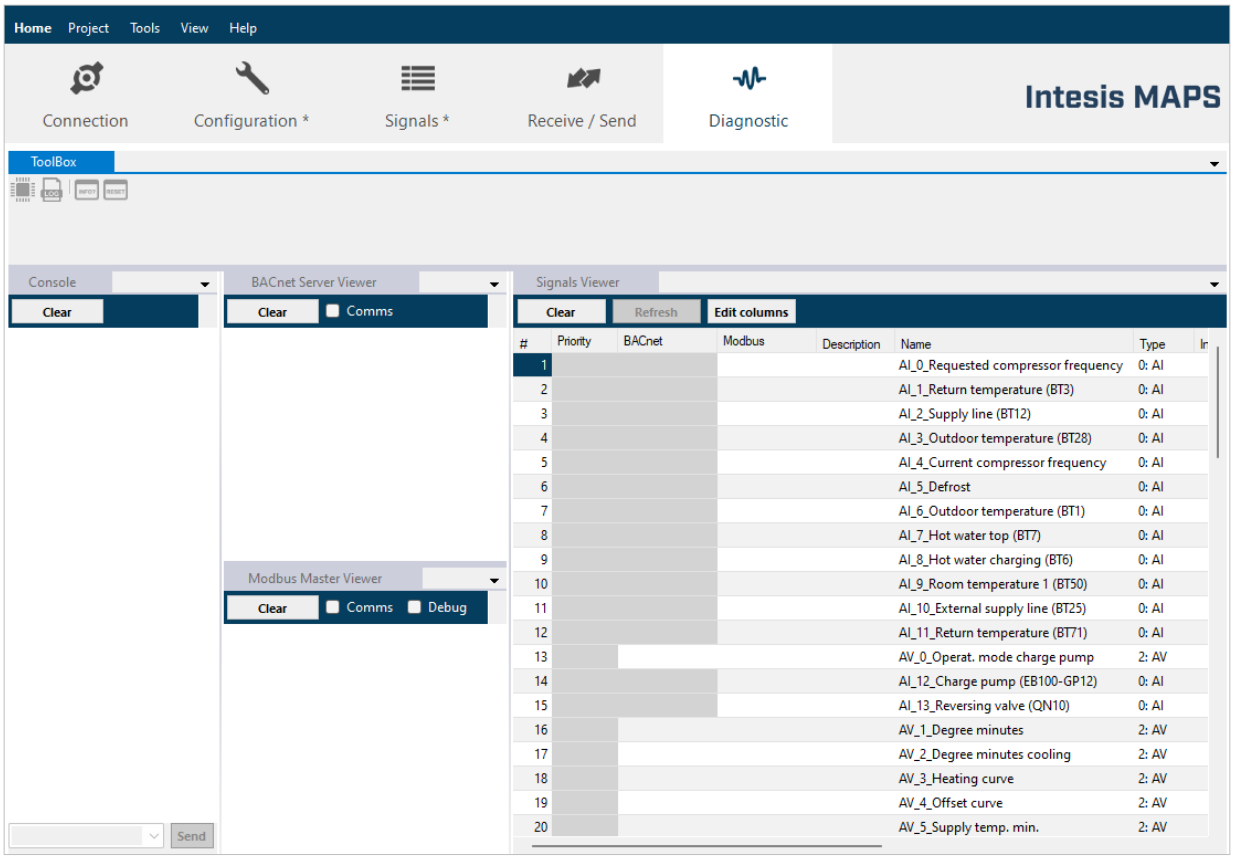
Use this function to load the configuration of a gateway to Intesis MAPS.

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.

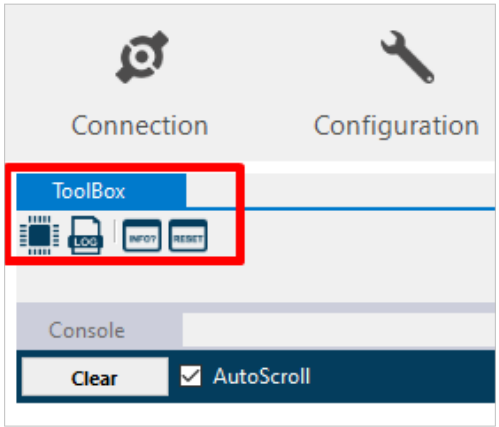
13. Diagnostic Tab

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

Figure 2. Diagnostic tab window: Console viewer (left), protocols viewer (center), and signals viewer (right)



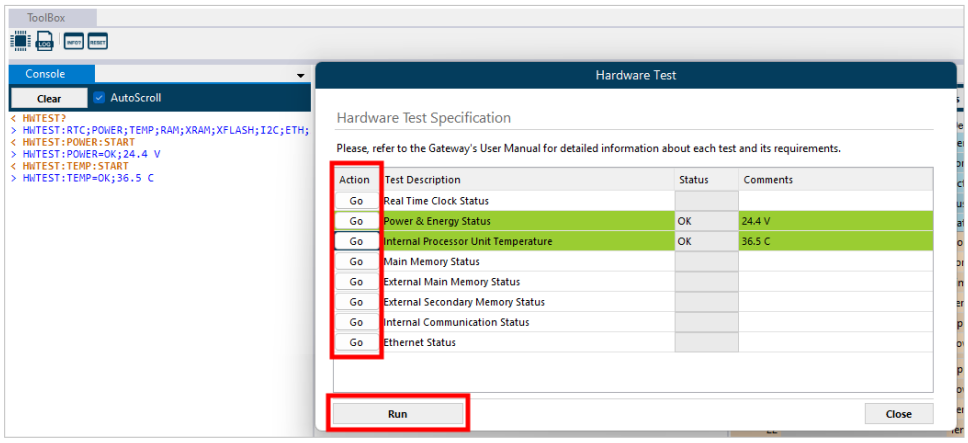
TOOLBOX



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

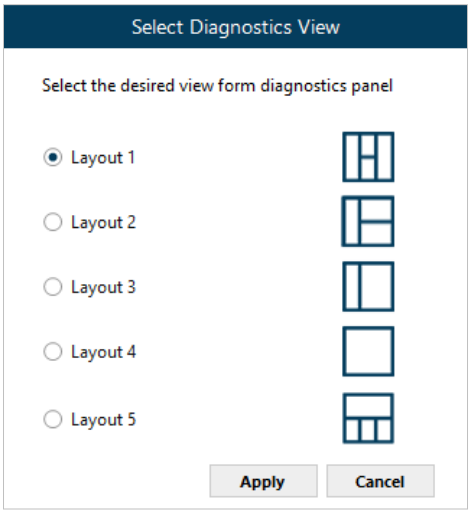
Intesis MAPS provides several viewers:

- 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:



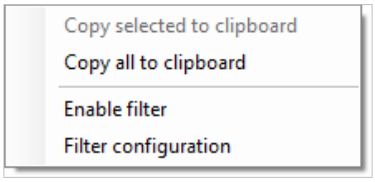
> **NOTE**
> Layouts 3 and 4 offer two different tabbed options:
>
> – Fixed console to the left and tabbed browser for the other viewers
>
> – Full tabbed browser

- 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.

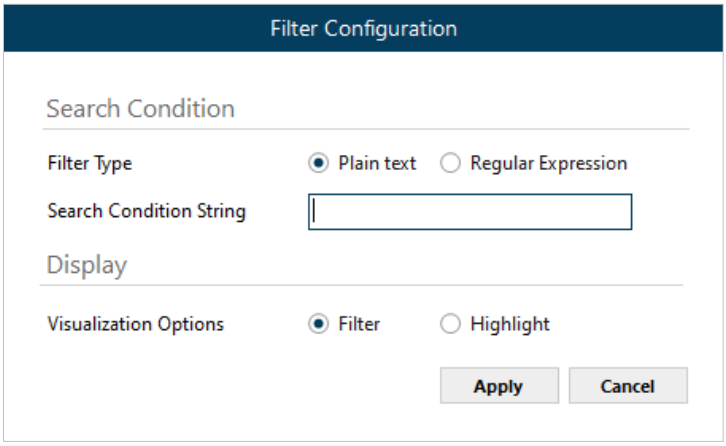
FILTERING

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**.

14. Late Configuration: Change the Gateway's Protocol

Reconfiguring the gateway with a different protocol is very easy:

1. Connect the gateway to the PC and open Intesis MAPS.
2. Select the new template you need.
3. Click **Next** or double-click the template in the list.
4. Enter the **Connection** tab, select the gateway, and click the **Connect** button.
5. A dialog will inform you that the gateway has a different firmware version from the one required for the selected template, asking if you want to update the gateway's firmware.
6. Click **Yes**.
7. A dialog will ask if you want to save the project that is currently loaded in the gateway.
8. Click **Yes** or **No**, depending on your needs.
9. A new dialog appears showing the **Gateway Current Status** and the **Firmware Update Information**.
10. Click **Send** to load the new firmware into the gateway.
11. In the confirmation dialog, click **Yes**.
12. Once the firmware transfer is complete, click the **Connect** button to connect with the gateway again.
13. Configure the project as usual.

15. Troubleshooting

15.1. Connecting the Gateway to the PC through Ethernet

The method for connecting the gateway via Ethernet depends on whether a Dynamic Host Configuration Protocol (DHCP) server is being used.

IMPORTANT
The following topics apply whether the gateway still has its factory settings or has been factory reset.

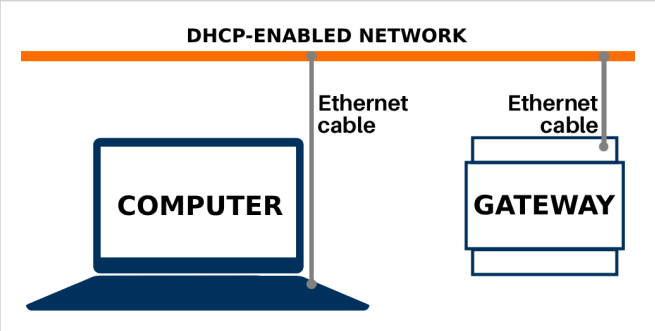
NOTE
The gateway includes a temporary DHCP mode that activates for 30 seconds each time an Ethernet link is detected[1]. If the gateway is connected to a DHCP-enabled network, the server will assign it a dynamic IP address. If no DHCP server is available, the default IP address **192.168.100.246** will be automatically assigned after 30 seconds.

[1] In practice, the temporary DHCP mode activates when:

- The Ethernet cable is unplugged and plugged back in.
- The gateway is powered off and then powered on.
- The gateway is reset.

NOTE
If the gateway has already been programmed (i.e., a project has been sent from Intesis MAPS to the gateway), the temporary DHCP mode will be deactivated. However, a permanent DHCP mode can be enabled using the **Enable DHCP** parameter, as explained in the section Configuration Tab → Connection (page 18).

15.1.1. Connecting the Gateway and the PC through a DHCP-enabled Network

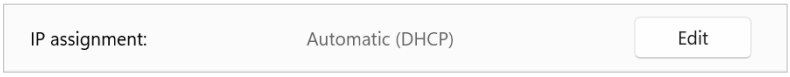


TIP
Since most network cards support the auto MDI-X feature, which detects the cable type and automatically configures the connection, you can use either a straight-through or a crossover Ethernet cable. However, if the network card lacks this feature, you must use a straight-through cable to establish proper communication between the gateway and the PC.

1. Connect the gateway to the DHCP-enabled network that your PC is also connected to.
2. Power on the gateway.
3. Set your PC's Ethernet configuration to **Automatic (DHCP)**. To do so, proceed as follows:
   a. Open the Ethernet settings on your PC.

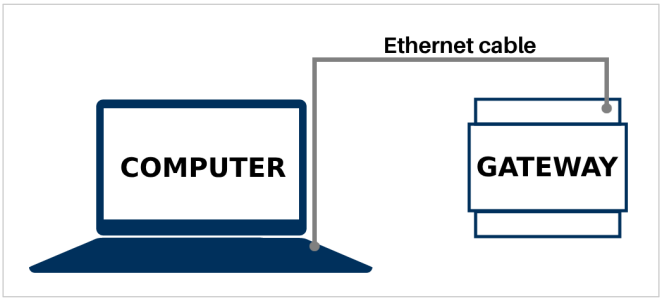
> **TIP**
> These settings can usually be found in the **Network & Internet** menu.

   b. Set the **IP assignment** to **Automatic (DHCP)**.



At this point, you should be able to establish a connection between Intesis MAPS and the gateway as explained in Connection Tab (page 13).

15.1.2. Connecting the Gateway Directly to the PC



> **TIP**
> Since most PC are equipped with network cards that support the auto MDI-X feature, which detects the cable type and automatically configures the connection, you can use either a straight-through or a crossover Ethernet cable. However, if your PC lacks this feature, you must use a crossover cable to establish proper communication between the gateway and the PC.

1. Connect the gateway and your PC through their Ethernet ports.
2. Power on the gateway.
3. Open the Ethernet settings on your PC.

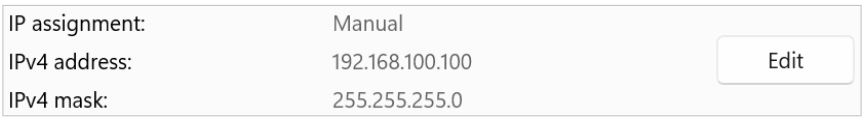
> **TIP**
> These settings can usually be found in the **Network & Internet** menu.

4. Set the **IP assignment** to **Manual**.
5. For the IP version, select **IPv4**.
6. Type an IP address within the range of the gateway.

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

7. In the subnet mask parameter, type **255.255.255.0**, which is the gateway's default netmask.

Figure 3. Example of a PC's Ethernet configuration considering the gateway's default IP address and subnet mask.



At this point, you should be able to establish a connection between Intesis MAPS and the gateway as explained in Connection Tab (page 13).