GE VERNOVA

Grid Solutions

EnerVista Flex v2

Quickstart Guide

CE

QUICK START GUIDE

ICT/QS/EN/1.4.1

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Chapter 1:   Introduction

EnerVista Flex v2 is a standalone configuration tool used to configure devices and perform monitoring and maintenance operation of GE products.

You can set function settings and perform many further tasks offline and transmit all data online to the device later through a communication network.

This manual offers you comprehensive assistance to enable you to understand the functionalities of EnerVista Flex v2 and navigate all screens to manage GE products.

1.1   Foreword

This technical manual provides a functional description of the EnerVista Flex v2 software, as well as a comprehensive set of instructions for using the application. The description of principles and theory is limited to that which is necessary to understand the tool.

We have attempted to make this manual as accurate, comprehensive, and user-friendly as possible. However, we cannot guarantee that it is free from errors. Nor can we state that it cannot be improved. We would therefore be very pleased to hear from you if you discover any errors or have any suggestions for improvement. We consider that this manual provides the necessary information, but if you consider that more details are needed, please contact us.

All feedback should be sent to our contact centre via: contact.centre@ge.com

1.1.1   Target Audience

This manual is aimed towards all professionals charged with installing, commissioning, maintaining, troubleshooting, or operating any of the products within the specified product range. This includes installation and commissioning personnel as well as engineers who will be responsible for operating the product.

The level at which this manual is written assumes that installation and commissioning engineers have knowledge of handling electronic equipment and follow all safety precautions. Also, system and protection engineers have a thorough knowledge of protection systems and associated equipment.

1.1.2   Nomenclature

Due to the technical nature of this manual, many special terms, abbreviations, and acronyms are used throughout the manual. Some of these terms are well-known industry-specific terms while others may be special product specific terms used by General Electric. The first instance of any acronym or term used in a particular chapter is explained. In addition, a separate glossary is available on the General Electric website, or from the General Electric contact centre.

1.1.3   Abbreviations

Term	Description
BRCB	Buffered Report Control Block
DO	Data Object. The data contained in the LNs.
DA	Data Attribute
FC	Functional Constraint
GOOSE	Generic Object-Oriented Substation Event
ICD	IED Capability Description
IED	Intelligent Electronic Device, a substation automation device performing functions by means of logical nodes (LNs)
IID	Instantiated IED Description
LD	Logical Device, contained in a server of an IED
LN	Logical Node, contained in a logical device of an IED
Server	A communication entity within an IED
SCT	System Configuration Tool
SV	Sampled value
URCB	Unbuffered Report Control Block

1.2   Copyrights & Trademarks

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1.3   About this Manual

1.3.1   Product Documentation

The purpose of the manual is to provide basic instructions on how to use EnerVista Flex v2.

Only the default menus of EnerVista Flex v2 are described in this document.

When connected to an IED, additional specific menus such as **Maintenance**, **Security**, **Internal Parameters** and **Records** are available in the application. These specific menus will be documented in the next release of this manual.

1.3.2   Document Conventions

A particular convention is used in this manual:

- Abbreviations and acronyms are spelled out in the glossary. The glossary also contains definitions of important terms.

- Menu paths are presented in **bold**.

- Menu, tab, button, list, and box names as well as window or dialog box titles are presented in **bold**.

- Shortcut keys are presented in **uppercase** letters.

Chapter 2:   Installation

2.1   Installing EnerVista Flex v2

2.1.1   Pre-requisites

2.1.1.1   Operating System

The OS required to run EnerVista Flex v2 is Windows 10 (20h2 build or higher).

Before installing EnerVista Flex v2, make sure that Microsoft Windows operating system is up-to-date and runs properly.

2.1.1.2   Hardware Configuration

The minimum hardware requirements to correctly operate EnerVista Flex v2 are shown in the following table:

CPU	1 gigahertz (GHz) or faster processor or System on a Chip (SoC)
RAM	1 gigabyte (GB) for 32-bit or 2 GB for 64-bit
Required disk space	At least 1 GB of free hard disk space.
Graphics card	DirectX 9 or later with WDDM 1.0 driver
Display	1280 x 800 display screen

2.1.1.3   Required Software

Before installing EnerVista Flex v2, make sure you have the following installer(s).

- EnerVistaFlex v2 installer.

Note: If using the Mediator plug-in, refer to section Plug-in Installation to install Mediator.

2.1.2   Installation Procedure

Installation of the EnerVista Flex v2 software requires system administrator access to the computer.

> Note 1: If a previous version of **EnerVista Flex v2** is installed on the computer, it must be uninstalled before installing a new software version. Refer to the section "**Uninstalling EnerVista Flex v2**" for further details.
>
> Note 2: if using Mediator (optional configuration and administration plug-in), refer to section **Installing the Mediator Plug-in**, in the **Appendix** to install this plug-in.

After ensuring the minimum requirements for using EnerVista Flex v2 are met (see previous section), follow the procedure below to install the application.

1. Right click the setup file EnerVistaFlexV2-Setup-x64-vx.xx.x.exe and choose Run as administrator.

2. Click **Yes** when required the authorization for installer execution.

3. In the **Welcome** window, click **Next** to start the installation process:
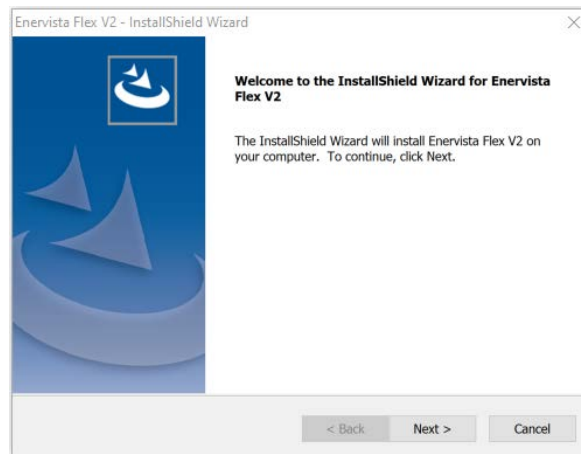
4. Read and accept the terms in the license agreement by selecting the **I accept the terms in the license agreement** option and, click **Next** to continue.
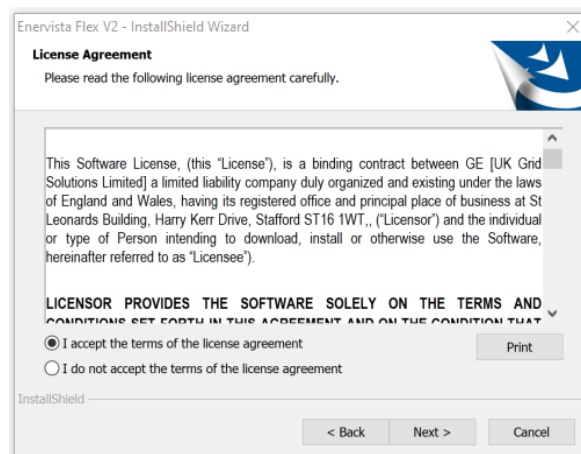
5. In the **Setup Type** window, the "**Complete**" setup is selected. Click **Next**.
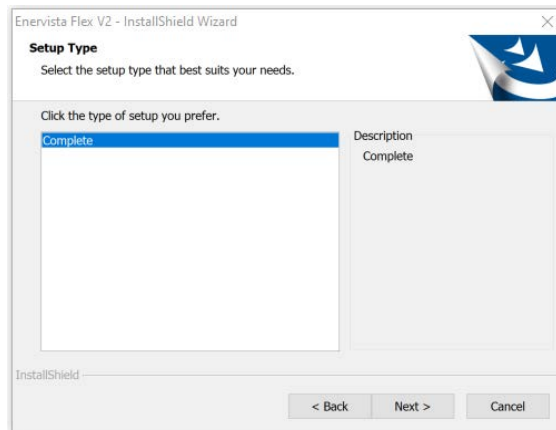
6. Click **Install** to start the installation. To review any information in previous steps, click **Back**. To stop the installation, click **Cancel**.
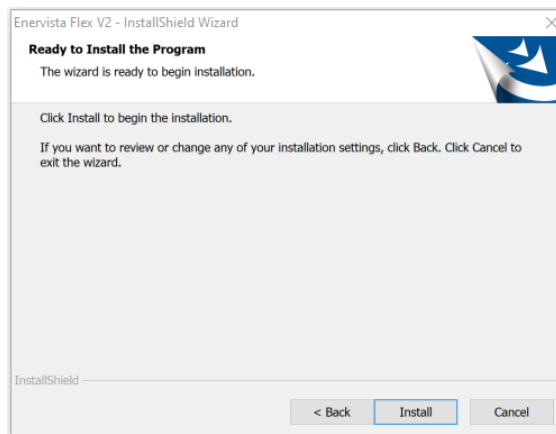
7. The installation pop-up shows the installation progress.
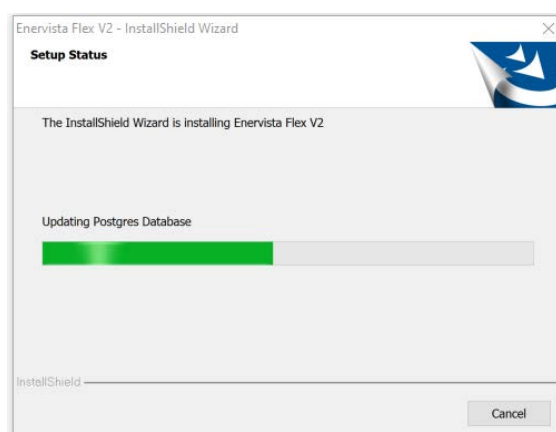
Note: when installing EnerVista Flex v2 for the first time, the process may take some time to complete as the application installs all the required services. Wait for the installation to finish.

8. When the installation is done, click **Finish** to close the window.

2.2   Secured Connections and Certificates

EnerVista Flex V2 is connecting to devices through secured connections (MQTT, GRPC and REST).

The certificates are already integrated in EnerVista Flex V2 upon delivery to ensure communication with GE devices and it is not possible yet to manage the certificates.

Chapter 3:   Getting Started

3.1   First Connection to EnerVista Flex v2

To start EnerVista Flex v2, click the Windows Start Menu and select **EnerVista Flex v2**.

When you first open EnerVista Flex v2, a splash appears while loading application resources.

Once loaded, click **Connect with entreprise account**:

The "Login" panel is displayed:

By default, the **Admin** User account is created in any new installation of EnerVista Flex v2. This preconfigured administrator account allows you to log into the application and create all the other users of your system.

To login into EnerVista Flex v2, enter the default administrator credentials:

- Username: **Admin**
- Password: **Admin**

Once you have entered the default credentials, click **Sign In**.

3.1.1   Change the Default Password

It is highly recommended to change the default Admin password in compliance with security password policy.

To change the Admin password:

- Click the **Settings** icon in the upper right corner of the application and select **Security Preferences**.

The list of the default user accounts their full names, and their assigned roles are displayed.

- Check the **Admin** user account and, in the **User Properties** panel, click on **Reset Password**. The **New Password** entry field is enabled.
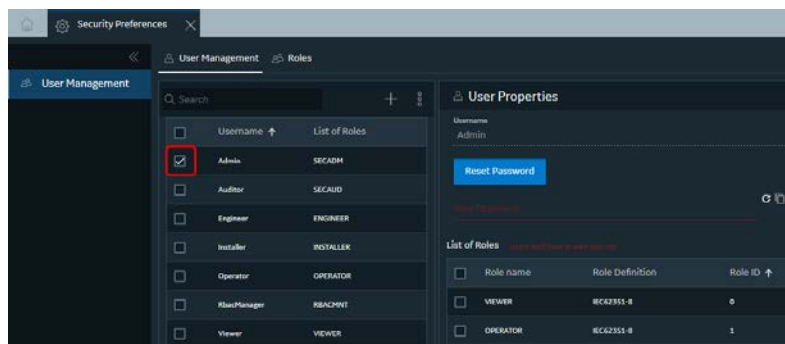
- Click in the **New password** entry field and enter a new password .
  The password must contain characters of at least 8 of the following types:

  - One uppercase letters,

  - lowercase letters,

  - digits (0-9),

  - special characters.

If the entered password does not comply with the security constraints, the text box is underlined in red. In that case, correct your entry.

Note: Hover the mouse over the password entry field to display the tooltip indicating the minimum requirements of the password policy.

You can also use the password generator feature ⟳ to generate a strong, random password fulfilling the security constraints. The system will fill the new password in the **New Password** field. If the password doesn't comply on the first attempt, click again the password generator icon to create a new password.

The newly generated password can be copied to the clipboard by clicking on the "copy" icon ⧉.

Chapter 4:   User Interface

4.1   Overview

The user interface of EnerVista Flex v2 gathers all functions you need to configure your devices and perform monitoring and maintenance operations.

The following figure shows the components of the EnerVista Flex v2 user interface.
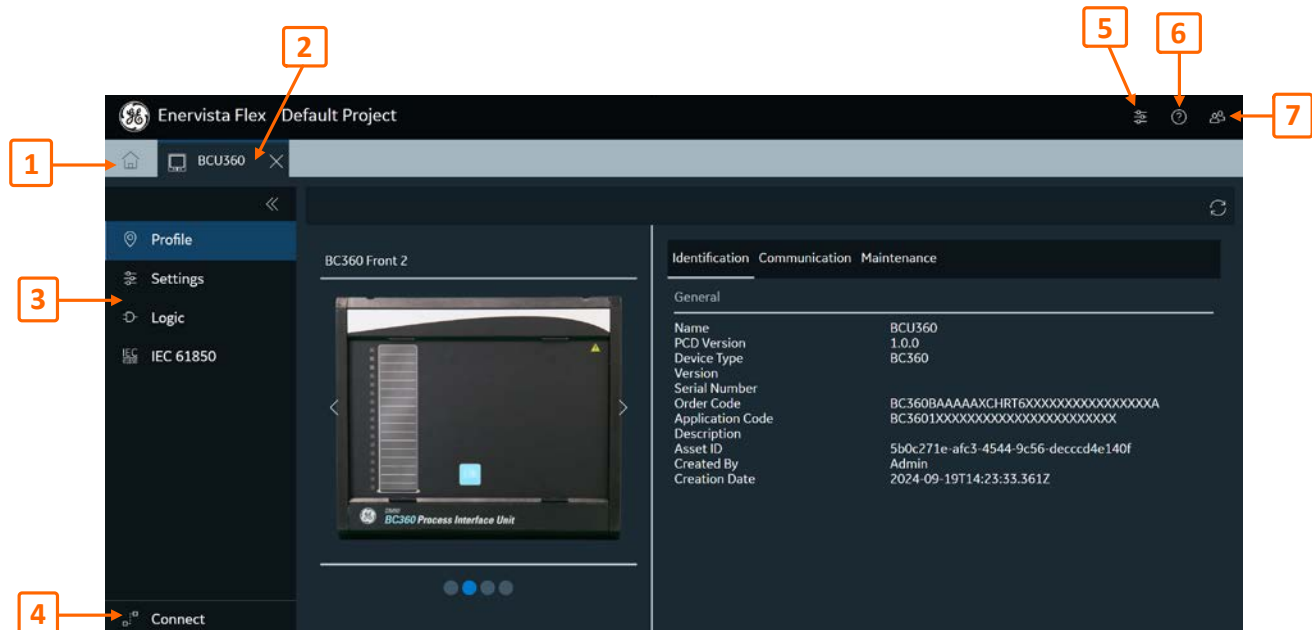
Graphical user interface when the IED is not connected

Graphical user interface when the IED is connected

The user interface of EnerVista Flex v2 is structured as follows:

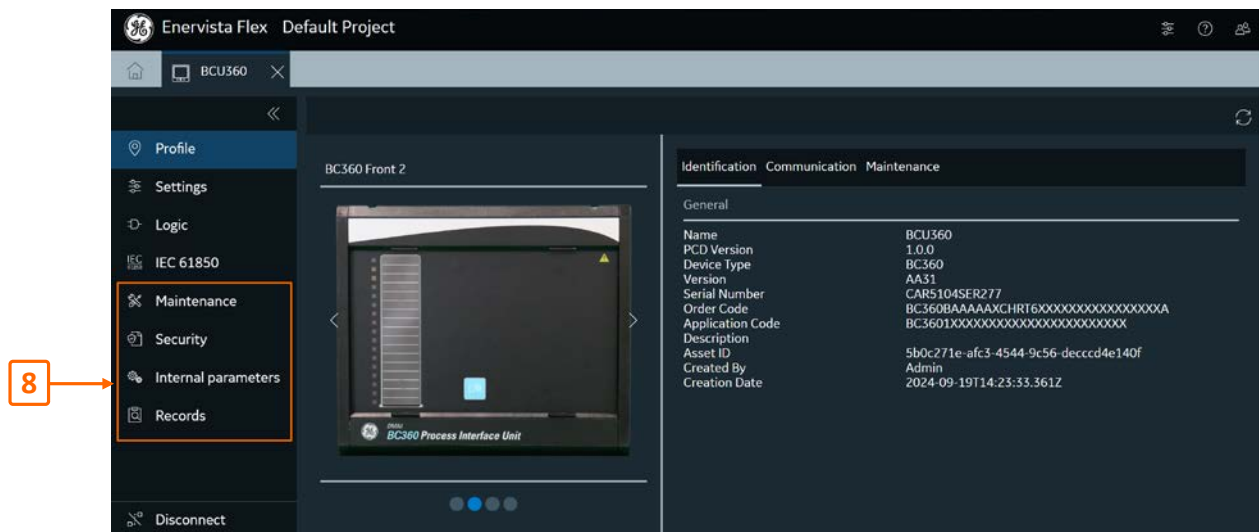| #	Icon	Description
1	⌂	Clicking this icon opens the **Elements** view from which you can add or select an element/device to configure.
2	n/a	When a device is clicked in the **Elements** view, it is opened as a tab in EnerVista Flex v2.
3	n/a	Device configuration menus available when the device is not connected.
4	n/a	Switch button to connect to or disconnect from the device.
5	⚙	The **Settings** button provides access to the following options: • **About**: shows the version of EnerVista Flex software currently in use. This information is required should you need to contact GE customer support. • **User Preferences**: allows you to select the language and theme in which EnerVista Flex interface is displayed. • **Device Models Library**: allows you to manually import different versions of a Device Model. • **Security Preferences:** manages user accounts, roles, and syslog configuration. • **Project Management**: opens the project management view.
6	(?)	Opens the help topics. This option is not available now.
7	👥	Clicking this icon opens the log out menu. If you have made any changes to the open project, you will be prompted to save your changes before logging out. Once logged out, the EnerVista Flex v2 login screen reopens.
8	n/a	When connected to a device, device specific menu options are available.

4.2   Getting to Know the EnerVista Flex V2 UI

4.2.1   Search Function

EnerVista Flex v2 assists you with a search function. With this function, you can search for information in the different views or panels of the application.

Depending on the context, the search mechanism starts as soon as you enter one or more characters and matching elements are highlighted in a distinct color.

For each character added or removed, the search result is updated. In specific tree-views, EnerVista Flex v2 returns the node(s) containing the searched string.
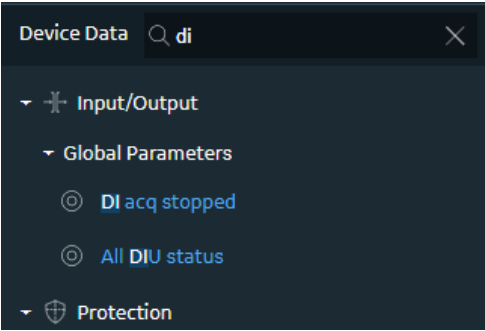
To clear the search entry field, click ✖.

4.2.2   Input Field Pattern

EnerVista Flex v2 manages field patterns and requirements via tooltips.

Tooltips are displayed on mouseover when interacting with a field in the graphical user interface.

They highlight any specific requirement or constraint such as the expected format or values, providing clear instructions on each required field.

When the entered value exceeds a limit or does not comply with the requirements, the value is highlighted in red with an explicit error message.

Refer to the information provided in the tooltips to comply with naming conventions and field constraints.

4.2.3   Device Data Panel

The Device Data panel is a shared component that appears in different views of the application (*Settings, Logic)*.

It displays – in a tree-view - the list of datapoints defined in the project for the selected device.
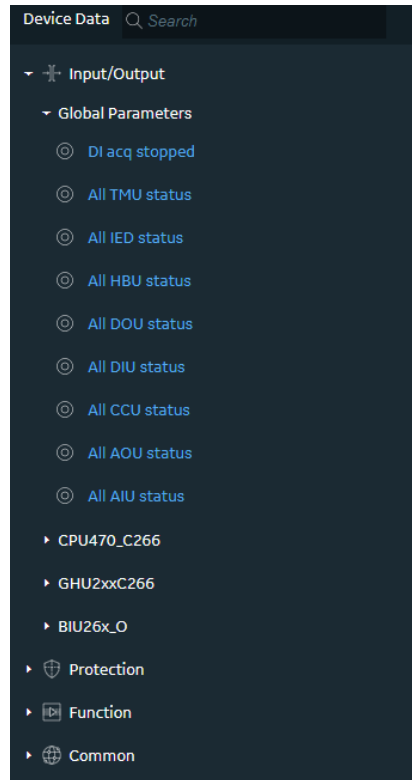
Data is organized into folders and sub-folders:

- The first level refers to the category defined in device configuration file,

- The second level refers to the features of the selected category,

- Complementary level of folders can exist under one feature (Sub-Feature name).

When this panel is present in a view, data can be dragged and dropped to another panel if the latter can receive that data.

Chapter 5: Using EnerVista Flex v2

5.1   Projects

In EnerVista Flex v2, a project is the central point that brings together all the data associated with the devices (setting values, communication parameters, process data).

A **Default Project** is automatically created when installing EnerVista Flex v2. The default project is a standard project template that can be used as a starting point by any authorized users to create their own projects, offering the structure and predefined settings.

You can also create a project from scratch or automatically by importing an SCD file if you have installed the **Mediator** plug-in. For further information, refer to sections Creating a New project and Importing a project.

5.1.1   Default Project

Users with the authorized permission can view and edit the default project.

The default project can be renamed, customized, and populated with devices.

If several projects exist, the default project can be removed from the **Project Management** module.

The **Default Project** view comprises a toolbar at the top of the main workspace containing options to:

- Add an element to a project

- Quick add a device

- Add a device

- Import a device

5.1.1.1   Adding Elements to a Project

Elements are any object used to organize the hierarchical structure of your project (Folder, Substation, voltage level, bay, device).

The project topology is updated as soon as you modify, add, or remove elements or devices.

You cannot change the topology directly. However, you can add user labels to each individual element.
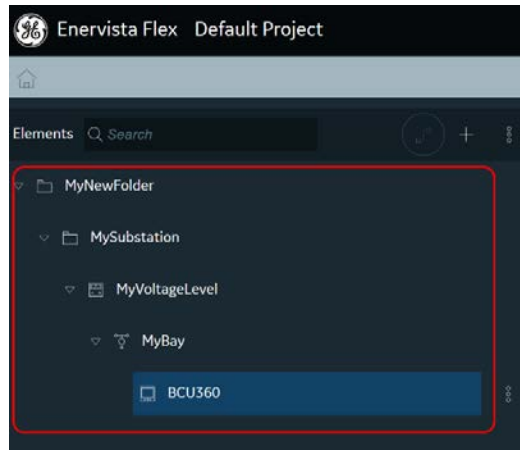
Note: adding elements is optional. You can add a device directly at the root of a project or under any type of element.

To create the hierarchical structure of your project, proceed as follows.

Creating a Folder Structure

EnerVista Flex v2 allows you to manage devices in a folder structure so that you can keep an overview on the configuration of your substation or search for a specific device in the project.

To add a new folder:

1. In the **Elements** view, click **+** and select **Add Group** from the context menu.
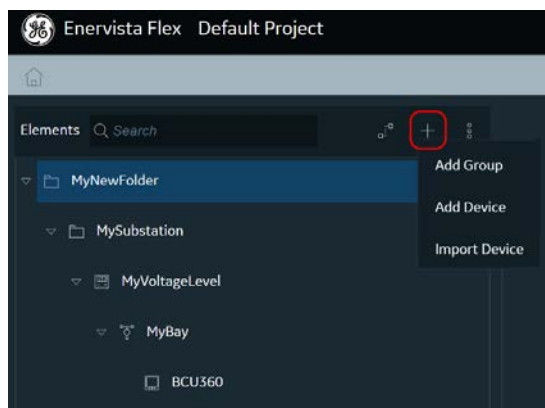
2. By default, the **Fold**er type is selected.

3. Enter a name for the new folder (mandatory) and a description (optional).

4. Click the **Add** Group button to validate.

The new folder is displayed in the project tree.

Adding an Element

You can decide to add an element in an existing folder or directly to the root of the **Element** view.

To add an element in a folder structure:

1. In the **Elements** view, select a folder.

2. Click **+** and select **Add Group** from the context menu.

3. Using the **Type** drop-down list, select the element type you want to add.
    Note: multiple folders can be created freely. However, defining an electrical topology is based on specific constraints. EnerVista Flex v2 will only display elements that can be selected based on the current element type (Substation, Voltage Level or Bay).

4. Complete the details for the new element (name and description) and click the Add Group button. The element is displayed under the selected folder/group.

Repeat the above steps to create the hierarchical structure of your project.

When done, you can add devices or edit the elements of your project.

For more information, refer to the topics Devices and Editing a Project.

5.1.1.2   Editing Elements of a Project

To edit an element of your project, proceed as follows:

1. In the **Elements** view, expand the hierarchical structure of your project and select the element you want to edit.

2. Click … and select **Edit** from the context menu.

    - Or -

3. Click ✏ in the information panel on the right of the window and make the relevant changes.

4. When done, click **OK** to save changes.

5.1.1   Creating a new Project

To create a new project, follow these steps:

1. In the **Settings** menu located at the top right corner of the application, click **Project Management**.

2. In the **Project Management** view, click **+**.

3. In the **New Project** window enter the **Name** of your project (mandatory) and a **Description** (optional).

4. Click **Create Project** to validate.

The new empty project is created and displayed. You can create as many projects as needed.

The next step is to add elements and/or devices to the project.

Refer to the sections **Add a new element** and **Add a new device** for further information.

5.1.2   Opening a Project

To edit data relating to devices, you must first open the relevant project. You can only open one project at a time.

Note: when you log out and log back in, EnerVista Flex v2 automatically opens the last used project.

1. In the **Settings** menu located at the top right corner of the application, click **Project Management**.

2. Navigate to the desired project.

3. Click the project name you want to open.

    - Or -

    Click **...** in the **Action** column and select **Open**.
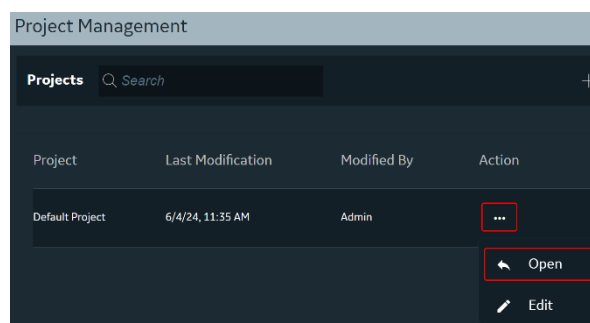
Once open, you can add elements and/or devices to the project.

Refer to the sections **Add a new element** and **Add a new device** for further information.

5.1.3   Editing a Project

To edit a project, proceed as follows:

1. Click the **Settings** menu icon in the top-right corner of the application and select **Project Management**.

2. Navigate to the desired project.

3. Click **...** in the **Action** column and select **Edit** from the context menu.

    - Or -

    Click ✏ in the information panel on the right of the window.

4. Change the name and/or the project description and click **OK** to validate.

5.1.4   Deleting a Project

You can delete projects with all the data they contain. A project that is to be deleted must first be edited.

Note: All data associated with it is lost when deleting a project. You cannot undo the action of deleting a project.

Deleting a project

1. In the **Settings** menu located at the top right corner of the application, click **Project Management**.

2. Edit the project to be deleted using one of the methods described in the section "**Editing a Project**".

3. The project details panel appears on the right side of the screen.

4. Scroll the project details panel down and click **Delete**.

A confirmation prompt is displayed.

*   If you really wish to delete the project, click **Delete Project**.

5.2   Devices

5.2.1   Importing a Device Model

EnerVista Flex v2 allows you to manually import different versions of a Device Model.

A Device Model is a .zip package containing the capabilities of a physical device.

To import a version of a device model:

- Click the **Settings** menu icon [icon] in the upper right corner of the application and select **Device Models Library**.

- In the **Device Models Library** window:

  - Drag the .zip file of the device model to the box marked **Drop or click to select a Device Model file (.zip)**. When dragging the file, the drop area is highlighted in blue indicating that you can drop the file. Release the mouse button.

    - Or -

  - If you prefer to browse for your file instead, click **Browse** and select the device model file on your computer, then click **Open** to upload it.

If the selected file is not valid

An error message is displayed in the drag-and-drop area. Several reasons may cause file import failure:

- the file extension is not valid (only .zip files are accepted),

- the .zip file does not have the structure expected for the application to successfully import the file (mandatory files are missing, mandatory data is missing, or device model version is missing).

- the version of Device Model already exists in the Device Model table for this device type.

If the selected file is valid

The **Selected Model Details** panel is displayed and shows the main information regarding the selected device model (corresponding Device Type and Model Version).

To confirm and add the selected Device Model, click **Add Model**. A progress bar is displayed while importing the file. If an error occurs during import, the progress bar turns red, and an error message is displayed. Click **Back** to go back to the drag-and-drop area.

After successful import, the progress bar turns green.

Once imported, the device model is highlighted in blue in the table under the appropriate Device type. Each device type can be expanded or collapsed using the ▶ and ▼ arrows. For each device, model versions are displayed in descending order.

Displaying the description of an imported Device Model

To see the description of an imported device, hover the mouse cursor over the desired model version. A tooltip shows the main information regarding the device model.

Setting a Device Model Version as Default

For each device type, the first version imported into the Device Models Library is automatically set as the default and flagged as "*(Default)*" in the table. Importing additional device model versions does not affect the current default version.

When several model versions are imported for a device, you can change the default version. To do so, right-click a device version and select **Set as Default** from the context menu.

Deleting a Device Model Version

In the list of device models, a delete icon is visible for each version except the default version that cannot be deleted unless it is the only version available for the device.

To delete a version, several use-cases are possible.

- Non-default versions:
    - If the version to be deleted **is used** by one or more devices, clicking the delete icon displays a warning message indicating that devices are using this version. In that case, remove all devices based on this model version and then, delete the version.
    - If the version **is not used**, clicking the delete icon displays a confirmation prompt. Click **OK** to permanently delete the version.

- Default version:
    - The default version is the only version for this device:
        - If the default version **is used** by other devices, clicking the delete icon displays a warning message indicating that one or more devices are using this version. In that case, remove first all devices based on this model version and then, delete the default version.
        - If the default version **is not used**, clicking the delete icon displays a confirmation prompt. Click **OK** to delete the version.
    - The default version is not the only version for this device:
        - The delete icon is not displayed for that version. Set another version as default to delete the current default version.

To close the Device Models Library, click **Close** or click the close cross in the top right-hand corner of the window.

5.2.2   Creating Devices in a Project

Several options are available for adding a device to a project.

- You can import the configuration stored in a physical device using the **Quick Add** option.

- You can add a device by defining manually its product code.

- You can import preconfigured devices data from another project that was exported from EnerVista Flex v2 using the **Import Device** option in the ribbon menu.

When devices are added to the project, they appear in the **Element** view.

The project topology is updated as soon as you modify, add, or remove elements or devices.

5.2.2.1   Quick Add

The **Quick Add** button ⊡ in the **Element** view, allows you to create a device in EnerVista Flex v2 by importing a configuration from a physical IED.

Note: The **Quick Add** button is disabled if one device is selected in the **Elements** View.

To import a configuration from a physical device, proceed as follows:

- Click the **Quick Add** button.
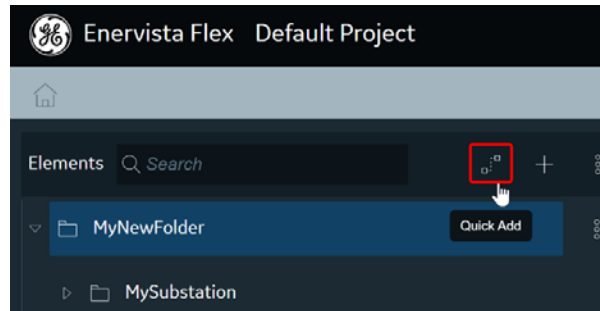
The **Quick Add** dialog opens.

- Enter the connection information to the device:
    - Select the **Device Type** and the appropriate **interface**.
    - Enter the **IP address** of the device, and the **Port** (*default port: 10000*)
    - Enter the credentials (**Username** and **Password**) of the connected device. Consult the instruction manual of your product to get the default username and password of the device.
- Click **Connect**.

The connection is established with the device if all parameters are correct, and the file transfer is initiated to retrieve the configuration from the device.

5.2.2.2   Adding a Device Manually

You can add a device by manually setting its model number (**Hardware** and **Application code**).

To add a new device manually, follow these steps (all fields with '*' are mandatory):

1.   Open a project (refer to section **Opening a Project**).

2.   In the project view, click **+** and select **Add device**.

3.   Enter a **Name**, and a **Description** for the device.

Note: Refer to the information provided in the tooltip to comply with naming conventions.

4.   Select the device type using the **Device Type** drop-down list.

5.   Select the **Version** corresponding to the device.

6.   Select the device **Profile**:

▪   **Custom**: you can configure the device model number manually (default option).

▪   **Specific profile** (CBO, Line...): the model number is predefined for a dedicated product. It cannot be edited (all fields are read-only).
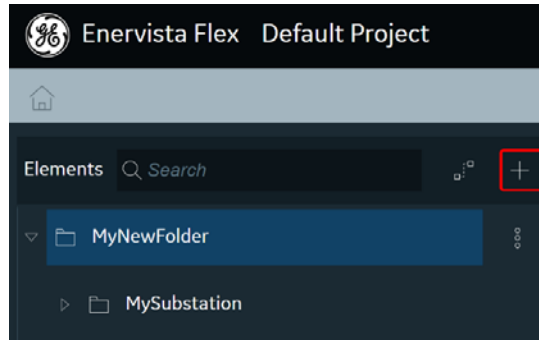
Associate Device

You may also associate the device configuration with a physical connected IED.

Toggle the **Associate Device** button and fill in the required fields (Interface, IP address, Port, credentials). This step is not mandatory to create a new device.

Configuring the Model Number

When the device **Family**, **Type**, **Version** and **Profile** are populated, the **Model Number** panel is displayed on the right side of the window.

Each device relies on a dedicated model number for **Hardware** and another one for **Application Code**. Depending on the product rules, the **Hardware** model number can have an impact on the **Application Code** number.

For easy identification, the model number is broken down into several groups of numbers with an explicit description. Additionally, further information is shown as a tooltip whenever you position the mouse pointer on a digit.

If a change is made to the device **Family**, **Type**, **Version** or **Profile**, the **Model Number** is reset and the default model number defined for the current device is displayed.

To configure a device model number:

- Click each digit of the model number in turn and choose the required option from the choices provided in the list highlighted at the bottom of the view. Ensure that this matches the order code of the actual device.

*Note: when left clicking a digit in the model number, the corresponding value is automatically selected from the list under the **Model Number** field. When a value is selected, the contents of the next digits are limited to compatible options. If a digit of the model number is no longer compatible, its content is reset to the default values.*

Once the model number hardware and application code are defined, click **Add Device**.

Copying the Model Number

In the **Model Number** area, you can use the copy button to copy the model number defined for the device (**Hardware** or **Application code**) to the PC's copy/paste buffer.

Editing the Model Number

You can paste a model number (**Hardware** or **Application code**) copied from the clipboard.

To do so:

- Click the **Edit** button

- In the dialog box, click to paste the model number.

- If one digit in the Model Number is not valid, an error is displayed. In that case, correct your entry.

- If the Model Number is valid, click **Update Model Number** to validate. The model number is updated with the new code.

- Click **Add Device**.

5.2.2.3   Importing a Device

The **Import Device** option allows you to create a device by importing manually the configuration stored on the computer (previously exported from another configuration tool).

To import a device:

- Open a project (refer to section **Opening a Project**).

- In the project view, click **+** and select **Import Device**.

- From the file explorer, select the package to import (.zip file) and click **Open**.

If the selected file is valid, EnerVista Flex v2 creates the new device and adds it to the project tree structure. If a problem is detected, an error message is displayed and indicates the reason why the import cannot be done.

5.2.3   Editing a Device

To edit a device:

1.   Open a project (refer to section **Opening a Project**).

2.   Expand the project structure and click the device icon 🖥 you want to edit. The
      selected device is highlighted, and the device details panel is displayed on the right of
      the window.

3.   Click ⁝ next to the device name and select **Edit** from the context menu.

      - or -

      Click 🖉 in the details panel.

4.   Make the relevant changes and click **OK** to validate.

5.2.3.1   Transferring Device Files

When a device is selected in the **Elements** view, EnerVista Flex v2 offers options to:

- Retrieve the configuration from the device (for instance, a CID file downloaded from
  the physical device).

- Send the full configuration to the device.

- Send online settings to the device.

- Send firmware to the device.

To do so, proceed as follows:

1.   In the **Elements** view, click the device icon 🖥. The selected device is highlighted, and
      the device details panel is displayed on the right of the window.

2.   In the **File Transfer** area, click one of the following options: **Send Full Configuration**,
      Send On-Line settings or, **Retrieve Configuration**.

3.   The **Connect** popup is displayed.

      - If the device configuration is already associated to the physical device, the
        connection parameters are automatically filled in. In that case, click **Connect** to
        establish the connection with the device.

      - If the device configuration is not associated to the physical device, enter the
        connection information to the device to allow EnerVista Flex v2 to connect to
        the device.

4.   EnerVista Flex v2 generates the required files for the following actions: **Send Full
      Configuration**, **Send On-Line settings,** or **Retrieve Configuration**.

5.2.3.1.1   Exporting the Configuration of a Device

The **Export** option in the device menu enables you to transfer the device configuration file between computers and import it into another EnerVista Flex application as a single file or save it for project archives.

To export the device configuration:

1. In the **Elements** view, click the device icon . The selected device is highlighted.

2. Click next to the device name and select **Export** from the context menu.

3. EnerVista Flex starts the export of the device configuration. If the application detects a problem and cannot export the device configuration, an explicit error message is displayed. If no issue is found, EnerVista Flex prompts you to save the requested file. Browse for the file destination if your browser requires it. Otherwise, the exported file will be downloaded into your default download folder.

4. Click **Save**.

5. The device configuration is exported as a .zip file to the destination folder you have selected or to the default **Download** folder.

5.2.3.1.2   Generating Full Configuration

The **Generate Full Configuration** option in the device menu enables you to generate all the files required by the physical device (application configuration, agency configuration, settings...) to apply the configuration made by the user.

To generate the full configuration:

1. In the **Elements** view, click the device icon . The selected device is highlighted.

2. Click next to the device name and select **Generate full configuration** from the context menu.

3. EnerVista Flex starts the generation of the device configuration. If the application detects a problem and cannot generate the device configuration, an explicit error message is displayed. If no issue is found, EnerVista Flex prompts you to save the requested files. Browse for the file destination if your browser requires it. Otherwise, the exported file will be downloaded into your default download folder.

4. Click **Save**.

The files are saved as a .zip file in the destination folder you have selected or to the default **Download** folder.

5.2.3.1.3   Generating Online Settings

To generate the on-line settings required by the physical device to apply the configuration made by the user, proceed as follows:

1. In the **Elements** view, click the device icon . The selected device is highlighted.

2. Click next to the device name and select **Generate on-line settings** from the context menu.

3. EnerVista Flex starts the generation. If the application detects a problem, the process is stopped, and an explicit error message is displayed. If no issue is found, EnerVista Flex prompts you to save the requested files. Browse for the file destination if your browser requires it. Otherwise, the exported file will be downloaded into your default download folder.

4. Click **Save**.

The on-line settings saved as a .zip file to the destination folder you have selected or to the default **Download** folder.

5.2.4   Deleting a Device

Devices can be deleted from a project. When deleting a device, all device-relevant data is lost.

To delete a device:

1. Click the **Settings** menu icon at the top right corner of the application and click **Project Management**.

2. In the **Project Management** view, click to open the relevant project.

3. In the **Elements** view, click the device icon. The selected device is highlighted, and the device details panel is displayed on the right of the window.

4. Click next to the device name and select **Edit** from the context menu.

   - or -

   Click ✏ in the device detail panel.

5. Scroll the detail panel down and click **Delete**.

A confirmation prompt is displayed.

- Click **Delete** to confirm.

The selected device is deleted from the project.

Chapter 6:   Configuring Devices

To configure a device using EnerVista Flex v2, a project must be created and opened with at least one device added.

When the device is not connected, the menu, on the left, comprises the following options:

- Profile

- Settings

- Logic

- IEC61850

When the device is connected, additional menu options are displayed:

- Maintenance

- Security

- Internal parameters

- Records

6.1   Profile

The **Profile** tab allows you to access to the general device information (image, identification, location…).

6.2   Settings

The **Settings** view allows you to configure the settings of a device. In EnerVista Flex v2, "settings" refers to parameters and datapoints related to a device feature.

Selecting a feature for editing

1. Select a device in the project **Elements** view.

2. From the left menu, click **Settings**.

3. The device functions are grouped by configuration blocks based on the device model number.

The available configuration blocks are listed in the following table:

Configuration blocks	Description
Common	General features defined in the device configuration
Function	Specific built-in features
Protection	Protection features
Communication	List of protocols defined in the device configuration
Input/Output	Hardware configuration
Electrical Equipment	Electrical equipment
Generic Data	Additional data not included in the device functions

4. Expand the desired configuration block and click the feature you want to edit.

5. The selected feature opens as a new tab.

You can open several features and navigate between the feature tabs you have opened. To open several features at once, hold down the CTRL key and click on the different features you want to edit.

Moving a feature tab

You can rearrange the position of the feature tabs within the window. This allows you to organize the tabs in the order that makes sense for your workflow.

To move a tab to a new position:

- Left click the tab you want to move.

- While holding the mouse button down, drag the tab in horizontal direction to where you want to move it.

- Drop the tab at a suitable destination.

Accessing the feature settings

The feature tab also contains a vertical toolbar on the left to access the **Parameters**, **Data**, **Inputs**, **Outputs**, **Wiring/Binding** of the selected function.

The options available in that toolbar depend on the selected feature.

Icon	Description
	Parameters
	Data
	Input data
	Output data
	Wiring/Binding

Refer to the following sections for further information on each toolbar icon.

6.2.1   Parameters

Once you have selected a feature tab in the **Settings** view, click the **Parameters** icon .

Parameters are displayed in a table. All columns in the table can be reordered except the columns "Name" and "Unit".

Several types of parameters are managed in EnerVista Flex v2:

- Integer

- Float

- String

- Enum

The number of columns in the parameters table may vary depending on whether the selected feature manages parameter groups or not.

- If the selected feature does not manage parameter groups, the **Parameters** table will contain three columns : **Name**, **Unit** and **Value**.

- If the selected feature manages parameter groups, the **Parameters** table will contain the **Name** and the **Unit** columns and several columns for the parameter values of each group.

If you move the mouse pointer over a parameter value, further information on the constraints and the permitted value range is shown as a tooltip.

Editing the value of a parameter

To edit the value of a parameter:

1. Expand the parameter table and go to the parameter for which you want to edit the value.

2. Left click a parameter value, in the **Value** column.

3. A drop-down list opens, or a text box is activated:

   - Select a value from the drop-down list.

     - or -

   - Click inside the text box and enter a value. A tooltip indicating the permitted value range is displayed.

4. To validate, click outside the cell or press the **Enter** key.

5. If the entered value is outside the permissible value range, the text box is highlighted in red. In this case, correct your entry.

6. Click the **Save** button at the top right of the view to save your modifications. Modified fields are highlighted with a different color. If you change tabs or leave the view without saving, a popup window is displayed warning that there is unsaved data on the page. Click **Save** to save and switch to another tab or click **Cancel** to stay on the current page.

6.2.2   Data

In EnerVista Flex v2, data refers to real-time variable (datapoints).

Depending on the type of feature (Protection, Electrical equipment, Function, ...), either click **Data** (*undifferentiated data*), **Input** or **Output** icon.

The list of datapoints is organized into folders for the selected feature. You can easily identify the type of datapoint by its icon and tooltip.

Adding optional datapoints

According to the function type, optional datapoints can be added:

- For data predefined in the device:

  - Click **+** in the **Data** panel header.

  - In the **Additional Data** panel (or "**Additional inputs**" or "**Additional outputs**" depending on context), expand the folder(s) if present.

  - Tick the relevant box(es) to select data:

    Folder checkboxes indicate different possibilities:

☐	No additional data in this folder is selected
⊟	At least one additional data from this folder is selected but not all
☑	All additional data in this folder is selected

  - To validate your choice, click **Add Data**. The selected data and/or folder(s) are added to the list of datapoints, in the **Data** panel.

Note: Optional datapoints appear in blue. They can be removed. Mandatory data cannot be deleted.

- For **External Data**:

  - Click **+** in the **Data List** panel header and select **Add data** from the drop-down menu. You may also select **Add folder** to create folders to organize the datapoints.

  - Use the up/down arrow button to select the required number of datapoints or enter a value in the appropriate entry field.

  - To validate your choice, click **Add Data**. The selected data and/or folder(s) are added to the list of datapoints, in the **Data** panel.

Removing optional datapoints

To remove an optional datapoint:

- Click with the right mouse the optional datapoint you want to remove.

- Press the **Delete** (DEL) key on your keyboard,

  - or -

  Right-click and select **Remove** from the context menu,

  - or -

  Click the ⦂ drop-down menu and select **Remove**.

The Properties panel

The **Properties** panel, on the right side of the view, shows the properties of the datapoint selected in the data list panel.

*Note: On an edited tab, click the **Save** button at the top right of the view to save your modifications. If you change tabs or leave the view without saving, a popup window is displayed warning that there is unsaved data on the page. Click **Save** to save and switch to another tab or click **Cancel** to stay on the current page.*

6.2.3   Binding

Once you have selected a function allowing the wiring or binding of data, click the binding icon .

In the **Wiring** area, a toggle button allows you to switch from the **Mapping** to the **Properties** view.

The Mapping view

The **Mapping** view allows you to wire/link data to a channel on a board or to an LED on the device's front panel or address data to protocolary information.

The first column header (LED, DI, DO, AI, AO, …) is static. It identifies the reference of the channel in case of a board or the reference of an address in case of a protocol.

The **Allocation** column contains the mapped/linked data. Some rows in the **Allocation** column may be pre-mapped/linked. In that case, data cannot be modified or removed.

To map data:

1.   Either enter the name of the data to map in an empty cell in the **Allocation** column

      -or-

      Drag the required element from the **Device Data** panel to the **Allocation** column and release the mouse button.

      If insertion is not allowed at this position, the mouse pointer changes to a crossed-out circle. If insertion is permissible at the selected position, the mapping appears in the **Allocation** column.

2.   To remove a mapping/binding, click in the entry field and then, click on the ✗ button.

	Position the mouse pointer over the vertical separator between the allocation table and the device data panel (the cursor changes to a double arrow), left click and then, drag left or right to increase or decrease the panels width.

The Properties view

Click the **Properties** tab.

The **Properties** view allows you to set the values of each channel or address according to the context. If a channel is not allocated, the associated properties are empty and disabled.

In this view, actions related to mapping are not authorized, only properties are editable.

In the properties table, edit the property value(s) for each mapped data.

In extra wide property lists, use the horizontal scroll bar to access all available information.

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*Note: On an edited tab, click the **Save** button at the top right of the view to save your modifications. If you change tabs or leave the view without saving, a popup window is displayed warning that there is unsaved data on the page. Click **Save** to save and switch to another tab or click **Cancel** to stay on the current page.*

6.3   Logic

The **Logic** feature is a basic equation editor which allows you to create and edit logic equations to suit your own application from the data available in the device configuration.

To access the Logic editor tool:

1. Left click the device name in the project **Elements** view.

2. The selected device is displayed as a new tab in the application.

3. From the left menu, click **Logic**.

The **Logics** window is divided into three distinct parts:

*   The **Logic** panel - on the left - shows the **Logic Sets** available in the device configuration. From this panel, you to create the **Logic Sets** that will contain one or more equations.

*   The **Editor** (central region of the screen) allows you to define the equations for each Logic Set.

*   The **Device Data** panel - on the right – is where you can select the inputs and outputs for each equation.

6.3.1   Creating a New Logic Set

To add a new **Logic Set**, proceed as follows:

1. In the **Logic** panel, click **+**.

2. Click inside the text box and enter a name for the new logic set. Press Enter or click anywhere outside the box to validate.

3. The newly created Logic Set appears as a new tab in the **Editor** panel with a default equation.

Note: If the entered name does not comply with the naming rules, the text box is underlined in red. In that case, correct your entry. A tooltip indicating the permitted value range is displayed when hovering the mouse over the text box.

Logic Sets can be renamed, duplicated, reordered, and deleted.

The next step is to <u>define the default equation</u>. You can also add one or more equations to the Logic set as explained in the following sections.

6.3.2   Renaming a Logic Set

To change the name of a Logic Set, proceed as follows:

●   In the **Logic** panel, right-click the Logic Set that you want to rename and select **Rename** from the context menu,

     - or -

     Click the ⁞ drop-down menu and select **Rename**.

●   Enter a new name in the text box and press **Enter** on the keyboard or click outside the text box to validate.

The new name for the Logic Set is applied.

6.3.3   Duplicating a Logic Set

To duplicate a Logic Set, proceed as follows:

●   In the **Logic** panel, select the Logic Set that you want to duplicate,

●   Right-click and select **Duplicate** from the context menu,

     - or -

     Click the ⁞ drop-down menu and select **Duplicate**.

The newly created Logic Set is automatically selected, and its name can be edited.

6.3.4 Reordering Logic Sets

To reorder the Logic Sets, proceed as follows:

- Click the Logic Set that you want to move.

- Hold down the mouse button and drag the selected Logic Set up or down.

- Release the mouse button at an appropriate location.

The selected Logic Set is moved.

6.3.5 Deleting a Logic Set

To delete a Logic Set, proceed as follows:

- In the **Logic** panel, select the Logic Set that you want to delete,

- Right-click and select **Remove** from the context menu,

  - or -

  Click the ⸬ drop-down menu and select **Remove**.

Remove Logic Set dialog is displayed.

- Click **Remove Logic Set** to delete the selected Logic set or click **Cancel** to abort the operation.

The Logic Set and its contents are then deleted from the device configuration.

6.3.6 Editing a Logic Set

To edit a Logic Set, proceed as follows:

- In the **Logic** panel, select the Logic Set that you want to modify.

- You can open several Logic sets at a time. They appear in a dedicated tab, in the equation editor. Each tab can be closed individually and moved within the tab bar.

6.3.7 Defining the Default Equation

An equation consists of:

- One to N **Input** fields on the left-hand side of the gate (*N depends on the device*),

- One **gate**,

- One **Output** field (on the right-hand side of the gate).

When you add a Logic Set, a default equation is created with empty fields in the Editor panel.

To define the default equation, proceed as follows:

1. Define the Input fields:

    ▪ In the **Device Data** panel, expand the tree-view and navigate to the datapoint you want to use as input data. When the mouse hovers over a datapoint that is draggable, the mouse pointer turns into a 4-arrow symbol.

    ▪ Left click the desired datapoint. Hold down the mouse button and drag the selected datapoint to the appropriate Input field in the **equation** area. When reaching a valid drop zone, the mouse pointer changes into a specific icon. Release the mouse button at the appropriate location.

    ▪ Repeat these steps to define each Input fields.

2. Select the appropriate logic gate (**AND, OR**…)**,** according to the capabilities of the device.

3. Define the Outputs fields:

    ▪ In the **Device Data** panel, expand the tree-view and navigate to the datapoint you want to use as output data. Drag and drop the desired datapoint to the appropriate output field in the **equation** area.

Note: If a Logic Set has an invalid equation (i.e. one or several Inputs or Outputs are not defined), the ● icon is displayed.

6.3.8   Reversing an Input

Along the left side of each input field is a toggle button. Click this toggle button to set/remove the operator NOT (*disabled by default*).

6.3.9   Clearing an Input or Output Field

To clear an input or output field, proceed as follows:

● Hover the mouse over the field you want to clear.

● Click the icon **X** that appears at the right of the field.

Note: If the number of Input field is equal to the minimum number of Inputs required by the selected gate (for example 2 for the gate "AND"), clicking the cross icon will clear the field. If the number of Input fields (additional included) is greater than the minimum number of Inputs required by the gate, clicking the cross icon will remove the Input field.

6.3.9.1   Deleting an Equation from a Logic Set

To delete an equation from a Logical Set, proceed as follows:

1. In the **Logic** panel, select the logic set from which you wish to delete the equation.

2. In the **Editor** panel, click 🗑 next to the equation to be deleted.

Remove Equation dialog is displayed.

3. Click **Remove equation** to delete the equation or click **Cance**l to abort the operation.

Note: Deleting an equation is possible if the Logical Set contains more than one equation.

6.3.9.2   Adding a New Equation

You can add several equations to a Logic Set by clicking the **+** button in the logic **Editor** panel.

Adding a new equation to a Logic Set is possible only if all equations contained in this Logic Set are valid.

Note: The maximum number of equations depends on the inputs and outputs for each logic gate and is defined by each device.

6.4   IEC 61850

EnerVista Flex manages edition 2.1 of the IEC 61850 standard.

To access the IEC 61850 configuration tool:

1. Double-click a device in the project **Elements** view. The selected device is displayed as a new tab in the application.

2. From the left menu, click **IEC61850**.

The **IEC 61850** window is divided into the tabs: **Configuration**, **Mapping** and **Applicative Source**.

6.4.1   Configuration View

The **IEC 61850 Configuration** view allows you to configure the IEC 61850 communication of the device.

The view comprises a Publisher pane, a Dataset pane, a Control Block pane, and a Subscriber pane.

Options to import and export an IEC61850 file to the device are also available in the menu ribbon (refer to sections **Importing an IEC File** and **Exporting an IEC File** for further details).

6.4.1.1   Publisher

The **Publisher** pane contains all IEC information transmitted by the devices defined in the project (*the current device is the first in the list*) and the Third-Party Devices you may have imported.

For each device defined in the IEC configuration, a tree-view shows all **Logical Devices**, all **Logical Nodes**, and all IEC **Elements** such as **Data Objects**, **Sub Data Objects**, **Structured Data Attributes** and **Data Attributes**. The folders in the tree-view can be expanded and collapsed to show/hide their subordinate nodes.

The **Publisher** pane contains the IEC information available for transmission (ST and MX Functional Constraints).

You can also search for an element in the **Publisher** panel using the **Search** entry field.

Selecting a publisher in the **Publisher** panel impacts the display of information in the **Dataset** and **Control Block** panels, which are refreshed and updated with the data of the selected device.

In the **Publisher** pane, click a device to expand the associated IEC data. The device selected in the **Publisher** panel gets the focus and appears in blue.

From this panel you can:

- Add an Element to one existing DataSet (refer to the **Dataset** section below).

- Identify the IEC data used in one or several Datasets and/or by one or several subscriptions thanks to a binding icon at the right of the IEC data.

6.4.1.2   Dataset

A Dataset is a container that gathers a collection of IEC Elements. An Element can be a *Data Object*, a *Sub Data Object*, a *Structured Data Attribute,* or a *Data Attribute*. These Elements are information selected from a Publisher (server) and transmitted to the Subscriber (client) via a Control Block.

Datasets can be created and managed manually, depending on the IED capabilities, or automatically added to the device configuration after importing an IEC file (refer to section Importing an IEC File).

If datasets are predefined in the device's IEC configuration or created after importing an ICD/IID/CID/SCD file (refer to section **Importing an IEC File**) , they are automatically displayed as blocks in the **Dataset** pane.

Datasets can also be created and managed manually.

Note: a dataset cannot be empty.

6.4.1.2.1   Creating a Dataset

To create a dataset, proceed as follows:

- Select a device in the **Elements** view (the device must support configurable datasets).

- The selected device is displayed as a tab in the tab ribbon.

- In vertical menu on the left, click **IEC 61850**.

- In the **Publisher** pane, select the current device.

Note: it is possible to create datasets for the current device only. For other devices in the project or third parties, you can see the datasets but not create or modify them.

- In the **Dataset** pane, click **+** to add a new dataset.

The **Add dataset** window is displayed.

- Type the name for the new dataset in the **Name** box.

- Click the browse button ⬇ next to the **Location** drop-down list and select a Logical Node (LN) as the intended dataset destination.
  At any time, you can change the location by left-clicking the desired LN in the tree view. The location updates automatically based on the selection.
  To collapse the **Location** drop-down list, click again the browse button.

- Enter a description (optional). This information will display in the header of the dataset container.

Then, add the required elements:

- In the **IEC 61850 Model** panel, expand the tree-view until the desired element is visible.

- Left click the element to include in the dataset and hold the button down. While holding the button down, drag the element to the **Dataset Content** panel and release the mouse button. Note that you can also add elements once the dataset container is created.

Note 1: A DataSet cannot be empty. There must be at least one element present in the DataSet to create it.

Note 2: While creating the dataset, you can delete and/or reorder the elements you have selected.

- Click **Add dataset** to create the dataset.

The new dataset is then created under the selected Logical Node. It is represented by a dataset container with its own header in the **Dataset** panel.

You can add multiple elements to a dataset, add a group of data as a full FC (*only one FC can be added to a dataset*) or add any DO/SDO/SDA/DA.

To add elements to a dataset, proceed as follows:

- In the **Dataset** panel, select a dataset. The selected dataset gets the focus and is highlighted in blue.

- In the **Publisher** panel, navigate to the element you want to add to the dataset.

- Left click the desired element datapoint. Hold down the mouse button and drag the selected element to the appropriate dataset. When reaching a valid drop zone, the dataset container expands. Release the mouse button.

Repeat these steps for each element you want to add.

The capacity meter in the **Dataset** container header shows the maximum number of items allowed in a dataset and the number of items already added.

The **Dataset** container header also displays additional information such as the **GOOSE Occupancy Rate** (present as soon as an element is present in the DataSet) and **SV Occupancy Rate** (present if linked to an SVCB)

When an FC element is added to a DataSet, the DataSet must not contain DO, SDO, SDA or DA elements already present. After adding an FC, it is no longer possible to add other elements (FC or any DO/SDO/SDA/DA).

6.4.1.2.2   Moving Elements within a Dataset

You can rearrange the elements of a dataset when creating it or after the dataset is created.

Elements can be reordered directly in the dataset container or using the **Edit** menu option.

To reorder the elements of a dataset in the dataset container, proceed as follows:

1. Select a dataset in the **Dataset** panel.
2. In the dataset container, click the element that you want to move.
3. Hold down the mouse button and drag the selected element up or down.
4. Release the mouse button at an appropriate location.

The selected element is moved.

To reorder the elements of a dataset using the **Edit** menu option, proceed as follows:

1. Select a dataset in the **Dataset** panel.

2. Right-click the dataset header and select **Edit** from the right-click menu.

    - or -

    Click the ⋮ drop-down menu and select **Edit**.

3. In the **Edit Dataset** window, click and move the desired element to the appropriate location.

6.4.1.2.3   Removing Elements from a Dataset

You can remove one or several elements from a dataset when creating it or after the dataset is created.

Elements can be removed directly from the dataset container or using the **Edit** menu option.

To remove an element from a dataset container, proceed as follows:

1. Select a dataset in the **Dataset** panel.

2. In the dataset container, along the right side of each element, is a *delete* button **X**. Left clicking this button will remove the element from the dataset.

To remove an element from a dataset using the **Edit** menu option, proceed as follows:

1. Select a dataset in the **Dataset** panel.

2. Right-click the dataset header and select **Edit** from the right-click menu.

    - or -

    Click the ⋮ drop-down menu and select **Edit**.

3. In the **Edit Dataset** window, remove the desired element by clicking the *delete* button **X**.

Note : it is not possible to delete the last element of a dataset.

6.4.1.2.4   Managing Datasets

When datasets are created, they are represented as a dataset container with a header under the selected Logical Node, in the **Dataset** panel.

The capacity meter in the dataset container header shows the maximum number of elements allowed in a dataset and the number of elements already added.

The dataset container header also displays additional information such as the **GOOSE Occupancy Rate** (present as soon as an element is present in the DataSet) and **SV Occupancy Rate** (present if linked to an SVCB).

You cannot add more elements than the maximum allowed. Consequently, the counter displayed in the capacity meter will not exceed the capacity of the device.

Colors displayed in the capacity meter indicate different possibilities:

- Blue: all counters are under 100%

- Red: at least one occupancy rate counter exceeds 100% or the dataset capacity reaches the maximum allowed.

You can select a dataset by left clicking the dataset container header. When a dataset container is selected, it is highlighted with a different color.

Click the ▶ icon to expand the dataset block and see the elements it contains.

Datasets can be edited, reordered, and deleted.

6.4.1.2.5   Editing a Dataset

To edit a dataset:

1. Select a dataset from the **Dataset** panel.
2. Right-click the dataset header and select **Edit** from the right-click menu.

    - or -

    Click the ⋮ drop-down menu and select **Edit**.
3. In the **Edit Dataset** window, modify the dataset name, description, or contents (Location cannot be changed).
4. You can add or remove elements as described in the previous sections.
5. Click **Update Dataset** to save the changes.

The new configuration is then populated in all fields of the container and the reference used in **Control Blocks** is updated accordingly.

6.4.1.2.6   Deleting a Dataset

To delete a dataset, proceed as follows:

1. Select a dataset from the **Dataset** pane.
2. Right-click the dataset header and select **Remove** from the right-click menu.

    - or -

    Click the ⋮ drop-down menu and select **Remove**.

Remove dataset dialog is displayed.

3. Click **Remove dataset** to delete the dataset or click **Cancel** to abort the operation.

The dataset container and its contents are removed from the **Dataset** panel and from the IED configuration. If the dataset is referenced in a Control Block then the references are also removed. Subscriptions - if they exist - are also lost.

6.4.1.2.7   Reordering Datasets

You can reorder the dataset containers:

- Click the dataset container that you want to move.

- Hold down the mouse button and drag the selected dataset container up or down.

- Release the mouse button at an appropriate location.

The selected dataset container is moved.

Repeat the same steps to move the elements within a dataset container.

6.4.1.3   Control Block

Control Block are used to transmit the content of a Dataset.

Different categories of Control Blocks can be managed depending on the device capabilities:

- **Report Control Blocks**. A Report Control Blocks defines the way a dataset is transmitted to a client. It configures and controls the sending of a report when data attributes change in the selected dataset. Two types of Report Control blocks can be used:
    - **Buffered Report Control Block** (BRCB): Report Control Blocks are stored in a buffer so that if a client connection is interrupted for a period of time, reports are not lost and resent when the communication with the subscriber is recovered.
    - **Unbuffered Report Control Block** (URCB): Report Control Blocks are not buffered and in the case of a lost client connection, new reports will be lost during the interruption.

- **GOOSEs Control Blocks**. IEDs (Intelligent Electronic Devices) communicate and exchange data with other devices through a high-speed messaging technique. This cross-communication is referred to as GOOSE: Generic Object-Oriented Substation Event.

- **Sample Values**. IEC 61850 uses the Sampled values (SV) to transmit a set of Measurements (Currents and Voltage values) between the Merging Unit (MU) and the primary bay devices such as Transformers.

    The number of control blocks depend on the capability of the IED. For each type of Control Block, a counter indicates the number already defined and the maximum number allowed.

Note: A control block can be empty if there is no reference to a DataSet.

6.4.1.3.1   Adding a Control Block

Control Blocks can be created and managed manually, depending on the IED capabilities or automatically added to EnerVista Flex v2 after importing an IEC file (refer to section Importing an IEC File).

To add a report control block, proceed as follows:

1. Select a device in the **Elements** view (the device must support configurable control blocks). The selected device is displayed as a tab in the tab ribbon.

2. In vertical menu on the left, click **IEC 61850**.

3. In the **Control Block** pane, click **+** and select the type of control block to be created from the drop-down menu (Report, GOOSE, Sampled Values). If a type of control block is not supported by the IED, its entry is visible in the drop-down menu but not accessible to the user.

Note: an item in the drop-down menu may be disabled if the following conditions are met:
*   *the selected IED does not support configurable control block*
*   *the number of control blocks allowed by the data-model capability of selected IED is reached*
*   *the IEC Mapping is unavailable in the device configuration*

4. The **Add Control Block** window is displayed. The fields in the **Add Control Block** window depend on the selected control block. More generally speaking, the left part of the window contains the parameters common to all types of Control Blocks while the right part is specific to the selected Control Block.

5. Fill in the general information of the new Control Block:

    ▪ **Buffered/Unbuffered** (only for Report Control Block). You may change the value using the toggle button.

    ▪ **Name**: enter a Name to create the new Control Block.

    ▪ **Location**: click the browse button ⬇ next to the **Location** drop-down list to select a Logical Node (LN) as the intended Control Block destination. At any time, you can change the location by left-clicking the desired LN in the tree view.

    The location updates automatically based on the selection. To collapse the **Location** drop-down list, click again the browse button.

    ▪ **ID**: a default identifier is generated by EnerVista Flex v2 from the Location, the CB type, and the Name. To enter a specific ID, click 🔓 to unlock the text field and edit the identifier. If you lock again the field, the ID is reset to the default value.

    ▪ **DataSet Reference**: Select the dataset using the **DataSet Reference** drop-down list. This drop-down list shows the datasets available at the same Location as the Control Block. If the Location of the Control Block is changed, the content of the Dataset Reference is automatically updated.

    ▪ **Configuration Revision**: This field contains the configuration number of the control block. By default, the value is 0 when no **DataSet Reference** is selected. If a DataSet Reference is defined, the value is > 0.
    After creating a new control Block, the number is equal to 1. Then the number is incremented each time a change is made to the configuration of the control block. You can modify the configuration revision number manually by entering a value in the field or using the stepper to increase or decrease the value. In this way, you overwrite the internally assigned configuration number.

    ▪ **Description**: enter a description (optional).   It will be used in the tooltip of the Control Block Container Header.

6. Set the parameters specific for the Control Block you are creating. Most of the settings within this section are changed using a checkbox. Other settings can be edited using either a drop-down menu or manually entering a value.

If you move the mouse pointer over a parameter value, further information on the constraints and the permitted value range is shown as a tooltip.

7. When done, click **Add Control Block**.

8. The new Control Block is added to the **Control Block** panel, in the **IEC 61850** view.

6.4.1.3.2   Managing Control Blocks

The control blocks available in the IEC 61850 configuration of the device selected in the **Publisher** Panel are represented as **Control Block Containers** in the **Control Block** pane.

The Control Block header shows:

- The name of the control block with a specific icon indicating the type:

U	**Unbuffered Report Control Block** (URCB)
B	**Buffered Report Control Block** (BRCB)
G	**GOOSE Control Blocks** (GCB)
S	**Sample Values** (SVCB)

- The **dataSet reference** attached to the control block. The dataset reference defines the link between the **Dataset** and the **Control Block**. It is used to retrieve the list of Elements to display in the Control Block Container. If the DataSet Reference is removed from the Control Block, all Elements present in the Control Block Container will be removed. A control block can be empty if there is no reference to a DataSet.

- The **DataSet Name** (if the Control Block is linked to a Dataset).

- The configuration revision.

You can select a Control Block by left clicking the Control Block container header. If it exists, the description of the control block is displayed in the header. When selected, the Control Block container is highlighted.

Click the ❯ icon to expand the Control Block and see the Elements it contains.

Elements in a control block cannot be edited or modified in the control block container as they come from the associated dataset. Modifying a dataset used by a Control Block impacts the content of the Control Block which will be modified accordingly.

Control Block can be edited, reordered, and deleted.

6.4.1.3.3   Editing a Control Block

To edit a Control Block:

1. Select a Control Block from the **Control Block** panel.
2. Right-click the Control Block header and select **Edit** from the right-click menu.

    - or -

    Click the ⦂ drop-down menu and select **Edit**.
3. In the **Update Control Block** window, edit the required properties.
4. Click **Update Control Block** to save the changes.

The new configuration is then populated in all fields of the container.

6.4.1.3.4   Deleting a Control Block

To delete Control Block, proceed as follows:

1. Select a Control Block from the **Control Block** panel.

2. Right-click the Control Block header and select **Remove** from the right-click menu.

   - or -

   Click the ⁝ drop-down menu and select **Remove**.

Remove Control Block dialog is displayed.

3. Click **Remove Control Block** to delete the Control Block or click **Cance**l to abort the operation.

Deleting a Control Block will delete its contents from the IED. If the Control Block is referenced in a Dataset, then all references will be removed. All information subscribed is also deleted.

6.4.1.3.5   Moving a Control Block

You can reorder the Control Block containers:

- Click the Control Block container that you want to move.

- Hold down the mouse button and drag the selected Control Block container up or down.

- Release the mouse button at an appropriate location.

The selected Control Block container is moved.

6.4.1.4   Subscriber

In the **IEC 61850 Configuration** view, the **Subscriber** panel contains all IEC information defined for reception for the current device only. Each data in this panel can be used to subscribe to an IEC data of one Publisher.

A tree-view shows all **Logical Devices**, all **Logical Nodes**, and all IEC **Elements** such as **Data Objects**, **Sub Data Objects**, **Structured Data Attributes** and **Data Attributes** for the Current device (*whatever the Publisher selected in the Publisher panel, or the data selected in the Dataset and the Control Block Panels*).

Folders in the tree-view can be expanded and collapsed to show/hide their subordinate nodes.

You can also search for an element in the **Subscriber** panel using the **Search** entry field. The search is limited to Logical Device, Logical Node, and all Elements (DO, SDO, SDA, DA) under each device.

A binding icon 🔗 is displayed in front of the IEC data when a data subscription is defined (internal or external). Additional information is provided in a tooltip when hovering the mouse over the binding icon.

Subscriptions can be configured either manually as described below or automatically by importing an SCD file (refer to section **Import an IEC File**).

6.4.1.4.1   Manual Subscription

You can configure external and internal subscriptions manually.

External Subscriptions

External subscriptions are defined by associating an element contained in a **Control Block** of a Publisher IED to an IEC Address of the current Device. Associating a Control Block element is allowed only if the Control Block belongs to a Project Device or a Third Party.

To configure an external subscription:

- In the **Subscriber** pane, expand the nodes and select the desired IEC element.

- Drag an element from a **Control Block** (*the Control Block must belong to a Project Device or a Third Party*) and drop it to the IEC element you have previously selected in the **Subscriber** Panel. A binding icon is added and the IED Configuration is updated accordingly. Information relating to the subscribed signal is visible by clicking on the binding icon.

*Note: Only one element can be selected from the Control Block and mapped to one element in the **Subscriber** panel by "drag and drop".*

Internal Subscriptions

Internal subscription consists in subscribing to data contained in the current device. They are defined by associating an element in the **Publisher** IED of the current device to an IEC address of the current device available in the **Subscriber** panel. Associating one element from the **Publisher** panel is possible only if it belongs to the current device.

To configure an internal subscription:

- In the **Subscriber** pane, expand the nodes and select the desired IEC element.

- Drag an element from the publisher IED and drop it to the IEC element you have previously selected in the **Subscriber** Panel.

- A confirmation window is displayed with the Publisher and the Subscriber signal references. Click **Apply subscription** to confirm the Internal Subscription. A binding icon $\mathcal{C}_i$ is displayed in the Publisher pane for the current device and the IED configuration is updated accordingly. Information relating to the subscribed signal is visible by clicking on the binding icon.

*Note: Only one element can be selected from the Publisher panel and mapped to one element in the **Subscriber** panel by "drag and drop"*

6.4.1.4.2   Unlinking a Subscription

To unlink a subscription, proceed as follows:

1. In the **Subscriber** panel, right-click a binding icon.

The **Remove subscription** is displayed.

2. Click **Remove Subscription** to remove the binding icon from the Subscriber panel and delete its references from the IED configuration or click **No** to cancel the operation.

Notes: removing a dataset or a Control Block from a project device also removes all subscriptions defined with other project devices. When a signal of the dataset is deleted, the associated subscriptions are removed.

6.4.1.5   Importing an IEC File

The **Import IEC61850** function allows you to import an IEC file to automatically update the device IEC configuration.

The following types of IEC files can be imported in EnerVista Flex v2:

- **ICD** (**IED Capability Description)**

- **IID** (**Instantiated IED Description**): Use case after Edition 2

- **CID** (**Configured IED Description)**: Use case before Edition 2

- **SCD** (**Substation Configuration Description**): updates the configuration of a device after the system configuration was done from a system configuration tool.

In certain cases, if an error is detected in the file, EnerVista Flex v2 may refuse the selection of the file or the import. In that case, an explanatory message will be displayed. Note that the application will not block the Third Party import even if it detects errors.

To import an IEC file (*valid IEC 61850 edition 2.1 files only*), proceed as follows:

1. Click a device in the **Element** view to open the device configuration.

2. The selected device opens in a tab in the tab ribbon.

3. In the vertical menu on the left, click **IEC 61850**.

4. Click ⬇ in the top right corner of the **IEC 61850 Configuration** view.

5. In the **Import IEC 61850 File** window, use the browse button ▪▪▪ to select a file.

   ▪ If the IEC file (ICD, IID or CID) is valid, **EnerVista Flex v2** shows additional information about the file in the **Details** frame.

   ▪ If the selected file is an SCD file, the device pane is automatically populated with the IEDs defined in the file. Tick the relevant boxes to select the IEDs you want to import.

6. Click **Import Selection** to confirm the import of the selected file.

7. Third party devices are imported and displayed in the **Publisher** panel. If present, project devices are also updated.

You can click and select a **Publisher** to see the details regarding the datasets and control block it contains.

Note: data contained in a DataSet or a control block relating to a Third-party device cannot be modified. Only data of the device being configured can be edited.

6.4.1.6   Exporting an IEC File

The **Export IEC61850** function allows you to select the type of IEC file (ICD, CID, IID) to be exported.

- **ICD** (**IED Capability Description**): used by a system configuration tool to import the information from the IED to configure it in its system and create the SCD file.

- **CID** (**Configured IED Description**): used by the physical device as the final configuration.

- **IID** (**Instantiated IED Description**): provides the system configuration tool with a file to update a specific IED instance.

To export an IEC file, proceed as follows:

1. Click a device icon in the **Elements view**.

2. The selected device is displayed in a tab in the tab ribbon.

3. In vertical menu on the left, click **IEC 61850**.

4. Click ⬆ in the top right corner of the **IEC 61850 Configuration** view.

5. In the **Export IEC 61850 File** window, use the Type drop-down list to select the type of IEC file to be exported.

6. Optionally, enter a description in the **Description** text area.

7. Click **Export File**.

8. Browse for the file destination if your browser requires it. Otherwise, it will be downloaded into your default download folder.

9. Click **Save**.

The file is exported to the destination folder you have selected or the default Download folder.

6.4.2   Mapping View

In the IEC 61850 view, the **Mapping** tab allows you to see the associations done between the **IEC 61850 Data** and the **Device Data**.

Only the information related to the current device is displayed. Data from other devices defined in the project or from Third Party devices are not displayed in this view.

IEC 61850 Data

The **IEC 61850 Data** panel shows – in a tree-view- the IEC configuration defined for the device.

Data is grouped under **Logical Devices** and **Logical Nodes**.

Each Logical Node refers to one function or one sub-function in the physical device. A Logical Node consists of a set of Data Objects (DO). DO can be mandatory or optional.

The structure of the Data Object is defined by its Common Data Class (CDC) which contains the list of the available **Structured Data Attribute** and **Data Attribute**. The Attribute defines the lower level of information.

If an **IEC Element** (DO/SDO/SDA/DA) is associated to a specific device datapoint, the name of the datapoint **is** displayed next to the element (in a specific color in the **Association** column) and a binding Icon ⍾ is shown to allow the user to easily identify which IEC information is linked to which datapoint.

You can search for an element in the tree view using the **Search** entry field.

Use the combo box to select the type of signals to be displayed in the IEC Tree View: Publisher, Subscriber.

Use the filter to select the type(s) of IEC **Functional Constraint** (FC) to be displayed in the IEC tree-view (ST, MX, CO…). By default, ST and MX are selected.

6.4.3   Applicative Source

The **Applicative Source** view allows the user to configure the sources used for a specific IEC function by associating them to an external data element.

The **Applicative Source** view is divided into two panels:

- The **InRef** panel, on the left, lists all Internal References Data defined in the current device. They are displayed by Logical Device in a Tree View. An InRef is an IEC setting used to configure the applicative input (for instance the input of feature or the input used to manage a hardware binary output) and to describe the reference to use.

- The **ExRef** panel, on the right, contains the list of all External References Data available in the current device. They are displayed by Logical Device in a Tree View. An ExtRef is an IEC reference which provide the link to the expected data and the way to retrieve it. This data can be published by a Third Party or by the current Device itself (output of one Feature can be an input of another Feature).

  An ExtRef can be linked to multiple InRef parameters.

6.4.3.1   Configure InRef Data

From this view, you can configure the InRef sources and the one defined by default. Additional parameters can also be set to complete the InRef configuration.

To configure the Internal References Data:

- In the **Internal References Data** (**InRef**) panel, expand the **Parameters** tree-view and go to the **InRef** element for which you want to edit the value.

  You can also use the **Search** function to search for a specific text in the tree-view. The search is limited to LD elements, InRef elements and any other parameter (example: value of Purpose, Description…).

- To save the parameters, click the **Save** icon 🖫 in the **Internal References Data** (**InRef**) panel.

6.4.3.2 Change the reference of a Process Source or Test Source

To change the reference data of a Process Source or a Test Source:

- Drag a new ExtRef element from the **External References Data** (**ExtRef**) panel and drop it to the expected field (no need to remove the current value of the field).

- Click the **Save** icon to save the changes.

6.5 Maintenance

To perform maintenance operations on a device:

1. Click a device in the project **Elements** view. The selected device is displayed as a new tab in the application.

2. Click **Connect**, at the bottom left corner of the application, to connect to the device.

   The **Connect** dialog opens.

   - If the device configuration is already associated to the physical device, the connection parameters are automatically filled in. In that case, click **Connect** to establish the connection with the device.

   - If the device configuration is not associated to the physical device, enter the connection information to the device to allow EnerVista Flex v2 to connect to the device and click **Connect**.

   The connection is established with the device if all parameters are correct.

3. From the left menu, click **Maintenance**.

From this view, you can upgrade the firmware version of the device, send current configuration or setting files to the device, or generate logs.

6.6 Security

To control local security policy and password settings of EnerVista Flex V2 users.

1. Click a device in the project **Elements** view. The selected device is displayed as a new tab in the application.

2. Click **Connect**, at the bottom left corner of the application, to connect to the device.

   The **Connect** dialog opens.

   - If the device configuration is already associated to the physical device, the connection parameters are automatically filled in. In that case, click **Connect** to establish the connection with the device.

   - If the device configuration is not associated to the physical device, enter the connection information to the device to allow EnerVista Flex v2 to connect to the device and click **Connect**.

     The connection is established with the device if all parameters are correct.

3. From the left menu, click **Security**.

By default, the **Security** view opens the **User Management** tab where device user type, username, password, and user roles can be created, modified, and saved to the connected IED. Click the **Roles** tab to add a new role or view the list of permissions linked to default user roles.

In the **Security server** tab, specify the authentication type (local or central authentication), set the disclaimer text that will be displayed when any user logs in and specify the security policy and password settings (account locking, consecutive login attempts, password expiration...).

Click the **Syslog Configuration** tab to configure remote syslog servers for storing event and system logs.

6.7   Internal Parameters

To view and edit the internal parameters of a device:

1. Click a device in the project **Elements** view. The selected device is displayed as a new tab in the application.

2. Click **Connect**, at the bottom left corner of the application, to connect to the device.

    The **Connect** dialog opens.

    ▪ If the device configuration is already associated to the physical device, the connection parameters are automatically filled in. In that case, click **Connect** to establish the connection with the device.

    ▪ If the device configuration is not associated to the physical device, enter the connection information to the device to allow EnerVista Flex v2 to connect to the device and click **Connect**.

    The connection is established with the device if all parameters are correct.

3. From the left menu, click **Internal Parameters**.

The view shows all internal parameters loaded from the device.

You can modify the parameter if allowed by the device and send manually all modifications done to the device by clicking on the ↻ icon.

To export all internal parameters:

● Click on the contextual menu icon ⦙ and select **Export**.

The parameters are exported to a `.json` file with the name "`deviceName-sys-settings.json`" (Example: `bc360-sys-settings.json`).

The file is saved to your browser's default download folder.

Note: the export menu is disabled if internal parameters cannot be read from the device

6.8   Records

To access the records of the current device:

1. Double-click a device in the project **Elements** view. The selected device is displayed as a new tab in the application.

2. From the left menu, click **Records**.

The records of the selected device are displayed in a list, which is automatically refreshed each time a new log is received by the server. You can manually refresh data in the grid by clicking the "**Refresh**" button ↻.

Each column in the grid can be sorted by clicking on its header.

A date & time filtering control in the toolbar lets you filter the list of records:

*   Click the start date calendar icon ▦.
    The calendar popup appears, and today's date is identified with a circle.

*   Click a starting date (the selected date is highlighted in blue) and adjust the start time (hours, minutes, and seconds). Click **Apply** to validate.

*   Click the end date calendar icon and select an ending date and time.

To reset dates, click the ✕ icon in the toolbar.

6.8.1   Visualize a Record

To view the details of a specific record:

*   Double-click a device in the project **Elements** view. The selected device is displayed as a new tab in the application.

*   From the left menu, click **Records**.

*   Navigate in the list to the desired file. Click on ⋮ in the grid and select **Visualize** from the drop-down menu.

The record file is displayed as a new tab in the view.

Note: you can also open and visualize a fault file (Comtrade...) using a COMTRADE viewer interface.

6.8.2   Download a Record

To download a specific device record:

- Double-click a device in the project **Elements** view. The selected device is displayed as a new tab in the application.

- From the left menu, click **Records**.

- Navigate in the list to the desired file.

- Click on ⸽ in the grid and select **Download**. The file is saved with the file name collected from the device to your browser's default download folder.

<div align="right">

Chapter 7:   Security Configuration

</div>

Users with "SECADM" profile can manage user accounts via the **Security Preferences** feature in the **Settings** menu.

From the **User Management** view, the administrator can:

- View the existing user account list.

- Create new user accounts.

- Delete an existing user account.

- Edit a user account.

- Change the roles linked to a user account.

In this chapter, you will find instructions on how to create, modify or delete users, and how to work with User Roles.
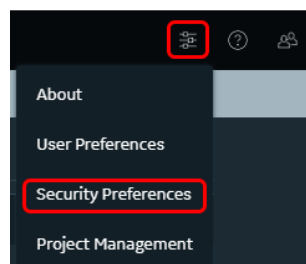
7.1   User Account Management

EnerVista Flex V2 provides certain predefined User Roles that have preset permissions: VIEWER, OPERATOR, ENGINEER, INSTALLER, SECADM, SECAUD and RBACMNT, as described in "**Predefined User Roles**".

Default "Admin" user or user with "SECADM" role or specific permissions can manage local security policy, create custom user roles, and assign individual users a custom set of permission, as described in "**Roles Management**".

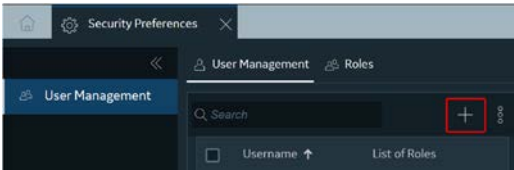### 7.1.1   Create a User Account

To add a new user account:

- Click the **Settings** icon in the upper right corner of the application and select **Security Preferences**.
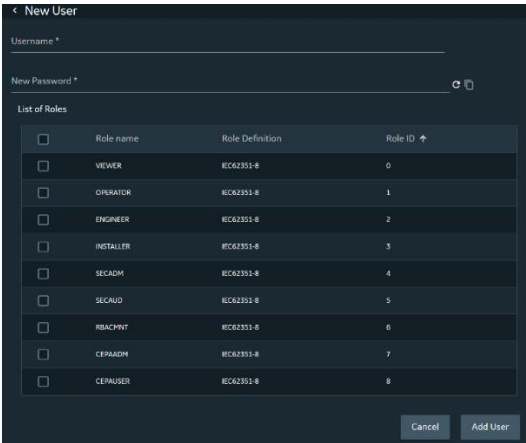

The list of the default user accounts, their full names, and their assigned roles is displayed.

- In the **User Management** tab, click + (**Add new user**):

The **New User** window appears on screen.

> Note: a user without SECADM role can view its username and list of roles in the users' tab, under the users' list and in the user properties. This information is read only. But a user with SECADM role can view all other users and edit the roles associated with them, also the SECADM user cannot view associated roles.

Set the following attributes:

Attribute	Description
Username	This field is mandatory and must be unique and insensitive. The unique user login must contain at least 3 characters (up to 20 characters). Any alphabetical (uppercase, lowercase, accented) or numeric character and special characters such as dot, dash, "@", and underscore are accepted.
New password	This field is mandatory and must contain at least 8 characters and maximum 12 characters, one capital letter, one lower case letter, one number and one special character. If the entered password does not comply with the security constraints, the text box is underlined in red. In that case, correct your entry. *Note: Hover the mouse over the password entry field to display the tooltip indicating the minimum requirements of the password policy.* You can also use the password generator feature ⟳ to generate a strong, random password fulfilling the security constraints. The system will then fill in the new password field. If the password doesn't comply on the first attempt, click again the password generator icon to create a new password.
Role	User accounts must be associated to at least one role. Among the default user roles, check the box to assign the selected role to the user account. Uncheck the box to remove the role. You can select several roles. To create a new role and manage its permissions, refer to section "**Create a New Role**" later in this document.

Once you have completed the above-mentioned attributes, click **Add user**.

> Note: Once created, usernames must NEVER be changed (even by "Security Administrators").

7.1.2   Edit Local User Account

To edit a user account:

- Click on the **Settings** icon ⬚ in the upper right corner of the application and, select **Security Preferences**.

- Select the **User Management** tab. The list of existing user accounts, their full names, and their assigned roles appear on screen.

- Check the box to select a user account from the list.

The **User Properties** panel on the right part of the screen shows the information related to the selected user.

From this panel, you can:

- **Reset password**: It is possible to reset a password. The system can generate a new password fulfilling the security constraints. A user can modify its own password.

- **Change roles:** You can check new roles to assign them the user account or uncheck them to unlink them from the user account.

7.1.2.1   Reset a password

To reset a user password:

- Click **Reset Password**. The **New Password** entry field is enabled.

- Click in the **New password** entry field and enter a new password. If the entered password does not comply with the security constraints, the text box is underlined in red. In that case, correct your entry. A tooltip indicating the permitted value range is displayed when hovering the mouse over the text box.
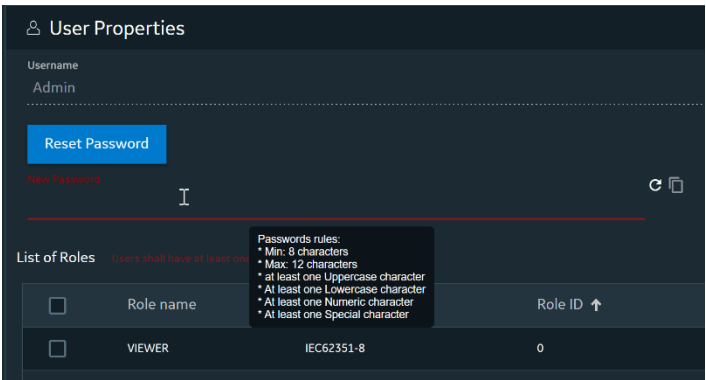
You can also use the password generator feature ⟳ to generate a strong, random password fulfilling the security constraints. If the password doesn't comply on the first attempt, click again the password generator icon to create a new password.

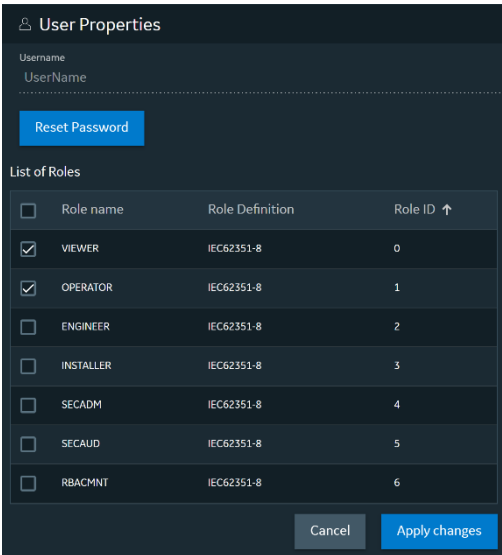Click **Apply changes** when done.

7.1.2.2   Change roles

A user account must be associated to at least one role.

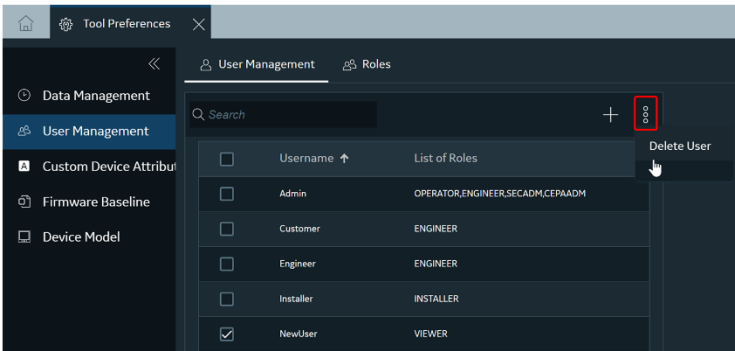Check a role to assign it to the user account; uncheck it to remove it.

You can select several roles.
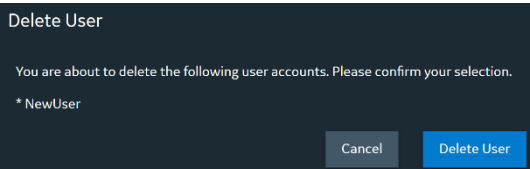
Click **Apply changes** when done.

7.1.3   Delete a User

To delete a user:

- Select a user account from the list.

- Click the menu icon and select **Delete User**.

- A warning message will require your confirmation for deleting the user account. Click **Delete User**:

7.2   User Role Management

EnerVista Flex v2 uses the concept of Roles and Rights. This process consists in assigning local authorized users to one of predefined roles and is known as Role-Based-Access Control (RBAC).

A role is a collection of privileges. Different roles and permissions can be associated with a user.

7.2.1   Predefined User Roles

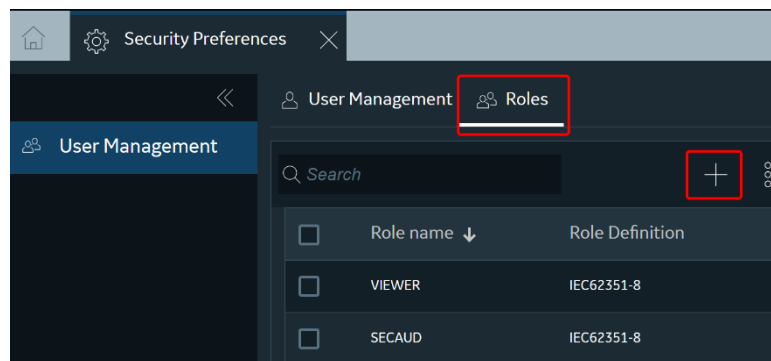In EnerVista Flex v2, the default user roles are:

User Role	Description	Privileges
VIEWER	Viewer	A "Viewer" can only display data or read information. A "Viewer" is not authorized to change other passwords, nor to visualize the security logs.
OPERATOR	Operator	An "Operator" can only access data useful to run the system. The operator works in the substation and can act on a sub-system. The "Operator" has observer rights plus specific rights to trigger commands. The "Operator" is not authorized to change other passwords, nor to visualize the security logs.
ENGINEER	System Engineer	The "Engineer" is a sub-system software user with limited rights on maintenance. The "Engineer" can display data and load a database. The "Engineer" has full access to Datasets and Files and can configure the server locally or remotely. The "Engineer" is not authorized to change other passwords, nor to visualize the security logs.
INSTALLER	Installer	The "Installer" is a software specialist able to do software maintenance for new versions. The "Installer" can display data, load a database, write files, and can configure the server locally or remotely. The "Installer" is not authorized to change other passwords, nor to visualize the security logs.
SECADM	Security Administrator	The "Security administrator" can change subject-to-role assignments (outside the device) and role-to-permission assignment (inside the device) and validity periods; change security setting such as certificates for subject authentication and access token verification. The "Security administrator" can access all functionalities and views. The "Security administrator" has all possible rights and can change user rights and passwords.
SECAUD	Security Auditor	The "Security Auditor" can view audit logs. The "Security Auditor" can display data or read information and visualize the security logs. The "Security Auditor" is not authorized to change other passwords.
RBACMNT	RBAC Management	The "RBACMNT" user is responsible for Security policy. The "RBACMNT" user is ONLY allowed to reset passwords, define the security parameters, change role-to-permission assignment. Note that the RBACMNT constitutes a sub functionality of the SECADM role.

For each role, a list of privileges is implemented. According to their role-based privileges, users are eligible to perform different operations.

7.2.2   Create a New Role

To create a new user role:

- Click the **Settings** icon in the upper right corner of the application and, select **Security Preferences**.

- Select the **Roles** tab. The list of the available roles and associated permissions are displayed.

- Click + (**Add new role**):

The **New Role** window is displayed.

- Set the following attributes:

Attribute	Description
Role name	This field is mandatory and shall be unique. The role name must contain at least 3 characters (up to 20 characters). Only alphabetical (uppercase, lowercase, accented) and special characters such as dash and underscore are accepted.
Role Definition	This field is mandatory and shall contain at least 3 characters and maximum 20 characters. Any alphabetical (uppercase, lowercase, accented) or numeric character and special characters such as dot, dash, "@", and underscore are accepted.
Permissions	User roles must be associated to at least one permission. In the list of permissions, select the checkbox for each permission you want to assign to the selected role. Uncheck the box to remove the permission. You can assign several permissions to the new user role.

- Once you have completed the above-mentioned settings, click **Apply changes**.
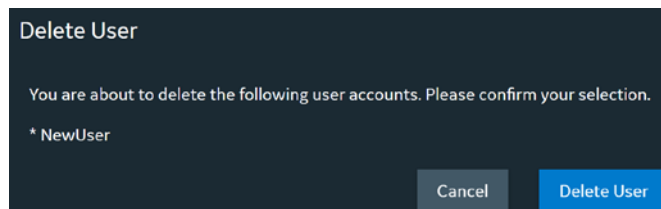
7.2.3   Delete a User Role

To delete a custom user role:

- Check the box to select the custom role to be removed.

- Click the menu icon ⠿ and select **Delete User**.
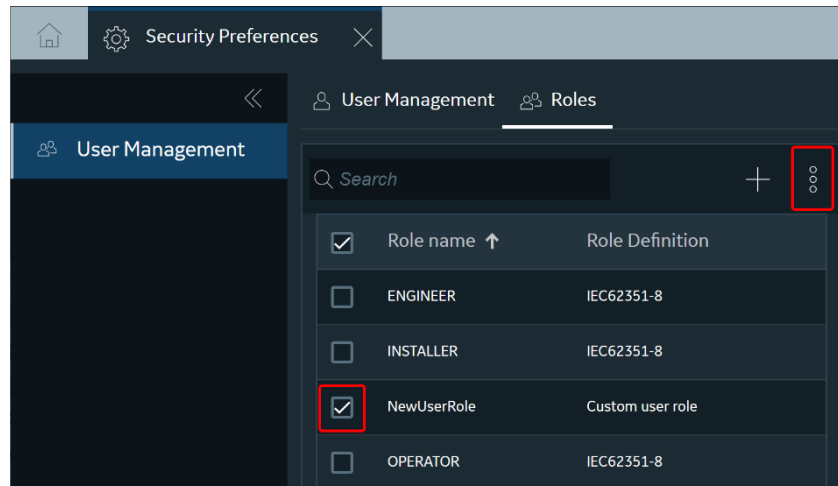
- A warning message will require your confirmation for deleting the user role. Click **Delete Role** to confirm your choice.

7.3   Syslog Configuration

You can configure remote syslog servers for storing event and system logs.

To configure Syslog parameters:

- Click the **Settings** menu icon in the top right corner of the application and select **Security Preferences**.

- In the **Parameters** view, expand the **Syslog Config** node and specify the required settings.

- Click **Apply Changes** to save the parameters.

Chapter 8:   Uninstallation

8.1   Uninstalling EnerVista Flex v2

To uninstall the software:

1. Access the Control Panel in Windows® and select the "**add or remove program"** option.

2. Select **EnerVista Flex v2** from the list of installed software and click Uninstall.

3. Confirm the uninstallation, if necessary.

4. Wait for the software removal process to complete. This can take a few minutes.

5. Confirm the software has been removed by viewing the list of installed software in the Windows® Control Panel.

After uninstallation is completed, remove the following folders (and sub-folders) if present:

- `C:\ProgramData\Enervista Flex V2\storage\`

- `C:\Program Files\GE Power Management\EnerVista Flex V2\`

Note: uninstalling EnerVista Flex v2 does not automatically uninstall the Mediator plug-in. The plug-in must be uninstalled manually as explained in the section Uninstalling Mediator Plug-Ins.

Chapter 9:   Appendix

9.1   Using the Mediator Plug-In

9.1.1   Installing the Mediator Plug-in

Mediator is an optional configuration and administration plug-in. It is customer-specific and designed to extend EnerVista Flex v2's functionality.

As part of the Rspace project, this plug-in installs two specific services to allow the user to automatically create a project by importing an SCD file with preconfigured devices and update settings of a device.

9.1.1.1   Prerequisites

Before installing the Mediator plug-in, make sure:

- EnerVista Flex v2 is already installed on your machine. Refer to section <u>Installing EnerVista Flex v2</u> for further details.

- You have the Mediator installer (Mediator-Setup-x64-vx.xx.x.exe).

9.1.1.2   Installation Procedure

Installing Mediator requires system administrator access to the computer.

To install Mediator:

1. Right-click the installer *Mediator*-Setup-*x64-vx.xx.x.exe* and select **Run as administrator**.

2. In the UAC dialog, click **Yes**.

3. In the **Welcome** window, click **Next** to start the installation process.

4. Read and accept the terms in the license agreement by selecting the **I agree to the license terms and conditions** option and then, click **Next** to continue.

5. In the **Setup Type** window, the "**Complete**" setup is selected. Click **Next**.

6. In the **Edit data** window, enter the path to the xml configuration file containing your RBAC information and click **Next**. The configuration file will be copied to the `"C:\ProgramData\Enervista Flex V2\storage\data\mediator\rbac"` folder.

7. In the **Select Features** window, click **Next** to install the selected services.

8. Click **Install** to start the installation. To review any information in previous steps, click **Back**. To stop the installation, click **Cancel**.

9. The installation pop-up shows the current progress of the installation. Wait for the installation to finish.

10. When the installation is done, click **Finish**.

9.1.2 Creating a Project by importing an SCD File

If you have installed the **Mediator** plug-in (*optional customer-specific plug-in*), you can automatically create a project by importing an .SCD file containing preconfigured devices.

To do so:

1. Launch EnerVista Flex v2.

2. Click the **Settings** menu icon in the top right corner of the application and select **Project Management**.

3. In the **Project Management** view, click the **Import** button

4. In the **Import** wizard, click the browse button and select the **.scd** file to be imported.

5. A view of the different devices contained in the file is displayed.

6. Click **Import Selection** to validate your choice.

   - If the import is successful, the project with the selected devices is created.

   - If issues are detected while importing the SCD file, a warning or error message is displayed:

      ▪ **Warning messages** indicate a minor issue that does not compromise the import of the file and therefore the creation of the project.

      ▪ **Error messages** indicate that at least one major issue is blocking the SCD file import. In such cases, the project cannot be created.

9.1.3 Updating the Settings of a Device by importing a *.par* File

If the Mediator plug-in is installed, you can update the settings of a device by importing a parameter file (.par) and preview the impact of such a file on the device configuration.

To do so:

1. Launch EnerVista Flex v2.

2. Click the **Settings** menu icon in the top right corner of the application and select **Project Management**.

3. In the **Project Management** screen, click to open the relevant project.

4. In the **Elements** view, click the icon in front of the desired device. The selected device is highlighted.

5. Click next to the device name and select RTE settings import from the context menu.

6. In the **Import** wizard, click the browse button ▪ and select the **.par** file to be imported.

7. Click **Import Selection** to validate your choice.

8. A preview of the settings that will be updated is displayed for you to compare the new values to the current device values. Verify data shown in the dialog. If one or more settings are not consistent with the device configuration, EnerVista Flex v2 highlights the erroneous parameter(s) in red. Click the red flag to see the error detail.

9. Click Finish to update the device with the new settings.

9.2   Uninstalling Mediator Plug-In

To uninstall the Mediator plug-in:

1. Access the **Control Panel** in Windows® and select the **Add or remove program** option.

2. Select **Mediator** from the list of installed software and click **Uninstall**.

3. Confirm the uninstall, if necessary.

4. Wait for the plug-in removal process to complete. This can take a few minutes.

5. Confirm the Mediator plug-in has been removed by viewing the list of installed software in the Windows® Control Panel.

9.3   List of Supported Protocols

EnerVista Flex V2 (version 0.39.0) supports the following protocols:

Product	Windows services	Port
EnerVista Flex V2	EnerVista Flex V2 Communication Service	5008
	EnerVista Flex V2 Configuration Service	3007, 3009, 3013, 3030, 3040, 3041, 3043
	EnerVista Flex V2 Database Service	3000, 3010, 3042
	EnerVista Flex V2 Operation Service	3001, 3002, 3023, 3032, 3131
	EnerVista Flex V2 Security Service	3003, 4435, 4456, 5003
	EnerVista Flex V2 Web Service	8282
Postgres	Postgresql-x64-14 - PostgreSQL Server 14	5432
Mosquitto	Eclipse Mosquitto MQTT v5/v3.1.1 broker	1883
Mediator	Mediator	Mediator 5991, 5990, 5931 APIs : 9876

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