UVIX

CAMOZZI
Automation

UVIX

USER MANUAL

Version: 1.3

Contents

Introduction

The UVIX software enables the monitoring and configuration of all Camozzi IIOT devices that support connectivity with it.
Its primary goal is to meet user-specific needs through a simple and quick configuration process.
This software is not just a basic parameter-setting tool; it has the ability to monitor various variables and identify any errors, ensuring constant and precise system control, as shown in Figure 1.1.

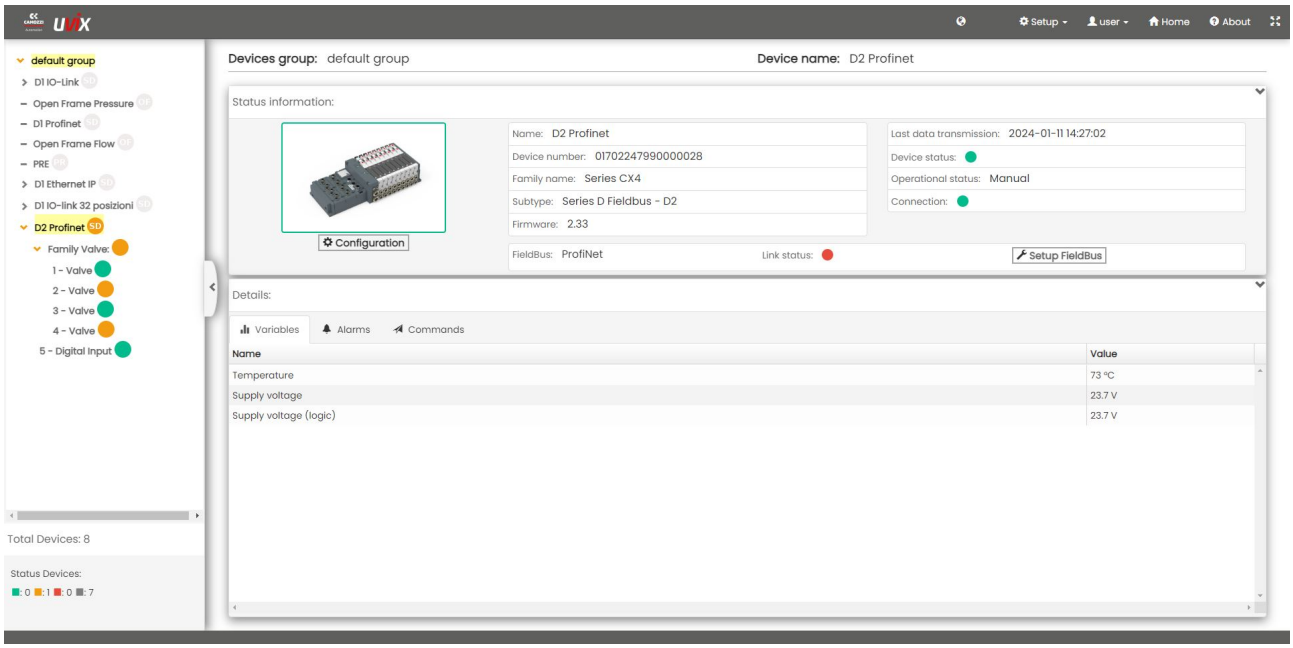

Figure 1.1: Main Screen

One of its main features is its web-based architecture, which allows access through a simple web browser.
You can install it on a single PC, gateway, or server and access it from any wireless-enabled device.
Additionally, through the integrated MQTT protocol in UVIX, it is possible to send data to an external application.
This way, the user can customize the management of data transmitted by various devices.

Network Topology

Devices can connect to UVIX via USB ,wireless or Ethernet connection, depending on the device, some connection modes may not be available.
This chapter will analyze various network topologies with particular attention to their configuration to ensure proper functioning.

2.1 USB Connection

The simplest topology is the USB connection, in this mode, it is sufficient to connect the device to the PC where UVIX is installed using a USB cable (Figure 2.1).

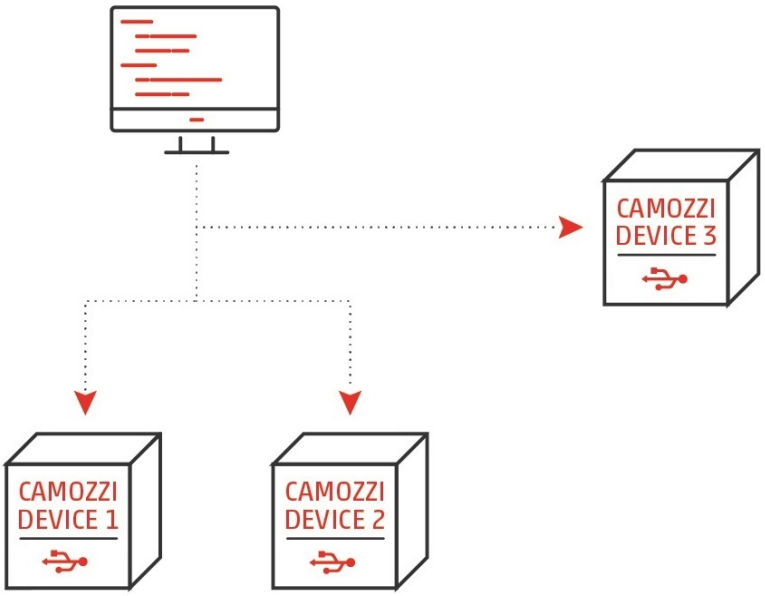

Figure 2.1: Example of USB Connection

Once the connection is established, launch the "Camozzi USB Gateway" software (Chapter 5), and the device will become available on the WebApp (Chapter 6).

2.2 Wireless Connection

A topology that reduces the number of cables is one that utilizes a wireless connection.
In this mode, an access point is required to generate the wireless network to which various devices will connect (the network name and password must not contain spaces).
In the devices, you will need to set the IP address to which data should be sent, the SSID, and the password of the network (for more information on how to perform this operation, refer to the device manual).

Finally, the PC on which UVIX is installed must also be connected to the access point using the same wireless network or an Ethernet cable.

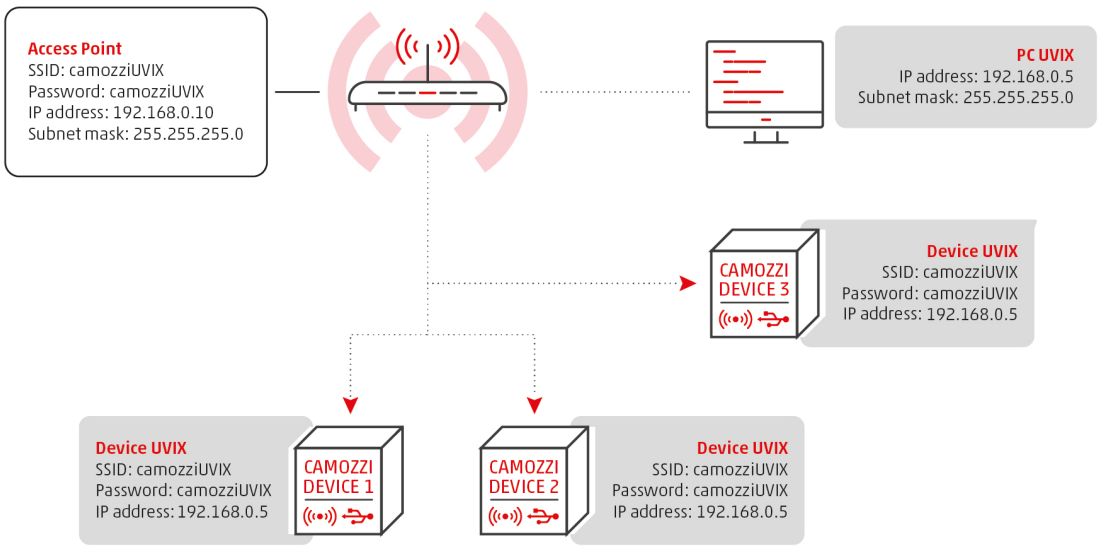

Figure 2.2: Example of Wireless Connection

All devices must have an IP address within the network, and they must follow the following rules.

- UVIX PC: Must be set to static.
- Access Point: Must have a different IP address than the UVIX PC.
- UVIX Device: This is not the device's address but the address to which data should be sent. It must be identical to that of the UVIX PC.

The IP addresses of the devices are dynamic and should be assigned by a DHCP server.
The user needs to ensure that a DHCP server is installed and enabled on the access point or UVIX PC.

2.3 Ethernet Connection

A useful network topology when using devices that have Ethernet-based communication (such as Profinet, EtherCAT or EtherNet/IP) is one that uses the existing connection to establish communication between the device and UVIX as shown in figure 2.3.
⚠ Not all Camozzi devices with Ethernet-based communication support this type of connection, for more information refer to the device manual.

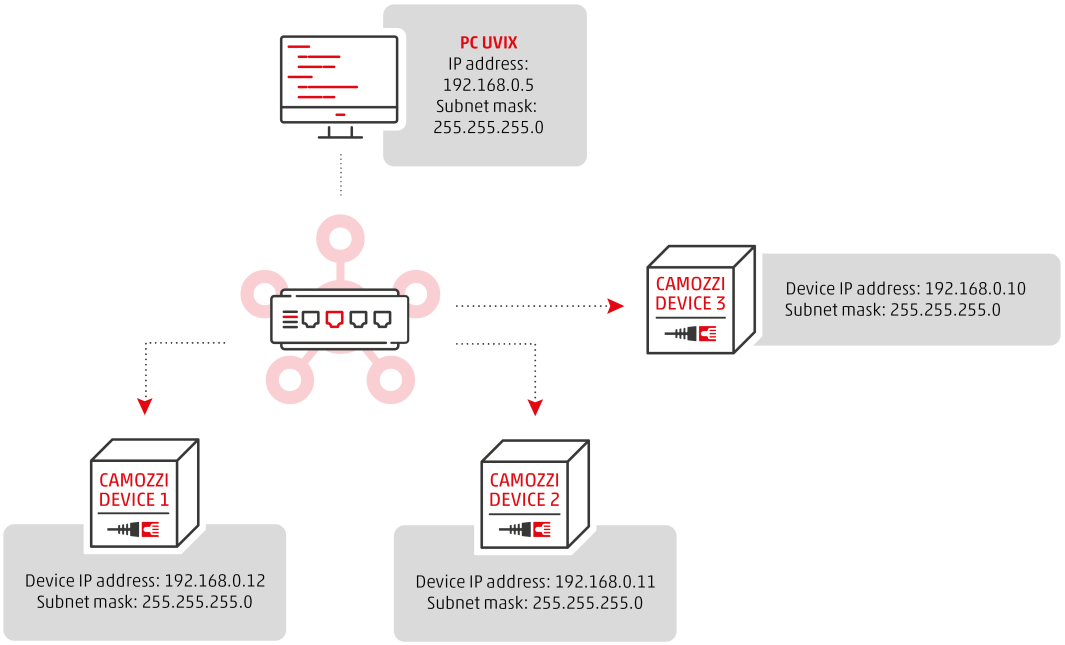

Figure 2.3: Example of connection via Ethernet port

All devices must have an internal IP address to the network, and must also be static.
Depending on the protocol, it is possible to have UVIX messages coexist or it is necessary to enable a specific function (if provided) in which the protocol itself takes care of the transmission.
In the latter case, the function is called "Ethernet over ...", an example of this is the EtherCAT protocol and its "Ethernet over EtherCAT" function.

2.3.1 Ethernet over Ethercat (EoE)

Ethernet over EtherCAT (or "EoE") is a function of the EtherCAT protocol that allows Ethernet communications in an EtherCAT network.
Within an EtherCAT network it is not possible to transmit messages that do not belong to the protocol itself, for this reason it is necessary to enable the EoE function.
For UVIX communication a TCP/IP client-server connection has been created, in which the devices are the clients that send the data while the UVIX is the server that receives.
The following is a list of the cases provided for by EoE, based on the master and the Camozzi devices used, dedicated configurations may be necessary (for more details refer to the device manuals).

- **Internal Communication via EoE**: in this case the master manages both EtherCAT and Ethernet communication, figure 2.4.

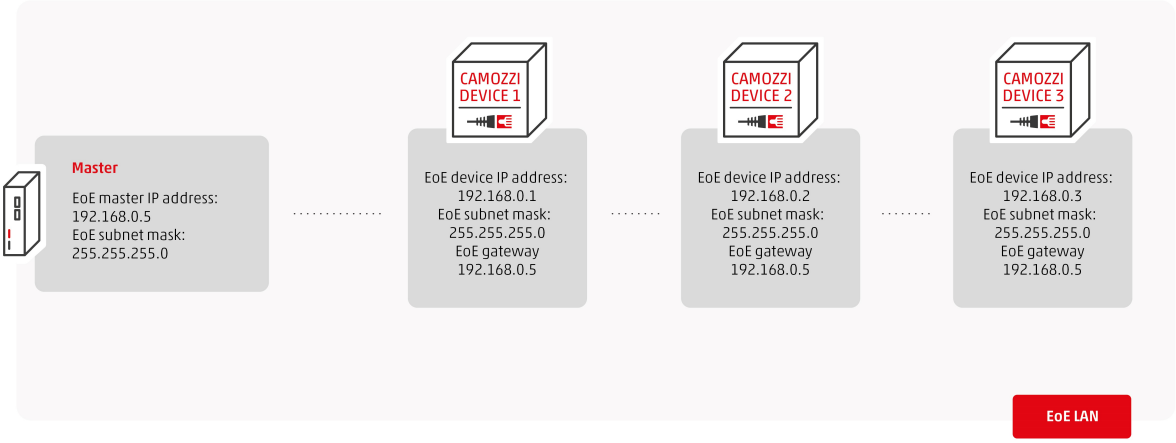

Figure 2.4: Internal Communication via EoE

To use this configuration the master must have an operating system that allows installing the UVIX software, then enable EoE and configure the IP addresses with the following rules.

- Master: EoE enabled, IP address must be static and consistent with the created local network.
- Camozzi device: EoE enabled, the IP address must be static and consistent with the created local network, the gateway must be the master IP address.

Although it is the simplest configuration, it requires a master with specific characteristics, so implementation may not be possible in most cases.

- **Direct EoE Access via EtherCAT Switch Port**: in this case the UVIX is installed on a dedicated PC inserted within the EtherCAT network, figure 2.6.

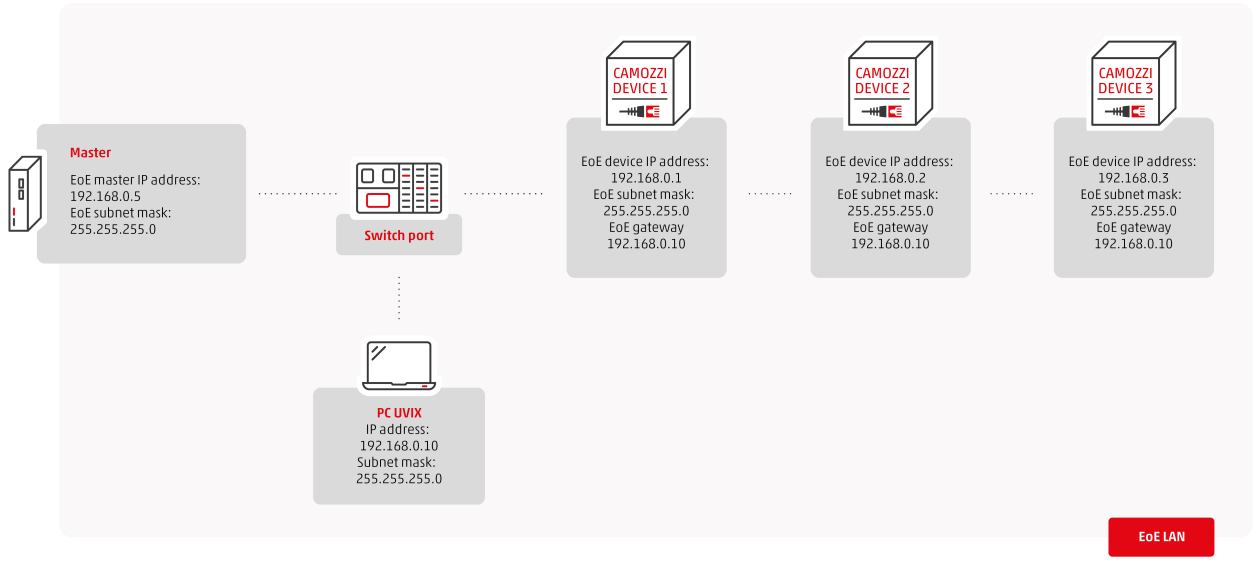

Figure 2.5: Direct EoE Access via EtherCAT Switch Port

To use this configuration you need to have an EtherCAT switch, then enable EoE and configure the IP addresses with the following rules.

- Master: EoE enabled, IP address must be static and consistent with the created local network.

- PC UVIX: The IP address must be static and consistent with the local network created.
- Camozzi device: EoE enabled, the IP address must be static and consistent with the created local network, the gateway must be the IP address of the PC where the UVIX is installed.

This configuration requires an EtherCAT switch (you cannot use a normal Ethernet switch) but it is the simplest to use, for this reason it is the most recommended.

- **External EoE Communication via IP Routing**: in this case the PC with UVIX installed is in a network (in the example indicated as Ethernet LAN) different from the EtherCAT network (in the example indicated as EoE LAN), figure 2.6.
  The master is connected to both networks via two separate ports and has the task of transmitting messages from one network to the other, this function is called routing.

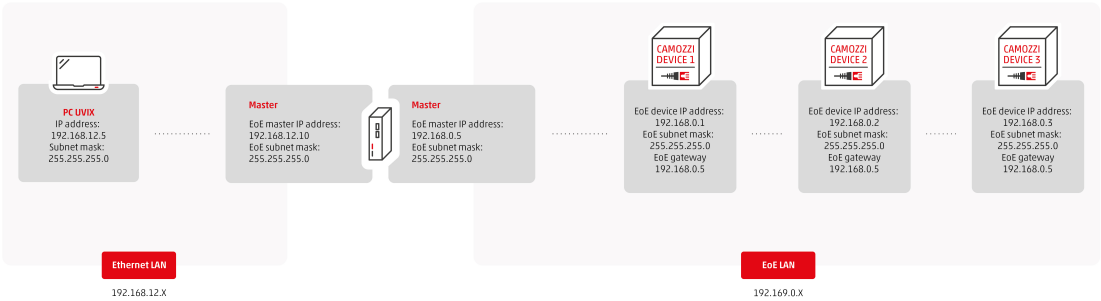

Figure 2.6: External EoE Communication via IP Routing

To use this configuration, it is necessary to enable the routing function on the master and on the devices. In addition to configuring the IP addresses, various operations on the networks are required and must be performed by specialized personnel.
Given the complexity of the network and the operations required for commissioning, its use is not recommended.

2.4 Advanced connections

In this section we will show some advanced topologies made possible by the software structure (the latter is analyzed in detail in the chapter 3).

2.4.1 Connection via Corporate Network

A possible extension of the two types seen is to make UVIX visible to an external network, such as a corporate network, through a second network port on the UVIX PC.
In the example shown in Figure 2.7, the wireless connection topology is depicted, but the concept is analogous for the USB connection.

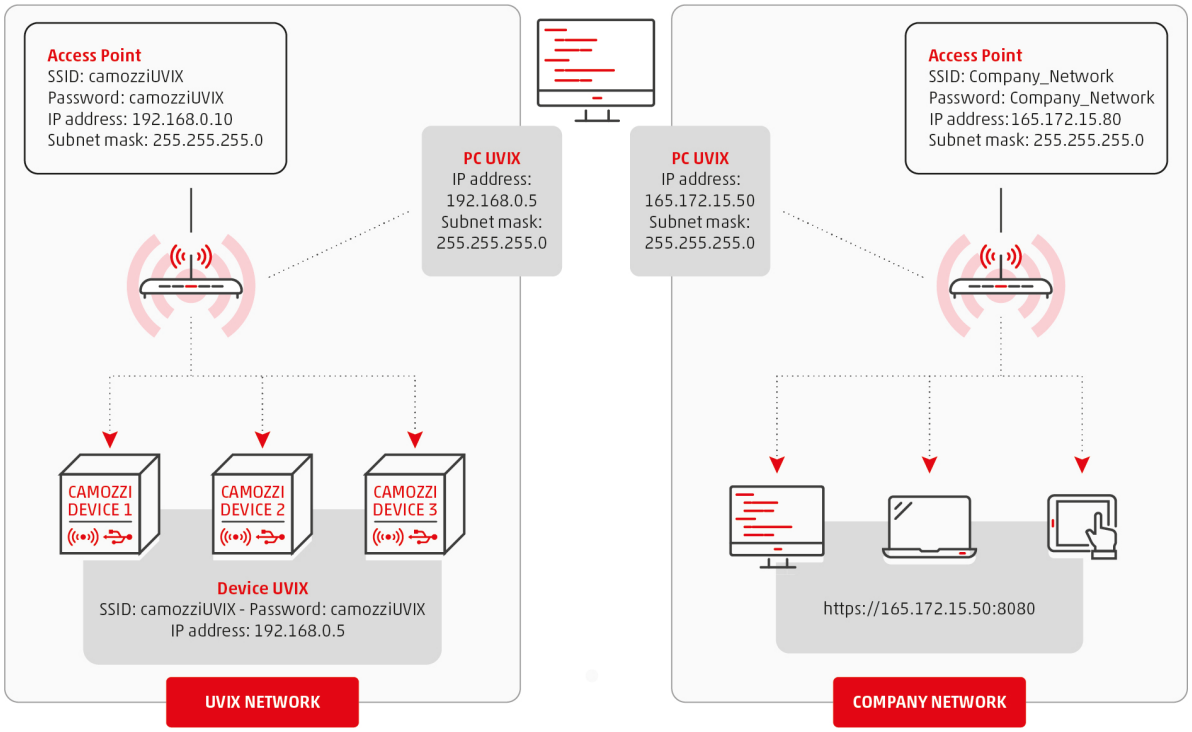

Figure 2.7: Example of Connection to an External Network

In this topology, one network port of the UVIX PC is used to create the Camozzi device network, while a second network port is used to make the software accessible from any device within the corporate network.
Devices within the corporate network do not need to have UVIX installed.
They can simply access the WebApp (Chapter 6) from a web browser by entering the IP address of the UVIX PC on their own network.

2.4.2 Distributed UVIX

An advanced use of UVIX software, made possible by its structure (Chapter 3), is the distributed topology.

In this topology, it is possible to divide the various components of UVIX across different PCs.
An example could be having a single UVIX and wanting to connect devices via USB cables but not directly reachable.
By leveraging this topology, you can set up multiple PCs with only the "Camozzi USB Gateway" (Chapter 5) installed, connect them to the same wireless network as the PC with UVIX installed, and connect the desired devices to various PCs via USB cable.
By configuring the "Camozzi USB Gateway" properly, you can make the various devices, connected to different PCs, communicate with a single UVIX.

Software structure

In this chapter, we will delve into the structure of UVIX (Figure 3.1), analyzing the various components and how they are interconnected.
Understanding these elements is crucial for commissioning advanced topologies (Chapter 2) or for modifying communication ports if one or more of the predefined ones are already occupied.

3.1 UVIX Structure

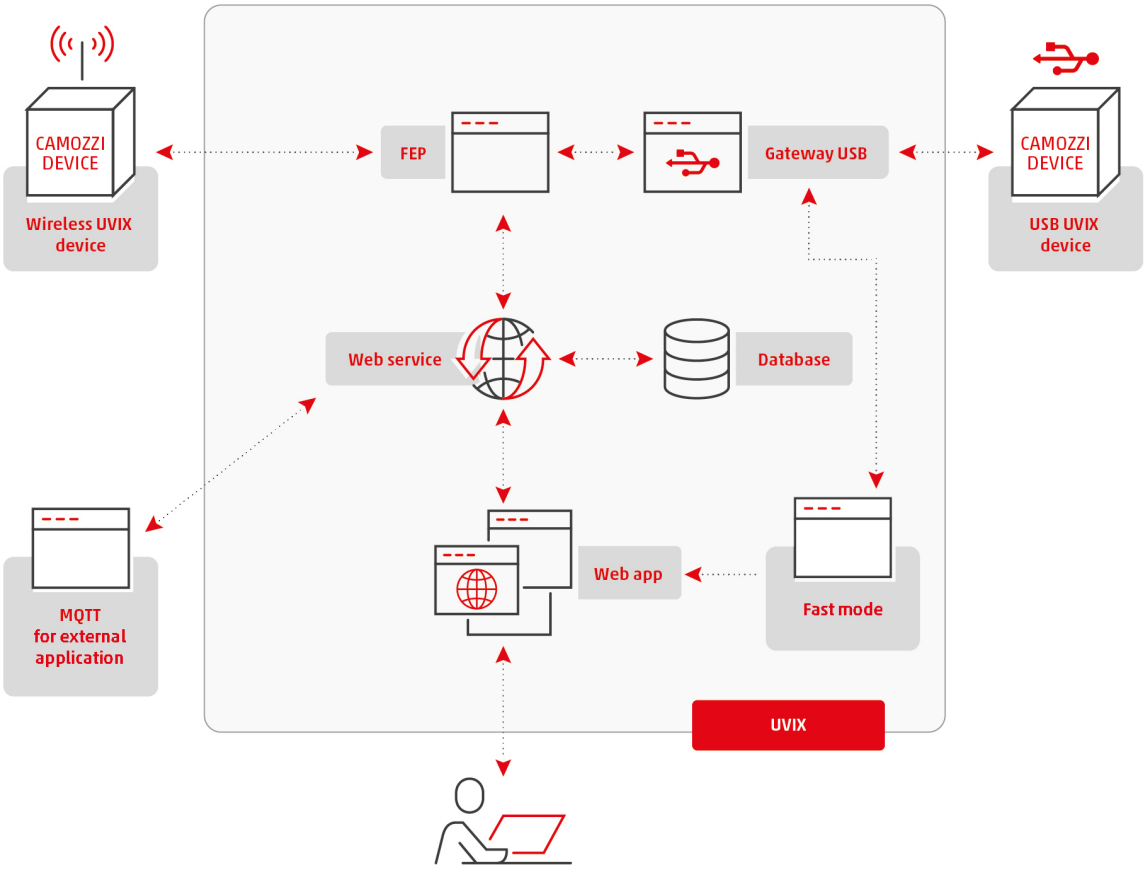

Figure 3.1: UVIX Structure

The UVIX software consists of:

- USB Gateway: Manages messages between devices connected via USB and the FEP. This component must be started manually and is not used for connections other than USB.
- FEP: Manages messages between devices and the Web Service. In the case of USB communication,

data comes from the USB Gateway, otherwise directly from the device.

- Web App: The web interface visible to the user, responsible for displays data provided by the Web Service in a simple and intuitive manner.
- Database: Contains the latest data received from devices.
- Web Service: Manages the Database and data exchange with FEP and Web App.
- Fast Mode: Manages "fast" data, which requires a higher transmission frequency.
- MQTT for external application: An external component to UVIX, the Web Service implements the MQTT protocol to allow data to be sent to an external application. For more information, see Chapter 7.

3.2 Communication Parameters

Communication between the various components occurs through the establishment of a TCP socket.
To work correctly, the IP address and communication port must be set.
The IP address of the component is the same as that of the PC on which it is installed.
If all components are installed on the same PC, they will have the same IP address.
Depending on the type of installation (Chapter 4), it is possible to manually specify the ports to use.
Otherwise, the various components will use the default ports, which can also be modified later through the configuration files.
Table 3.1 lists all the ports used, along with the components and whether they are modifiable.

Table 3.1: Communication Ports

Components	Communication Port	Modifiable
Wireless Device - FEP	1555	No
USB Gateway - FEP	1555	No
USB Gateway - Camozzi Ethernet Device	55555	No
USB Gateway - Fast Mode	1883	Yes
Fast Mode - Web App	8083	Yes
FEP - Web App	12345	Yes
FEP - Web Service	5000	Yes
Web App - Web Service	5000	Yes
Web App - User	8080	Yes
Web Service - MQTT for external application	1883	Yes

During installation, rules for all used ports are automatically added to the Windows firewall.
The same operation (user responsibility) must be performed if a third-party antivirus or firewall is present.

3.3 Advanced UVIX Structure

Figure 3.2 shows the advanced structure of UVIX, including all communication ports.

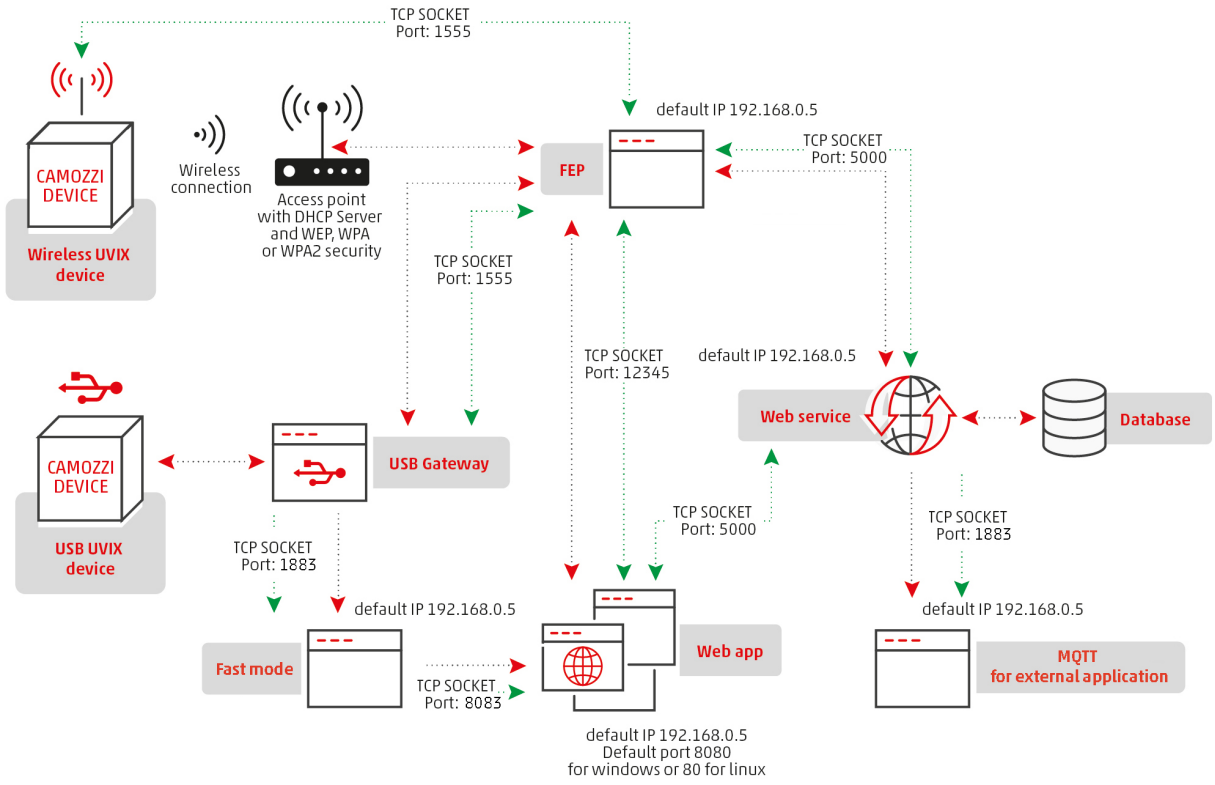

Figure 3.2: Advanced UVIX Structure

3.4 Modification USB Gateway - Fast Mode Communication Parameters

To modify this communication, follow these instructions:

1. Start USB Gateway (for more information, see Chapter 5).
2. Open the Tools -> Setting menu.
3. Modify the "Fast Mode Address" field with the desired IP address, setting the first number to 127, will set the local address.
4. Modify the "Fast Mode Port" with the desired port.
5. Open the file 'mosquitto.conf' with an editor in the Mosquitto installation path, by default `C:\ProgramFiles\mosquitto`.
6. Modify line 891 by replacing port 1883 with the desired one; the IP address automatically matches the PC where Fast Mode is installed.
7. Save and close the file.
8. Restart the service "Mosquitto Broker" or the PC.

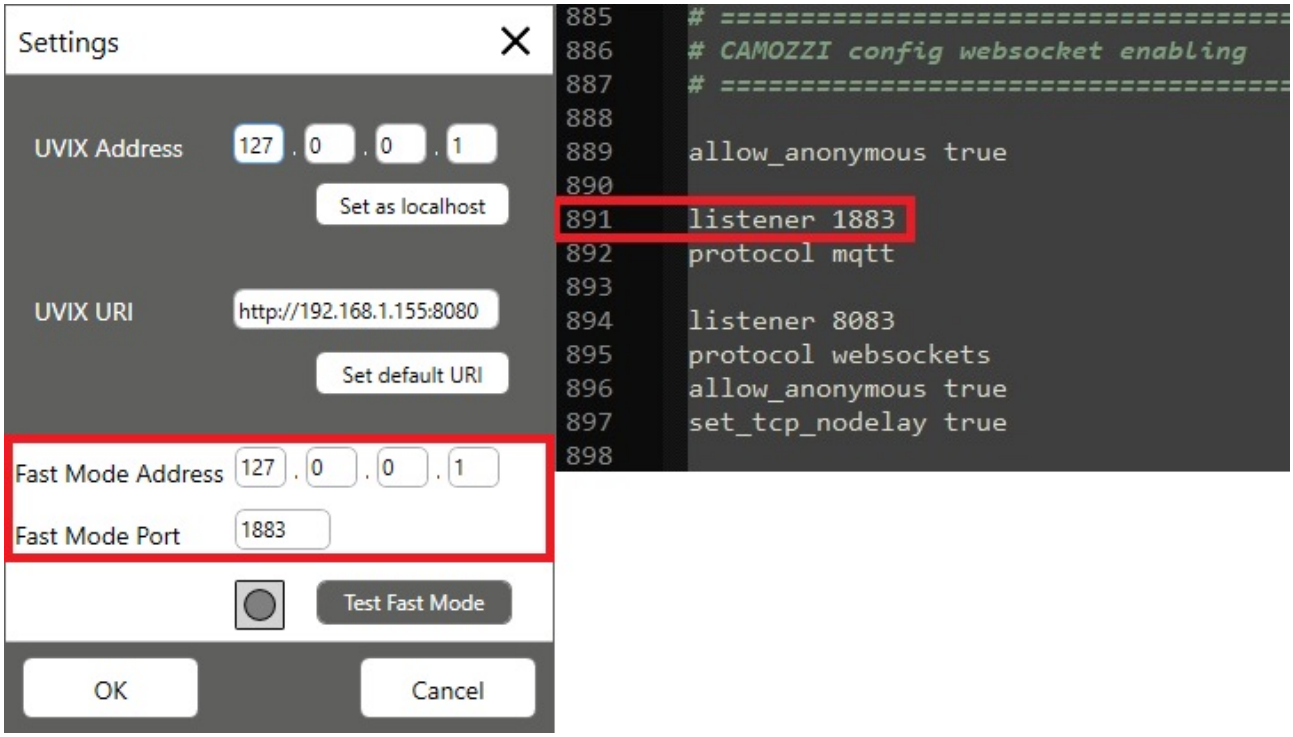

Figure 3.3: Changing the USB Gateway - Fast Mode Port

3.5 Modification Communication Parameters for Fast Mode - Web App

To modify this communication, follow the instructions below:

1. Open the file 'mosquitto.conf' with an editor in the Mosquitto installation path, by default `C:\ProgramFiles\mosquitto`.
2. Modify line 894 by replacing port 8083 with the desired port. The IP address will automatically be the one of the PC where Fast Mode is installed.
3. Save and close the file.
4. Open the "config.js" file in a text editor located in the Web App installation directory, by default `C:\ProgramFiles(x86)\CAMOZZI\UVIX\WebApp\js`.
5. Modify line 98 by replacing port 8083 with the desired port. The IP address will automatically be that of the PC where the Web App is installed.
6. Save and close the file.
7. Restart the service "Mosquitto Broker" or the PC.

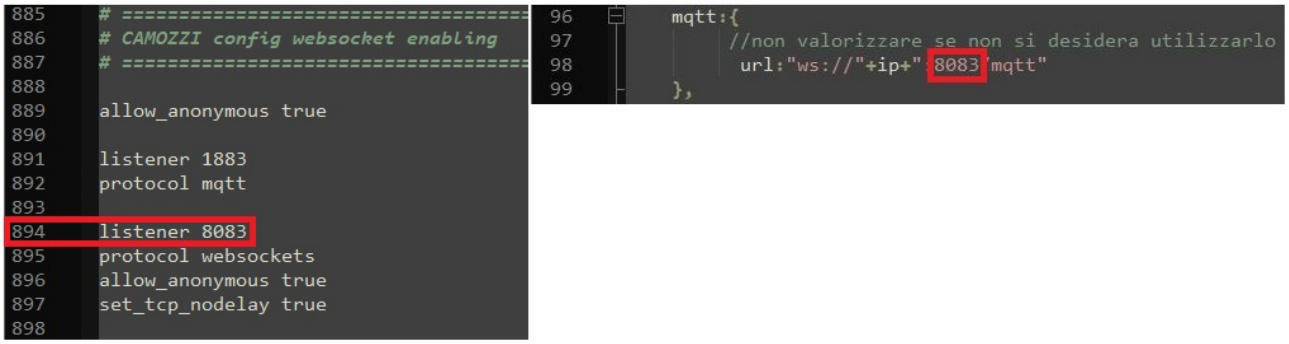

Figure 3.4: Changing the Port for Fast Mode - Web App

3.6 Modification Communication Parameters for FEP - Web App

To modify this communication, follow the instructions below:

1. Open the "camozzi.config" file in a text editor located in the FEP installation directory, by default `C:\ProgramFiles(x86)\CAMOZZI\UVIX\FEP`.
2. Modify line 13 by replacing port 12345 with the desired port. The IP address will automatically be that of the PC where FEP is installed.
3. Save and close the file.
4. Open the "config.js" file in a text editor located in the Web App installation directory, by default `C:\ProgramFiles(x86)\CAMOZZI\UVIX\WebApp\js`.
5. Modify line 82 by replacing port 12345 with the desired port. The IP address will automatically be that of the PC where the Web App is installed.
6. Save and close the file.
7. Restart the service "CamozziFEP" or the PC.

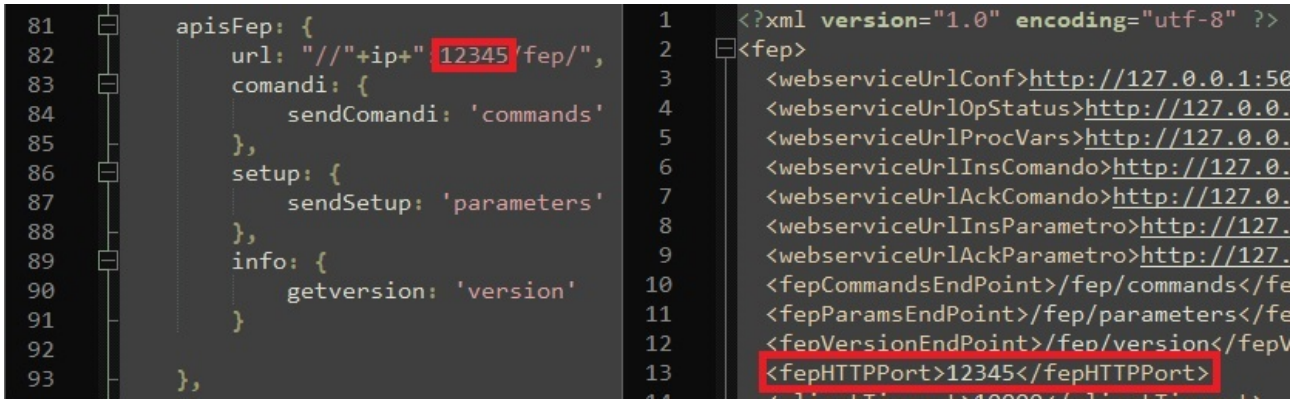

Figure 3.5: Changing the Port for FEP - Web App

3.7 Modification Communication Parameters for FEP - Web Service and Web App - Web Service

To modify this communication, follow the instructions below:

1. Open the "camozzi.config" file in a text editor located in the FEP installation directory, by default `C:\ProgramFiles(x86)\CAMOZZI\UVIX\FEP`.
2. Modify lines 3 to 9 by replacing port 5000 with the desired port.
3. Modify lines 3 to 9 by replacing the IP address 127.0.0.1 with the desired IP address.
4. Save and close the file.
5. Copy the "config.xml" file to the Web Service installation directory inside the "Config" folder located in the same directory, by default `C:\ProgramFiles(x86)\CAMOZZI\UVIX\WebService`.
6. Open the copied "config.xml" file in a text editor.
7. Modify line 5 by replacing port 5000 with the desired port.
8. Modify line 5 by replacing the IP address 127.0.0.1 with the desired IP address.
9. Save and close the file.

10. Open the "config.js" file in a text editor located in the Web App installation directory, by default `C:\ProgramFiles(x86)\CAMOZZI\UVIX\WebApp\js`.
11. Modify line 1 by replacing *window.location.hostname* with the desired IP address enclosed in double quotes, for example, *"192.168.153.23"*.
12. Modify line 7 by replacing port 5000 with the desired port.
13. Modify line 75 by replacing port 5000 with the desired port.
14. Save and close the file.
15. Restart the service "CamozziFEP" and "CamozziWebService", or restart the PC.

```
<?xml version="1.0" encoding="utf-8" ?>
<fep>
  <webserviceUrlConf>http://127.0.0.1:5000/api/fep/confdispositivo</webserviceUrlConf>
  <webserviceUrlOpStatus>http://127.0.0.1:5000/api/fep/statooperativo</webserviceUrlOpStatus>
  <webserviceUrlProcVars>http://127.0.0.1:5000/api/fep/variabiliprocesso</webserviceUrlProcVars>
  <webserviceUrlInsComando>http://127.0.0.1:5000/api/fep/inscomando</webserviceUrlInsComando>
  <webserviceUrlAckComando>http://127.0.0.1:5000/api/fep/ackcomando</webserviceUrlAckComando>
  <webserviceUrlInsParametro>http://127.0.0.1:5000/api/fep/setparametrisetup</webserviceUrlInsParametro>
  <webserviceUrlAckParametro>http://127.0.0.1:5000/api/fep/echoparametrisetup</webserviceUrlAckParametro>
  <fepCommandsEndPoint>/fep/commands</fepCommandsEndPoint>
  <fepParamsEndPoint>/fep/parameters</fepParamsEndPoint>
  <fepVersionEndPoint>/fep/version</fepVersionEndPoint>
  <fepHTTPPort>12345</fepHTTPPort>
  <clientTimeout>10000</clientTimeout>
  <runEvery>200</runEvery>
  <tcpPort>1555</tcpPort>
</fep>
```

```
<?xml version="1.0" encoding="utf-8"?>
<config>
    <!-- Generale -->
  <!--Url su cui lanciare Web Service-->
  <StrServiceUrl>http://0.0.0.0:5000</StrServiceUrl>

  <!--Lunghezza timer di controllo connessioni dispositivi (in millisecondi)-->
  <MSecCheckDispConnections>10000</MSecCheckDispConnections>

  <!--Lunghezza timer di recupero timeout connessioni (in millisecondi)-->
  <MSecGetTimeouts>600000</MSecGetTimeouts>

  <!--Numero massimo di pacchetti gestiti in singola transazione-->
  <MaxPcktsPerTransaction>200</MaxPcktsPerTransaction>
```

```
var ip = window.location.hostname;
var urlConfig = {
    main: 'main.html',
    login: 'index.html',

    apis: {
        url: "//" + ip + ":5000/api/web/",
        anagrafiche: {
            getconfigurazioni: "getconfigurazioni",
            getmacchine: "getmacchine",
    apisFepWeb:
    {
        url: "//" + ip + ":5000/api/fep/",
        setup: {
            saveSetup: 'setparametrisetup'
        }
    },
```

Figure 3.6: Changing the Port for FEP - Web Service and Web App - Web Service

3.8 Modification Communication Parameters for Web App - User

To modify this communication, follow the instructions below:

1. Launch the IIS (Internet Information Services) with administrator privileges.
2. In the "Connections" window, open the "Sites" folder and select "WebApp Remote Control".

3. In the "Actions" window, click on "Bindings...".
4. Select the row indicating the currently used port, by default 8080, and click "Edit...".
5. In the "Port:" field, replace the currently used port, by default 8080, with the desired port.
6. Click "OK," close the "Site Bindings" window, and exit IIS.

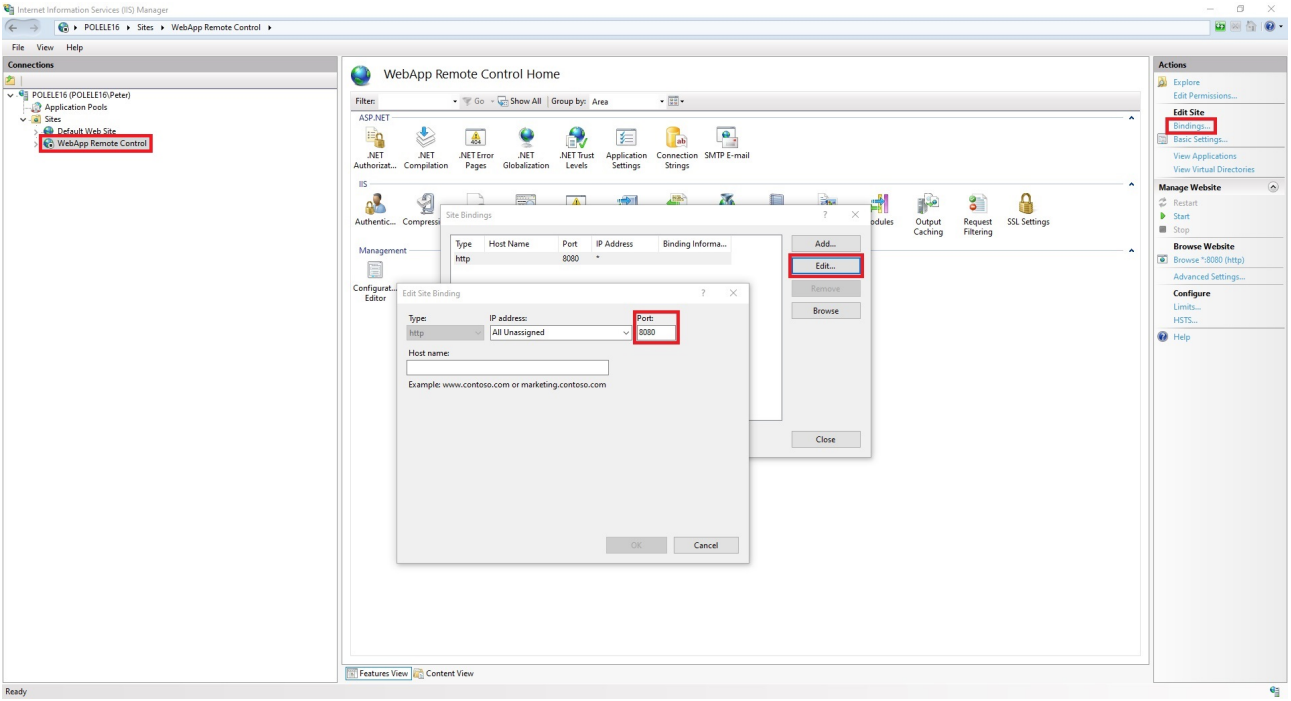

Figure 3.7: Changing the Port for Web App - User

3.9 Modification Communication Parameters for Web Service - MQTT for External Application

For more information on this functionality, refer to chapter 7.
To modify this communication, follow the instructions below:

1. Copy the "config.xml" file to the Web Service installation directory inside the "Config" folder located in the same directory, by default `C:\ProgramFiles(x86)\CAMOZZI\UVIX\WebService`.
2. Open the copied "config.xml" file in a text editor.
3. Modify line 19 by setting the value to 1 to enable MQTT, if it's not already enabled.
4. Modify line 22 by replacing *localhost* with the desired IP address.
5. Modify line 25 by replacing port 1883 with the desired port.
6. Restart the service "CamozziWebService" or the PC.

```
17  <!-- Mqtt -->
18  <!--Flag che indica se abilitare task Mqtt (0=disabled, 1=MqttCustomer, 2=MqttDigital, default:0)-->
19  <MqttOn>0</MqttOn>
20
21  <!--Host di connessione a broker Mqtt-->
22  <MqttConnectionHost>localhost</MqttConnectionHost>
23
24  <!--Porta di connessione a broker Mqtt-->
25  <MqttConnectionPort>1883</MqttConnectionPort>
26
```

Figure 3.8: Changing the Port for Web Service - MQTT for External Application

Installation

In this chapter, we will go through the installation procedure in detail, which includes two modes: a basic mode that sets parameters to default values and an advanced mode that allows user customization.
To start the installation, you will need administrator privileges.
After that, follow the steps described in Chapter 4.1 if you want to perform the basic installation, or follow those described in Chapter 4.2 if you prefer the advanced installation.

4.1 Basic installation

To perform the basic installation, follow these steps:

1. Ensure that the system requirements are met and click "Yes", as shown in figure 4.1.

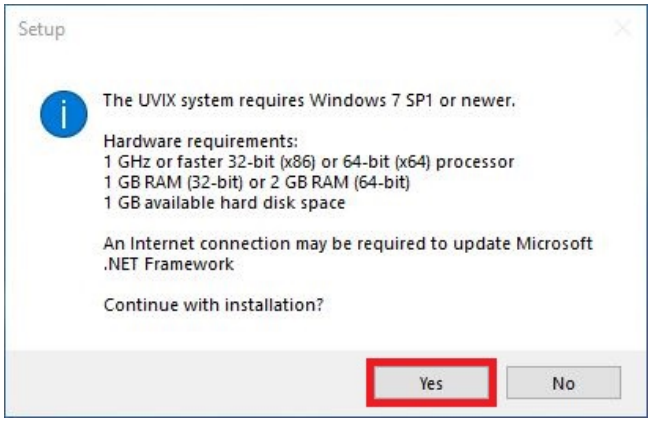

Figure 4.1: UVIX requirements

2. Select the "Basic" mode and click "Next," as shown in Figure 4.2.

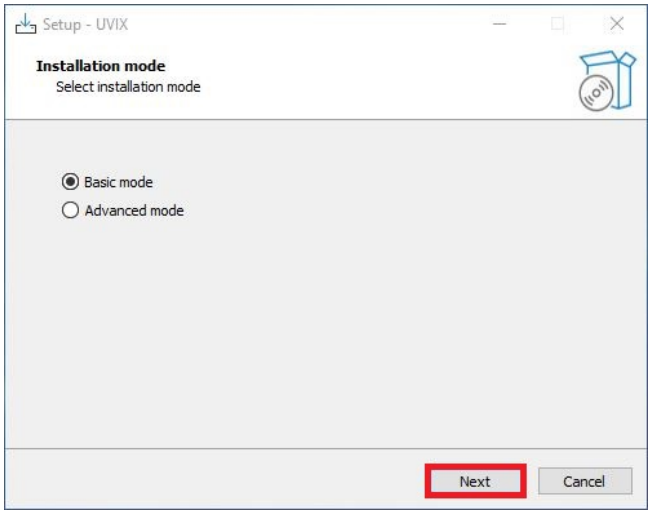

Figure 4.2: Mode selection

3. Wait for the installation to complete, as shown in Figure 4.3.

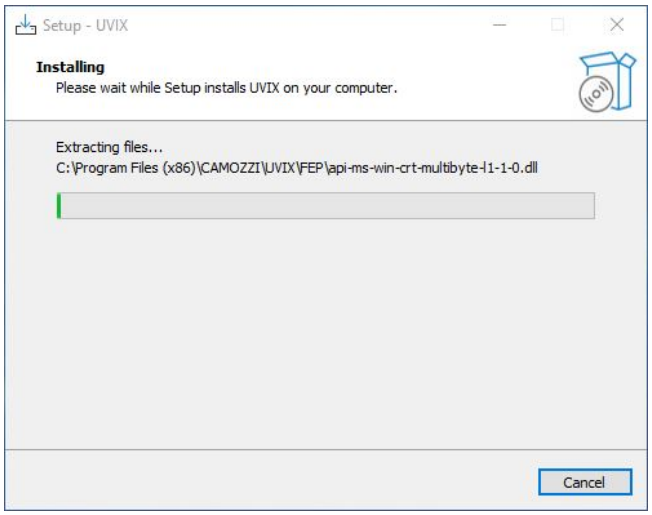

Figure 4.3: Installation

4. Click "Ok" to confirm the installation of Fast Mode, as shown in Figure 4.4.

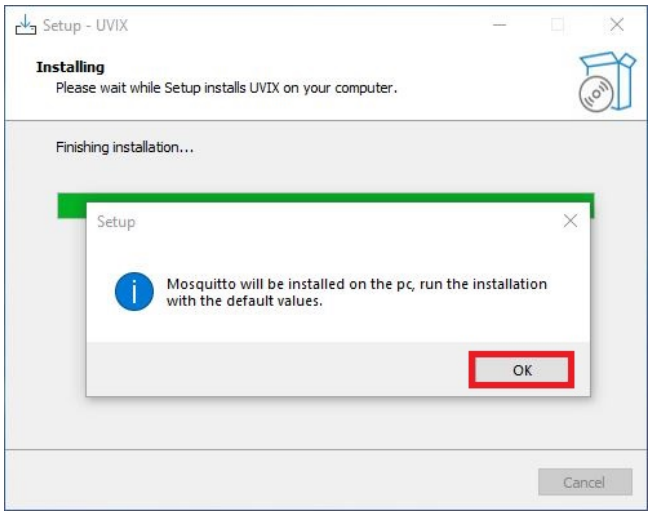

Figure 4.4: Fast Mode installation

5. Click "Next >" to begin the installation, as shown in Figure 4.5.

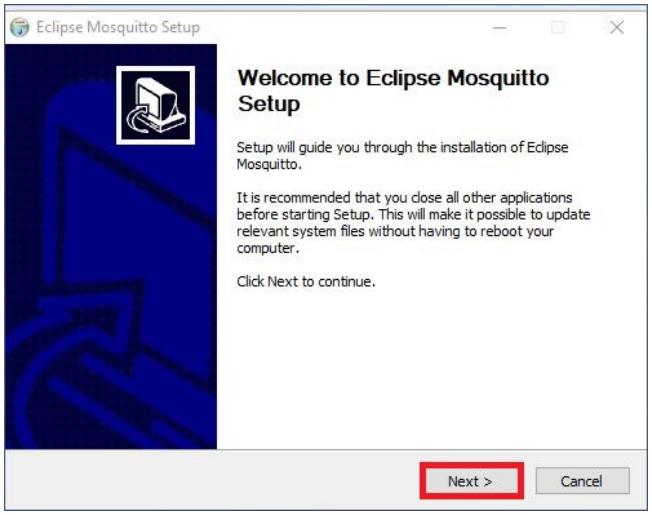

Figure 4.5: Start of Fast Mode installation

6. Click "Next >" to confirm the components you want to install, as shown in Figure 4.6.

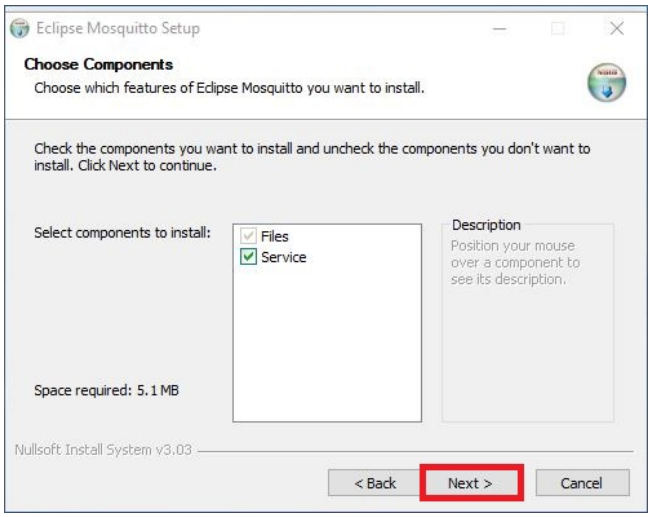

Figure 4.6: Select Fast Mode components

7. Click "Install" to start the installation, as shown in Figure 4.7.

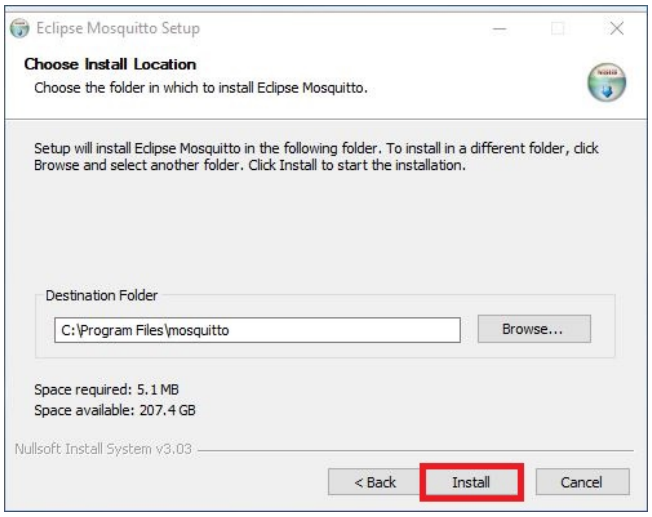

Figure 4.7: Launch of Fast Mode installation

8. Click "Finish" to complete the installation of Fast Mode, as shown in Figure 4.8.

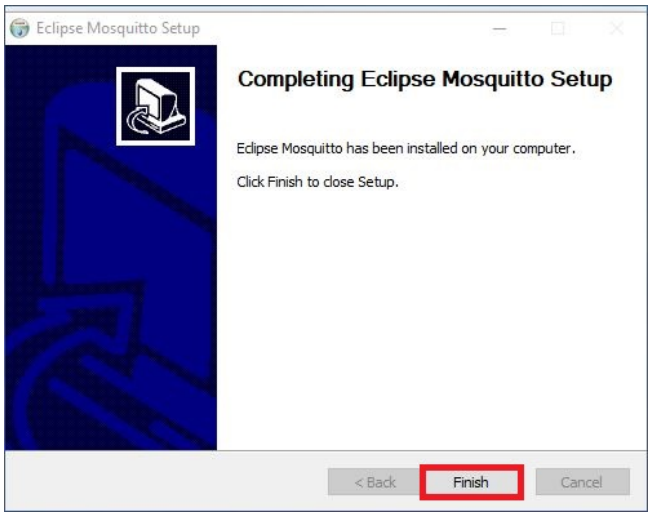

Figure 4.8: End of Fast Mode installation

9. Select whether you want to restart your PC immediately or at a later time and click "Finish," as shown in Figure 4.9.

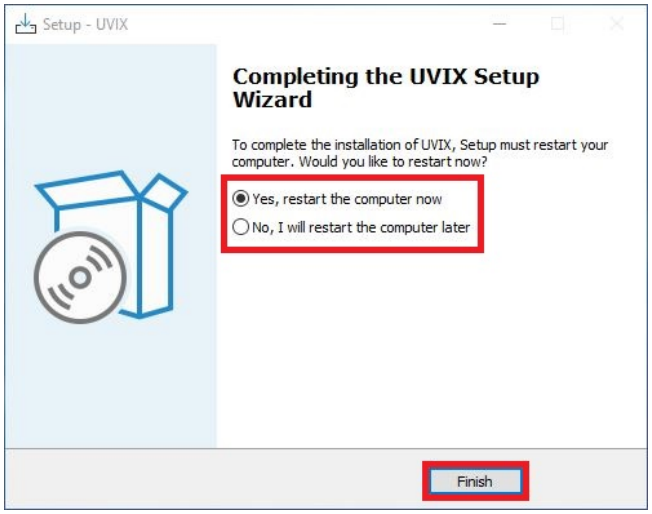

Figure 4.9: Restart options

10. Click "Ok" and after the restart, remember to clear the browser cache (browsing history), as shown in Figure 4.10.

Figure 4.10: End of installation

4.2 Advanced Installation

To perform the advanced installation, follow these steps:

1. Ensure that the requirements are met and click "Yes," as shown in figure 4.11.

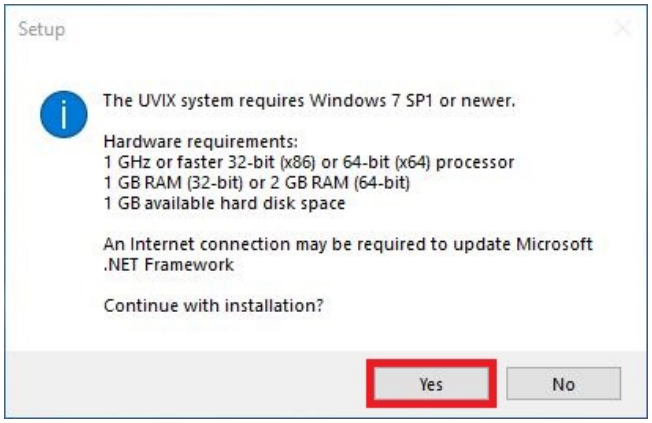

Figure 4.11: UVIX Requirements

2. Select the "Advanced" mode and click "Next," as shown in figure 4.12.

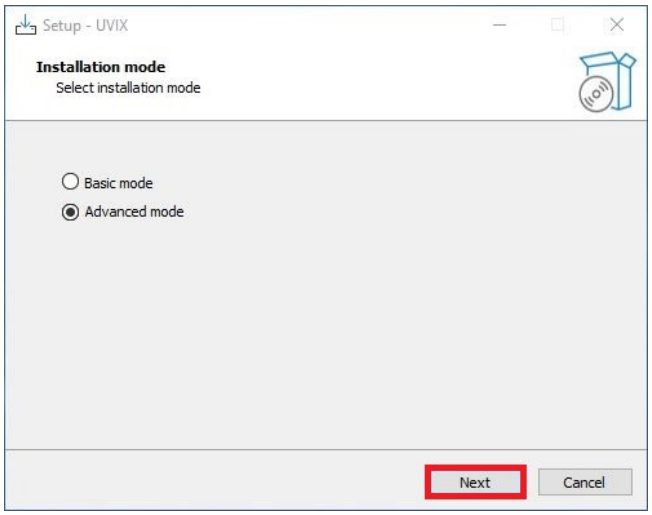

Figure 4.12: Mode Selection

3. If you want to change the destination folder, then click "Next" after that, as shown in figure 4.13.

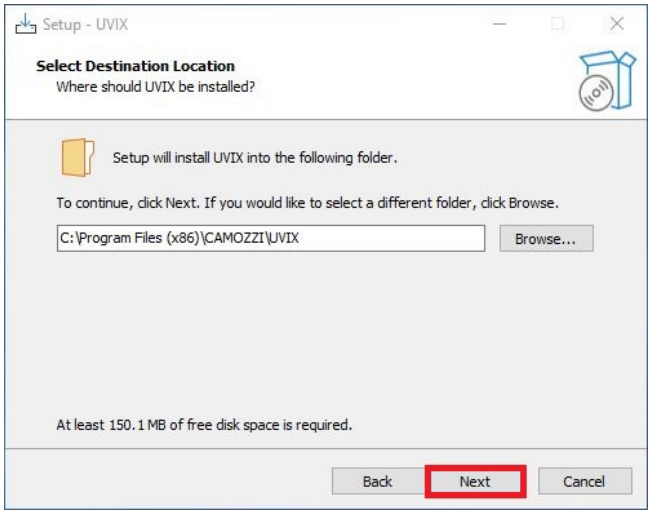

Figure 4.13: Select Destination Folder

4. If the folder already exists, confirm that you want to proceed by clicking "Yes," as shown in figure 4.14.

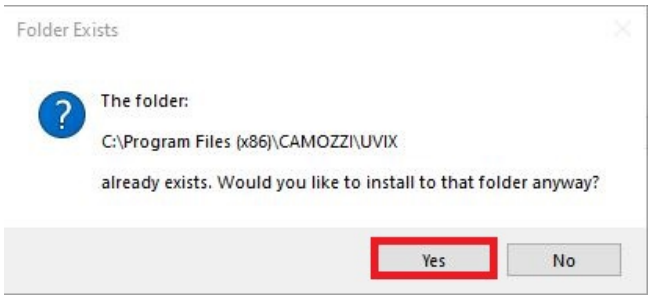

Figure 4.14: Confirm Destination Folder

5. Specify whether you want to create a shortcut and click "Next," as shown in figure 4.15.

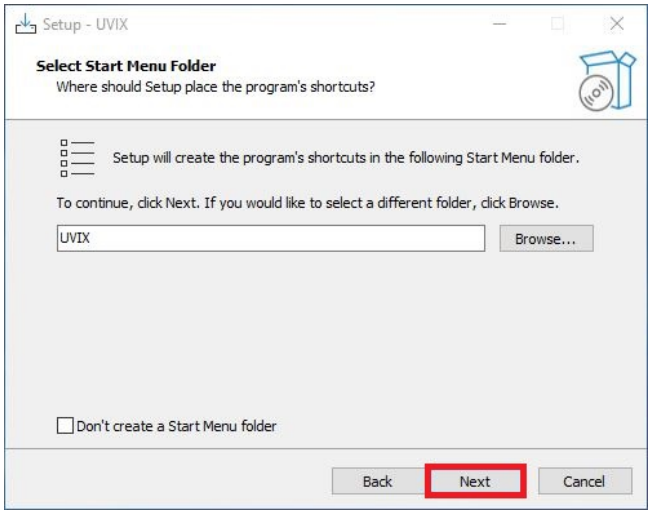

Figure 4.15: Create Shortcut

6. Verify the installation settings and click "Install," as shown in figure 4.16.

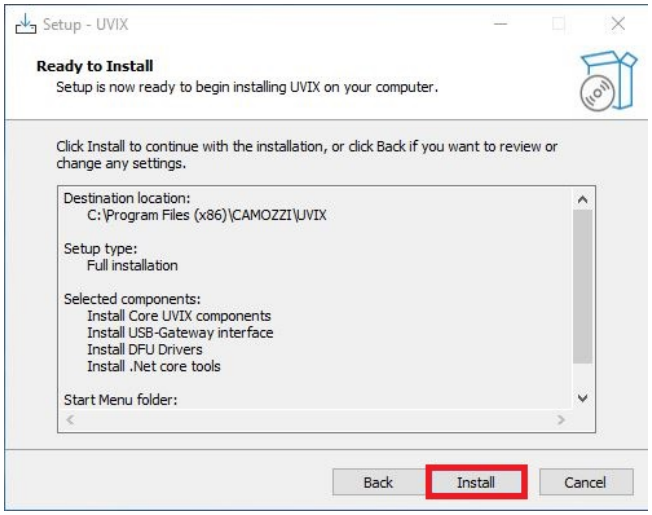

Figure 4.16: Installation Settings Summary

7. Wait for the installation to complete, as shown in figure 4.17.

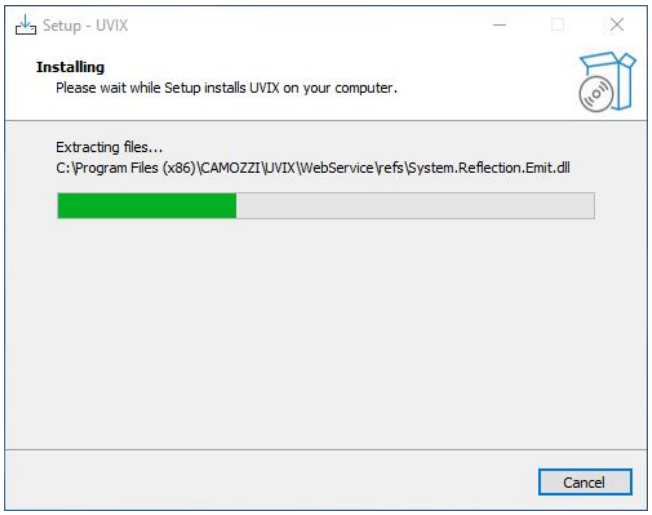

Figure 4.17: Installing

8. Specify if you want to install IIS (Internet Information Services), the Windows component responsible for managing the WebApp.
   Type "y" to confirm or "n" to decline and press Enter, as shown in figure 4.18.

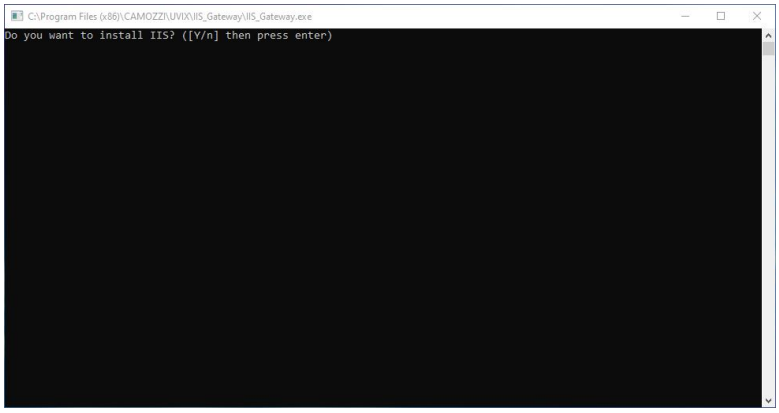

Figure 4.18: IIS Installation

9. If you have decided to install IIS, wait for it to finish, and press any key, as shown in figure 4.19.

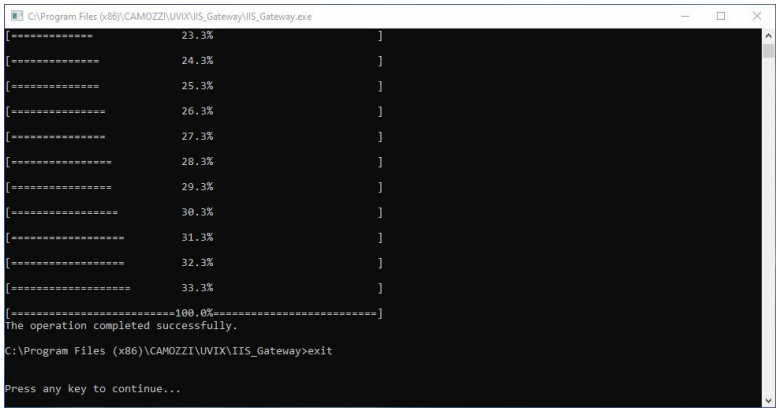

Figure 4.19: IIS Installation Completion

10. Specify the port for the WebApp you want to use.
    Type "y" and Enter for the default port (8080), or type "n" and Enter, followed by your desired port and Enter if you want to customize it, as shown in figure 4.20.

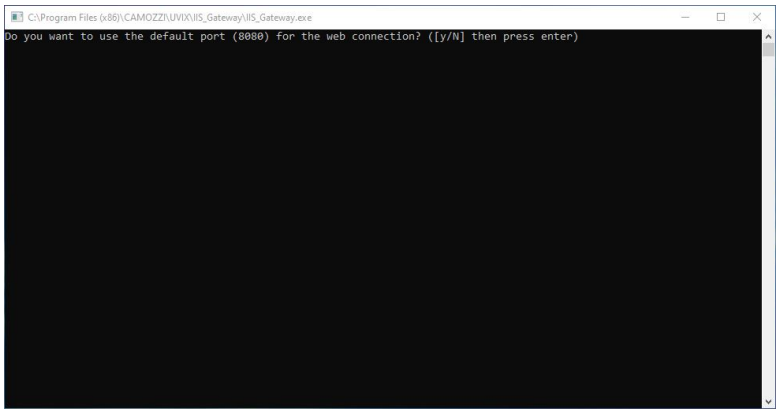

Figure 4.20: WebApp Port Configuration

11. Wait for the configuration to finish, and press any key, as shown in figure 4.21.

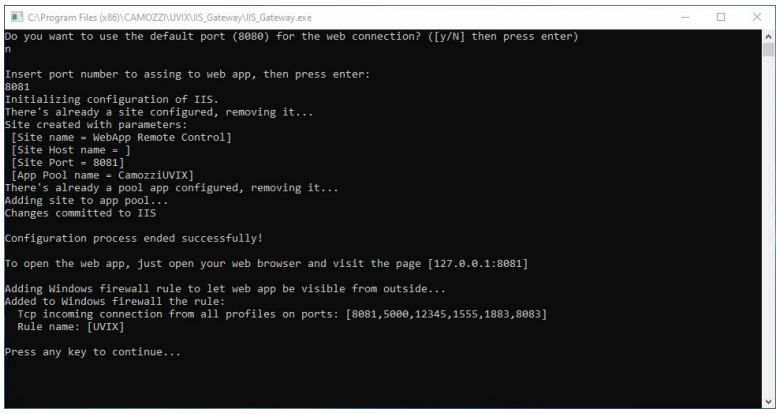

Figure 4.21: WebApp Port Configuration Completion

12. Accept the terms and click "Install" to install the Microsoft Visual C++ 2019 Runtime package, as shown in figure 4.22.

Figure 4.22: Microsoft Visual C++ 2019 Runtime Installation

13. If the package is already installed, click "Close" to close the error message that appears and continue with the installation of other packages, as shown in figure 4.23.

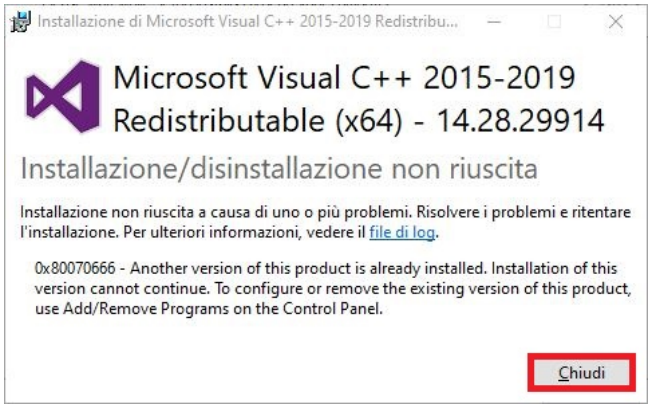

Figure 4.23: Error Message if Already Installed

14. Wait for Windows updates to be checked, as shown in figure 4.24.

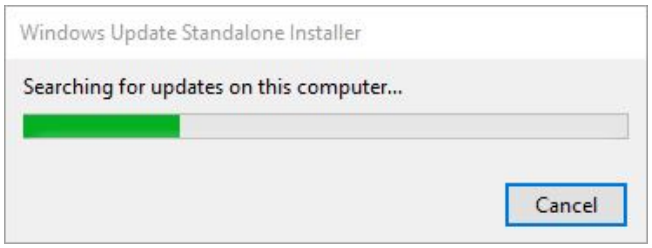

Figure 4.24: Windows Updates

15. Click "OK" to confirm the installation of Fast Mode, as shown in figure 4.25.

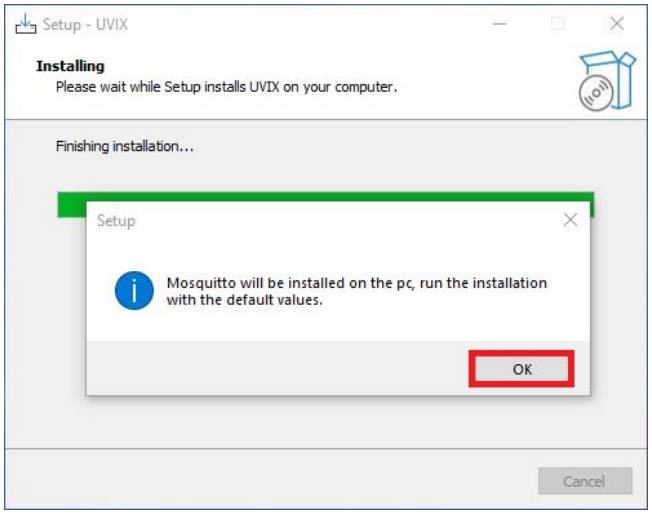

Figure 4.25: Fast Mode Installation

16. Click "Next >" to start the installation, as shown in figure 4.26.

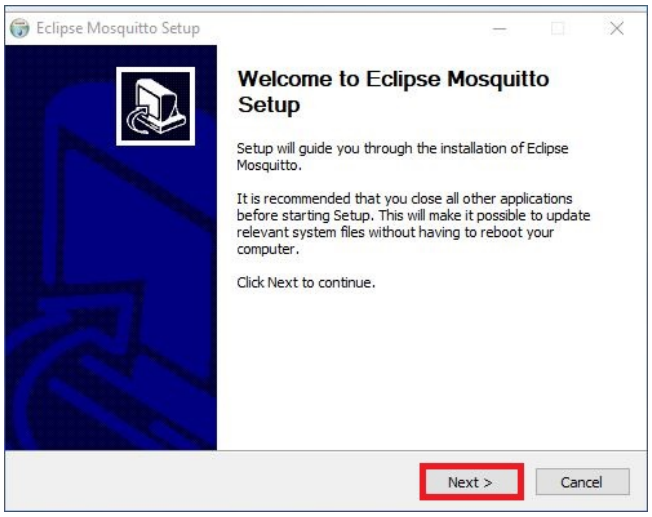

Figure 4.26: Start of Fast Mode Installation

17. Click "Next >" to confirm the components you want to install, as shown in figure 4.27.

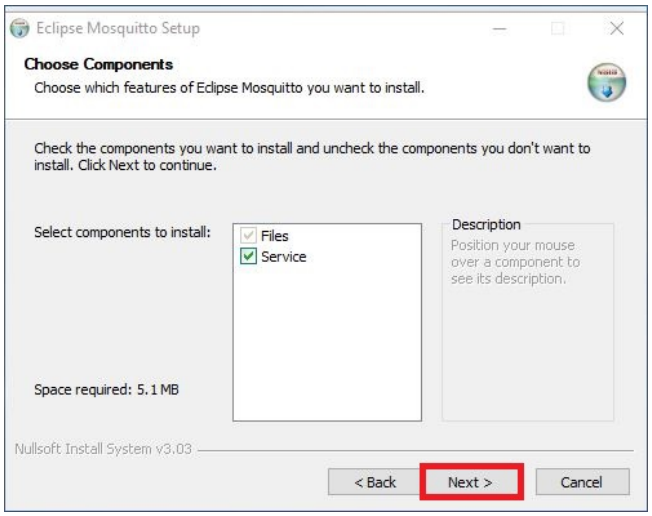

Figure 4.27: Select Fast Mode Components

18. Click "Install" to start the installation, as shown in figure 4.28.

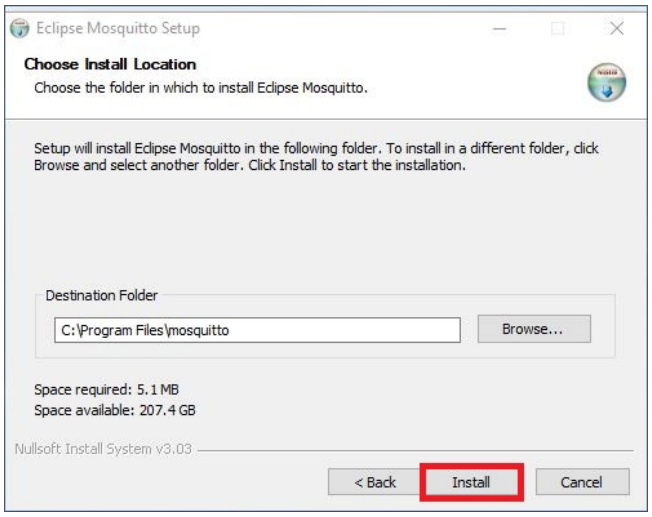

Figure 4.28: Launch of Fast Mode Installation

19. Click "Finish" to complete the installation of Fast Mode, as shown in figure 4.29.

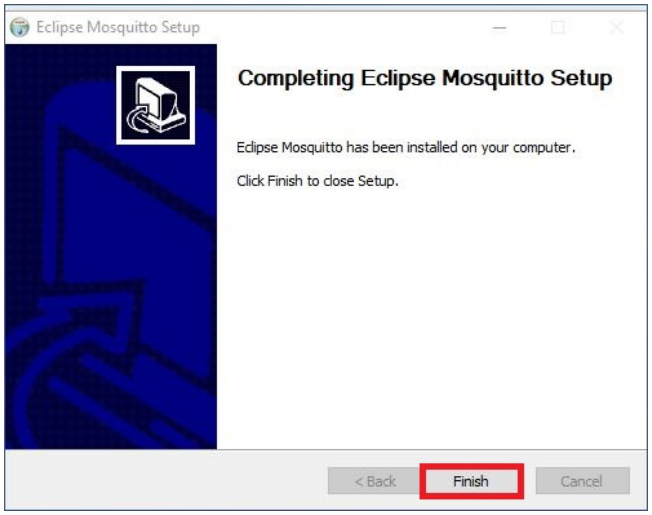

Figure 4.29: End of Fast Mode installation

20. Select whether you want to restart your PC immediately or at a later time and click "Finish," as shown in figure 4.30.

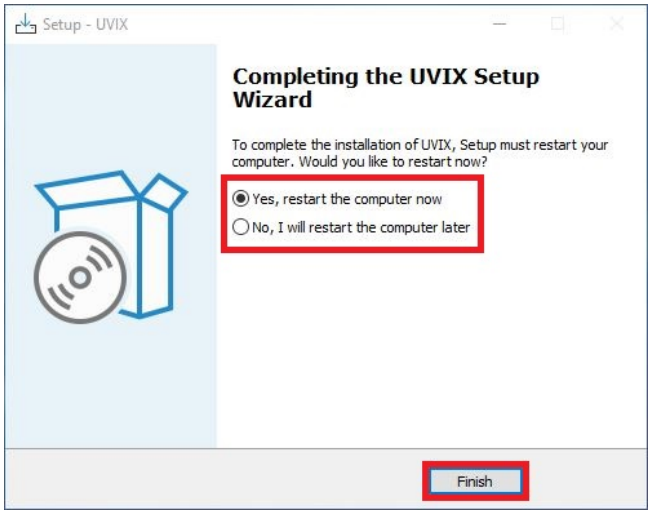

Figure 4.30: Restart Options

21. Click "OK" and after the restart, remember to clear the browser cache (browsing history), as shown in figure 4.31.

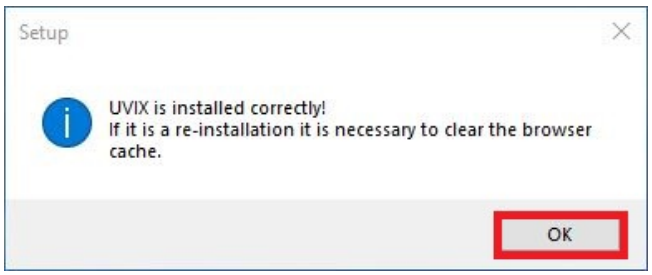

Figure 4.31: End of installation

Camozzi USB Gateway

In this chapter, we will take a detailed look at all the features of the Camozzi USB Gateway (Figure 5.1), a component that is responsible for managing communication between Camozzi devices connected via USB connection and the FEP (Fieldbus EtherNet/IP).

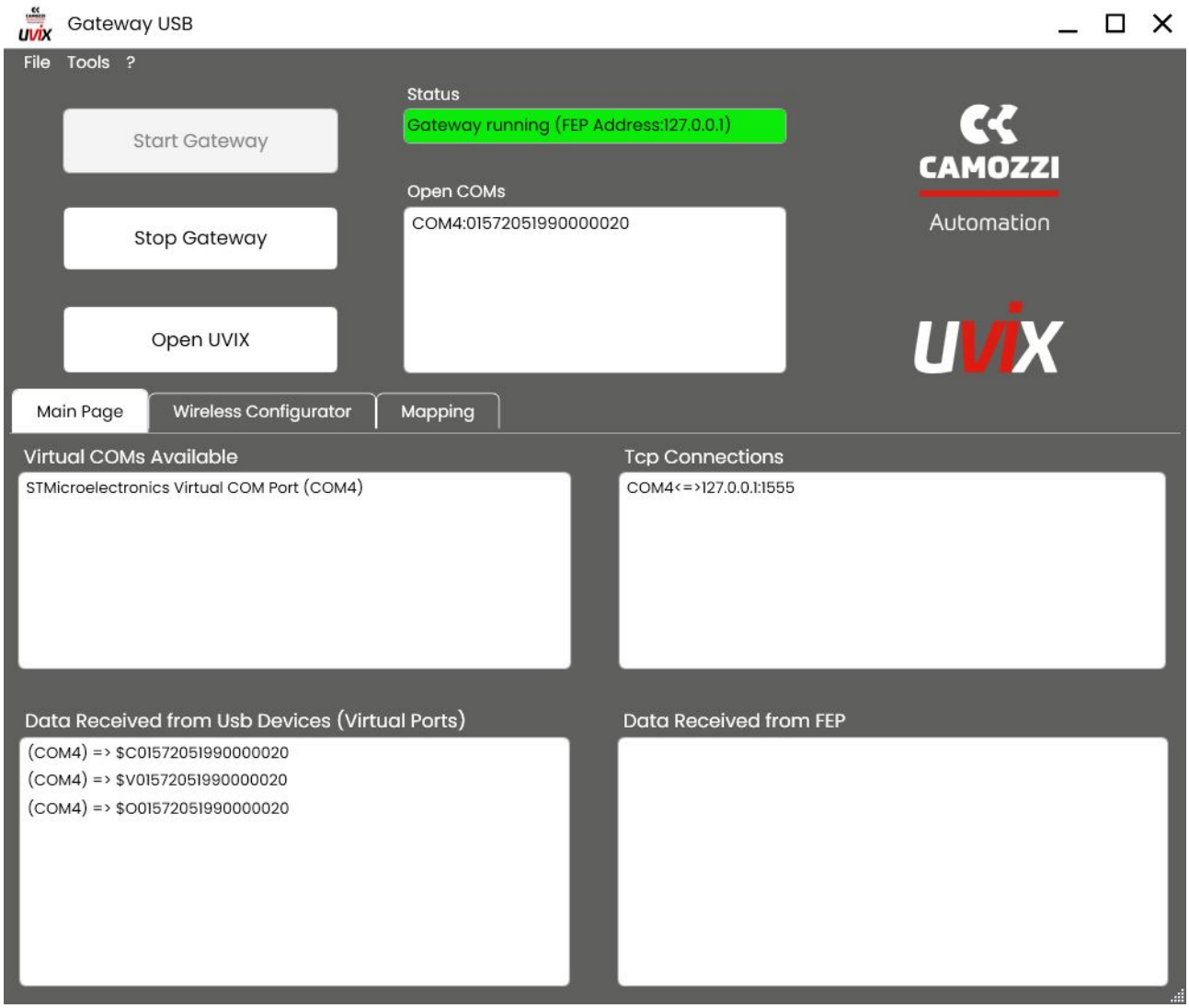

Figure 5.1: Camozzi USB Gateway

5.1 Main Screen

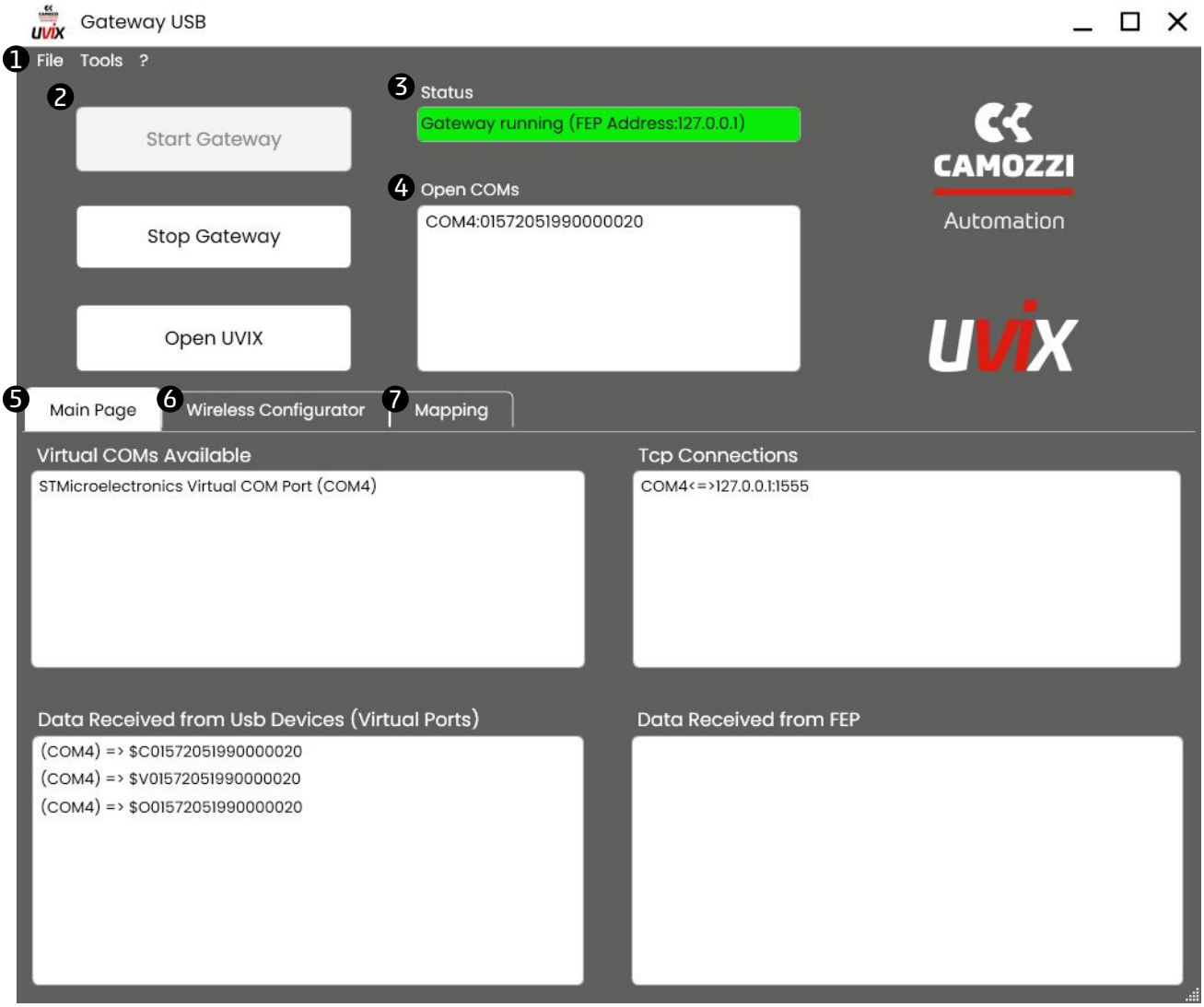

Figure 5.2: Main Screen

❶ Toolbar: for managing all the functionalities of the USB Gateway, Chapter 5.2.
❷ USB Gateway Commands: to start or stop the USB Gateway and open the webApp, Chapter 5.3.
❸ Status: indicates the status of the USB Gateway, Chapter 5.4.
❹ Open COMs: List of devices currently communicating, Chapter 5.5.
❺ Main Page: status of connections managed by the USB Gateway, Chapter 5.6.
❻ Wireless Configuration: wireless connection configuration, Chapter 5.7.
❼ Mapping: mapping command, Chapter 5.8.

5.2 Toolbar

In the "File" dropdown menu, you will find the following commands:

- Hide: to hide the USB Gateway window while keeping it active. Once hidden, you can reopen the window by clicking on the icon in the taskbar at the bottom left of the screen.

- Exit: to exit the USB Gateway.

In the "Tools" dropdown menu, there are the following commands:

- Settings, as shown in Figure 5.3: to manage communication settings with other components.
  - FEP Address: the address of the FEP with which to establish communication.
    If it is installed on the same PC, you can automatically insert the local address using the "Set as localhost" command.
  - UVIX URI: IP address and port of the WebApp, used as the address for the "Open UVIX" command, and can be automatically set to the local address using the "Set default URI" command.
  - Fast Mode Address: the address of the Fast Mode to which the USB Gateway must send data.
  - Fast Mode Port: the port of the Fast Mode to which the USB Gateway must send data.
  - Test Fast Mode: by clicking on the command, you can check the status of communication with the Fast Mode (an indicator next to the button will be green if active, red if inactive).

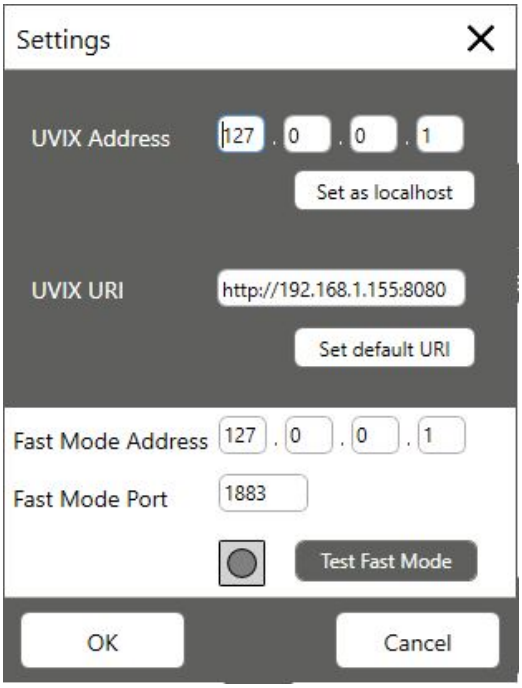

Figure 5.3: Settings

- Ethernet Device Configuration, as shown in Figure 5.4: to manage and update Camozzi devices that support this functionality via an Ethernet connection.
  See Chapter 5.9 for details.

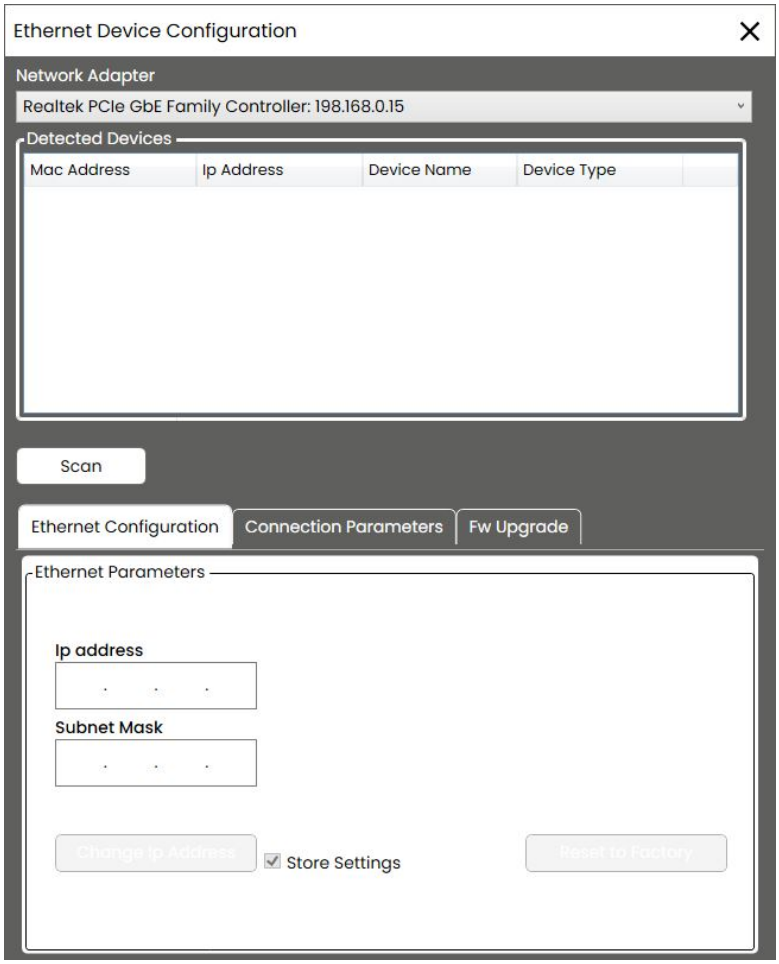

Figure 5.4: Ethernet Device Configuration

- Device Firmware Upgrade (USB), as shown in Figure 5.5: to manage the USB-connected Camozzi devices that support this functionality.
  To determine if the device you wish to connect supports this functionality and for detailed procedures, please refer to the product's user and maintenance manual.

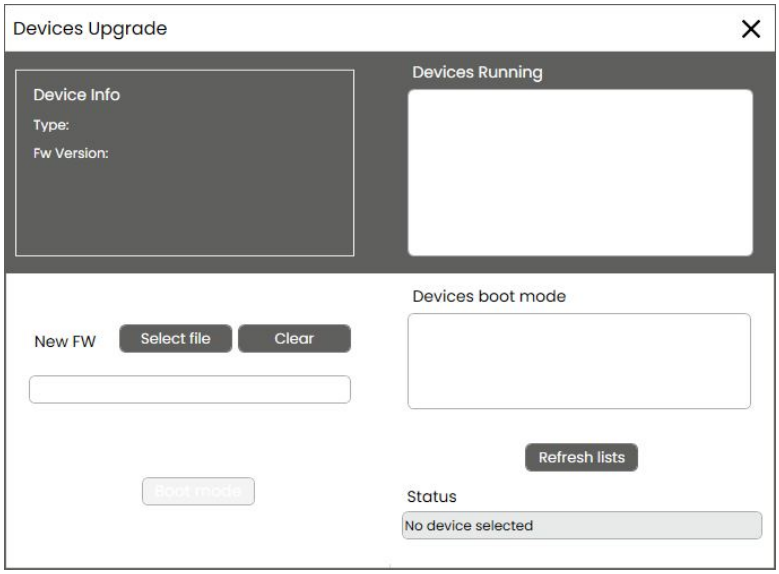

Figure 5.5: Device Firmware Upgrade (USB)

- UVIX Logs, as shown in Figure 5.6: allows you to export the logs of the USB Gateway within a specific time frame, specifying the start and end dates.
  This data may be requested by Camozzi Service after a request for support.

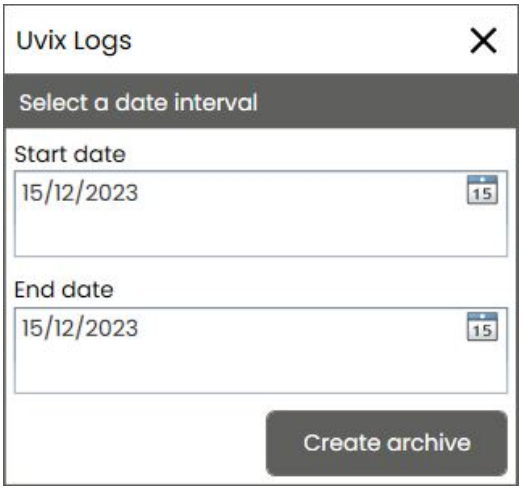

Figure 5.6: UVIX Logs

In the "?" dropdown menu, there is the "About" command, as shown in Figure 5.7, which displays information about the USB Gateway.

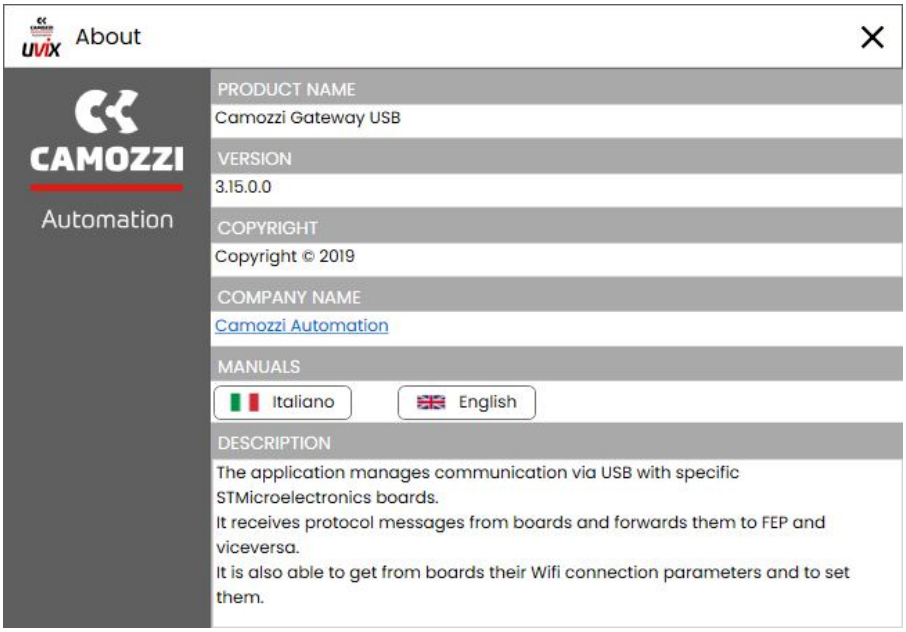

Figure 5.7: USB Gateway Information

5.3 USB Gateway Commands

Figure 5.8 displays the commands for the USB Gateway to manage its state (visible through the status bar described in Chapter 5.4) and to open the WebApp.

Figure 5.8: USB Gateway Commands

❶ Start Gateway: starts up the USB Gateway, allowing data transmission between devices and other components.
❷ Stop Gateway: stops the USB Gateway, blocking data transmission between devices and other components.
❸ Open UVIX: opens the WebApp in the default browser. The address is configured in the "Settings" commands shown in Figure 5.3.

5.4 Status

The "Status" bar indicates whether the USB Gateway is currently managing data transmission between various devices.
Figure 5.9 shows the two possible states.

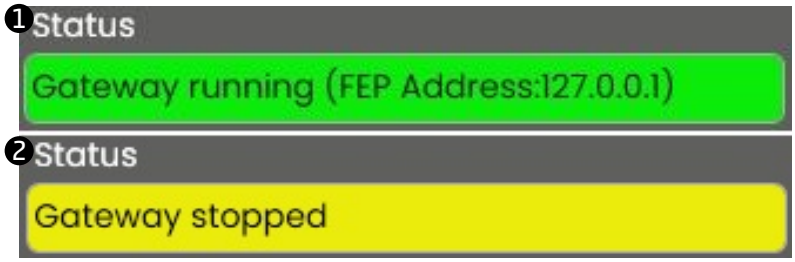

Figure 5.9: USB Gateway Status

❶ Data transmission is active, and the address of the FEP it is communicating with is indicated.
❷ Data transmission is blocked.

5.5 Open COMs

In the "Open COMs" window, the devices that are communicating with the USB Gateway are listed.
For each of them, the COM number and the serial number of the device (the unique number assigned to each Camozzi device) are indicated.

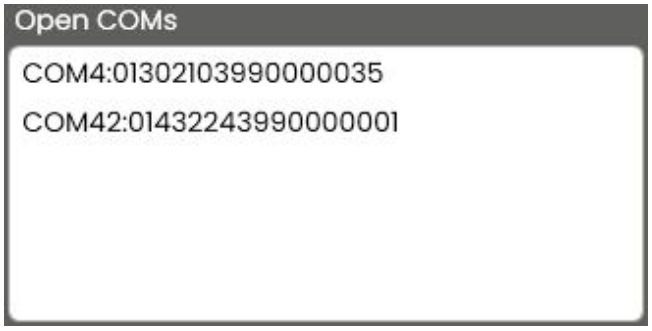

Figure 5.10: Open COMs

5.6 Main Page

The Main Page displays information related to open communications.
In Figure 5.11, an example with two connected devices is shown.

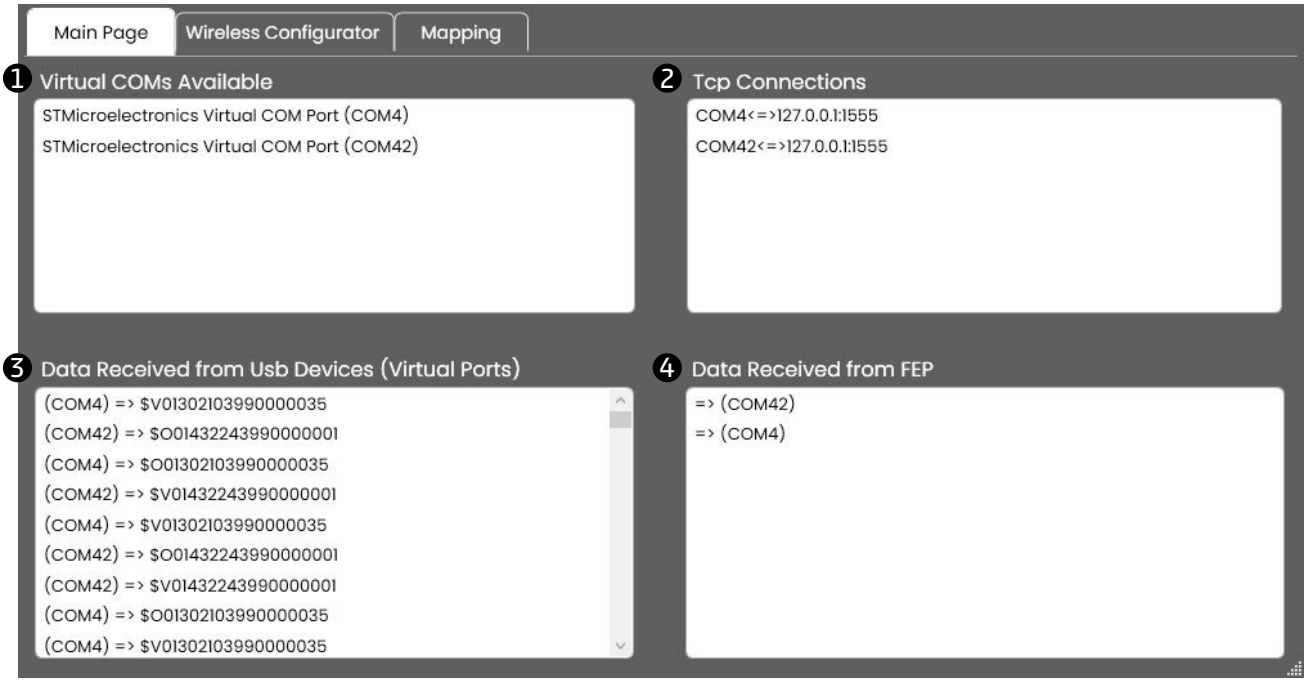

Figure 5.11: Main Page

❶ Virtual COMs Available: Similarly to what was described in Chapter 5.5, the devices that are communicating with the USB Gateway are listed here.
❷ TCP Connections: The connections between the USB Gateway and the FEPs that are open are listed. For each of them, the COM and the IP address with Port of the FEP it is communicating with are indicated.
❸ Data Received from USB Devices (Virtual Ports): This section displays messages received from the connected devices and transmitted to the FEP.
❹ Data Received from FEP: Messages received from the FEP and transmitted to the devices are shown in this section.

5.7 Wireless Configuration

In the Wireless Configuration window, you can set parameters for the wireless communication of Camozzi devices in which it is present.
This window is structured with fields for displaying and entering parameters and commands, and these fields, in order to function, require you to select the device from the list of open COMs (Chapter 5.5).

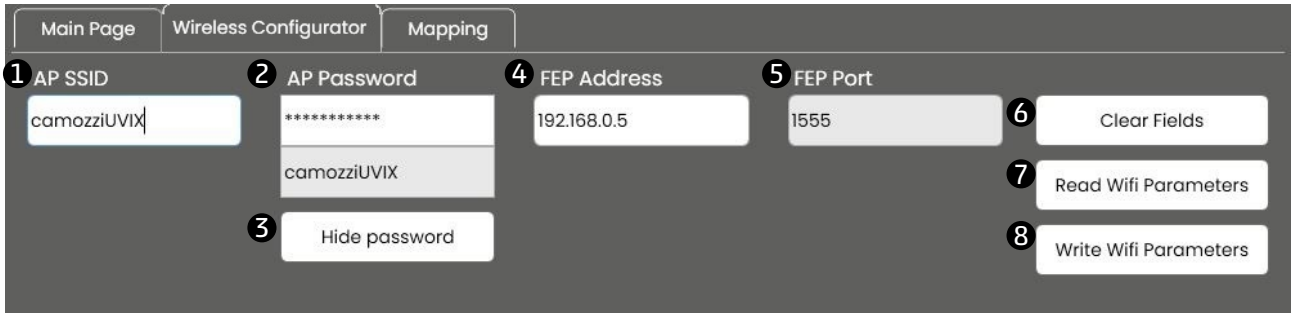

Figure 5.12: Wireless Configuration

❶ AP SSID: The SSID of the wireless network to which the device should connect.
❷ AP Password: The password of the wireless network to which the device should connect.
❸ Show/Hide password: Allows you to show or hide the password of the wireless network.
❹ FEP Address: The IP address of the FEP with which the device should communicate.
❺ FEP Port: Indicates the port of the FEP with which the device should communicate; this field is not editable.
❻ Clear Fields: A command to clear all editable fields.
❼ Read Parameters: Reads the parameters of wireless communication from the selected device.
❽ Write Parameters: Sends the wireless communication parameters entered in the fields to the device.

5.8 Mapping

In the "Mapping" section, you can send the mapping command to Camozzi modular devices.
To determine if the device you wish to connect supports this functionality and for detailed procedures, please refer to the product's user and maintenance manual.

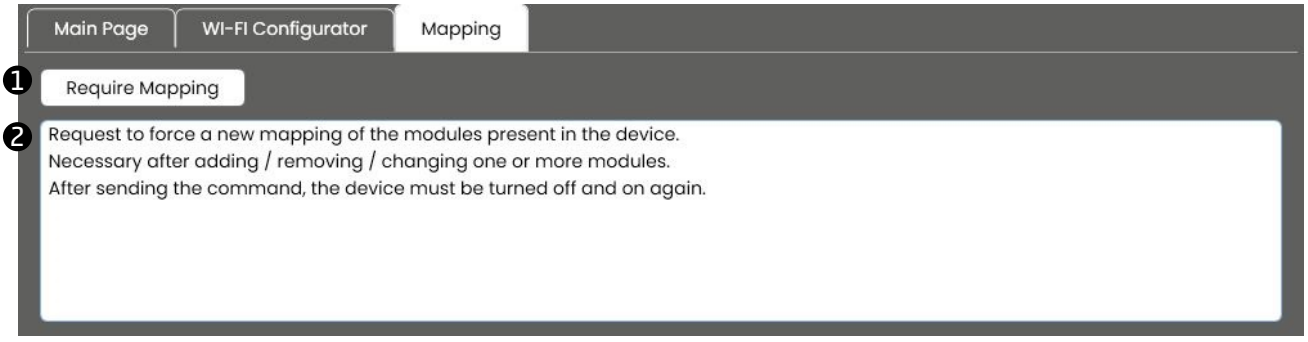

Figure 5.13: Mapping

❶ "Require Mapping" Command: Button for sending the mapping command. Before sending this command, you need to select the device from the list of open COMs (Chapter 5.5), and the button is active only if this functionality is supported.
❷ General Information: Some general information about the mapping procedure is provided in this window.
For detailed descriptions and the procedure, please refer to the user and maintenance manual of the device.

5.9 Ethernet Connection

Through this window, you can manage Camozzi devices that support connection to UVIX via Ethernet. The PC's IP address must be static.

5.9.1 Ethernet Configuration Section

Once opened, the "Ethernet Configuration" section will appear as shown in Figure 5.14, where you can manage the communication parameters of the device.

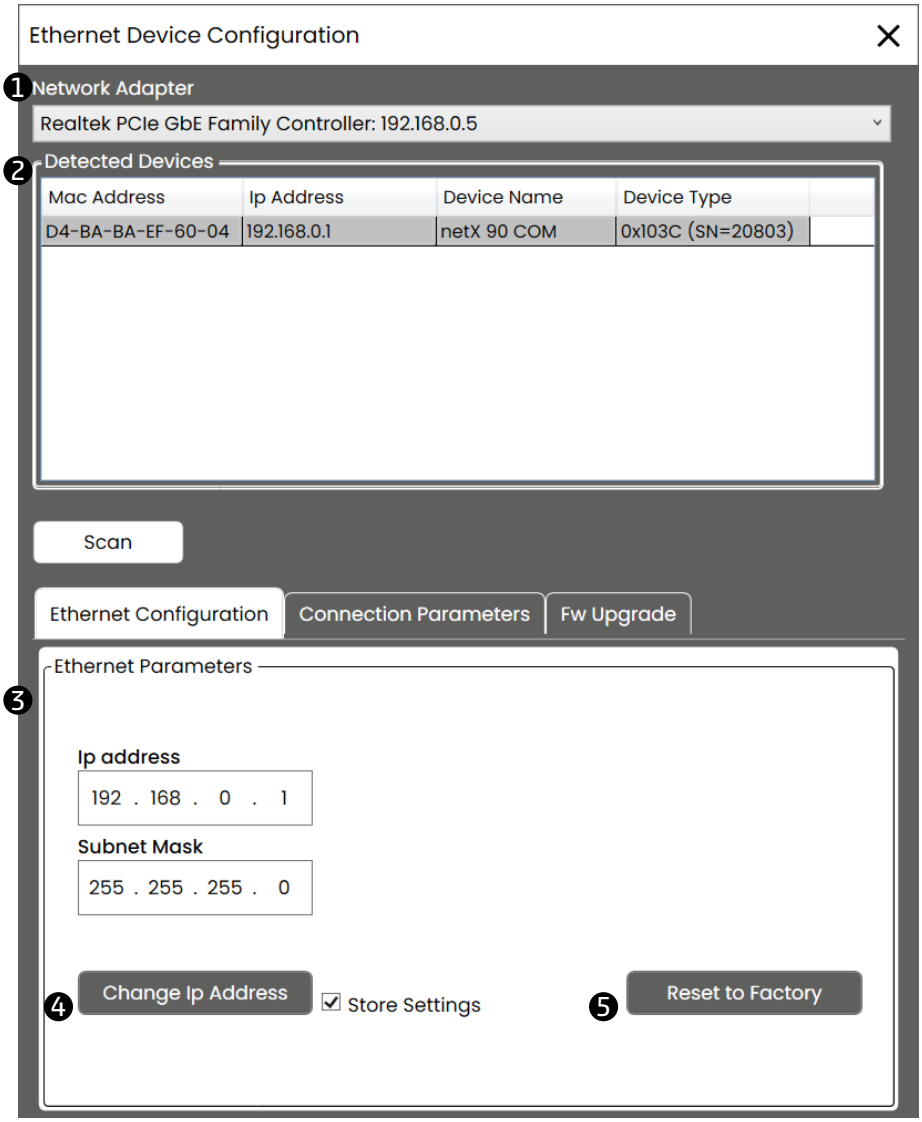

Figure 5.14: Ethernet Device Configuration - Configuration Section

❶ Dropdown menu to select the network card where the device is connected.
Once selected, an automatic scan will start.
If the correct one is already selected, you need to manually start the scan using the "Scan" command.
❷ Devices identified by the scan performed on the selected network port.
❸ IP address and subnet mask of the selected device from those identified.
❹ Command to set the IP address and subnet mask of the selected device.
Using the "Store Setting" option, you can save the parameters permanently.
❺ Resets the configuration parameters of the selected device.

5.9.2 Connection Parameters

Through the "UVIX Parameters" section, you can establish communication between the device and UVIX, as shown in Figure 5.15.

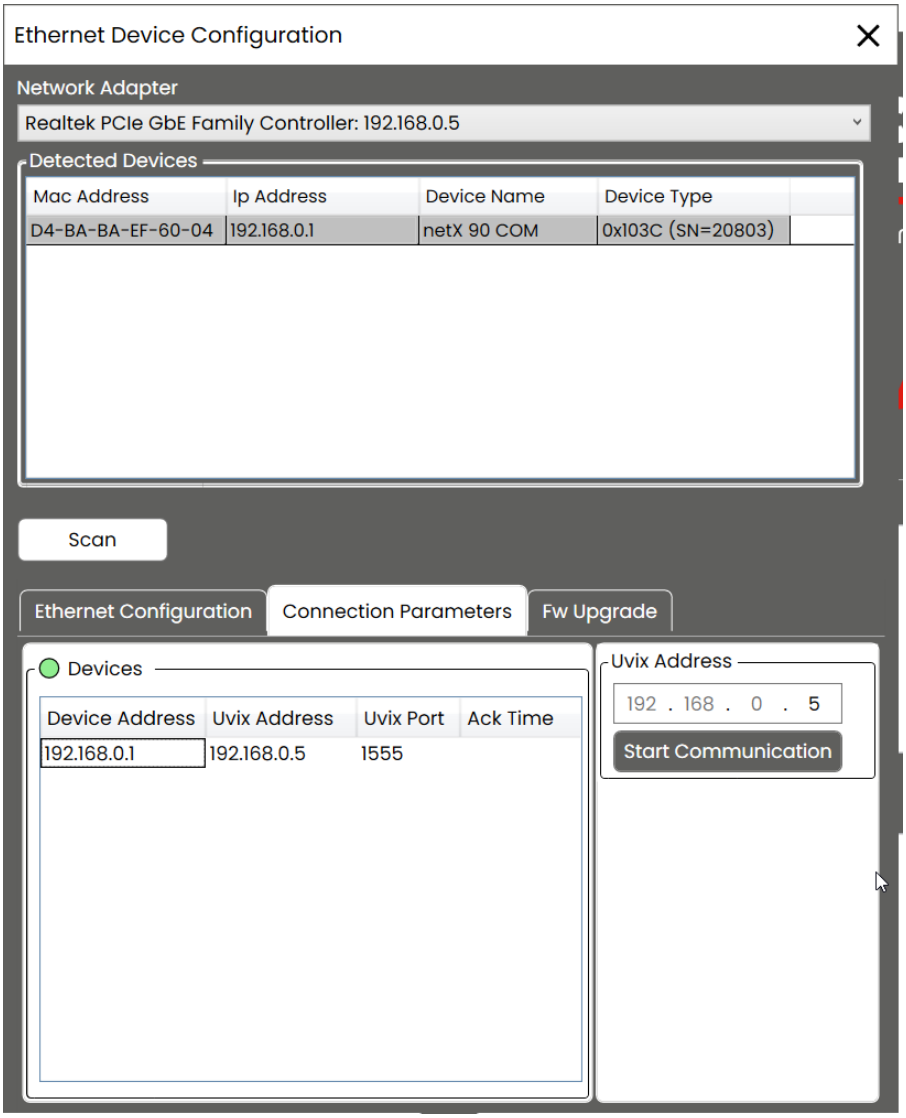

Figure 5.15: Ethernet Device Configuration - Parameters Section

To start communication, select the desired device in the "Devices" list, enter the UVIX IP address in the "Uvix Address" field (the system will suggest one based on the selected network card), and click the "Start Communication" command.

5.9.3 Firmware Upgrade

Through the "Firmware Upgrade" section, you can update the device's firmware, as shown in Figure 5.16.

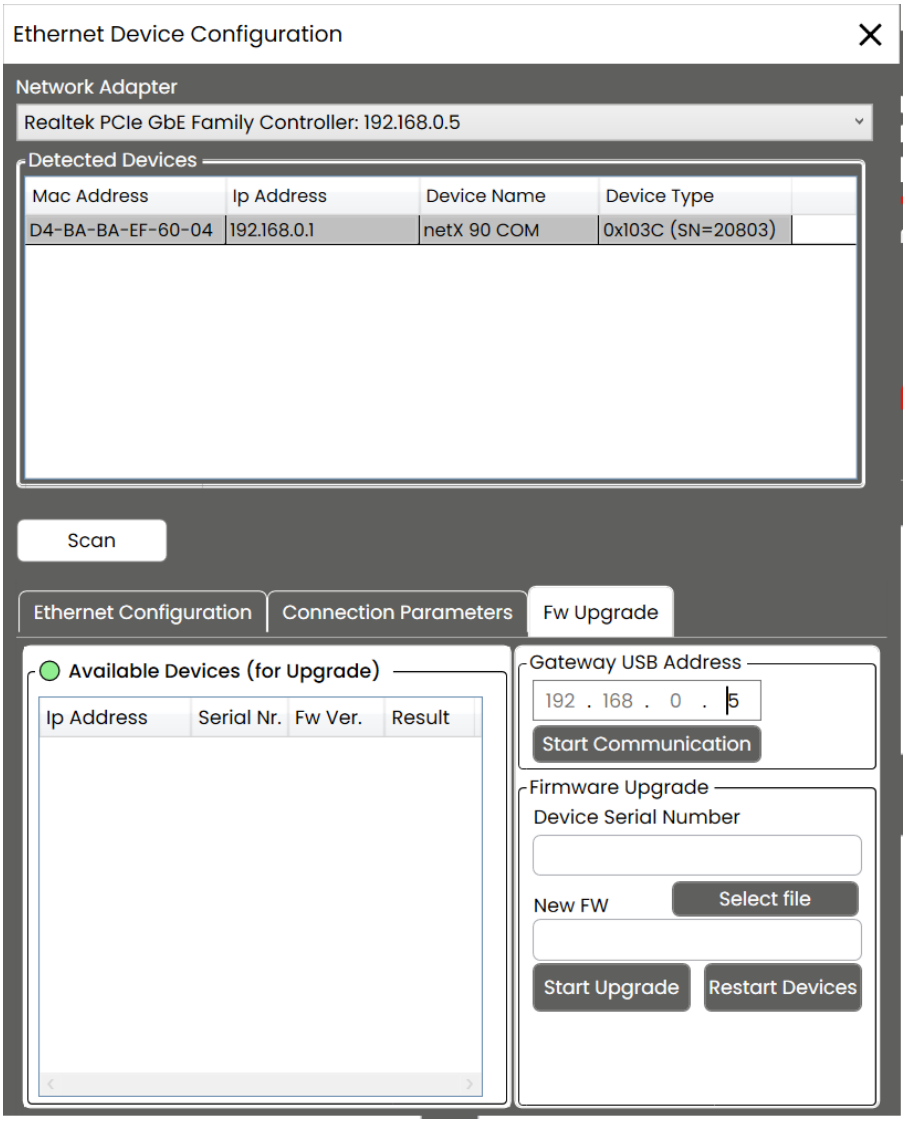

Figure 5.16: Ethernet Device Configuration - Firmware Upgrade Section

For more information on the procedure, please refer to the user and maintenance manual of the device.

Web App

In this chapter, we will take a detailed look at the Web App, the component that allows the user to access all the tools provided by the UVIX software through a simple and intuitive interface.

6.1 Login

Through any web browser, it is possible to access the Web App by entering the IP address and port number in the address bar, by default `http://127.0.0.1:8080`.
Once the correct address is entered, the login page will be displayed, where login credentials will be required (Figure 6.1). Default credentials are listed in Table 6.1.

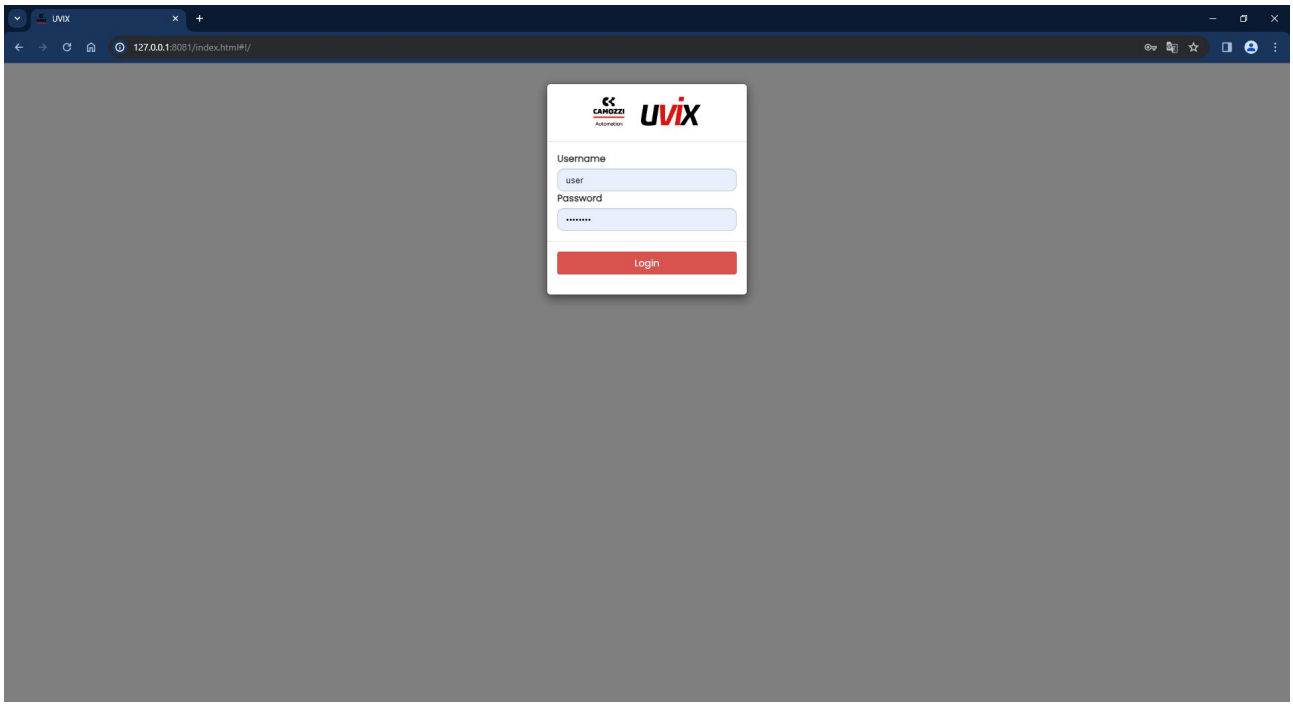

Figure 6.1: Login Page

Table 6.1: Default Users

User	Username	Password	Permissions
End User	enduser	enduser	View Only
Constructor	user	customer	View and Modify

6.2 Home Page

Once the credentials are entered, it is possible to access the home page.
As shown in Figure 6.2, various elements can be identified:

- Logo: In the top left corner, there are the Camozzi and UVIX logos.
  Clicking on either logo allows access to the Camozzi website (`https://en.automation.camozzi.com/`).
- Devices List: On the left side, the Camozzi devices inserted in UVIX are listed (see Chapter 6.3).
- Toolbar: In the top right corner, we find the toolbar for managing the Web App (see Chapter 6.4).
- Device Details: In the central part, information about the selected device from the list is displayed (see Chapter 6.5).

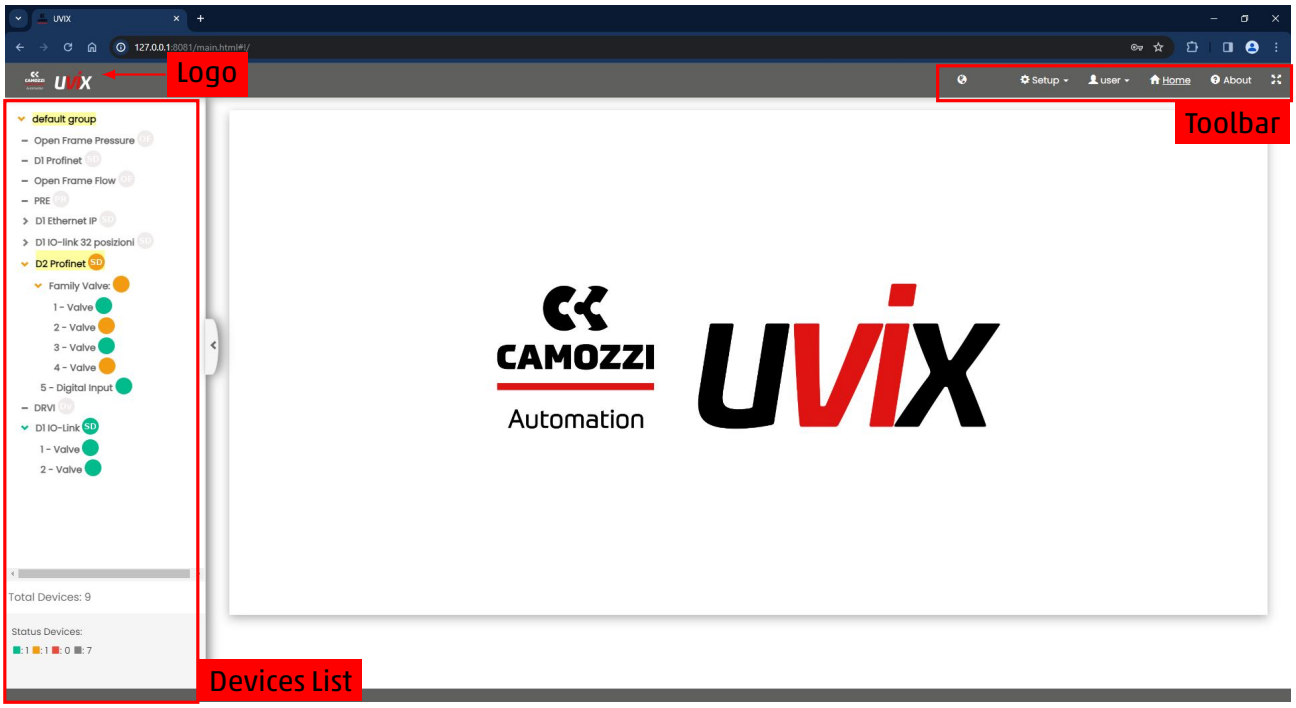

Figure 6.2: Home Page

6.3 Device List

In this section, all the devices inserted into UVIX are listed, and each device is associated with a color based on its status (see Table 6.2).

Table 6.2: Device Color Codes

Symbol	Color	Status	Description
	Gray	Not Connected	Device is not connected
	Green	Operational	Device is connected and has no alarms or warnings
	Orange	Alarm	Device is connected and has at least one alarm
	Red	Error	Device is connected, has at least one error, and may also have one or more warnings

The devices are grouped into user-definable groups.
On initial startup, a default group named "default group" is available.
The total number of devices and their status is indicated at the bottom of the window.

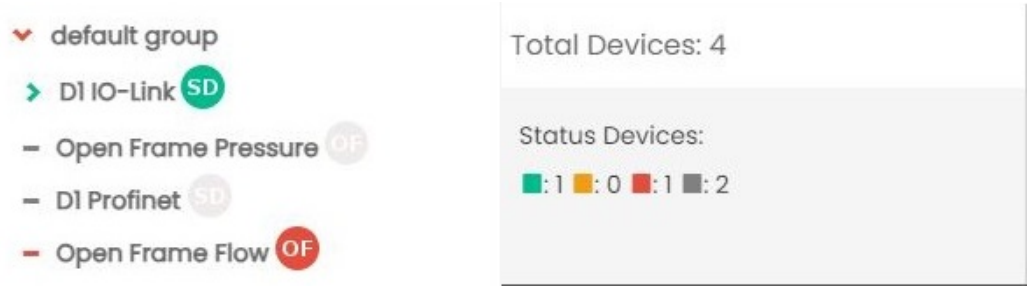

Figure 6.3: Example of some devices in the default group and summary box

6.4 Toolbar

In this section, all the tools for managing the Web App are presented.

- : Symbol for adding new devices.
- Setup: Menu for managing users, groups, devices, and checking the status of connections.
- User: Menu for managing the user who has logged in, see Chapter 6.4.8.
- Home: Command to return to the Web App's home screen.
- About: General information about UVIX, see Chapter 6.4.9.

6.4.1 Adding a New Device

Once a new device is successfully connected, as illustrated in Chapter 2, a number will appear in the upper right corner of the symbol for adding new devices (Figure 6.4).
This number indicates the devices detected by the software that have not yet been assigned.
Clicking on the symbol will open a window listing the serial numbers of the detected devices, and hovering over them with the pointer will display their family.

Figure 6.4: New Device

Clicking on the serial number of the device you wish to add will open the window shown in Figure 6.5, which will request the following information:

- Name: The name of the device, to be entered as desired.
- Device group: The group to which the device should be assigned. Clicking on the editable field will display a list of available groups.
- Visible/Hide: UVIX software does not allow you to delete an already inserted device, but it allows you to hide it.
  Through this field, you can set whether the device will be visible in the device list.

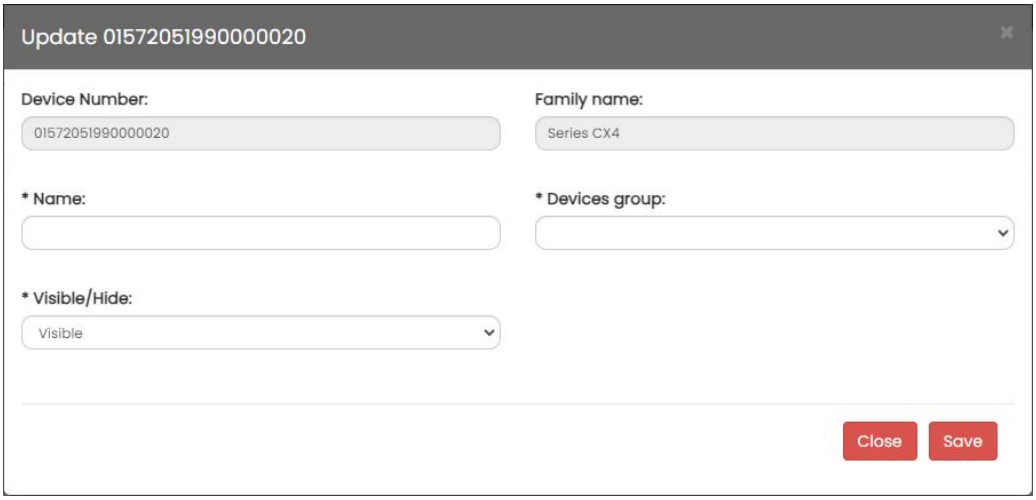

Figure 6.5: Adding a new device

After making the necessary changes, click the "Save" button to complete the operation or the "Close" button to cancel it.

6.4.2 User Management

Through the "Users" command accessible from the "Setup" menu, you can open the user management interface.
It will display the user who has logged in and those with equal or lower permissions.
Within the UVIX software, users are differentiated based on their profile (Table 6.3) and permissions (Table 6.4).
The profile regulates the ability to make changes to the parameters of connected devices, while permissions determine the ability to modify UVIX software functionalities.

Table 6.3: Profiles

Name	Description
End User	View device parameters only
Installer	View and modify device parameters

Table 6.4: Permissions

Name	Description
Manage registries	Allows managing users, devices, and groups
Manage command	Allows sending commands to devices
Manage setup parameter	Allows access to device configuration menus

If you have logged in with the default profile "user" and have not created other users, you will see those shown in Figure 6.6.

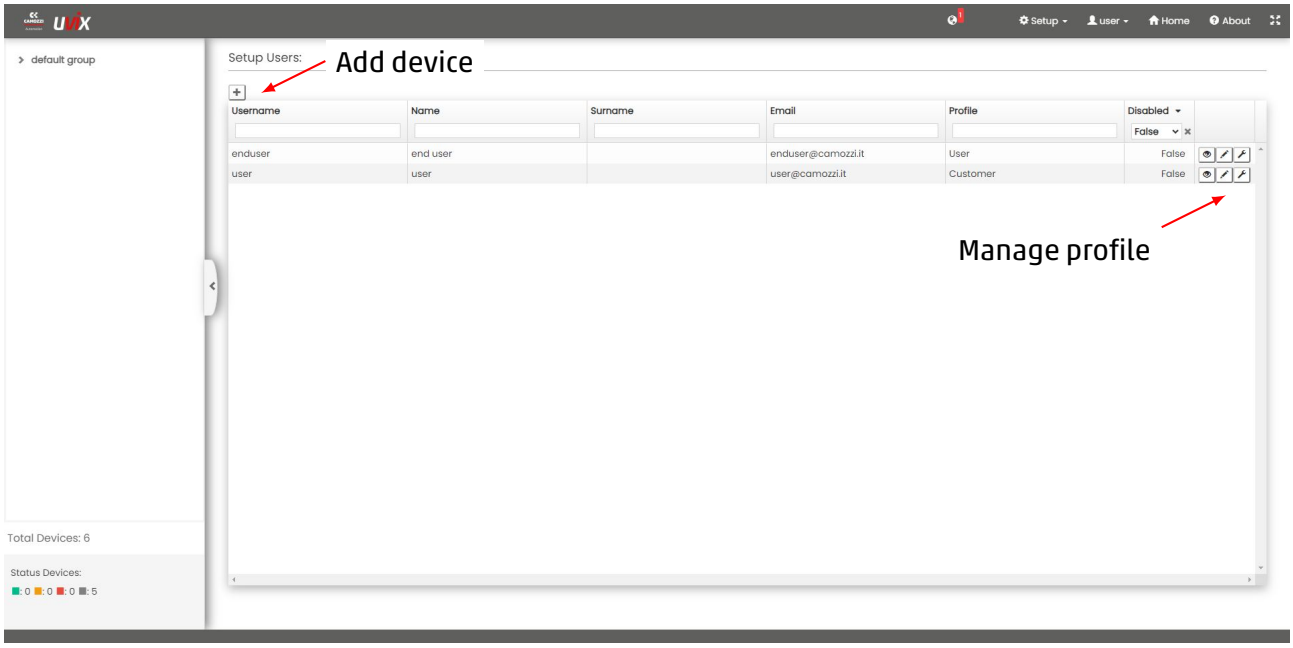

Figure 6.6: User Management Window

Using the button  , you can create a new user.
Assignable permissions cannot be higher than those with which you logged in.
The profiles are listed in a table, with each column representing a characteristic.
Below the name, there is a field that allows applying a filter, and in the last column, there are buttons to manage the profile.

By clicking on  , you can view the profile as shown in Figure 6.7.
After viewing, click the "Close" command.

- Name: User's first name.
- Surname: User's last name.
- Username: User's login name.
- Email: User's email address.
- Profile: Assigned profile from those listed in Table 6.3.
- Disable: User's status, "True" if disabled or "False" if enabled.
- Permissions: Assigned permissions from those listed in Table 6.4.

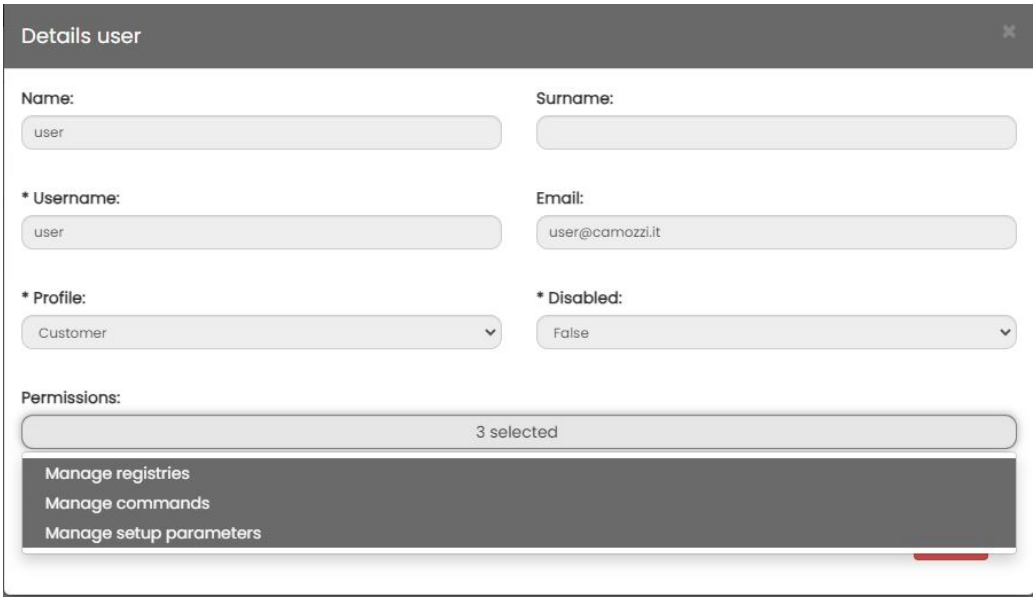

Figure 6.7: Profile View

By clicking on  , you can edit the profile as shown in Figure 6.8.
Characteristics with the "*" symbol are mandatory.
After making changes, click the "Save" command to save them or "Close" to cancel them.

- Name: User's first name.
- Surname: User's last name.
- Username: User's login name.
- Email: User's email address.
- Profile: Assigned profile from those listed in Table 6.3.
- Disable: User's status, "True" if disabled or "False" if enabled.
- Permissions: Assigned permissions from those listed in Table 6.4.
- Password: Password to be used during login.

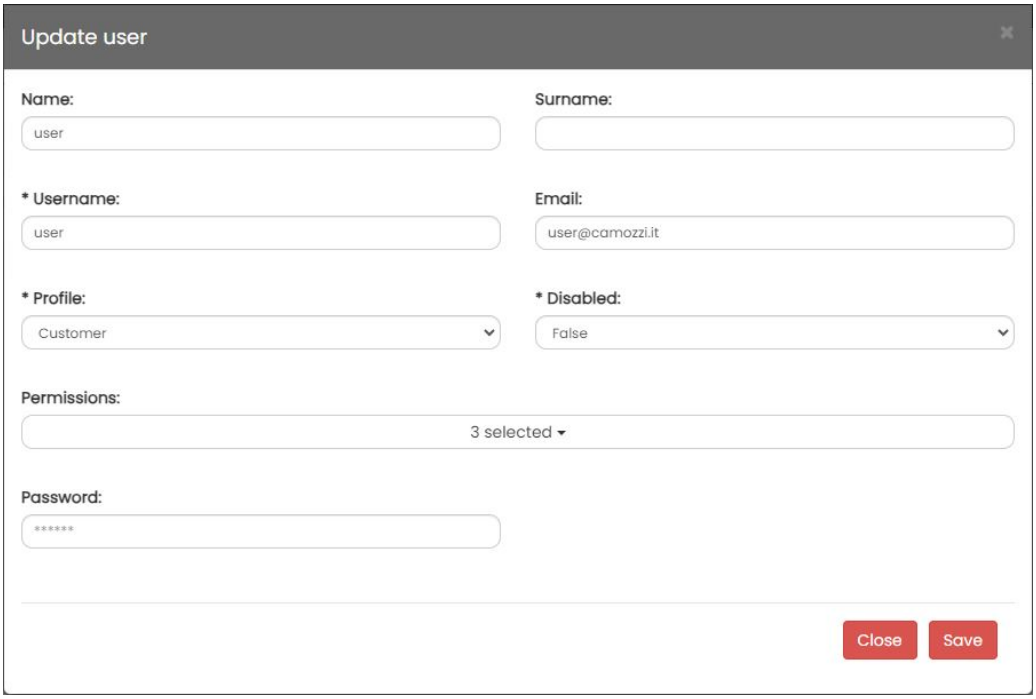

Figure 6.8: Profile Modification

By clicking on  , you can edit the unit of measure preferences, as shown in Figure 6.9.
After making changes, click the "Save" command to save them or "Cancel" to cancel them.

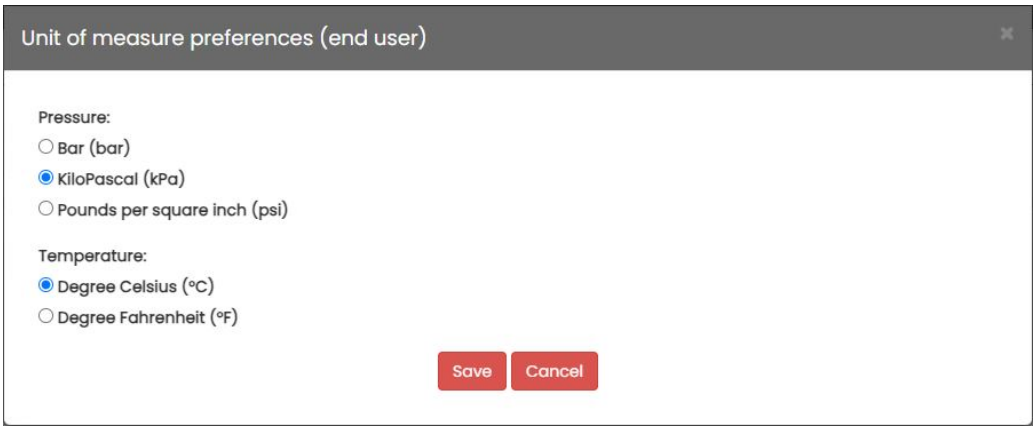

Figure 6.9: Modifica delle unità di misura

6.4.3 Device Group Management

Through the "Device Groups" command accessible from the "Setup" menu, you can manage device groups that can be defined by the user.
At the first launch, there is a single group named "default group".
Accessing the device group management menu will display the window shown in Figure 6.10.
Each column represents a characteristic, and below the name, there is a field to apply a filter.
In the last column, there are buttons to manage the profile.

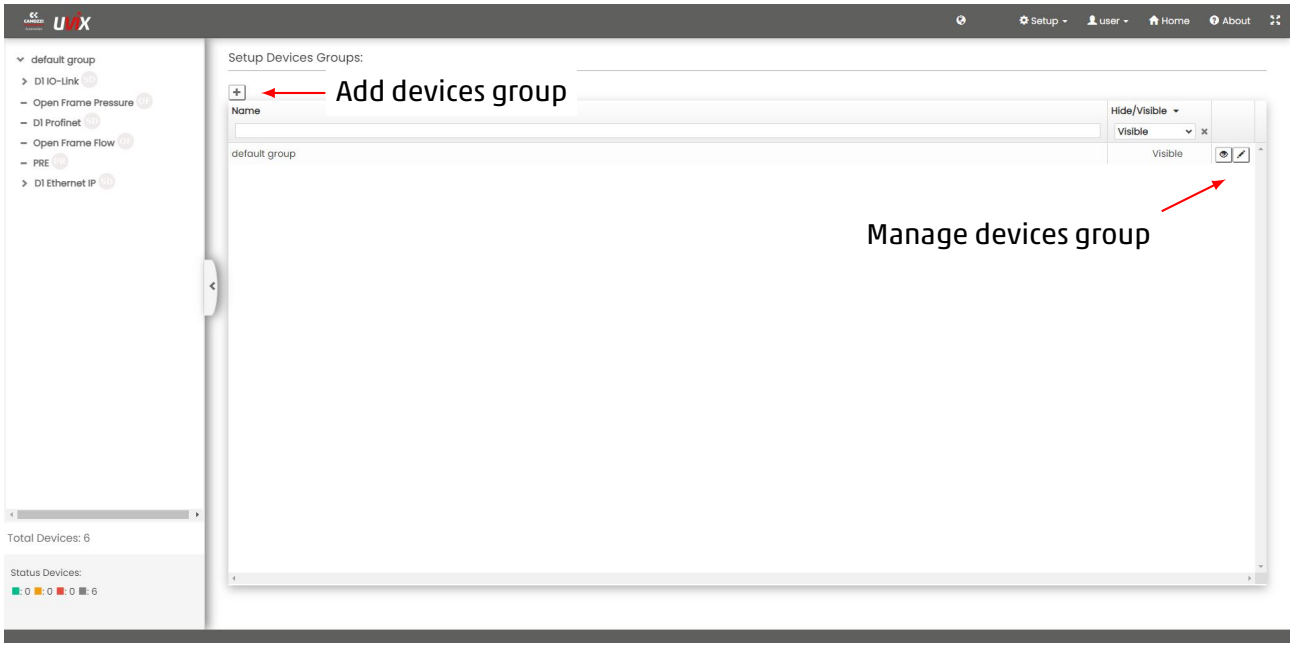

Figure 6.10: Device Group Management Window

Clicking the  command in the upper left allows you to open the window to add a new group, as shown in Figure 6.11. The required information includes:

- Name: The name of the group, which can be defined as desired.
- Visible/Hide: As with devices, groups cannot be deleted, but they can be hidden. Select "Visible" to make the group visible or "Hide" to hide it.

After making the necessary changes, click the "Save" command to save them or the "Close" command to cancel them.

Figure 6.11: Adding a New Device Group

By using the  command, you can view the information of a device group, as shown in Figure 6.12. After viewing, click the "Close" command.

Figure 6.12: View Device Group Information

Using the  command allows you to modify the information of a device group, as shown in Figure 6.13. After making the necessary changes, click the "Save" command to save them or the "Close" command to cancel them.

Figure 6.13: Edit Device Group Information

6.4.4 Device Management

Through the "Devices" command accessible from the "Setup" menu, you can manage the devices inserted into the UVIX, as shown in Figure 6.14.
Each column represents a characteristic, and below the name, there is a field to apply a filter.
In the last column, there are buttons to manage the devices.

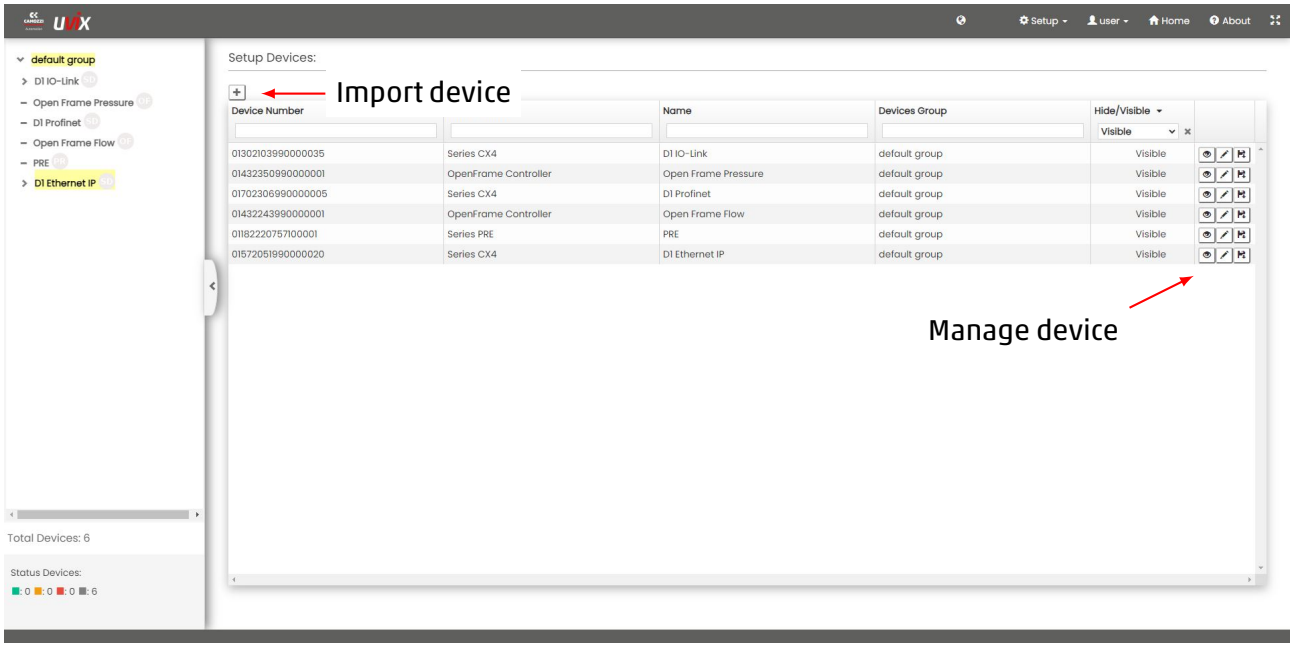

Figure 6.14: Device Management Window

By clicking the  button, you can import a new device from an external file.
Clicking it opens the window shown in Figure 6.15, where you can select the desired file.

Figure 6.15: Importing a Device from an External File

Using the  command allows you to view the information of a device, as shown in Figure 6.16.
After viewing, click the "Close" command.
The information includes:

- Device Number: Serial number of the device.
- Family name: Device family.
- Name: User-assigned name of the device.
- Devices group: Group of devices to which the device belongs.
- Visible/Hide: "Visible" if the device is visible or "Hide" if it is hidden.

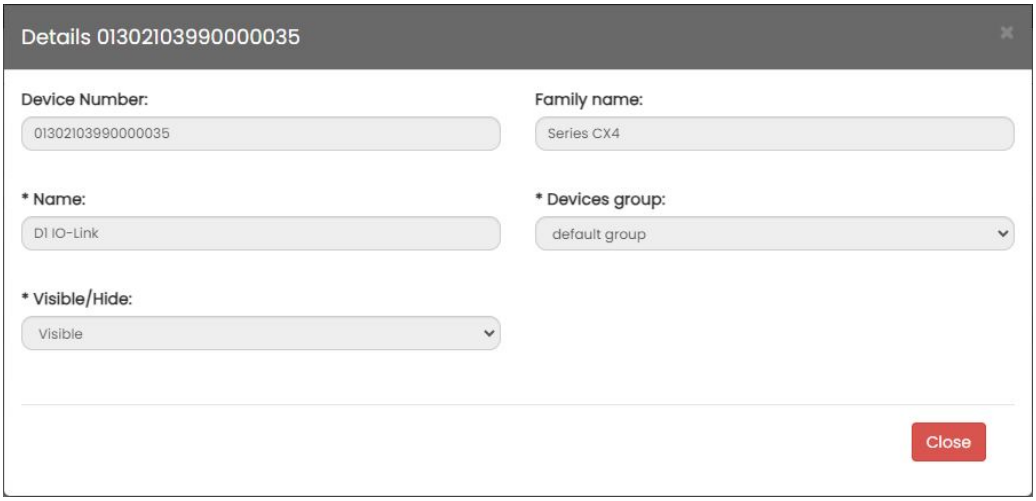

Figure 6.16: View Device Information

Using the  command allows you to modify the information of a device, as shown in Figure 6.17.
After making the necessary changes, click the "Save" command to save them or the "Close" command to cancel them.
The editable information includes:

- Name: User-assigned name of the device.
- Devices group: Group of devices to which the device belongs.
- Visible/Hide: "Visible" to make the device visible or "Hide" to hide it.

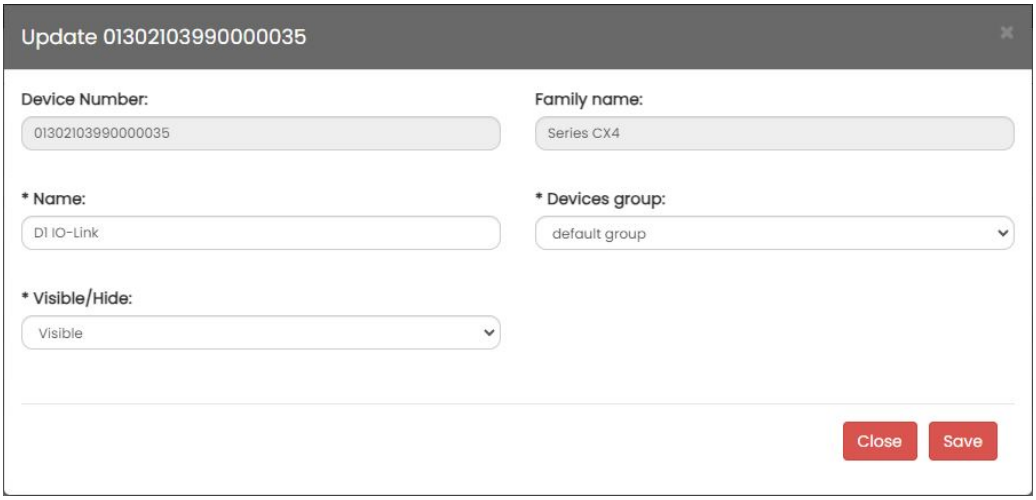

Figure 6.17: Edit Device Information

Using the  command allows you to save a desired device to an external file.
Clicking it opens the window shown in Figure 6.18, where you can give a name to the configuration (the system suggests a default one), and then click "Export" to finish the export or "Close" to cancel the operation.

Figure 6.18: Export Device Configuration to an External File

Using the save and import feature available in this menu, you can transfer a device from one UVIX to another without it ever being physically connected.
The Export/Import functionality described in section 6.8 allows the transfer of a configuration to then be loaded onto another device already inserted into the UVIX.

6.4.5 Slave Management

Through the "Slaves" command accessible from the "Setup" menu, you can view Slaves, which are sub-devices that, together with the master or command device, make up a modular system (for example, a valve island), as shown in Figure 6.14.
Each column represents a characteristic, and below the name, there is a field that allows you to apply a filter.
The available characteristics are:

- Devices Group: The group of devices to which the Slave belongs.
- Device: The command device to which the Slave is connected.
- Position: The connection position of the Slave.

- Slave Family: The family of the Slave.
- Name: The name of the Slave, an editable field. With a double click and if it is empty, the family name is taken.

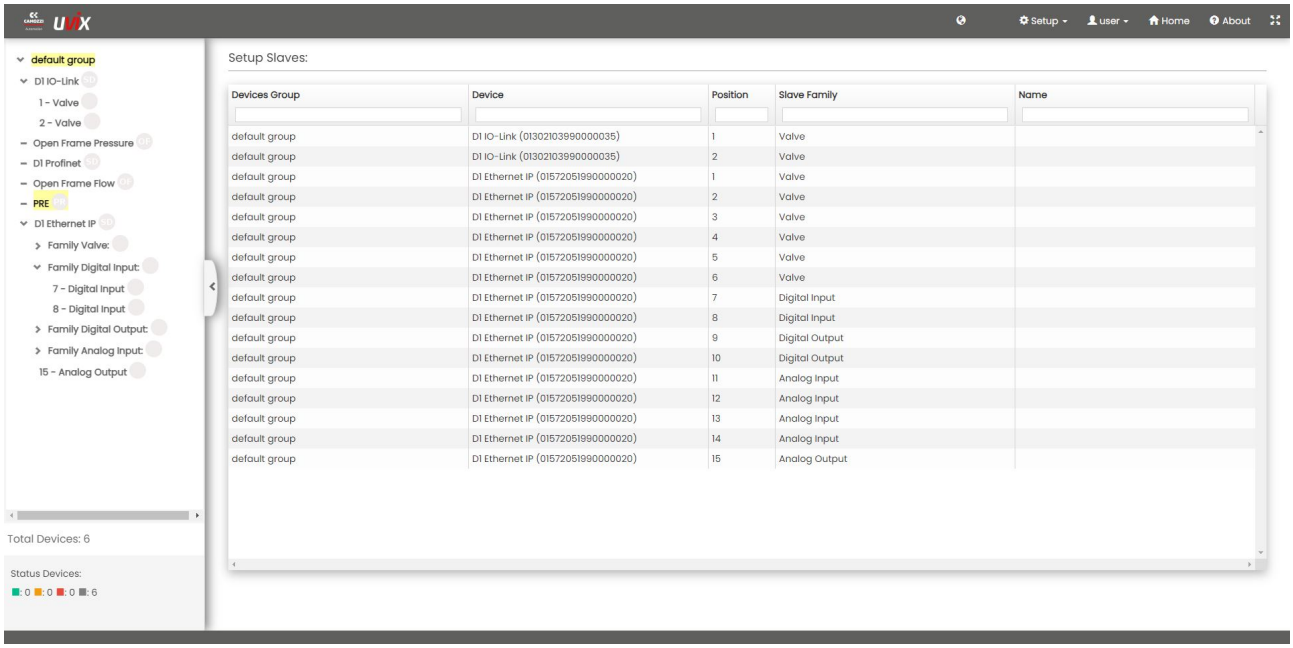

Figure 6.19: Window for Viewing Slaves

6.4.6 Management of Exported Configurations

Through the "Configurations" command accessible from the "Setup" menu, you can manage the configurations saved within UVIX, as shown in Figure 6.20.
This window is part of the tools for managing the "Export/Import" feature.
For more information, please refer to Chapter 6.8.

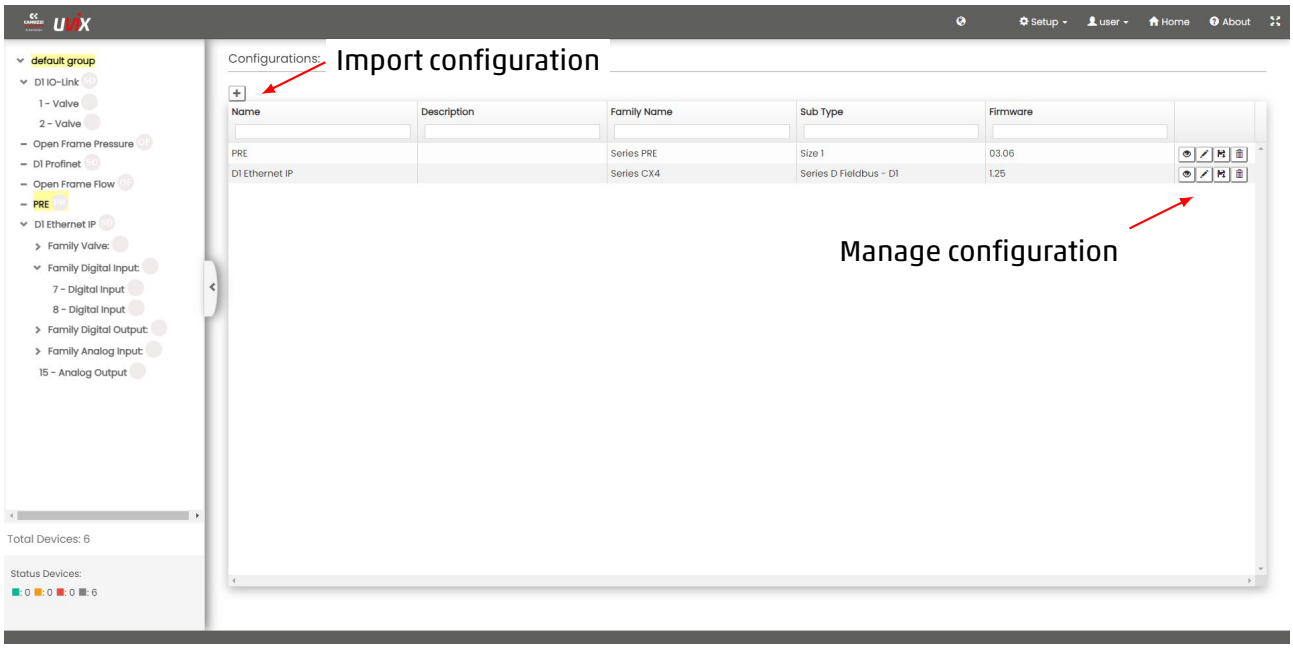

Figure 6.20: Window for Managing Configurations

Using the  button, you can import a configuration.
Clicking on it opens the window shown in Figure 6.21, where you can select the desired file, assign a name, and optionally add a description.

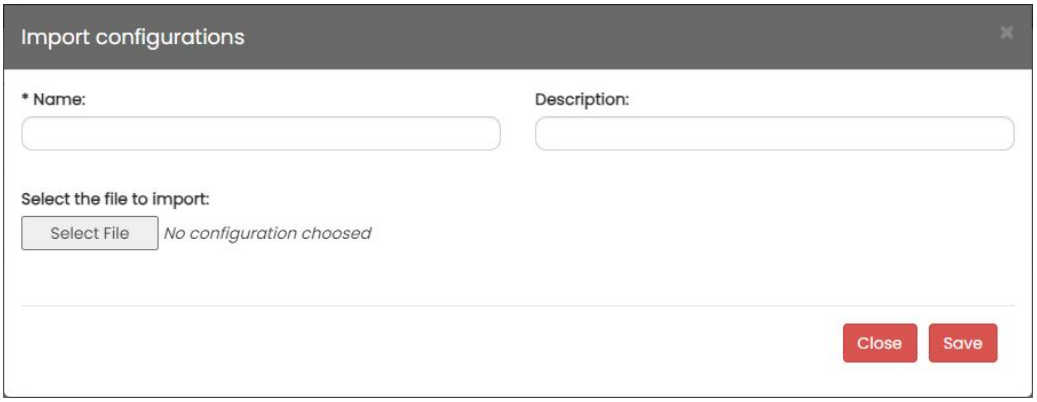

Figure 6.21: Importing a New Configuration

By using the  command, you can view the information of a configuration, as shown in Figure 6.22.
After viewing, click on the "Close" command.

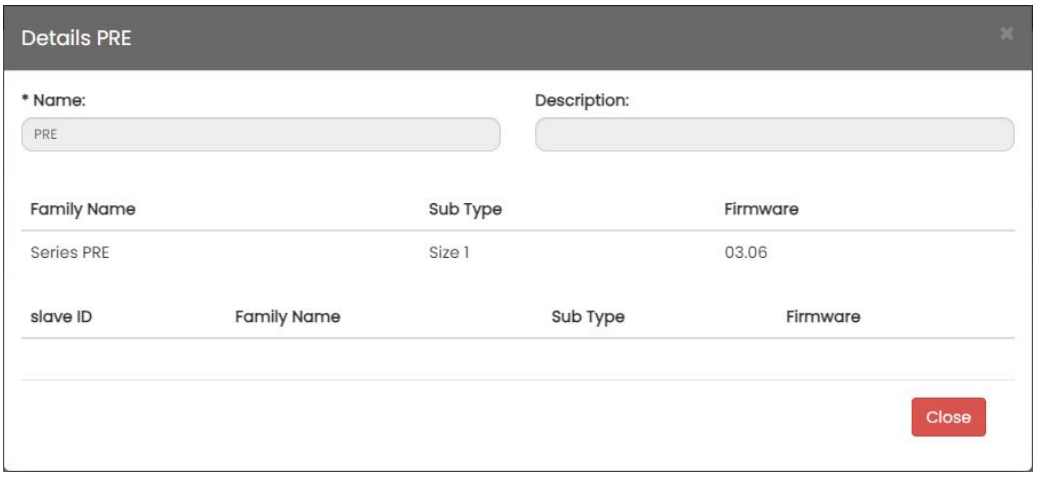

Figure 6.22: Viewing Configuration Details

Through the  command, you can modify the information of a configuration, as seen in Figure 6.23.
In this window, you can change the name, description, and select a new configuration file to import.
After making changes, click the "Save" command to save them, or "Close" to cancel.

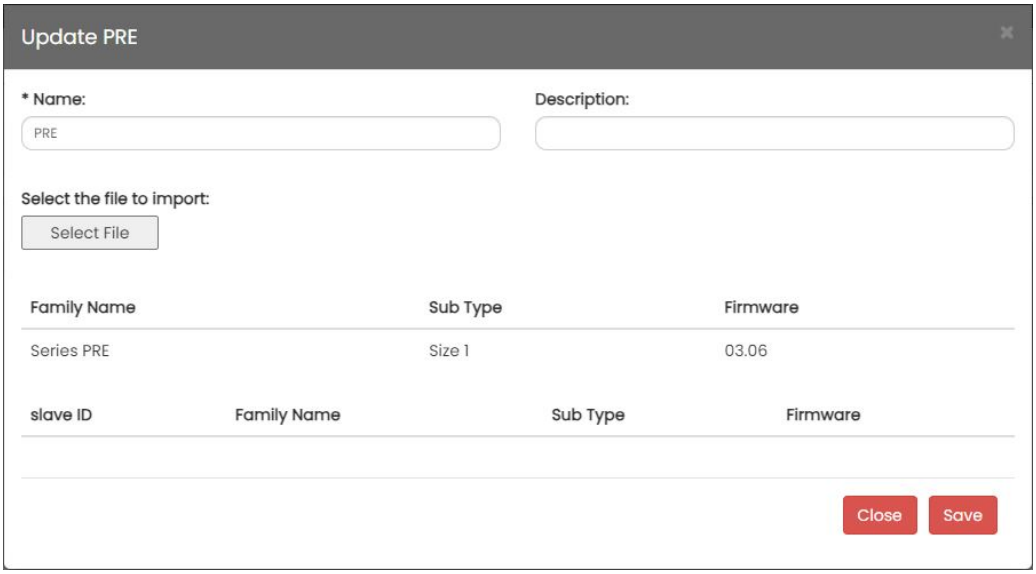

Figure 6.23: Modifying Configuration Information

By using the command, you can save a configuration to an external file.
Clicking it opens the window shown in Figure 6.24, where you can provide a name for the configuration (the system suggests a default one), and then click "Export" to complete the export, or "Close" to cancel the operation.

Figure 6.24: Exporting a Configuration

The command allows you to delete a configuration.

6.4.7 Checking the Status of Internal Connections

Through the "Connection Status" command accessible from the "Setup" menu, you can verify the status of the Web App's connections with other components of UVIX, as shown in Figure 6.25.
In the window, connections with the Web Service, FEP, and MQTT Broker (the component for Fast Mode management) are listed.
For each of them, there is a dot that turns green if the connection is active or red if it is not active.
By using the button, you can refresh the status of the connections.
After updating, click the "Close" command to close the window.
If some components are not functioning correctly, refer to Chapter 8 for troubleshooting.

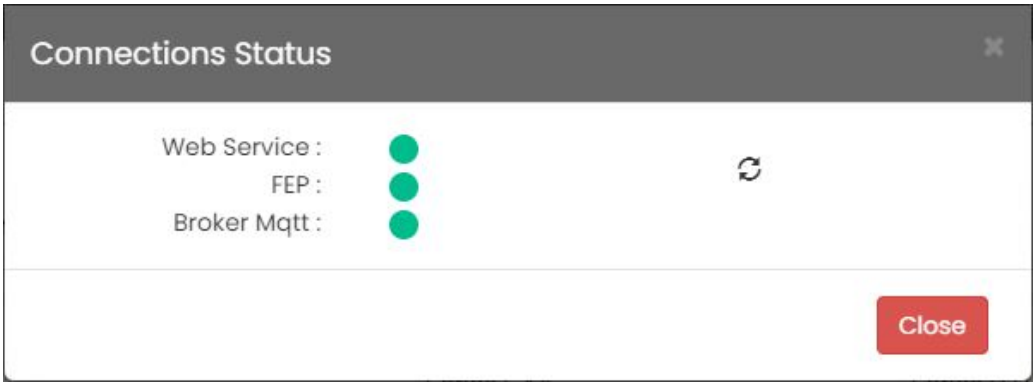

Figure 6.25: Status of Connections with the Web App

6.4.8 User Menu

From the "User" menu, you can access user management for the user with whom you have logged in, as shown in Figure 6.26.

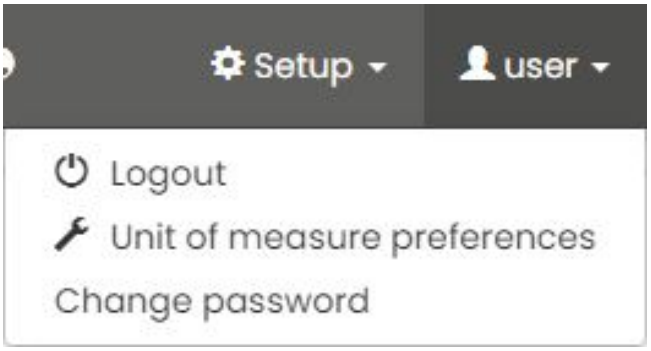

Figure 6.26: User Menu

The available commands are as follows:

- Logout: Disconnects the user, exits the start screen, and returns to the login page.
- Unit of Measure Preferences: Opens a window to modify the unit of measure preference, as shown in Figure 6.9.
- Change Password: Opens a window to change the password, as shown in Figure 6.27. After entering the old password and the new one, click "Save" to confirm or "Cancel" to cancel.

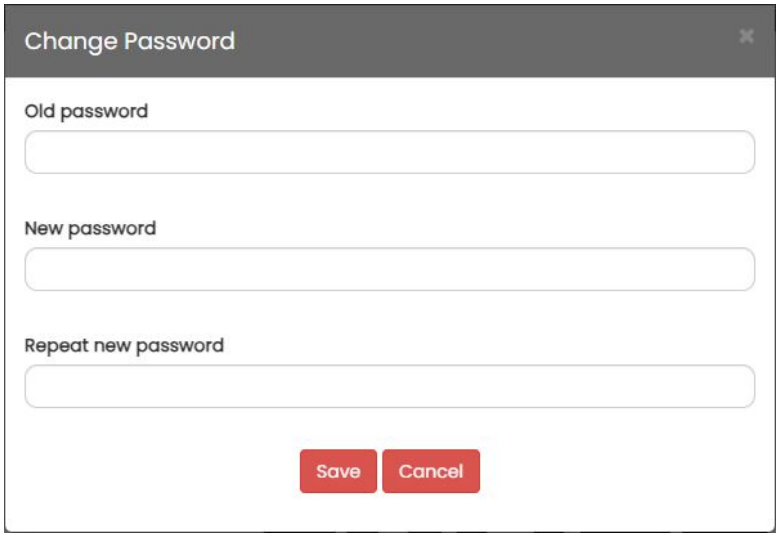

Figure 6.27: Window for Changing the Password

6.4.9 General Information about UVIX

By clicking on the "About" command, you can access the window with the versions of UVIX, Web App, FEP, Web Service, and Database.
Additionally, you can find the release date, a link to the website where you can find this manual, and copyright information.

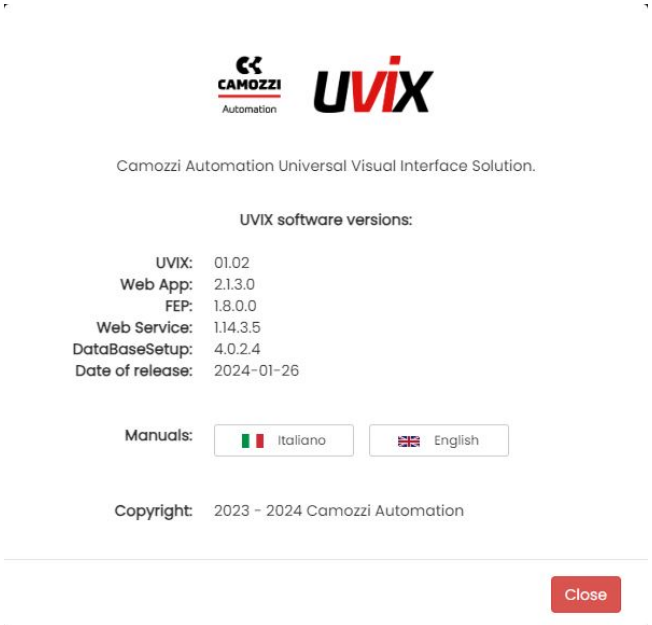

Figure 6.28: Window with General Information about UVIX

Particularly useful may be the UVIX version and the release date, which allow you to identify the software version.
The other information may be requested by Camozzi Service in case of assistance.

6.5 Device Details

Clicking on one of the devices in the list will display the information of the selected device or slave.
In Figure 6.29, you can see that the information is divided into two areas:

- Status Information: General information about the device and commands to access the configuration, as described in Chapter 6.5.1.
- Details: Variables sent by the device, any alarms, and commands that can be sent to the device, as described in Chapter 6.5.5.

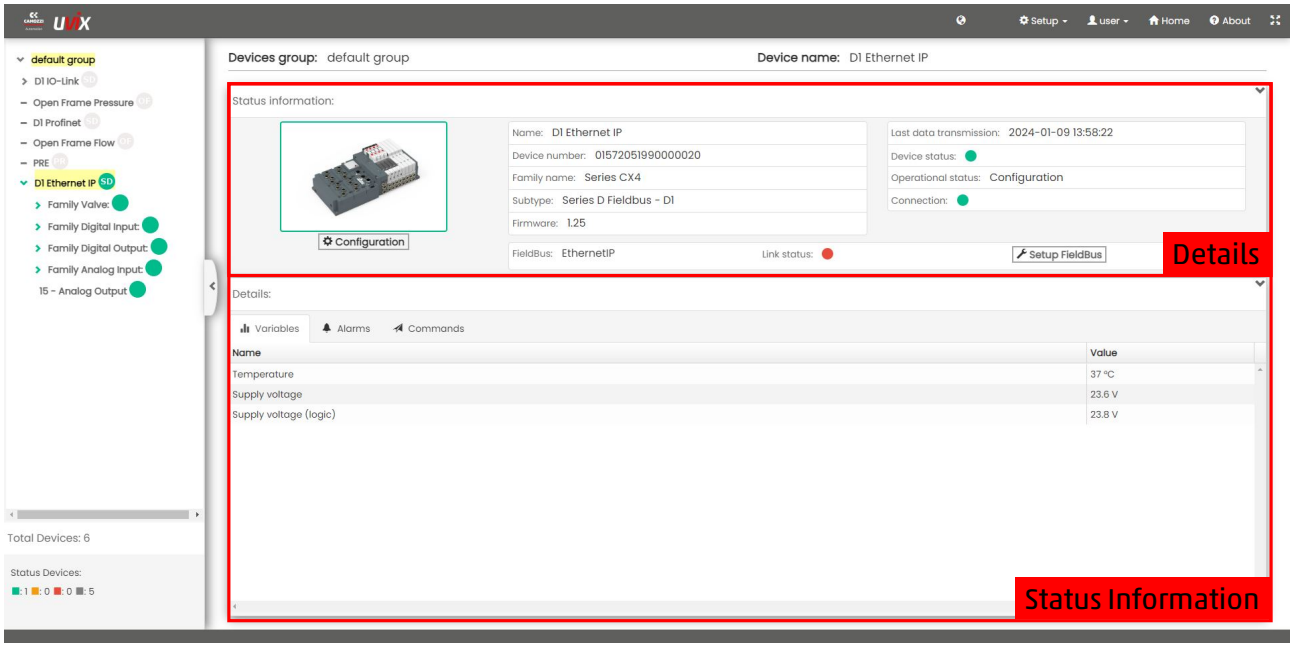

Figure 6.29: Device Details

6.5.1 Status Information

In the Status Information section, as shown in Figure 6.30, the following information is provided:
❶ An indicative image of the selected device, and the frame color changes based on the device's status as indicated in Table 6.2.
❷ A command to access the configuration of the selected device, as described in Chapter 6.5.2.
❸ General information about the device, including:

- Name: User-assigned name of the device.
- Device number: Unique serial number of the device.
- Family name: Device family.
- Subtype: Device subtype.
- Firmware: Installed firmware version.
- Last data transmission: Date and time of the last message received from the device.
- Device status: Device status, as listed in Table 6.2.
- Operational status: Operational status, as listed in Table 6.5.
- Connection: Connection status with UVIX, green if connected, otherwise gray.

❹ General information about the communication protocol.
This menu is visible only if the device has a communication protocol.

- FieldBus: Name of the communication protocol.
- Link status: Communication status, green if active, red if not present.
- Setup FieldBus: Command to access the configuration of the communication protocol, as described in Chapter 6.5.4.

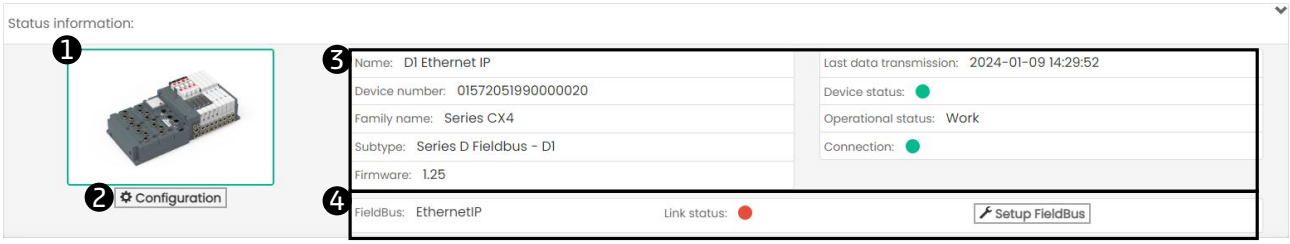

Figure 6.30: Status Information Section

Table 6.5: Operational Status

Status	Description
Init	The device has just powered on and is performing internal startup operations.
Configuration	The device is in the process of configuration, waiting for parameters from the controller (typically a PLC) or from its internal memory based on how it has been set up.
Work	The device is functioning correctly and receiving commands from the controller.
Manual	The device is functioning correctly, but commands are received from UVIX.
Warning	The device has at least one alarm.
Error	The device has at least one error and may also have one or more alarms.

6.5.2 Device Configuration

Through the "Configuration" command, accessible from the "Status Information" section, you can open the configuration page of the selected device.
This page is specific to the device and may vary depending on the type.
An example is shown in Figure 6.31.
For more information, refer to the product manual.

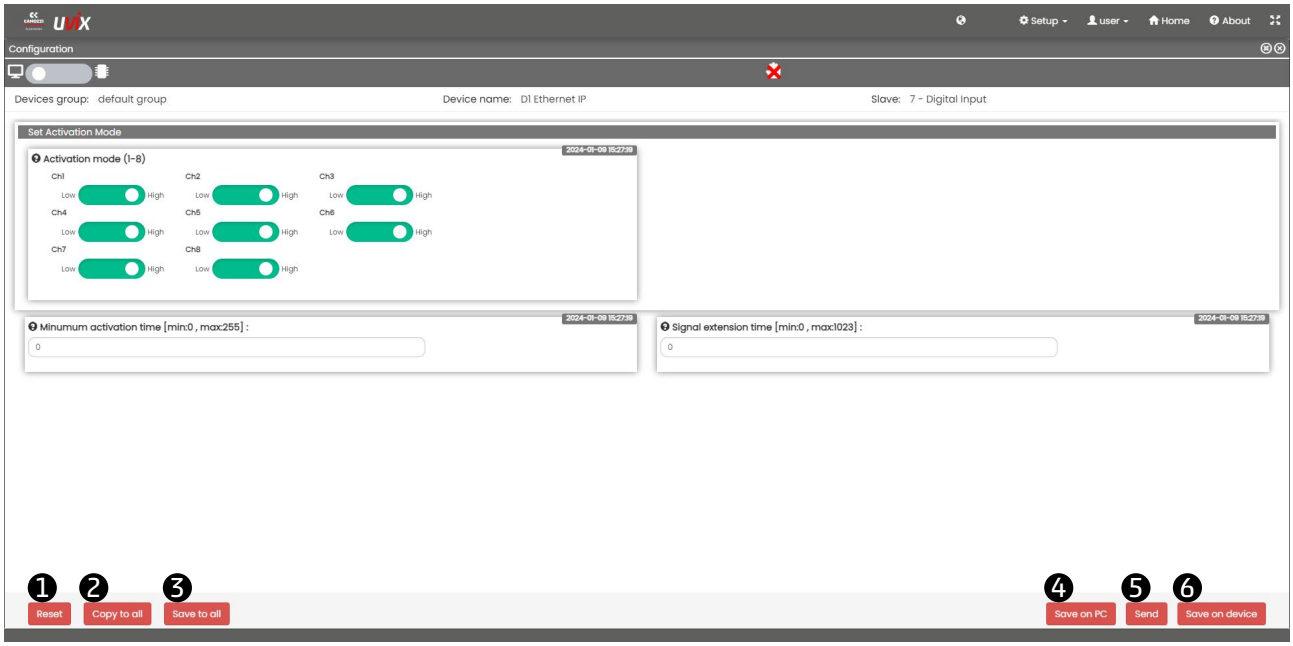

Figure 6.31: Configuration page of a digital input module

At the bottom of the page, there are commands for parameter management:

❶ Reset: Resets the device's parameters to default values, including those in the communication protocol configuration page (Chapter 6.5.4).

❷ Copy to all: Copies the parameters of the selected slave to other slaves, provided they are connected to the same master.

For more information, see Chapter 6.7.

❸ Save to all: Saves the parameters to all slaves connected to the same master.

For more information, see Chapter 6.7.

❹ Save on PC: Internally saves the device's configuration within UVIX.

❺ Send: After making changes to certain parameters, it sends them to the device.

The changes are not permanent.

❻ Save on the device: Permanently saves the previously sent changes on the device.

To prevent undesired behavior due to external commands received while modifying one or more parameters, the device must be in manual mode.

If it is not already in manual mode when accessing the configuration page or attempting to send a new parameter, a warning message will appear as shown in Figure 6.32.

Figure 6.32: Manual Mode Request Page

For some devices, the "Fast Mode" is available on this page.
This mode increases the transmission frequency of certain variables and provides commands in the same area to assist users during commissioning.

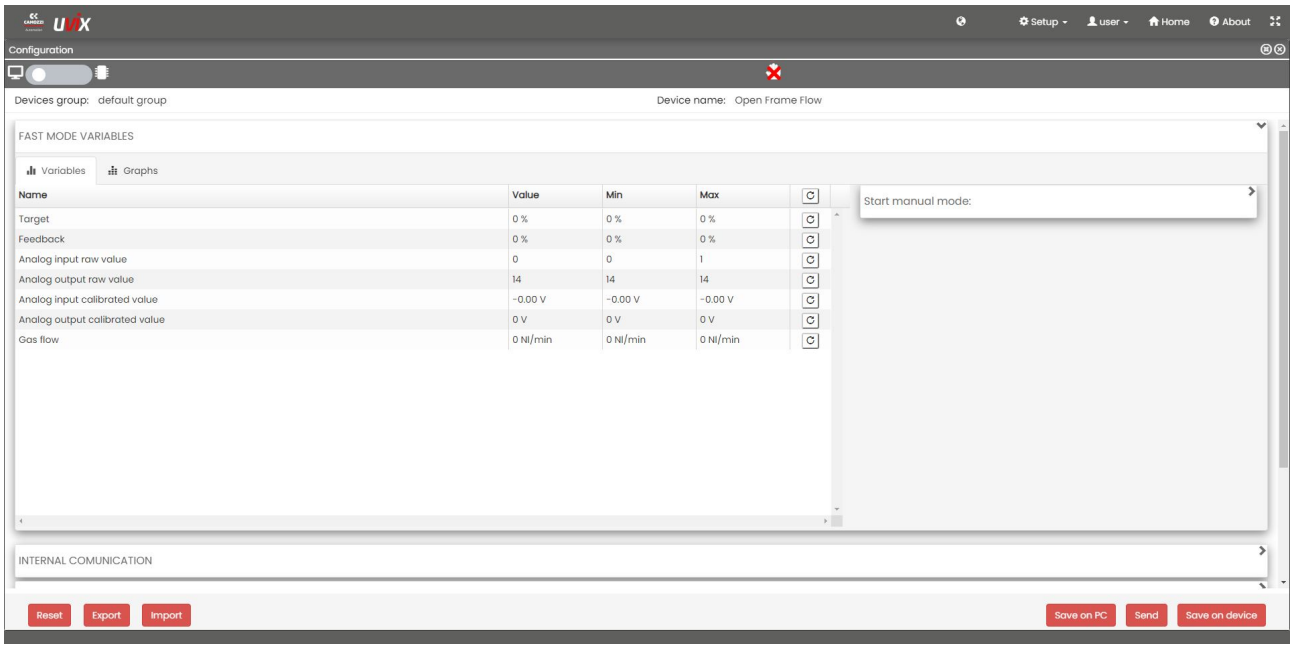

Figure 6.33: Fast Mode

6.5.3 Commissioning

Through the "Commissioning" command, accessible from the "Status Information" section, you can open the page for commissioning the selected device.
This page is specific to the device and may vary depending on the type.
An example is shown in Figure 6.34.
For more information, refer to the product manual.

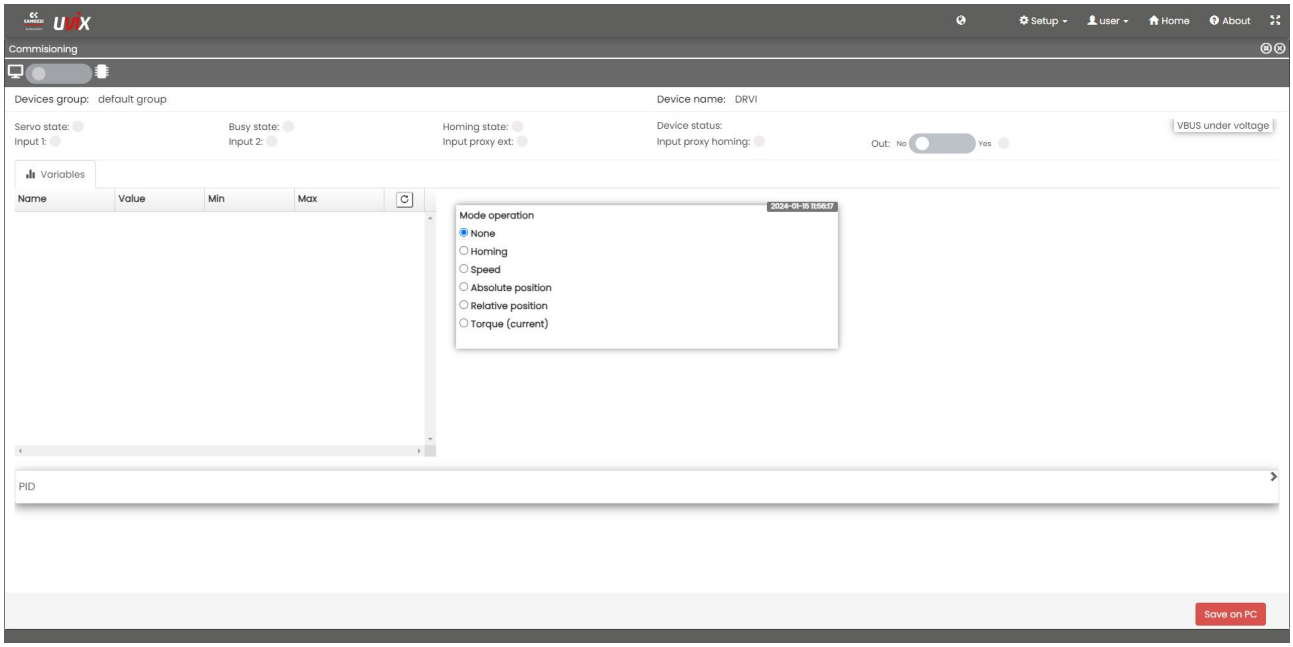

Figure 6.34: Commissioning page of a DRVI

6.5.4 Communication Protocol Configuration

Through the "Setup FieldBus" command, accessible from the "Status Information" section, you can open the communication protocol configuration page.
This command is visible only if the device is equipped with a fieldbus, and the parameters vary depending on the specific fieldbus.

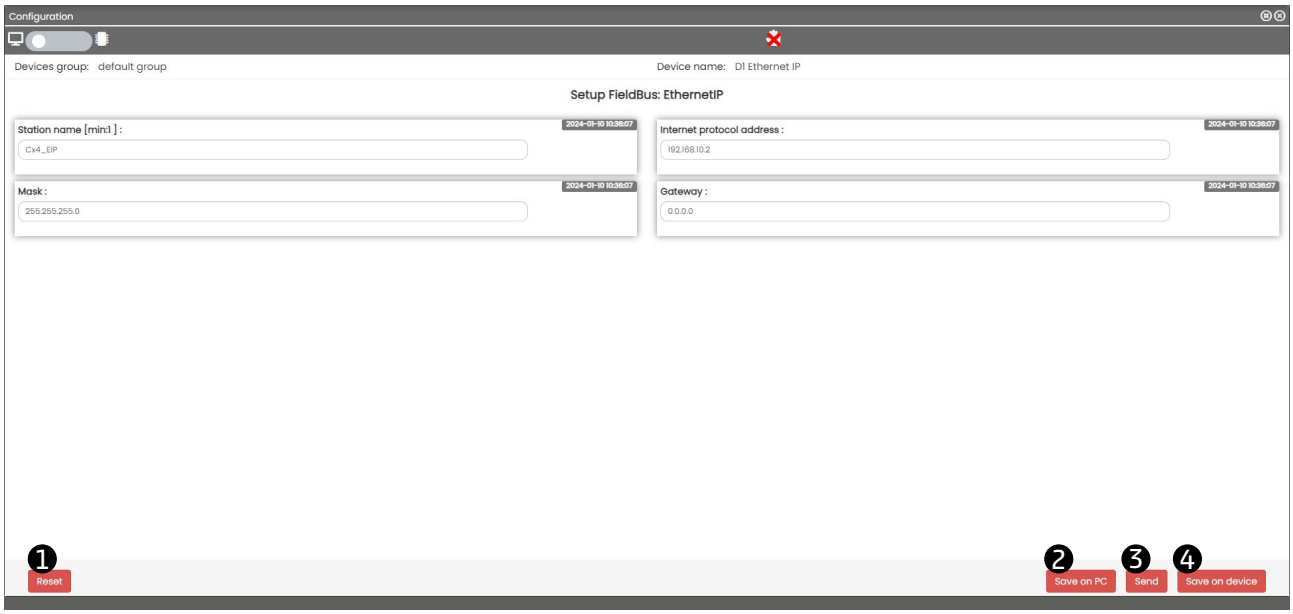

Figure 6.35: Configuration page of a device with Ethernet IP protocol

At the bottom of the page, there are commands for managing the parameters:
❶ Reset: Resets the device's parameters to default values, including those on the device configuration page (Chapter 6.5.2).
❷ Save on PC: Saves the device's configuration internally within UVIX.
❸ Send: After making changes to some parameters, it sends them to the device; however, these changes are not permanent.
❹ Save on the device: Saves the changes permanently on the device.

6.5.5 Details

In the "Details" section, these windows are present:

- Variables: Displays the variables sent by the device (Figure 6.36).
- Alarms: Displays active errors and alarms (Figure 6.37).
- Commands: Manages commands to the devices (Figure 6.38).
- Errors History: Display a list of the latest errors (Figure 6.39).
- Graph: Displays the values of the variables in a graphical mode. Only for devices that support this modality (Figure 6.40)

The variables vary depending on the connected device; for more information, consult the device's manual.

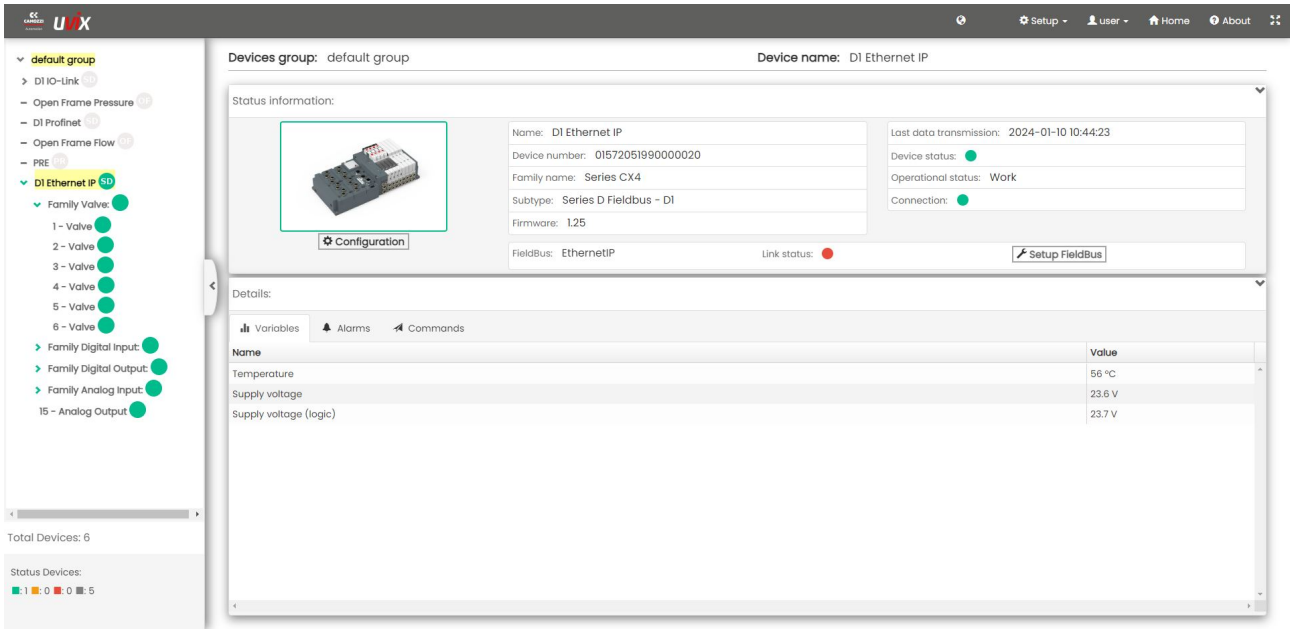

Figure 6.36: Variables window

In the "Alarms" window, the following events are displayed:

- Info : An event that informs the user but does not compromise performance or functionality.
- Warnings : Events that could affect performance but not functionality.
- Errors : Events that could affect functionality.

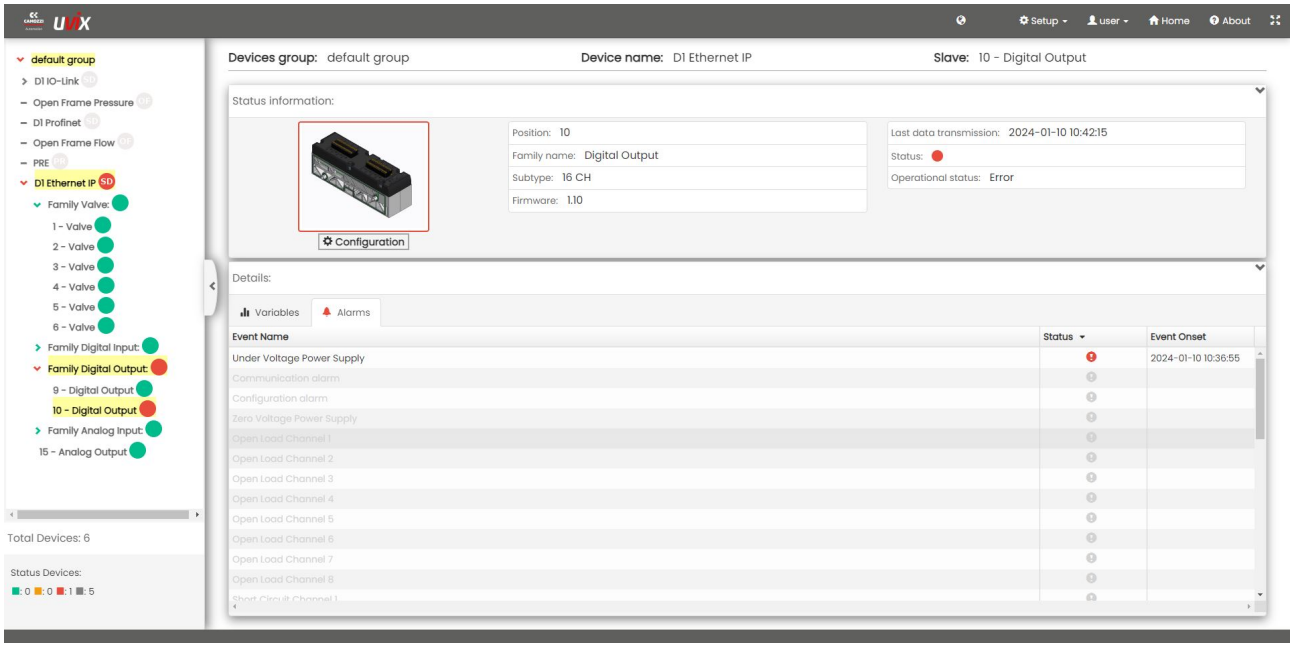

Figure 6.37: Alarms window

In the "Commands" window, you can view and send available commands, although some may be hidden if the device is not in manual mode.

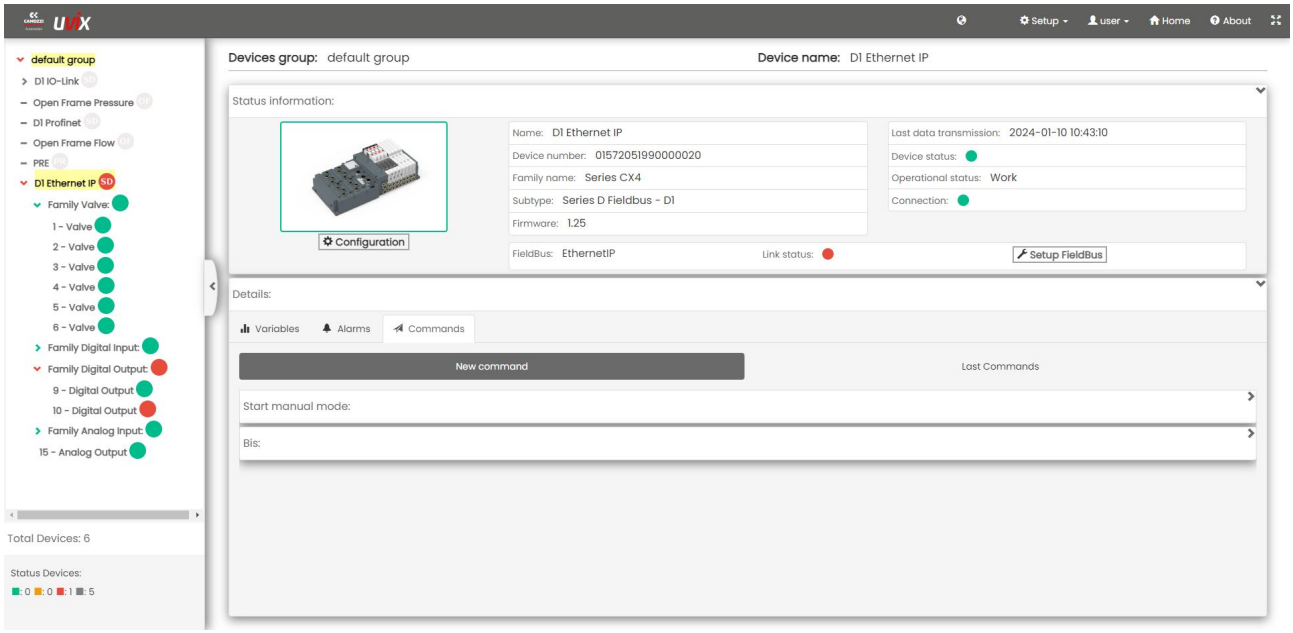

Figure 6.38: Commands window

The "Errors History" window displays a list of the most recent errors.

Next to the window name, there is the button  to refresh the list; this list is automatically sorted in descending order with each refresh, showing the most recent errors first.

Each item in the list provides the following information:

- Event Name: name of the alarm. For more details, refer to the device's manual.
- Count Power On: number of times the device has been powered on at the moment the error occurred. This number increments with each power cycle and indicates in which cycle the error was generated.
- Error Time: the time elapsed, expressed in milliseconds, between the power cycle indicated in the previous column and the moment the error occurred.

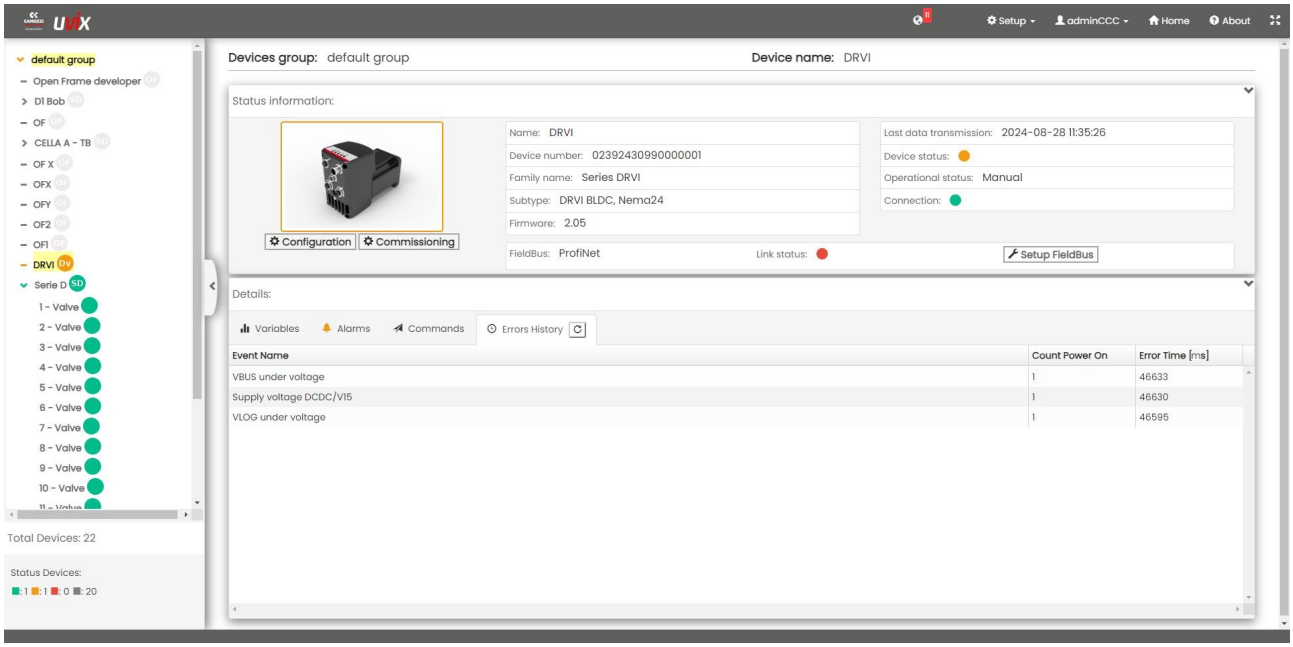

Figure 6.39: Finestra Errors History

In the "Graph" window you can display the variables graphically. The window is available only for devices that support this function. Section 6.6

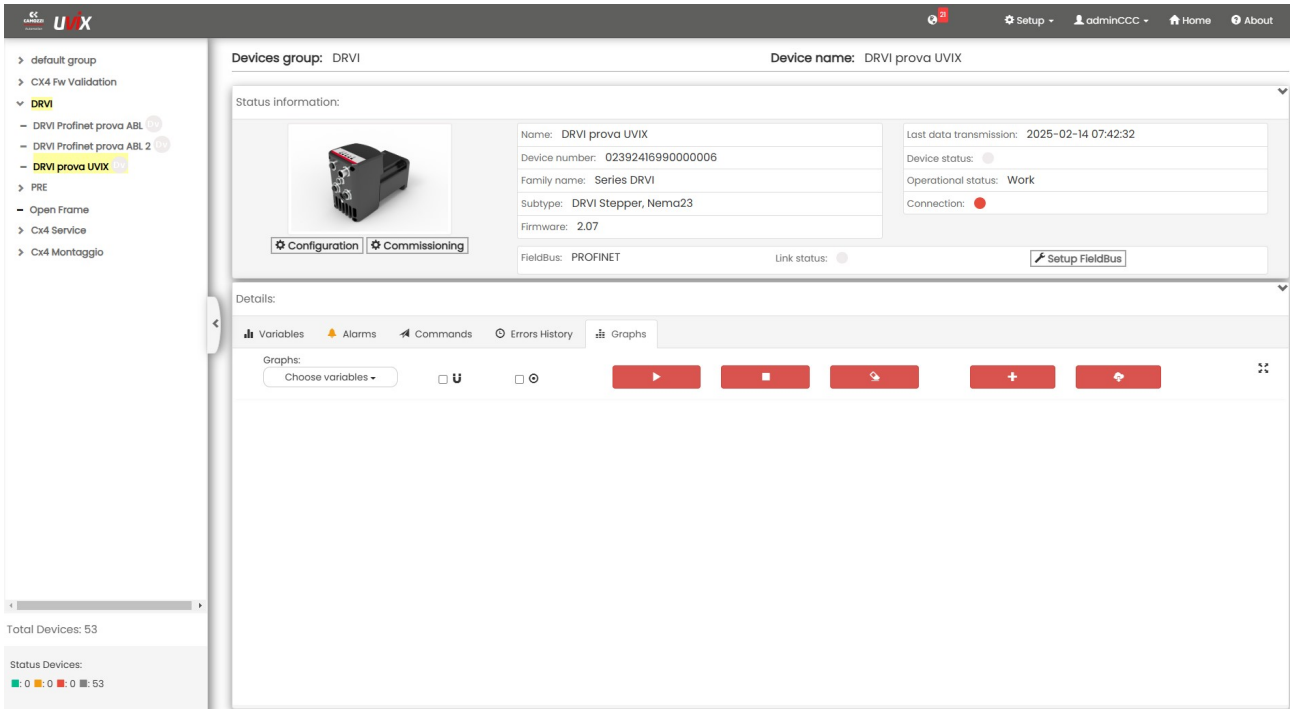

Figure 6.40: Window Graph

6.6 Graph

In the "Graph" window (figure 6.41) of the "Details" section it is possible, for devices that support this function, to graphically process some variables.

Figure 6.41: Graph of two variables versus time

The available commands are as follows:

❶ : Select the variables to be graphically processed.

❷ : Start graph.

❸ : Stop graph.

❹ : Clears all data displayed up to that point.

❺ : Adds a custom chart, see chapter 6.6.3.

❻ : Export the collected data to a csv file, see chapter 6.6.2.

❼ : Activate zoom, see chapter 6.6.1.

❽ : Activate the automatic export function, once the time window size is reached the software automatically saves the collected data in a csv file.

❾ : Set the Graph window to full screen.

To avoid saturating the memory of the PC on which the UVIX is installed, the number of data has been limited by giving the user the possibility to select the desired time window, the device will automatically set the data sampling time.

In figure 6.42 an example of selection of the time window and sampling time is shown, for more information on available time windows and sampling times refer to the device manual.

Figure 6.42: Time window and sampling time

6.6.1 Zoom

By activating the zoom via the dedicated command, the Graph window appears as in the figure 6.43.

Figure 6.43: Graph of two variables with active zoom

The commands available in this mode are the following:

⑩ : Zoom bar where you can select (by holding down and releasing the left mouse button) the area to be enlarged. Once selected, you can move it, vary its size or cancel the enlargement using the same window.

⑪ : Activates the graph synchronization command, any enlargement operation on a graph will also be performed on all the others.

⑫ : Moving the mouse cursor on the graph will display the time value and the variable at that point.

Regardless of the selected variables, the software will always collect all the expected data, it will therefore be possible to add and display other variables even after the graphs have started.

6.6.2 Data export

Using the export command, you can save the selected variables in a csv file. If you want to add more, simply select them and repeat the export operation.

The file name is composed of the acquisition date followed by the serial number of the device, for example "202548131550_02710000000000001.csv" indicates:

- 202548: the date, in the example 08/04/2025.
- 131550: the hour, in the example 13:15 and 50 seconds.
- 02710000000000001: unique serial code of the device.

As shown in figure 6.44 the device information is contained in the upper part of the file, below it the exported data.

Name;Device number;Family Name;Subtype;FW version
Flowmeter simul;02710000000000001;Flowmeter series;MX2 without filter;0.1
date-time;time(sec);Media temperature(Â°C);Pressure (bar);Flow (l/min)
2025-4-8 13:15:20:250;0;22;0.01;0
2025-4-8 13:15:20:450;0.2;22;0.01;0
2025-4-8 13:15:20:650;0.4;22;0.01;0
2025-4-8 13:15:20:850;0.6;22;0.01;0
2025-4-8 13:15:21:50;0.8;22;0.01;0
2025-4-8 13:15:21:250;1;22;0.01;0
2025-4-8 13:15:21:450;1.2;22;0.01;0
2025-4-8 13:15:21:650;1.4;22;0.01;0
2025-4-8 13:15:21:850;1.6;22;0.01;0
2025-4-8 13:15:22:50;1.8;22;0.01;0
2025-4-8 13:15:22:250;2;22;0.01;0
2025-4-8 13:15:22:450;2.2;22;0.01;0
2025-4-8 13:15:22:650;2.4;22;0.01;0
2025-4-8 13:15:22:850;2.6;22;0.1;0
2025-4-8 13:15:23:50;2.8;23;3.81;0
2025-4-8 13:15:23:250;3;23;6;0
2025-4-8 13:15:23:450;3.2;24;6.14;0
2025-4-8 13:15:23:650;3.4;24;6.14;0
2025-4-8 13:15:23:850;3.6;25;6.14;0
2025-4-8 13:15:24:50;3.8;25;6.14;0

Figure 6.44: Example file csv

For better readability, you can import the data contained in this file into an Excel spreadsheet or process it, for example with a Python program.

6.6.3 Custom graph

Using the appropriate command it is possible to add custom graphs, the window that appears is shown in figure 6.45.

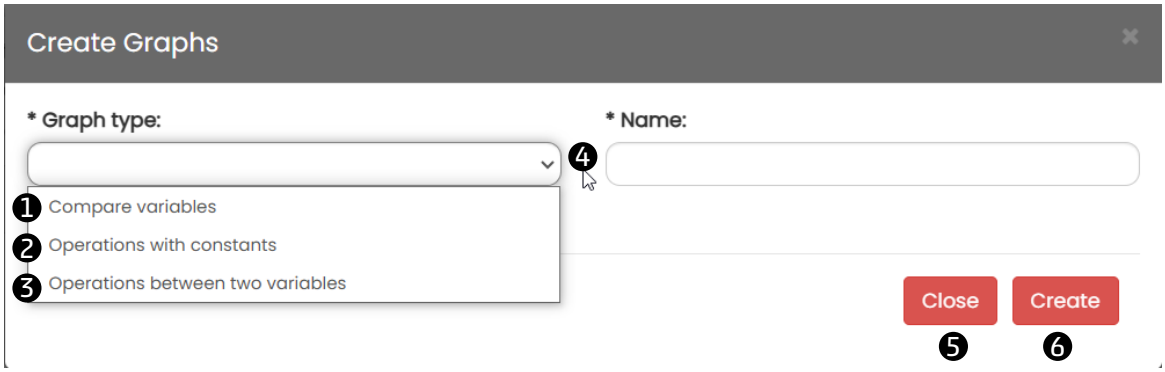

Figure 6.45: Window for adding custom graphs

The available commands are as follows:

❶ Adds a custom graph that compares two or more variables (up to a maximum of four).

❷ Adds a custom graph that adds or subtracts a constant value to a variable.

❸ Adds a custom graph that adds or subtracts two variables (they must have the same unit of measurement).

❹ Sets the name of the graph.

❺ Closes the window, canceling creation.

❻ Closes the window, adding the custom graph.

In figure 6.46 three example custom graphs are shown, one for each type.

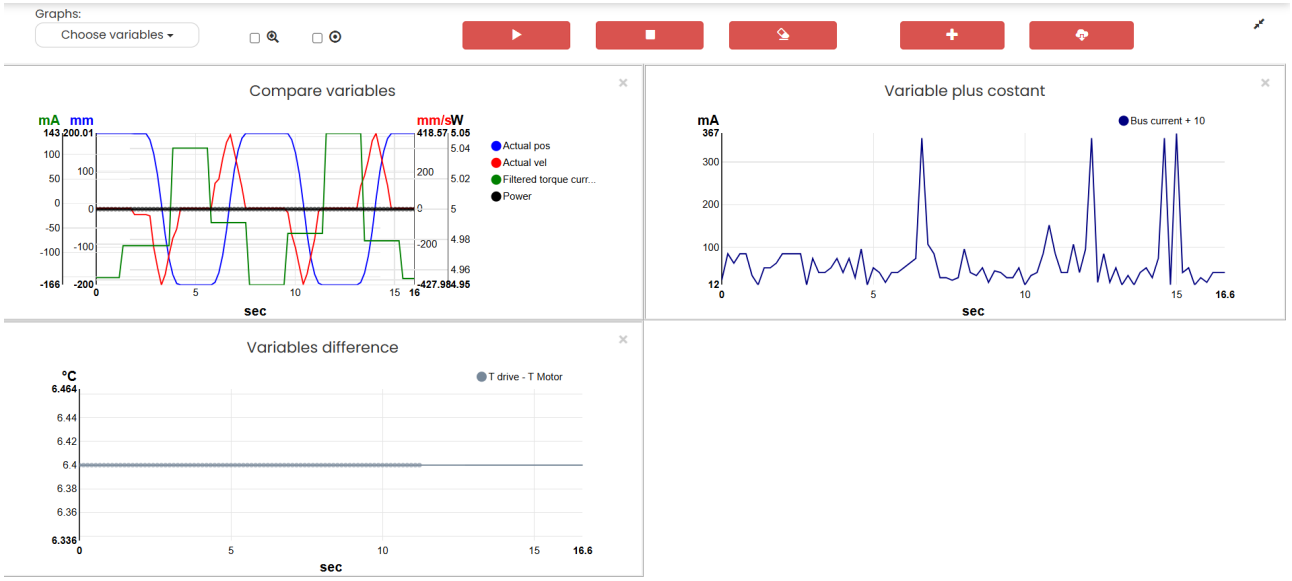

Figure 6.46: Example of custom graphs

6.7 The "Copy to all" Function

This function allows you to copy the configuration of one slave to others that are compatible, provided they are connected to the same master.
For copying, the system checks the family and subtype of other slaves, selecting only those that are compatible, as indicated in Table 6.6.

Table 6.6: Compatibility for the "Copy to all" Function

Family	Subtype	Compatibility Rules
Monostable	10mm	Same family
Monostable	16mm	Same family
Monostable	25mm	Same family
Bistable	10mm	Same family
Bistable	16mm	Same family
Bistable	25mm	Same family
Digital Inputs	8 channels	Same family; if copied to a module with 16 inputs, only the first 8 are modified
Digital Inputs	16 channels	Same family; if copied to a module with 8 inputs, only the first 8 are copied
Digital Outputs	8 channels	Same family; if copied to a module with 16 outputs, only the first 8 are modified
Digital Outputs	16 channels	Same family; if copied to a module with 8 outputs, only the first 8 are copied
Analog Inputs	Thermocouples	Same family and subtype
Analog Inputs	Bridge	Same family and subtype
Analog Inputs	RTD	Same family and subtype
Analog Inputs	Voltage/Current	Same family and subtype
Analog Outputs	2 channels	Same family

To copy the configuration of a slave to others, follow these steps:
1. Access the configuration page of the slave you want to copy.
2. Click on the " ❶ Copy to all" command in the bottom-left section (Figure 6.47).

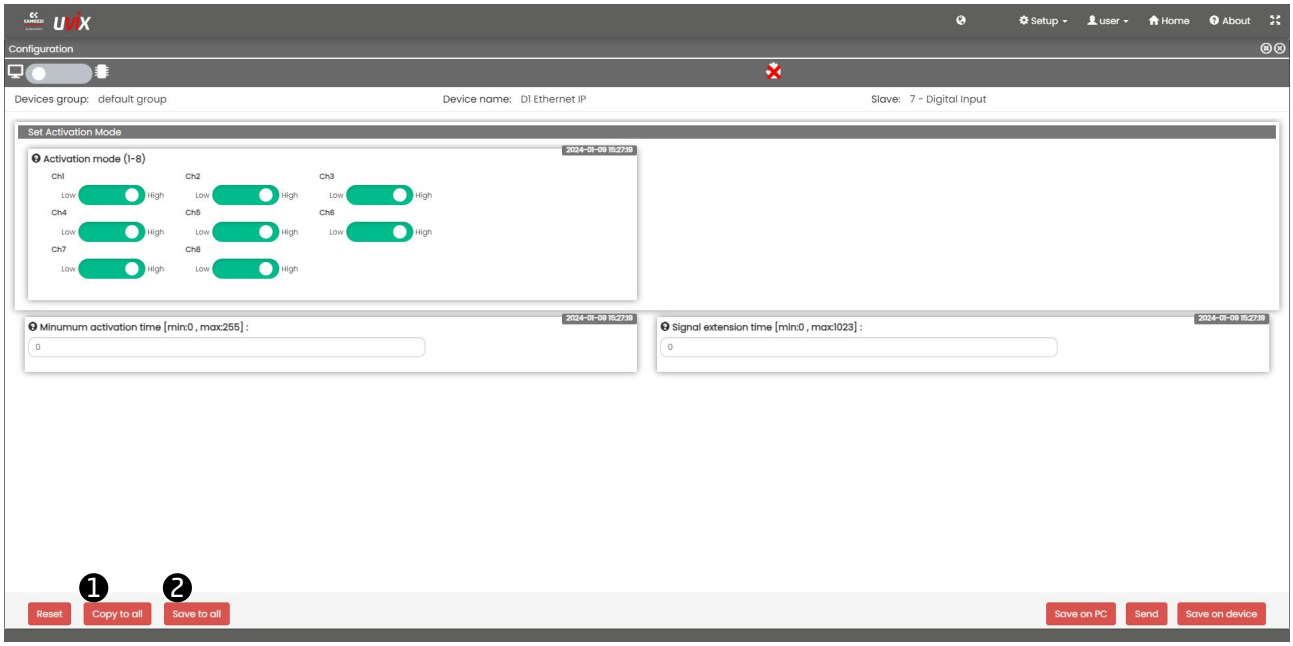

Figure 6.47: Example

After clicking the command, the software will automatically perform a compatibility check and display the window shown in Figure 6.48, listing the compatible slaves.

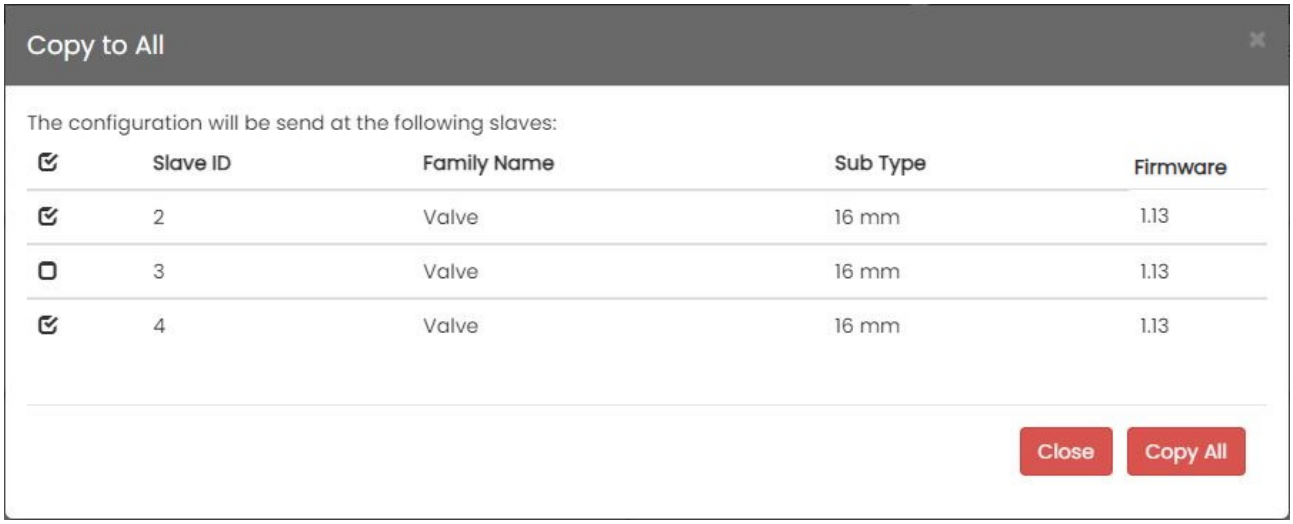

Figure 6.48: Window for the "Copy to all" function

In the first column, you can select which slaves to copy the configuration to.
For each slave, the ID (a unique number to identify it within the modular device), family name, subtype, and firmware version are visible.
Once you have verified the information, click "Copy All" to perform the copy or "Close" to cancel the operation.
Finally, press the "❷ Save to all" command in Figure 6.47 to save the new configurations permanently.

6.8 The "Export/Import" Function

The "Export/Import" function allows you to export the configuration of a device and then import it onto other devices.
This function differs from the device import and export function described in Chapter 6.4.4.
To access the commands for managing this functionality, open the configuration page of the device as shown in Chapter 6.5.2.
After that, for non-modular devices, the commands will be located in the bottom-left corner of the window as shown in Figure 6.49, or in the central part for modular devices as shown in Figure 6.50.

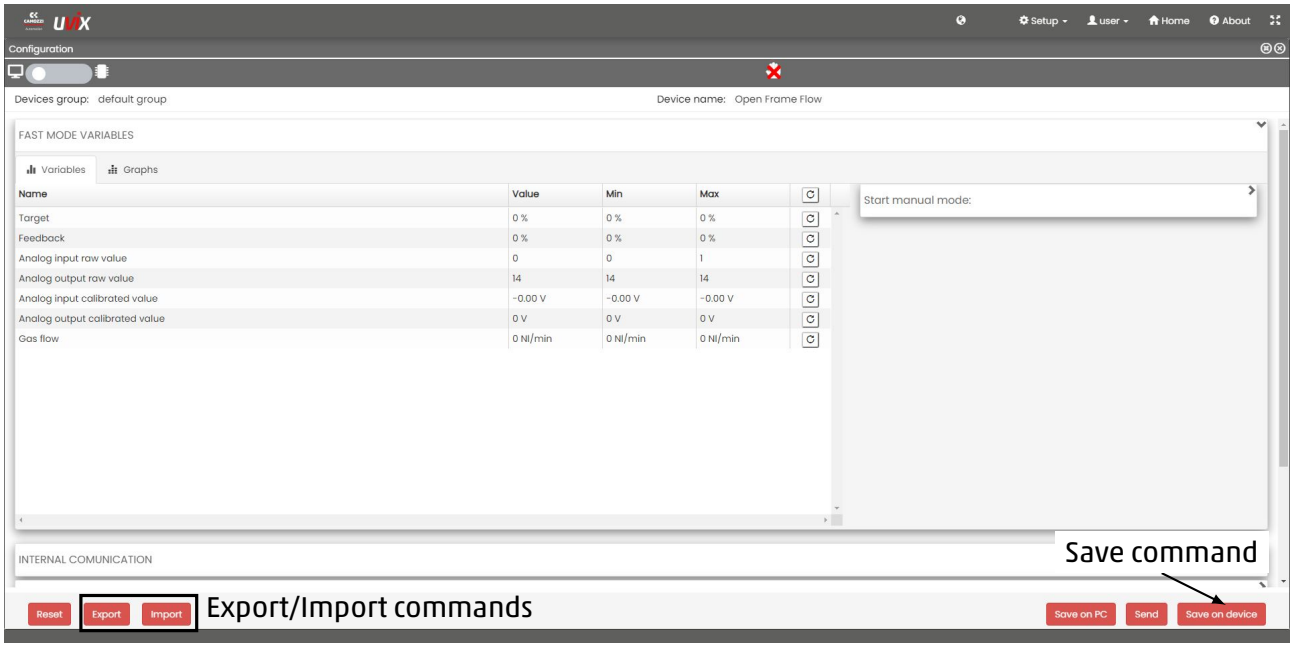

Figure 6.49: Example of Export/Import commands for a non-modular device

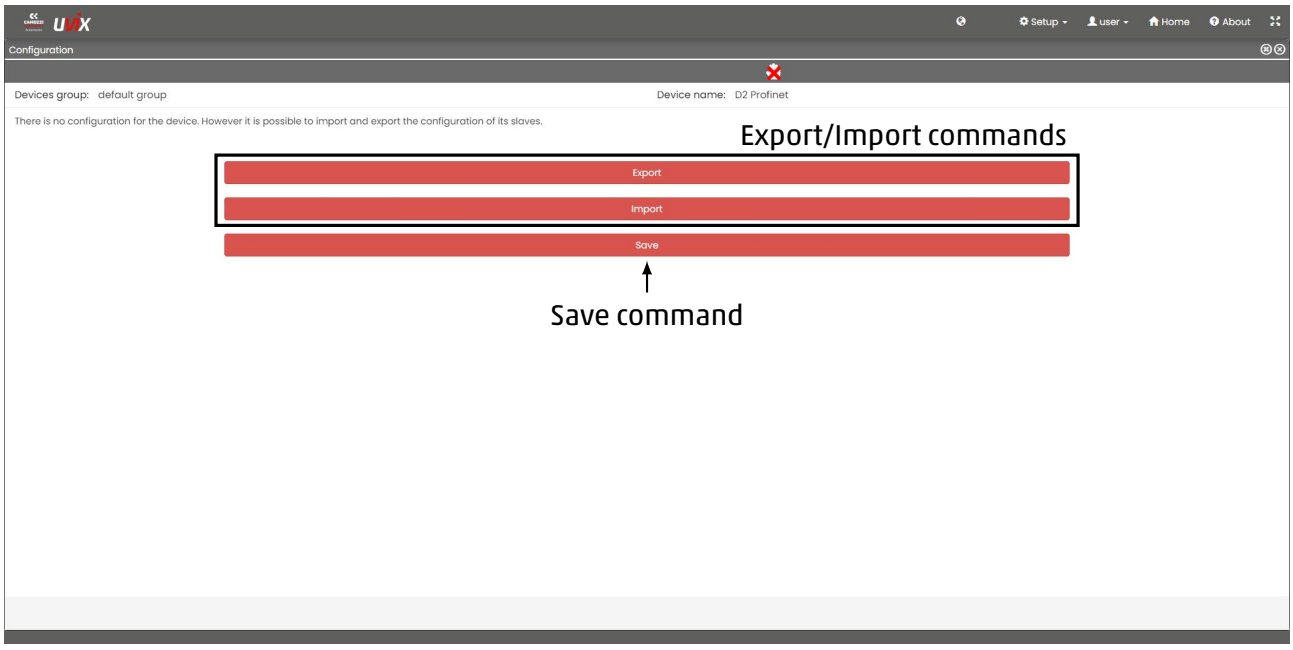

Figure 6.50: Example of Export/Import commands for a modular device

6.8.1 Exporting a Configuration

To export a configuration, click on the "Export" command.
Once the window shown in Figure 6.51 opens, select whether you want to export the configuration internally within the software (option "UVIX") or to an external file (option "External File").
In the first case, assign a name to the configuration and optionally provide a description.
In the second case, specify the name for the file that will be generated (the system will suggest a default name).
Afterward, press "Export" to complete the operation or "Close" to cancel it.

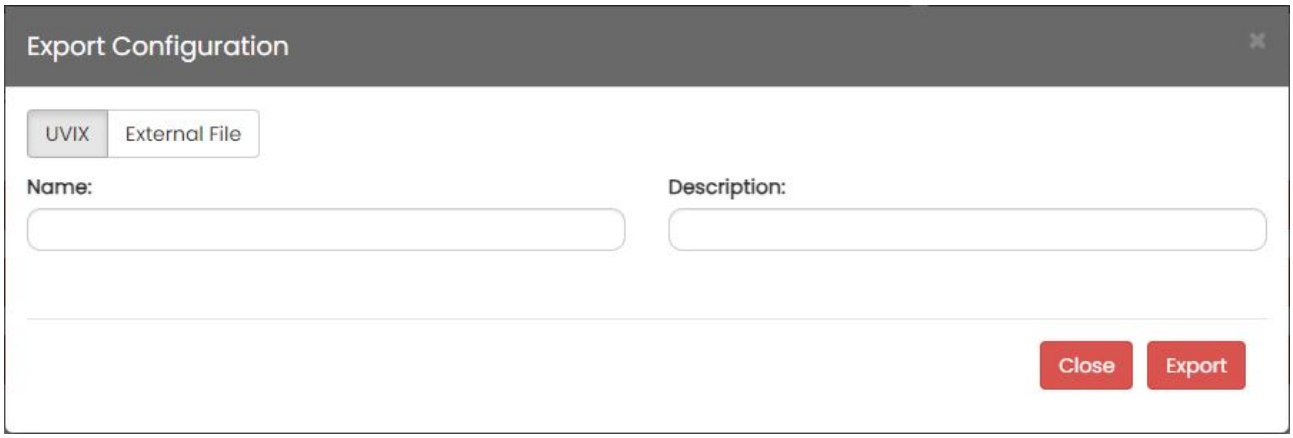

Figure 6.51: Window for exporting a configuration

6.8.2 Importing a Configuration

To import a configuration, click on the "Import" command.
Once the window shown in Figure 6.52 opens, select whether you want to import a configuration from within the software (option "UVIX") or from an external file (option "External File").

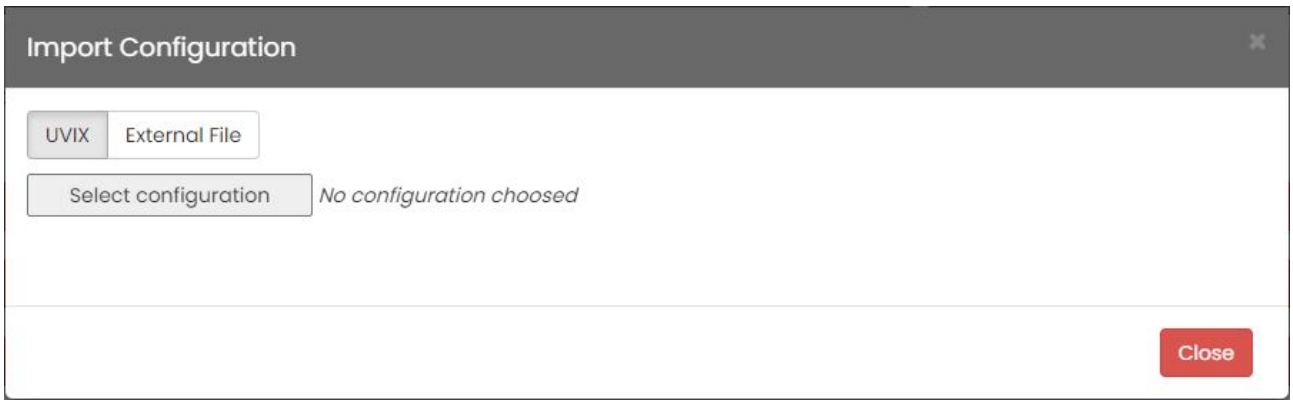

Figure 6.52: Window for importing a configuration

After selecting the desired configuration, a compatibility check table will appear.
In the case of a non-modular device, the table will contain a single row.
For modular devices, there will be one row for the master and one for each slave present (Figure 6.53).
The information provided includes:

- Family Name: The name of the device family.
- Sub Type: The device's subtype.

- Firmware: The device's firmware version.
- Compatibility: The compatibility result, "yes" if compatible and "no" if not.
- Slave ID: The slave's ID, a unique number for identification within the modular device.

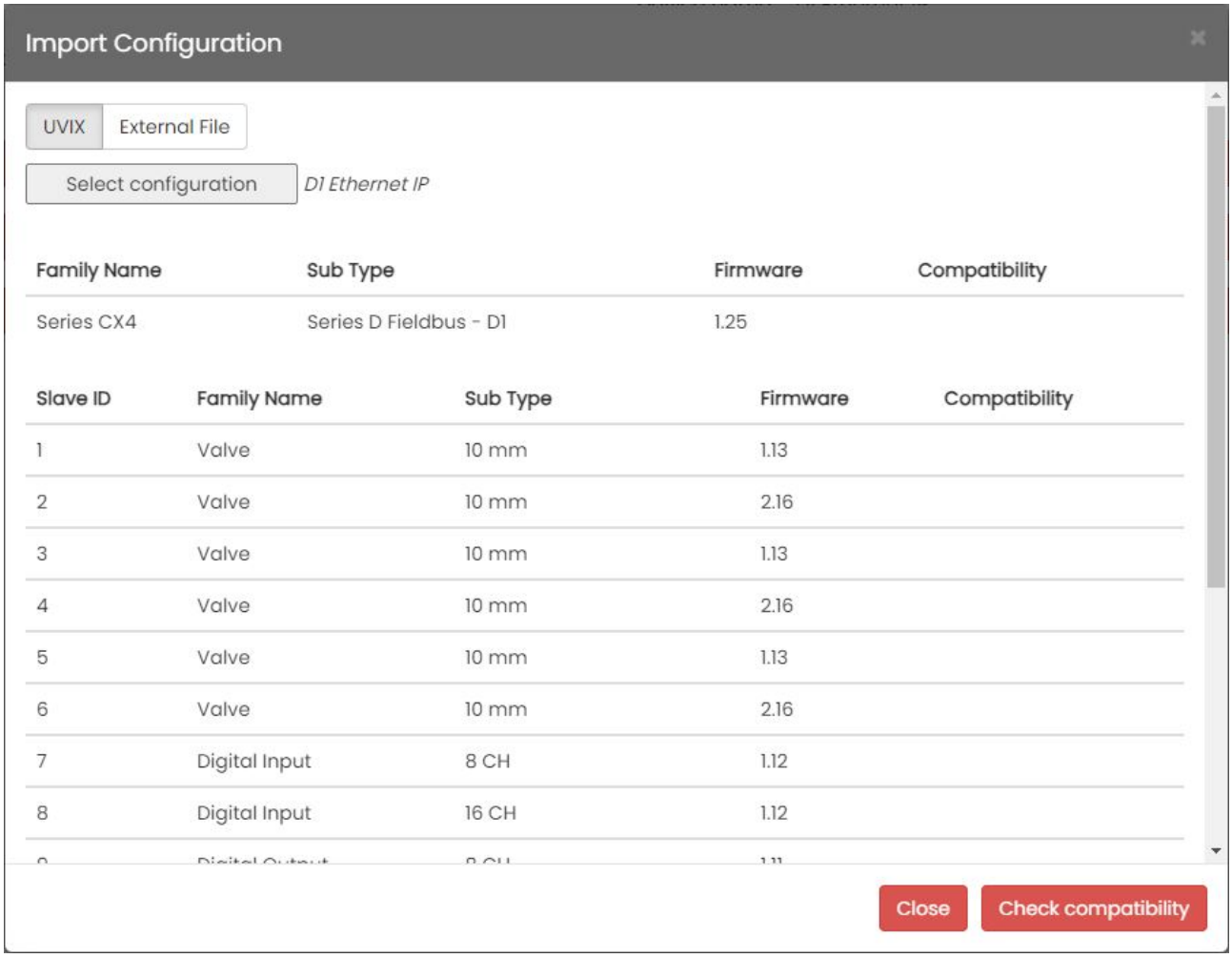

Figure 6.53: Window to check compatibility of a modular device

By clicking the "Check compatibility" command, the software initiates a compatibility check according to the rules in Table 6.7.

Table 6.7: Compatibility for the "Import" function

Family	Subtype	Compatibility Rules
Serial D Series	D1 Series	Same family and communication protocol
Serial D Series	D2 Series	Same family and communication protocol
Serial D Series	D4 Series	Same family and communication protocol
Serial D Series	D5 Series	Same family and communication protocol

Continued

Table 6.7 – *Continued*

Family	Subtype	Compatibility Rules
Serial D Series	Standalone Series	Same family and communication protocol
PRE Proportional Controller Series	Size 1	Same family, subtype, and control signal
PRE Proportional Controller Series	Size 2	Same family, subtype, and control signal
Multipolar D Series	D1 Series	Same family
Multipolar D Series	D2 Series	Same family
Multipolar D Series	D4 Series	Same family
Multipolar D Series	D5 Series	Same family
Open Frame	2-Way Open Loop Flow	Same family, subtype, and control signal
Open Frame	3-Way Open Loop Flow	Same family, subtype, and control signal
Open Frame	2-Way Closed Loop Flow	Same family, subtype, and control signal
Open Frame	3-Way Closed Loop Flow	Same family, subtype, and control signal
Open Frame	High-Flow 2-Way Pressure	Same family, subtype, and control signal
Open Frame	High-Flow 2-Way Flow	Same family, subtype, and control signal
Open Frame	2-Way Closed Loop Pressure	Same family, subtype, and control signal
Open Frame	3-Way Closed Loop Pressure	Same family, subtype, and control signal
Open Frame	Single-Acting Non-Analog Position	Same family, subtype, and control signal
Open Frame	Double-Acting Master Position	Same family, subtype, and control signal
Open Frame	Double-Acting Slave Position	Same family, subtype, and control signal
Open Frame	Single-Acting Analog Head Position	Same family, subtype, and control signal
Open Frame	Single-Acting Analog Expansion Position	Same family, subtype, and control signal
DRVI Drive	Stepper Motor Drive	Same family and subtype
DRVI Drive	Brushless Motor Drive	Same family and subtype

If no devices are compatible, the import is not possible, and only the "Close" command will be available to end the operation.
If one or more devices from the table are compatible, the "Import" command will be available to import the configuration to those devices.
Click the "Import" command to proceed with the import, or the "Close" command to cancel the operation.

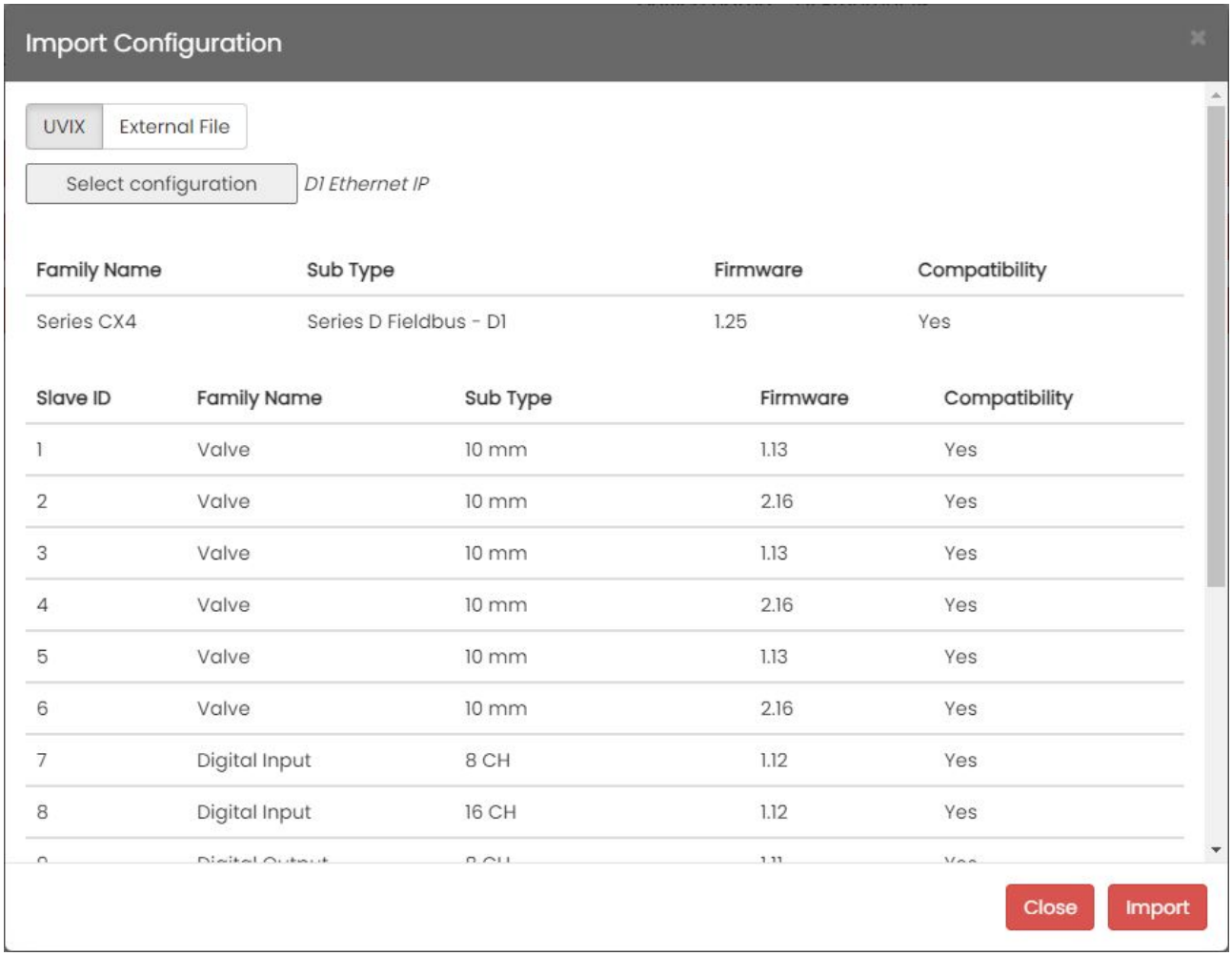

Figure 6.54: Result of the compatibility check of a modular device

Once the configuration is imported, it is not saved automatically on the device, allowing the user to visually verify and make further changes.
At the end, click the "Save" command for modular devices (Figure 6.50), or "Save on device" (Figure 6.49) to permanently save the changes.

MQTT for External Applications

In this chapter, we will take a closer look at the implemented MQTT communication, which, if enabled, allows you to send data managed by UVIX to an external application created and customized by the user according to their needs.
The MQTT protocol is based on the publish/subscribe model, which means that the following components must be present:

- Publisher: the sender of messages that "publishes" them by creating "topics."
- Subscriber: the recipients who receive messages by subscribing to one or more "topics."
- Broker: a message handler responsible for receiving messages from the publisher and delivering them to subscribers who have subscribed.

As shown in Figure 7.1, UVIX, specifically the Web Service, acts as a publisher and creates topics in which the variables of the connected devices are contained.
To provide maximum flexibility, the choice and configuration of the broker and subscribers who will subscribe to the topics remain the responsibility of the user so that they can be customized for the application.

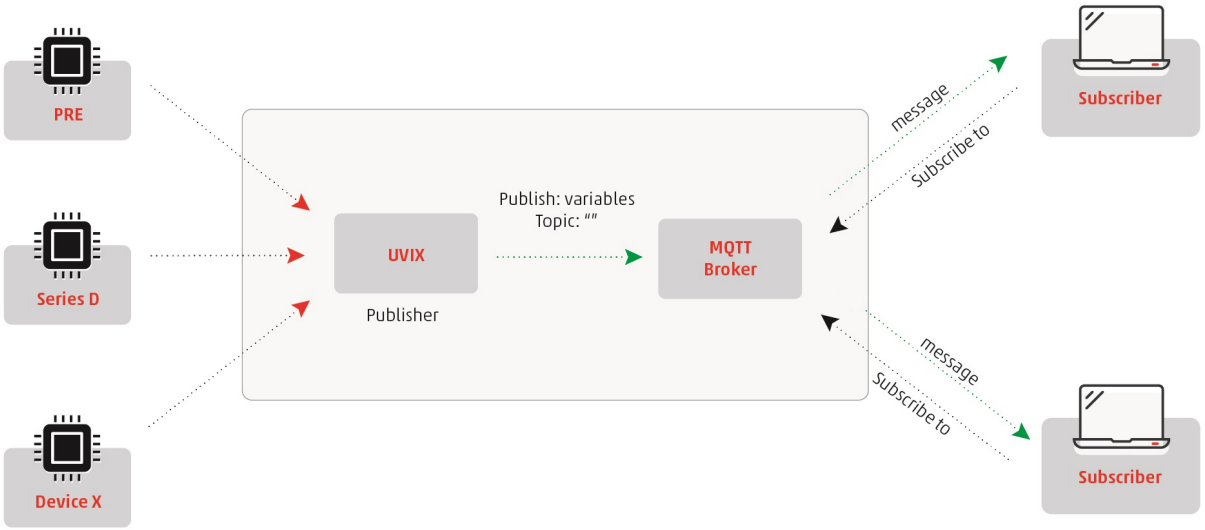

Figure 7.1: MQTT Network Structure

7.1 Communication Configuration

To configure MQTT communication, you need to copy the "config.xml" file to the installation path of the Web Service inside the "Config" folder located in the same directory.
By default, the path is `C:\ProgramFiles(x86)\CAMOZZI\UVIX\WebService`.

As shown in Figure 7.2, once you've copied the file, you can edit the various configuration parameters listed in Table 7.1 using a text editor.

config.xml

```
<?xml version="1.0" encoding="utf-8"?>
<config>
    <!-- Generale -->
    <!--Url su cui lanciare Web Service-->
    <StrServiceUrl>http://0.0.0.0:5000</StrServiceUrl>

    <!--Lunghezza timer di controllo connessioni dispositivi (in millisecondi)-->
    <MSecCheckDispConnections>10000</MSecCheckDispConnections>

    <!--Lunghezza timer di recupero timeout connessioni (in millisecondi)-->
    <MSecGetTimeouts>600000</MSecGetTimeouts>

    <!--Numero massimo di pacchetti gestiti in singola transazione-->
    <MaxPcktsPerTransaction>200</MaxPcktsPerTransaction>


    <!-- Mqtt -->
    <!--Flag che indica se abilitare task Mqtt (0=disabled, 1=MqttCustomer, 2=MqttDigital, default:0)-->
    <MqttOn>0</MqttOn>

    <!--Host di connessione a broker Mqtt-->
    <MqttConnectionHost>localhost</MqttConnectionHost>

    <!--Porta di connessione a broker Mqtt-->
    <MqttConnectionPort>1883</MqttConnectionPort>

    <!--Client ID da usare per publish messaggi-->
    <MqttClientId>CamozziWebService</MqttClientId>

    <!--Prefisso topic su cui effettuare publish messaggi-->
    <MqttTopicPrefix>machine_data/</MqttTopicPrefix>

    <!--Valore da assegnare a campo ReadClock in messaggi MqttDigital (in millisecondi)-->
    <MqttReadClock>1000</MqttReadClock>

    <FepLogPath>C:\Program Files (x86)\CAMOZZI\UVIX\FEP\log</FepLogPath>
</config>
```

Figure 7.2: Configuration File for MQTT Communication

Table 7.1: Parameters for MQTT Communication

Parameter	Line Number	Description
MqttOn	19	Enable MQTT communication • 0: Disabled, default value • 1: Enabled • 2: Reserved
MqttConnectionHost	22	IP address where the broker is installed, keep as "localhost" if on the same machine as the Web Server
MqttConnectionPort	25	Broker communication port, typically the default is 1883
MqttClientId	28	Publisher's identity, keep the default value
MqttTopicPrefix	31	Prefix used to compose the topic name, see Chapter 7.2.
MqttReadClock	34	Reserved

7.2 Topics

Topics are identifiers for types of messages.
By subscribing to one or more available topics, a subscriber can choose to receive only the messages of interest to them.
The names of topics are composed by concatenating two fields:

- Prefix: set through the "MqttTopicPrefix" parameter in the "config.xml" configuration file of the Web Service, as discussed in Chapter 7.1.
- Devices Group: the name of the devices group set within the Web App, as discussed in Chapter 6.4.3.

By constructing them in this way, a topic is available for each group of devices.

7.3 Message Structure

Once the communication is correctly configured, the Web Service publishes a message every time it receives a variable from a device.
Configuration parameters, commands, and fast variables are not transmitted.
For more information on the available variables and their IDs, please refer to the device's user manual.
Below is an example of a message sent after receiving a variable with ID 6 from a "RegP" type device assigned to the "MqttTestDevGroup" device group:
{"TS": "2020-04-07T09:10:25", "DevGr": "MqttTestDevGroup", "DevSerNum": "PRE00000000000321", "DevType": "RegP", "DevName": "DevicePRE 321", "SlvId": 0, "SlvType": "RegP", "SlvName": "DevicePRE 321", "VarId": 6, "VarVal": "413" }
Observing the message, you can identify the following fields:

- TS: Date and time of the sent message.
- DevGr: Name of the device group to which the device belongs.
  If the device is not assigned to any group, this field will automatically be set to "Default Machine."
- DevSerNum: Serial number of the device.
- DevType: Device family.
- DevName: Device name.
- SlvId: Device ID. In the case of a slave, it will be an incrementing value starting from 1, identifying it within the modular device.
  It will be 0 otherwise.
- SlvType: Slave family.
  If it is a master or a non-modular device, this field will have the same value as "DevType."
- SlvName: Slave name.
  If it is a master or a non-modular device, this field will have the same value as "DevName."
- VarId: Variable ID, a unique name identifying the variable.
  For the complete list, refer to the device's user manual.
- VarVal: Variable value without conversions.
  For more information, refer to the device's user manual.

Troubleshooting

In the following chapter, we will address the main issues that may arise during or after installation, along with the primary solutions that users can independently perform to resume operations as quickly as possible.
If the problem persists, please contact Camozzi support via email at service.camozzi@camozzi.com or by phone at +39 030 3792790.

8.1 USB Communication Absent

In this situation, the Camozzi device is powered, the USB cable is connected, and the Camozzi USB Gateway software is running, but the connected device is not appearing in the "Open COMs" list (Figure 8.1).

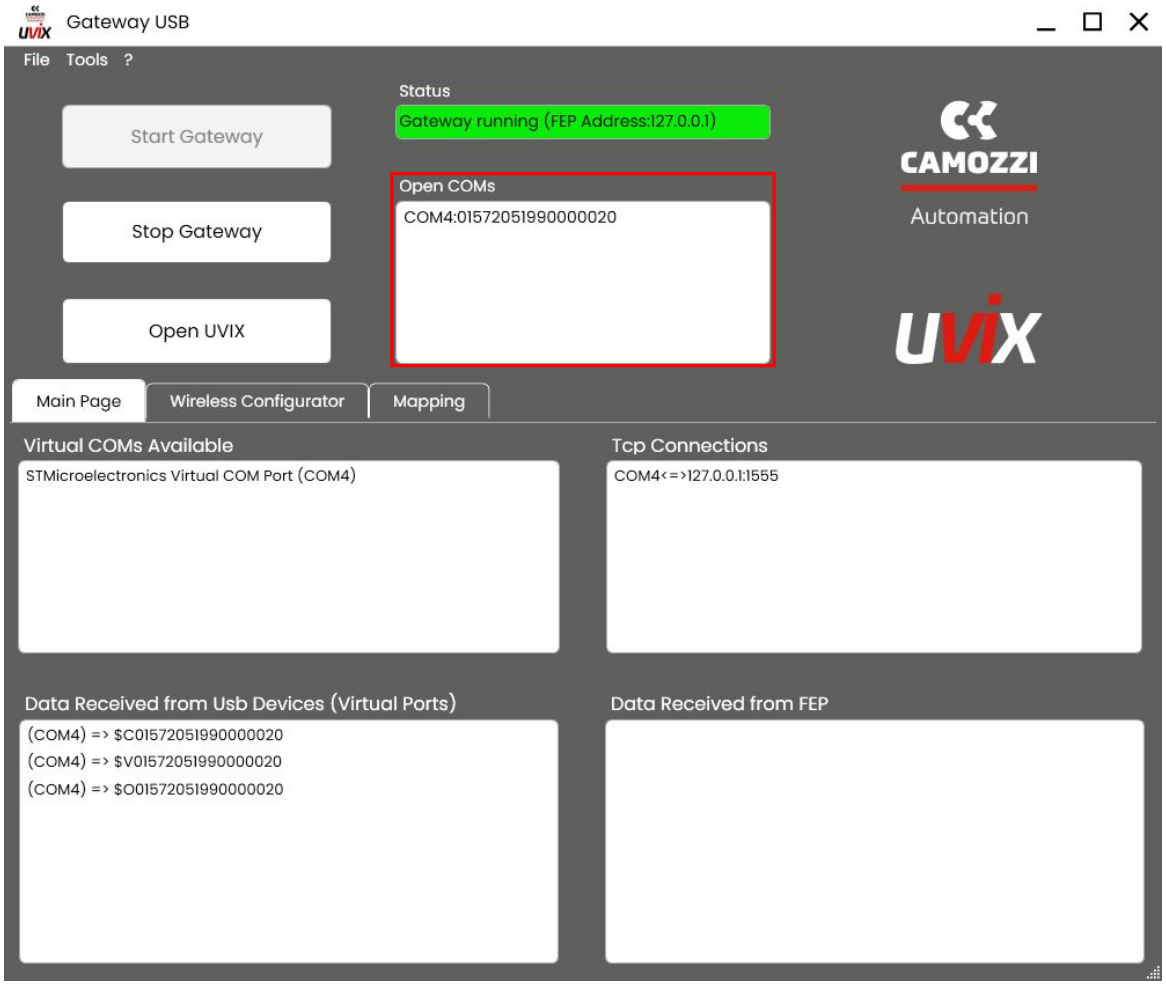

Figure 8.1: Example of USB communication absent with a device

Open the device manager and try disconnecting and reconnecting the USB cable.
After that, one of the following situations may occur:

1. The window doesn't update: The system doesn't recognize any connected device, which could be

due to the cable or the USB connector on the PC or the device itself.
Try the test again with a different cable or a different USB port on the PC.
If the problem persists, contact Camozzi service.

2. The window updates, but the device isn't recognized: If the device is functioning correctly, it should appear as shown in Figure 8.2.

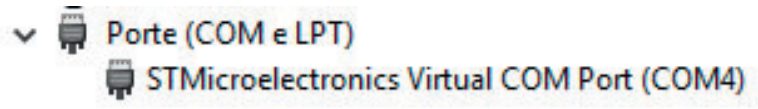

Figure 8.2: Virtual COM if the device is functioning correctly

If it appears as shown in Figure 8.3, the device is working correctly but is in reprogramming mode. Simply complete the procedure as described in the user and maintenance manual.

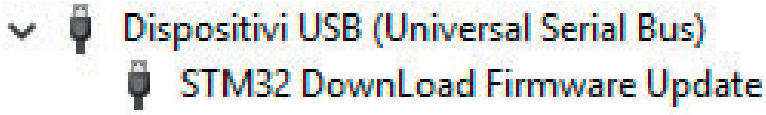

Figure 8.3: Serial if the device is in reprogramming mode

8.2 Wireless Communication Absent

If the device is equipped with a wireless module but is not communicating with UVIX, please check the following:

1. Ensure that the wireless network is available, as even a weak signal can cause issues.
2. Verify that the access credentials, SSID, and password are correctly configured on the device.
3. Make sure the UVIX address on the device is set correctly.
4. Ensure that the IP address of the machine where UVIX is installed is static.
5. Check for any firewalls or antivirus software that may be blocking communication ports of UVIX, as discussed in Chapter 3.2.
6. Access the services window and verify that the "CamozziFEP" status is running (Figure 8.4).
   If it's not running, you can manually force it by accessing the same window with administrator privileges.

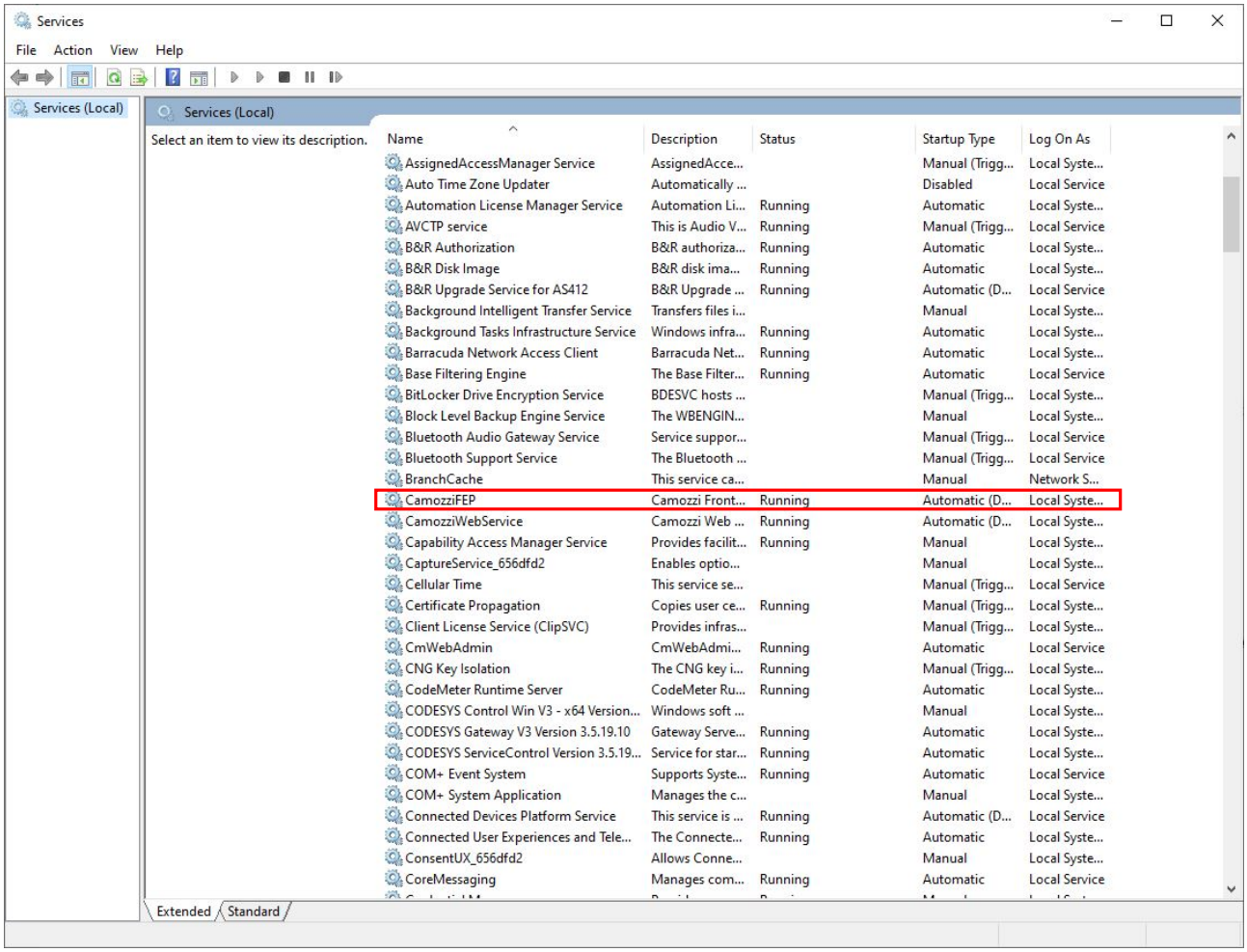

Figure 8.4: CamozziFEP Service

8.3 Device Not Visible in the Web App

If the device does not appear in the Web App, one of the UVIX components may not be functioning correctly.

Please check the following:

1. If the device communicates via USB, check its status from the USB Gateway as shown in Figure 8.5.

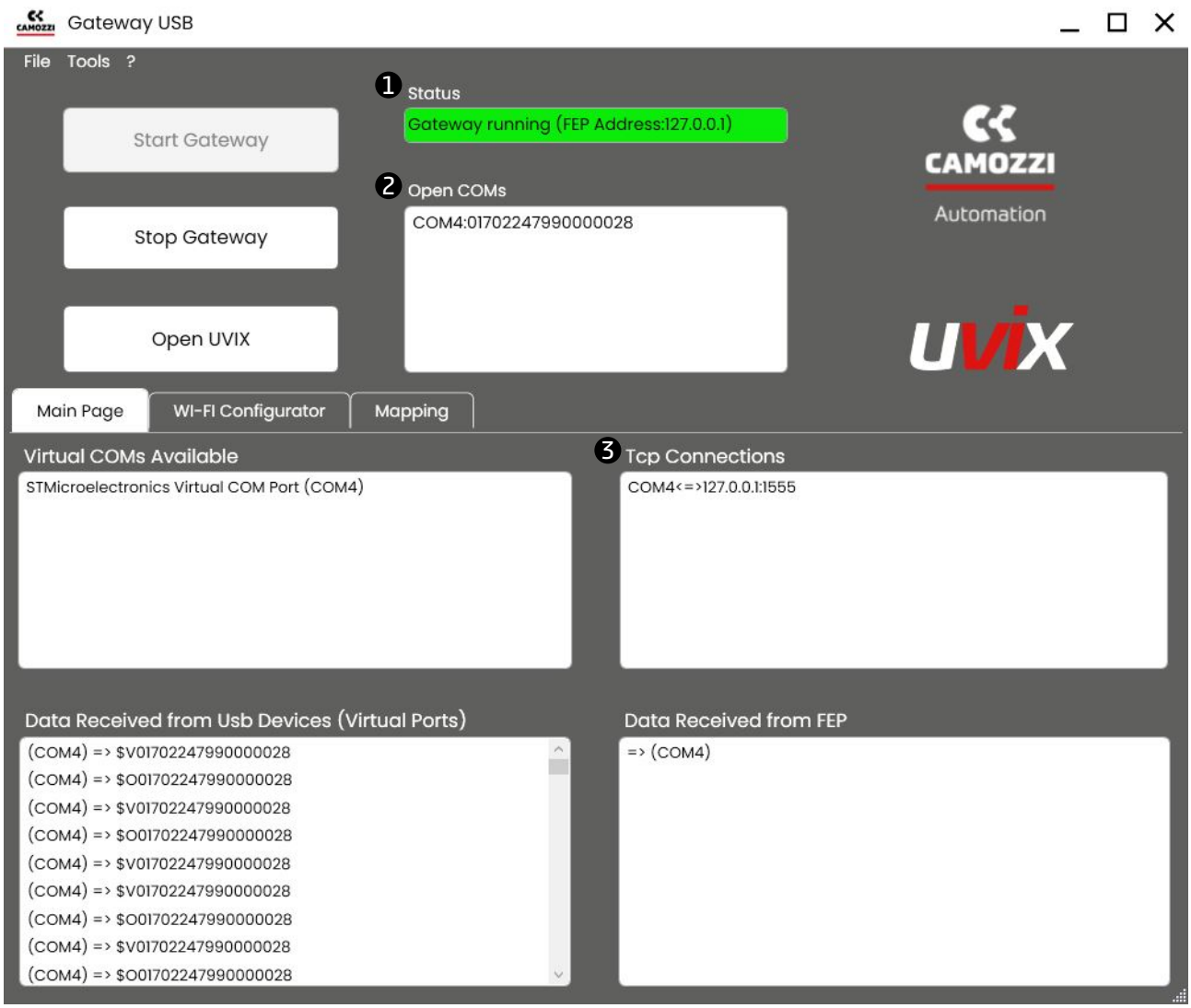

Figure 8.5: Checking the USB Gateway Communication Status

❶ If the status is not "running" (green color), click on the "Start Gateway" command next to it.
❷ If the COM with the serial number of the desired device does not appear, the USB connection is absent.
Follow the instructions in Chapter 8.1.
❸ If the connection in the "Tcp Connections" section is not visible, access the services window and verify that the "CamozziFEP" status is running (Figure 8.4).
If it's not running, you can manually force it by accessing the same window with administrator privileges.

2. Access the "Connections Status" window within the "Setup" menu in the Web App and check the status of connections.
If they are all functioning correctly, they should be green, as shown in Figure 8.6.

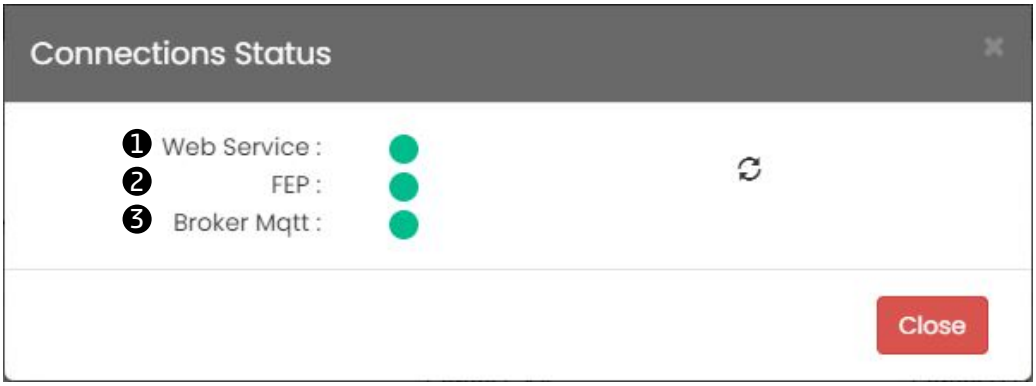

Figure 8.6: Checking Communication Status via Web App

❶ Web Service: If the connection is not present, access the services window and verify that the "CamozziWebService" status is running (Figure 8.7).
If it's not running, you can manually force it by accessing the same window with administrator privileges.

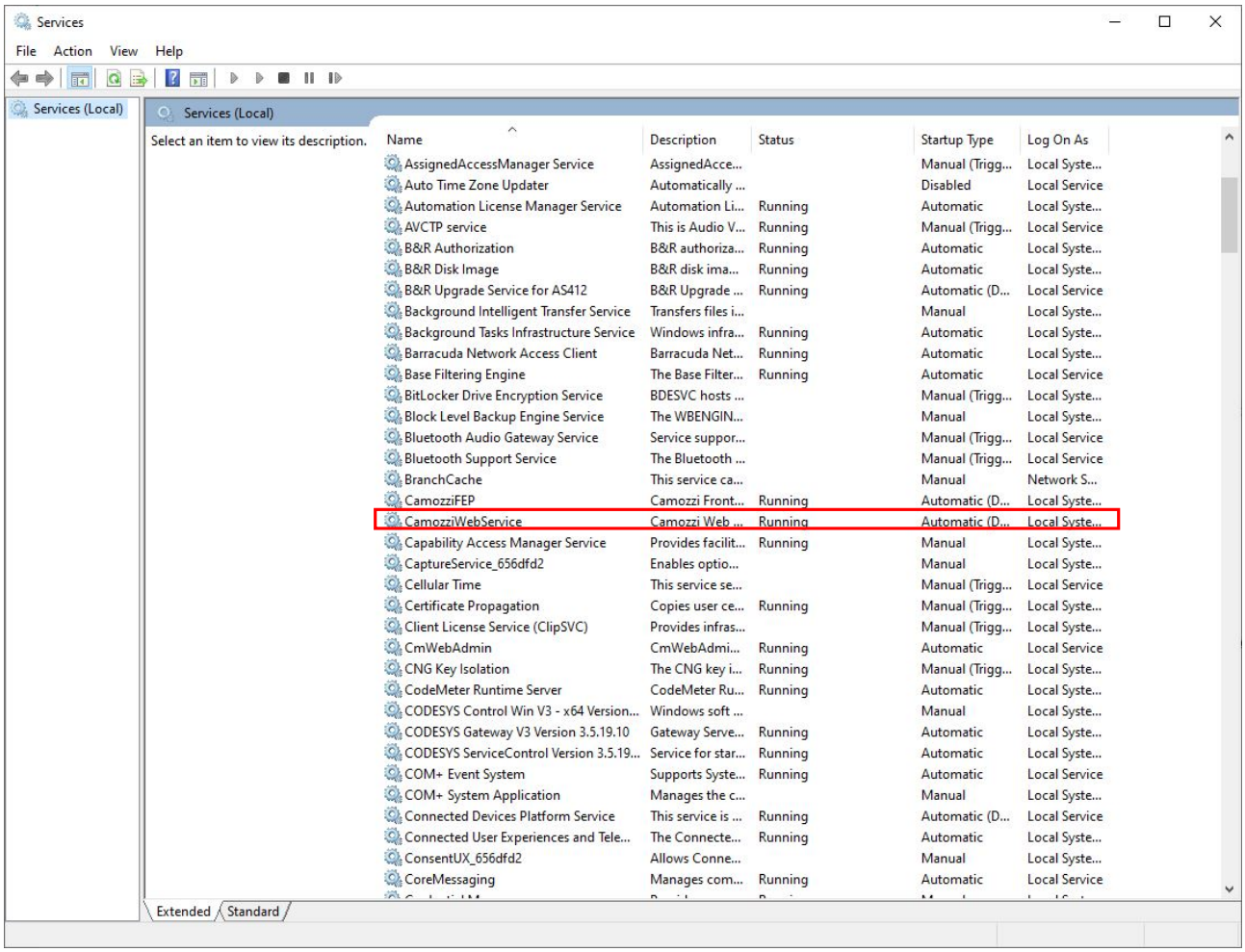

Figure 8.7: CamozziWebService Service

❷ FEP: If the connection is not present, access the services window and verify that the "CamozziFEP" status is running (Figure 8.4).

If it's not running, you can manually force it by accessing the same window with administrator privileges.

❸ Fast mode: If it's not functioning correctly, you need to uninstall and reinstall UVIX.

8.4 Login Failed

In case you are unable to log in to the Web App, an error message with a description of the possible cause will appear, as shown in Figure 8.8.

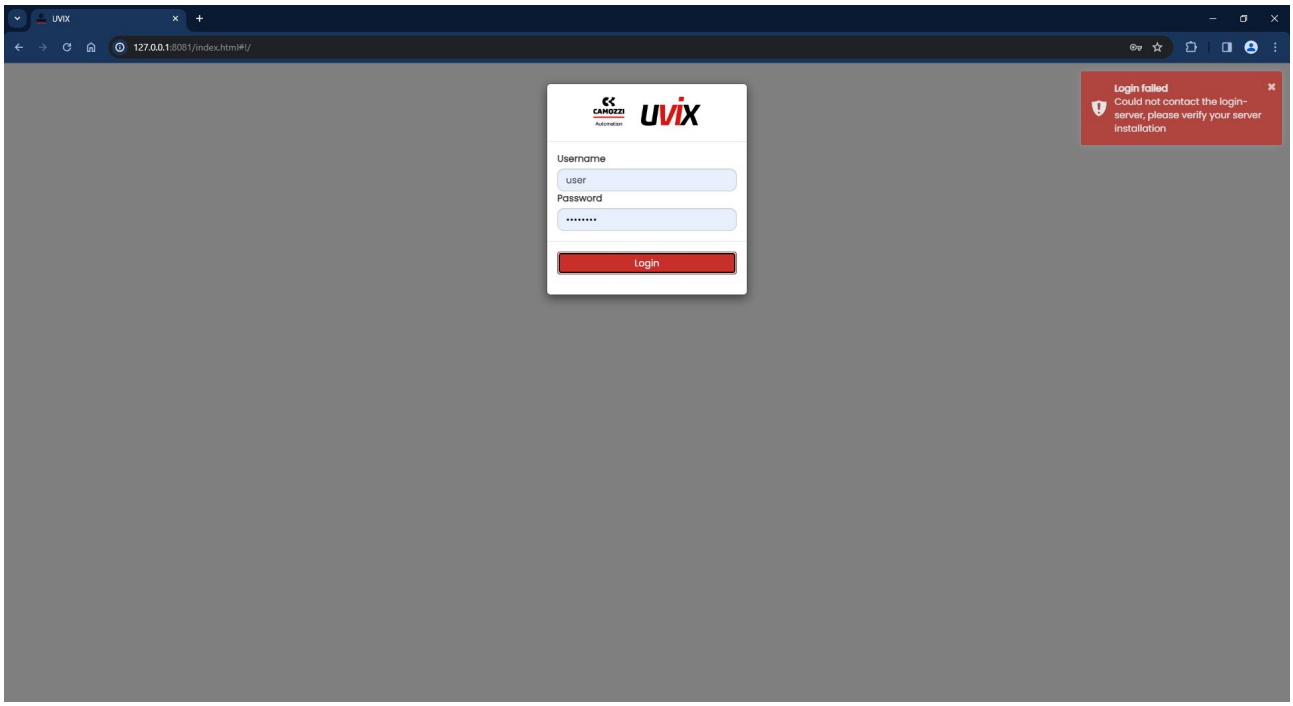

Figure 8.8: Login Failed

The error messages may appear in the following cases:

- Incorrect username or password: Verify that the credentials are correct, paying attention to uppercase and lowercase letters.
  Refer to Chapter 6.1 for details.
- Unable to contact the login server: Access the services window and verify that the "CamozziWebService" status is running, as shown in Figure 8.7.
  If it's not running, you can manually force it by accessing the same window with administrator privileges.

8.5 Web App Not Visible

In case the Web App is not visible, the causes could be one of the following:

- The address is incorrect, by default it is `http://127.0.0.1:8080/`.
- If an error message appears as shown in Figure 8.9, there is an issue with the access port.
  Follow the steps described in Chapter 3.8 to modify it.

Figure 8.9: Error Accessing the Web Page

- If an error message appears as shown in Figure 8.10, open the Internet Information Services (IIS) as shown in Figure 8.11.
  Open the "Sites" folder, select "WebApp Remote Control," and click the "Start" command in the "Manage Website" menu.

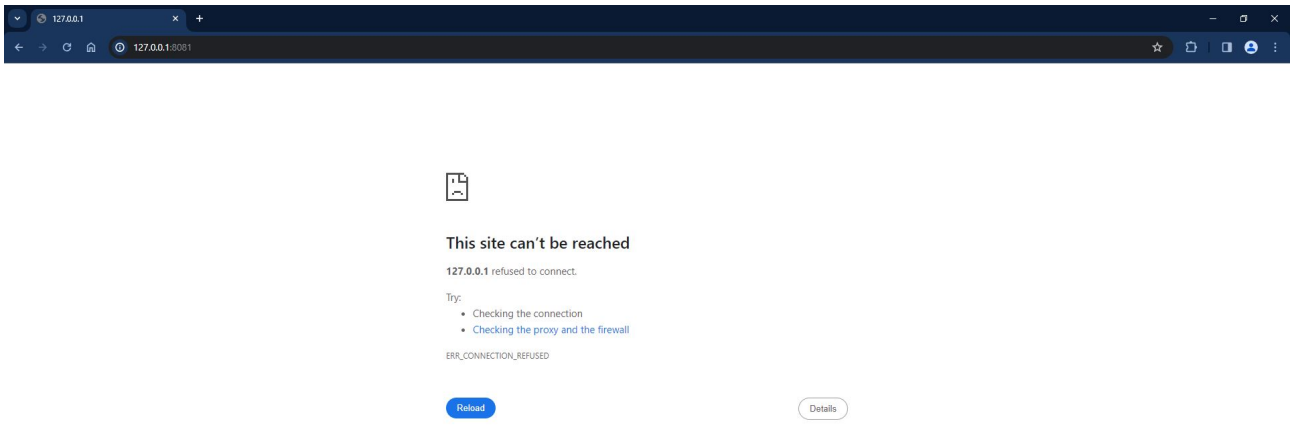

Figure 8.10: Web Page Not Reachable

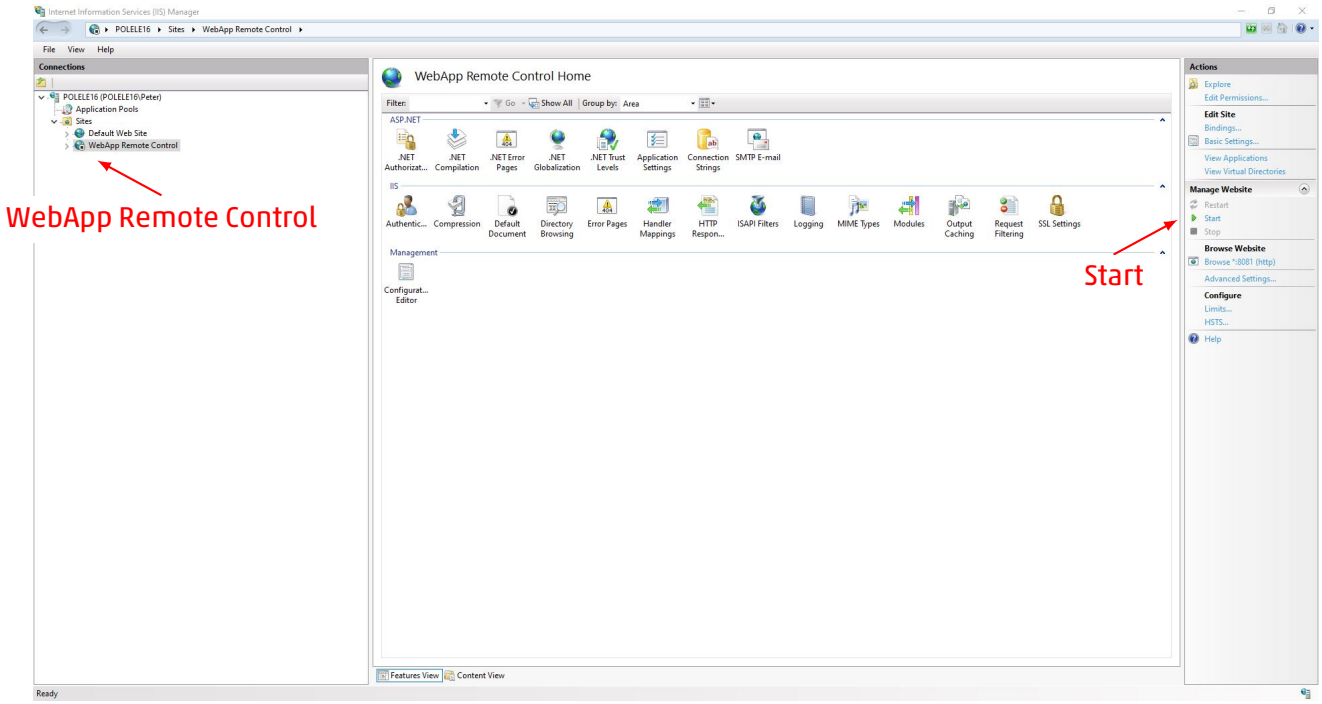

Figure 8.11: Internet Information Services (IIS)

8.6 Malfunction of One or More Components

Another cause of issues, but one that is more complex to identify, is the lack of necessary permissions for proper functioning.
As seen in Chapter 3, UVIX components use various communication ports, and during installation, they are automatically added to the default Windows firewall.
However, this does not happen if third-party antivirus or firewalls are present.
In such cases, the user must manually add permissions for all the necessary ports.

8.7 Not Covered in Previous Sections

If the issue is not among those previously listed, one of the UVIX components may not have been installed correctly.
Try uninstalling the software and then reinstalling it.
If the problem persists, please contact Camozzi support at the email address service.camozzi@camozzi.com or by phone at +39 030 3792790.

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