io-base
value-added data

TERĒGA
SOLUTIONS

Indabox

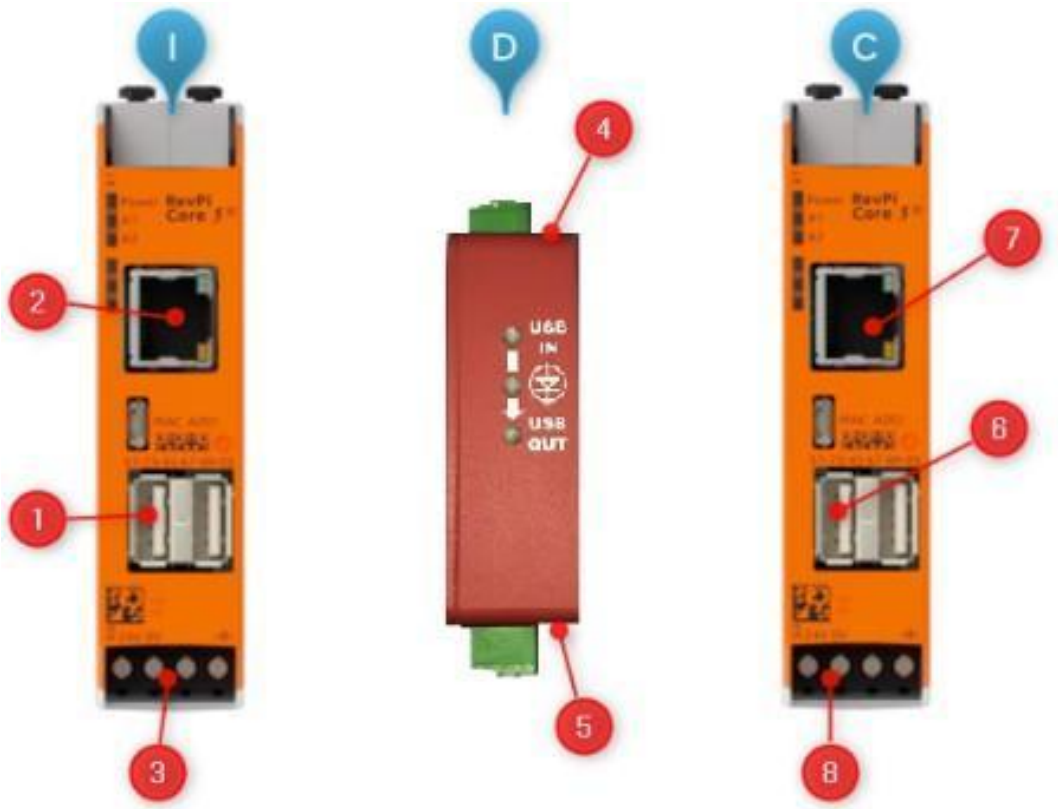
Web configuration interface

Content

1. Installation

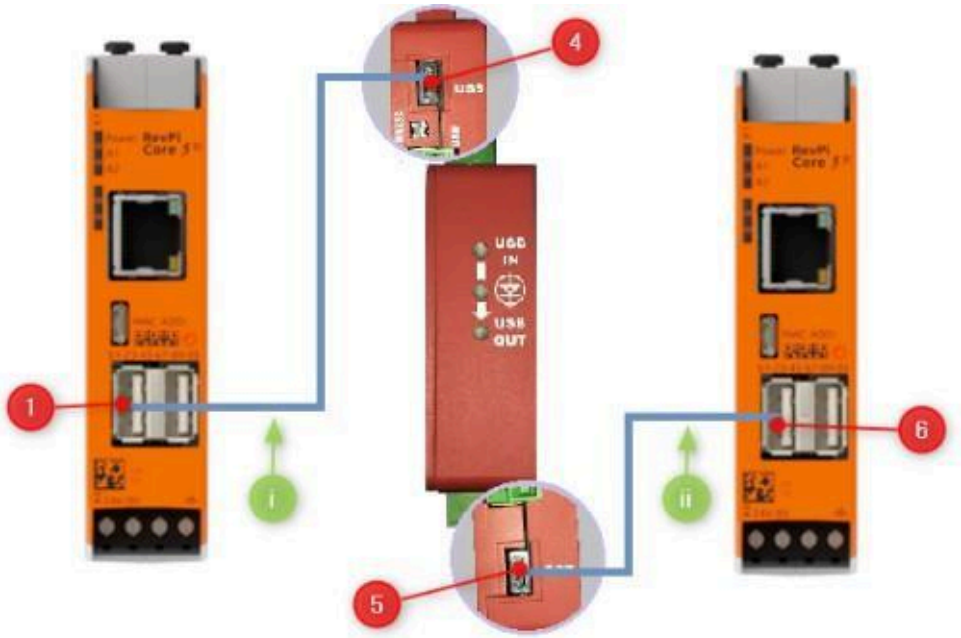
1.1 Indabox Connection

1.1.1 Equipment details




I
RevPi INDUS
1 USB Output
2 RJ45 network port
3 Power supply terminals
D
Electronic module
4 Micro-USB IN port
5 Micro-USB OUT port
C
RevPi CLOUD
6 USB input
7 RJ45 network port
8 Power supply terminals

1.1.1.1 RevPi modules connection through the electronic module



i Using a USB / Micro-USB cable

connect the USB1 output from the front panel to 1

the Micro-USB IN port of the electronic module 4

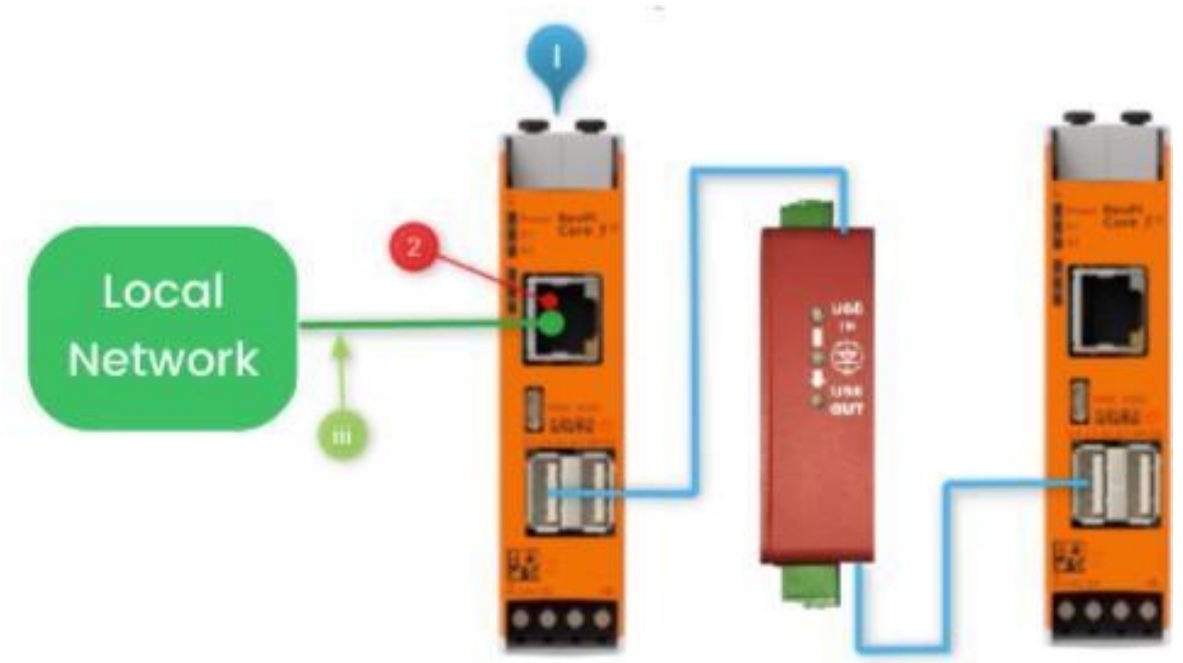
ii Using a USB / Micro-USB cable :

connect the Micro-USB OUT port of the electronic module to 5

the USB-1 input on the front panel of the RevPi Core 6

WARNING : For a USB connection, please ensure that the switch (encircled below) is on the USB side.

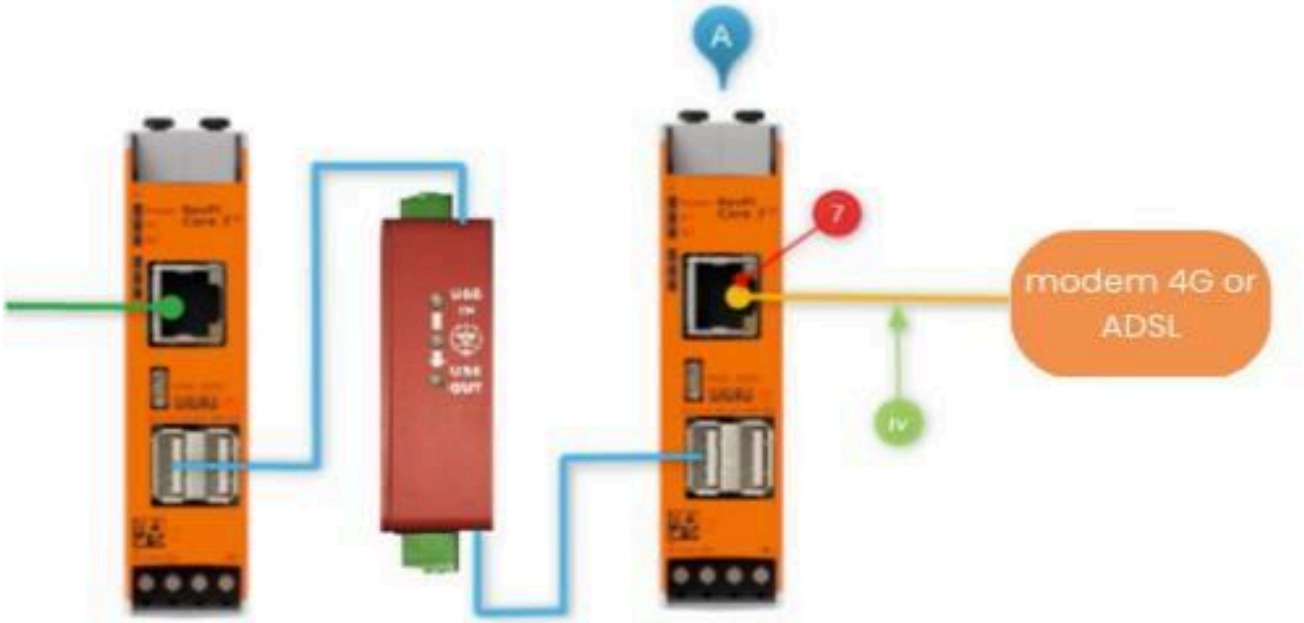
1.1.1.2 RevPi local network connection (protected side)



Using an RJ45,

2 connect the ethernet socket to the target industrial network

1.1.1.3 RevPi cloud connection (unsecured side)



Using an RJ45,

7 connect the RevPi's ethernet port to the WAN network (Internet or 4G/LTE router)

1.1.2 Powering the RevPi module

To connect the power supply to your RevPi Core, follow these steps :

Step 1 : Locate the X4 Connector (encircled below) : The X4 connector is specifically designed for powering the RevPi Core module and any connected devices.

Step 2 : Prepare the Power Supply :

Ensure you have a power supply unit that provides at least 11 W. You also need wiring with a cross-section between 0.35 mm² and 2.5 mm² (AWG22 to AWG14).

Step 3 : Make the Connections :

- Connect terminal 1 on the X4 connector to the positive pole (24 V) of your power supply.
- Connect terminal 2 to the negative pole (0 V or ground) of the power supply.

Step 4 : Optional Earth Connection : Terminal 4 is an optional functional earth. Connecting it can improve the system's electromagnetic compatibility (EMC), although it's not required.

Step 5 : Secure the Connections : Double-check that all connections are secure to ensure stable and reliable power delivery.

Connector	Function
1	24 V supply for powering the RevPi Core and connected modules
2	0 V supply (ground)
3	Not assigned
4	Functional earth (optional connector to improve EMC properties)

Indabox : Web Configuration Interface

Technical Sheet

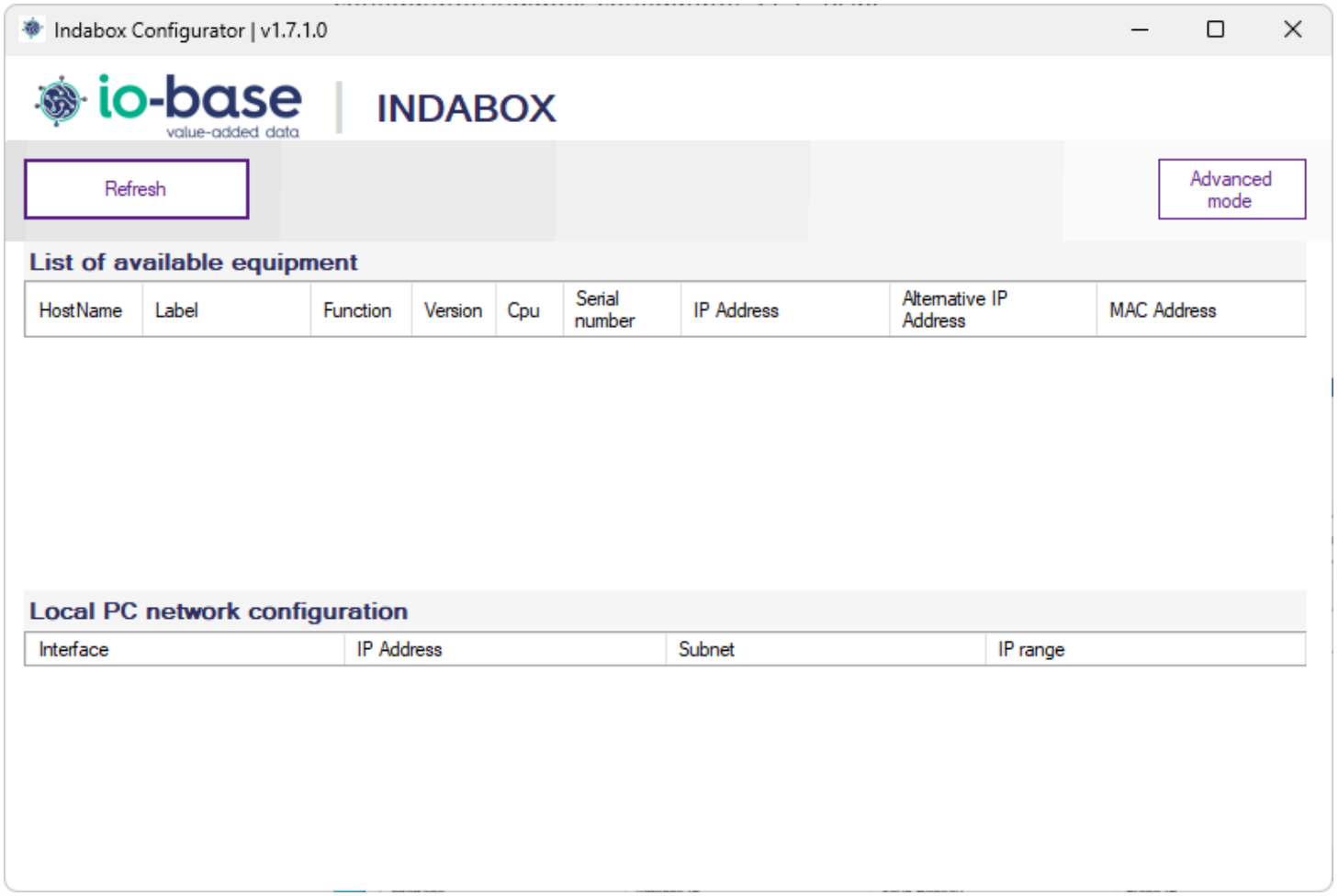
Box dimensions	
Length	80 mm
Height	96 mm
Width	105 mm
Weight	0,36 kg
Supply voltage	
Supply voltage type	12-24 V CC
Holdover time if loss of electricity	20 ms
Max power consumption	20W (2 x 10W)
Processor	
Broadcom	BCM2837B0
Interfaces	
USB Interface	4x USB 2.0
RJ45 Interface	2x RJ45
Protection class	
IP	IP 20
Type of attachment	
Mounting	Symmetrical DIN rail, mural fixation, edge mounting
Configuration	Box PC, builtin appliance
Ambient conditions	
Operating temperature range	from -20° to +55°
Storage/transport ambient temperature	from -40° to +85°
Standards, Approvals, Certificates	
CE	Yes
RoHS	Yes
IEC 62443 4.1 4.2	Ongoing
ATEX	No
Communications	
Industrial protocols	ModbusTCP, EthIP, S7, OPCUA, ftp Evolving list
IHM	Chrome, Firefox, Opera, Brave, Edge
Internet Protocols	API (POST), MQTT
Authentication	Open ID (m2m)

2. Pre-required configuration after installation

2.1 Indabox Configuration

2.1.1 Configuration of the Indabox function

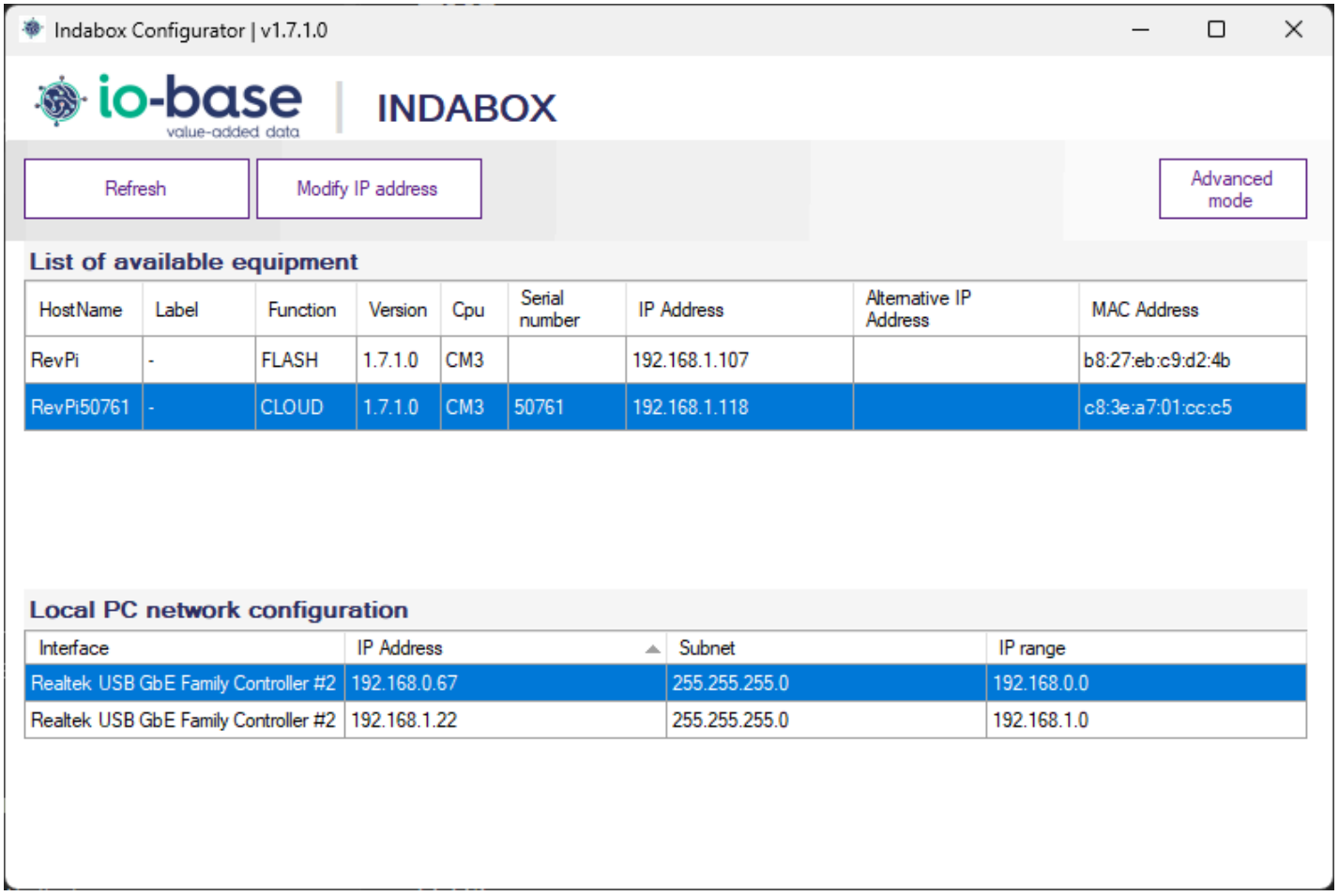
Connect the Indabox to the PC with an Ethernet cable, then start the Indabox Configurator application.



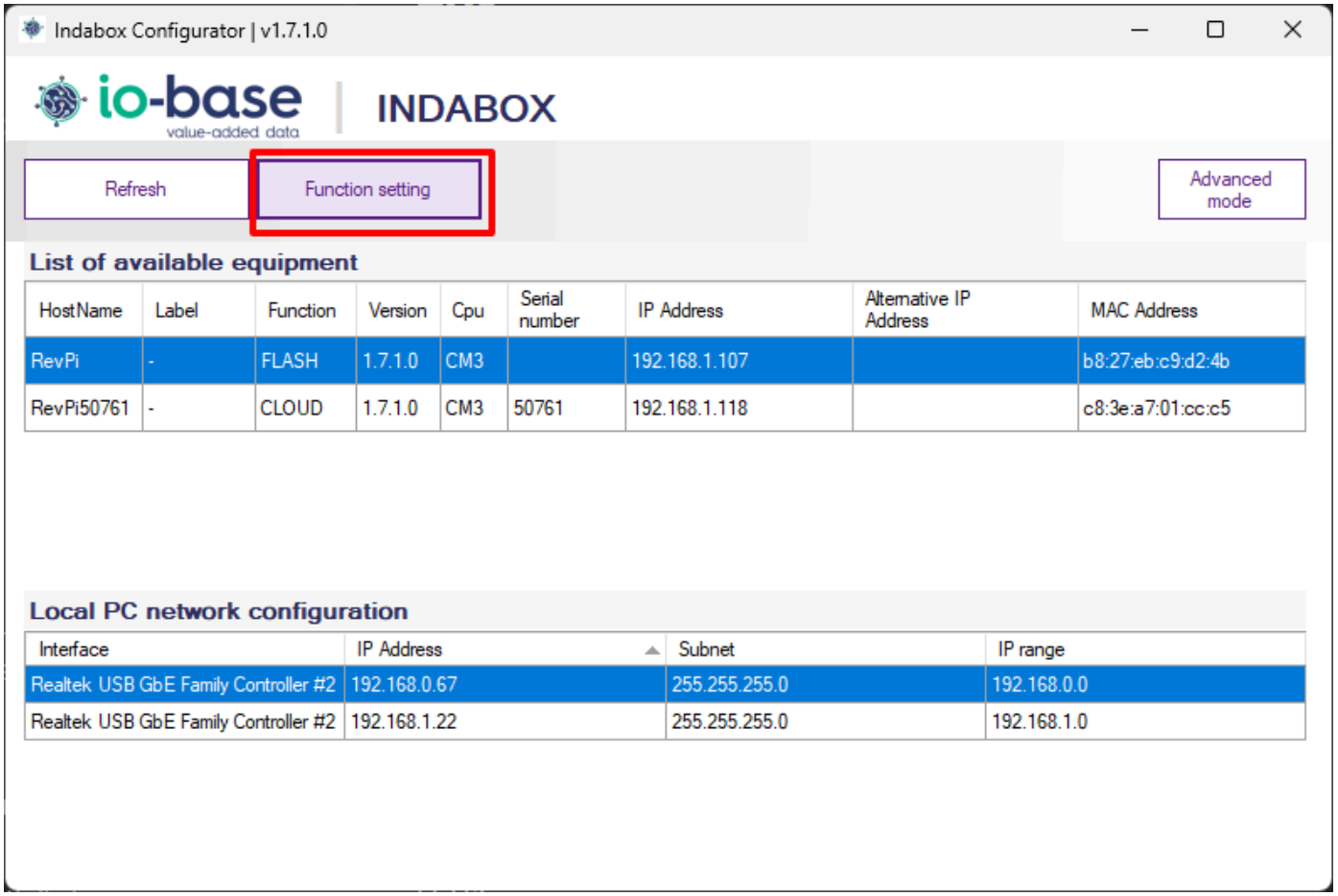
After waiting a few seconds, click on the **Refresh** button.

Note : If no line has appeared in the device list in the box, repeat the operation.

Once a line has appeared, it means that the computer has detected an Indabox.

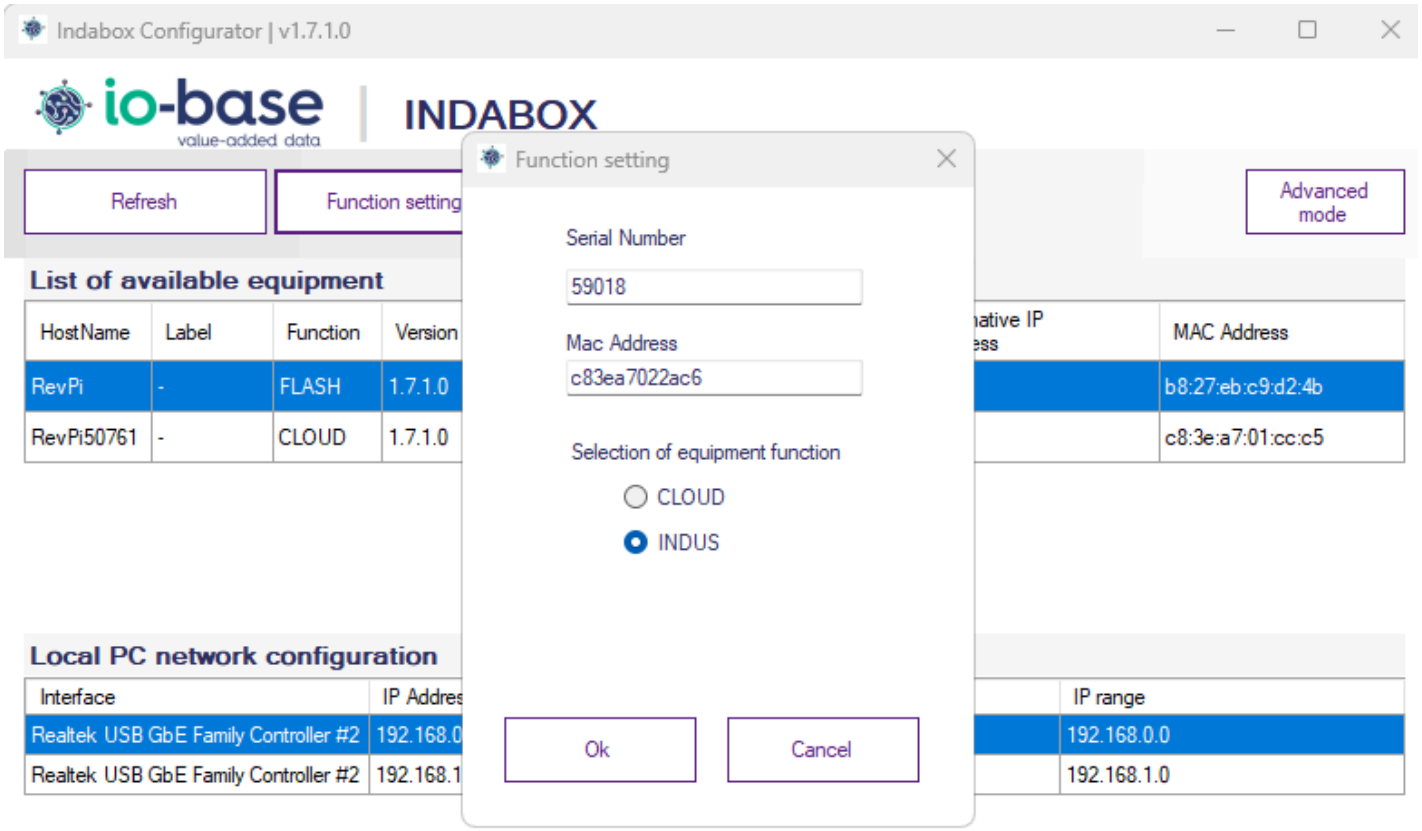


To configure it, select the line and click on the **Function setting** button.



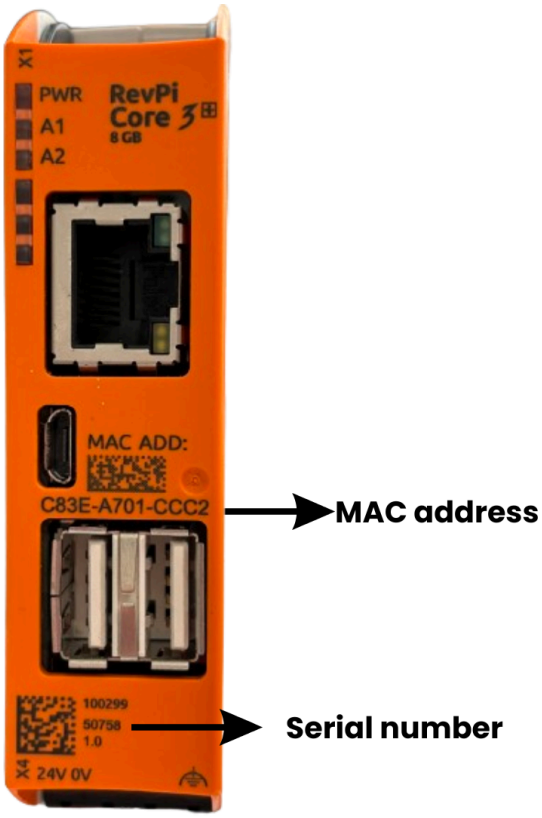
The following screen appears :

Indabox : Web Configuration Interface



You must now complete the following fields :

- The serial number : a 5-digit identifier indicated on the front of the Indabox
- The MAC address : a 12-digit identifier indicated on the front of the Indabox
- The function of the Indabox: choice between its INDUS, CLOUD or Box Lite use



Once the information has been entered, click "**OK**" to save the information.

Carry out this action on the two boxes :

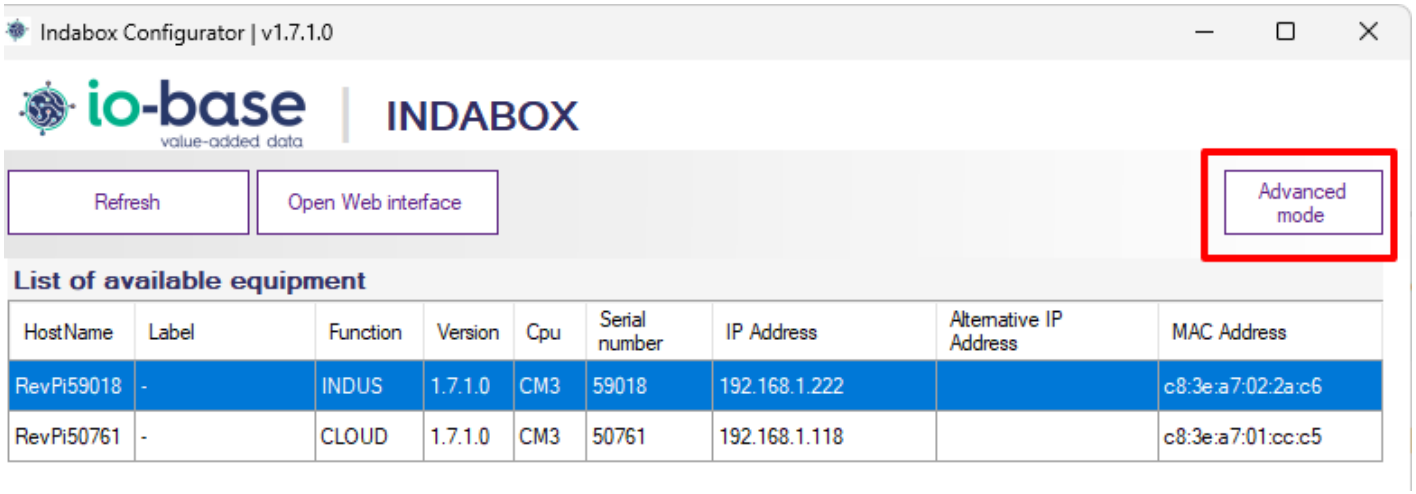
- Indus - connected to the industrial network
- Cloud - connected to the internet

2.1.2 Setting a temporary IP address

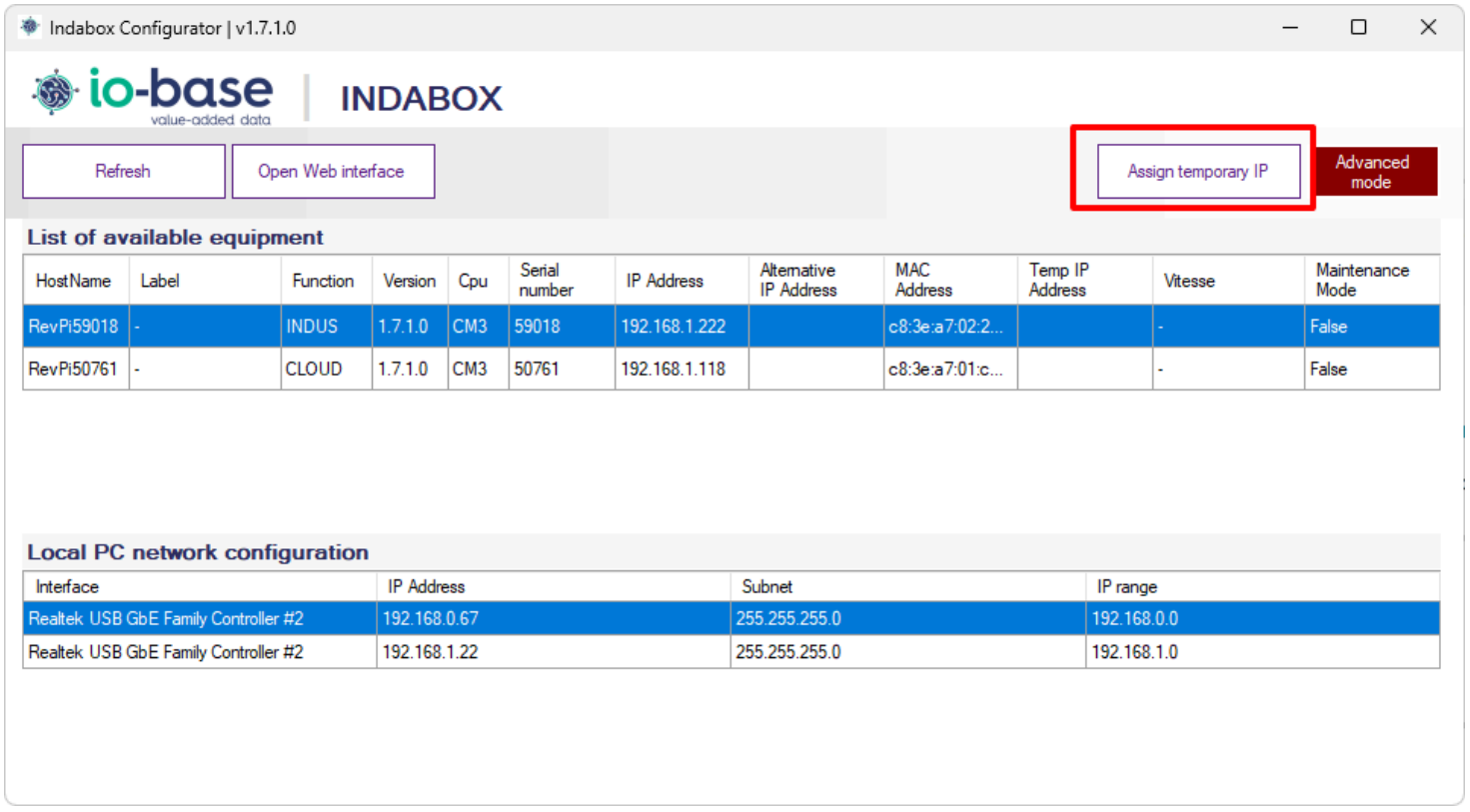
The IP address must be in the same range as the configuration PC for you to be able to access the Indabox Web interface.

If necessary you can set a temporary IP address.

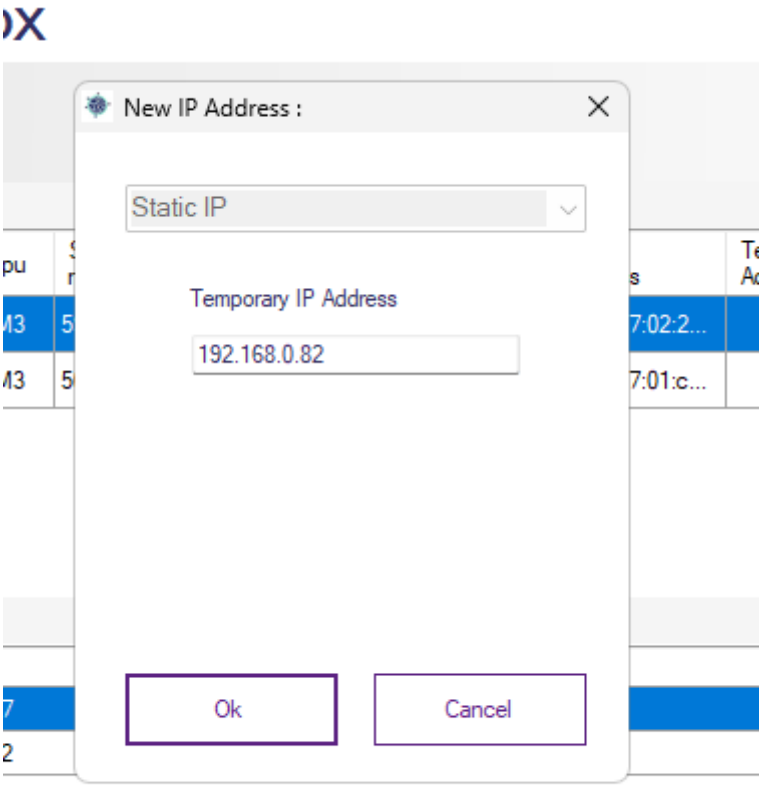
Click on "**Advanced mode**".



Then, "**Assign temporary IP**".



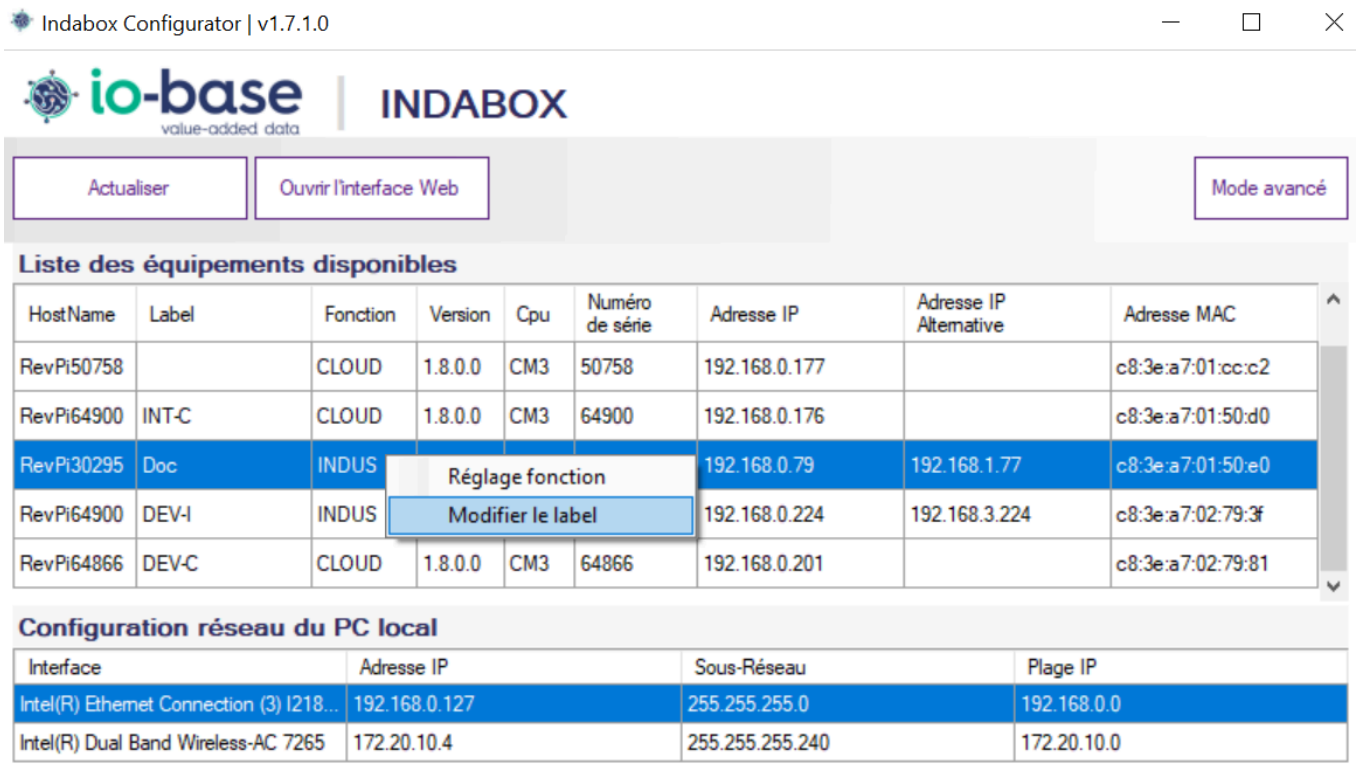
Enter an IP address within the same range as the configuration PC, then click on "**Ok**".



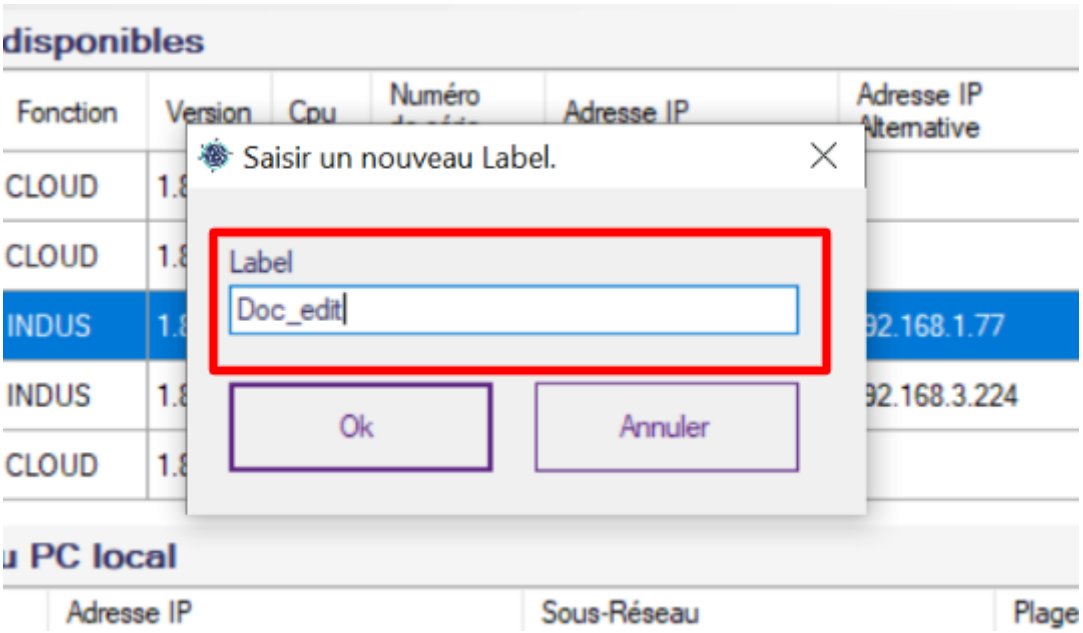
2.1.3 Editing a box label

You have the possibility to change the label of your box.

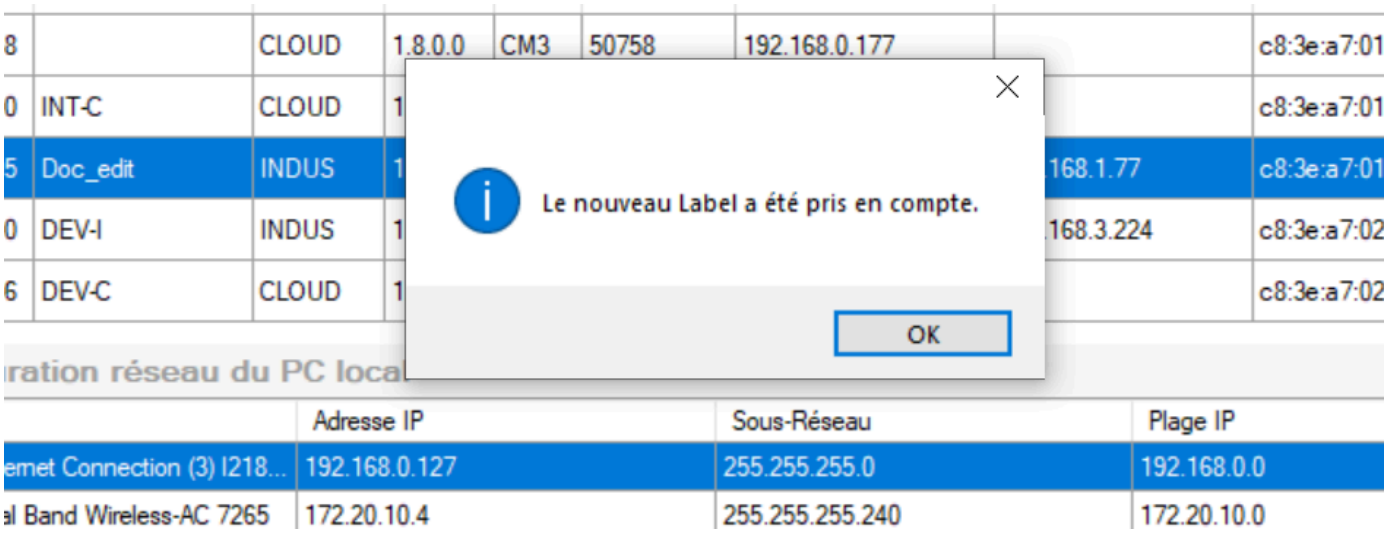
Right-click the desired line and select the "**Edit label**" function.



Enter the new label, then click "**Ok**".

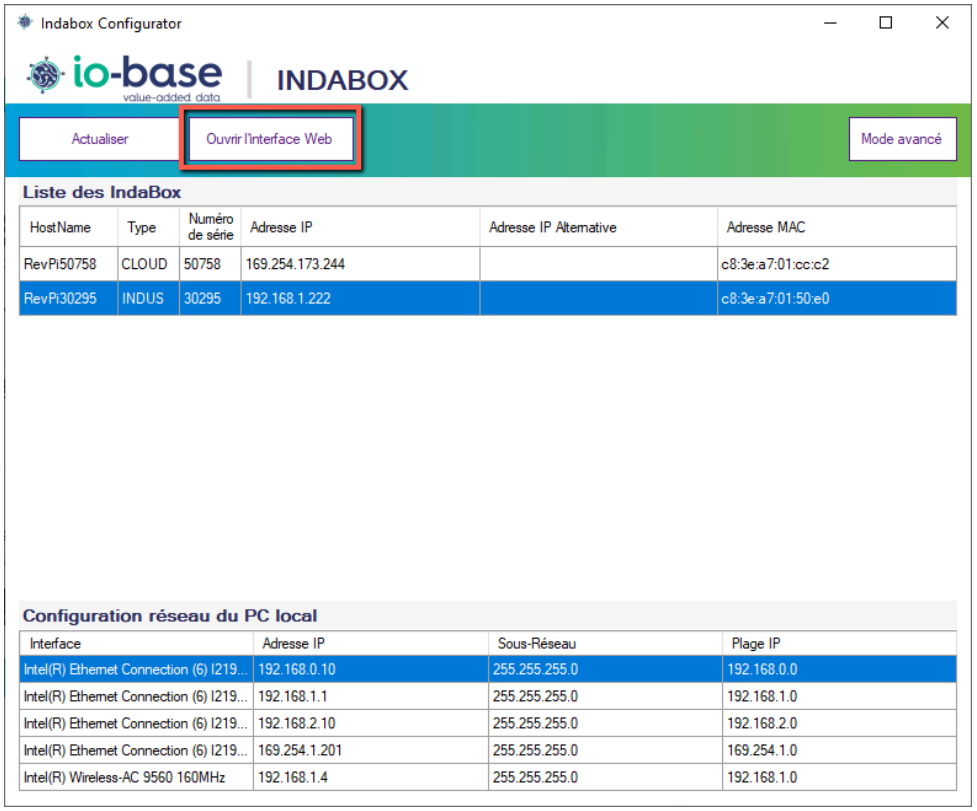


A confirmation message appears. Your label has been changed.



2.2 Log in to / Log out of the web application

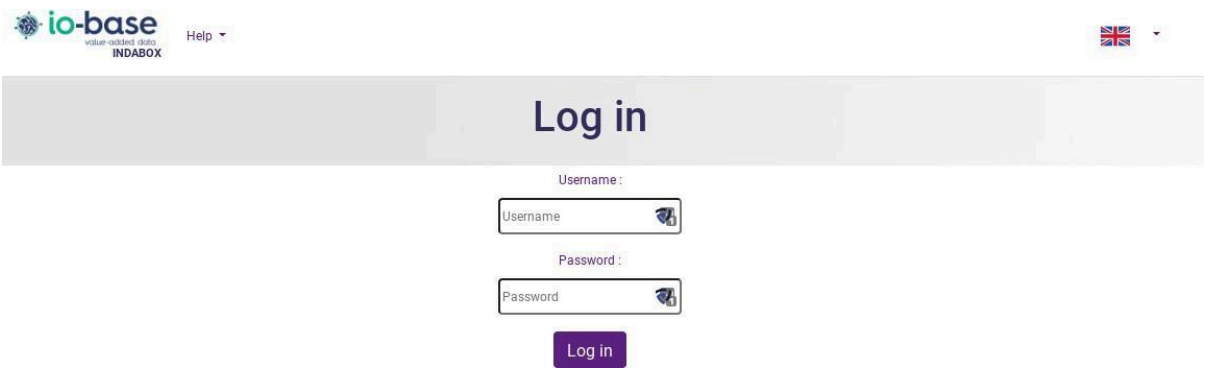
To access the web application, use the Indabox-Configurator application to find the IP address of the INDUS Box.



2.2.1 Connection

Select the line containing the INDUS Box and click on the Open button of the Web interface button or manually enter the IP address in the address bar of the browser of your choice using port 5000.

You are redirected to the login page.



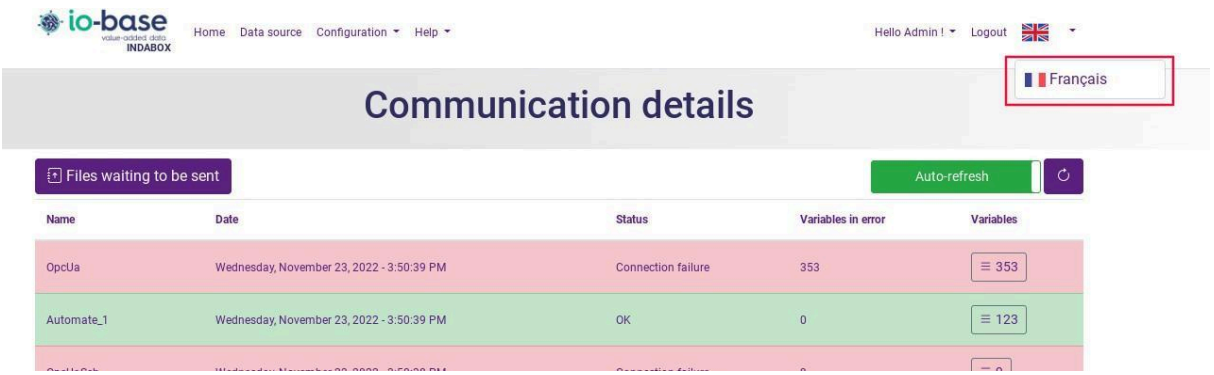
For the first login, the identifier and password to enter are as follows:

- Identifier: Admin
- Password: P@ssw0rd

There are two different user roles in the application: Administrator and User.
The administrator has access to the configuration pages of the devices and their variables. They also have access to the other configuration pages of the INDUS Boxes.
The user only has access to the home page. It is used to indicate the status of the devices.

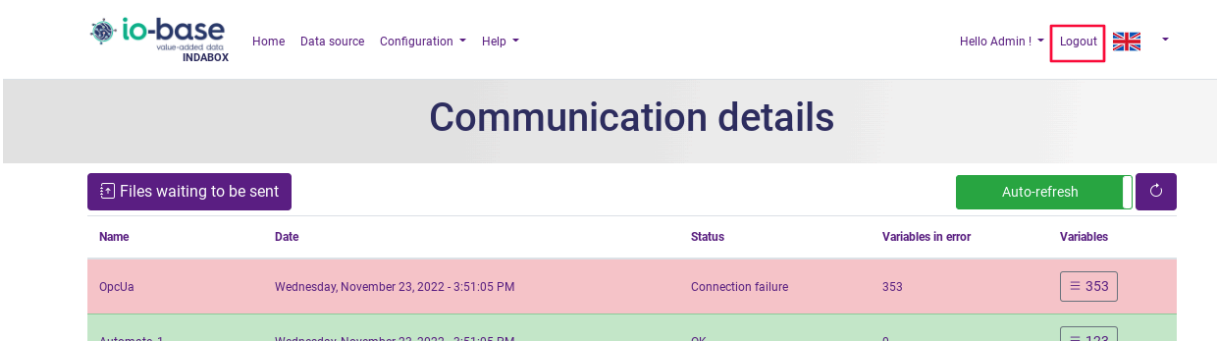
2.2.2 Language selection

The web application can be displayed in English or French. The language can be changed at any time by clicking on the flag in the menu at the top of the page.



2.2.3 Logout

Click the logout link in the menu at the top of the page to log out at any time.



2.3 Date and time configuration

To access the upstream INDUS Box date and time configuration, click on the

Configuration menu and then **Date and time configuration** :

You will be directed to the configuration page. Fill in the form.

If the INDUS Box has already been configured, the form is pre-filled with the data already configured.

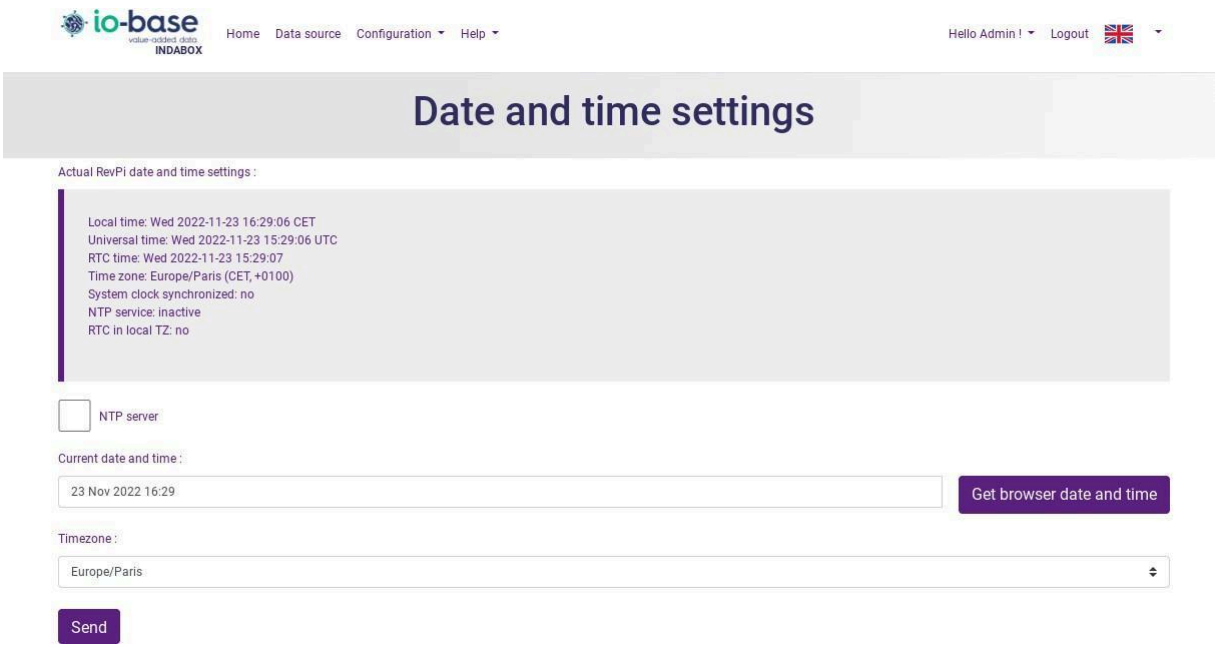
A first insert is available at the top of the page to inform you of the current date and time configuration, in particular whether an NTP server is present and if it is synchronised.

A second insert specifies whether the NTP server is active or not and whether it has error status.

You can also see the date and time configured on the INDUS Box at any time at the bottom of the page:

If an NTP server is available, the corresponding box must be selected and its IP address must be entered.

If you are not using an NTP server or if no NTP server is accessible, click the “Retrieve browser date and time” button that will initialise the date and time and the timezone.

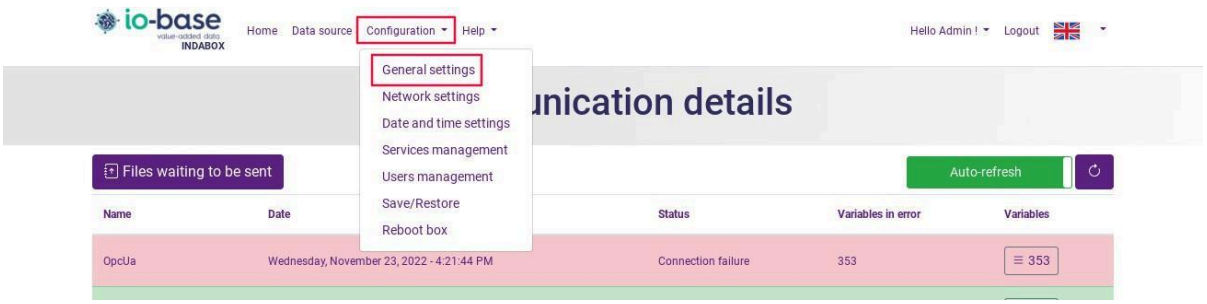


If the values entered are saved, the changes are made and taken into account directly on the INDUS Box.

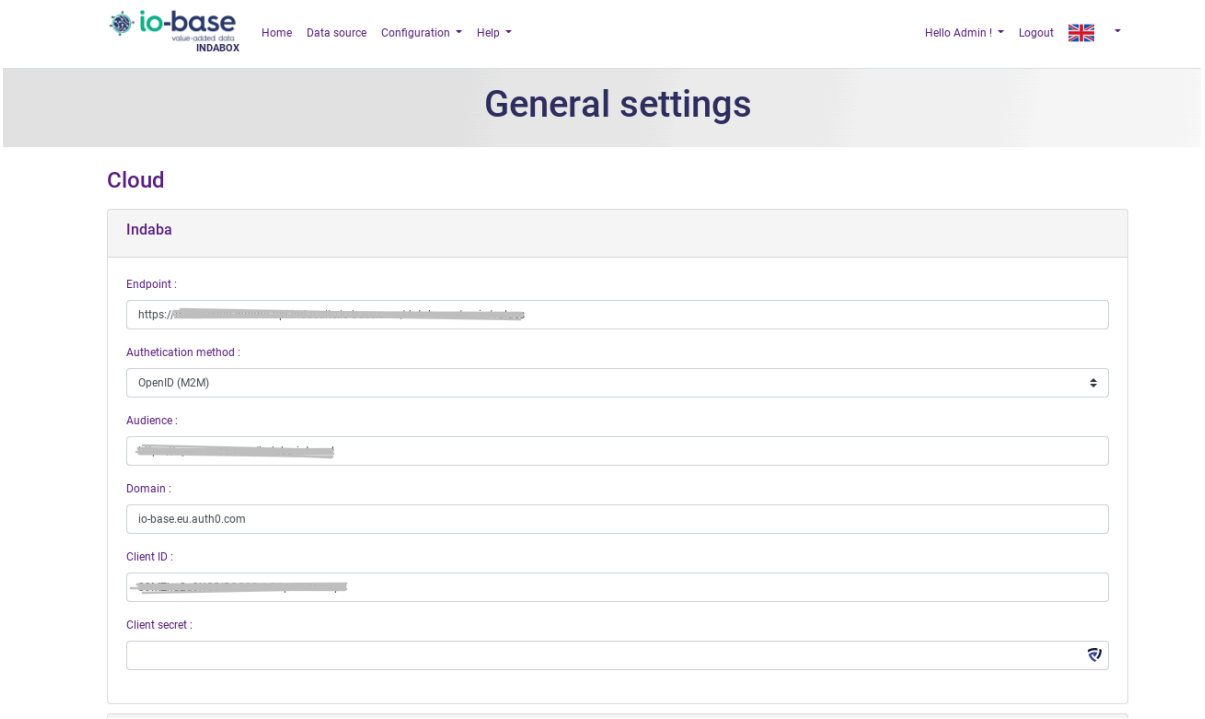
After initialising the date and time, restart the INDUS Box.

2.4 Cloud configuration

Access the **Configuration / General Configuration** menu :



Scroll down the page, to reveal the Cloud section.



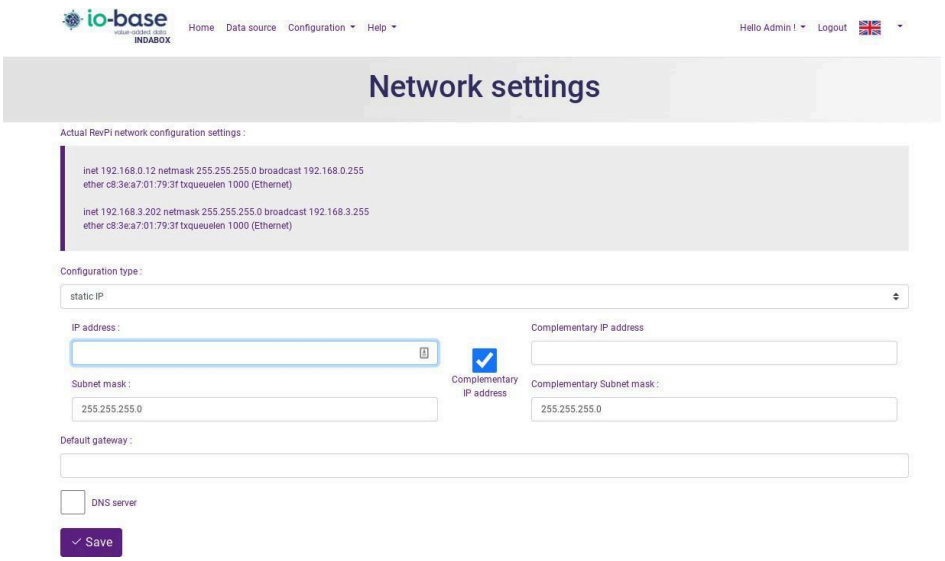
All fields must be filled in.

Once the form is saved, a json configuration file will be generated and automatically sent to the INDUS Cloud Box which will save the data received.

2.5 Network configuration

The first item to configure is the network. Access the INDUS Box network configuration by clicking on the **Configuration** menu and then **Network Configuration** :

Complete the following form :

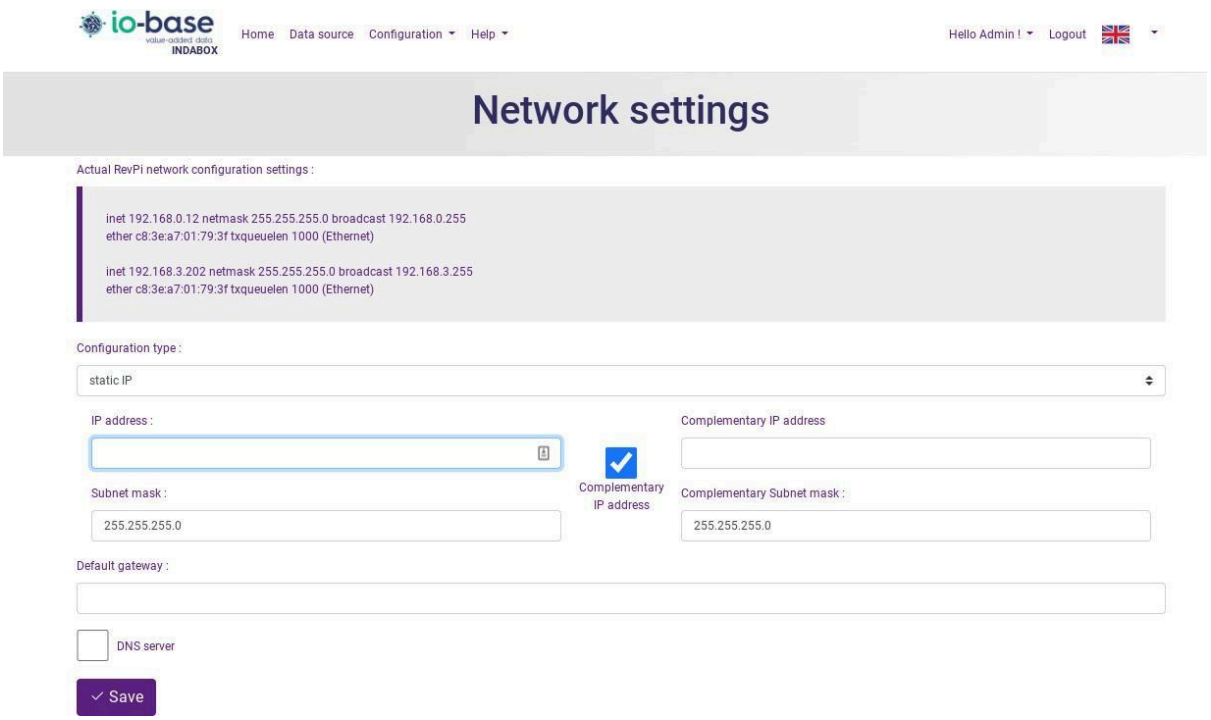


If the INDUS Box has already been configured, the form is pre-filled with the data already present. An insert is available at the top of the page to inform you of the current network configuration.

You can change the network configuration type between static IP or DHCP. The form automatically adapts to the choice that is made.

When configuring Static IP, the IP address, the subnet mask, and the default gateway must be entered.

Assign an additional IP address as follows :



If a DNS server is present on the Ethernet LAN, select the corresponding check box to fill in the Ethernet LAN values.

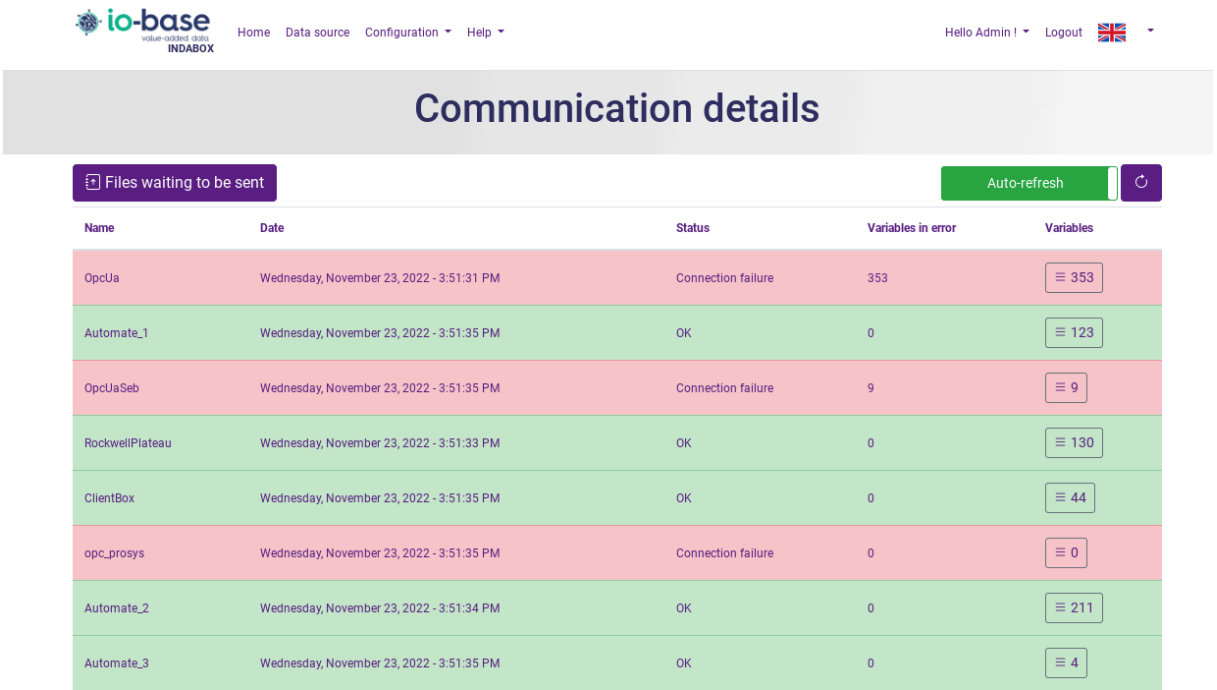
Save the values entered. Changes are made and taken into account directly on the INDUS Box.

3. Introduction to the Web Configuration Interface

The Indabox is a highly secure industrial device allowing data to be collected directly from your PLCs. The IndaBox transmits the data into the Cloud in a single direction.

3.1 Home page

Once logged in to the web application, the home page allows you to view the status of your devices.



Devices can appear in 3 different statuses:

- In green, the device is reachable and all its variables have been retrieved correctly;
- In yellow, the device is reachable but not all its variables have been

retrieved correctly. You can click on the button indicating the number of variables to view the values of the retrieved variables.

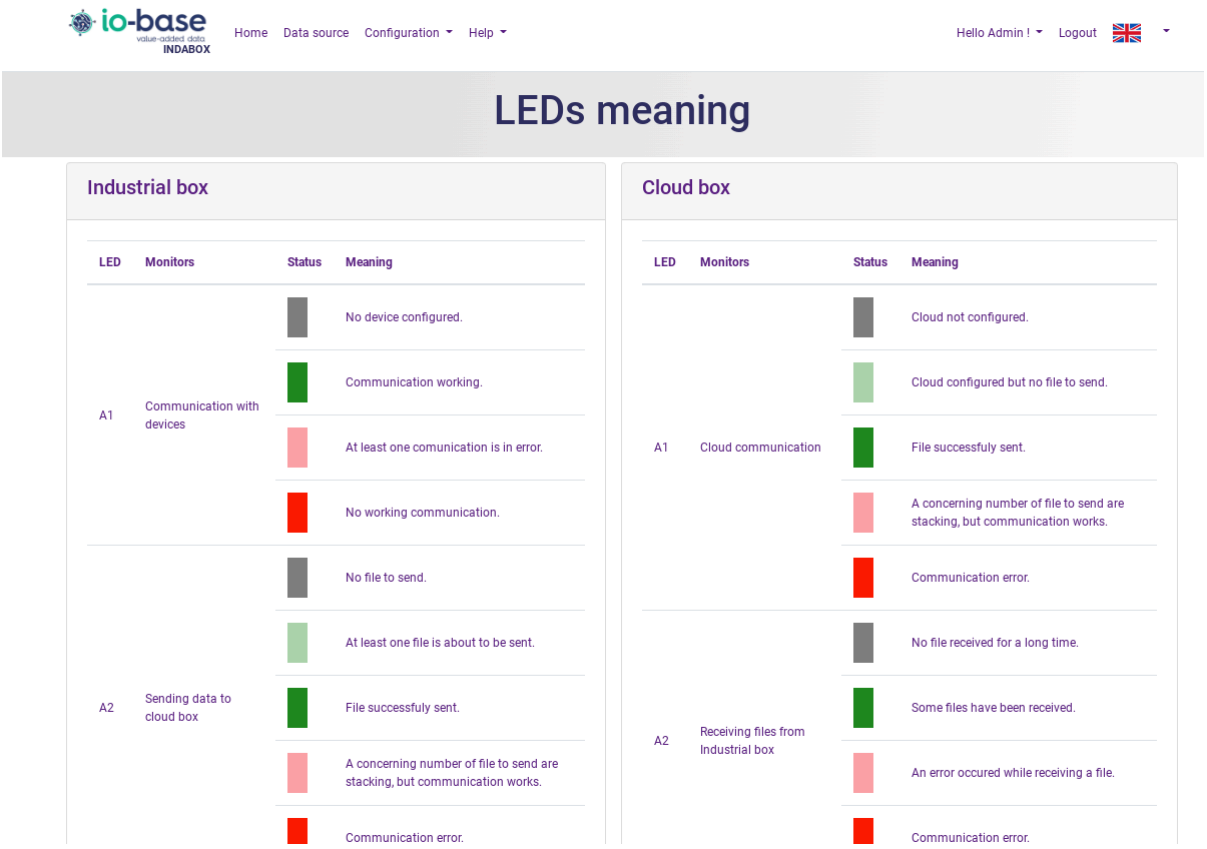
- In red, the device is not reachable or the device is reachable but none of its variables have been retrieved correctly.

This page refreshes every 20 seconds to update the status of the devices, but it can be triggered manually via the refresh icon above the table.

3.2 Help with the meaning of the LEDs

The color and the way in which the LEDs are lit give indications on the status of the box.

From the Help / Meaning of the LEDs menu, you will find a table explaining these meanings.

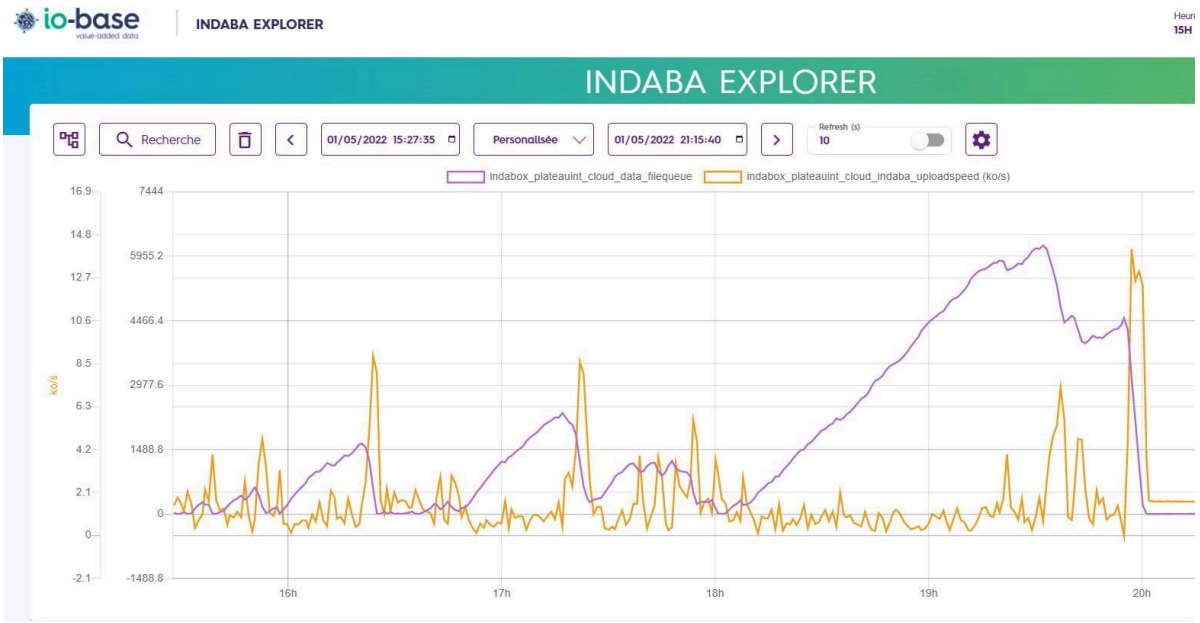


3.3 Indabox Status

To facilitate the analysis of the Indabox operation, some tags are automatically uploaded into Indaba. Thus, it is possible to display these tags directly in Indaba Explorer, as curves.

Example, with the display :

- of the number of files awaiting transfer in the Cloud box
- of the speed of downloading files from the Cloud box



Note : the values of these status metrics are generated once per minute.

3.3.1 Available metrics details

The prefix associated with the Indabox status tags is of type "Indabox_[site]_[type]".

- [site] : site name entered in general config (spaces ' ' replaced by underscore '_' and special characters deleted @"[0-9a-zA-Z_]+")
- [type] : indus or cloud (depending on the module running the data)

3.3.1.1 Metrics from the Indus module

- file stack size (ftp / data) :
  - ftp_filequeue
  - data_filequeue

- export folder size and ftproot (mega) :
  - data_foldersize
  - ftp_foldersize
- communication status (one per device)
  - [device]_com_status ([device] : name of the device entered in the data sources
- services status :
  - erevpi_status
  - filesender_status
  - ftp_status
  - webinterface_status

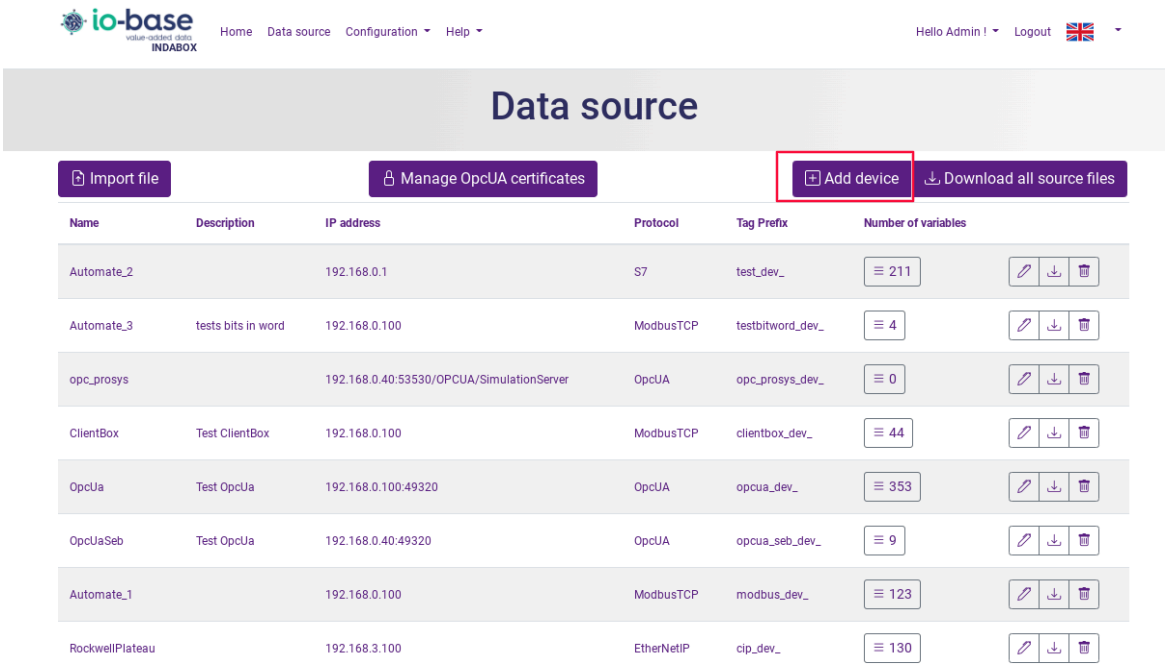
3.3.1.2 Metrics from the cloud module

- file stack size (ftp / data) :
  - ftp_filequeue
  - data_filequeue
- export folder size and ftproot(en mega)
  - data_foldersize
  - ftp_foldersize
- services status :
  - erevpi_status
  - filereceiver_status
  - ssm_status
  - clientbox_status
- indaba upload speed :
  - indaba_uploadspeed

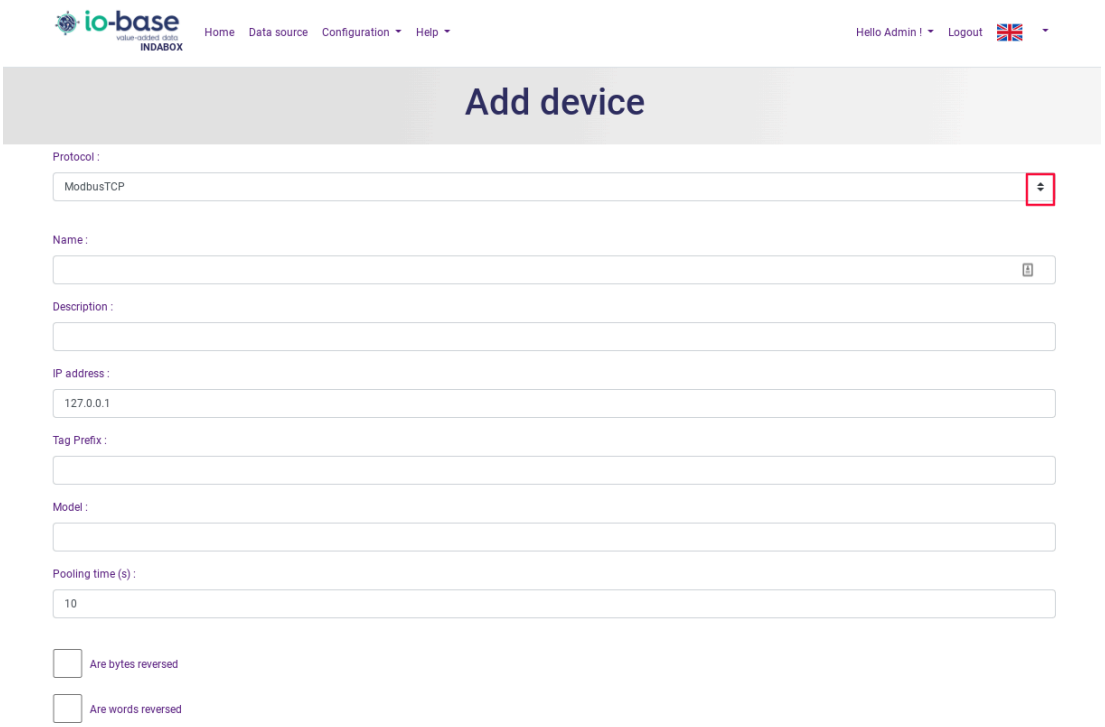
4. Devices

4.1 Add a device

To add a device, click the add button at the top of the Data source page :



Depending on the protocol chosen (EtherNetIP (CIP) or ModbusTCP), the form adapts.

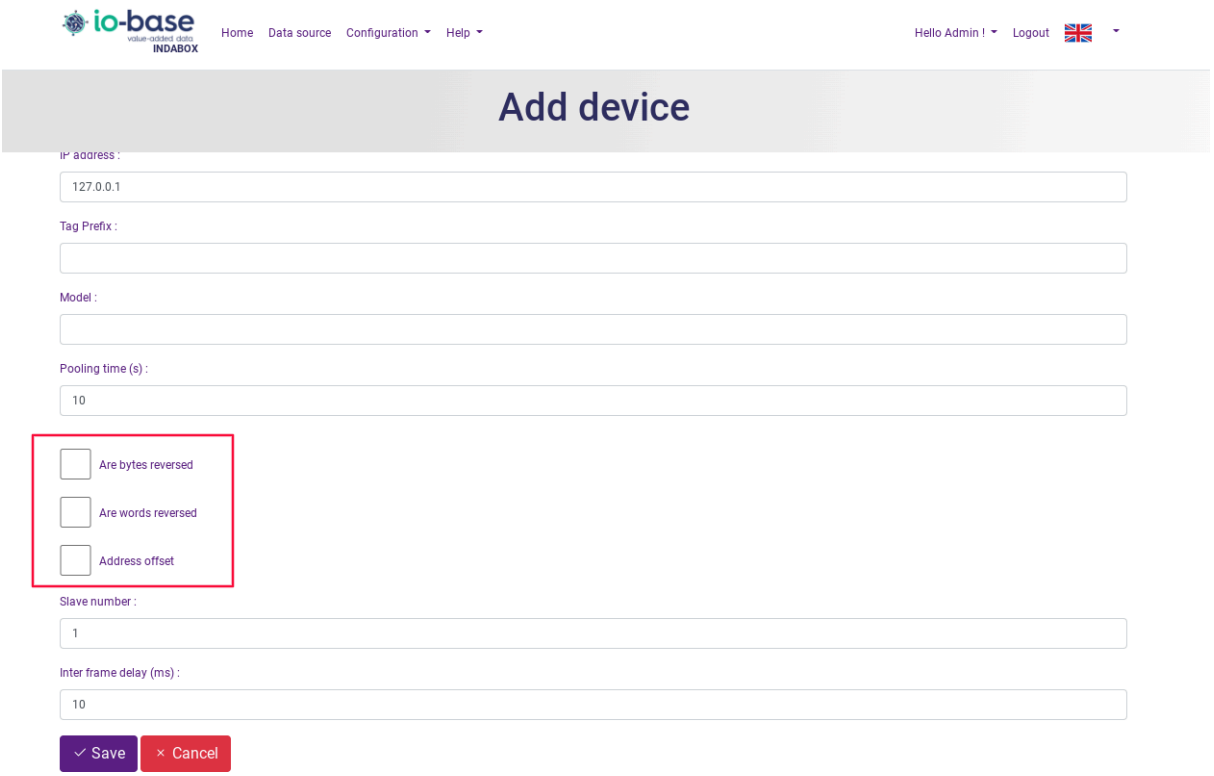


The device name must contain only lowercase or uppercase letters and digits.

All the information is mandatory.

Note : For a device using the ModbusTCP protocol, the check boxes on the form can be selected to specify :

- *If the bytes are reversed;*
- *If the words are reversed;*
- *If there is an addressing offset of the variables of the device.*



When you save the form, you will be taken back to the **Data source** page where you can see that your new device will have been added.

4.2 Device configuration

Only an administrator can configure the devices.
To access it, click the **Data source** link in the banner.

On the device configuration page, the following actions can be performed :

- Add a device;
- Export all the devices in xlsx format in a zip;
- Import a device in xlsx format;
- Edit a device;
- Export a device in xlsx format;
- Delete a device;
- Access the variables of a device.

Devices are sorted by default alphabetically on the device name.

4.3 Edit a device

To edit an existing device, click the edit button of the device of your choice in the table on the Data source page :

The edit page is identical to the add page except that it is pre-filled with the data recorded for this device.

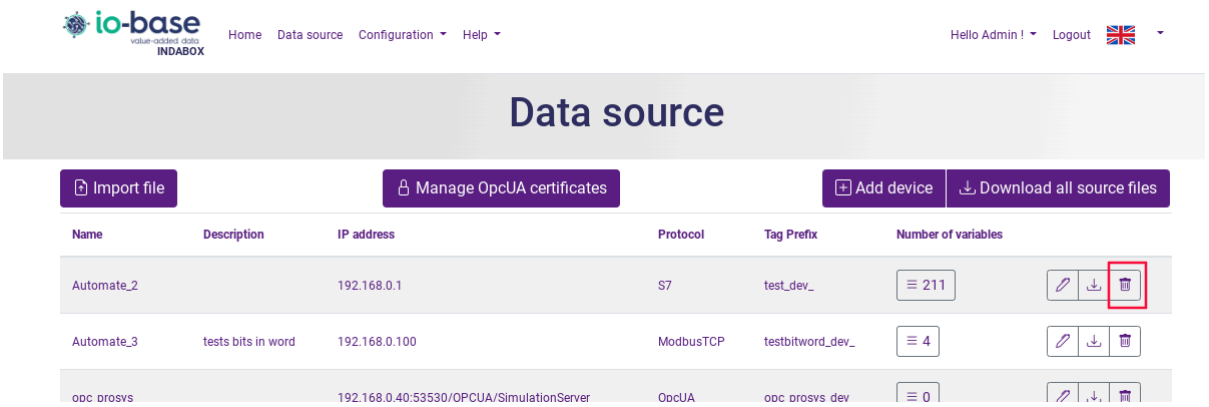
It is not possible to change the device's protocol in edit mode.

The device name can be changed. It must contain only lowercase or uppercase letters and digits.

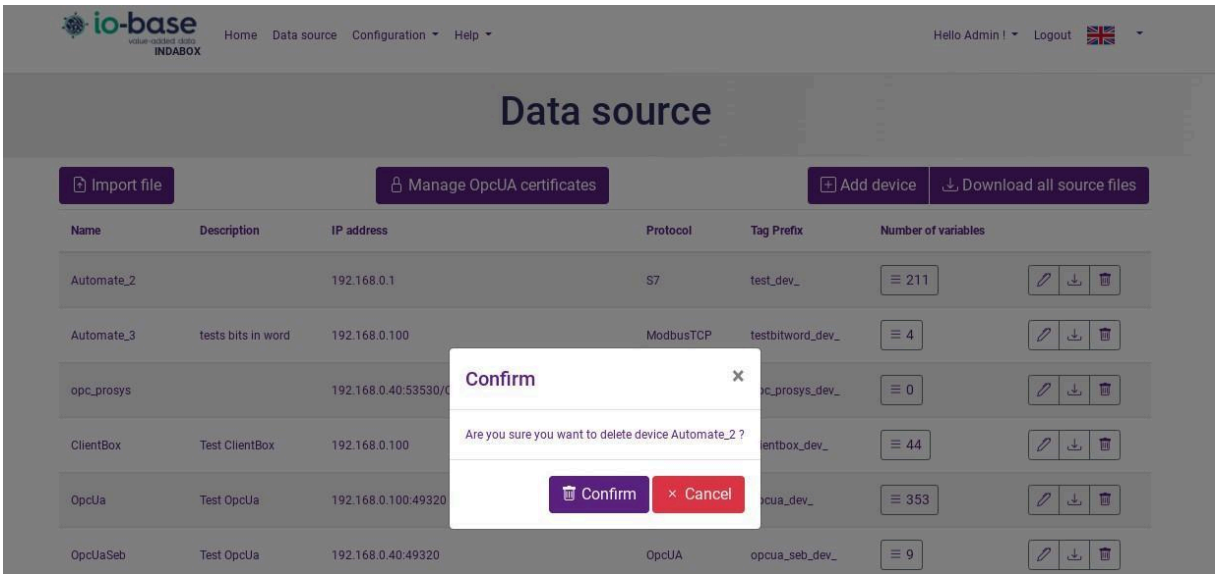
All the information is mandatory.
When you confirm the changes, you are redirected to the Data source page.

4.4 Delete a device

To delete an existing device, click the delete button of the device of your choice in the table on the Data source page :



A confirmation window appears. Click the **Confirm** button to permanently delete the device or Cancel to do nothing.



Upon confirmation, you are redirected to the Data source page where the deleted device no longer appears. Its status is also no longer viewable from the home page.

4.5 Export all devices

To export all the devices configured on the upstream INDUS Box, click the export button at the top of the **Data source** page :

The ZIP file is downloaded from your browser.

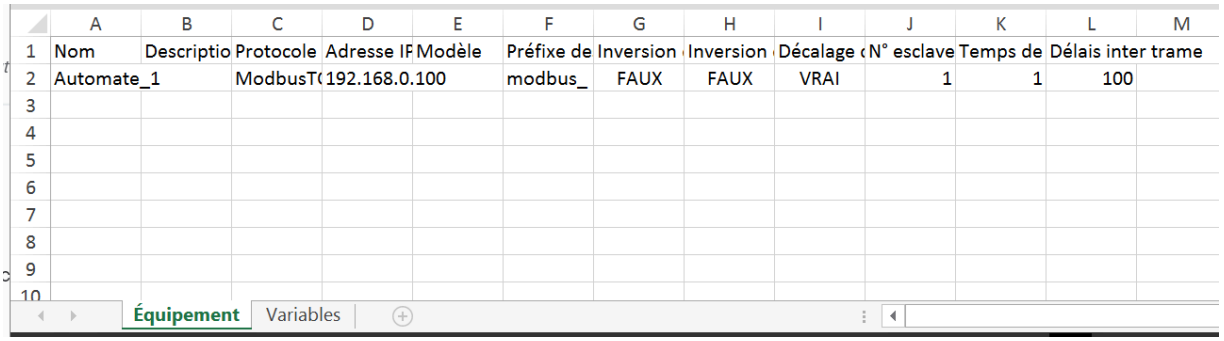
This zip then includes all the devices with their properties and variables in Excel format files.

4.6 Export a device

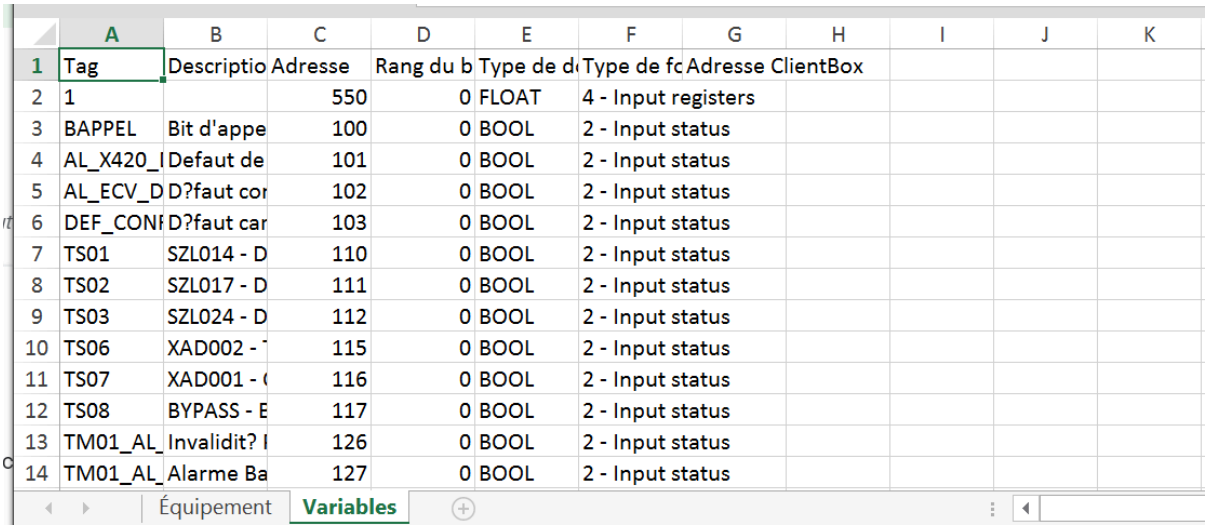
To export an existing device, click the export button of the device of your choice in the table on the Data source page :

Download of the Excel file is launched from your browser.

The Excel file consists of two tabs. The first contains all the information entered when the device was created.



The second allows you to view all the variables of the device.

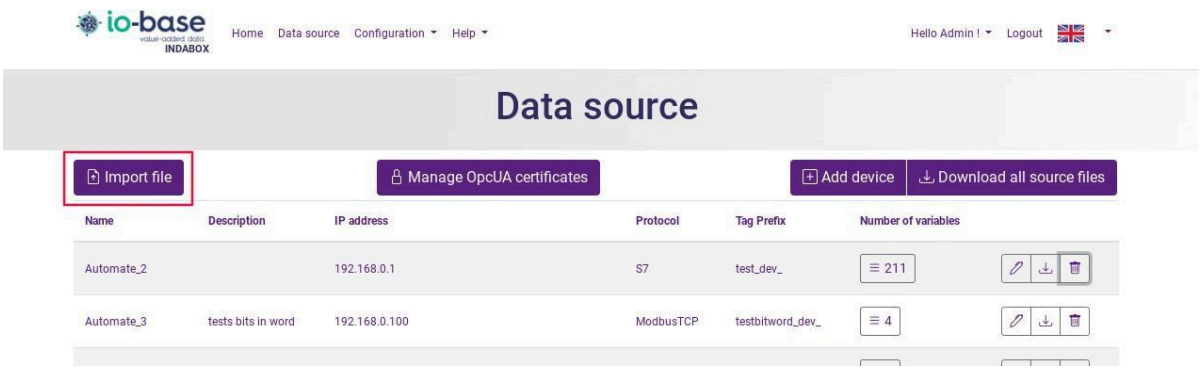


	A	B	C	D	E	F	G	H	I	J	K
1	Tag	Descriptio	Adresse	Rang du b	Type de d	Type de fc	Adresse ClientBox				
2	1		550	0	FLOAT	4 - Input registers					
3	BAPPEL	Bit d'appe	100	0	BOOL	2 - Input status					
4	AL_X420_I	Defaut de	101	0	BOOL	2 - Input status					
5	AL_ECV_D	D?faut cor	102	0	BOOL	2 - Input status					
6	DEF_CONI	D?faut car	103	0	BOOL	2 - Input status					
7	TS01	SZL014 - D	110	0	BOOL	2 - Input status					
8	TS02	SZL017 - D	111	0	BOOL	2 - Input status					
9	TS03	SZL024 - D	112	0	BOOL	2 - Input status					
10	TS06	XAD002 -	115	0	BOOL	2 - Input status					
11	TS07	XAD001 - (	116	0	BOOL	2 - Input status					
12	TS08	BYPASS - E	117	0	BOOL	2 - Input status					
13	TM01_AL_	Invalidit? I	126	0	BOOL	2 - Input status					
14	TM01_AL_	Alarme Ba	127	0	BOOL	2 - Input status					

Équipement | Variables

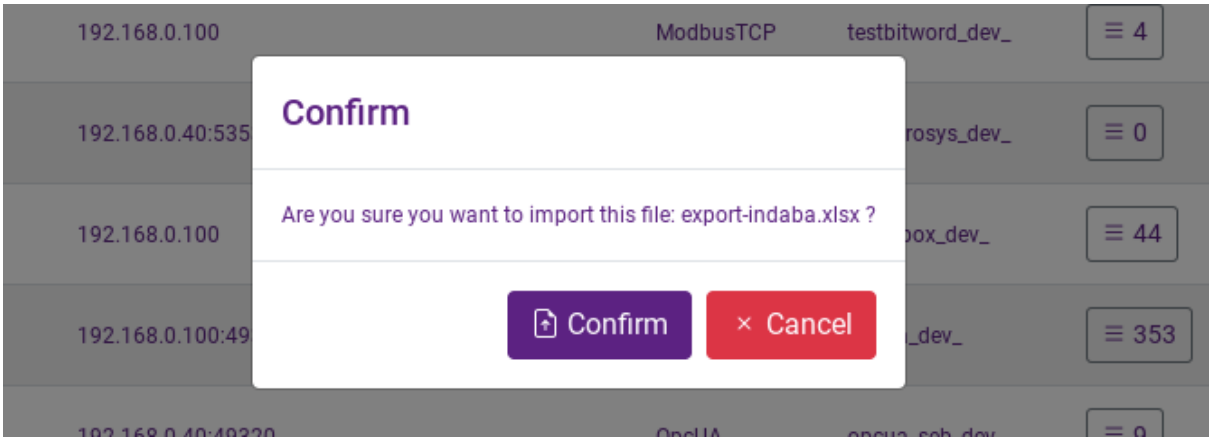
4.7 Import a device

To import a device already preconfigured on the upstream INDUS Box, click the browse files button at the top of the Data source page :



The Excel file must be in the expected format. An example is available in the Export a device section.

Select an Excel file matching the device you want to import, then click the Confirm button :



If the PLC already exists, a message prompts you to replace it. Once imported, the new device appears in the device list.

5. Variables

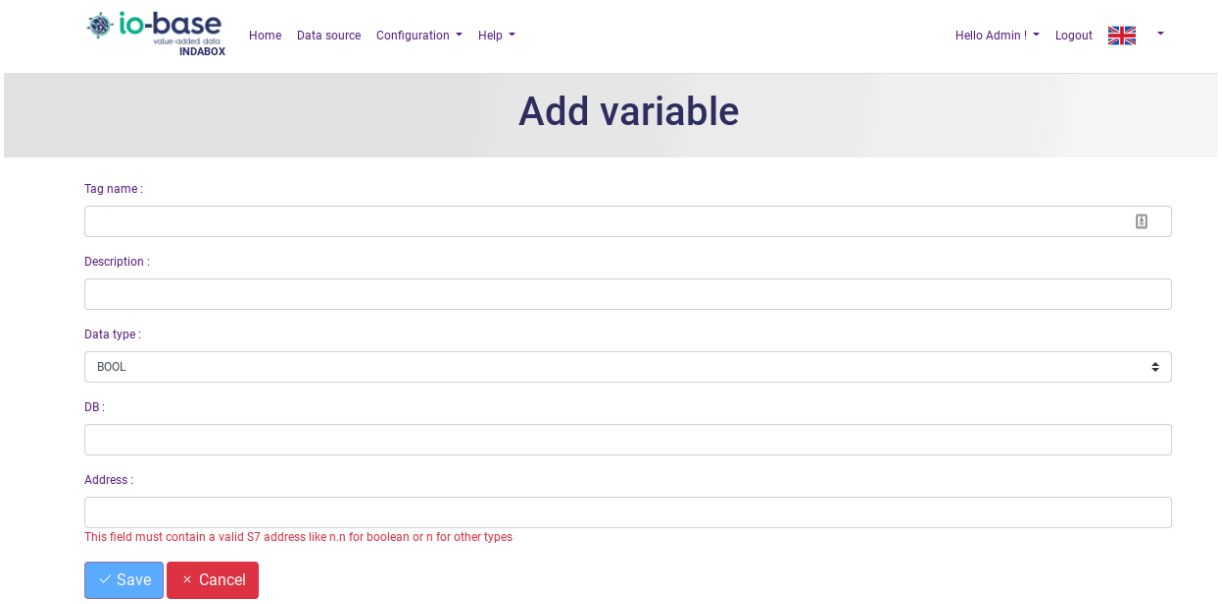
5.1 Add a variable

Go to the Data source page.

To add a variable to the device, click the button allowing you to view the list of its variables :

Click the Add a variable button.

The form adapts according to the protocol of the chosen equipment.



The tag name must contain only lowercase or uppercase letters and digits. All the information is mandatory.

The following format types are available:

- Boolean (BOOL);
- 16-bit integer (INT);
- 32-bit integer (DINT);
- Unsigned 16-bit word (WORD);
- Unsigned 32-bit word (DWORD);
- Floating point number (FLOAT).

For a device using the ModbusTCP protocol, specify the variable function type from among the following choices:

- Coil status;
- Input status;
- Holding registers;
- Input registers

When the form is saved, go back to the Variables list page and the new variable will have been added.

5.2 Edit a variable

Go to the **Data source** page.

Click on the button to display the list of device variables.

To edit an existing variable, click the edit button of the variable of your choice :

The edit page is identical to the add page except that it is pre-filled with the data recorded for this variable.

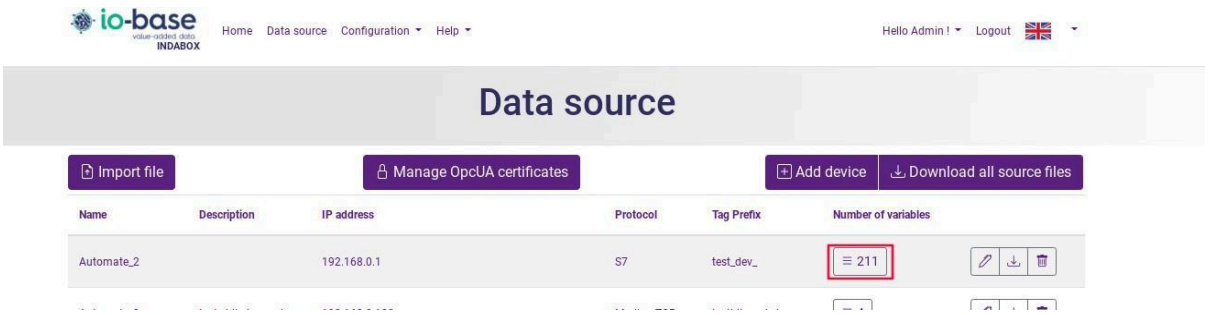
The metric name can be changed. It must contain only lowercase or uppercase letters and digits.
All the information is mandatory.

When you confirm the changes, you are redirected to the Variables list page.

5.3 Filter variables

Go to the Data source page.

Access the list of variables of the device in question.



You can filter the variables of a device to find those you want to process.

You can filter on:

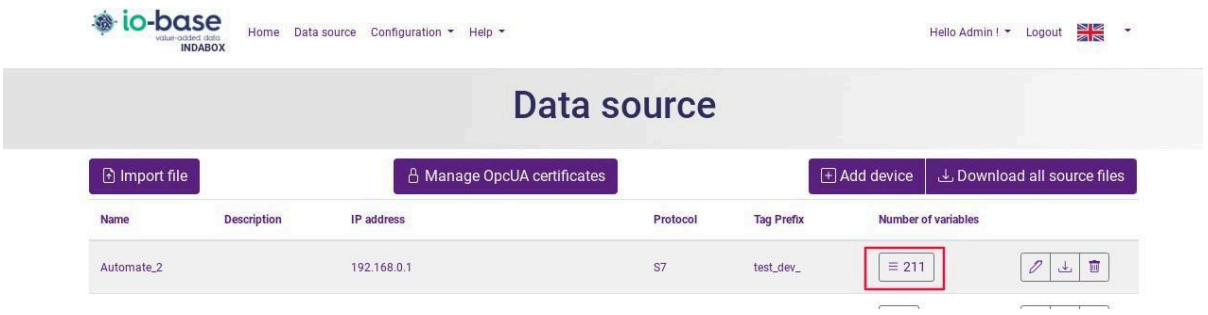
- Tag;
- Name;
- Address;
- Function type (only for a ModbusTCP device);
- Data type.

To apply one or more filters, fill in the values you want to filter on and click the search button next to one of the fields

5.4 Delete a variable

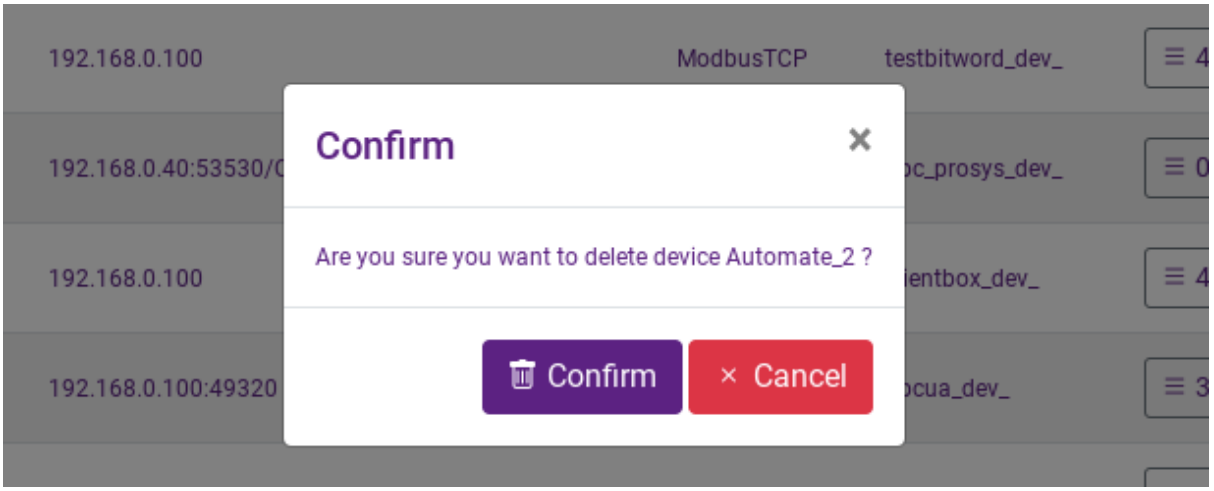
Go to the Data source page.

Access the list of variables of the device in question.



To delete an existing variable, click the delete button of the variable in question.

A confirmation window appears. Click the Confirm button to permanently delete the variable of this device or Cancel to do nothing.

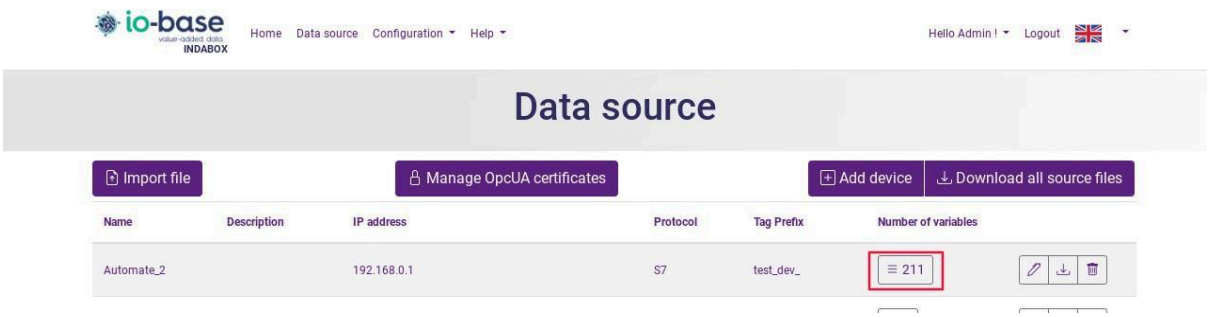


Upon confirmation, you are redirected to the Variables list page where the deleted variable no longer appears.

5.5 Access the variables of a device

Go to the Data source page.

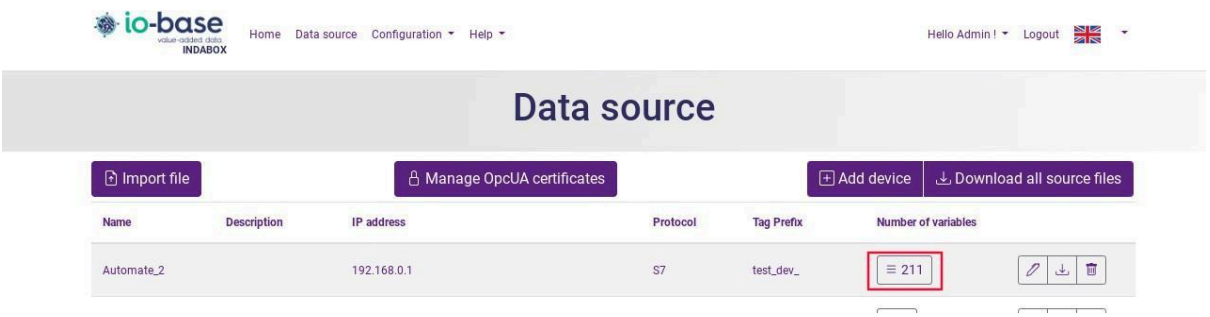
To access the variables of a device, click the button indicating the number of variables of the corresponding device in the table.



You are then redirected to the equipment variables page where you can perform the following actions:

- Add a variable;
- Edit a variable;
- Delete a variable;
- Apply filters on the list of variables to find the variable wanted;
- Browse the list of variables;
- Return to the device list.

Variables are sorted by default alphabetically on the tag names.

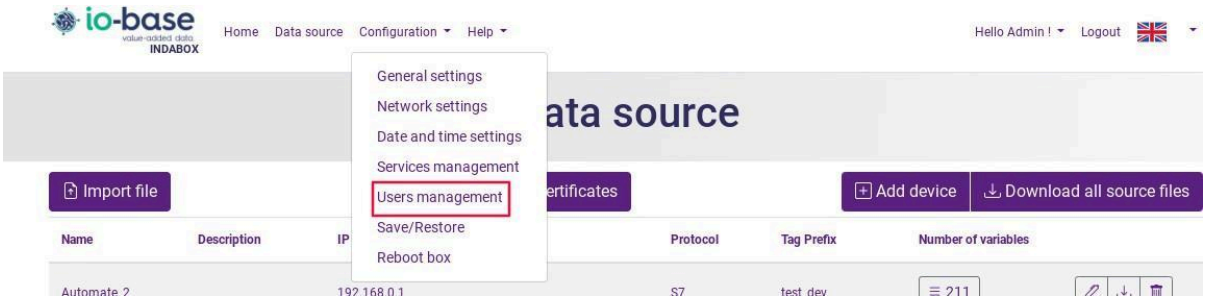


6. Users

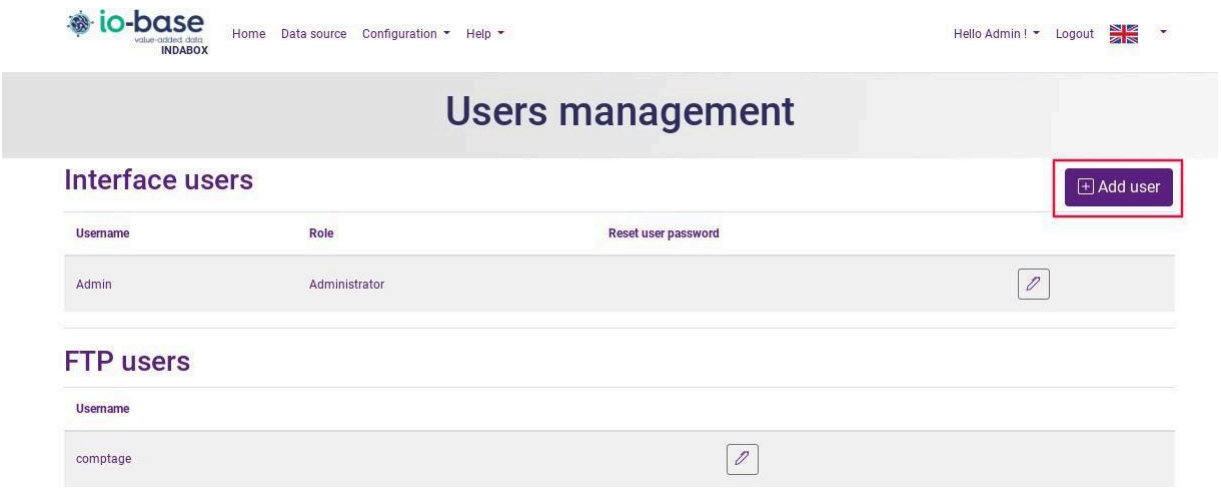
6.1 Add a user

To add a user, you must be an administrator.

From the Configuration menu, click User Management.

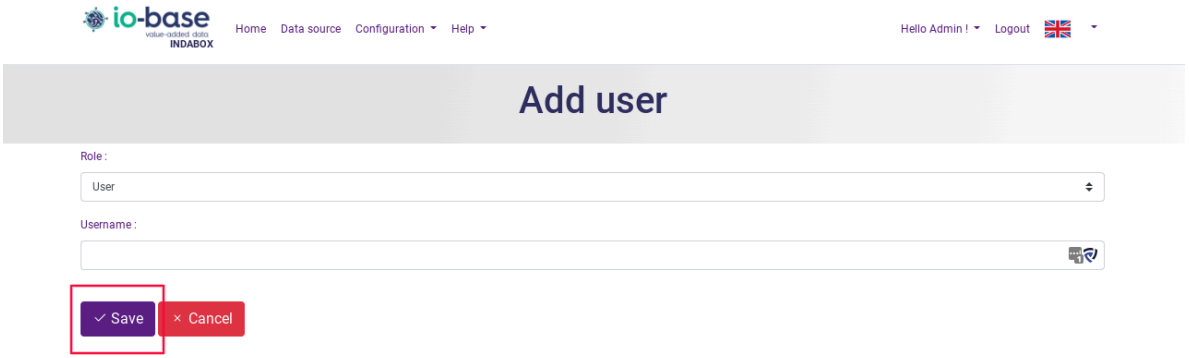


To add a user, click Add a User.

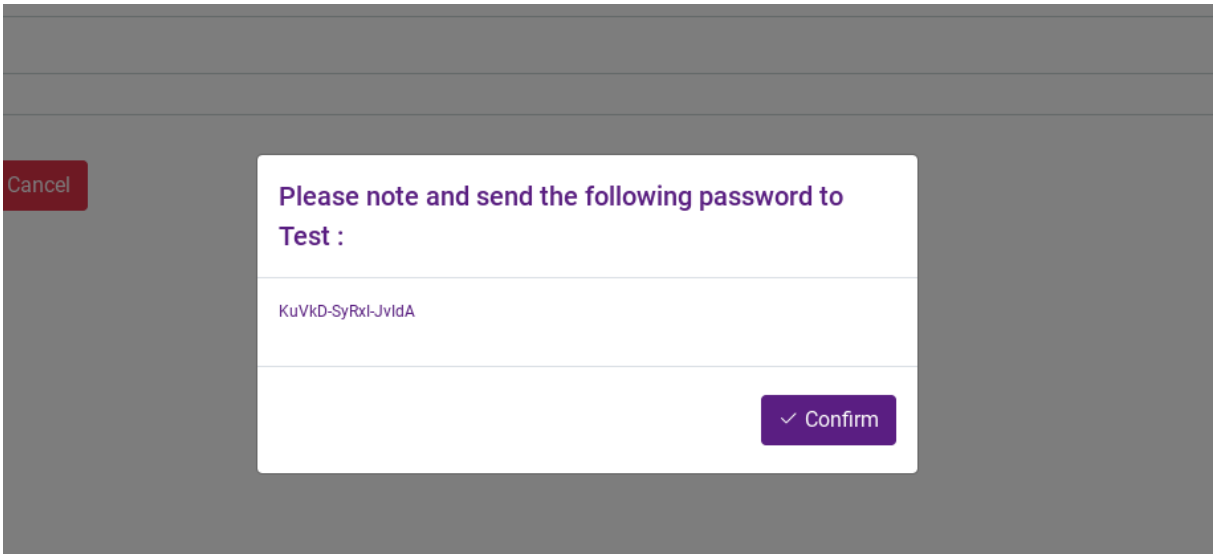


Enter the role and name of the new user.

The user name must contain only lowercase or uppercase letters, digits, spaces, or hyphens.
All the information is mandatory.



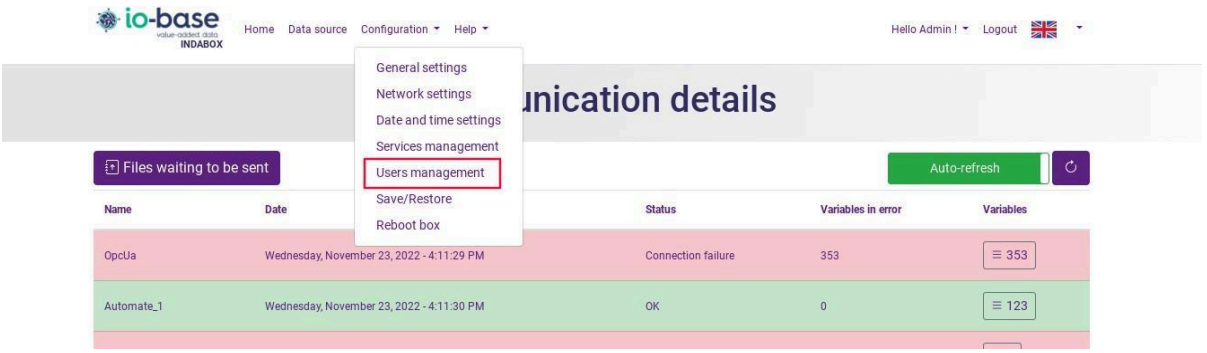
When you save the form, a modal window containing the user's password appears. This password must be sent to the user so that they can log in to the application. The first time the user logs in, the new user will be prompted to create their password.



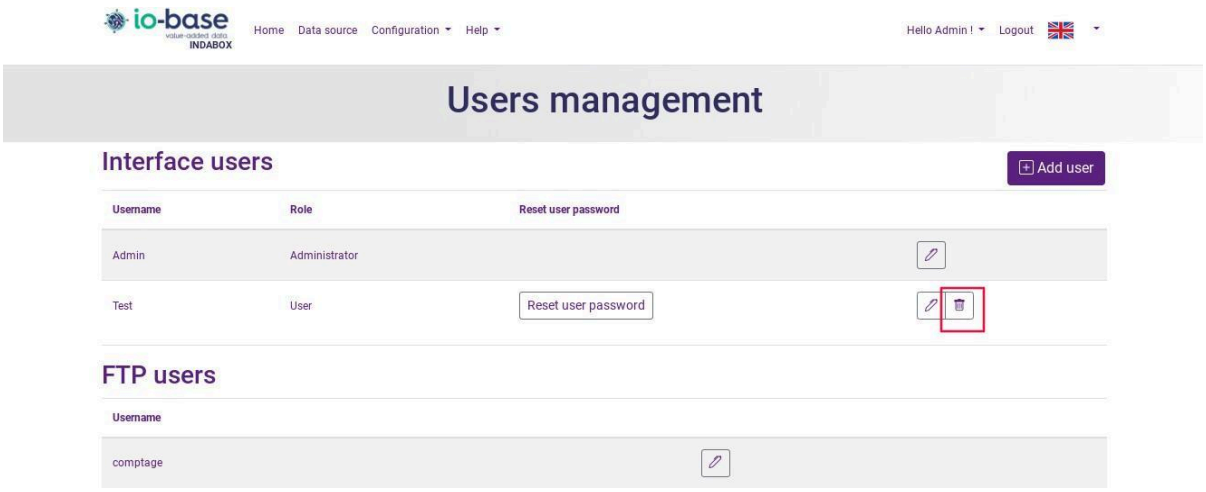
When the form is saved, go back to the **User Management** page and the new user will have been created.

6.2 Delete a user

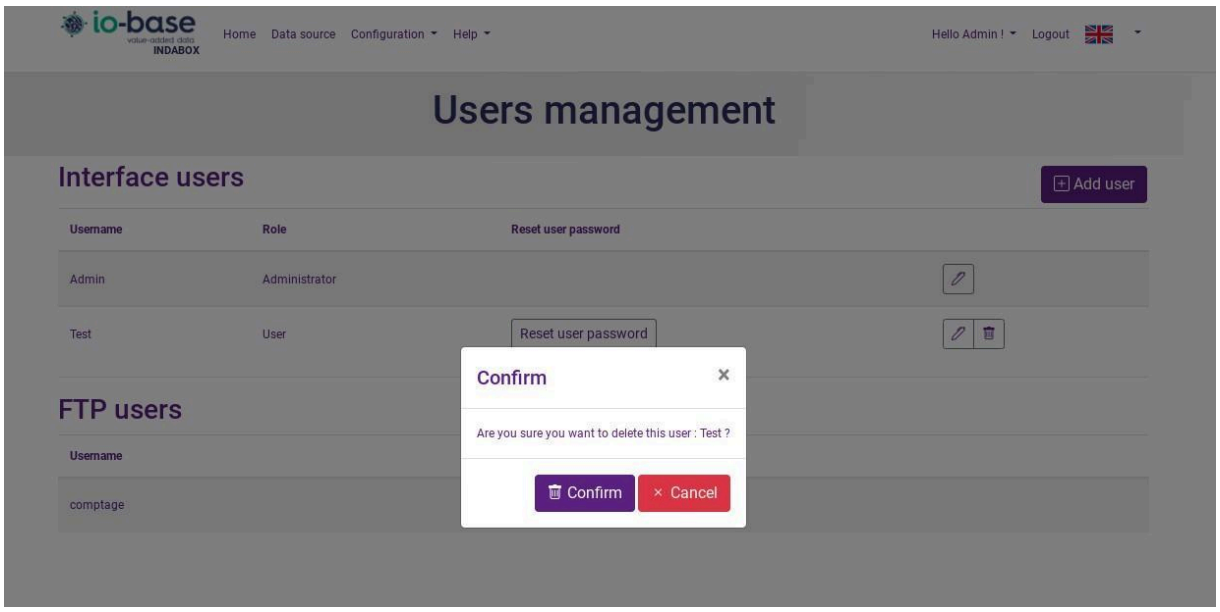
Access the User Management page, from the Configuration / User Management menu.



To delete an existing user, click the delete button on the line of the user in question :



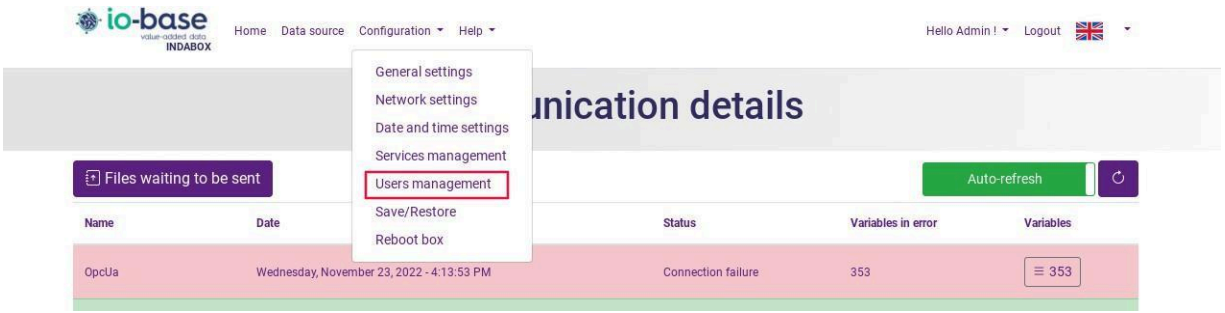
A confirmation window appears. Click the **Confirm** button to permanently delete the user or Cancel to do nothing.



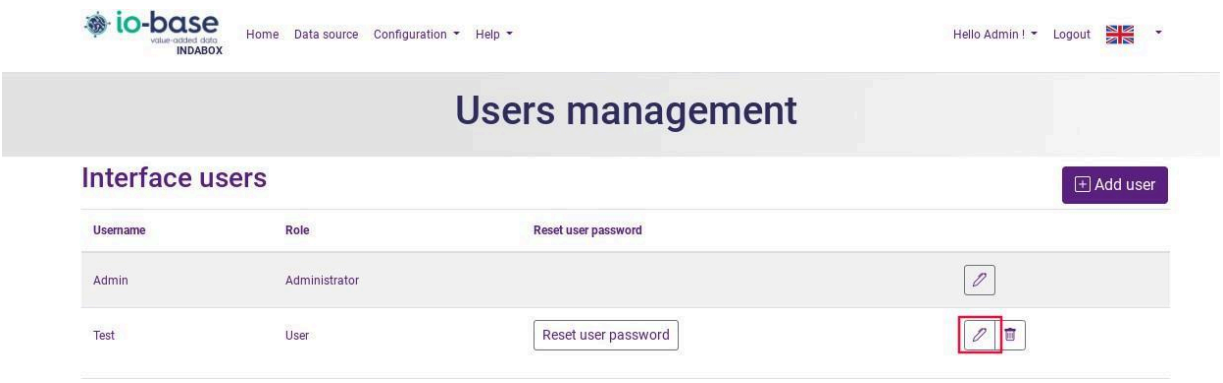
Upon confirmation, you are redirected to the User Management page where the deleted user no longer appears. You cannot delete yourself.

6.3 Edit a user

Access the users page, from the Configuration / User Management menu.



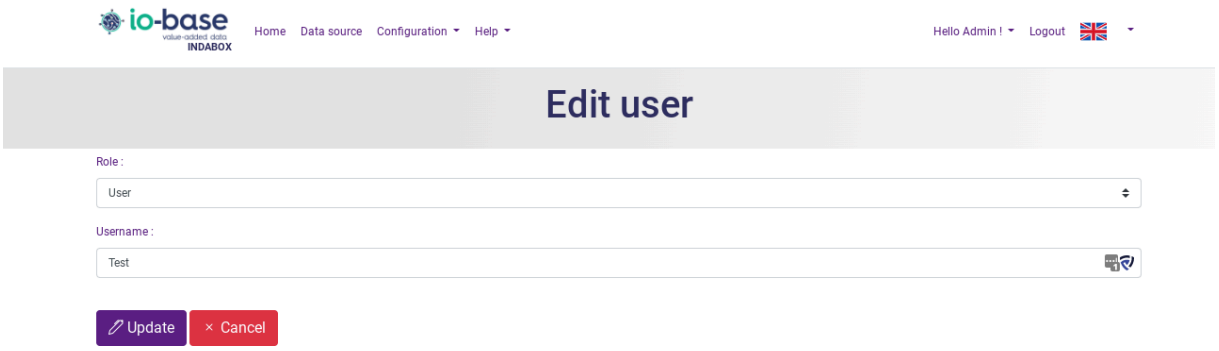
To edit an existing user, click the edit button of the user in question.



The edit page is identical to the add page except that it is pre-filled with the data recorded for this user.

The user name can be changed. It must contain only lowercase or uppercase letters, digits, spaces, or hyphens.

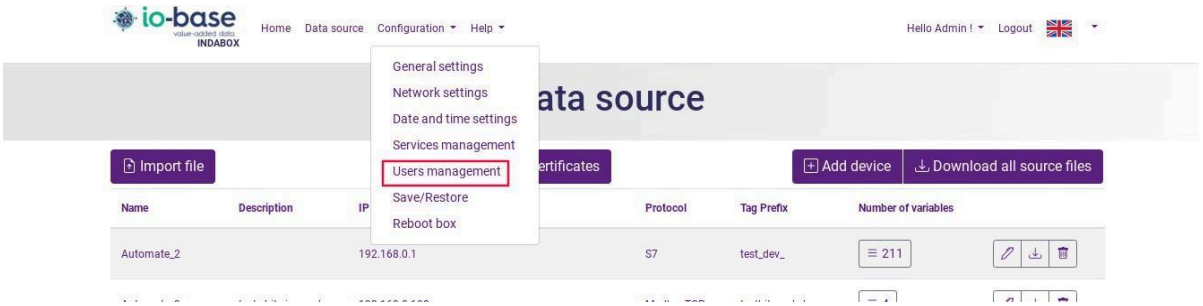
All the information is mandatory.



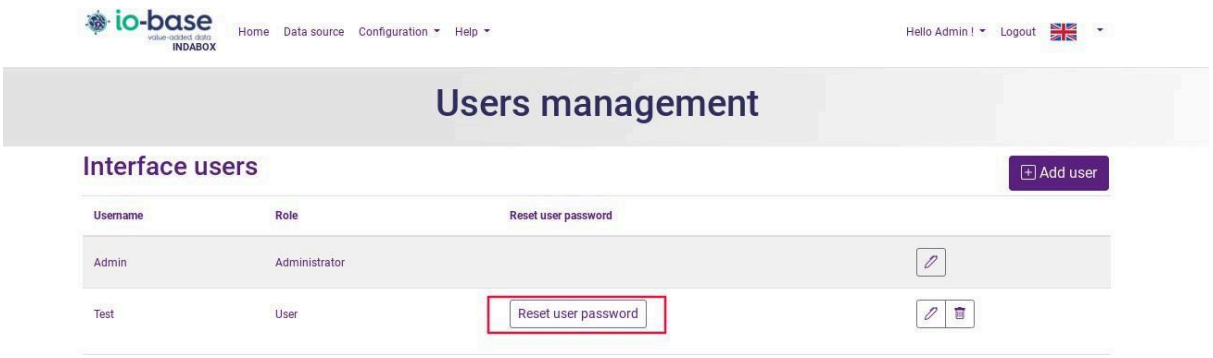
When you confirm the changes, you are redirected to the User Management page.

6.4 Reset a user's password

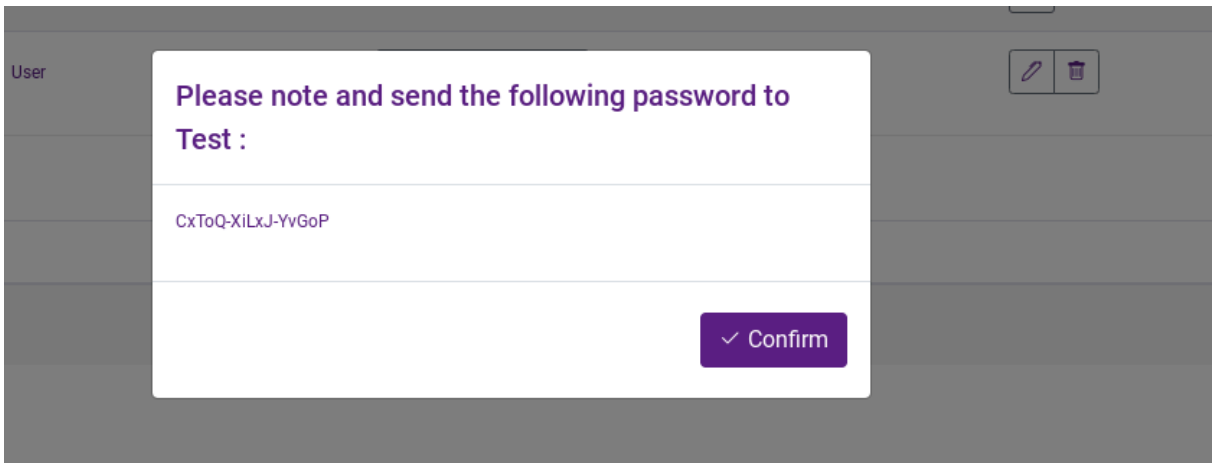
Access the User Management page by clicking on Configuration / User Management.



To reset the password of an existing user, click the reset password button of the user in question.



A window containing the new password appears. This password must be sent to the user so that they can log in to the application.

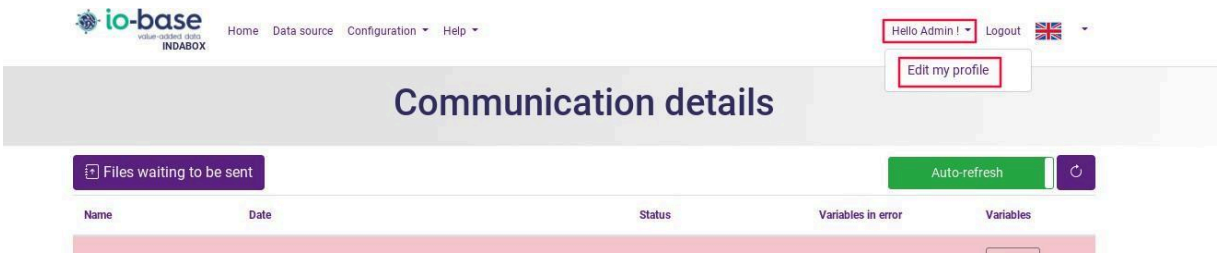


When you confirm, you are redirected to the User Management page.

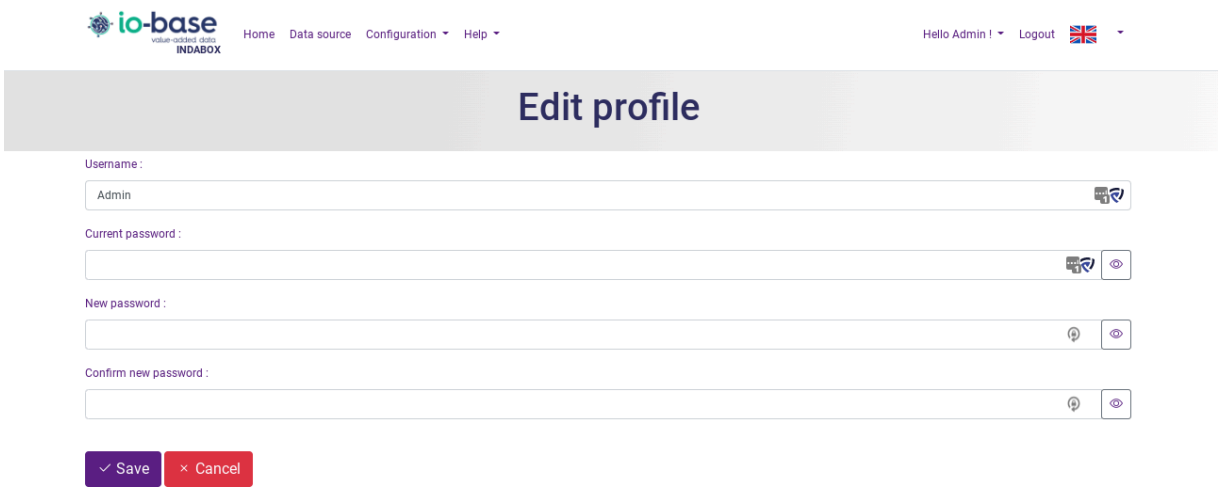
Note : You cannot change your own password via this page. You need to go through edit your profile.

6.5 Edit the user profile

To access your profile page, click on Hello / Edit my profile.



You can change your name and password from this page.



The user name must contain only lowercase or uppercase letters, digits, spaces, or hyphens.

To change the password, enter the current password as well as the new password and confirmation of the new password. It must contain between 8 and 30 characters with lowercase letters, at least one uppercase letter, at least one number and at least one special character.

The password entered is hidden. Click the eye button to check the entry :

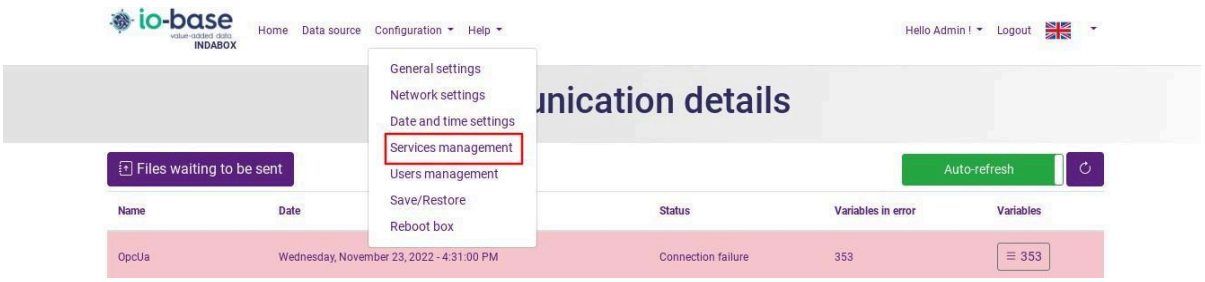
Only the username can be changed.

When you confirm the changes, you are redirected to the Home page.

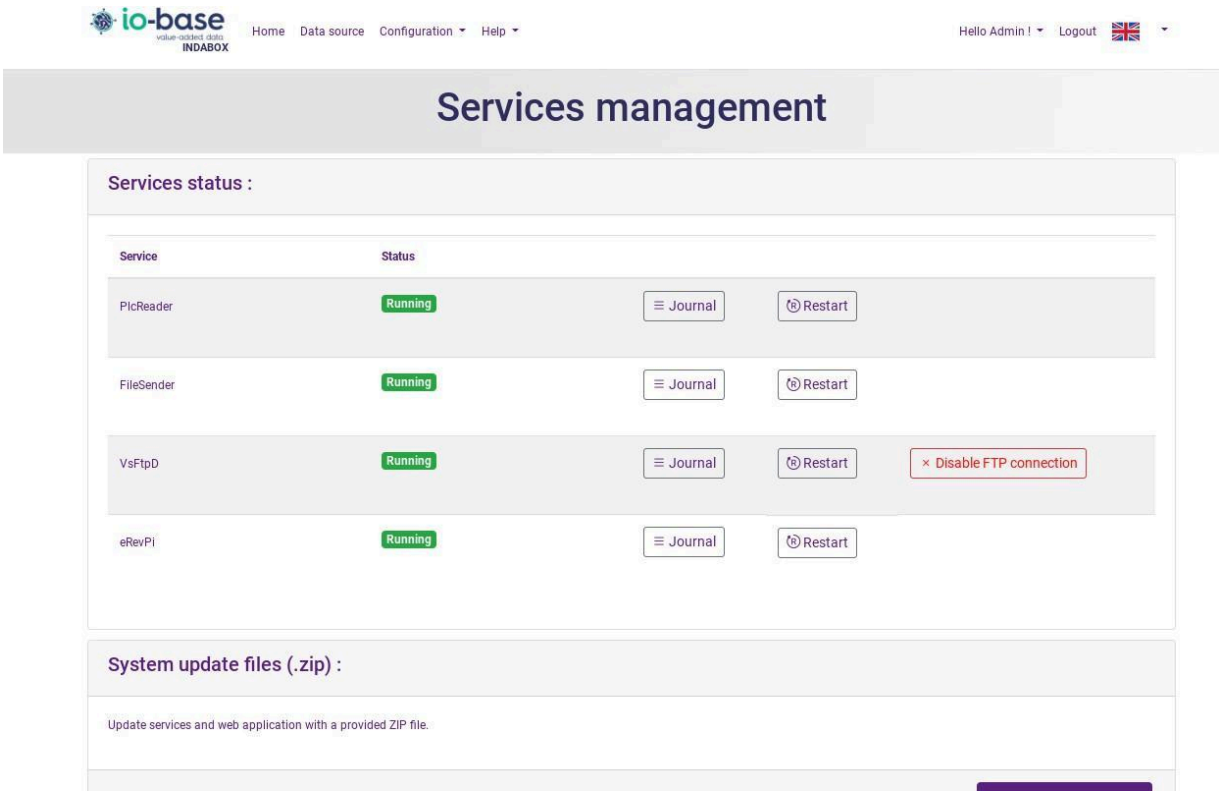
7. Complementary services

7.1 Service management

To access the INDUS Box Service Management page, click on the **Configuration** menu and then click on Services management :



The page allows you to view the status of the following services :

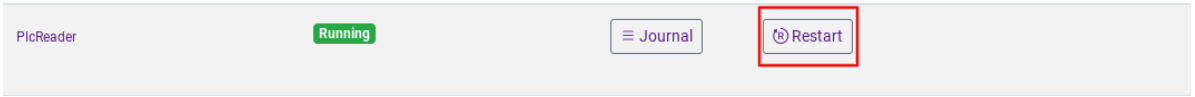


To configure the FTP service, click "**Enable FTP Connection**" in the VsFtpD section. Then enter the username and password for authentication to the FTP server.

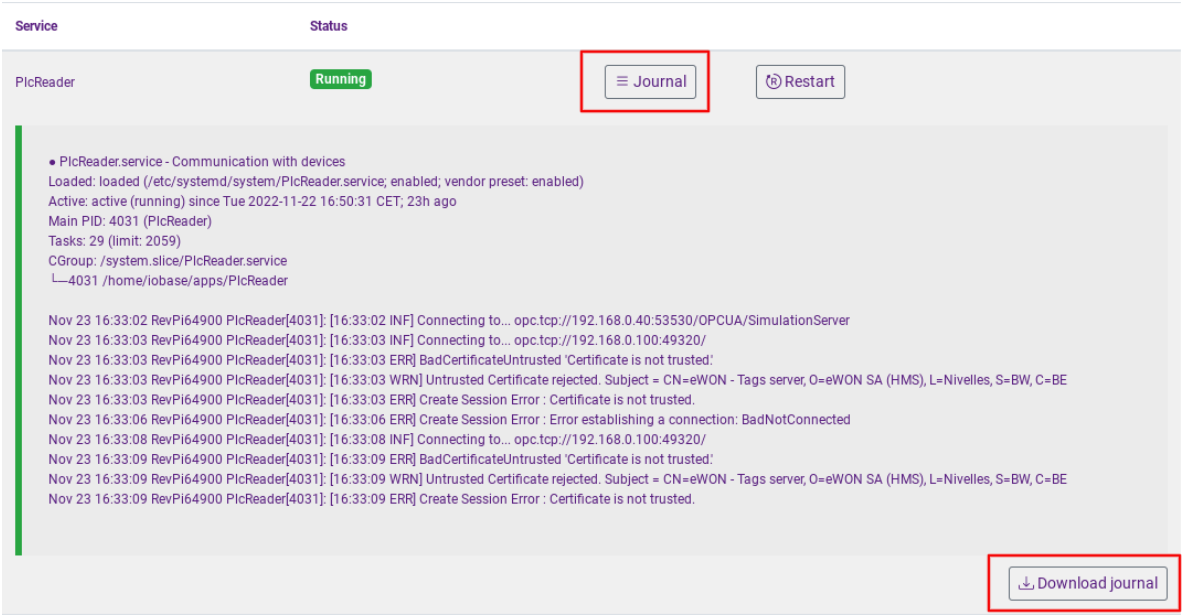
The other services in service management are as follows:

- PlcReader, which retrieves the variables from the PLCs and generates reports,
- FileSender which sends configuration files, data and FTP to the CLOUD Box,
- VsFtpD FTP server of the Box, the files thus retrieved will be sent in an S3 service,
- eRevPi, which manages IP addresses, control of the Boxes and their detection.

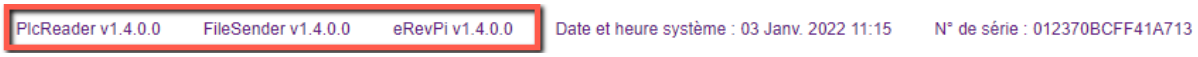
Each service can be restarted individually using the buttons in each insert.



The service logs can also be viewed using the Log buttons and downloaded via the Download the log button available at the bottom of the log view.



You can view the versions of the services installed on the INDUS Box at any time at the bottom of the page :



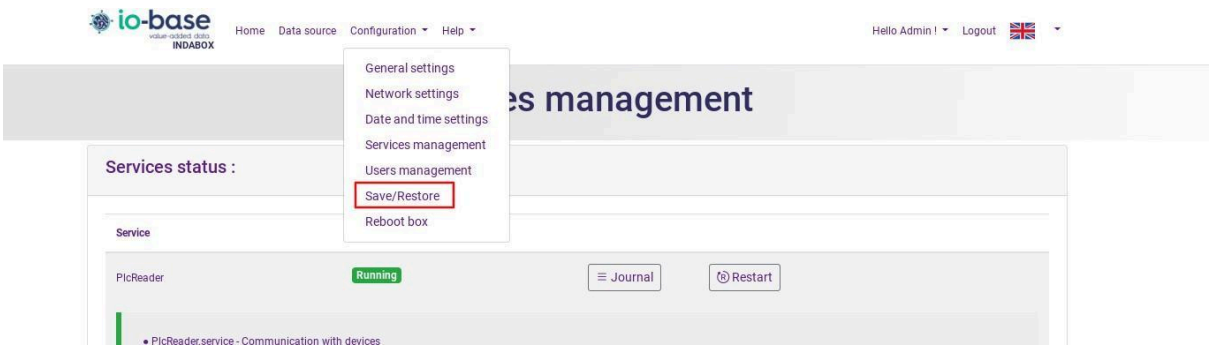
An update of all the services can also be performed on this page.

Download the zip file containing the versions of the desired services from the Google cloud directory.

Upload it by clicking the Choose File button and then Send at the bottom of the page. Once the zip is sent, the application may be temporarily unavailable while the applications are updating.

7.2 Save / Restore the configuration

Access the Configuration / Save Restore menu.



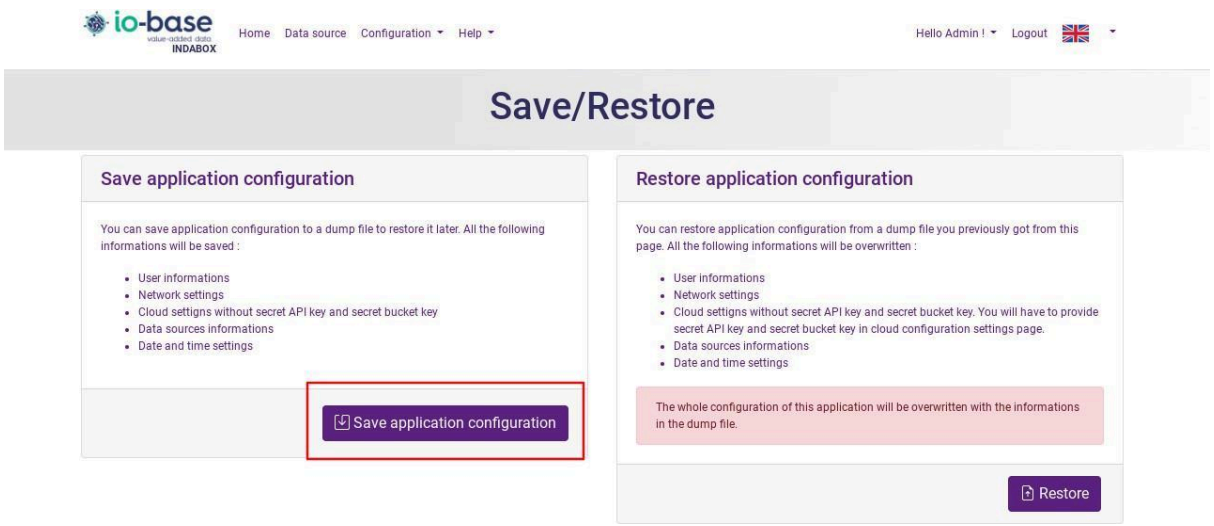
The page consists of two parts. The first part allows you to save the current configuration of the Box to a file.
The second part allows you to restore a configuration from a file.

7.2.1 Save the configuration

You can save the application configuration to a backup file to restore it subsequently. The following information will be saved:

- User information
- The network configuration
- The cloud configuration without the API key and bucket secret key
- The data source information
- The date and time information

To do this, click the **Save application configuration** button.



7.2.2 Restore a configuration

You can restore the application configuration from a backup file that you have obtained from this page. The following information will be overwritten:

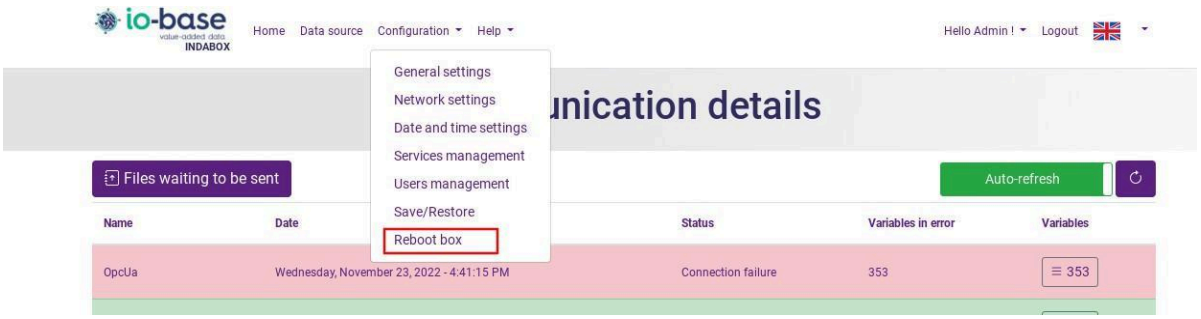
- User information
- The network configuration
- The cloud configuration without the API key and bucket secret key. You will need to provide an API secret key and a secret key for the bucket on the cloud configuration page.
- The data source information
- The date and time information

Note : The entire configuration of this application will be overwritten with the information of the backup file.

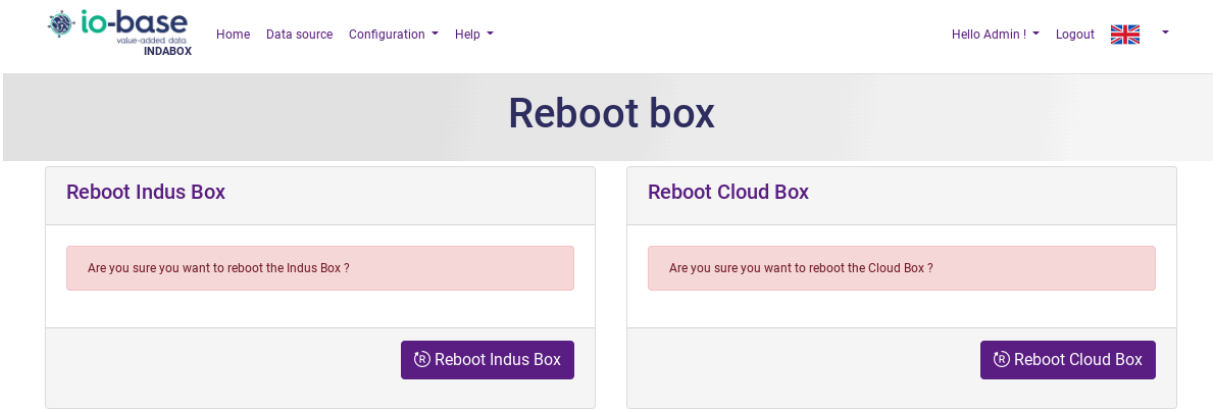
To do this, click Restore application configuration, and select a file.

7.3 Restart the box

Access the Configuration / Restart the box menu.



To confirm the restart, click Confirm. Otherwise, click Cancel.



8. Specific features

8.1 MQTTBox

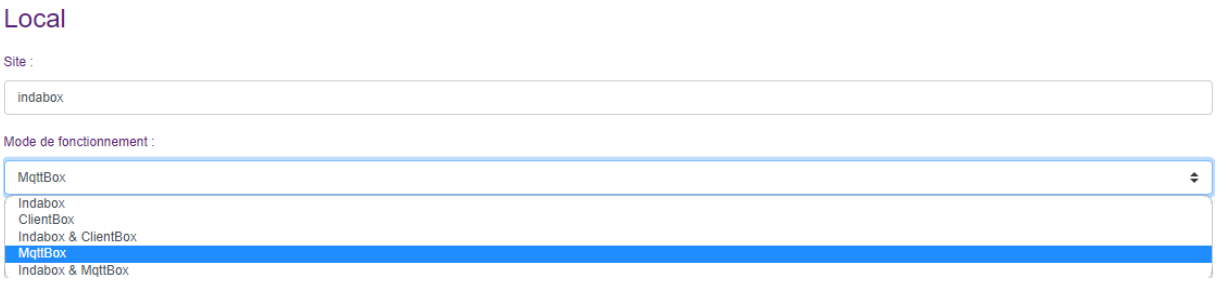
From release 1.6.0.0 the MqttBox feature is available.

It provides a Mqtt client who publishes the data collected on a Mqtt broker.

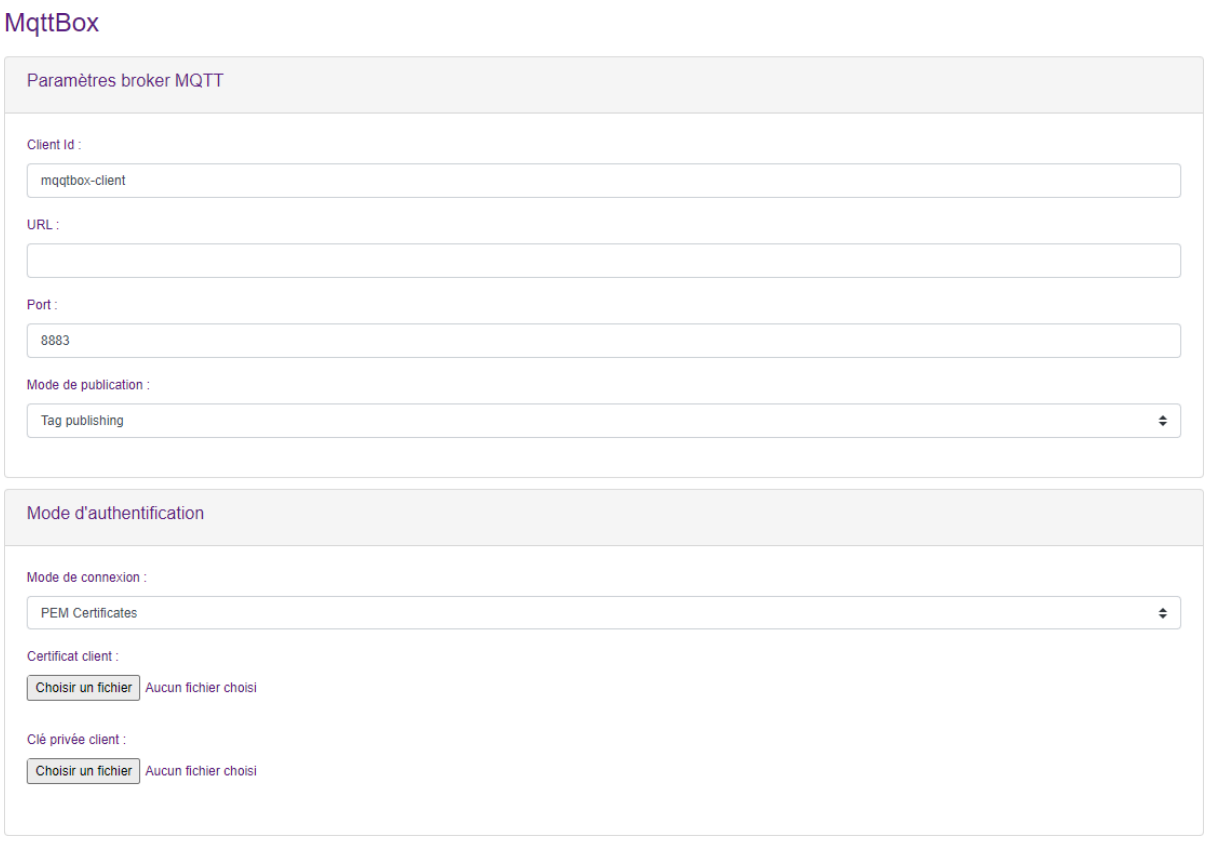
8.1.1 Setting the MqttBox functionality

8.1.1.1 Client configuration access

Go to the General Configuration page of the upstream box and select the MqttBot or Indabox & MqttBox operating mode to display the configuration options.



8.1.1.2 Client configuration



8.1.1.3 Mqtt broker settings

Client Id
Client identification mqtt

Url
Web address of the broker mqtt

Port

Broker port mqtt, example: 8883

Publication methods

2 publication modes are available :

- **Publishing by tag** : each configured metric will have its own topic. Example for a tag named “temperature” associated with the site “site1” on the equipment “device1”: its value will be published by default in the topic “site1/device1/temperature”

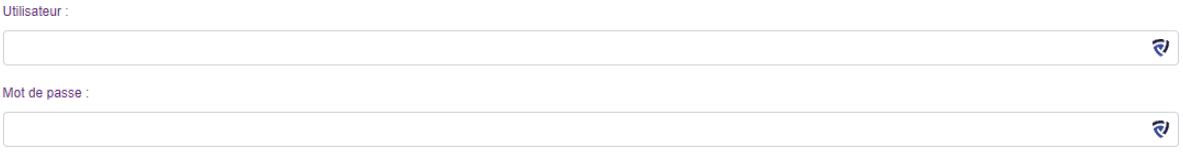
- **Publication by file** : as part of a large number of metrics to be published (10,000 and more) it may be more relevant to choose a publication by file that will be more efficient, in this case several tags are published in a single topic that can be configured in a json file.

8.1.1.4 Authentication mode

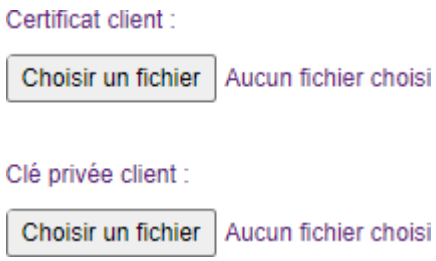
Connection Mode

2 connection modes are available :

- Login/Password: authentication by username and password



- PEM Certificates: authentication by certificates in PEM format



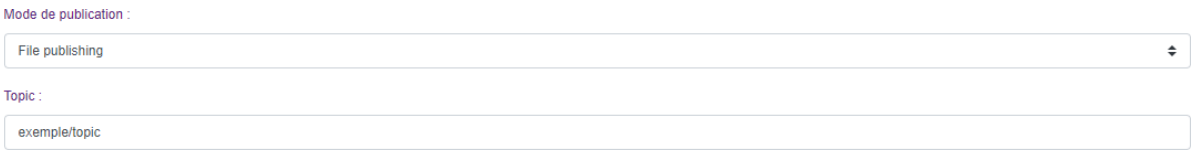
These files are provided by the broker.

8.1.2 Configuration of the data to be published

8.1.2.1 From the interface

- **Publication by file**

The publication topic is configured from the general configuration when the “File Publishing” option is enabled.



- **Metric post**

The selected publishing mode must be “Tag Publishing” to access this option.

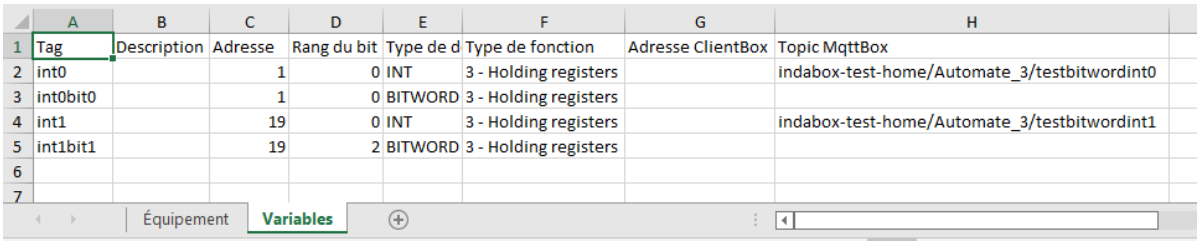
The topic setting is done at the level of each metric of each equipment : go to the “Data source” page, then display the list of variables of an equipment and edit a variable.

The “Generate” button suggests a topic for the variable consisting of [site name]/[equipment name]/[metric name].

8.1.2.2 By exporting/importing

In the context of publishing by metric, when exporting data from the data source view, a column is made available in the variables tab of the Excel file to fill in the topic of a variable.

If the topic is empty the variable will not be published.



	A	B	C	D	E	F	G	H
1	Tag	Description	Adresse	Rang du bit	Type de d	Type de fonction	Adresse ClientBox	Topic MqttBox
2	int0		1	0	INT	3 - Holding registers		indabox-test-home/Automate_3/testbitwordint0
3	int0bit0		1	0	BITWORD	3 - Holding registers		
4	int1		19	0	INT	3 - Holding registers		indabox-test-home/Automate_3/testbitwordint1
5	int1bit1		19	2	BITWORD	3 - Holding registers		
6								
7								

Équipement | Variables

8.1.3 Notes

- If a change in publication mode is made, the data from the previous mode is ignored, for example: if a publication by tag is enabled and topics are configured, in case of switching to file publishing mode these topics will be ignored and the topic of the general configuration will be taken into account.

- Documentation on converting various certificate formats to PEM Certificate conversions

8.2 ClientBox configuration

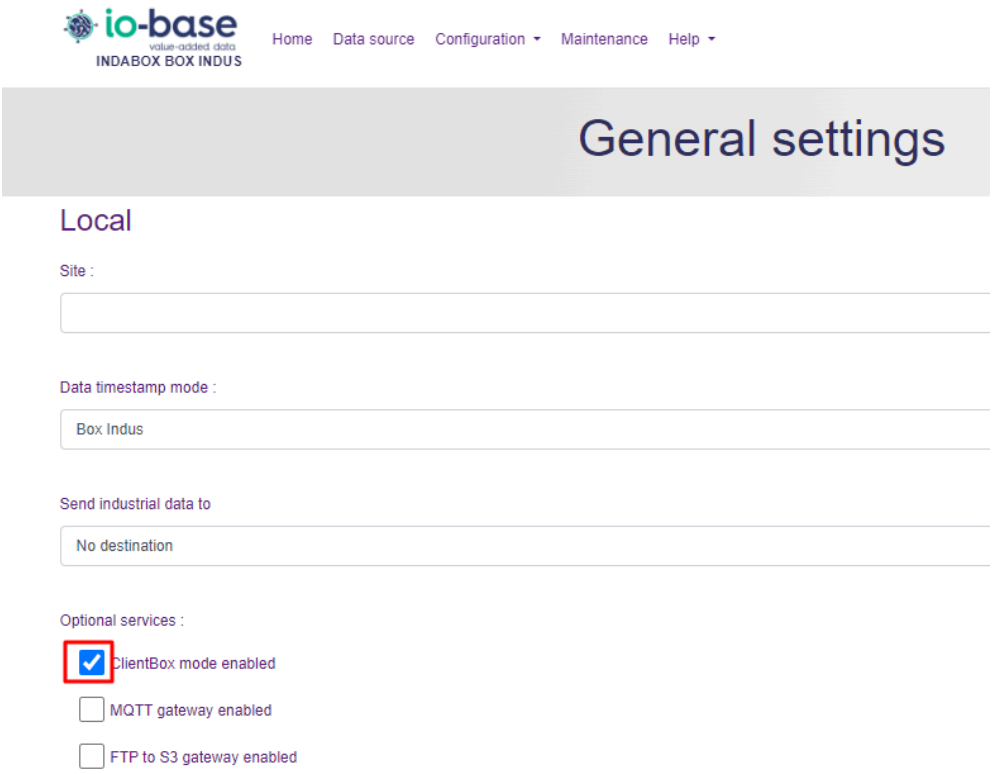
The **ClientBox** functionality allows data collected by the **Indus Box** to be accessed locally on the **Cloud Box**.

To access this data, the Cloud Box provides a Modbus RTU server that can be used with a USB/serial converter. It also supports Modbus TC TCP for local network-based communication.

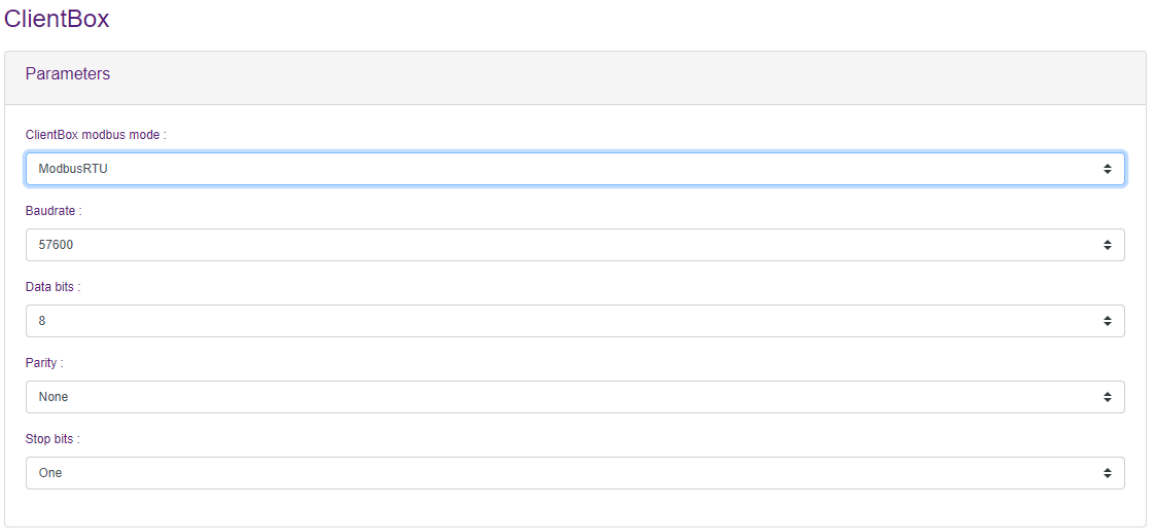
8.2.1. Configuring the ClientBox feature

8.2.1.1 Activating the feature

Access the General Configuration page of the Indus box, then tick the "**ClientBox mode enabled**" box, in the **Optional services** section :



The ClientBox settings section appears.



Communication settings :

You can choose between two communication modes :

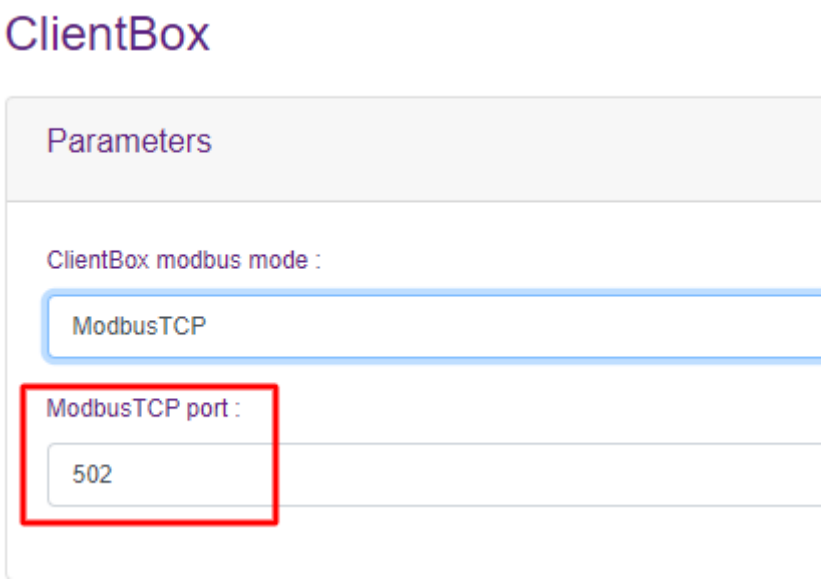
- modbusRTU
- modbusTCP

8.2.1.2 Modbus RTU mode

Once the modbus RTU mode has been selected, it is then possible to set the parameters for the serial port accessible via a USB/Serial converter.

8.2.1.3 Modbus TCP mode

Once the modbusTCP mode is selected, specify the Ethernet port number to use :



8.2.2 Setting the parameters of the data to be exposed

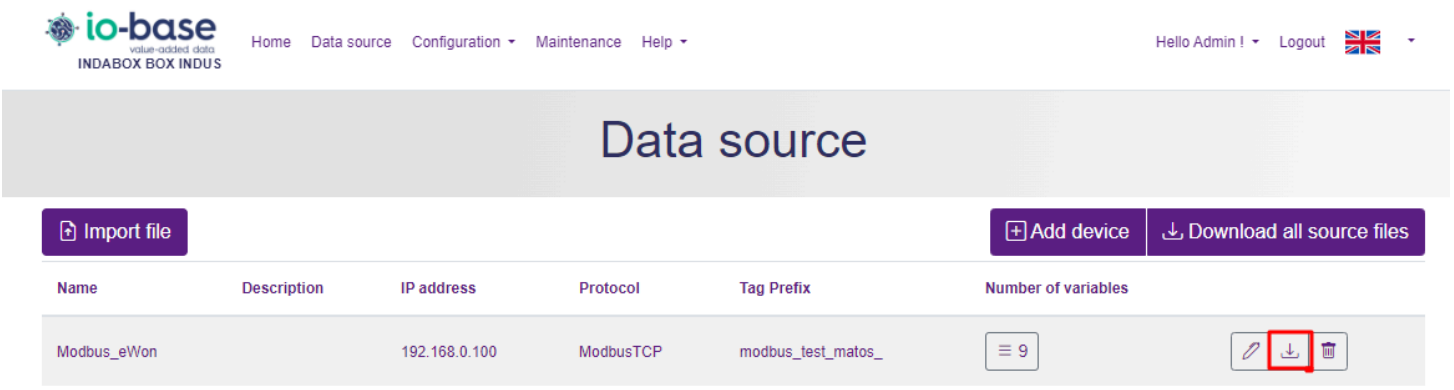
To configure the data exposed by the Modbus server, you need to use the equipment's Excel file.

This process involves exporting the current configuration and then importing the updated variable settings.

To do so, follow the procedure below.

8.2.2.1 Exporting a device

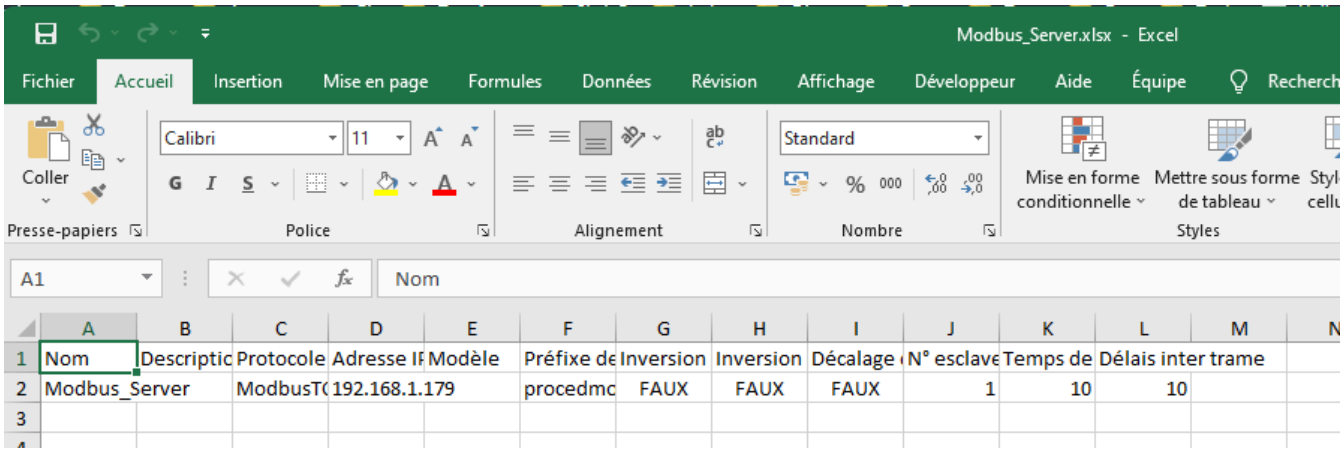
To export an existing device, click on the export button for the device of your choice in the table on the Data Source page of the Upstream box :



The Excel file is downloaded from your browser.

Note : If you are using multiple devices, ensure that you assign different addresses to each device to avoid address conflicts.

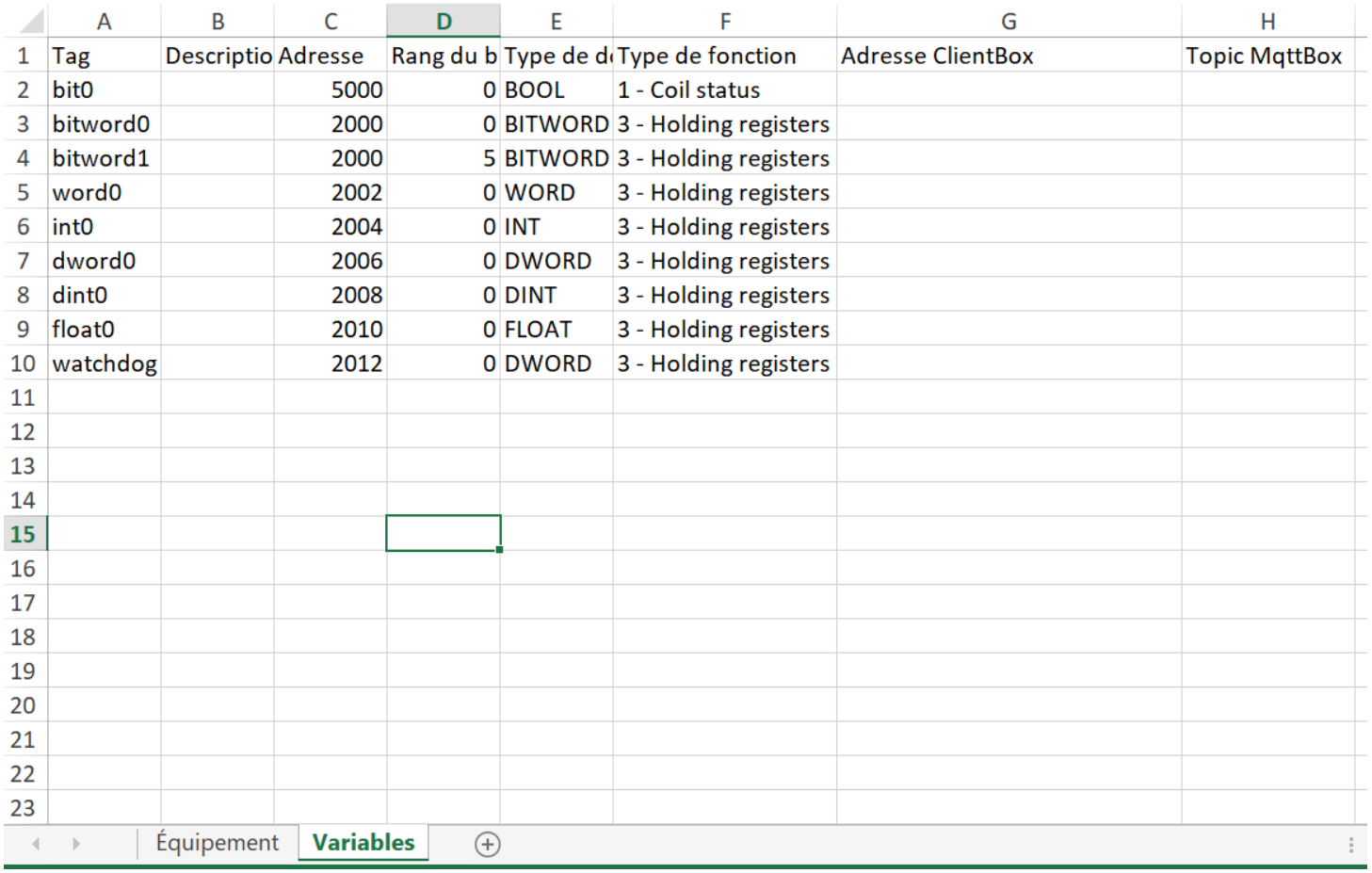
To do so, in the exported Excel file, go to the equipment tab :



And make sure that each of your devices has a different IP address and a different slave number.

8.2.2.2 Configuring the variables to be exposed

The Excel file has two tabs. The second allows you to view all the equipment variables.



	A	B	C	D	E	F	G	H
1	Tag	Descriptio	Adresse	Rang du b	Type de d	Type de fonction	Adresse ClientBox	Topic MqttBox
2	bit0		5000	0	BOOL	1 - Coil status		
3	bitword0		2000	0	BITWORD	3 - Holding registers		
4	bitword1		2000	5	BITWORD	3 - Holding registers		
5	word0		2002	0	WORD	3 - Holding registers		
6	int0		2004	0	INT	3 - Holding registers		
7	dword0		2006	0	DWORD	3 - Holding registers		
8	dint0		2008	0	DINT	3 - Holding registers		
9	float0		2010	0	FLOAT	3 - Holding registers		
10	watchdog		2012	0	DWORD	3 - Holding registers		
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								

Équipement | Variables

In order to expose the clientBox variables, their addresses must be set in the **ClientBox Address** column :

Note : BOOL data types can be read on the Modbus RTU server using function 2 - Inputs status.

All other data types can be read on the Modbus RTU server using function 4 - Inputs registers.

WARNING ! In the equipment's Excel file, the "**Function Type**" column only applies to the device's read request.

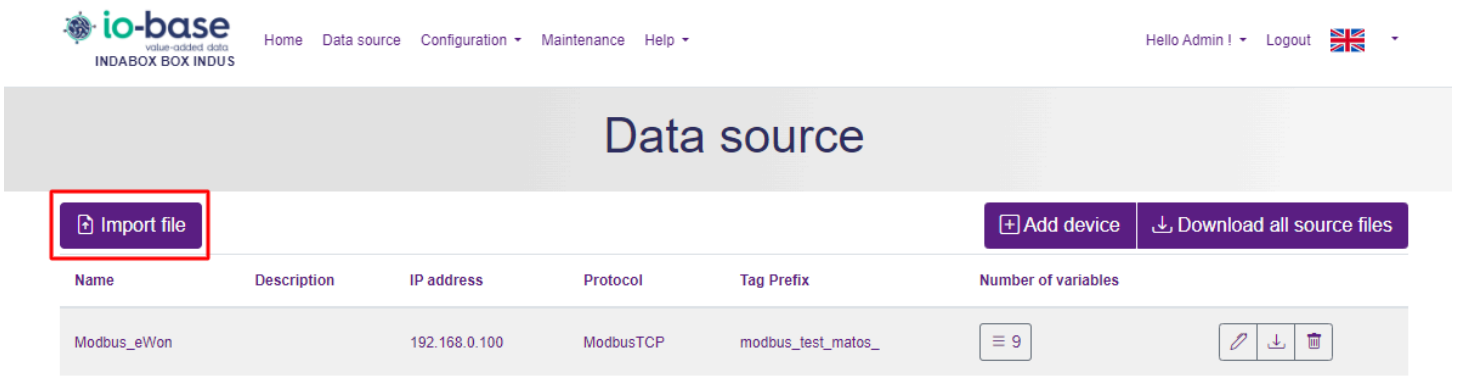
	A	B	C	D	E	F	G	H
1	Tag	Descriptio	Adresse	Rang du b	Type de d	Type de fonction	Adresse ClientBox	Topic MqttBox
2	bit0		5000	0	BOOL	1 - Coil status		
3	bitword0		2000	0	BITWORD	3 - Holding registers		
4	bitword1		2000	5	BITWORD	3 - Holding registers		
5	word0		2002	0	WORD	3 - Holding registers		
6	int0		2004	0	INT	3 - Holding registers		
7	dword0		2006	0	DWORD	3 - Holding registers		
8	dint0		2008	0	DINT	3 - Holding registers		
9	float0		2010	0	FLOAT	3 - Holding registers		
10	watchdog		2012	0	DWORD	3 - Holding registers		
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								

Équipement | Variables

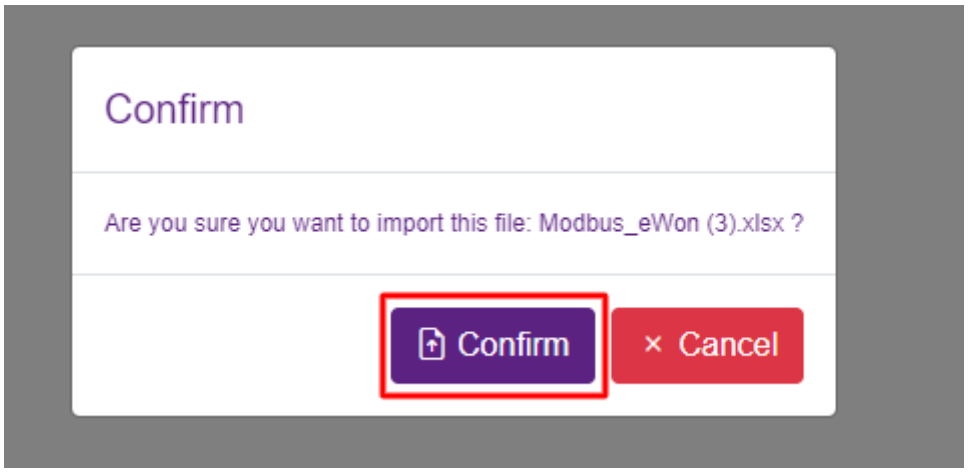
8.2.2.3 Importing equipment

Once the necessary changes have been made, you can import the equipment again.

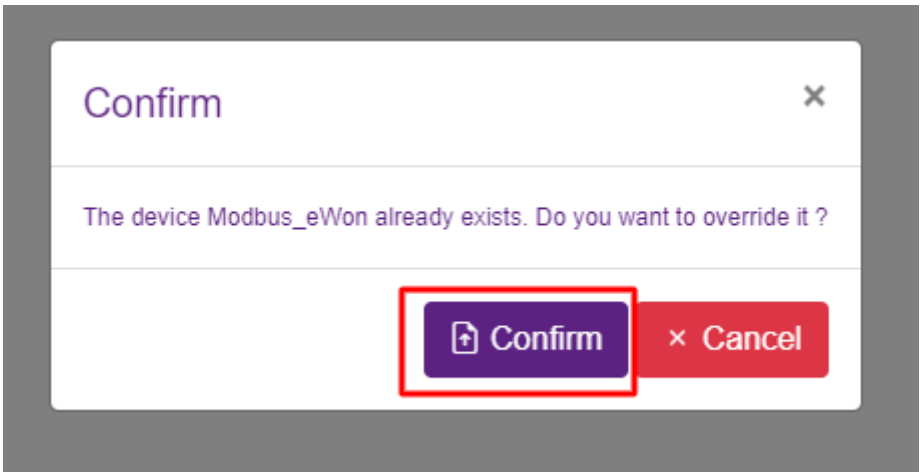
To do so, click on the "**Import file**" button at the top of the Data Source page :



Select the updated Excel file and click the **Confirm** button :



Since the equipment already exists, a message suggests replacing it. Click on **confirm**.



8.2.3 Accessing the data

8.2.3.1 Modbus RTU

To access the data, connect to Modbus RTU on the second port of the Cloud Box using a USB/RS converter, following the parameters previously defined in the General Configuration.

The data can be read at the addresses set in the Excel file.

8.2.3.2 Modbus TCP

To access the data via Modbus TCP, simply connect an Ethernet cable on the Cloud Box and ensure that the network settings are configured as defined in the General Configuration (refer to Chapter 1.2.2).

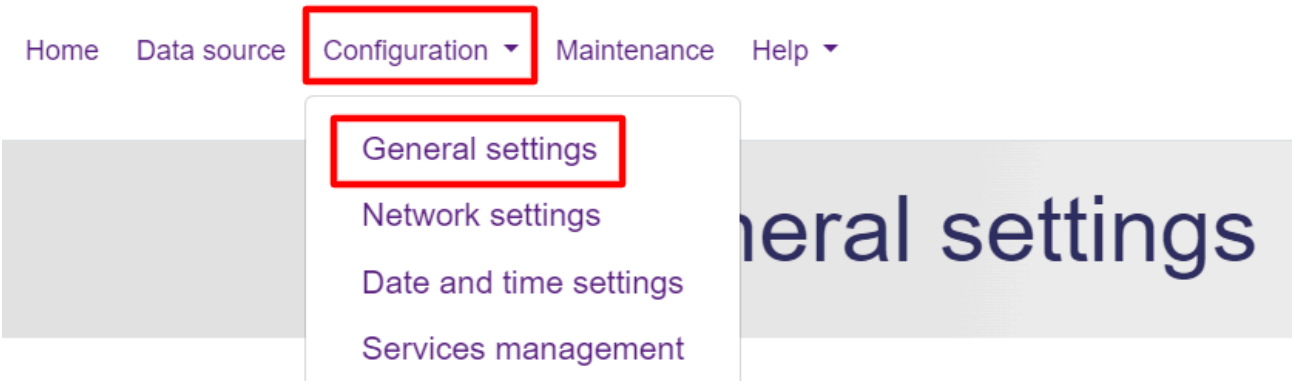
WARNING ! If the Cloud Box is not connected to a DHCP-enabled network, the timestamp must be set manually to ensure the data is read correctly.

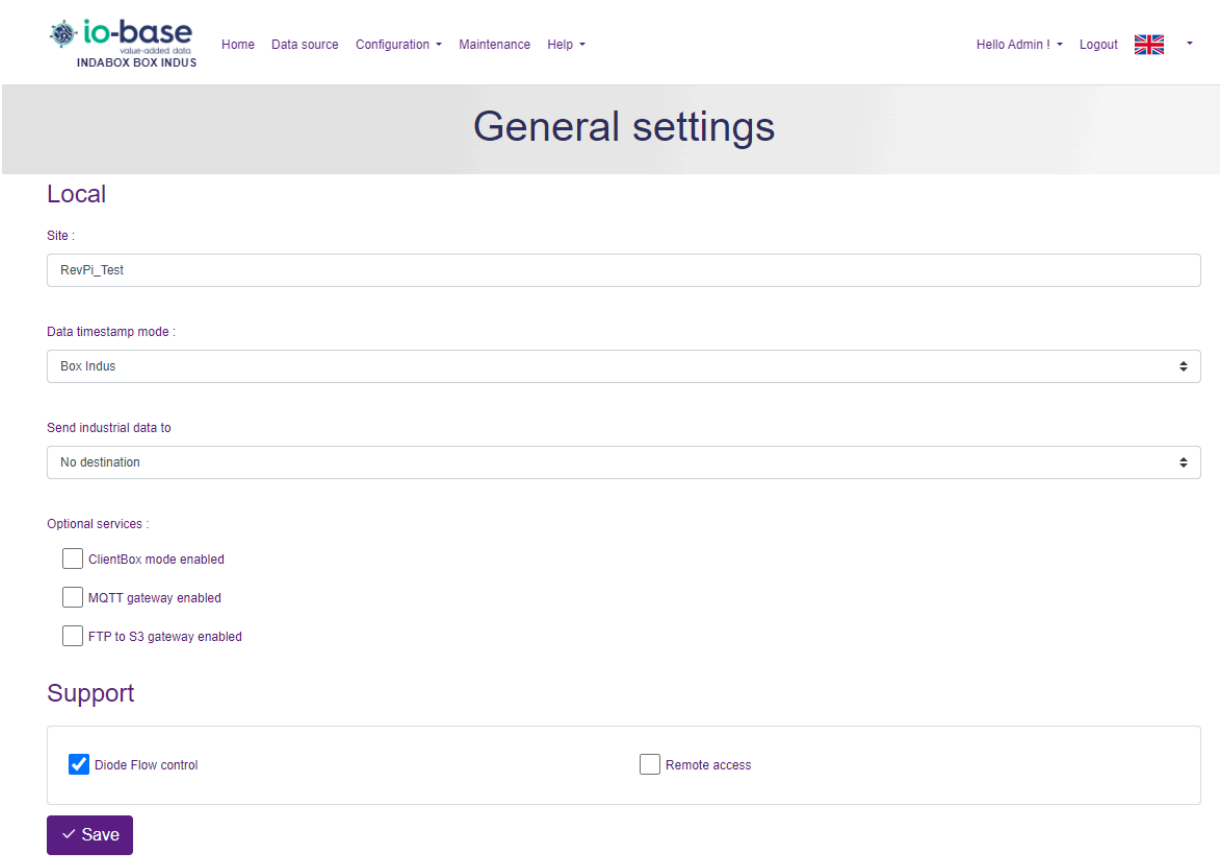
This process is similar to setting the timestamp on the Indus Box.

8.3 InfluxDb configuration

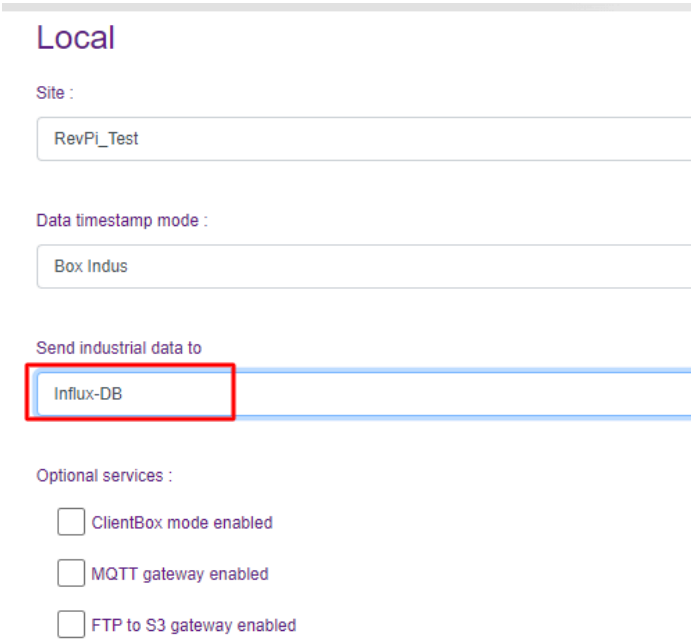
You can send industrial data collected by the Indabox to InfluxDB.

Click on **Configuration/General configuration**.



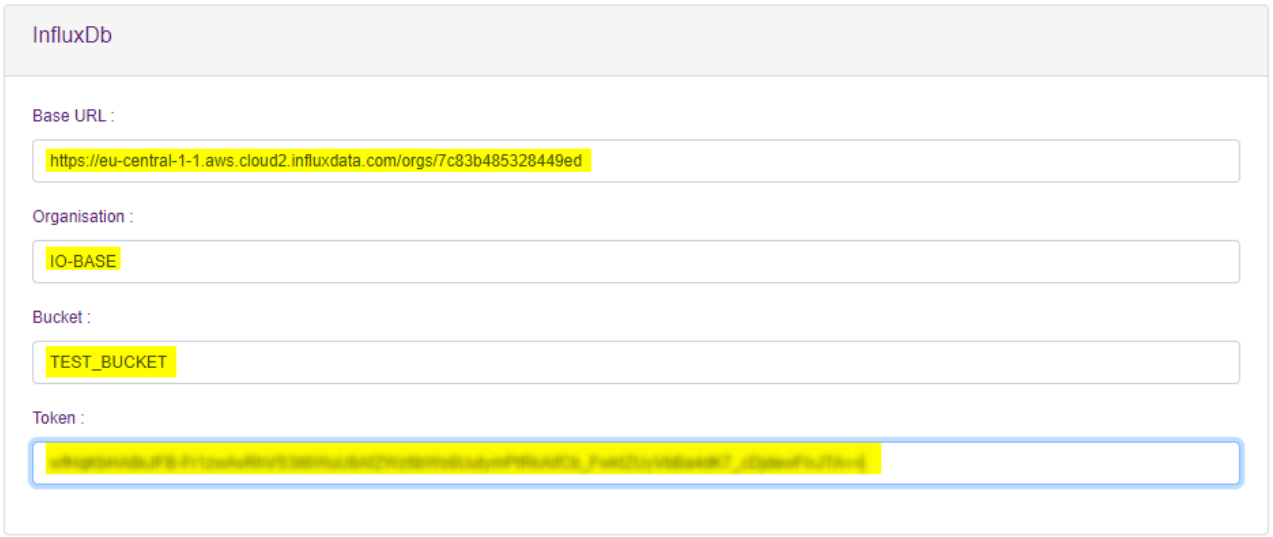


In the "**Send industrial data to**" section, select **InfluxDB** :

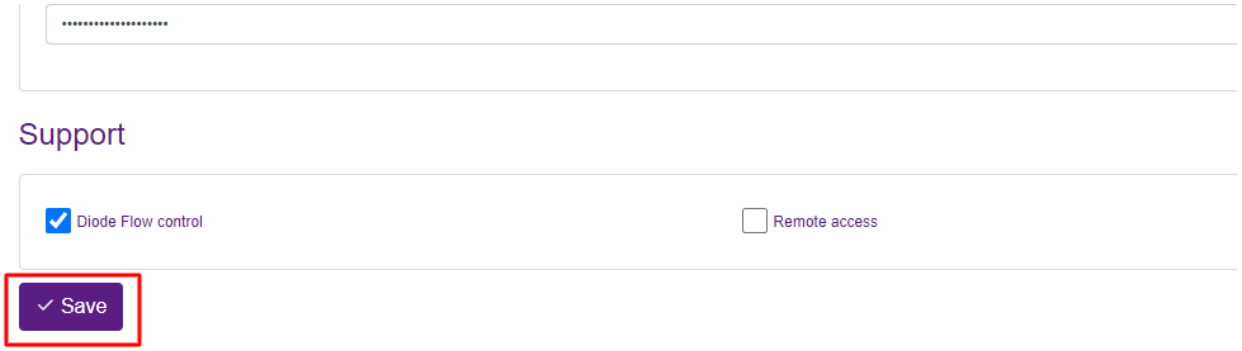


The following **InfluxDb** configuration fields appear :

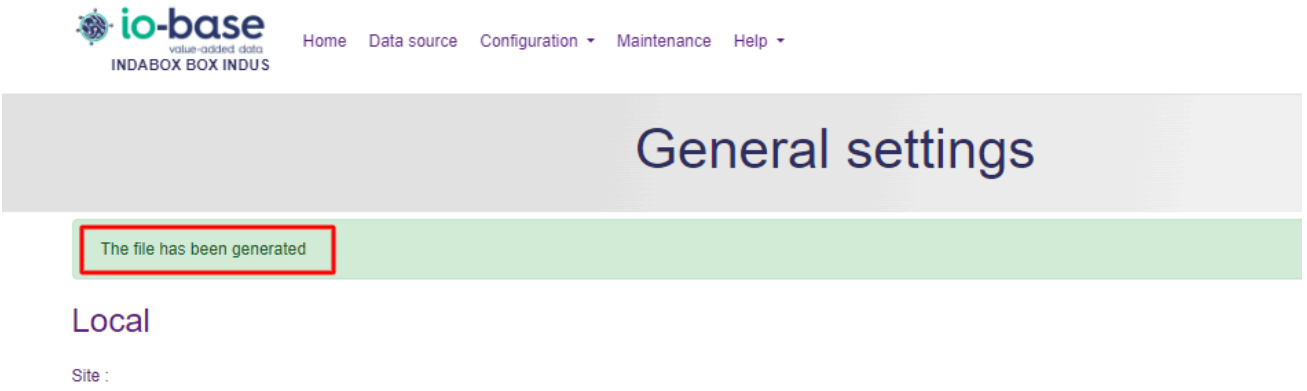
Fill in the following fields with your InfluxDB information.



Then, click on **Save**.



The configuration has been successfully saved.

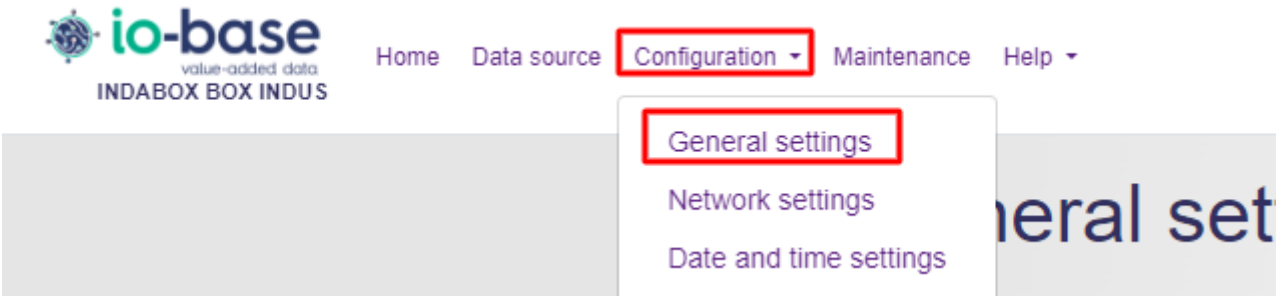


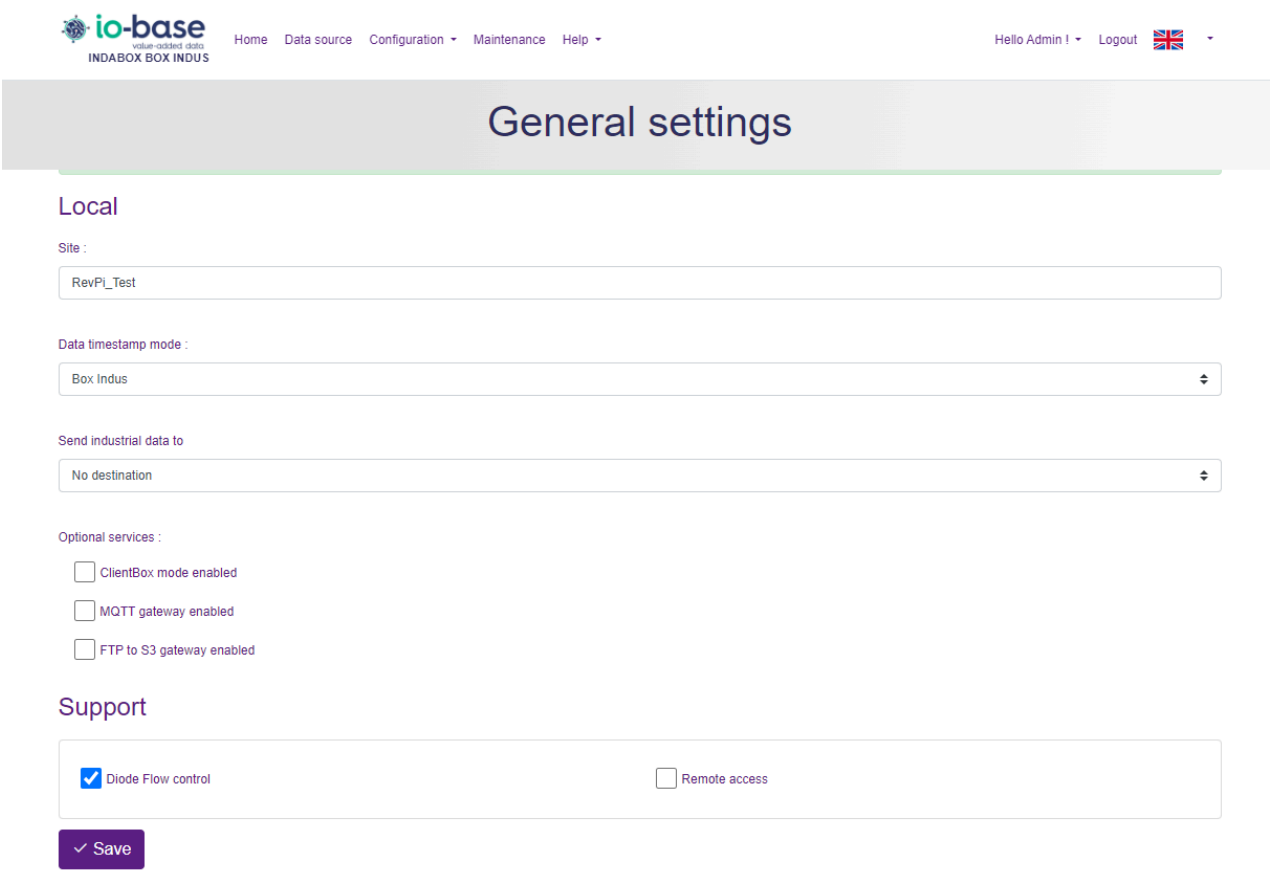
8.4 FTP configuration

FTP configuration is available.

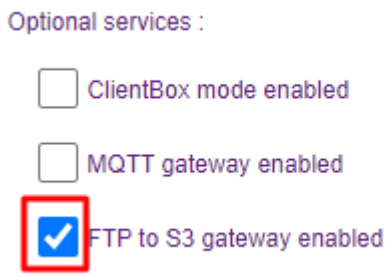
It provides a FTP connection that allows you to transfer files to a distant server (S3).

Click on **Configuration**, then **General settings**.





In the **optional services** section, check "**FTP to S3 gateway enabled**".



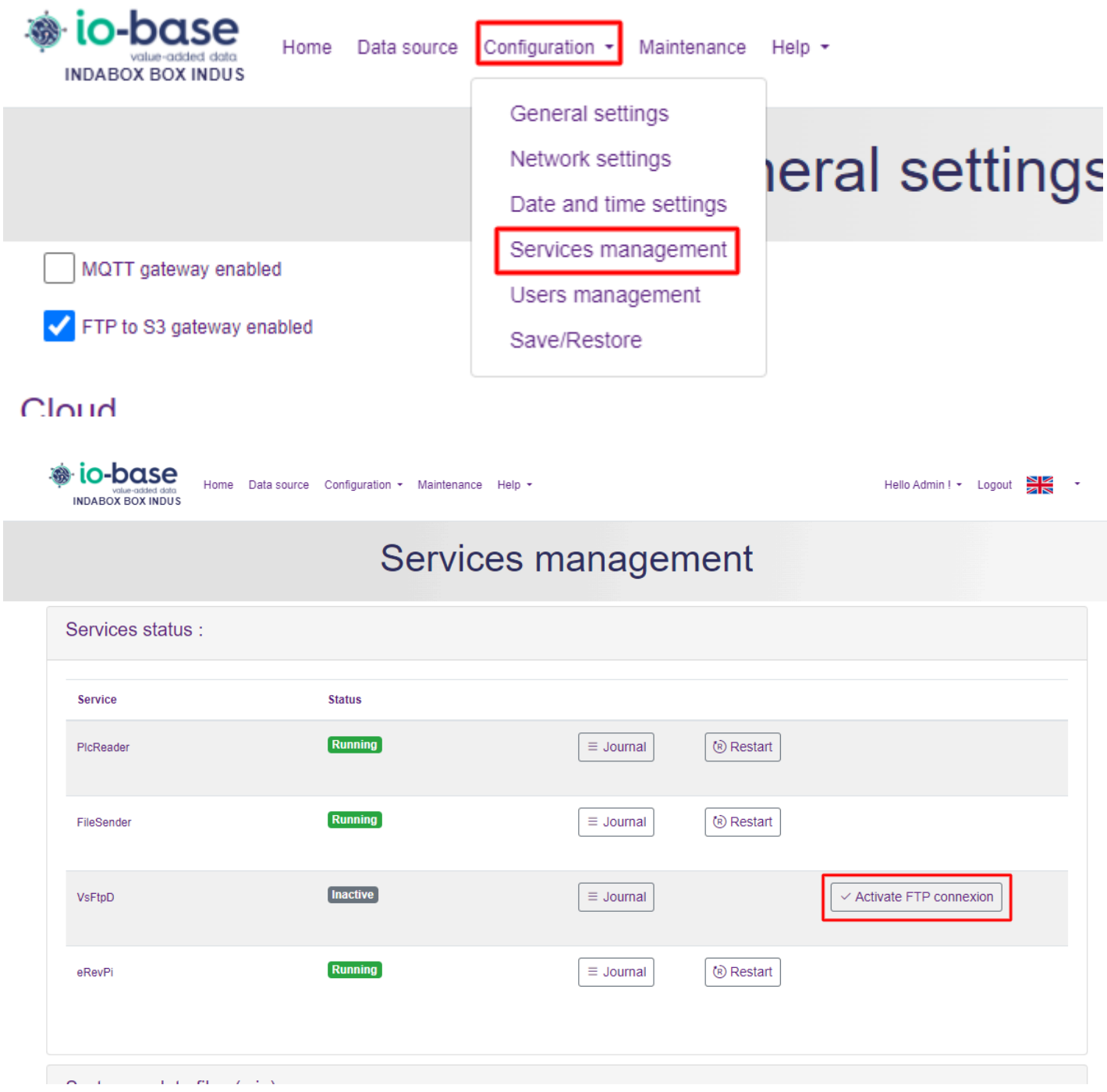
The "**AWS S3 Bucket**" configuration appears.

Complete the fields with your AWS information.

Then, click on **Save**.

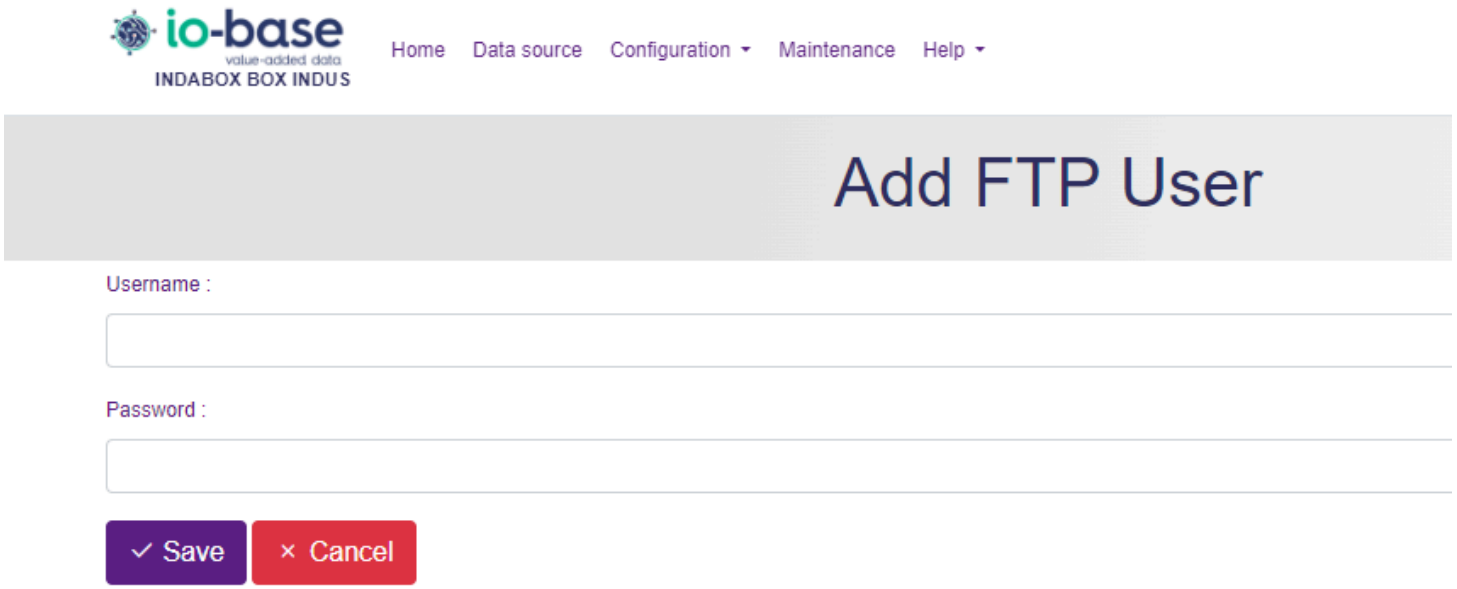
Next, you need to configure the box's **Ftp** server.

To do this, go to **Configuration**, then **Services management**.

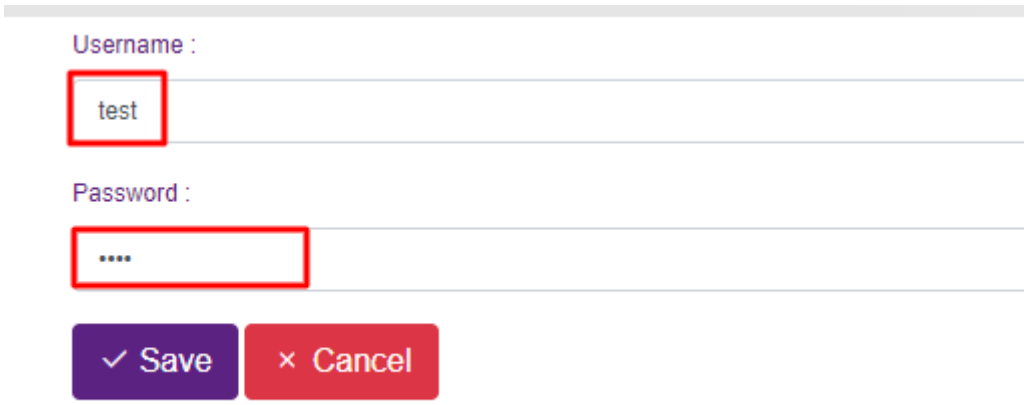


Then click on "**Activate FTP connexion**".

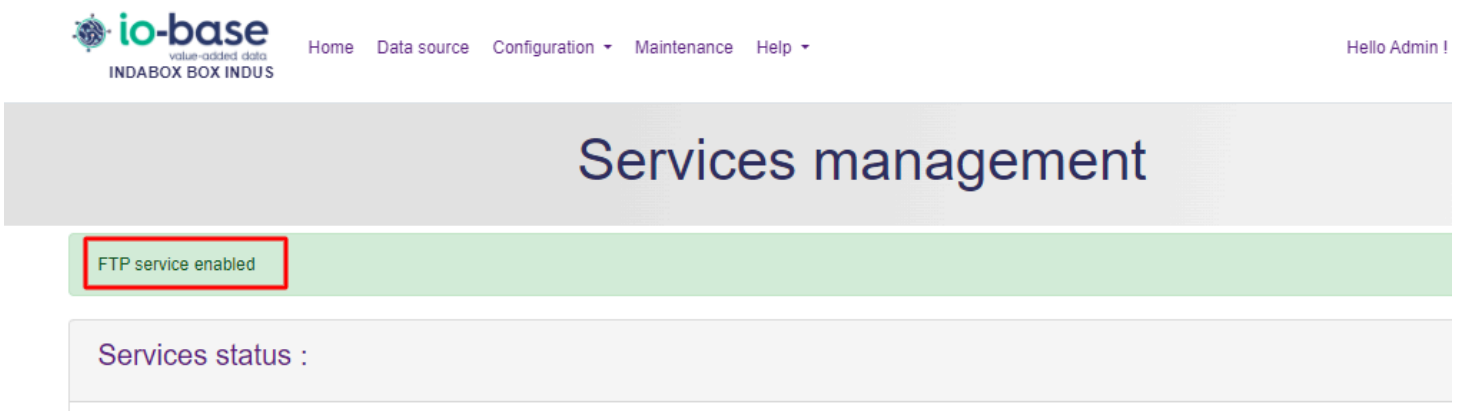
The following page opens :



Enter a user name and password :



The box's FTP service is activated.



You can now configure your FTP client.

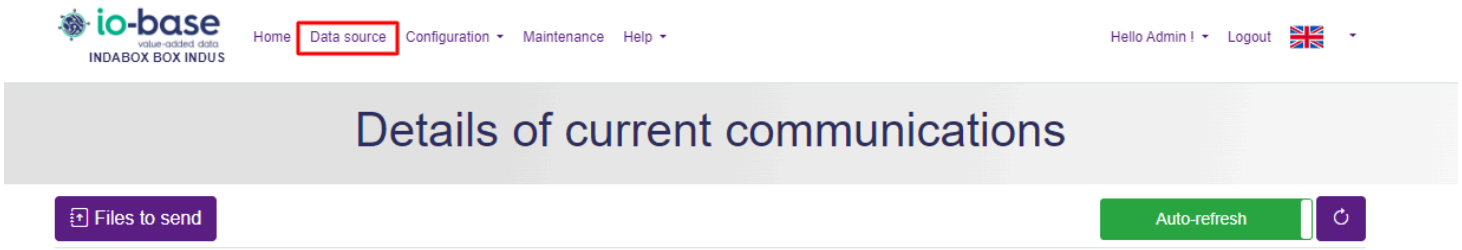
8.5 OPC UA protocol

When configuring your devices, the OPC UA communication protocol is available.

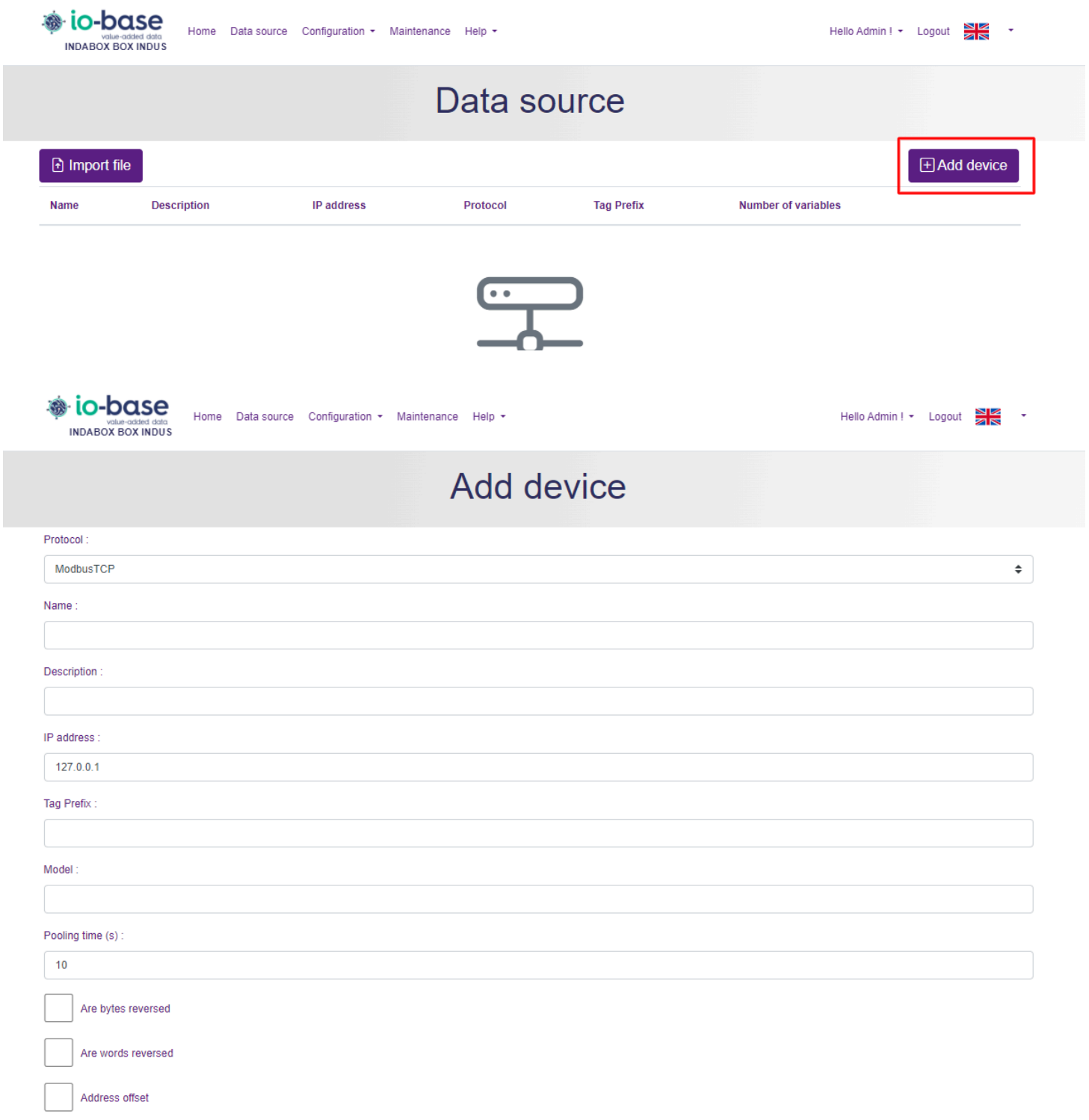
8.5.1 Add an OPC UA Device

8.5.1.1 Add a Device

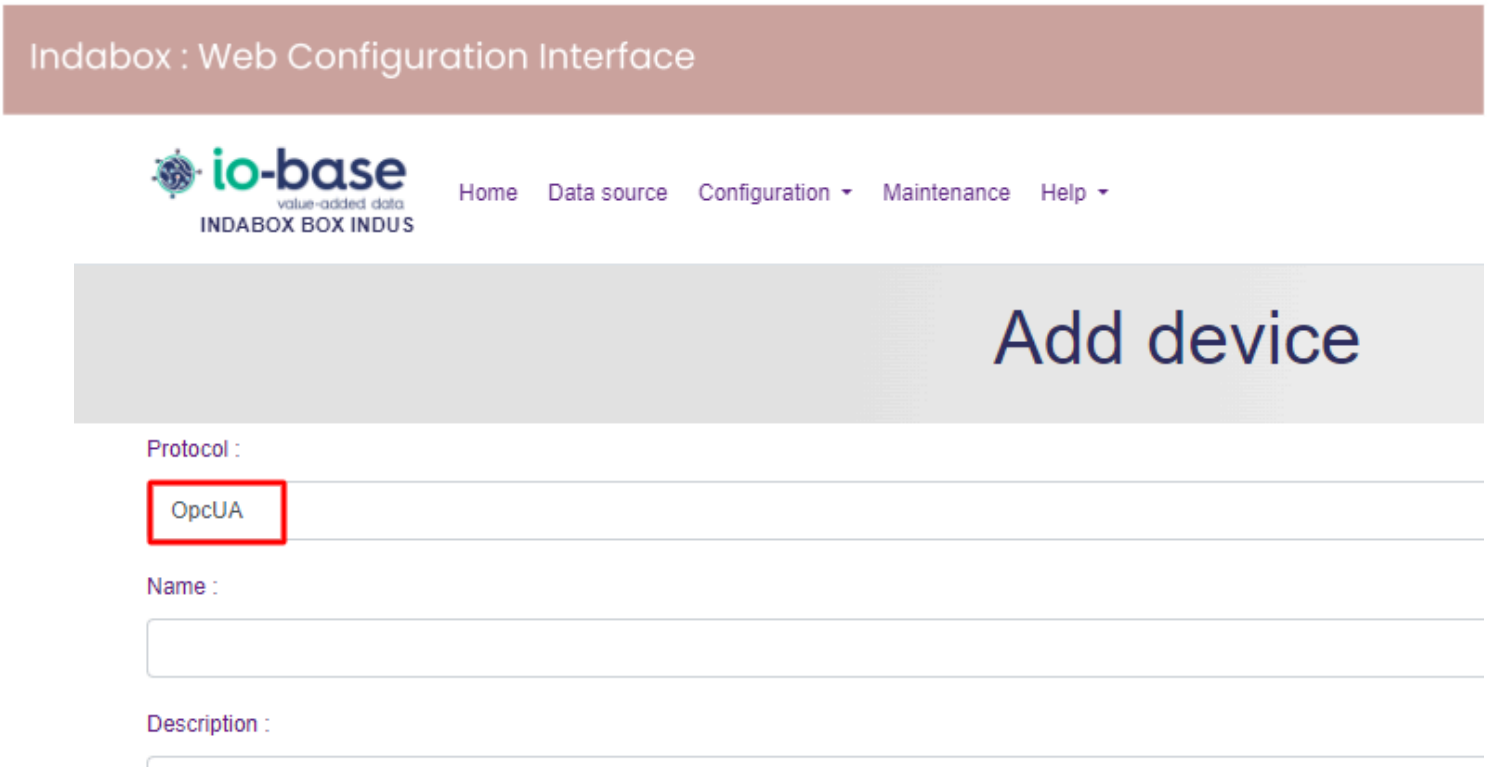
Access the box configuration web application, then go to the **Data source** menu :



Then, click on **Add Device**.



Select the "**OpcUA**" protocol.

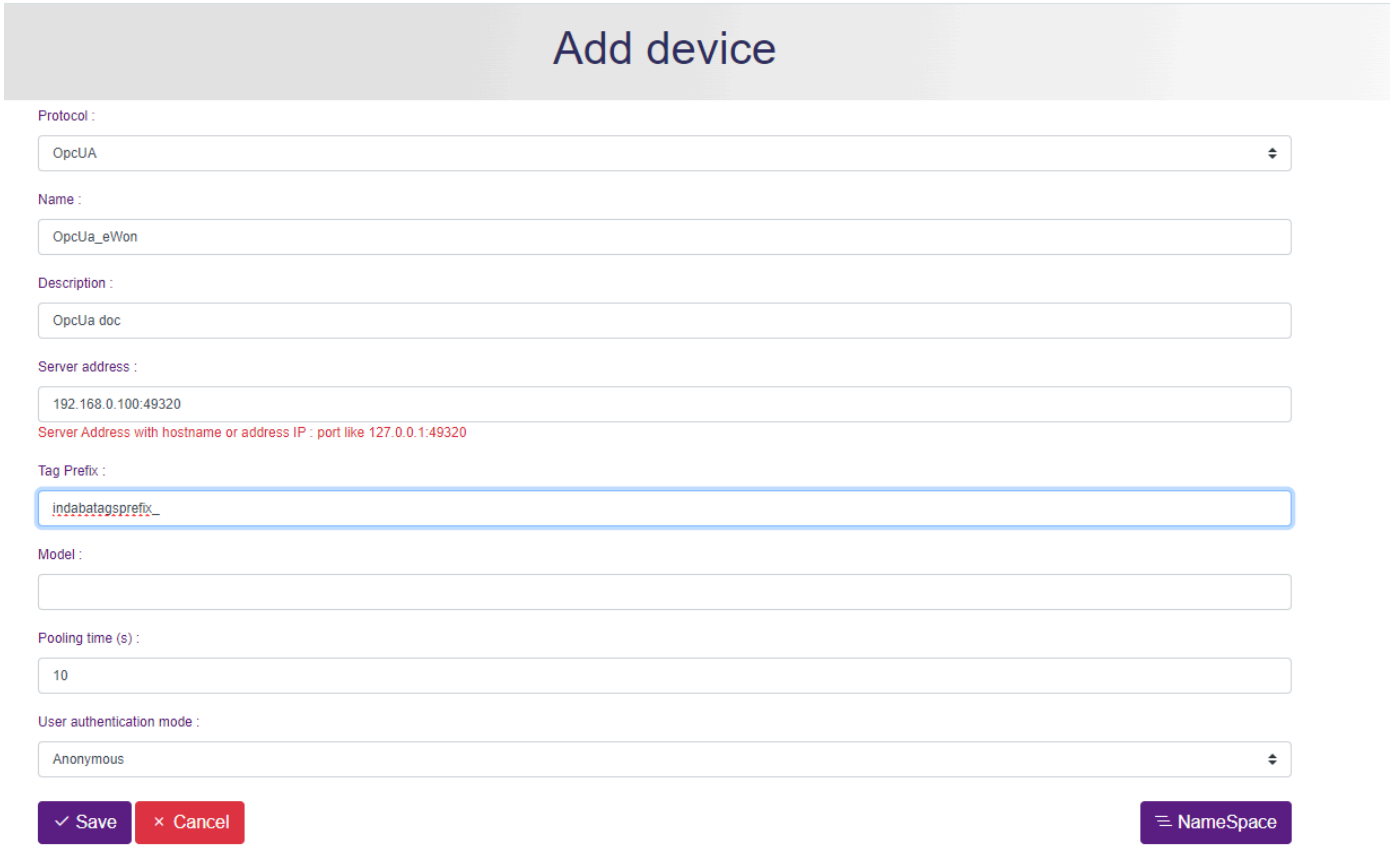


OPC UA specificities for the server address :

- The protocol used is opc.tcp
- The address consists of the server's IP address or hostname, its port, and optionally a path
- So you must enter in the field : serveropc:53530/OPCUA/SimulationServer

The various security modes are managed automatically.

8.5.1.2 Configuration example



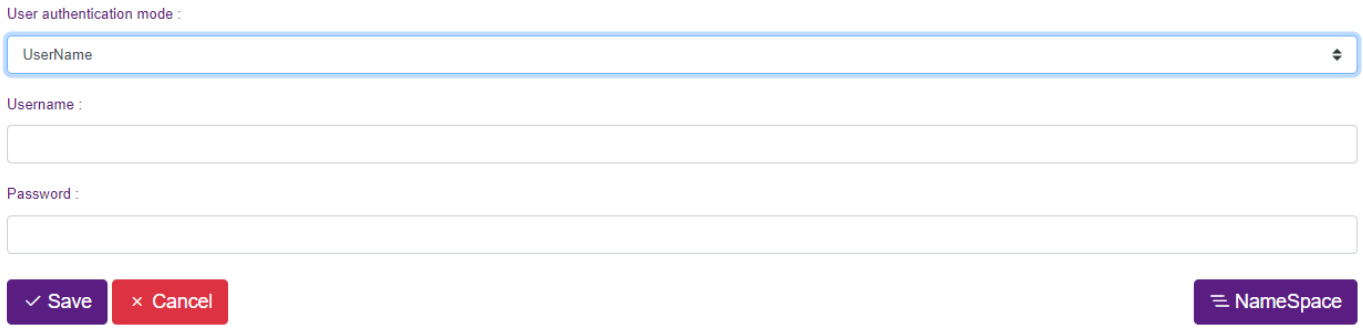
8.5.1.3 User Authentication Modes

Anonymous

Anonymous connection is allowed on the OPC UA server.
No additional configuration is required.

UserName

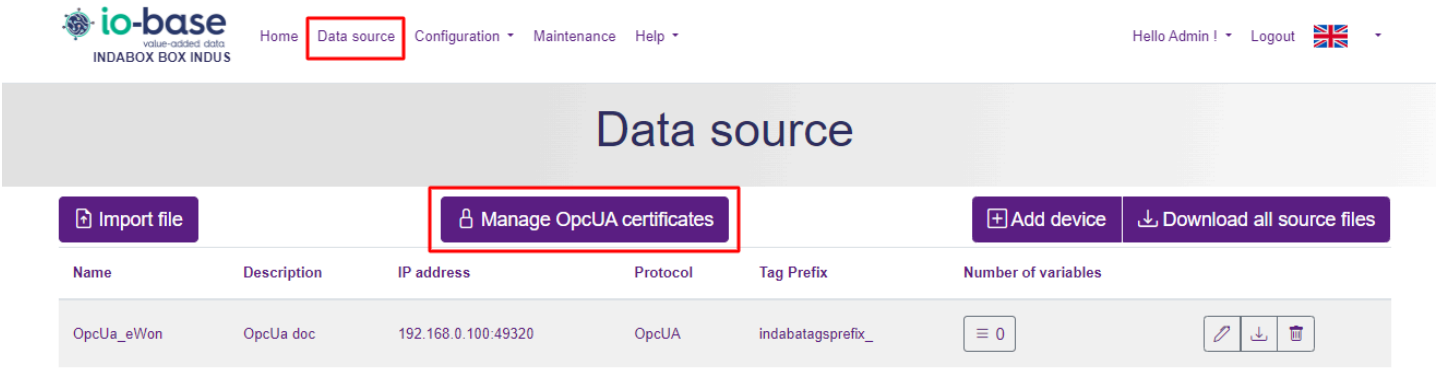
The username and password configured on the OPC UA server are required for the connection.



8.5.2 Certificate management

In the OPC UA certificate management window, you will find the various server certificates as well as the client application certificate integrated into the Indabox.

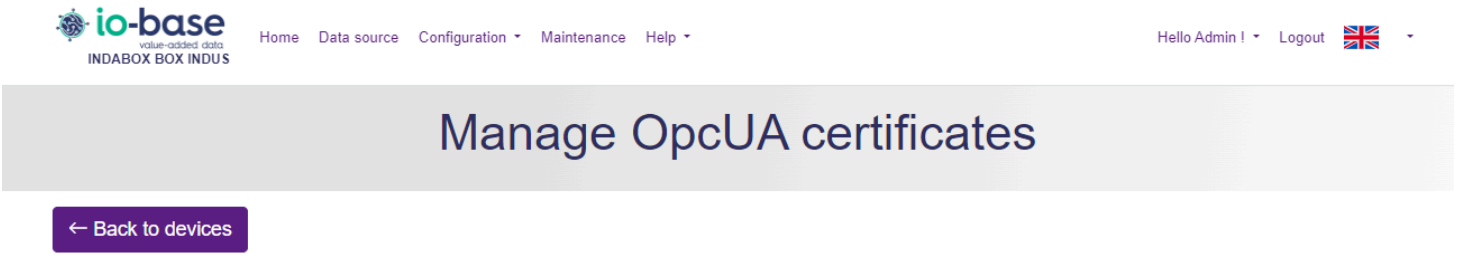
To do so, go to the **Data Source** menu, then click on **Manage OpcUA Certificates**.



The following information is visible :

- Certificate status :
  - own : client application certificate

  - rejected : rejected server certificate
  - trusted : authorized server certificate
- Certificate name
- Certificate details
- Certificate validity start date
- Certificate validity end date



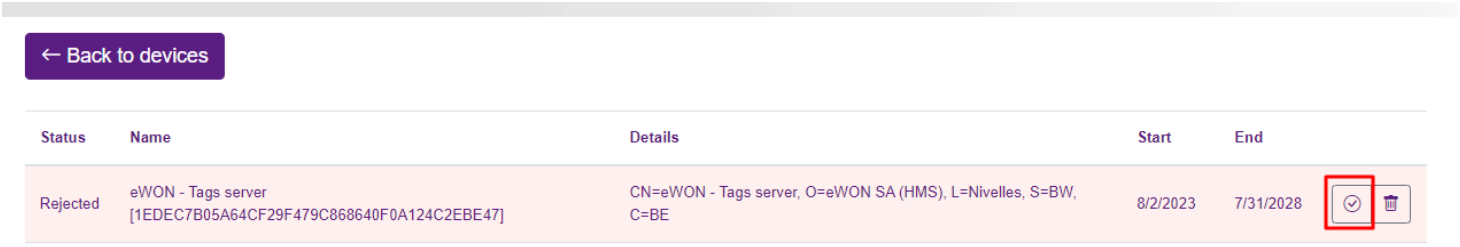
8.5.2.1 Server certificate

The server certificate can have two statuses : **Rejected** and **Trusted**.

Trust a server Certificate

The certificate with a rejected status appears with a red background color and a Rejected status.

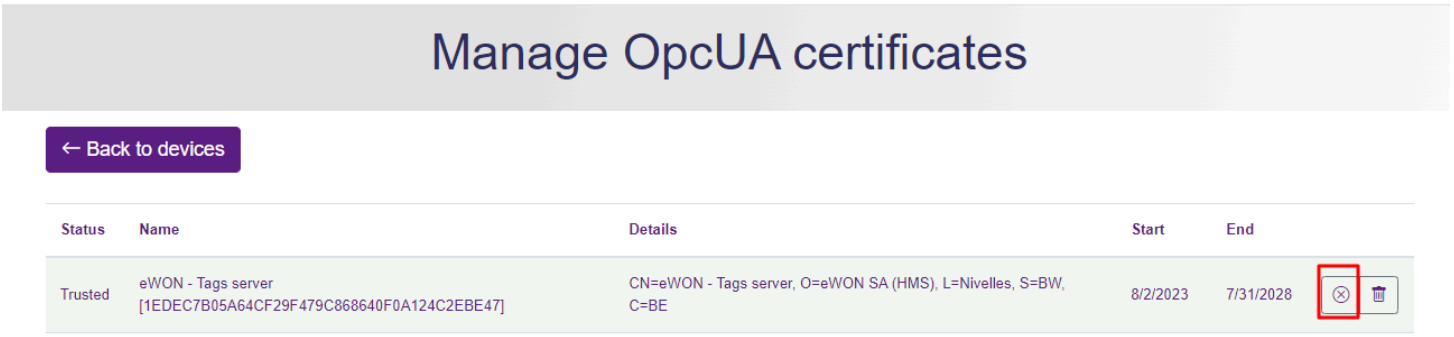
To trust the certificate, click on the framed button below :



Reject a server Certificate

The certificate with a "**trusted**" status appears with a green background color and a **Trusted** status.

To reject the certificate, click on the button framed below :



8.5.2.2 Delete a certificate

Click on the trash can icon of the server certificate to delete it.

Deleting the client application certificate (**own** status) allows the application to renew it.

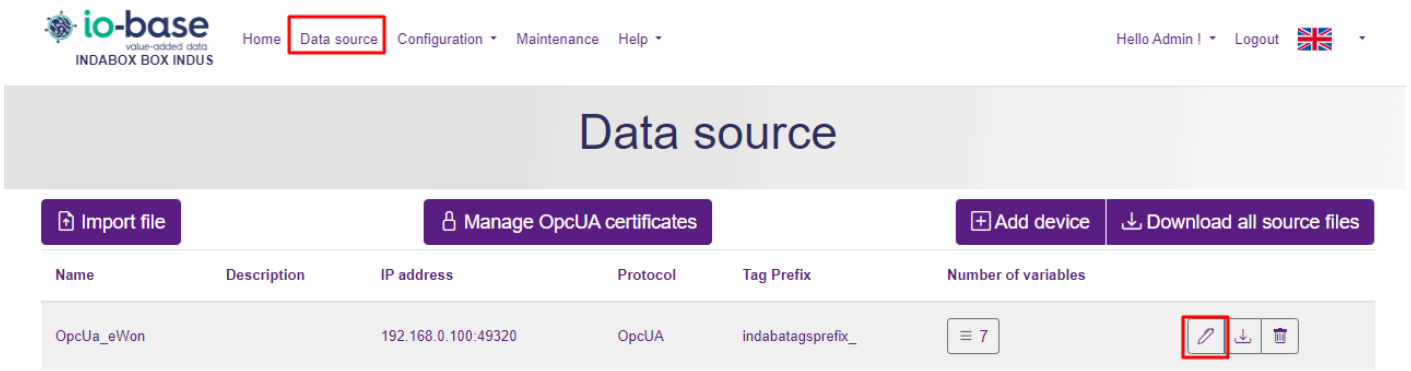
8.5.3 OPC UA Server Namespace

When you first connect to the OPC UA server, the namespace file is generated.

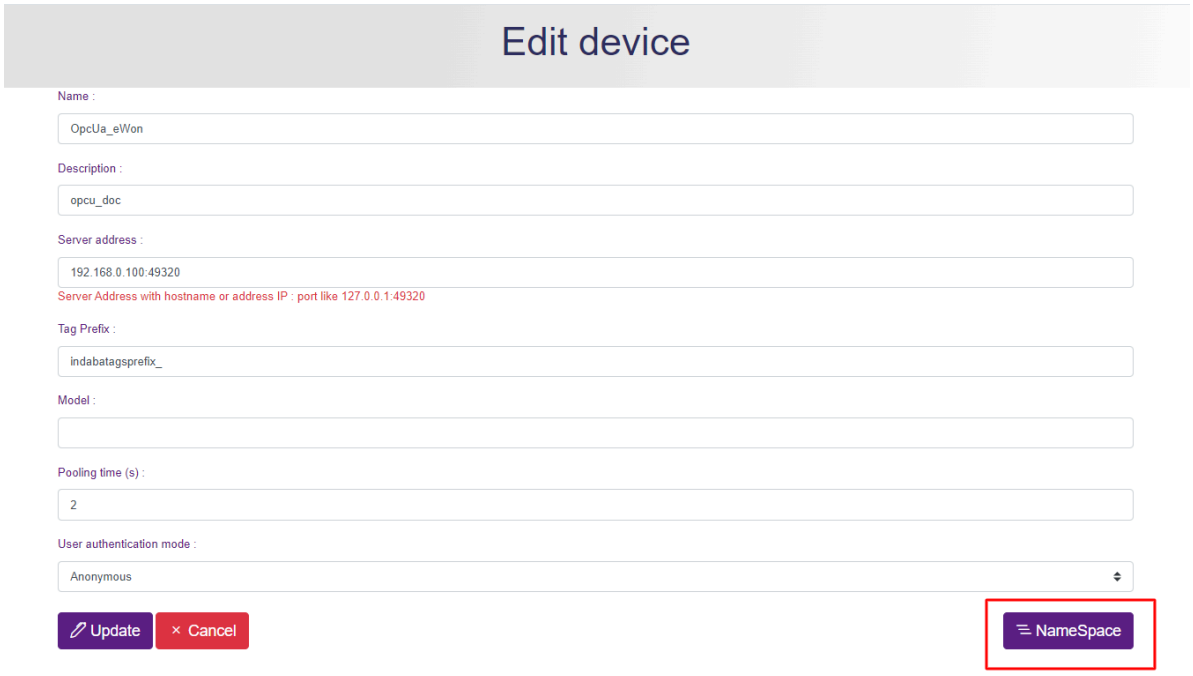
It represents the data structure of the server.

Through this namespace, we can select multiple variables, export a complete equipment file for reimportation to configure a set of variables, add or edit a variable.

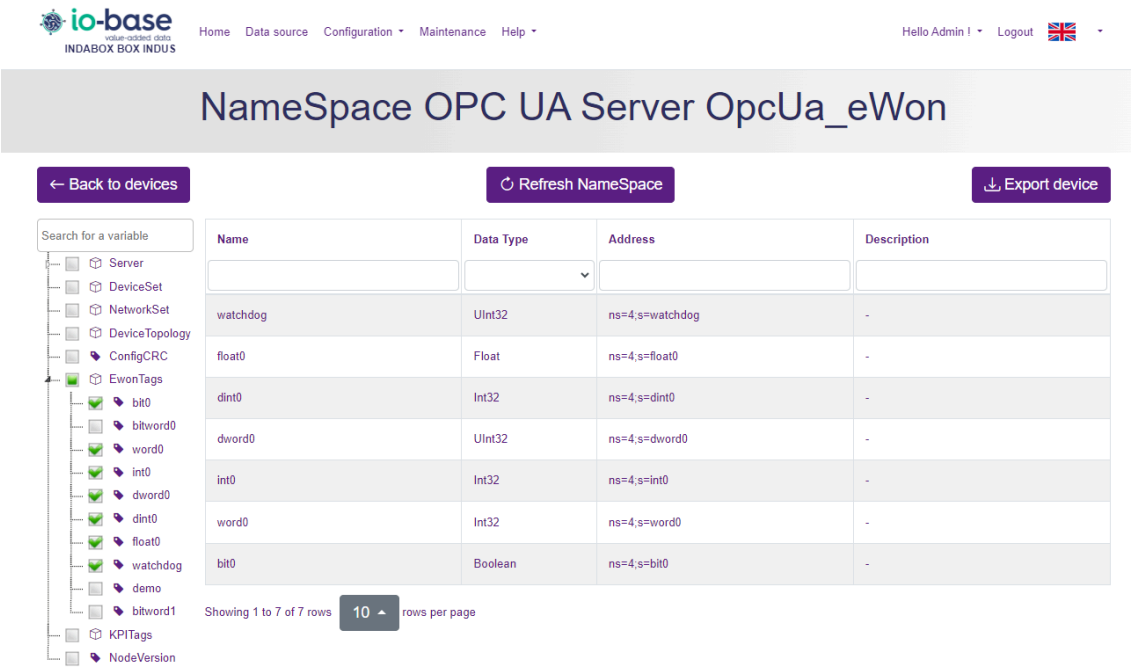
To access it, open the equipment editing page by clicking on **Data Source** then **Edit device** :



Next, click on the **NameSpace** button at the bottom right of the screen :



The namespace appears as follows (example) :



When variables are already configured in the selected equipment, they are checked in the tree view and visible in the table.

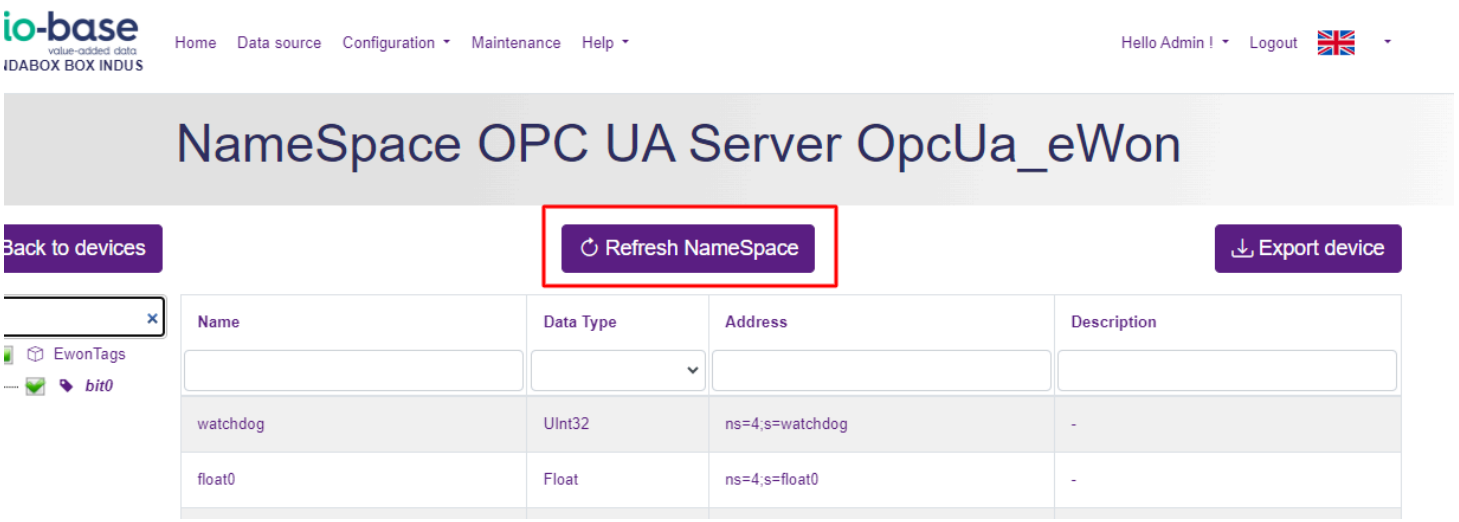
When hovering over a variable, a tooltip indicates its address, data type, and description if this information exists.

8.5.3.1 Server certificate

It is possible to perform a search by entering a word in the dedicated area :

8.5.3.2 Refresh the Namespace

If the server structure has changed, it is possible to refresh the namespace in RevPi by clicking the **Refresh Namespace** button.



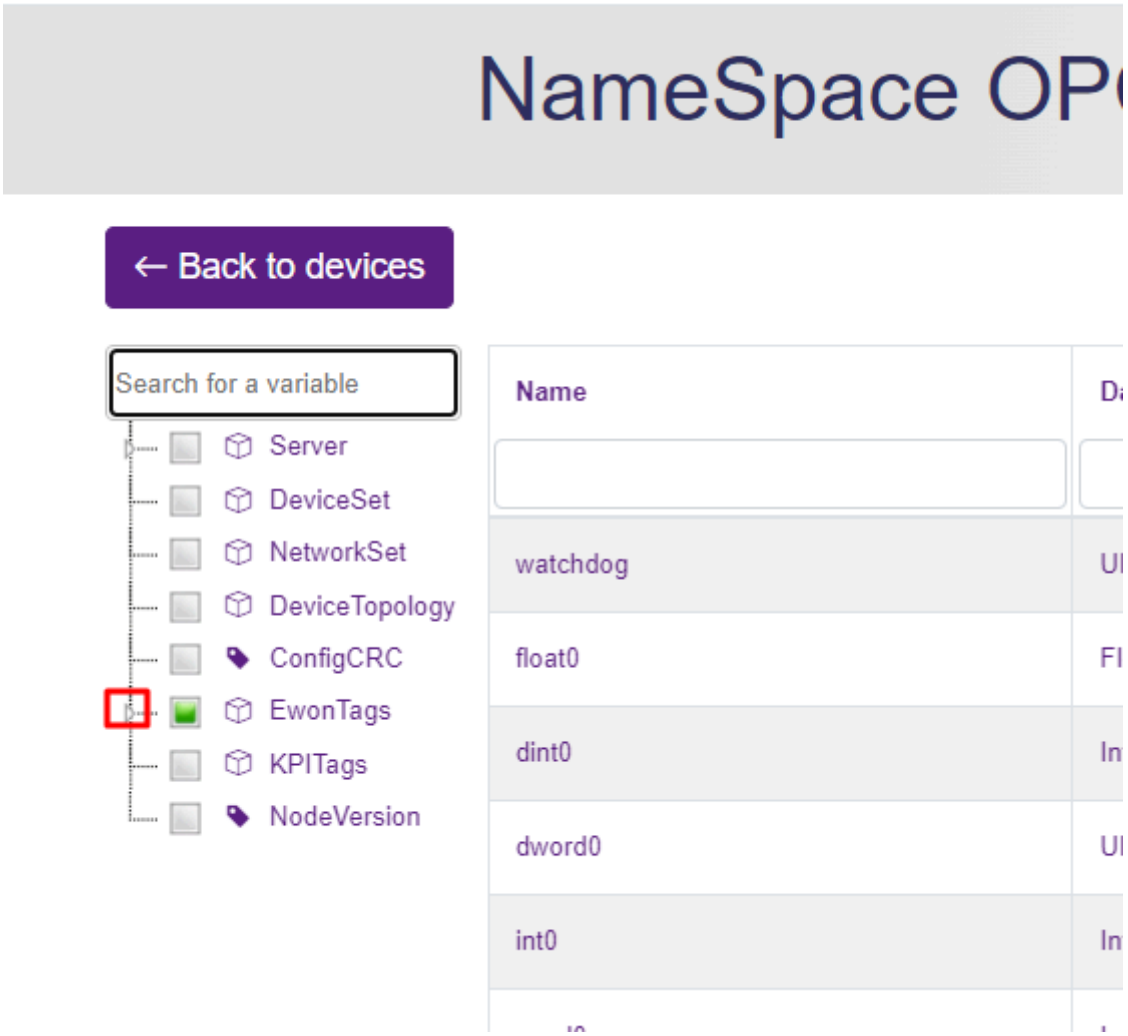
8.5.4 Variable Selection with the Namespace

8.5.4.1 Selecting a set of variables

Access the namespace screen as indicated previously (**3. OPC UA Server Namespace)**.

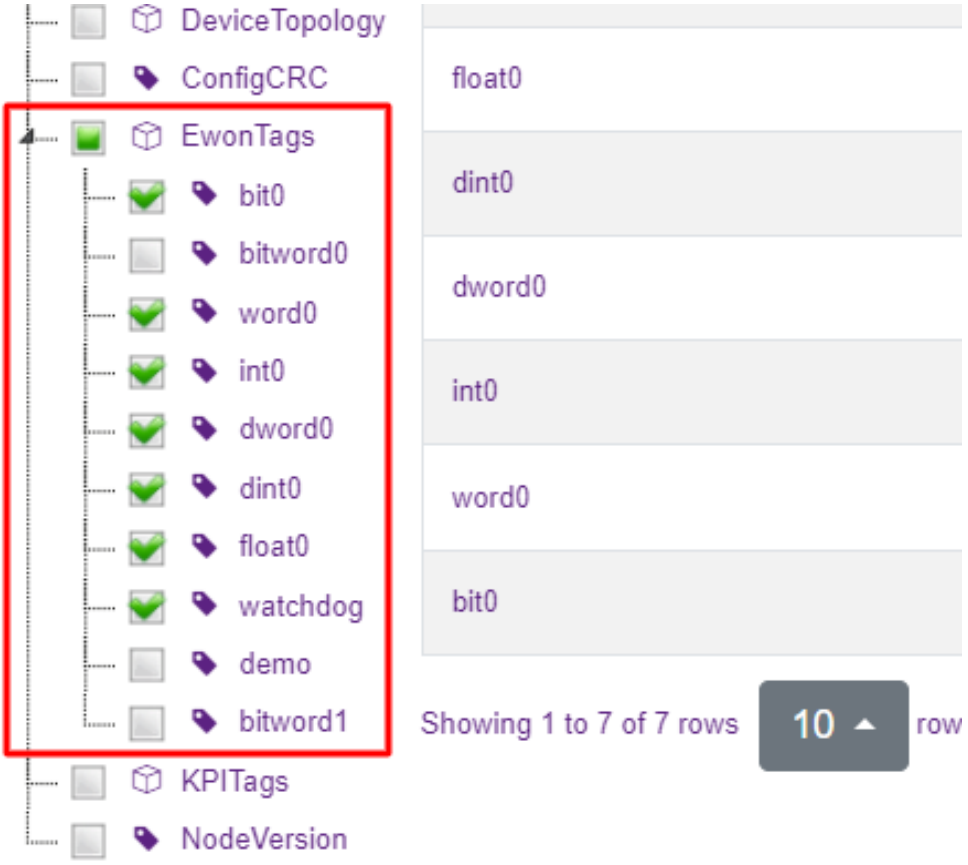
Select one or more variables.

It is possible to select an entire node. To do this, expand the node by clicking on the small arrow :

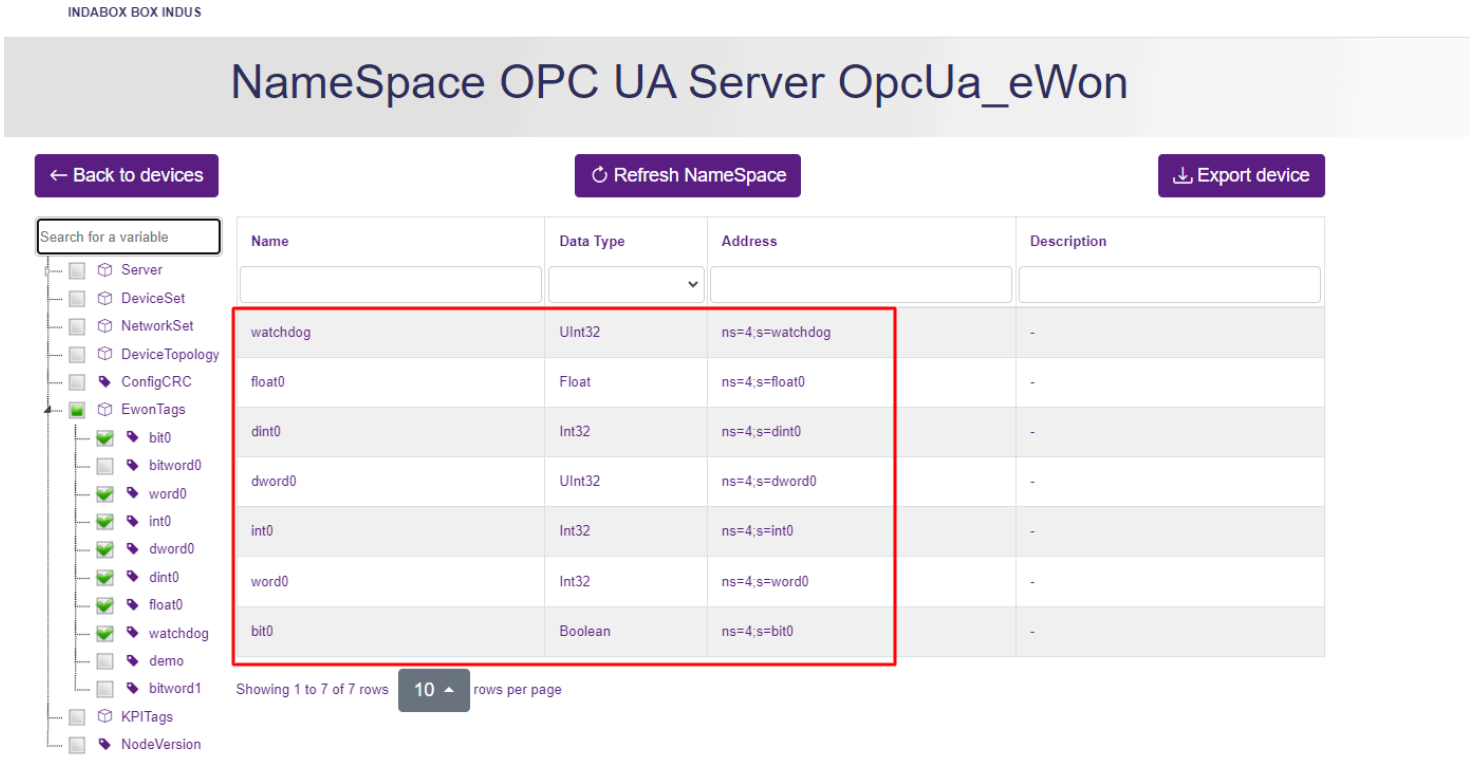


Then click on the checkbox of the node.

All the visible variables within the node will be automatically selected.

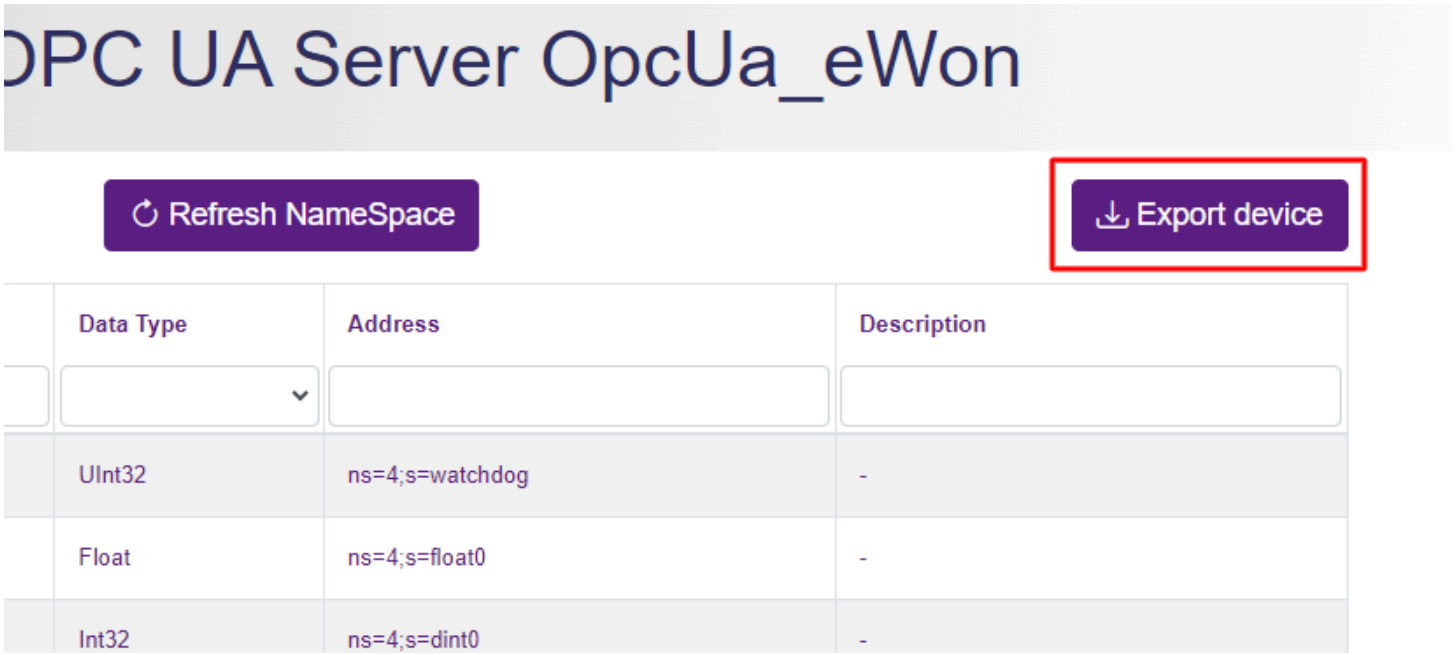


All selected variables are visible in the table :

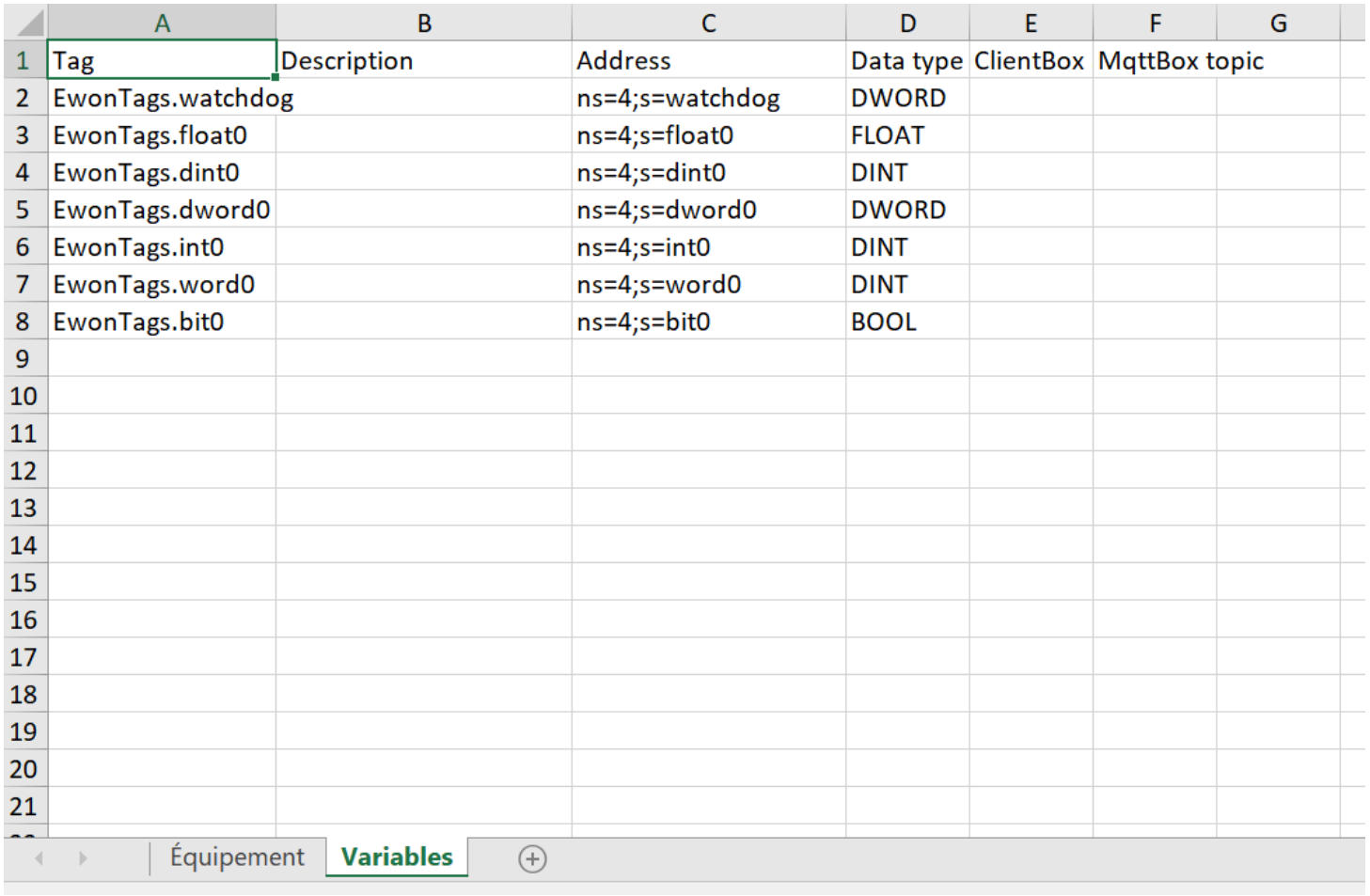


The last selected variable is on the first line of the table.

Click the **Export device** button.



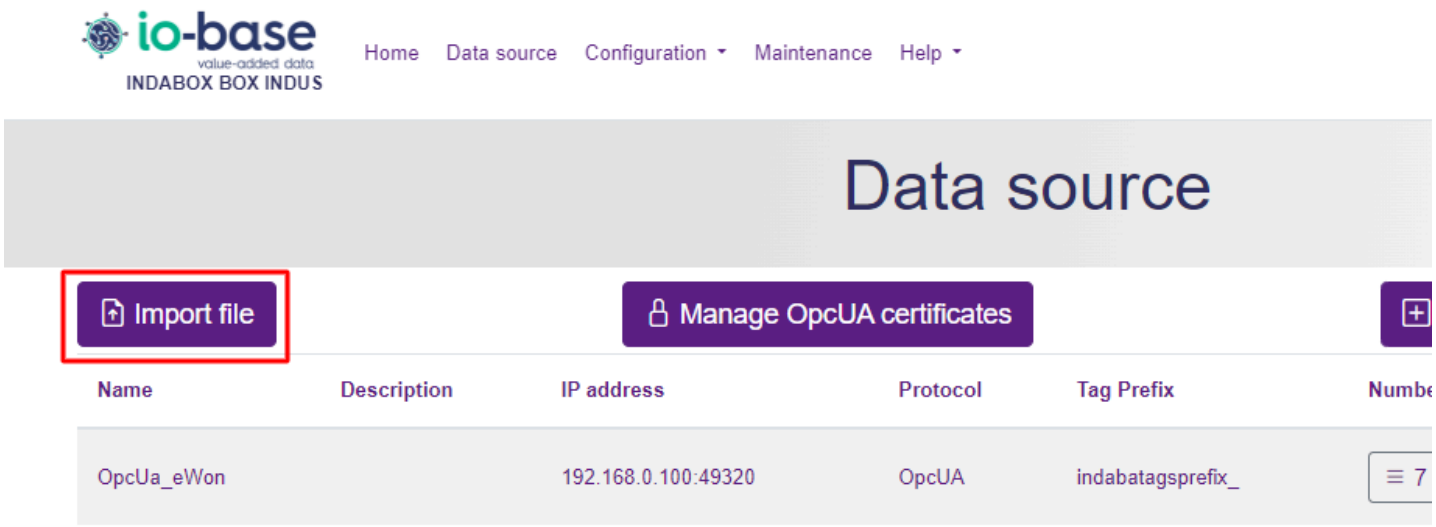
The Excel file is exported. It is then possible to modify all the parameters, including variable names, before importation. The variable names are exported with their full path :



	A	B	C	D	E	F	G
1	Tag	Description	Address	Data type	ClientBox	MqttBox topic	
2	EwonTags.watchdog		ns=4;s=watchdog	DWORD			
3	EwonTags.float0		ns=4;s=float0	FLOAT			
4	EwonTags.dint0		ns=4;s=dint0	DINT			
5	EwonTags.dword0		ns=4;s=dword0	DWORD			
6	EwonTags.int0		ns=4;s=int0	DINT			
7	EwonTags.word0		ns=4;s=word0	DINT			
8	EwonTags.bit0		ns=4;s=bit0	BOOL			
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							

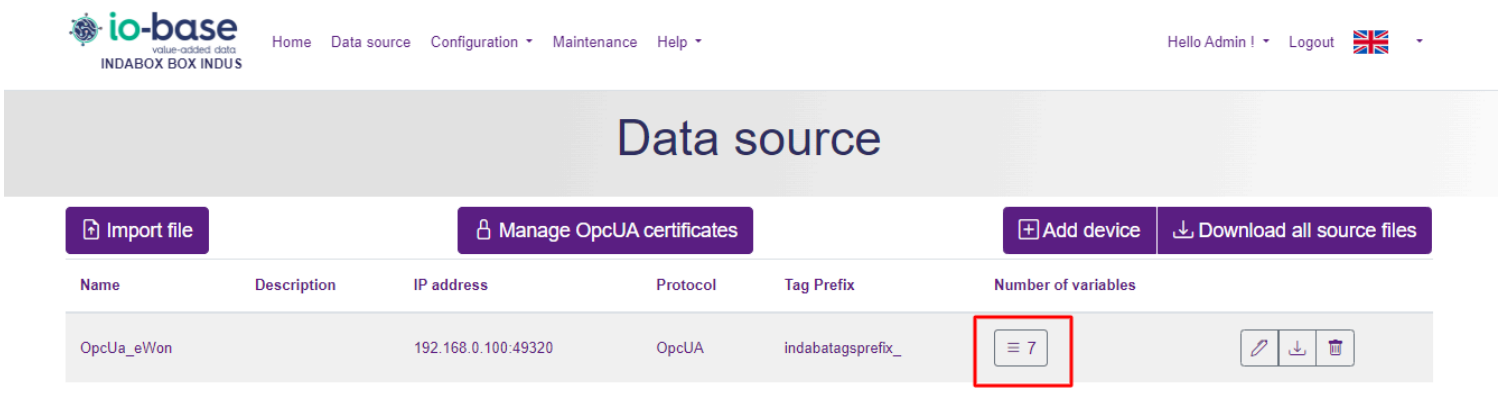
Équipement | **Variables**

Note : To configure the device with the selected variables, return to the data source menu, then import the downloaded file.



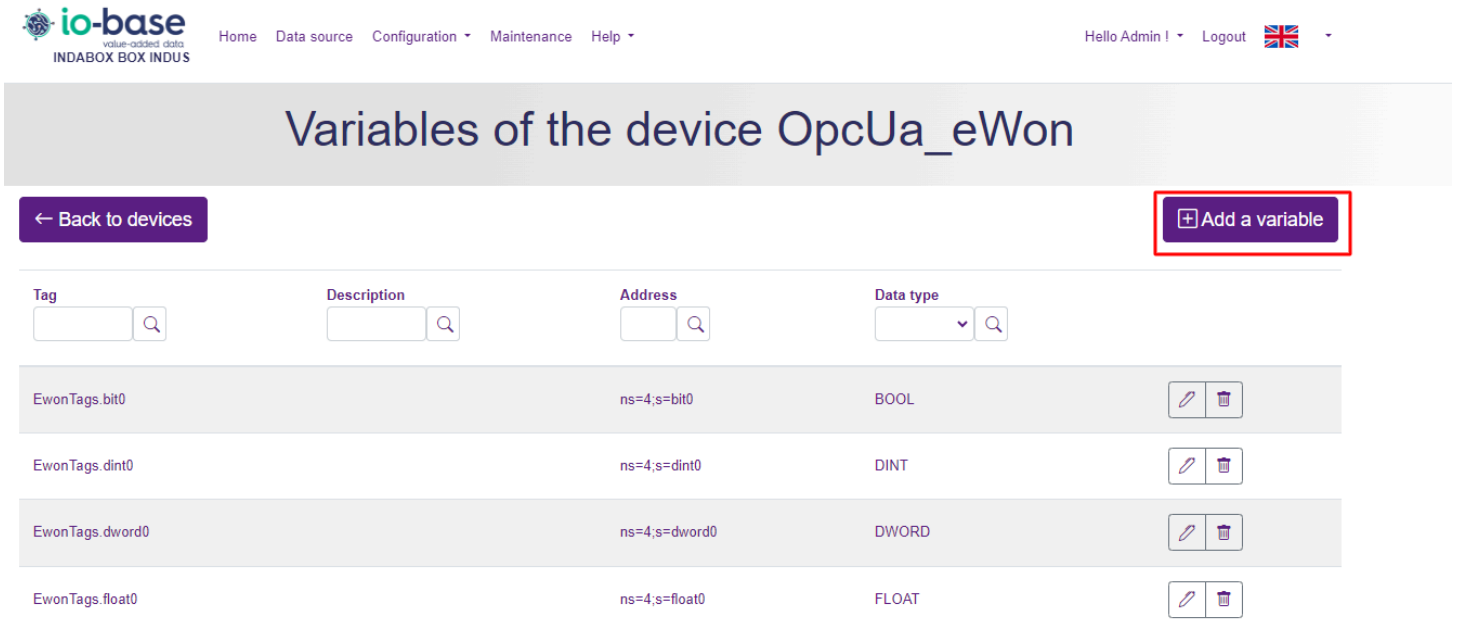
[8.5.4.2 Adding / Editing a variable]

Go to the device list (data source) and click on the button framed below to access the variable list.

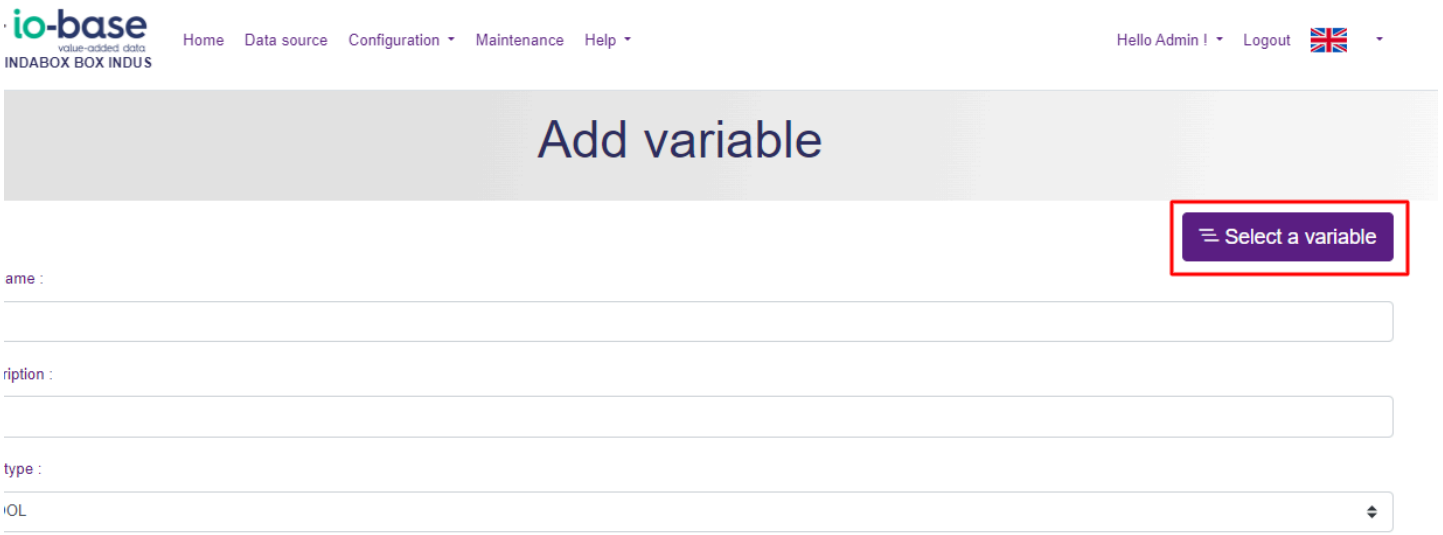


Add a Variable

Click the **Add a Variable** button.

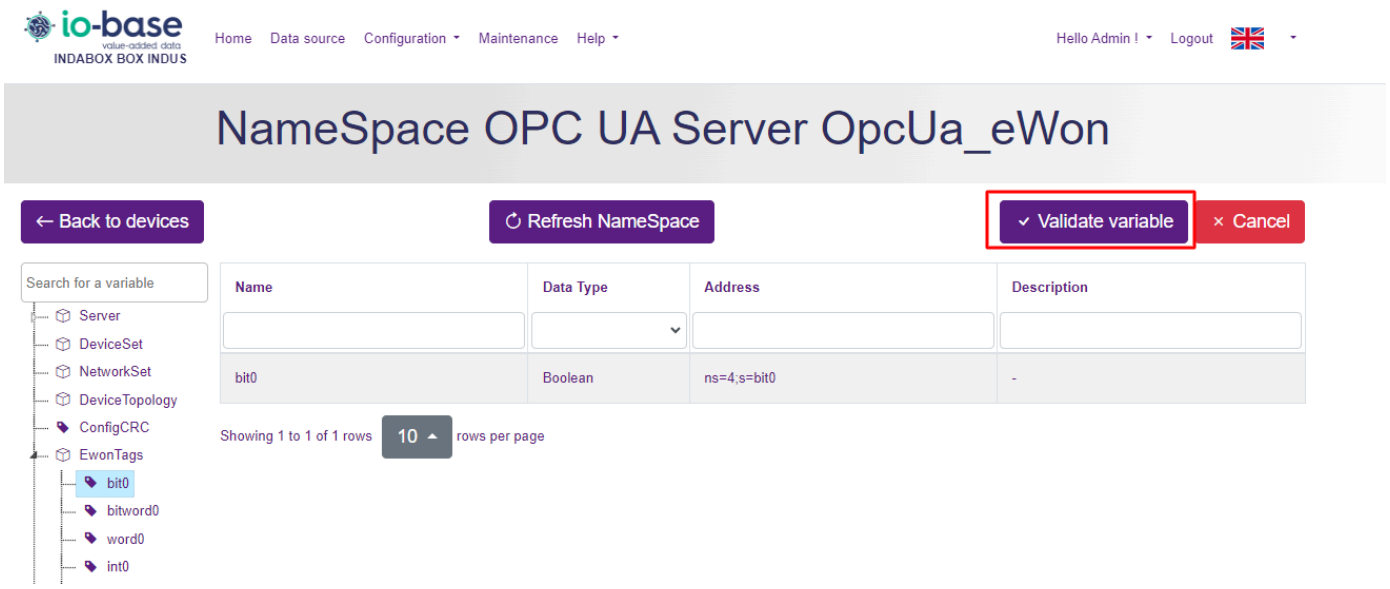


Click on the **Select a Variable** button.

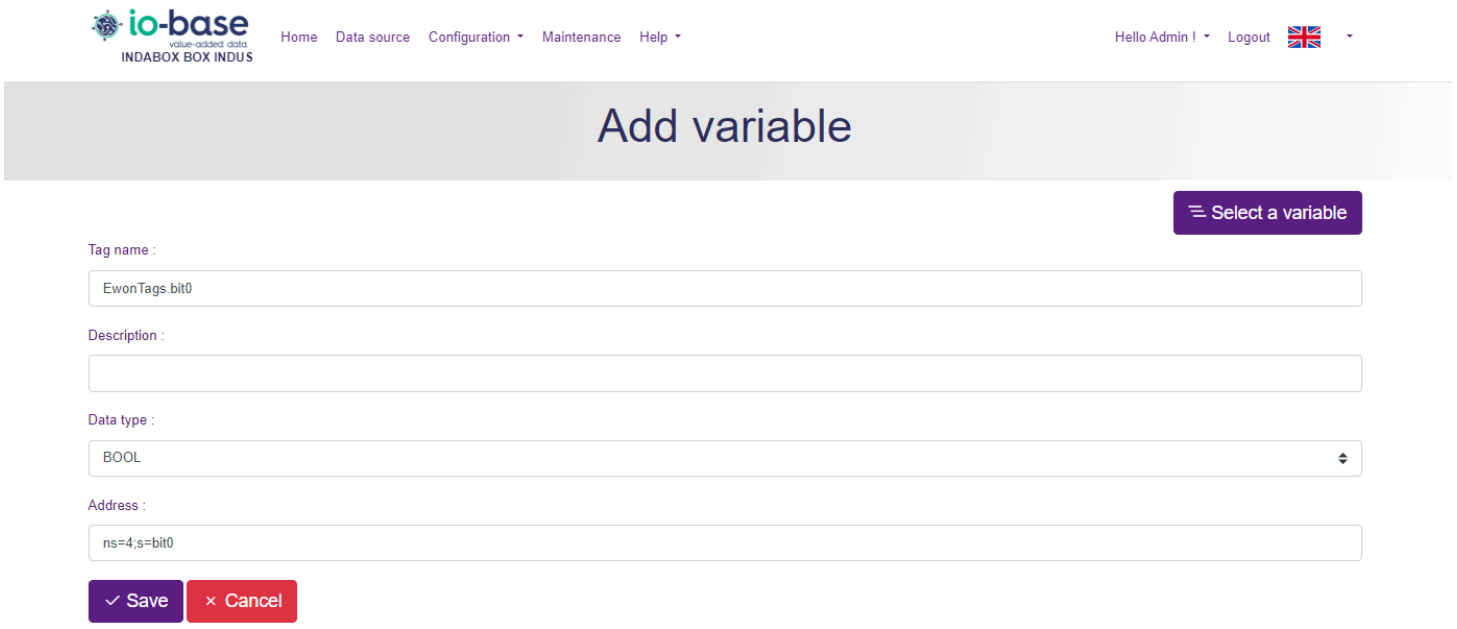


Select a variable in the tree view by clicking on it. The variable is then visible in the table.

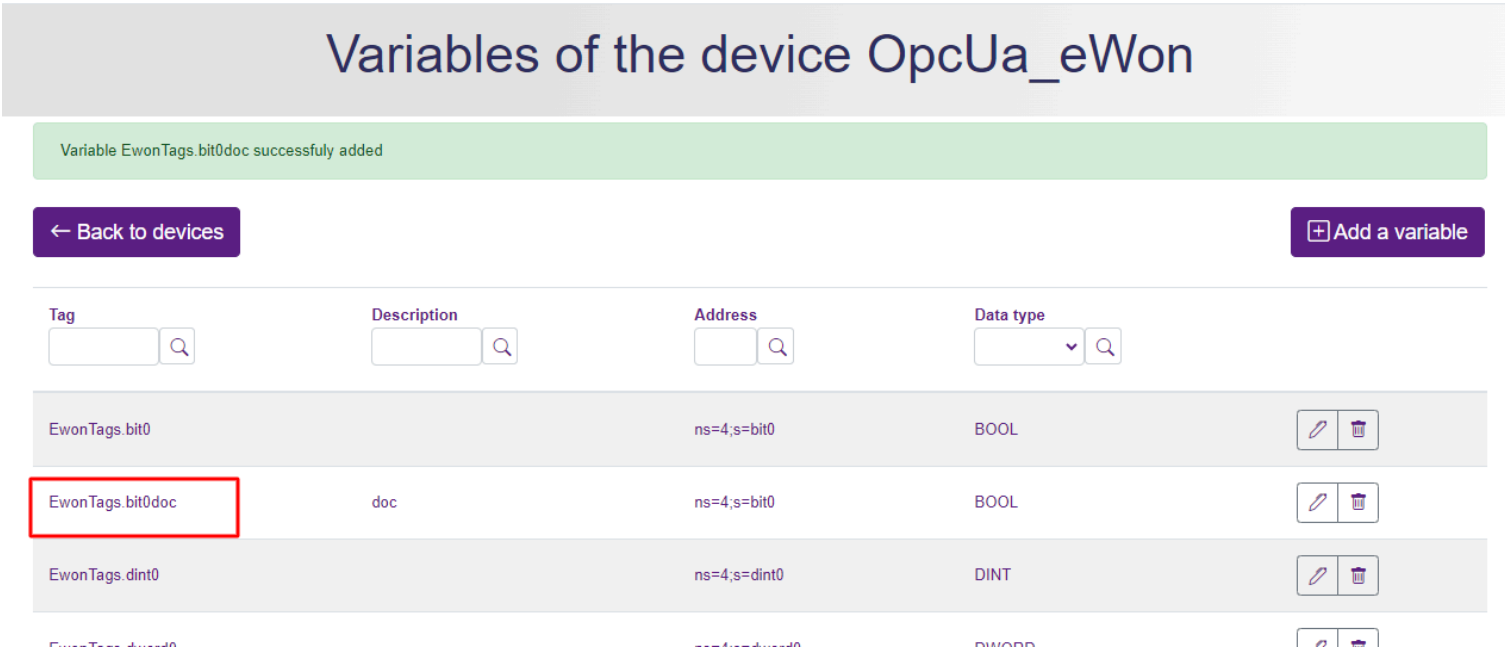
To validate, click on the **Validate Variable** button.



The different fields are pre-filled. It is possible to modify them before validation.

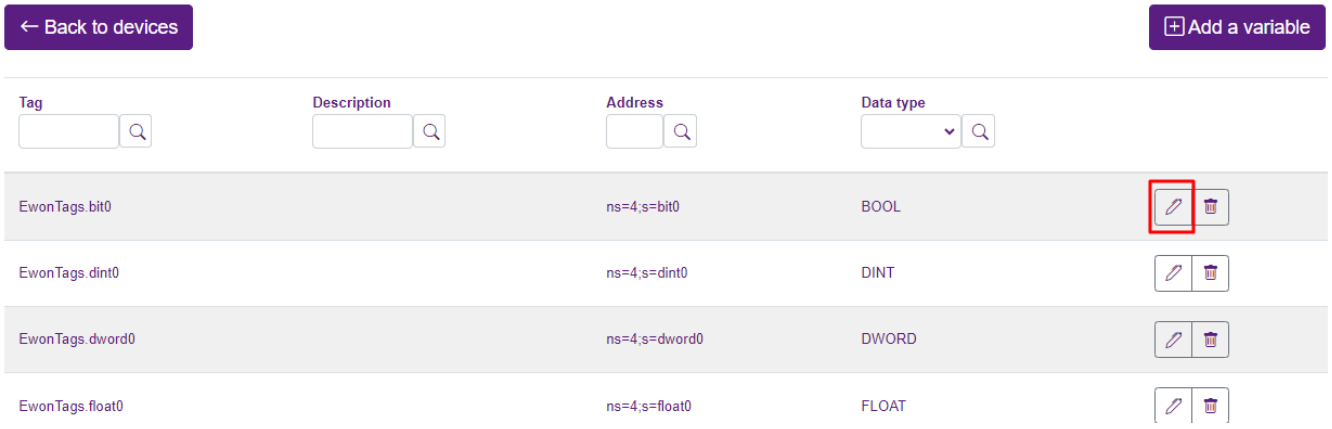


By clicking on the **Validate** button, the variable is added to the equipment configuration.



Edit a Variable

Click on the edit button of the variable :



The variable settings will be manually editable.

Note : By clicking on the **Select a Variable** button, and selecting a variable in the server's namespace, you can automatically update the data type and address of a variable.

Click on the **Update** button to validate the changes.

8.5.5 Error messages

Error establishing a connection: BadNotConnected

Incorrect server address.

Endpoint does not support the user identity type provided

Incorrect user configuration.

Certificate is not trusted

Server certificate rejected. It needs to be authorized: see 2.1.1. Authorize a Server Certificate.

Error establishing a connection: Error received from remote host: An error occurred verifying security

The Indabox certificate has not been approved on the OPC UA server. It must be authorized.

BadUserAccessDenied

Incorrect user authentication information.