

# **Integration Objects'**

**Seamless & Secure IT-OT-IIoT Integration  
Platform**

**UNIFIED HMI**

Version 2.4.3

**USER GUIDE**

Integration Objects' Unified HMI User Guide Version 2.4.3 Revision 0  
Published April 2026

Copyright © 2026 Integration Objects. All rights reserved.

No part of this document may be reproduced, stored in a retrieval system, translated, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Integration Objects.

Windows®, Windows NT® and .NET are registered trademarks of Microsoft Corporation.

SIOTH® is a registered trademark of Integration Objects.

# TABLE OF CONTENTS

<b>PREFACE .....</b>	<b>18</b>
<b>OVERVIEW .....</b>	<b>20</b>
<b>PROJECTS .....</b>	<b>22</b>
1.    ADD PROJECT .....	23
2.    OPEN PROJECT .....	25
3.    EDIT PROJECT .....	27
4.    DELETE PROJECT .....	28
5.    EXPORT/IMPORT PROJECT.....	28
5.1.    Export Project .....	28
5.2.    Import Project.....	29
6.    SEARCH PROJECTS.....	31
<b>DATA SOURCES .....</b>	<b>33</b>
1.    ADD DATA SOURCE .....	34
1.1.    HTTP Data Source .....	35
1.2.    SIOTH® Data Source.....	37
1.3.    Data Model Data Source .....	41
1.4.    SQL Server Data Source.....	43
2.    DATA SOURCE TEST CONNECTION .....	44
3.    EDIT DATA SOURCE.....	45

4.	DELETE DATA SOURCE.....	45
5.	SEARCH DATA SOURCE.....	46
<b>DATA STREAMS.....</b>		<b>47</b>
1.	DATA STREAMS COMMON CONFIGURATION.....	48
2.	ADD DATA STREAM .....	48
2.1	Select a Data Source .....	49
2.2	Configure Data Stream.....	50
2.2.1.	Add HTTP Data Stream .....	50
2.2.1.1	HTTP query editor .....	52
2.2.1.2	HTTP data stream parameters .....	53
2.2.1.3	HTTP Query Configuration.....	55
2.2.1.4	HTTP Authentication Configuration .....	57
2.2.2.	Add a SIOTH® Data Stream.....	65
2.2.3.	Add a SQL Server Data Stream.....	66
2.2.3.1	Read Mode.....	67
2.2.3.2	Write Mode.....	72
2.2.3.3	Read/Write Mode .....	73
2.2.3.4	Read on Demand Mode.....	76
2.2.4.	Add a Data Model Data Stream.....	76
3.	TEST DATA STREAM CONNECTION .....	77
4.	EDIT DATA STREAM.....	77
5.	DELETE DATA STREAM.....	78
6.	SEARCH AND FILTER DATA STREAMS .....	78
<b>VARIABLES .....</b>		<b>80</b>
1.	ADD VARIABLE .....	81

2. EDIT VARIABLE .....	83
3. DELETE VARIABLE .....	83
4. SEARCH VARIABLES .....	83
<b>LAYOUT .....</b>	<b>85</b>
1. MANAGE LAYOUT SECTIONS .....	86
2. LAYOUT CONFIGURATION .....	87
3. LAYOUT SECTIONS CONFIGURATION .....	88
3.1. Sections Configuration.....	89
3.2. Edit Section Content .....	90
3.3. Delete Section.....	91
<b>MEDIA .....</b>	<b>93</b>
1. ADD MEDIA.....	94
2. EDIT MEDIA.....	96
3. DELETE MEDIA .....	96
4. SEARCH MEDIA.....	96
5. OPTIONS VIEWS .....	97
<b>INTERACTIVE VIEWS .....</b>	<b>99</b>
1. ADD IN INTERACTIVE VIEW .....	100
2. DESIGN AN INTERACTIVE VIEW.....	104
2.1. Toolbar .....	104
2.2. Toolbox .....	106
2.3. Drawer .....	108
2.4. Drawer Configuration Panel.....	109
3. PREVIEW AN INTERACTIVE VIEW.....	109
4. EDIT INTERACTIVE VIEW.....	110

5.	Duplicate Interactive View .....	110
6.	Delete Interactive View .....	111
<b>WIDGETS .....</b>		<b>112</b>
1.	Widget Common Configuration .....	112
1.1.	Display .....	112
1.1.1	Link a Widget Parameter to a Data Source .....	113
1.1.2	Color Picker .....	116
1.1.3	Icons Explorer .....	118
1.1.4	Frame Configuration .....	119
1.1.5	Style Configuration .....	121
1.1.6	Animations Configuration .....	122
1.1.7	Single Select .....	123
1.1.8	Multiple Select .....	124
1.2.	Events .....	124
1.1.1	Set Value Action .....	126
2.1.1	Set Multiple Values Action .....	131
3.1.1	Open Pop-up Action .....	133
4.1.1	Close Pop-up Action .....	134
5.1.1	Navigate to Action .....	135
6.1.1	Snapshot Action .....	136
7.1.1	Navigate to URL Action .....	137
1.3.	Access Control .....	138
2.	Forms Common Configuration .....	139
2.1.	Display .....	141
1.1.1	Data Configuration .....	141

2.1.1	Frame Configuration.....	141
3.1.1	Style Configuration .....	141
4.1.1	Animations Configuration .....	142
2.2.	Events.....	142
2.3.	Access Control.....	142
3.	DASHBOARD .....	142
3.1.	Forms Widgets .....	142
3.2.	Tables Widgets.....	144
3.3.	Shapes Widgets .....	144
3.4.	Display Widgets .....	145
3.5.	Widgets .....	147
3.6.	Layout Widgets .....	148
3.7.	Lines.....	148
3.8.	Buttons Widgets .....	149
4.	SCADA .....	150
4.1.	Piping.....	150
4.2.	Utils.....	156
4.3.	Valves.....	157
4.4.	Vessels .....	160
4.5.	Agitators, Motors and Pumps.....	160
4.6.	ISA Components.....	163
4.7.	Other .....	167
4.8.	Reactors and Exchangers.....	172
4.9.	Tanks and Vessels .....	173
4.10.	Electrical.....	177

5. FORMS .....	179
6. CUSTOM .....	180
6.1. Add Custom Component .....	180
6.2. Use Custom Component .....	182
6.3. Delete Custom Component.....	183
<b>USERS .....</b>	<b>185</b>
1. USERS.....	187
1.1 Manage Users.....	187
1.1.1 Create User.....	188
1.1.2 Edit User .....	189
1.1.3 Delete User.....	190
1.2 Assigning User Role.....	190
2. ROLES.....	191
2.1 Add New Role.....	193
2.2 Edit Role.....	196
2.3 View Allowed Users .....	196
2.4 View Linked Interactive Views .....	197
2.5 Delete Role .....	197
3. AREAS .....	197
3.1 Add New Area .....	199
3.2 Edit Area.....	199
3.3 View Allowed Users .....	200
3.4 View Linked Interactive Views .....	200
3.5 Delete Area .....	200
4. SECURITY CODES .....	201



4.1	Add New Security Code.....	202
4.2	Edit Security Code.....	203
4.3	View Allowed Users .....	203
4.4	View Linked Interactive Views .....	204
4.5	Delete Security Code.....	204
<b>LOGGING AND TRACING.....</b>		<b>205</b>
1.	LOG MESSAGES .....	205
2.	TRACING .....	206
3.	FILTERING .....	207
<b>RUNTIME APPLICATION.....</b>		<b>210</b>
1.	PUBLISH PROJECT .....	210
2.	APPLICATIONS EXPLORER .....	212
2.1	Import Application File.....	214
2.2	Data Source Configuration Page.....	216
2.3	User Configuration Page .....	218
3.	APPLICATION CONTENT .....	219
3.1	Trend Pages.....	219
3.2	Real-time Trend .....	219
3.3	Historical Trend .....	219
3.4	Unauthorized Page .....	220

## TABLE OF FIGURES

FIGURE 3: UHMI PLATFORM OVERVIEW .....	20
FIGURE 4: UHMI DESIGNER- HOME PAGE.....	22
FIGURE 5: UHMI PROJECTS EXPLORER .....	23
FIGURE 6: CONFIGURE A NEW PROJECT .....	24
FIGURE 7: CREATE A NEW PROJECT .....	24
FIGURE 8: PROJECT HOME PAGE.....	26
FIGURE 9: EDIT PROJECT .....	27
FIGURE 10: REMOVE PROJECT ICON.....	28
FIGURE 11: EXPORT A PROJECT .....	29
FIGURE 12: EXPORT PROJECT CONFIRMATION .....	29
FIGURE 13: IMPORT PROJECT .....	30
FIGURE 14: IMPORT AN EXISTING PROJECT .....	30
FIGURE 15: PROJECT IMPORTED SUCCESSFULLY MESSAGE .....	31
FIGURE 16: SEARCH PROJECTS .....	32
FIGURE 17: DATA SOURCES EXPLORER .....	33
FIGURE 18: ADD A NEW DATA SOURCE .....	34
FIGURE 20: SUPPORTED DATA SOURCES .....	35
FIGURE 21: HTTP DATA SOURCE CONFIGURATION VIEW .....	36
FIGURE 22: SIOTH® DATA SOURCE CONFIGURATION VIEW .....	37
FIGURE 23: DATA MODEL DATA SOURCE CONFIGURATION VIEW .....	42
FIGURE 24: SQL SERVER DATA SOURCE CONFIGURATION VIEW .....	43
FIGURE 53: SEARCH DATA SOURCES.....	46

FIGURE 54: DATA STREAMS EXPLORER .....	47
FIGURE 55: ADD A NEW DATA STREAM .....	49
FIGURE 56: ADD A NEW DATA STREAM – SELECT A DATA SOURCE VIEW.....	50
FIGURE 57: COMMON HTTP DATA STREAM PARAMETERS .....	51
FIGURE 58: HTTP QUERY EDITOR DIALOG .....	52
FIGURE 59: HTTP QUERY EDITOR: DATA STREAM PARAMETERS CONFIGURATION SECTION.....	54
FIGURE 60: OBJECT EDITOR FOR HTTP DATA STREAM PARAMETER OF TYPE OBJECT .....	55
FIGURE 61: HTTP QUERY PARAMETERS CONFIGURATION TABLE .....	56
FIGURE 62: HTTP QUERY PARAMETERS LINKING POPUP .....	57
FIGURE 63: HTTP BASIC AUTHENTICATION CONFIGURATION .....	58
FIGURE 64: HTTP BEARER TOKEN AUTHENTICATION CONFIGURATION.....	58
FIGURE 65: HTTP API KEY AUTHENTICATION CONFIGURATION .....	59
FIGURE 66: HTTP HEADER CONFIGURATION SECTION.....	59
FIGURE 67: HTTP BODY CONFIGURATION SECTION .....	60
FIGURE 68: HTTP FORM-DATA BODY CONFIGURATION.....	61
FIGURE 69: HTTP RAW BODY CONFIGURATION EXAMPLE .....	61
FIGURE 70: HTTP QUERY PREVIEW POPUP .....	62
FIGURE 71: CONFIGURE HTTP DATA STREAM VALUE – READ MODE .....	63
FIGURE 72: PREVIEW DATA STREAM .....	64
FIGURE 73: EXTRACT VALUE TYPE.....	65
FIGURE 74: BROWSE TAGS FOR SIOTH® DATA SOURCE.....	65
FIGURE 75: SYNCHRONIZE SIOTH® DATA STREAMS.....	66
FIGURE 76: SELECT SQL SERVER DATA SOURCE .....	67
FIGURE 77: CONFIGURE SQL SERVER DATA STREAM SETTINGS – READ MODE.....	68
FIGURE 78: OPEN SQL QUERY EDITOR .....	68

FIGURE 79: SQL QUERY EDITOR.....	69
FIGURE 80: CONFIGURE SQL SERVER DATA STREAM VALUE – READ MODE.....	70
FIGURE 81: PREVIEW DATA STREAM .....	71
FIGURE 82: EXTRACT VALUE TYPE.....	72
FIGURE 83: CONFIGURE SQL SERVER DATA STREAM SETTINGS – WRITE MODE .....	73
FIGURE 84: SQL SERVER DATA STREAM -READ/WRITE MODE .....	74
FIGURE 85: SQL SERVER DATA STREAM - CONFIGURE DATA STREAM VALUE .....	75
FIGURE 86: BROWSE INSTANCES.....	76
FIGURE 87: SYNCHRONIZE DATA STREAMS FOR DATA MODEL DATA SOURCE .....	76
FIGURE 88: SEARCH AND FILTER DATA STREAMS.....	79
FIGURE 89: ACCESS VARIABLES PAGE .....	80
FIGURE 90: VARIABLES EXPLORER.....	81
FIGURE 91: ADD A NEW VARIABLE .....	81
FIGURE 92: NEW VARIABLE CONFIGURATION VIEW .....	82
FIGURE 93: SEARCH VARIABLE .....	84
FIGURE 108: ACCESS LAYOUT PAGE.....	85
FIGURE 109: LAYOUT WORKSPACE .....	86
FIGURE 110: ADD / REMOVE LAYOUT SECTIONS .....	86
FIGURE 111: LAYOUT CONFIGURATION .....	87
FIGURE 112: LAYOUT CONFIGURATION - UPLOAD BACKGROUND IMAGE .....	88
FIGURE 113: SECTION CONFIGURATION MENU .....	88
FIGURE 114: SECTION CONFIGURATION VIEW .....	89
FIGURE 115: BODY SECTION CONFIGURATION VIEW .....	89
FIGURE 116: SECTION CONFIGURATION PANEL – LEFT SIDE .....	91
FIGURE 117: LAYOUT CONFIGURATION - SAVE CHANGES.....	92

FIGURE 118: ACCESS MEDIA PAGE.....	93
FIGURE 119: MEDIA EXPLORER.....	94
FIGURE 120: ADD A NEW MEDIA .....	94
FIGURE 121: NEW MEDIA CONFIGURATION VIEW.....	95
FIGURE 122: SEARCH MEDIA.....	97
FIGURE 123: MEDIA DISPLAYED AS LIST.....	97
FIGURE 124: MEDIA DISPLAYED AS GRID.....	98
FIGURE 125: ACCESS INTERACTIVE VIEWS PAGE .....	99
FIGURE 126: INTERACTIVE VIEWS EXPLORER.....	100
FIGURE 127: ADD A NEW INTERACTIVE VIEW .....	101
FIGURE 128: INTERACTIVE VIEW CONFIGURATION VIEW .....	101
FIGURE 129: INTERACTIVE VIEW CONFIGURATION VIEW – ACCESS CONTROL .....	103
FIGURE 130: INTERACTIVE VIEW CONFIGURATION VIEW – USE GLOBAL CONFIGURATION OPTION DISABLED....	103
FIGURE 131: INTERACTIVE VIEW EDITOR .....	104
FIGURE 132: INTERACTIVE VIEW TOOLBOX .....	107
FIGURE 133: ADD WIDGET TO THE DRAWER WORKSPACE .....	108
FIGURE 134: MOVE WIDGET WITHIN THE DRAWER .....	109
FIGURE 135: DELETE INTERACTIVE VIEW CONFIRM MESSAGE.....	111
FIGURE 136: WIDGETS CONFIGURATION COMMON TABS.....	112
FIGURE 137: WIDGETS CONFIGURATION - DISPLAY SECTION.....	113
FIGURE 138: WIDGETS CONFIGURATION - LINKABLE FIELDS.....	113
FIGURE 139: WIDGETS CONFIGURATION - SELECT DATA MODE.....	113
FIGURE 140: STATIC DATA SOURCE VALUE CONFIGURATION EXAMPLE.....	114
FIGURE 141: DATA STREAM SOURCE CONFIGURATION VIEW .....	115
FIGURE 142: VARIABLE SOURCE CONFIGURATION VIEW.....	115

FIGURE 143: DISPLAYED LINK ICON FOR LINKED WIDGET .....	116
FIGURE 144: COLOR SELECTION FIELD.....	116
FIGURE 145: COLOR PICKER CONTROL.....	117
FIGURE 146: ICON CONFIGURATION VIEW .....	118
FIGURE 147: ICONS EXPLORER VIEW.....	119
FIGURE 148: FRAME CONFIGURATION SECTION .....	120
FIGURE 149: SINGLE SELECT CONFIGURATION OPTION .....	123
FIGURE 150: MULTIPLE SELECT CONFIGURATION OPTION .....	124
FIGURE 151: SUPPORTED EVENTS.....	124
FIGURE 152: WIDGET EVENTS CONFIGURATION VIEW .....	125
FIGURE 153: EVENT ACTION TYPES.....	126
FIGURE 154: SHOW CONFIRMATION MESSAGE CONFIGURATION SECTION .....	126
FIGURE 155: CLICK EVENT ENABLED VIEW .....	127
FIGURE 156: SET VALUE ACTION - EXPRESSION EXAMPLE.....	128
FIGURE 157: SET VALUE ACTION CONFIGURATION – TARGET DESTINATION DATA STREAM .....	129
FIGURE 158: SET VALUE ACTION CONFIGURATION – DATA STREAM SELECTION .....	129
FIGURE 159: SET VALUE ACTION CONFIGURATION – DATA STREAM SUCCESSFULLY LINKED .....	130
FIGURE 160: SET VALUE ACTION CONFIGURATION – TARGET DESTINATION: VARIABLE.....	131
FIGURE 161 : SET MULTIPLE VALUES ACTION CONFIGURATION VIEW .....	132
FIGURE 162: SET MULTIPLE VALUES ACTION CONFIGURATION .....	133
FIGURE 163: OPEN POPUP ACTION CONFIGURATION.....	134
FIGURE 164: NAVIGATE TO ACTION CONFIGURATION VIEW .....	136
FIGURE 165: SNAPSHOT ACTION CONFIGURATION VIEW.....	137
FIGURE 166: NAVIGATE TO URL ACTION CONFIGURATION VIEW .....	138
FIGURE 167: WIDGET ACCESS CONTROL CONFIGURATION VIEW .....	139

FIGURE 168: ADD A NEW FORM .....	139
FIGURE 169: ADD A NEW FORM .....	140
FIGURE 170: SAVING A NEW ADDED FORM.....	140
FIGURE 171: FORMS COMMON CONFIGURATION .....	141
FIGURE 172: ADD CUSTOM COMPONENT BUTTON.....	181
FIGURE 173: ADD CUSTOM COMPONENT CONFIGURATION VIEW .....	181
FIGURE 174: CUSTOM COMPONENT LOCATION IN THE TOOLBOX.....	183
FIGURE 175: DELETE CUSTOM COMPONENT.....	184
FIGURE 176: ACCESS USERS PAGE .....	186
FIGURE 177: USERS MANAGEMENT PAGE.....	186
FIGURE 178: NAVIGATION TO THE USERS EXPLORER PAGE FROM USER MENU .....	187
FIGURE 179: USERS EXPLORER PAGE .....	188
FIGURE 180. CREATE USER-PARAMETERS .....	189
FIGURE 181. SEARCH FOR USERS BY NAME .....	190
FIGURE 182: ADD A NEW USER AND ASSIGN A ROLE .....	191
FIGURE 183: USER MANAGEMENT PAGE – ROLES.....	192
FIGURE 184: ROLES EXPLORER.....	192
FIGURE 185: NEW ROLE CONFIGURATION VIEW.....	193
FIGURE 186: USER MANAGEMENT PAGE – AREAS.....	198
FIGURE 187: AREAS EXPLORER .....	198
FIGURE 188: NEW AREA CONFIGURATION VIEW .....	199
FIGURE 189: USER MANAGEMENT PAGE – SECURITY CODES .....	201
FIGURE 190: SECURITY CODES EXPLORER .....	202
FIGURE 191: ADD A NEW SECURITY CODE .....	202
FIGURE 192: SECURITY CODE CONFIGURATION VIEW.....	203

FIGURE 193: LOGGING AND TRACING .....	205
FIGURE 194: LOG MESSAGES VIEW .....	206
FIGURE 195: TRACING VIEW.....	206
FIGURE 196: FILTERS.....	207
FIGURE 197: PUBLISH PROJECT.....	210
FIGURE 198: PUBLISH PROJECT CONFIGURATION VIEW.....	211
FIGURE 199: PROJECT SUCCESSFULLY PUBLISHED.....	212
FIGURE 200: UHMI RUNTIME SELECTION THROUGH STIOH HOME PAGE .....	213
FIGURE 202: UNIFIED HMI APPLICATION EXPLORER.....	213
FIGURE 203: RUNTIME HOME PAGE – NEW APPLICATION .....	214
FIGURE 204: NEW APPLICATION – PROJECT FILE SELECTION .....	215
FIGURE 205: NEW APPLICATION – PROJECT INFORMATION.....	215
FIGURE 206: APPLICATION EXPLORER – DATA SOURCES ACTION SELECTION .....	217
FIGURE 207: DATA SOURCES EXPLORER.....	217
FIGURE 208: USERS CONFIGURATION PAGE .....	218
FIGURE 209: REAL-TIME TREND .....	219
FIGURE 210: HISTORICAL TREND.....	220
FIGURE 211: UNAUTHORIZED PAGE.....	220



# LIST OF TABLES

TABLE 1: NEW PROJECT PARAMETERS .....	25
TABLE 2: IMPORT PROJECT PARAMETERS.....	31
TABLE 3: HTTP DATA SOURCE PARAMETERS .....	36
TABLE 4: SIOTH® DATA SOURCE PARAMETERS.....	40
TABLE 5: DATA MODEL DATA SOURCE PARAMETERS.....	42
TABLE 6: SQL SERVER DATA SOURCE PARAMETERS.....	44
TABLE 11: HTTP QUERY EDITOR INTERFACE - PARAMETERS.....	53
TABLE 12: HTTP HEADER CONFIGURATION - PARAMETERS .....	60
TABLE 13: NEW VARIABLE PARAMETERS .....	82
TABLE 16: NEW MEDIA PARAMETERS .....	95
TABLE 17: NEW INTERACTIVE VIEW PARAMETERS – SETTINGS TAB.....	102
TABLE 18: FRAME CONFIGURATION PARAMETERS .....	121
TABLE 19: STYLE CONFIGURATION PARAMETERS .....	122
TABLE 20: DASHBOARD – FORMS WIDGETS LIST.....	144
TABLE 21: DASHBOARD – TABLES WIDGETS LIST.....	144
TABLE 22: DASHBOARD – SHAPES WIDGETS LIST .....	145
TABLE 23: DASHBOARD – DISPLAY WIDGETS LIST .....	147
TABLE 24: DASHBOARD – WIDGETS LIST.....	147
TABLE 25: DASHBOARD – LAYOUT WIDGETS LIST.....	148
TABLE 26: DASHBOARD – LINE WIDGETS LIST.....	149
TABLE 27: DASHBOARD – BUTTONS WIDGETS LIST .....	150

TABLE 28: SCADA – PIPING WIDGETS LIST.....	156
TABLE 29: SCADA – UTILS WIDGETS LIST.....	157
TABLE 30: SCADA – VALVES WIDGETS LIST.....	159
TABLE 31: SCADA – VESSELS WIDGETS LIST .....	160
TABLE 32: SCADA – AGITATORS, MOTORS, PUMPS WIDGETS LIST .....	162
TABLE 33: SCADA – ISA COMPONENTS LIST .....	167
TABLE 34: SCADA – OTHER WIDGETS LIST.....	172
TABLE 35: SCADA – REACTORS AND EXCHANGERS WIDGETS LIST .....	173
TABLE 36: SCADA – TANKS AND VESSELS WIDGETS LIST.....	177
TABLE 37: SCADA – ELECTRICAL WIDGETS LIST.....	179
TABLE 38.ADD USER - PARAMETERS.....	189
TABLE 39: AVAILABLE PRIVILEGES FOR THE DESIGNER APPLICATION.....	196
TABLE 40: FILTERS DETAILS.....	209
TABLE 41: PUBLISH PROJECT CONFIGURATION PARAMETERS .....	211
TABLE 42: NEW APPLICATION PARAMETERS.....	216

# PREFACE

## About This User Guide

This guide aims to:

- Present Unified HMI module
- Describe the features provided by Unified HMI
- Outline the steps involved in the configuration process

## Target Audience

This document is intended for users who would be configuring Unified HMI module.

## Document Conventions

Convention	Description
<b>Bold</b>	Bolded text indicates user interface elements, such as buttons, menu items, and dialog names.
<b>(!) Note</b>	Information to be noted

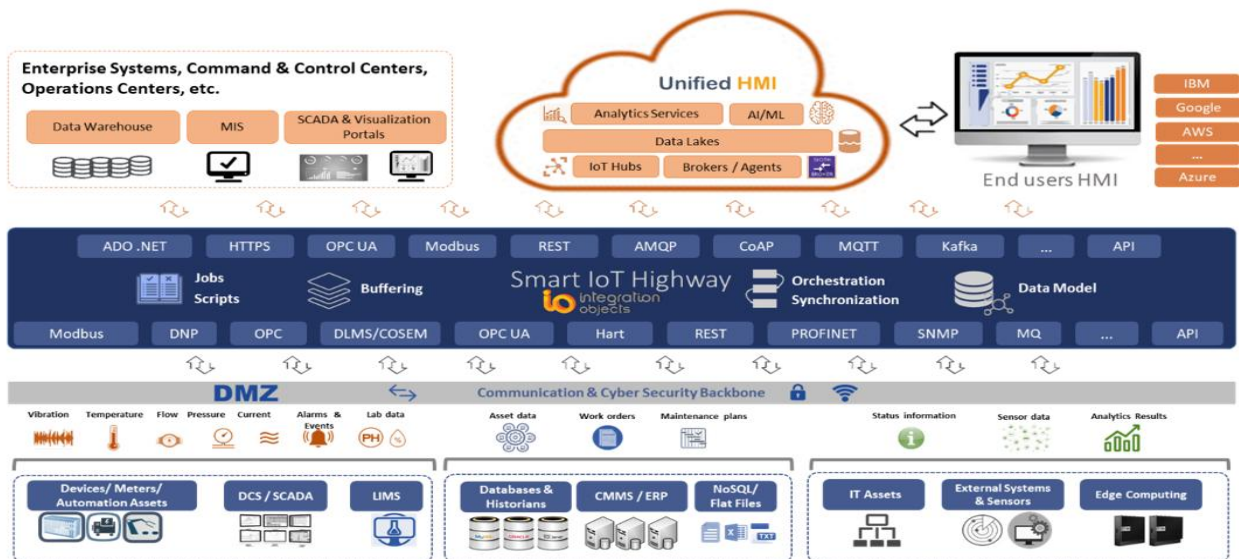
## Customer Support Services

Phone	Email
<b>Americas:</b>  +1 713 609 9208	Support:  <a href="mailto:customerservice@integrationobjects.com">customerservice@integrationobjects.com</a>
<b>Europe-Africa-Middle East</b>  +216 71 195 360	Sales:  <a href="mailto:sales@integrationobjects.com">sales@integrationobjects.com</a>  Online:  <a href="http://www.integrationobjects.com">www.integrationobjects.com</a>

# OVERVIEW

Smart IoT Highway (UHMI SCADA®) is an advanced IT-OT integration platform designed to facilitate secure data exchange and transformation. It establishes secure end-to-end pipelines to collect and store data from edge IoT devices and various other sources. UHMI SCADA enables organizations of all sizes to easily connect applications, systems, and services in a managed, scalable, and secure environment. This comprehensive integration solution allows for seamless connectivity between IT and OT, enabling the conversion of industrial data into actionable intelligence and valuable insights.

The UHMI SCADA platform operates on robust functional architecture, as illustrated in Figure 1.



**Figure 1: UHMI Platform Overview**

The Unified HMI (UHMI) is a no-code and user-friendly platform that gives the user the possibility to build enterprise applications simply with drag and drop. UHMI provides the Designer app where you can create application that analyses and displays key performance indicators (KPI), metrics and key data points to monitor the health of a business, department, or specific process by designing interactive views, adding and configure multiple types of data sources, set the application user management strategy. Then easily publish and deploy your application within minutes as a runtime app.

The UHMI application facilitates the designing of industry-oriented applications for engineers with little to no software developing skills and move the focus on the business needs and interfaces through customizable views connected to databases, services, API's and presented in easy interpretable data form such as tables, line charts, pie charts, gauges, etc.

Through UHMI Designer, users can easily create and configure their applications by:

- Connecting and managing multiple data sources.
- Designing interactive dashboards and views.
- Implementing user management and access control strategies.

Once configured, applications can be published and deployed within minutes within UHMI Runtime, enabling real-time monitoring, analysis, and control within the operational environment.

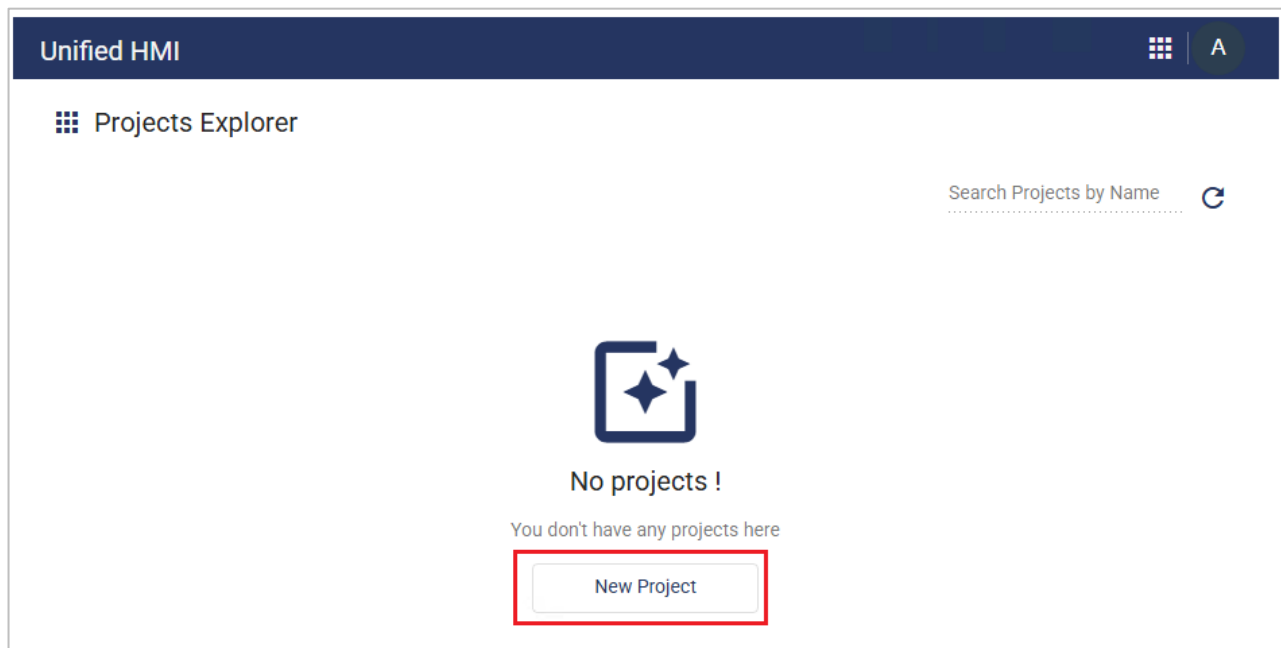
Unified HMI consists of two main modules:

- **UHMI Designer:** Used to design and configure applications. It provides all the necessary tools to create the user interface and define its behavior.
- **UHMI Runtime:** Used to run and interact with the created applications. It allows you to visualize and operate the interface in real-time.

# PROJECTS

Unified HMI organizes work into projects. Each project contains information that connects to data such as data sources, data streams, and variables. Projects can also include graphical components such as visual views and components. They are used to create human-machine interfaces that maintain infrastructure integrity by integrating communications and SCADA systems. Within a project, each view may include monitored processes, visualization components such as charts and KPI cards, alarm banners, trending tools, and additional elements.

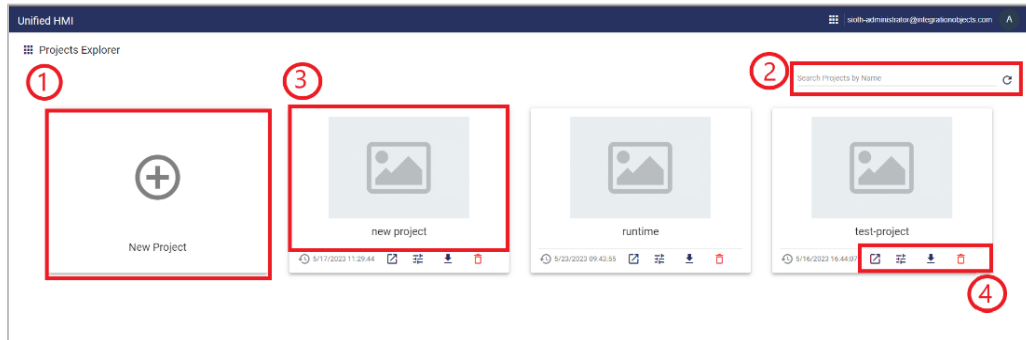
When the user accesses the Designer Application Home Page for the first time, the interface displays the option to add a new project by clicking the **New Project** button as shown in the figure below.



**Figure 2: UHMI Designer- Home Page**





Once projects are added, they are displayed as cards in the Projects Explorer, where you can:

1. Add a new or import an existing project (1).
2. Search projects (2).
3. Access a specific project by clicking its card (3).



**Figure 3: UHMI Projects Explorer**

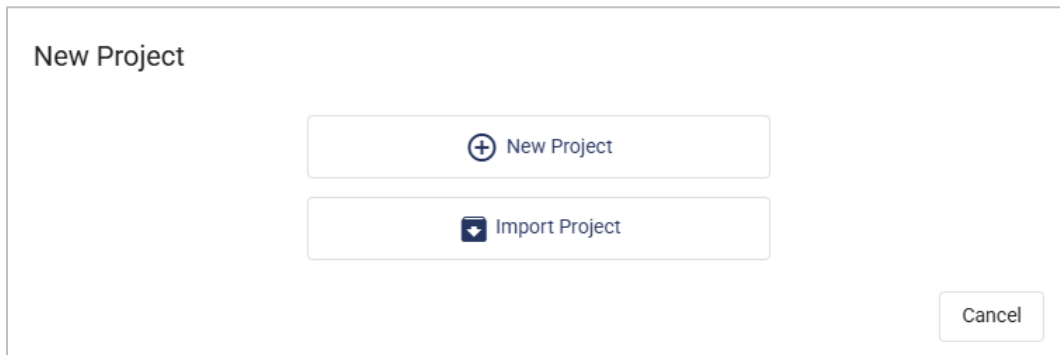
Some actions are also available at the bottom of each card allowing to manage the project (4):

-  Open project home page
-  Edit the project information
-  Export the project
-  Delete the project upon confirmation of the action

## 1. Add Project

Click **New project** (1) to add a new project. A pop-up window will open, allowing you to either create a new project or import an existing one from your device.

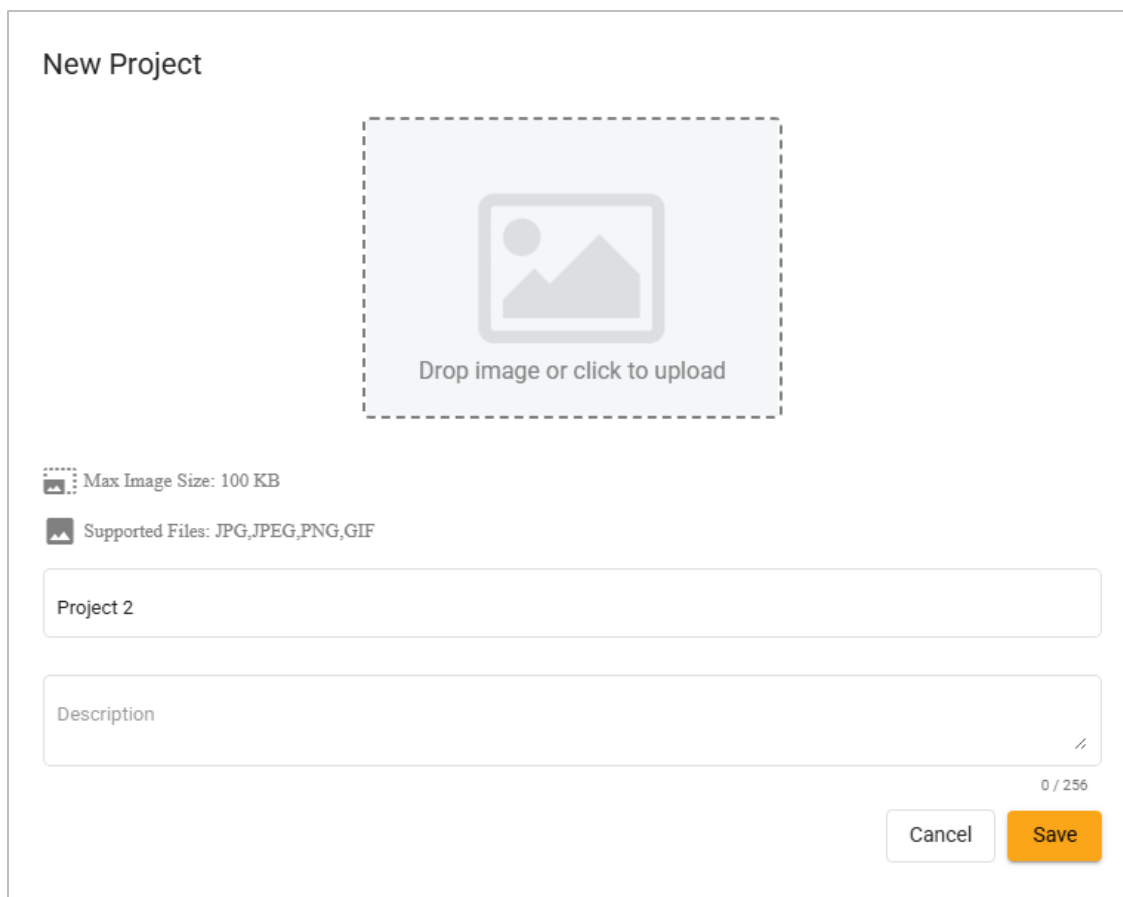




A dialog box titled "New Project" with a light gray background. It contains two buttons: "New Project" with a plus icon and "Import Project" with a download icon. A "Cancel" button is located in the bottom right corner.

**Figure 4: Configure a New Project**

If you choose to create a new project, a pop-up will be opened where you can enter the project parameters as described in table below:



A form titled "New Project" with a light gray background. It features a large dashed box for image upload with a placeholder icon and the text "Drop image or click to upload". Below this, it specifies "Max Image Size: 100 KB" and "Supported Files: JPG,JPEG,PNG,GIF". There are two text input fields: "Project 2" and "Description". The "Description" field has a character count "0 / 256" and a slash icon. At the bottom right, there are "Cancel" and "Save" buttons.


**Figure 5: Create a New Project**

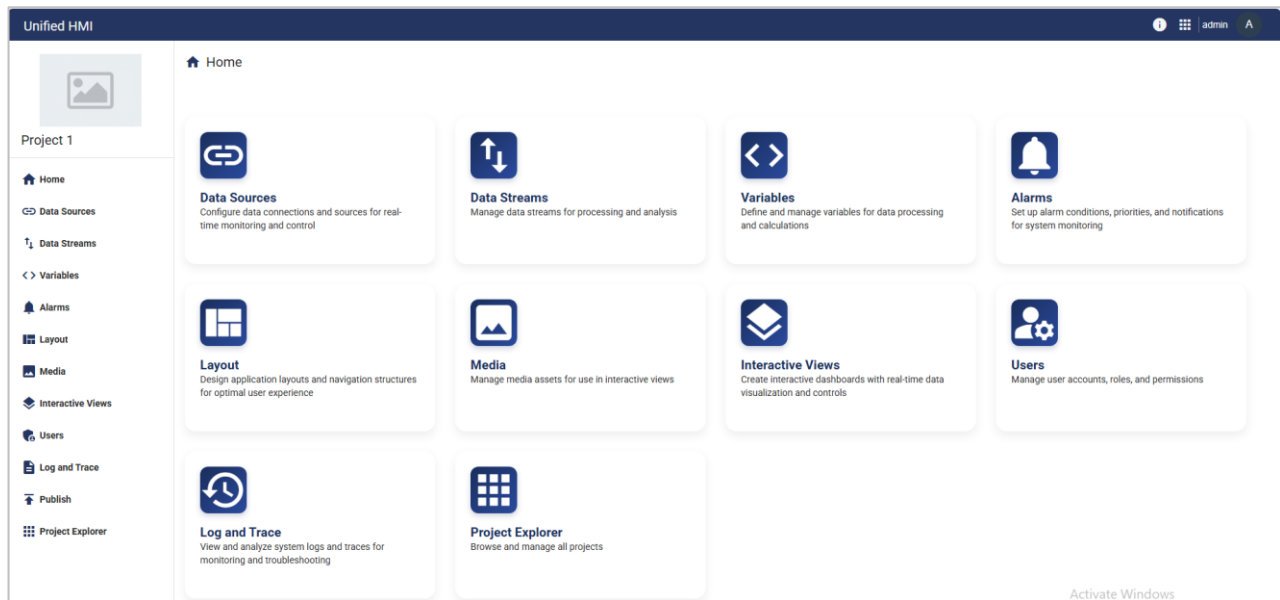
Parameter	Description
<b><i>Image container</i></b>	Add a logo to the project.
<b><i>Project Name</i></b>	The name of the project. Note that project names are unique.
<b><i>Description</i></b>	A brief description of the project. This field is optional.

**Table 1: New Project Parameters**

Once the Runtime API URL is set, the test connection icon becomes visible, allowing you to test the connection. The project configuration cannot be saved unless the Runtime URL is Valid. If the URL is unreachable, the following message will be displayed: "The provided runtime URL is not reachable".

## 2. Open Project

To open a project, click the project card directly or the  icon at the bottom of the card. Once opened, you will be redirected to the home page. This page features a navigation sidebar, allowing you to navigate between project modules. The same options are displayed as cards when clicking on the Home section.



**Figure 6: Project Home Page**

Project modules are:

- **Project Configuration:** Edit project parameters set during its creation.
- **Data Sources:** Add, explore and store data sources information to use when creating data streams.
- **Data Streams:** Manage data streams to be used when configuring dashboard components, using the data streams explorer.
- **Alarms:** Configure alarms to be triggered automatically when the defined conditions are met.
- **Variables:** Manage variables to be used when configuring dashboard components, using the variables explorer.
- **Layout:** Configure the entire application layout, including elements such as the header, body, and footer. This capability enhances customization and presentation options within the UHMI application.
- **Media:** Add, explore, and store images to enrich the layout of the application.
- **Interactive Views:** Create, explore, and store interactive views and dashboard.

- **Users:** Manage users and roles. Administrators can efficiently assign roles and permissions.
- **Logging and Tracing:** Access detailed insights into user actions and log messages, facilitating effective monitoring and troubleshooting.
- **Projects Explorer:** Return to the Projects Explorer page.
- **Publish:** Deploys the configured project from the UHMI Designer to the Runtime application. Once the setup is complete in the Designer, clicking the "Publish" button makes the project available for real-time access, monitoring, and execution in the Runtime environment.

**(!) Note:**

when SIOTH SCADA is installed as part of the SIOTH® platform, you can manage users for the Designer and Runtime application separately.

### 3. Edit Project

Click the **Edit** icon within the project card to edit a project. The same pop-up, you have used to add the project. Edit the project parameters and click **Save** to confirm your updates.



**Figure 7: Edit Project**

## 4. Delete Project

Click the **Delete** icon within the project card to delete a project. A confirmation message will be prompted to confirm whether you want to permanently delete the project or not. Click the **OK** to confirm. The selected project will consequently be deleted from the list of projects.



**Figure 8: Remove Project Icon**

## 5. Export/Import Project

The **export /import function** for a project refers to the ability to **export** or **import** the entire configuration, structure, or data of a project.

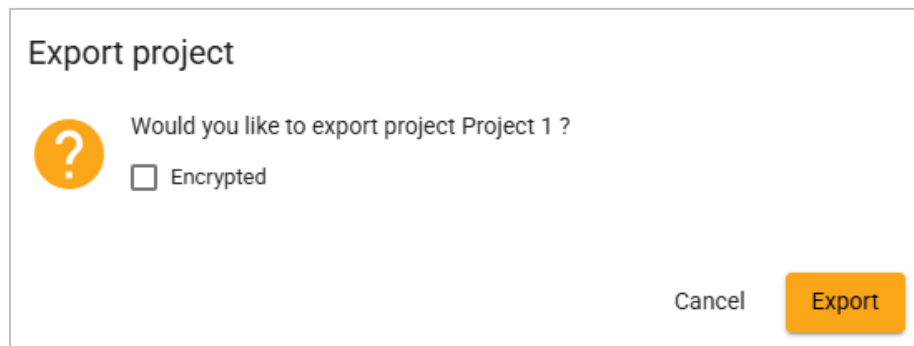
### 5.1. Export Project

Exporting a project creates a complete package of the project's configuration and saves it as a single file. Click the **Export** icon within the project card to export a project.



**Figure 9: Export a Project**

A pop-up window will open allowing you to confirm the export project action.



**Figure 10: Export Project Confirmation**

Select the **Encrypted** option to download an encrypted version of the project.

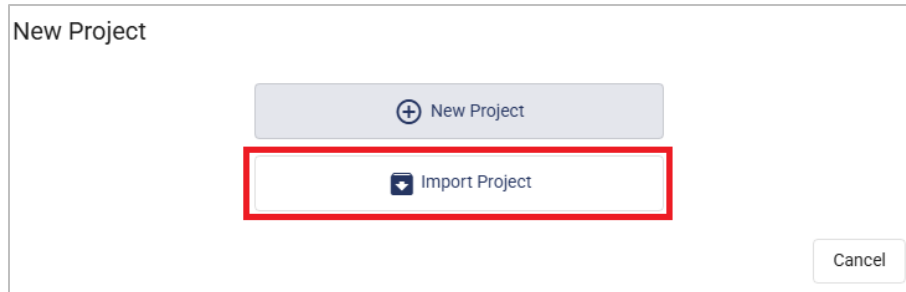
## 5.2. Import Project

Importing a project allows the user to load a previously exported file into the current workspace.

To import a project, follow these steps:

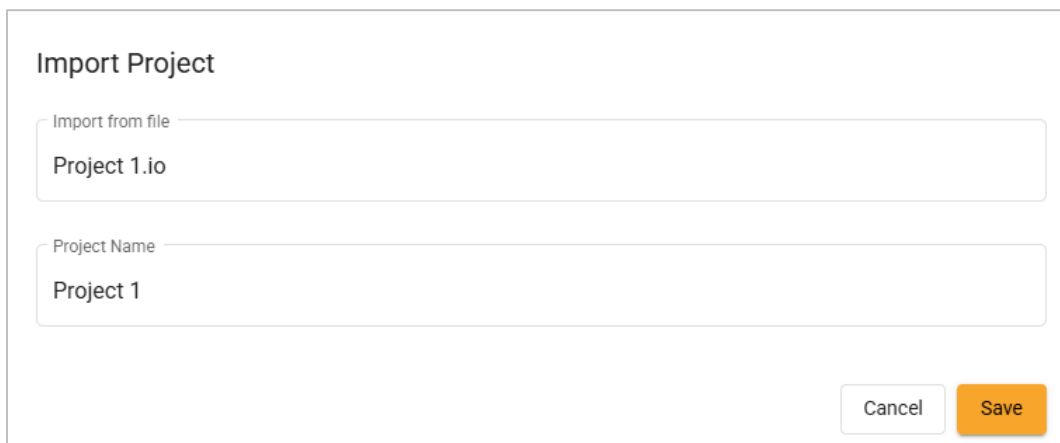
1. Access the projects explorer.

2. Click **New Project** to add a new project.
3. Click **Import Project**.



**Figure 11: Import Project**

4. A dialog will be displayed where you can select a project file to import.
5. Select the project file and click **Open**.
6. A pop-up will be displayed, showing the selected project information.



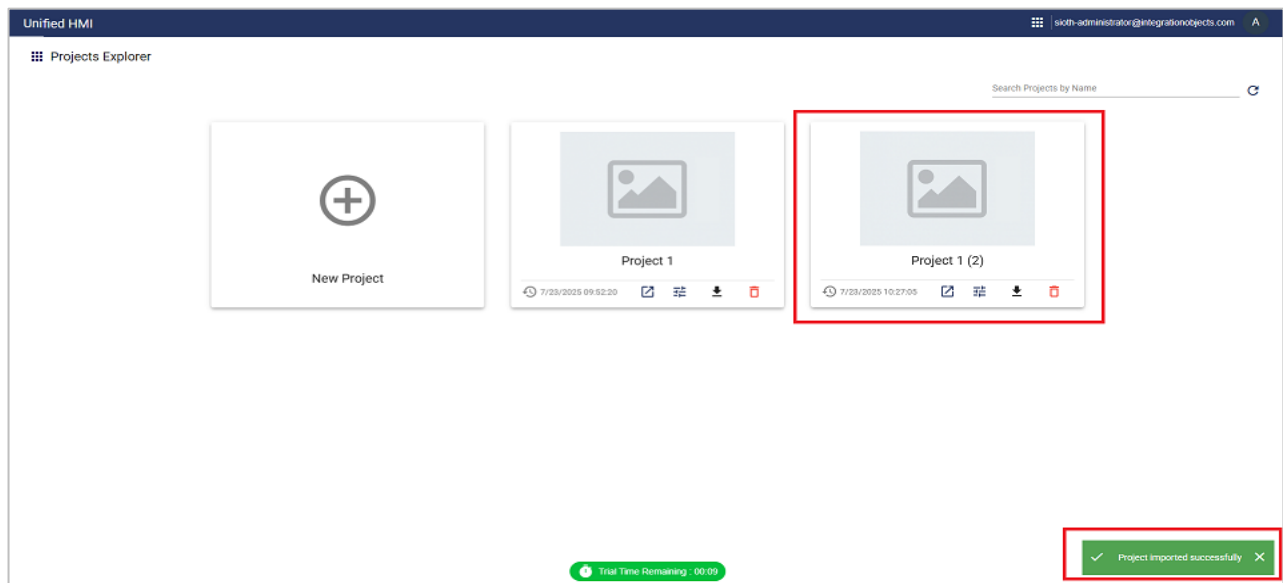
**Figure 12: Import an Existing Project**

Parameter	Description
<b><i>Import from File</i></b>	Displays the name of the selected file. Note that this field is read only and cannot be edited.

<b><i>Project Name</i></b>	The name of the project of the imported file, which can be edited.
----------------------------	--

**Table 2: Import Project Parameters**

7. Click **Save**
8. The **“Project imported successfully”** information message is displayed and the project is added in the Projects Explorer page.

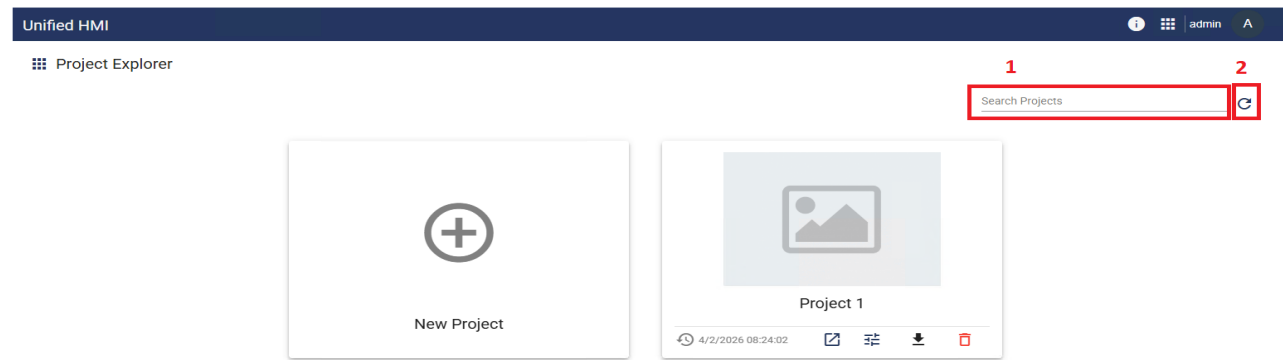


**Figure 13: Project Imported Successfully Message**

## 6. Search Projects

You can search for projects by entering the suggested name in the search area located at the top-right area of the page.





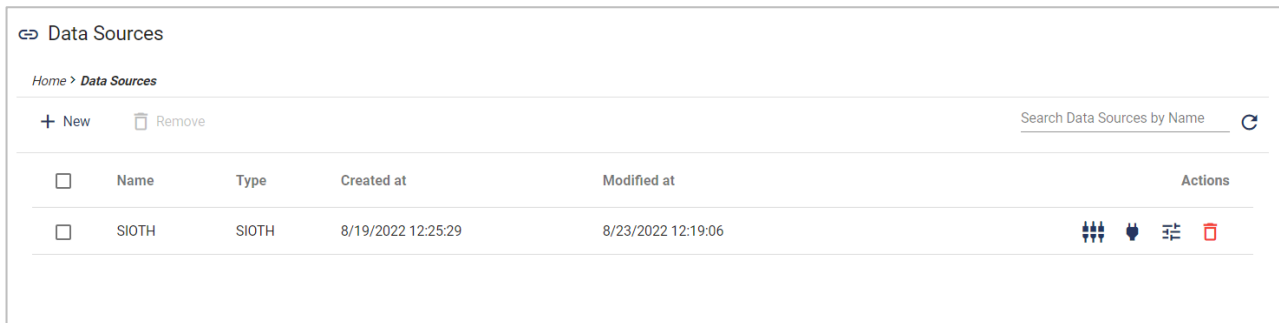
**Figure 14: Search Projects**





# DATA SOURCES

Unified HMI enables seamless integration with a wide range of data sources, including databases and APIs. These connections form the foundation for project data streams, allowing efficient and reliable data retrieval. Users can easily add, edit, test, or delete data source connections to meet their specific needs. This flexibility ensures that projects can access and leverage diverse data sources, strengthening the overall functionality and data-driven capabilities of Unified HMI.

To access the Data Sources page, you can either click the **Data Sources** card on the project home page or select the **Data Sources** from the sidebar menu.

Upon reaching the **Data Sources** page, you will find an explorer listing all the added data sources, each one presented on a separate line.



<input type="checkbox"/>	Name	Type	Created at	Modified at	Actions
<input type="checkbox"/>	SIOTH	SIOTH	8/19/2022 12:25:29	8/23/2022 12:19:06	   

**Figure 15: Data Sources Explorer**

The following actions are available for each data source:



**Browse Tags:** This action let you browse the tags associated with the selected data source, making it easy to explore the available tags that can be used in the project's data streams.

**(!) Note:**

Browse Tags is not available for some data sources such as databases and HTTP.



**Test Connection:** This action allows you to test the connection to the data source. It validates the connectivity and ensures that the data source is accessible.



**Edit:** This action enables you to update the connection parameters related to the data source.

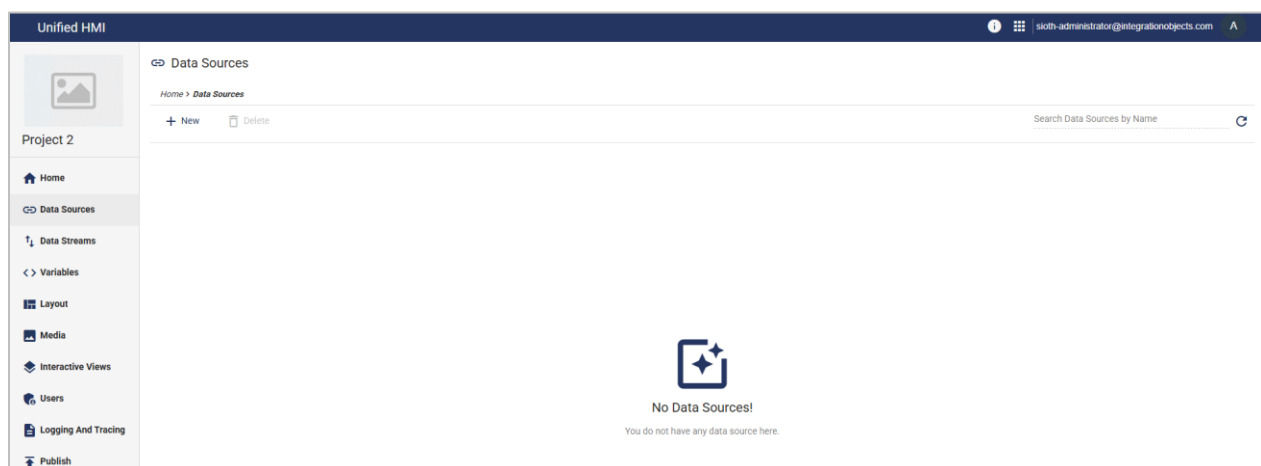


**Delete:** This action allows you to delete a data source from the data sources list if it is no longer needed or not valid anymore.

## 1. Add Data Source

All data sources provide read and write capabilities, ensuring seamless data acquisition and reliable control.

Click **New** to add a new Data Source.



**Figure 16: Add a New Data Source**

Once clicked, the list of supported data sources is displayed, allowing you to select the type of data source you want to create.



**Figure 17: Supported Data Sources**

## 1.1. HTTP Data Source

**HTTP Data Source** enables data collection from external web services or RESTful APIs. It supports standard HTTP/HTTPS protocols, making it possible to integrate with a wide range of systems and applications.

To add a **HTTP Data Source** connection, follow these steps:

1. Open the **Data Sources** page by either clicking the **Data Sources** card on the project home page or selecting **Data Sources** from the sidebar menu.
2. Select **HTTP** from the list of available data sources.
3. A configuration pop-up will be displayed.

### New HTTP Data Source

Data Source Name \*

HTTP Data Source 1

URL \*

Description

0 / 256

Cancel

Save

**Figure 18: HTTP Data Source Configuration View**

Parameter	Description
<b><i>Data Source Name</i></b>	The unique name of the data source, which is automatically generated.
<b><i>Base URL</i></b>	The address of the external web services or RESTful APIs from which you want to retrieve data. Ensure the URL is accurate and properly formatted.  <b>Example: <code>https://example.com/v1</code></b>
<b><i>Description</i></b>	Description of the data source (optional).

**Table 3: HTTP Data Source Parameters**

- Click **Save** to confirm and add the HTTP data source connection to your project.

## 1.2. SIOTH® Data Source

The **SIOTH® Data Source** enables you to retrieve real-time data, historical data, real-time alarms and historical alarms directly from The SIOTH® platform using the SIOTH OPC UA Server through REST API.

To add a **SIOTH® Data Source** connection, follow these steps:

1. Open the **Data Sources** page by either clicking the **Data Sources** card on the project home page or selecting **Data Sources** from the sidebar menu.
2. Select **SIOTH** from the list of available data sources.
3. A configuration pop-up will appear.

### New SIOTH Data Source

Data Source Name \*  
SIOTH Data Source 1

Endpoint URL  
opc.tcp://localhost:31203/OPCUASERVER\_0

#### Security

Transport Protocol  
Opc.tcp

Message Encoding  
Binary

Security Mode  
None

Security Policy  
None

#### User Authentication Mode

☒ Anonymous
☐ UserName
☐ Certificate

☐ Enable Redundancy

Advanced Settings

Cancel
Test connection
Save

**Figure 19: SIOTH® Data Source Configuration View**

Parameter	Description	Default Value
<b>Data Source Name</b>	The unique name of the data source, which is automatically generated.	
<b>Endpoint URL</b>	The address that is available on the network, and that allows clients to access the server. Server endpoint is specified by its URL string. The URL of the SIOTH <sup>®</sup> OPC UA server to connect to.	opc.tcp://localhost:31203/OPCUASERVER_0
<b>Transport Protocol</b>	SIOTH <sup>®</sup> supports opc.tcp transport protocol.	Opc.tcp
<b>Message Encoding</b>	The message encoding specifies the types of the data serialization and structures: <ol style="list-style-type: none"> <li>1. Binary</li> <li>2. Xml</li> </ol>	Binary
<b>Security Mode</b>	There are three security modes available: <ol style="list-style-type: none"> <li>1. <b>None</b>: the channel is not secure.</li> <li>2. <b>Sign</b>: the message is signed with the associated Private Key of the Application Instance Certificate.</li> <li>3. <b>Sign_Encrypt</b>: the message is also encrypted with the Public Key of the server's Application Instance Certificate.</li> </ol>	None
<b>Security Policy</b>	There are four supported security policies, each defining the algorithm used for signing and encrypting: <ol style="list-style-type: none"> <li>1. <b>None</b>: an algorithm suite that does not provide any security settings.</li> </ol>	No security is applied

	<p>2. <b>Basic128RSA15</b>: an algorithm suite that uses RSA15 for key wrapping algorithm and 128-bit basic for message encryption.</p> <p>3. <b>Basic256</b>: an algorithm suite that uses 256-bit Basic as the message encryption algorithm.</p> <p>4. <b>Basic256Sha256</b>: an algorithm suite that uses SHA256 for the signature digest and 256-bit Basic as the message encryption algorithm.</p>	
<b>Anonymous</b>	User identity is not set.	Enabled
<b>Username</b>	The user is identified by a Username/Password combination.	Disabled
<b>Certificate</b>	The user is identified by a X509 certificate.	Disabled
<b>Enable Redundancy</b>	Enables or disables redundancy mode.	Unchecked
<b>Redundancy Settings</b>		
<b>Endpoint URL</b>	The URL of the Redundant SIOTH® OPC UA server to connect to.	
<b>Watchdog Tag</b>	When the "Watchdog Tag" option is enabled, the switchover to the redundant server is performed based solely on the value of the monitored tag.	Checked
<b>Server State</b>	When the "Server State" option is enabled, the switchover to the redundant server is triggered based on the primary server's status (running or stopped).	Checked



<b>Node ID</b>	Represents the Node ID of the monitored Tag.	2-SIOTHTags~ServerStatus
<b>Value</b>	Specify the value that will trigger the switchover when the tag value matches this setting.	Secondary
<b>Scan Interval (ms)</b>	The time interval, in milliseconds, is used to check the value of the monitored tag.	1000
<b>Advanced Settings</b>		
<b>Alarms &amp; Events API URL</b>	The URL of the SIOTH® Alarms and Events API.	http://IP Address:31104
<b>Data Access API URL</b>	The URL of the SIOTH® Data API.	http://IP Address:31103
<b>Reconnection Interval (ms)</b>	The time (in milliseconds) the system waits before attempting to reconnect after a disconnection.	5000
<b>Max Retry Attempts</b>	The maximum number of times the system will attempt to reconnect after a disconnection.	0
<b>Error Handling Settings</b>		
<p>Under the <b>Error Handling Settings</b> section. You can add as many custom errors as you want, each one has a:</p> <ul style="list-style-type: none"> <li>- <b>Name</b>,</li> <li>- <b>Message</b> that will be displayed in runtime mode,</li> <li>- <b>Condition</b> to be evaluated to trigger the custom error,</li> <li>- <b>Icon</b> for which you can set a <b>Background Color</b>.</li> </ul>		

**Table 4: SIOTH® Data Source Parameters**

4. Once the SIOTH® data source details are filled, click **Test Connection** to verify whether the connection with SOTH can be established.
  - a. In case the connection is successfully established, the following confirmation message is displayed: "The connection to this data source is successful" This ensures that the data source is accessible, and the connection is valid.
  - b. If the connection test fails, an error message is displayed: "Unable to connect to this Data source" In such cases, review the provided information and ensure the SIOTH® parameters is accurate and accessible.
5. Click **Save** to confirm and add the SIOTH® data source connection to your project.

**(!) Note:**

After the creation of the SIOTH® data source, the data streams will be generated automatically.

### 1.3. Data Model Data Source

The **Data Model Data Source** enables real-time data collection from SIOTH® Data Model, where you can integrate with data structured as instances of defined classes within SIOTH.

**(!) Note:**

The Data Model data source is only available when SIOTH SCADA is installed as part of the SIOTH® platform.

To add a **Data Model Data Source** connection, follow these steps:

1. Open the **Data Sources** page by either clicking the **Data Sources** card on the project home page or selecting **Data Sources** from the sidebar menu.
2. From the list of available data sources, select **Data Model**.
3. A configuration pop-up will appear, displaying fields that you need to fill.


### New Data Model Data Source

Data Source Name \*

Instances API URL

Description  


0 / 256

Cancel
 Test connection
Save

**Figure 20: Data Model Data Source Configuration View**

Parameter	Description
<b><i>Data Source Name</i></b>	The unique name of the data source, which is automatically generated.
<b><i>Instances API URL</i></b>	The address of the API from which you want to retrieve the Data Mode Instances. Ensure the URL is accurate and properly formatted.
<b><i>Description</i></b>	Description of the data source (optional).

**Table 5: Data Model Data Source Parameters**

4. Once the Data Model data source details are filled, click **Test Connection** to verify whether the connection with the Data Model URL can be established.
  - a. In case the connection is successfully established, a confirmation message is displayed.

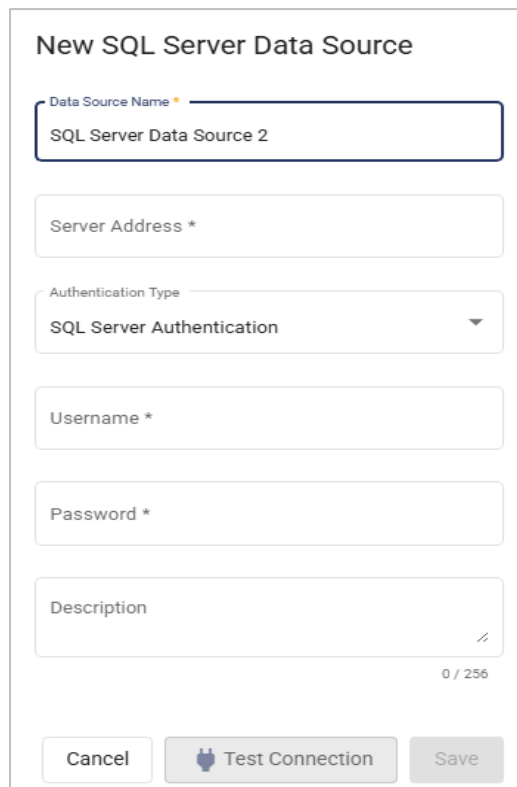
- b. If the connection test fails, an error message is displayed. In such cases, review the provided information and ensure the Data Model instances URL is accurate and accessible.
5. Click **Save** to confirm and add the Data Model data source connection to your project.

## 1.4. SQL Server Data Source

The **SQL Server Data Source** provides a configured connection to Microsoft SQL Server, allowing the SCADA system to read from and write data directly to the database.

To add a **MS SQL Server Data Source**, follow these steps:

1. Open the **Data Sources** page by either clicking the **Data Sources** card on the project home page or selecting **Data Sources** from the sidebar menu.
2. Select **SQL Server** from the list of available data sources.
3. A configuration pop-up will appear.



The image shows a configuration form titled "New SQL Server Data Source". It contains the following fields and controls:

- Data Source Name \***: A text input field containing "SQL Server Data Source 2".
- Server Address \***: An empty text input field.
- Authentication Type**: A dropdown menu with "SQL Server Authentication" selected.
- Username \***: An empty text input field.
- Password \***: An empty text input field.
- Description**: A text area with a character count "0 / 256" at the bottom right.
- Buttons**: At the bottom, there are three buttons: "Cancel", "Test Connection" (with a plug icon), and "Save".

**Figure 21: SQL Server Data Source Configuration View**

Parameter	Description
<b><i>Data Source Name</i></b>	The unique name of the data source, which is automatically generated.
<b><i>Server Address</i></b>	The Server Address of the SQL Server to connect to.
<b><i>Authentication Type</i></b>	The two common authentication types are: <ol style="list-style-type: none"> <li>1. Windows Authentication</li> <li>2. SQL Server Authentication</li> </ol>
<b><i>Username</i></b>	The login name created in SQL Server that identifies the account used to connect.
<b><i>Password</i></b>	The password linked to the username that verifies the identity of the user.
<b><i>Description</i></b>	Description of the data source (optional)

**Table 6: SQL Server Data Source Parameters**

4. Once the SQL Server data source details are filled, click **Test Connection** to verify whether the connection with the SQL Server can be established.
  - a. In case the connection is successfully established, a confirmation message is displayed. This ensures that the data source is accessible, and the connection is valid.
  - b. If the connection test fails, an error message is displayed. In such cases, review the provided information and ensure the SQL Server details are accurate and accessible.
5. Click **Save** to confirm and add the SQL Server data source connection to your project.

## 2. Data Source Test Connection

To test the connection of an already added data source, follow these steps:

1. Open the **Data Sources** page by either clicking the **Data Sources** card on the project home page or selecting **Data Sources** from the sidebar menu.
2. Locate the data source you want to test the connection to.
3. In the **Actions** column of the data sources table, click the **Test Connection** icon.
4. The system will attempt to establish a connection with the data source.
  - a. If the connection is successfully established, a confirmation message will be displayed:  
"The connection to this data source is successful"
  - b. In case the connection attempt fails, an error message will be shown: "Unable to connect to this Data source"

By testing the connection, you can verify that the data source is valid and functioning properly, ensuring reliable data access and smooth operations.

### 3. Edit Data Source

To update the data source configuration, follow these steps:

1. Open the **Data Sources** page by either clicking the **Data Sources** card on the project home page or selecting **Data Sources** from the sidebar menu.
2. Locate the data source you want to edit.
3. Click the **Edit** icon in the **Actions** column of the data sources table.
4. An update pop-up will appear, displaying the current configuration of the data source.
5. Edit the parameters in the displayed pop-up.
6. Click **Save** to submit the changes.

By following these steps, you can easily update and customize the settings of the data source according to your requirements.

### 4. Delete Data Source

To delete a data source, follow these steps:

1. Open the **Data Sources** page by either clicking the **Data Sources** card on the project home page or selecting **Data Sources** from the sidebar menu.
2. Locate the data source you want to delete.
3. Click the **Delete** icon in the **Actions** column of the data sources table.
4. When you attempt to delete a data source, a confirmation message is displayed with the following message:










"This action will delete all associated data streams. Are you sure you want to permanently delete the selected data source?"

- a. Click **OK** to confirm and delete the data source.
- b. Click **Cancel** to abort the deletion and retain the data source.

By following these steps, you can easily delete unwanted or outdated data sources, ensuring that your data source list remains up-to-date and relevant.

## 5. Search Data Source

You can search for data sources by entering the suggested name in the search area located at the top-right area of the page.

Data Sources					
+ New		Delete		Search Data Sources by Name	
<input type="checkbox"/>	Name	Type	Created at	Modified at	Actions
<input type="checkbox"/>	SIOTH Data Source 1	SIOTH	4/1/2026 11:40:52	4/1/2026 11:41:13	   
<input type="checkbox"/>	SQL Server Data Source 1	SQL Server	4/2/2026 08:02:36	4/2/2026 08:07:49	  
<input type="checkbox"/>	HTTP Data Source 1	HTTP	4/2/2026 08:22:03	4/2/2026 08:22:03	 

**Figure 22: Search Data Sources**





# DATA STREAMS

A data stream is an abstraction that represents the connection to a specific tag in a specific data source, regardless of its type (SQL, HTTP API, SIOTH® API, OPC UA, OPC DA, etc.). Each data stream is responsible for performing read and write operations on the related data source.

Data streams are used to configure dashboards and interactive views. They act as a bridge between graphical components and data sources, enabling both real-time visualization and writing back to data sources.

To access the Data Streams page, you can either click on the **Data Streams** card on the project home page or select the **Data Streams** from the sidebar menu.

Upon reaching the **Data Streams** page, you will find an explorer listing all the added data streams, each one presented on a separate line.

Data Streams						
+ New		Delete		Search Data Streams by Name		
				All Data Sources		
<input type="checkbox"/>	Name	Trending	Data Source	Mode	Value Type	Actions
<input type="checkbox"/>	HTTP Data Stream		HTTP Data Source 1	Read	number	 
<input type="checkbox"/>	HTTP Data Stream 1		HTTP Data Source 1	Read	string	 

**Figure 23: Data Streams Explorer**

The following actions are available for each data stream:



**Test Connection:** This action allows you to test the connection to the data stream. It validates the connectivity and ensures that the data stream is accessible.





**Edit:** This action enables you to update the parameters related to the data stream.



**Delete:** This action allows you to delete a data stream from the available data streams list if it is no longer needed or not valid anymore.

## 1. Data Streams Common Configuration

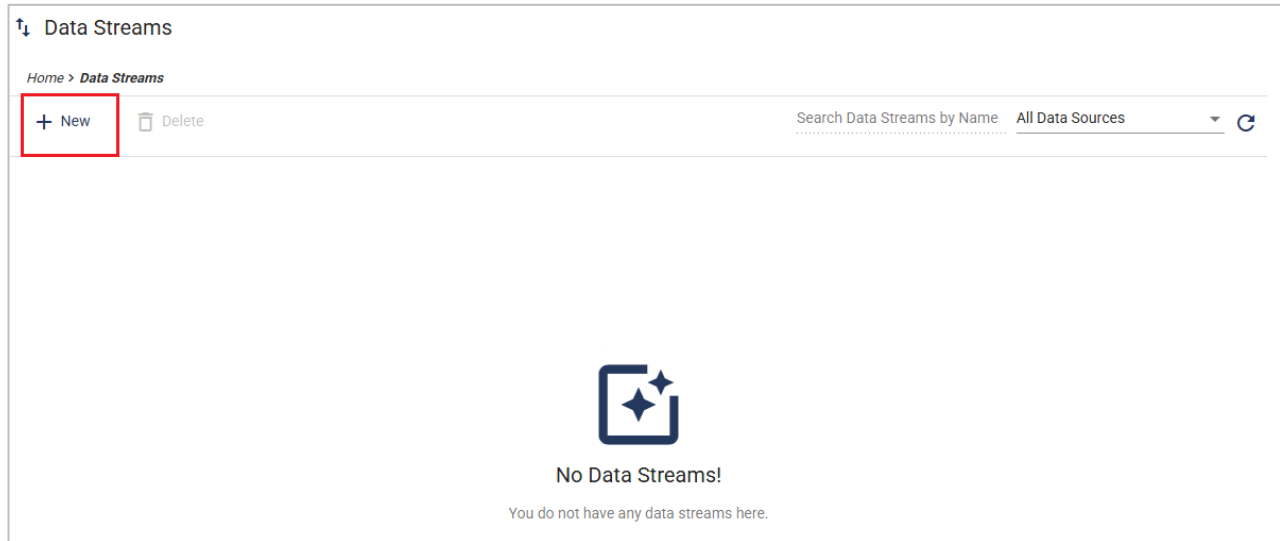
To extract or identify the final data stream value type after the applied transformation, you can utilize the "Extract Value Type" functionality. By clicking on this option, the value type will be displayed below. The possible value types include:

1. String: This refers to a sequence of characters.
2. Boolean: This represents a value that can be either true or false.
3. Number: This represents a numerical value, which can be an integer or a floating-point number.
4. BigInt: This refers to a numeric value with arbitrary precision, often used for large numbers.
5. Date: This represents a date and time value.
6. Object: This refers to a complex data structure containing multiple key-value pairs.
7. Array: This refers to an array of primitive data types or objects
8. Undefined: This indicates that the value type is not defined or cannot be determined.

By using the "Extract Value Type" feature, you can determine the specific type of the final data stream value resulting from the applied transformation.

## 2. Add Data Stream

To add a new Data Stream, click **New**. If no data stream has been added yet, you can click **New Data Stream**.



**Figure 24: Add a New Data Stream**

Once clicked, a new pop-up will be displayed offering a 3 steps wizard that allows to configure the new data stream. To add a new data stream, follow these steps:

1. Select a Data Source.
2. Configure Data Stream Settings.
3. Configure Data Stream Value.

## 2.1 Select a Data Source

From the first page of the New Data Stream wizard, select the data source you want the data stream to connect to and click **Next**.

New data stream

1
Select a Data Source

2
Configure Data Stream

3
Configure Data Stream Value

Data Source

Cancel
Next

**Figure 25: Add a New Data Stream – Select a Data Source View**

## 2.2 Configure Data Stream

The second page of the New Data Stream wizard depends on the data source choice. For each type of data source, a different view will be displayed offering the specific parameters related to the data source and the data stream mode.

In the next sections, we will present configuration steps of each mode:

### 2.2.1. Add HTTP Data Stream

To configure HTTP data stream, please follow these steps:

1. Type the name of the data stream that you are adding.
2. Select the mode of the data stream from the dropdown list.
3. Edit the HTTP query.

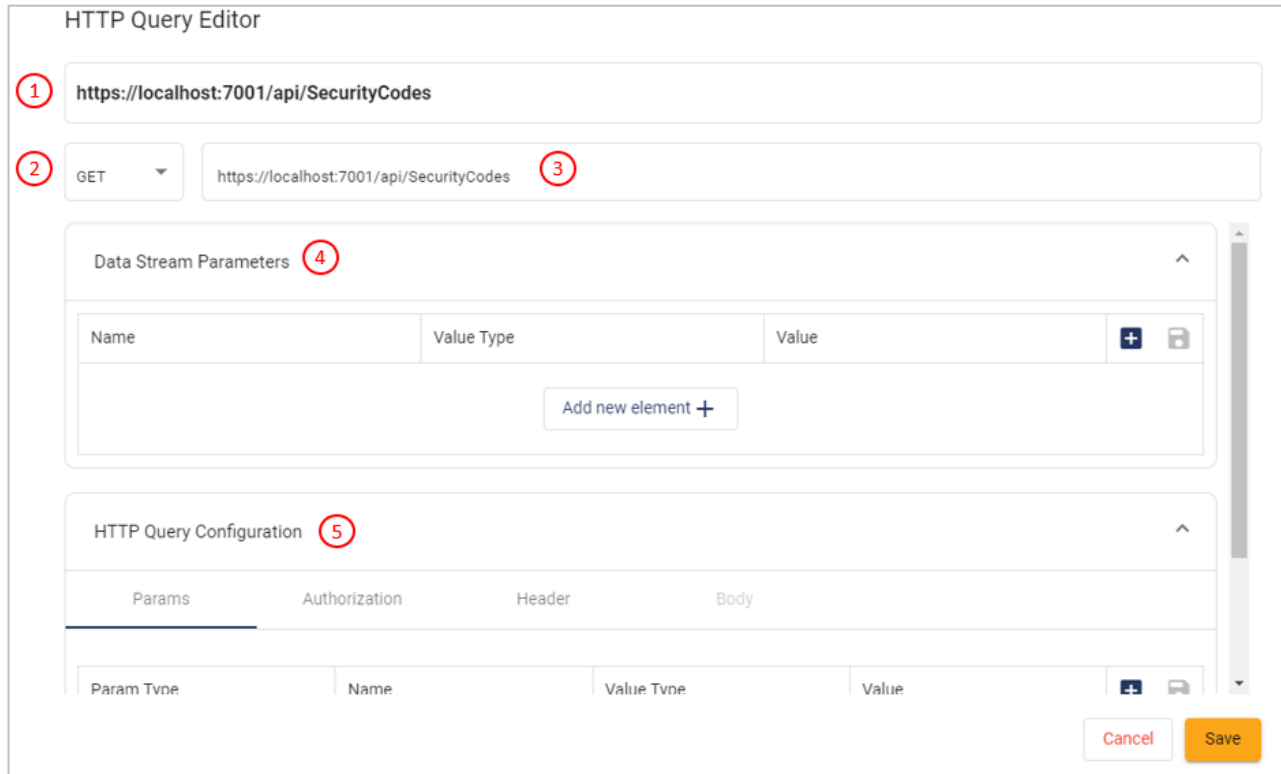
Parameter	Description	Default Value
<b>Common HTTP Data Stream Parameters</b>		
<b><i>Data Stream Name</i></b>	The unique name of the data stream.	

<b>Query</b>	<p>The HTTP Query is a HTTP request sent by an application to a server to ask for information or to perform an action.</p> <p>When the mode is set to Read/Write, separate query fields will be available for editing for both read and write.</p>	
<b>Mode = Read - Read/Write</b>		
<b>HTTP Read Settings</b>		
<b>Interval</b>	The Interval indicates the refresh interval in milliseconds for re-retrieving the data.	2000 milliseconds
<b>Retry on Error</b>	The user can configure this parameter to set the maximum number of times to resend the request in case of an error.	3
<b>Real Time Trending</b>	A read data stream can be trended in real time by enabling the <b>Real Time Trending</b> allowing the data stream to be monitored in runtime mode.	Unchecked
<b>Mode = Read on Demand</b>		
<b>HTTP Read on Demand Settings</b>		
<b>Historical Trending</b>	When the "Historical Trending" option is checked, the system records the data stream values and makes them available in the Historical Trends view.	Unchecked

**Figure 26: Common HTTP Data Stream Parameters**

### 2.2.1.1 HTTP query editor

To configure the http, request the user shall open the HTTP query editor a popup will appears as showing the figure below.



**Figure 27: HTTP query editor dialog**

1. **The query URL (1):** Displays the query the final URL after configuration.
2. **The HTTP query verb (2):** it is a drop-down list to select the appropriate query verb as detailed in the table below.

HTTP verbs	Description
<b>GET</b>	The GET method requests a representation of the specified resource. Requests using GET should only retrieve data.
<b>HEAD</b>	The HEAD method asks for a response identical to a GET request, but without the response body

<b>POST</b>	The POST method submits an entity to the specified resource, often causing a change in state or side effects on the server.
<b>PUT</b>	The PUT method replaces all current representations of the target resource with the request payload.
<b>DELETE</b>	The DELETE method deletes the specified resource.
<b>CONNECT</b>	The CONNECT method establishes a tunnel to the server identified by the target resource.
<b>OPTION</b>	The OPTIONS method describes the communication options for the target resource
<b>TRACE</b>	The TRACE method performs a message loop-back test along the path to the target resource.
<b>PATCH</b>	The PATCH method applies partial modifications to a resource.

**Table 7: HTTP Query Editor Interface - Parameters**

1. **The HTTP query URL input (3):** this input allows the user to edit the query URL directly by adding a static URI parameter.

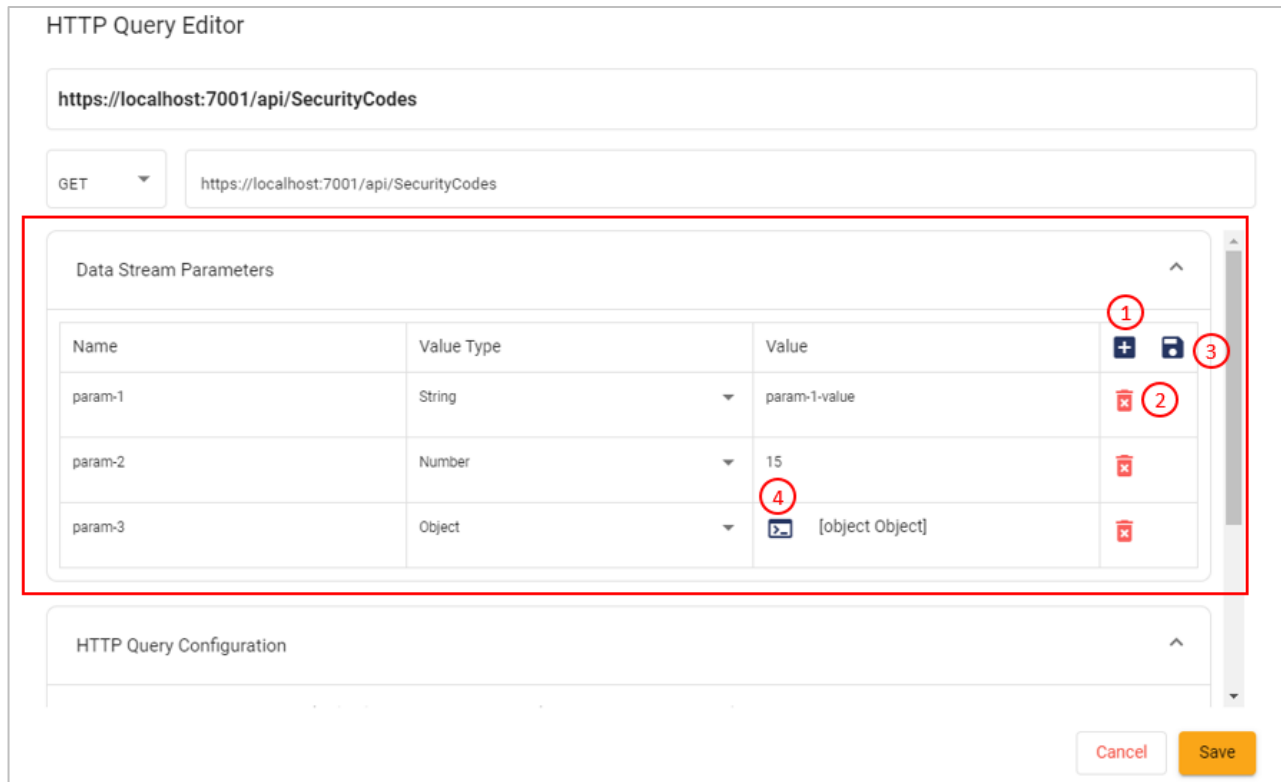
Data streams provide the ability to use **parameters** to enhance querying capabilities, allowing for more dynamic and flexible data retrieval.

2. **The Data Stream Parameters (4):** this section is reserved to add dynamic parameters to the data stream. These parameters can be static or dynamic. They can be used in the http query configuration section (5) and specify their values when linking the HTTP data stream to a component in the interactive views.
3. **The HTTP Query Configuration (5):** in this section the user shall configure the http query header, authentication, parameters, and the body.

### 2.2.1.2 HTTP data stream parameters

The user can add dynamic/static parameter to the HTTP data stream. Configuring the data stream parameters the user shall add new parameter by clicking on the add button (1) in the data stream

parameter table and set the name, the type and the initial value of the parameter and click on save button (3). The user can also edit the parameters and delete (2) the unneeded ones.



HTTP Query Editor

https://localhost:7001/api/SecurityCodes

GET https://localhost:7001/api/SecurityCodes

Data Stream Parameters

Name	Value Type	Value	
param-1	String	param-1-value	+
param-2	Number	15	-
param-3	Object	[object Object]	🔗

HTTP Query Configuration

Cancel Save

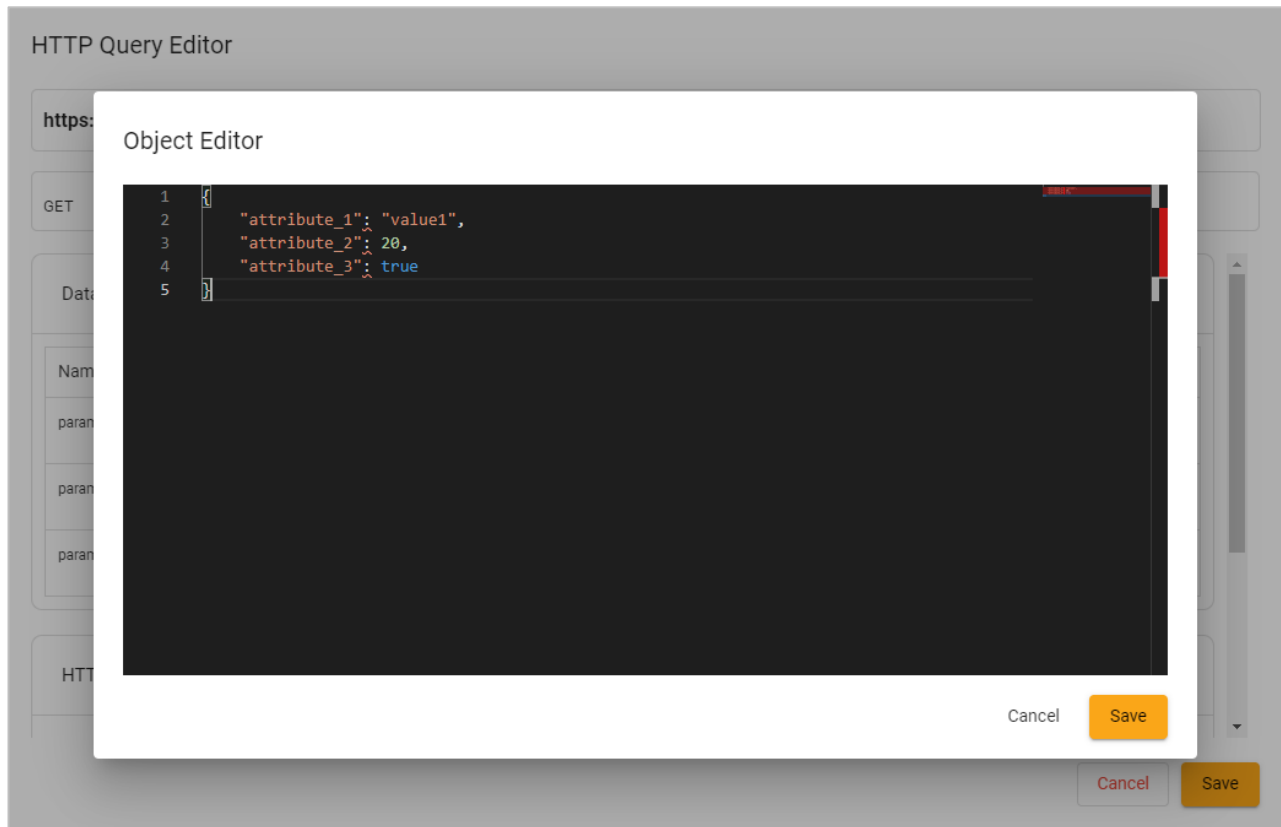
**Figure 28: HTTP query editor: Data stream parameters configuration section**

### HTTP data stream parameters type object

The data stream parameter can be one of three types: Number, string, or object.

To create a parameter of type object the user shall select **Object** in the column **Value Type**.

An icon of the object editor (4) appears. The user shall click on the open object editor icon. A dialog appears to configure the object value as illustrated by the figure 20 below.



**Figure 29: Object editor for HTTP data stream parameter of type Object**

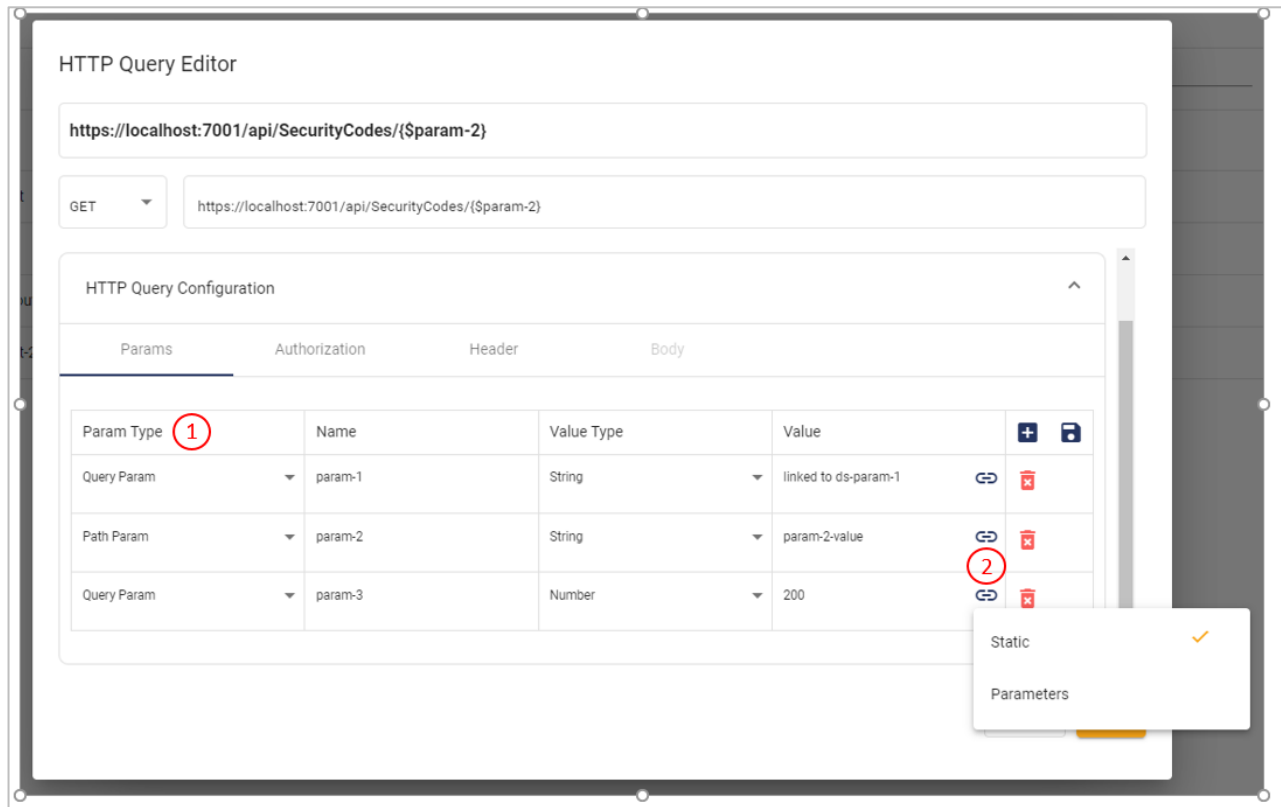
### 2.2.1.3 HTTP Query Configuration

In the HTTP Query Configuration section, the user is required to set up various aspects of the HTTP query to ensure proper communication with the data source API. These aspects include: the http query header, authentication, parameters, and the body.

#### HTTP Parameters Configuration

In this section the user shall configure the HTTP query parameters. These parameters can be static (string, number, or object) or dynamic by linking them to the configured **HTTP Data Stream Parameters**.



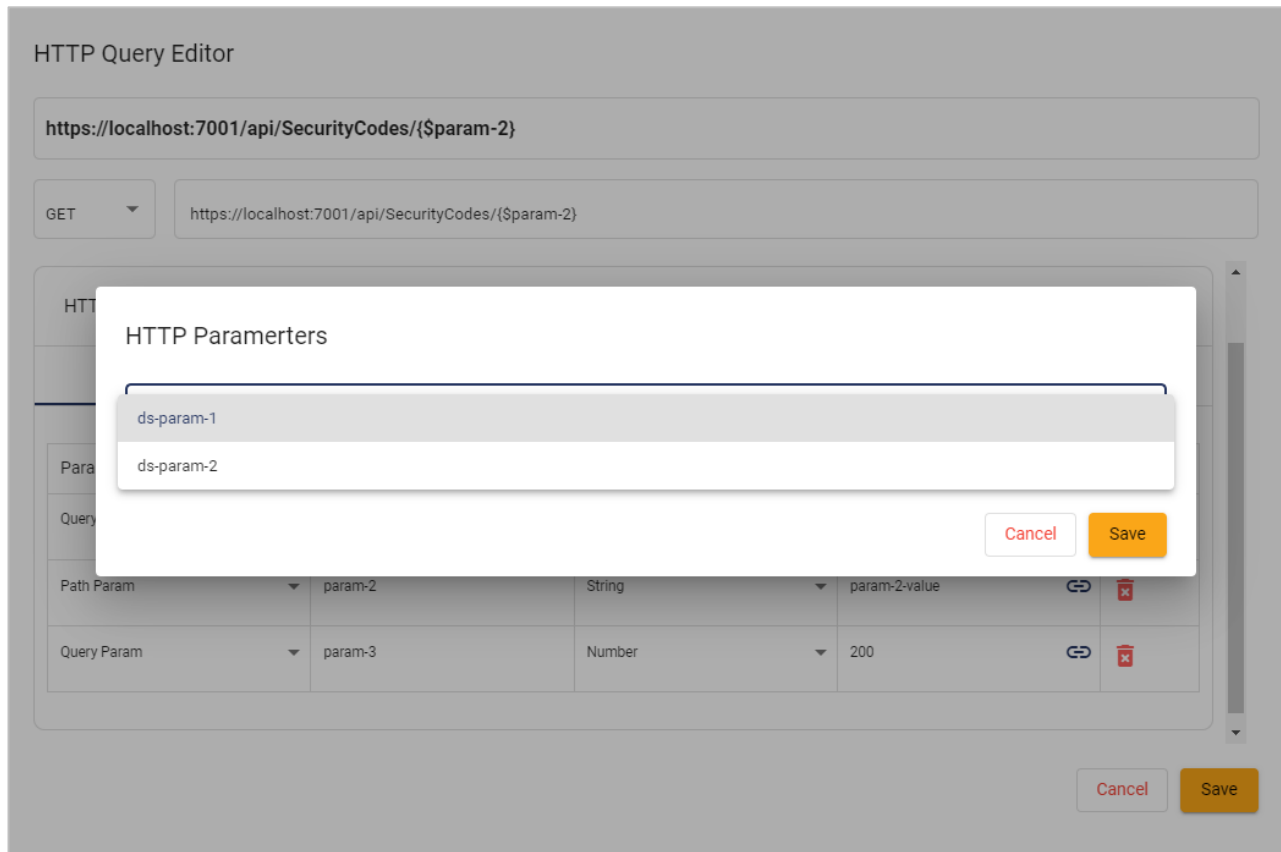


**Figure 30: HTTP Query parameters configuration table**

The user shall choose the parameter type (1) to define whether the parameter is **query parameter** or **path parameter**. The name and the value type columns are configured the same way as detailed in The **HTTP data stream parameters** section.

Once the user set the parameter type as **Path parameter**, the parameter will be added to the query URL between curly braces as illustrated in the figure 21 for the parameter named "**param-2**."

For the value column the parameter can have a **static** value or **linked** to one of the data stream parameters configured in advance. To link the parameter value to a data stream parameter the user shall click on the link button (2). From the drop-down list, the user must choose between "Static" or "Parameters". If the latter clicks on the "Parameters" option a popup will show up as illustrated in the figure (49) to select the data stream parameter to be linked to.



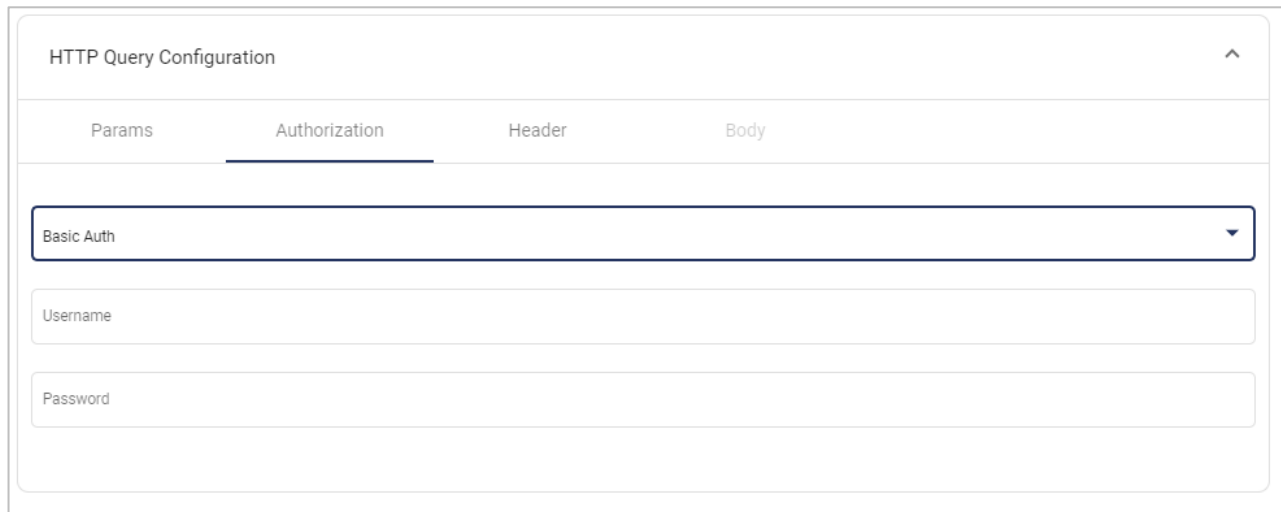
**Figure 31: HTTP Query Parameters linking popup**

### 2.2.1.4 HTTP Authentication Configuration

In this section the user can configure the authentication for the HTTP query.

Authentication can be one of the following options:

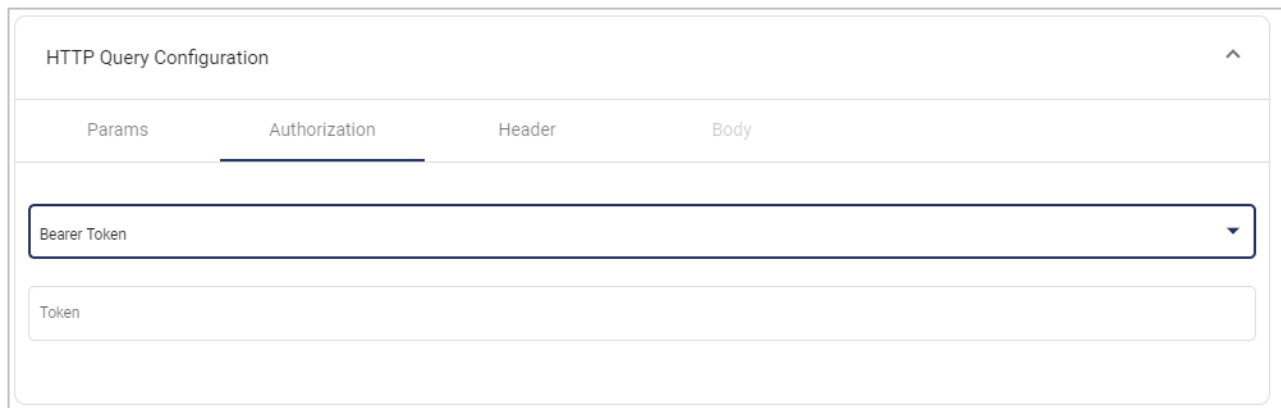
- **None:** when the HTTP query does not require authentication.
- **Basic Auth:** the user shall enter a username and a password.



The screenshot shows the 'HTTP Query Configuration' dialog box with the 'Authorization' tab selected. A dropdown menu is set to 'Basic Auth'. Below it are two text input fields labeled 'Username' and 'Password'.

**Figure 32: HTTP Basic authentication configuration**

- **Bearer Token:** The user shall provide the bearer token.



The screenshot shows the 'HTTP Query Configuration' dialog box with the 'Authorization' tab selected. A dropdown menu is set to 'Bearer Token'. Below it is a single text input field labeled 'Token'.

**Figure 33: HTTP Bearer token authentication configuration**

- **API Key:** the user shall set the API key name, the API key value and choose whether to insert the API key in the header or the query parameters.

HTTP Query Configuration

Params

Authorization

Header

Body

API Key

API Key Name

apikey

API Key Value

f688fdf1

Add To

Params

**Figure 34: HTTP API Key authentication configuration**

## HTTP Header Configuration

In this section the user shall configure the request header as illustrated in figure 53.






HTTP Query Configuration

Params

Authorization

Header

Body

Name	Value Type	Value	
accept	String	application/json, text/plain, */*	 
accept-Encoding	String	gzip, deflate, br	
accept-Language	String	en-US,en;q=0.9	
cache-Control	String	no-cache	

**Figure 35: HTTP Header Configuration section**

By default, the list of the parameters in the table below is configured. The user can add, edit, or remove a header parameter.

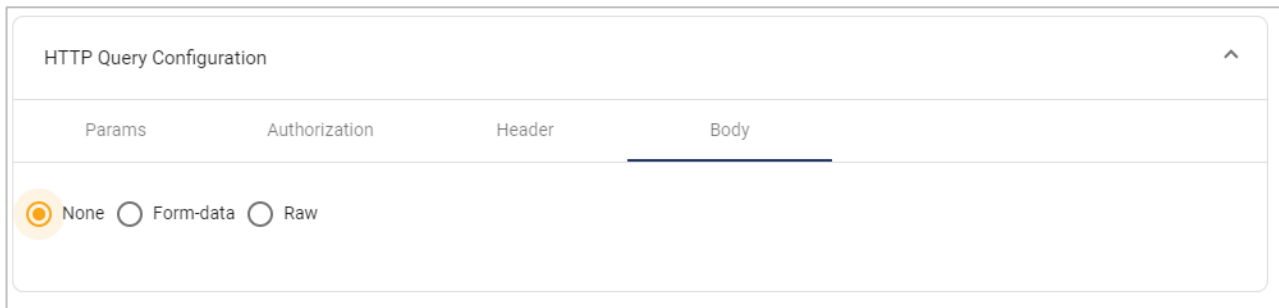
Parameter	Default value
<b><i>accept</i></b>	application/json, text/plain, */*
<b><i>accept-Encoding</i></b>	gzip, deflate, br
<b><i>accept-Language</i></b>	en-US,en;q=0.9
<b><i>cache-Control</i></b>	no-cache
<b><i>Access-Control-Allow-Origin</i></b>	*

**Table 8: HTTP Header Configuration - Parameters**

### HTTP Body Configuration

In this section the user shall configure the HTTP query body.

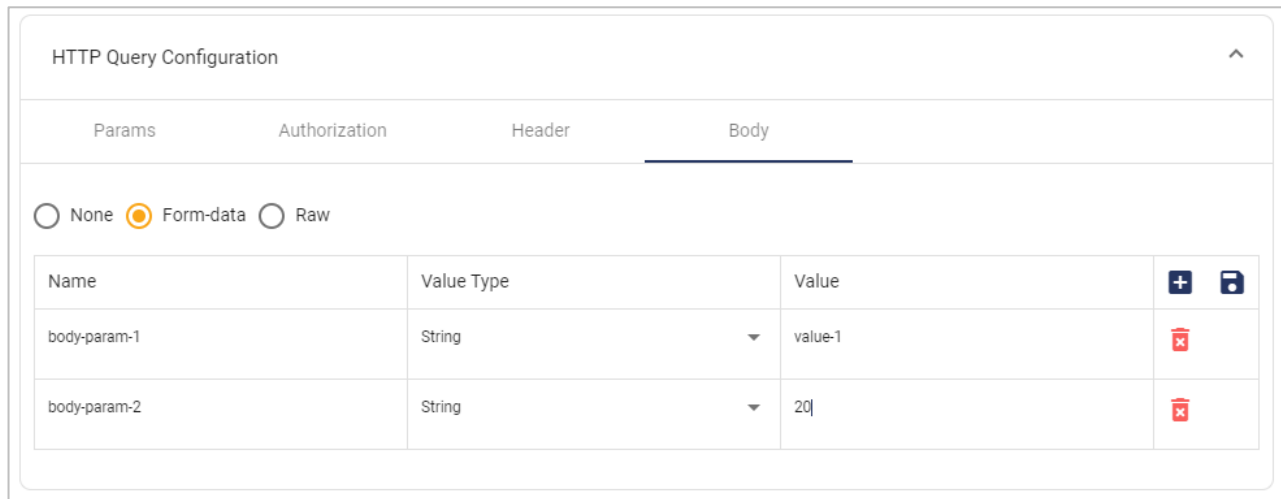
The body can be empty if the selected option is "**None**", "**Form-data**" which is a table of name and value or a "**Raw**" data which can be of type **JSON**, **XML** or **JavaScript** code as illustrated by the figure 54 below.



The screenshot shows a web interface titled "HTTP Query Configuration". It has four tabs: "Params", "Authorization", "Header", and "Body". The "Body" tab is currently active. Below the tabs, there are three radio buttons: "None" (which is selected and highlighted with an orange circle), "Form-data", and "Raw".

**Figure 36: HTTP Body Configuration Section**

If the **Form-data** option is selected as showing figure 28, a table of parameters will show. The configuration is the same as detailed in the section **The HTTP data stream parameters**.



HTTP Query Configuration

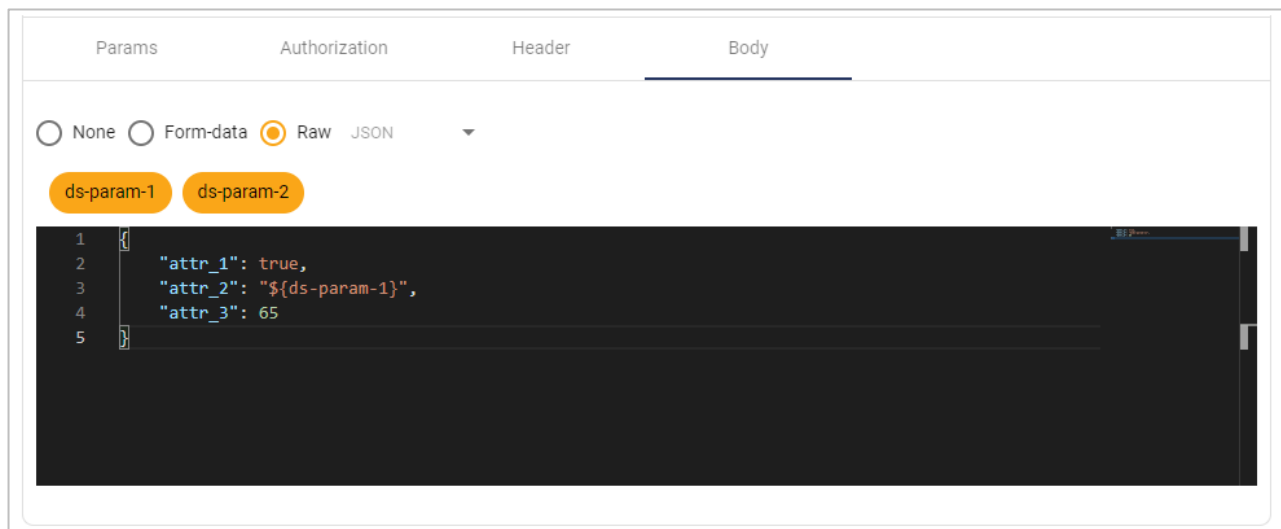
Params Authorization Header **Body**

☐ None ☒ Form-data ☐ Raw

Name	Value Type	Value	
body-param-1	String	value-1	
body-param-2	String	20	

**Figure 37: HTTP Form-data body configuration**

If the user chooses the Raw body option, an editor will appear. This raw data can be JSON, XML or JavaScript code. In this option the user can insert by clicking on the list of the data stream parameters that appears as yellow chips on the top of the editor. The parameter will be inserted in the cursor position between curly braces as detailed in figure 28.



Params Authorization Header **Body**

☐ None ☐ Form-data ☒ Raw JSON

ds-param-1 ds-param-2

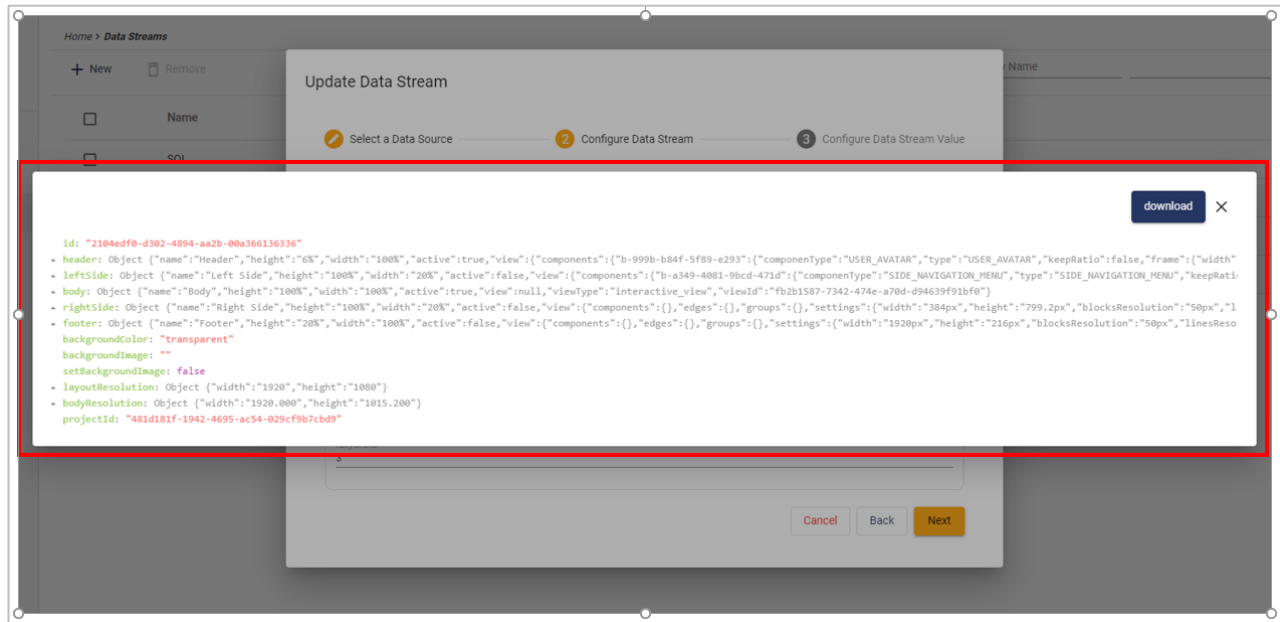
```

1 {
2   "attr_1": true,
3   "attr_2": "${ds-param-1}",
4   "attr_3": 65
5 }
```

**Figure 38: HTTP Raw body configuration example**

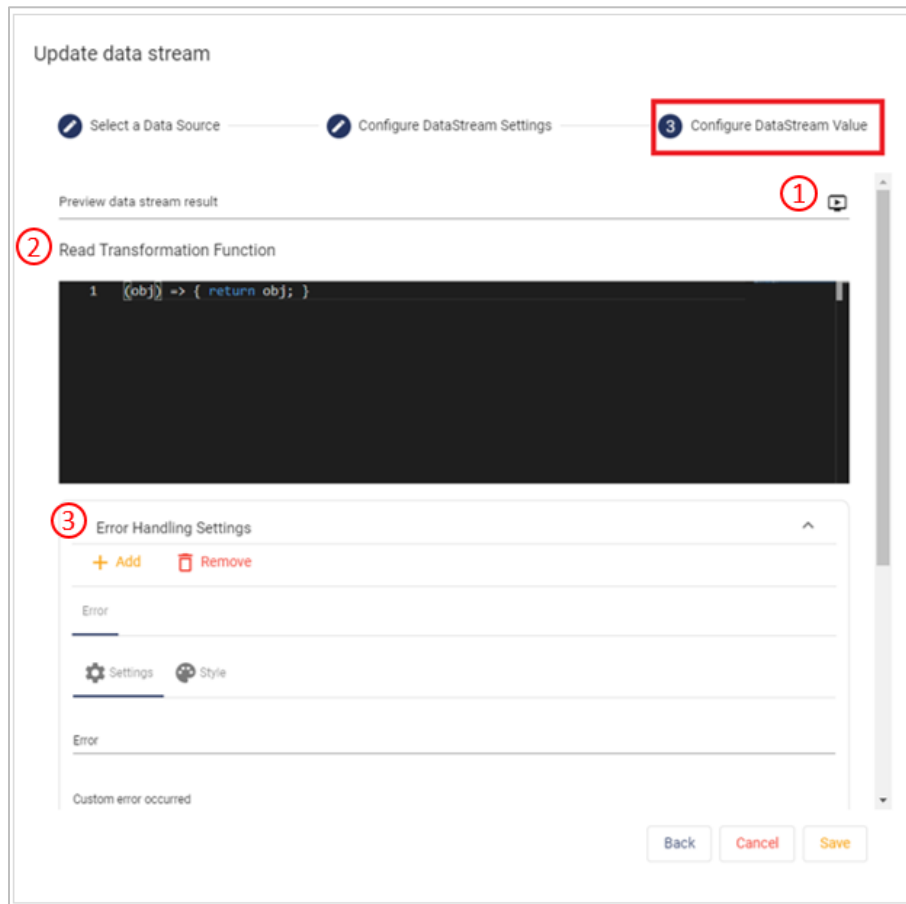
Once the HTTP query is configured you can click on the save button to save the query configuration and close the HTTP query editor. The user will be returned to the configuration data stream settings

stepper. To preview the query, the user can click on the preview button in the query input, a popup containing the HTTP query response will show up as detailed in figure 29.



**Figure 39: HTTP Query preview popup**

Click **Next** to move to the last step in the configuration process: **Configure Data Stream value**.



Update data stream

1 Select a Data Source
2 Configure DataStream Settings
3 Configure DataStream Value

Preview data stream result 1

2 Read Transformation Function

```
1 {obj} => { return obj; }
```

3 Error Handling Settings

+ Add Remove

Error

Settings Style

Error

Custom error occurred

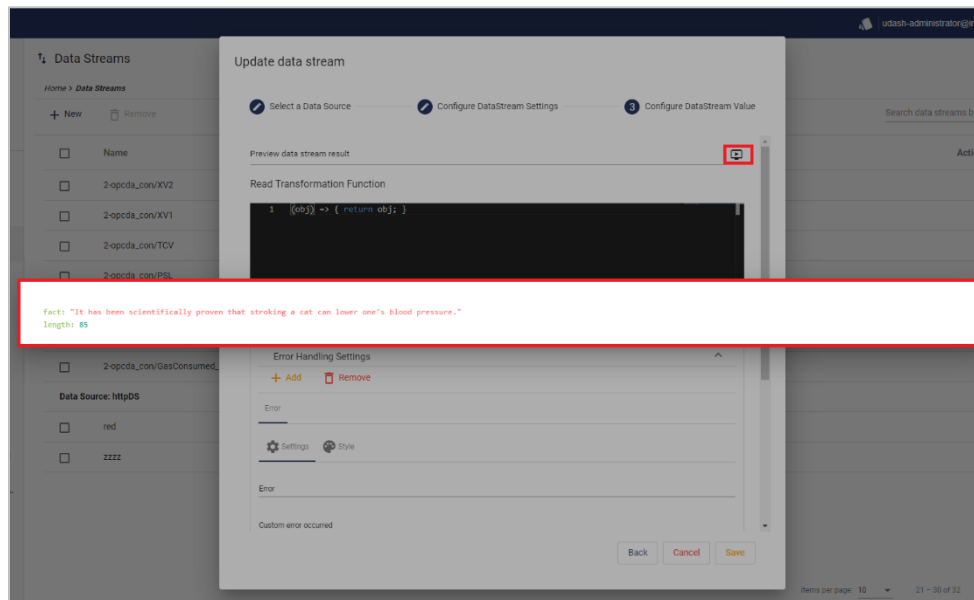
Back Cancel Save

**Figure 40: Configure HTTP Data Stream Value – Read Mode**

In this last step, you can:

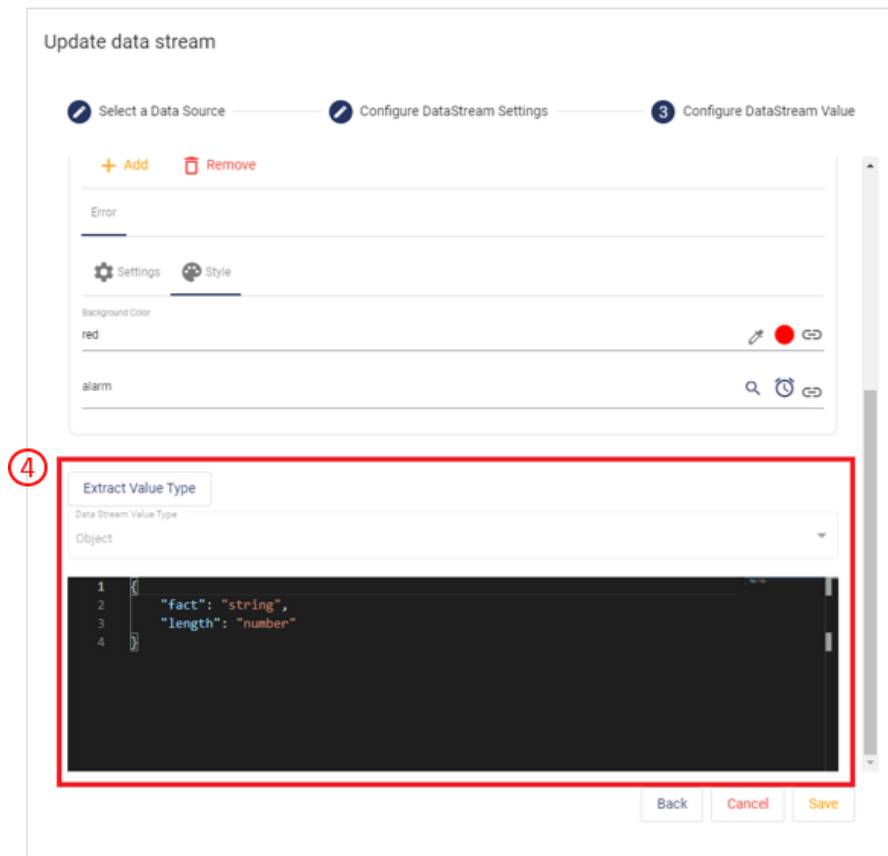
- (1) Preview the data stream result by clicking the icon **Preview**. The result will be displayed in a new pop-up.





**Figure 41: Preview Data Stream**

- (2) Apply any transformation on the data stream result by scripting in JavaScript the transformation logic under **Read Transformation Function** section.
- (3) Configure custom errors based on the brute returned value of the data stream (before the transformation logic being applied) under the **Error Handling Settings** section. You can add as many custom errors as you want, each one has a:
  - **Name**,
  - **Message** that will be displayed in runtime mode,
  - **Condition** to be evaluated to trigger the custom error,
  - **Icon** for which you can set a **Background Color**.
- (4) Extract or identify the final data stream value (after the transformation being applied) type. By Clicking on **Extract Value Type**, the value type will be displayed just below. The value type can be *String*, *Boolean*, *Number*, *BigInt*, *Datetime*, *Object* or *Undefined*.



**Figure 42: Extract value type**

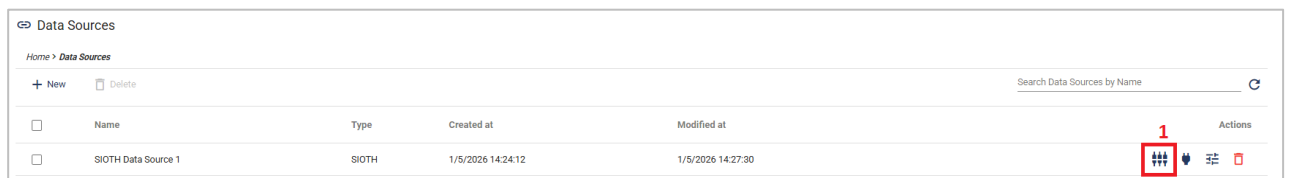
Once all items are configured, click on Save to submit your configuration.

### 2.2.2. Add a SIOTH® Data Stream

The SIOTH® Data Stream is auto-generated automatically.

To add the SIOTH® Data Stream, follow these steps:

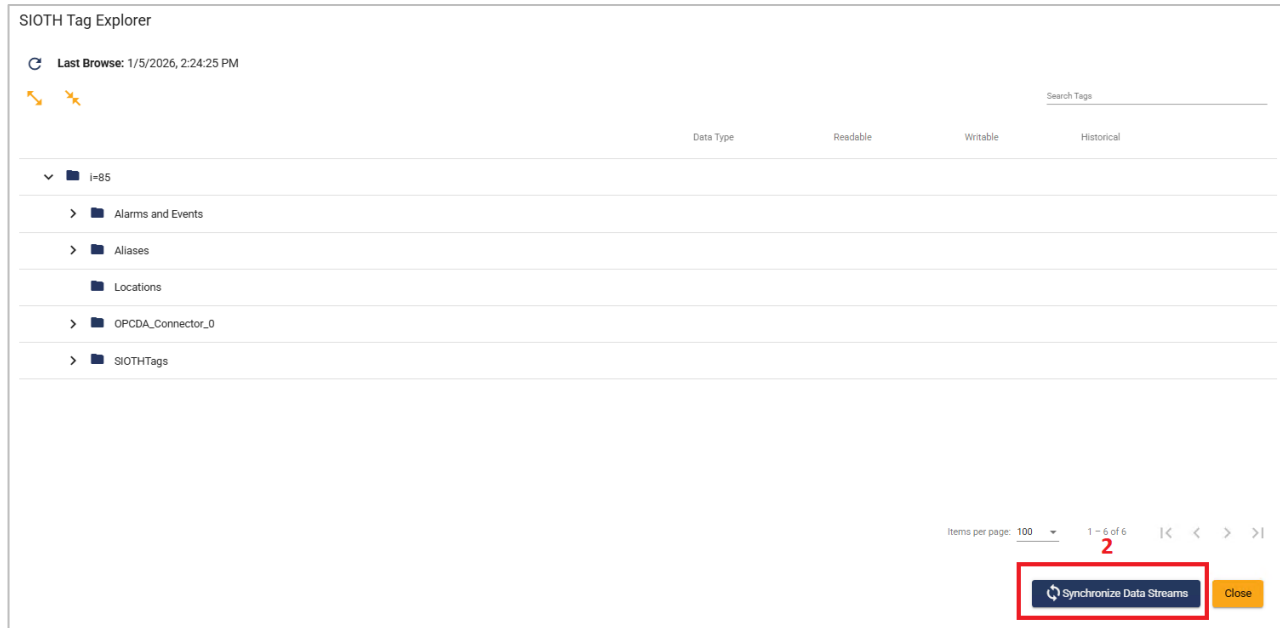
1. After adding the SIOTH® Data Source, click on the "Browse Tags" button (1) in the "Actions" column as shown in the figure below.



Data Sources				
Home > Data Sources				
+ New		Delete		Search Data Sources by Name
	Name	Type	Created at	Modified at
<input type="checkbox"/>	SIOTH Data Source 1	SIOTH	1/5/2026 14:24:12	1/5/2026 14:27:30

**Figure 43: Browse tags for SIOTH® Data Source**

2. After browsing the SIOTH® Data Source tags, the SIOTH Tag Explorer Interface will appear.  
In this step, click the **"Synchronize Data Streams"** button (2), as shown in the figure below.



**Figure 44: Synchronize SIOTH® Data Streams**

3. After the **Synchronize Data Streams** action is successfully completed, a pop-up message will appear stating *"Data source synchronized successfully"*. Click the **"OK"** button to confirm and close the message.

Once done, the SIOTH Data Streams are automatically added to the Data Streams section.

### 2.2.3. Add a SQL Server Data Stream

To add a data stream from SQL Server data source, follow these steps:

1. In the first step, select a predefined SQL Server data source from the drop-down list. This data source will serve as the origin of the data stream and must be configured beforehand.
2. Click on the **"Next"** button to proceed to the next step.

New Data Stream

1 Select Data Source

2 Configure Data Stream

3 Configure Data Stream Value

Data Source

SQL Server Data Source 1

Cancel

Next

**Figure 45: Select SQL Server Data Source**

Moving to the next step, you will have to first set the **Name** of the data stream then choose the mode from a drop-down list.

In the next sections, we will present configuration steps of each mode:

### 2.2.3.1 Read Mode

To configure this data stream, fill in the following properties:

1. A read data stream can be trended for real time by checking "**For Real Time Trending**" which means this data stream trend could be monitored in the runtime mode.
2. The **Interval**: this property indicates the refresh interval (in milliseconds) for re-retrieving the data.
3. The "**Retry on Error**" property indicates the number of retries on retrieving data error faced.

### New Data Stream

1 Select Data Source
2 Configure Data Stream
3 Configure Data Stream Value

Name \*  
SQL read data stream

Mode  
Read

☒ For Real Time Trending

SQL Read Settings

Query

Interval (ms)  
2000

Retry on error  
3

Cancel Back Next

**Figure 46: Configure SQL Server Data Stream Settings – Read Mode**

Unified HMI provides an SQL query editor to allow you explore data from databases and execute queries. To open the query editor, click on the **Edit** icon in the **Query** field.

SQL Read Settings

Query

Interval (n ms)  
1000

Retry on error  
3

**Figure 47: Open SQL Query Editor**

The SQL Server Editor component is composed from:

1. Server explorer menu: Allowing you to browse the databases and tables available on your SQL Server.
2. SQL query scripting area: Like SQL Server Management Studio scripting area, providing SQL keywords highlighting and autocomplete functionalities
3. Parameters menu: A simple configuration menu to define a dynamic list of parameters with initial values to be interpreted in runtime mode and even linked to the outputs / variables of the application components.
4. SQL script execution result area: Like the SQL Server Management Studio result area showing the result of your SQL script execution (Errors in your SQL script will be handled and shown)

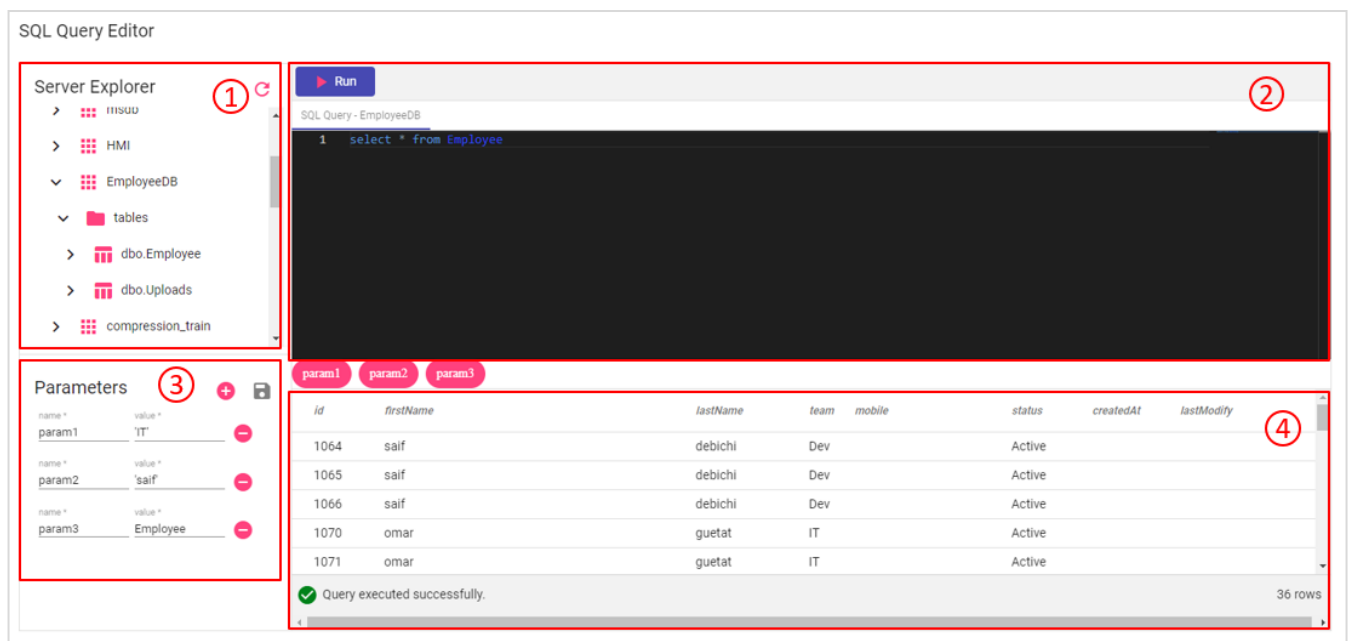





Figure 48: SQL Query Editor

5. Once the SQL scripting is done, click on the "Save" button to save the SQL script that will be executed in the runtime.
6. Click **Next** to move to the last step in the configuration process: **Configure Data Stream value.**


### New Data Stream

 Select Data Source


 Configure Data Stream


 **Configure Data Stream Value**


Preview Data Stream Result



Error Handling Settings

 Add

 Delete

 Read Transformation Function

```

1  [(obj)] => { return obj; }

```

No Value Type Extracted!

Extract Value Type

Cancel

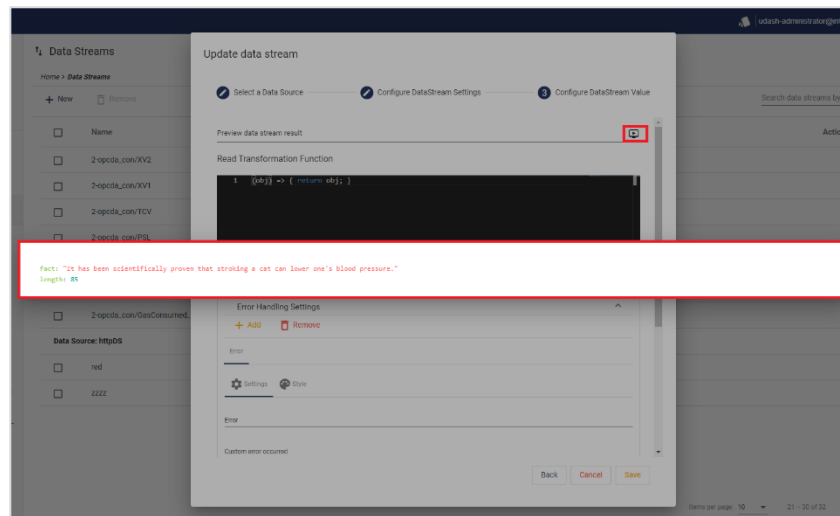
Back

Save

**Figure 49: Configure SQL Server Data Stream Value – Read Mode**

In this last step, you can:

1. Preview the data stream result by clicking the icon **Preview**. The result will be displayed in a new pop-up.



**Figure 50: Preview Data Stream**

2. Apply any transformation on the data stream result by scripting in JavaScript the transformation logic under **Read Transformation Function** section.
3. Configure custom errors based on the brute returned value of the data stream (before the transformation logic being applied) under the **Error Handling Settings** section. You can add as many custom errors as you want, each one has a:
  - a. **Name**.
  - b. **Message** that will be displayed in runtime mode.
  - c. **Condition** to be evaluated to trigger the custom error.
  - d. **Icon** for which you can set a **Background Color**.
4. Extract or identify the final data stream value (after the transformation being applied) type. By Clicking on **Extract Value Type**, the value type will be displayed just below. The value type can be *String*, *Boolean*, *Number*, *BigInt*, *Date*, *Object*, *Array* or *Undefined*.

**(!) Note:**

For more information about the supported value types, please refer to the *Data Streams Common Configuration* section



Update Data Stream

Select Data Source

Configure Data Stream

**3** Configure Data Stream Value

Read Transformation Function

1 (obj) => { return obj; }

Extract Value Type

Value Type  
array[object]

4

1 {  
2   "timestamp": "dateTime",  
3   "tagName": "string",  
4   "value": "number",  
5   "quality": "string",  
6   "schemaId": "string"  
7 }

Cancel

Back

Save

**Figure 51: Extract Value Type**

- Once all items are configured, click on **Save** to submit your configuration.

### 2.2.3.2 Write Mode

To configure this data stream, fill in the following properties under **Configure DataStream Settings** stepper:

### Update Data Stream

1 Select Data Source

2 Configure Data Stream

3 Configure Data Stream Value

Name \*  
SQL Data Source data stream

Mode  
Write

SQL Write Settings

Query

Cancel

Back

Next

**Figure 52: Configure SQL Server Data Stream Settings – Write Mode**

After configuring the *Data Stream Settings* stepper, click **Next** to proceed to *Configure Data Stream Value*. In this step, the user can define transformations on the data stream results by writing the transformation logic in JavaScript, and then save the configuration.

### 2.2.3.3 Read/Write Mode

This mode combines both “Read” and “Write” modes functionalities. To use it you have to:

1. Configure the **Read** and **Write** queries in their respective sections: **SQL Read Settings** and **SQL Write Settings** as shown in the figure below.

### New Data Stream

1 Select Data Source
2 Configure Data Stream
3 Configure Data Stream Value

Name \*

SQL Data Stream

Mode

Read/Write

☐ For Real Time Trending

SQL Read Settings

Query

Interval (ms)

2000

Retry on error

3

SQL Write Settings

Query

Cancel
Back
Next

**Figure 53: SQL Server Data Stream -Read/Write Mode**

- Click on the **"Next"** button.
- Set up the **Read** and **Write Transformation functions** in the **Configure Data Stream Value** section.
- Once the **Read** and **Write Transformation functions** were defined, you have to click on the "Extract Value Type" button as shown in the figure below.

### New Data Stream

Select Data Source

Configure Data Stream

**3 Configure Data Stream Value**

Write Transformation Function

```
1  [{obj}] => { return obj; }
```

Read Transformation Function

```
1  [{obj}] => { return obj; }
```

No Value Type Extracted!

Extract Value Type

Cancel

Back

Save

**Figure 54: SQL Server Data Stream - Configure Data Stream Value**

**(!) Note:**

For more information about the supported value types, please refer to the *Data Streams Common Configuration* section

- Click on the "Save" button.

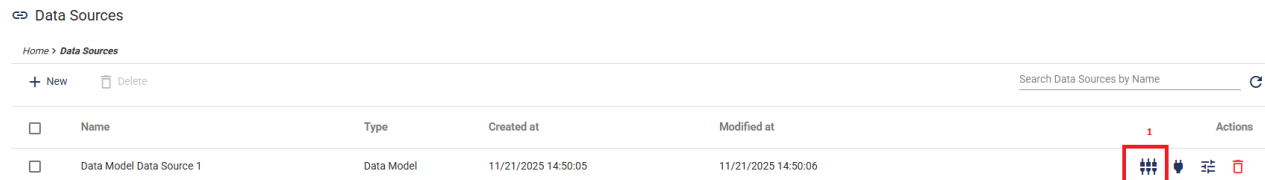
### 2.2.3.4 Read on Demand Mode

The configuration of a data stream with the Read-on Demand mode is like the [configuration of a data stream with the Read mode](#). The only difference is that the “Real Time Trending” functionality is replaced with the “Historical trend” functionality, this means that the data stream historical trend could be monitored in the runtime mode.

### 2.2.4. Add a Data Model Data Stream

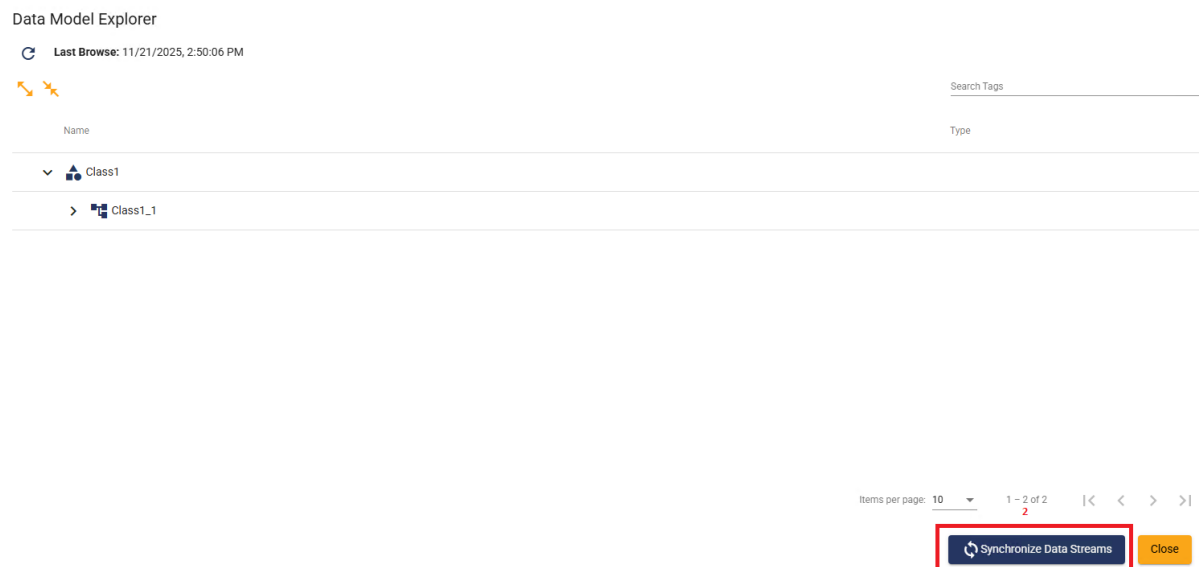
To add the Data Model Data Stream, follow these steps:

1. After adding the Data Model Data Source, click on the “Browse Instances” button (1) in the “Actions” column as shown in the figure below.



**Figure 55: Browse Instances**

2. After browsing the Data Model Instances, the Data Model Explorer Interface will appear. In this step, click the “**Synchronize Data Streams**” button (2), as shown in the figure below.



**Figure 56: Synchronize Data Streams for Data Model Data source**

3. After the **Synchronize Data Streams** action is successfully completed, a pop-up message will appear stating *"Instances associated data streams were successfully generated"*. Click the **"OK"** button to confirm and close the message.
4. Once done, the Data Model Data Streams are automatically added to the Data Streams section.

### 3. Test Data Stream Connection

To test the connection of an already added data stream, follow these steps:

1. Open the **Data Streams** page by either clicking the **Data Streams** card on the project home page or selecting **Data Streams** from the sidebar menu.
2. Locate the data stream you want to test the connection to.
3. In the **Actions** column of the data streams table, click the **Test Connection** icon.
4. The system will attempt to establish a connection with the data stream.
  - a. If the connection is successfully established, a confirmation message will be displayed: "The connection to this data stream is successful".
  - b. In case the connection attempt fails, an error message will be shown: "Unable to connect to this data stream".

### 4. Edit Data Stream

To update a data stream configuration, follow these steps:

1. Open the **Data Streams** page by either clicking the **Data Streams** card on the project home page or selecting **Data Streams** from the sidebar menu.
2. Locate the data stream you want to edit.
3. In the **Actions** column of the data streams table, click the **Edit** icon.
4. An update pop-up will appear, displaying the current configuration of the data stream.
5. Edit the parameters in the displayed pop-up.
6. Once the updates are done, click **Save** to submit the changes.

By following these steps, you can easily update and customize the settings of the data stream according to your requirements.

**(!) Note:**

Editing is not allowed for SIOTH® data streams and Data Model data streams.

## 5. Delete Data Stream

To delete a data stream, follow these steps:

1. Open the **Data Streams** page by either clicking the **Data Streams** card on the project home page or selecting **Data Streams** from the sidebar menu
2. Locate the data stream you want to delete
3. In the **Actions** column of the data streams table, click the **Delete** icon
4. A confirmation message will pop up, prompting you to confirm the deletion
  - a. Click **OK** to confirm and delete the data stream.
  - b. Click **Cancel** to abort the deletion and retain the data stream.

**(!) Note:**

Delete action is not allowed for SIOTH® data streams and Data Model data streams.

## 6. Search and Filter Data Streams

You can search for data streams by entering the suggested name in the search area or filter the data streams related to a specific data source by selecting the data source in the dropdown menu located at the top-right area of the page.

Data Streams						
<a href="#">+ New</a> <a href="#">Delete</a>		<div> <div>1</div> <div>2</div> </div> <div> <input type="text" value="Search Data Streams by Name"/> <div>All Data Sources</div> </div>				
<input type="checkbox"/>	Name	Trending	Data Source	Mode	Value Type	Actions
<input type="checkbox"/>	HTTP Data Stream		HTTP Data Source 1	Read	number	<a href="#">Filter</a> <a href="#">Delete</a>
<input type="checkbox"/>	HTTP Data Stream 1		HTTP Data Source 1	Read	string	<a href="#">Filter</a> <a href="#">Delete</a>

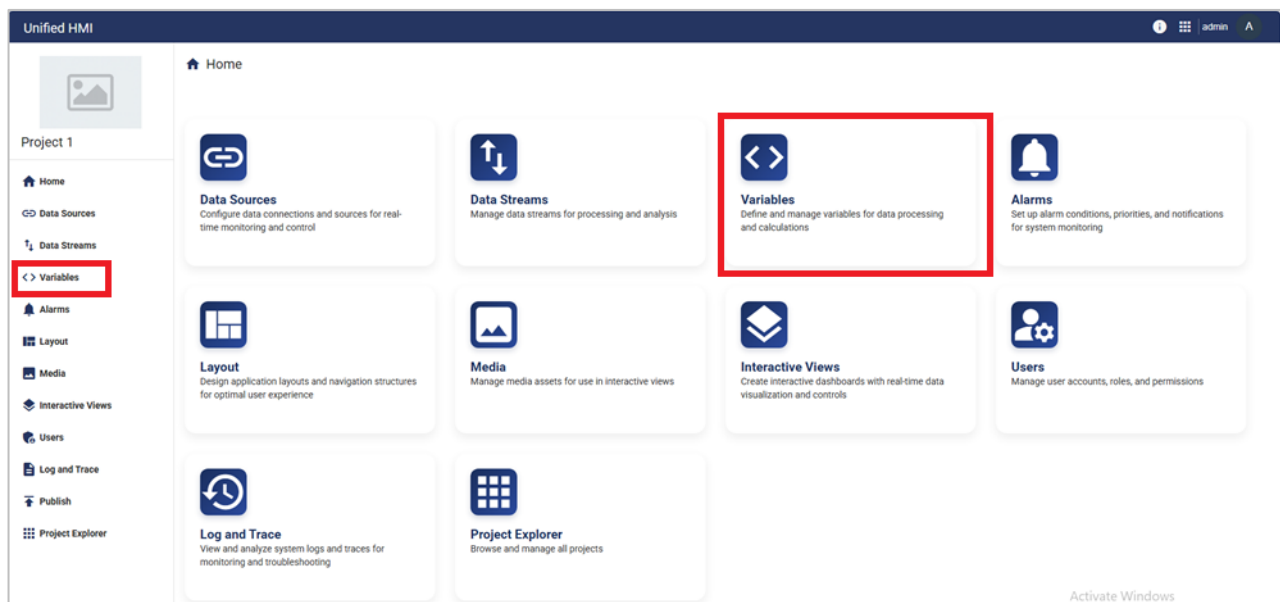
**Figure 57: Search and Filter Data Streams**



# VARIABLES

Variables in the Unified HMI offer a convenient way to dynamically modify the data displayed by widgets without the need to create new widgets from scratch. With variables, you can have multiple widgets in different views that showcase the same value, providing flexibility and reusability in your user interface design. The Unified HMI Variables module empowers you to add, edit, or delete variables.

To access the **Variables** page, you can either click on the **Variables** card on the project home page or select the **Variables** from the sidebar menu.



**Figure 58: Access Variables Page**

Upon reaching the **Variables** page, you will find an explorer listing all the added variables, each one presented on a separate line.

<> Variables

Home > Variables

+ New

Remove

Search Variables by Name

	Name	Value	Type	Actions
<input type="checkbox"/>	Variable 1	string_value	String	<div></div> <div></div>
<input type="checkbox"/>	Variable 2	56.25	Number	<div></div> <div></div>

**Figure 59: Variables Explorer**

The following actions are available for each variable:



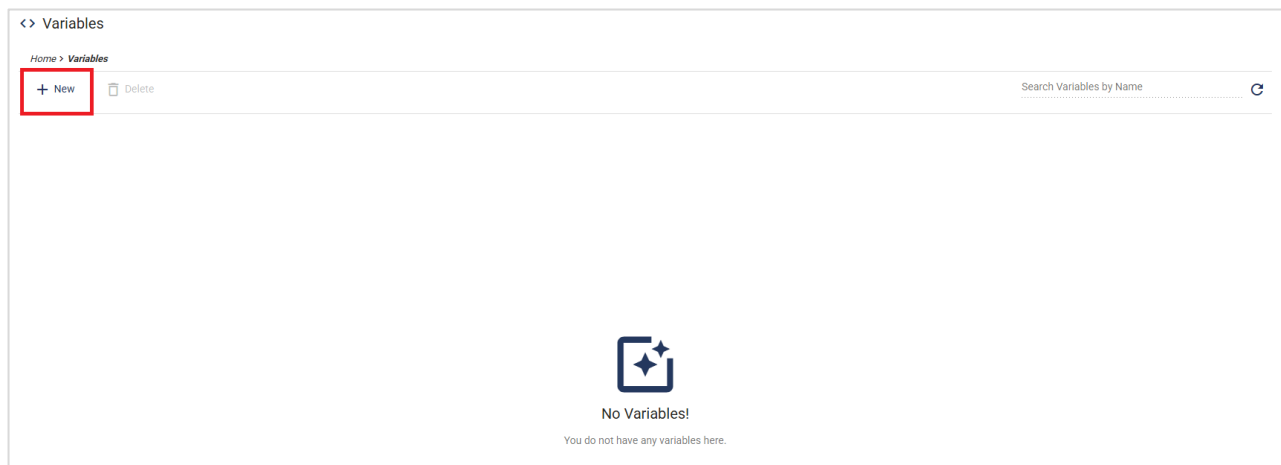
**Edit:** This action enables you to update the related variable.



**Delete:** This action allows you to delete a variable from the variables list if it is no longer needed or not valid anymore.

## 1. Add Variable

To add a new variable, click **New**. If no variable has been added yet, you can click **New Variable**.



**Figure 60: Add a New Variable**

Once clicked, a popup will be displayed, where you can configure the new variable parameters.

### New variable

Name

Type
String

Set a value

Cancel Save

**Figure 61: New Variable Configuration View**

Parameter	Description
<b>Name</b>	<p>The name of the variable. Note that variables names are unique.</p> <p>It is recommended that the name should reflect the purpose or meaning of the variable.</p>
<b>Type</b>	<p>The list of supported types are:</p> <ol style="list-style-type: none"> <li>1. Boolean</li> <li>2. Number</li> <li>3. String</li> <li>4. Other</li> </ol>
<b>Value</b>	The value to set to the variable.

**Table 9: New Variable Parameters**

Once the variable's parameters are configured, click **Save** to add the variable.

## 2. Edit Variable

To update a variable configuration, follow these steps:

1. Open the **Variables** page by either clicking the **Variables** card on the project home page or selecting **Variables** from the sidebar menu.
2. Locate the variable you want to edit.
3. In the **Actions** column of the variables table, click the **Edit** icon.
4. An update pop-up will appear, displaying the current configuration of the variable.
5. Edit the parameters in the displayed pop-up.
6. Once the updates are done, click **Save** to submit the changes.

## 3. Delete Variable

To delete a variable, follow these steps:

1. Open the **Variables** page by either clicking the **Variables** card on the project home page or selecting **Variables** from the sidebar menu.
2. Locate the variable you want to delete.
3. In the **Actions** column of the variables table, click the **Delete** icon.
4. A confirmation message will pop up, prompting you to confirm the deletion.
  - a. Click **OK** to confirm and delete the variable
  - b. Click **Cancel** to abort the deletion and retain the variable

By following these steps, you can easily delete unwanted or unnecessary variables from your project.

## 4. Search Variables

You can search for variables by entering the suggested name in the search area located at the top-right area of the page.

< > Variables

Home > Variables

+ New
Delete

1

Search Variables by Name

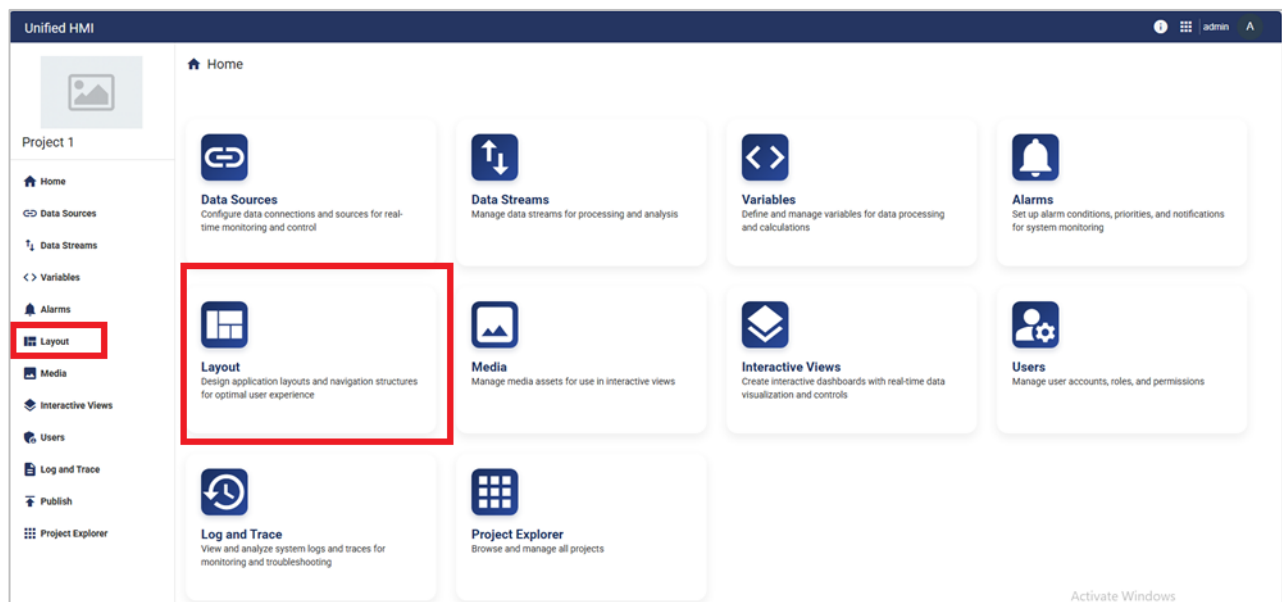
	Name	Value	Type	Actions
<input type="checkbox"/>	Variable 1	1	number	<input type="checkbox"/> <input type="checkbox"/>

**Figure 62: Search Variable**

# LAYOUT

Unified HMI provides a user-friendly environment to design and configure the runtime view of your application. The runtime view is based on a workspace structure that allows you to set up different sections such as header, footer, body, left Side and right Side, etc. and arrange them according to your requirements. Through the Layout workspace, you can easily orchestrate the runtime view to create a visually appealing and functional user interface.

To access the **Layout** page, you can either click on the **Layout** card on the project home page or select the **Layout** from the sidebar menu.

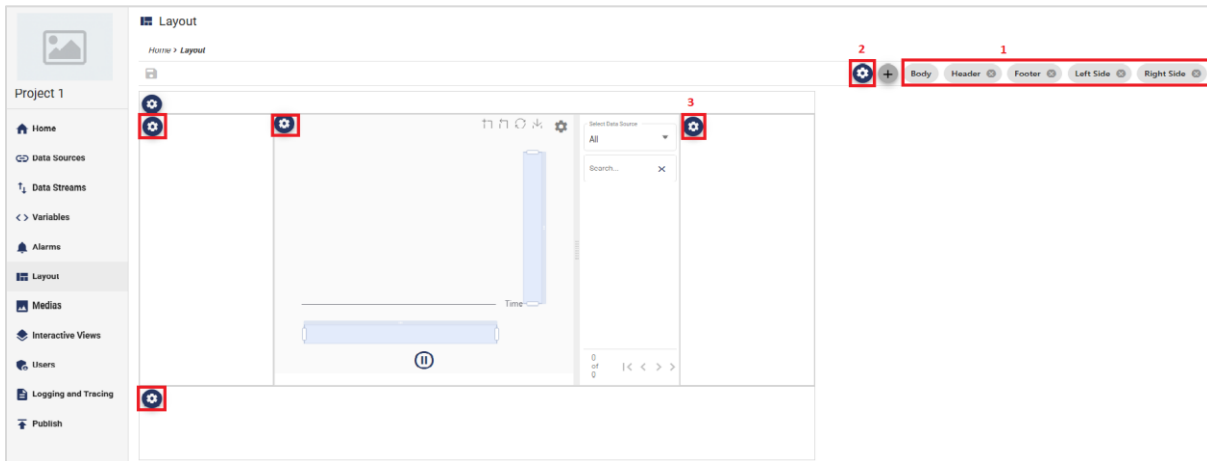


**Figure 63: Access Layout Page**

The Layout interface contains the following configurable components:

1. List of enabled / visible sections (Body, Header, Footer, Left Side, Right Side) (1).
2. Layout configuration (Resolution, Background Image / Color) (2).

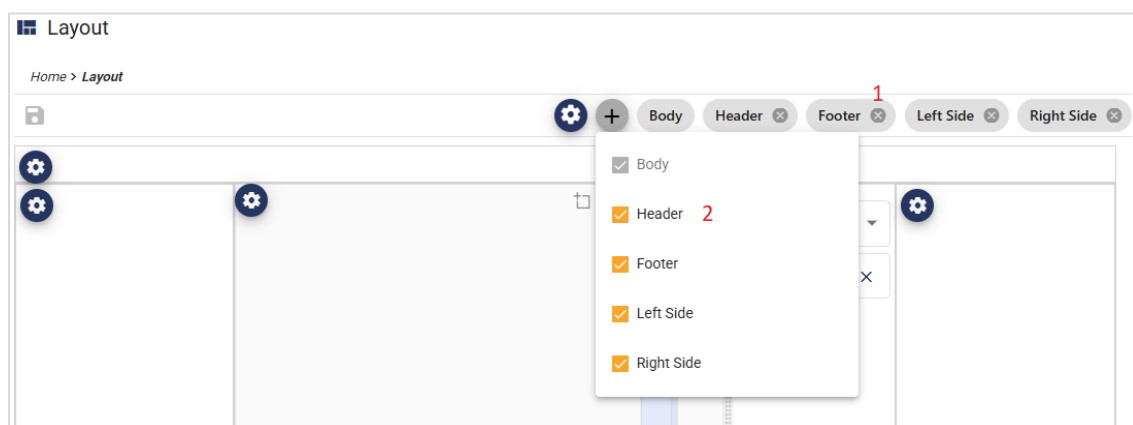
- Section configuration available for each enabled section (Size, Content) (3).



**Figure 64: Layout Workspace**

## 1. Manage Layout Sections

In the Layout workspace, you can manage application sections according to your design requirements. By default, all sections - including the header, body and footer - are enabled displayed in the final runtime view. You can customize sections visibility as needed.



**Figure 65: Add / Remove Layout Sections**

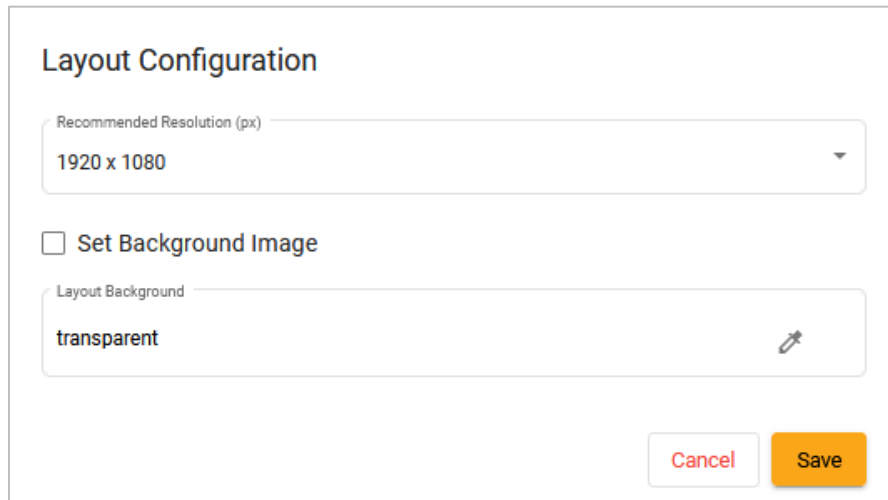
**(!) Note:**

The Body section is the main workspace where all the content is managed. This section cannot be removed.

You can remove sections either by clicking the **x** located at the section (1) or by unselecting the section from the **+** menu (2).

## 2. Layout Configuration

You can configure the runtime view resolution to match the screen used by the end user. This ensures that the final runtime view is displayed optimally on various devices and screen sizes.



The image shows a 'Layout Configuration' dialog box. It contains a dropdown menu for 'Recommended Resolution (px)' with '1920 x 1080' selected. Below this is a checkbox labeled 'Set Background Image' which is currently unchecked. Underneath the checkbox is a text field for 'Layout Background' with the value 'transparent' and a small icon to its right. At the bottom right of the dialog are two buttons: 'Cancel' and 'Save'.

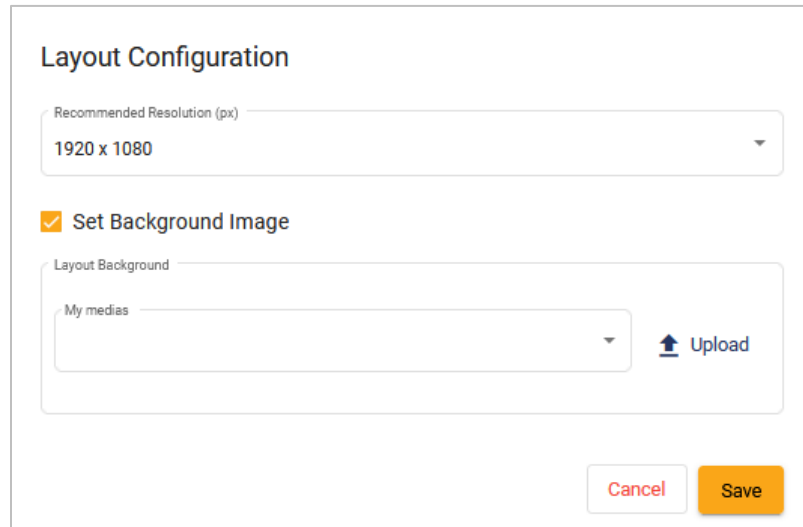
**Figure 66: Layout Configuration**

Additionally, you can customize the view background using the **Layout Background** field. By default, the background is set to **Transparent**, allowing the underlying elements or default settings to be visible. You can also apply a solid color to the entire view background to ensure a consistent look and feel across the application.

If you prefer to use an image as the background, you have two options:



1. **Use Existing Media:** Select from media files previously uploaded. This option allows you to reuse images already available in your project
2. **Upload Image Directly:** Upload an image from your local machine using the **Upload** button. This option provides flexibility to use custom images as the view background.



**Figure 67: Layout Configuration - Upload Background Image**


### 3. Layout Sections Configuration

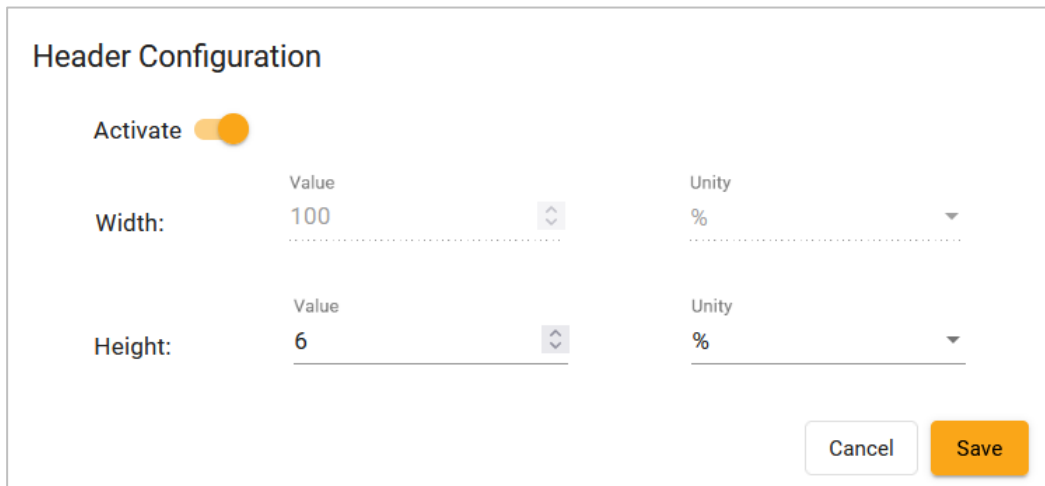
Enabled sections can be configured using the **Configuration** button located in the top-left corner of each section.



**Figure 68: Section Configuration Menu**

### 3.1. Sections Configuration

To configure the section, click the  icon. A new pop-up will be displayed, from which you can configure the width and height of the section. You can also define the unit that will be used for the values. Options can be either Pixel (px) or Percentage (%) with reference to the entire view.



**Header Configuration**

Activate ☒

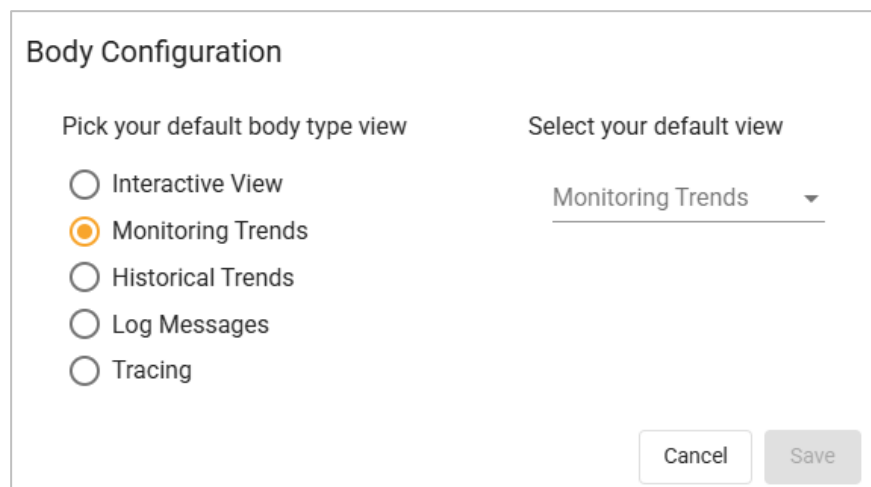
Width: Value 100 Unity %

Height: Value 6 Unity %

Cancel Save

**Figure 69: Section Configuration View**

Specifically for the **Body** section, you can select the default view to be displayed.



**Body Configuration**

Pick your default body type view

☐ Interactive View  
☒ Monitoring Trends  
☐ Historical Trends  
☐ Log Messages  
☐ Tracing

Select your default view

Monitoring Trends

Cancel Save

**Figure 70: Body Section Configuration View**

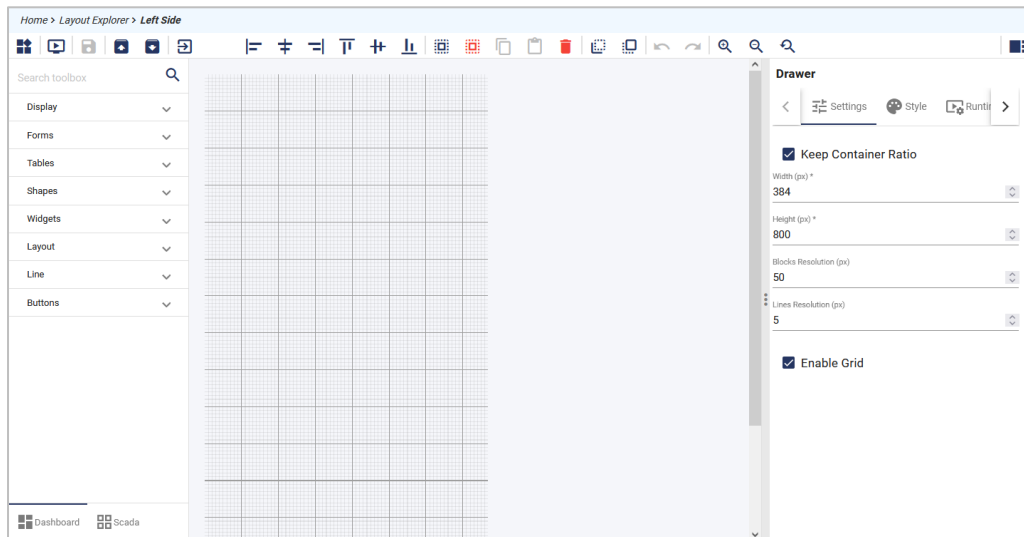
The default runtime view can be set as one of the following options:

1. **Interactive View:** Select the interactive view from the **Select your default view** dropdown list.
2. **Monitoring Trends:** This is selected as default option for the body section. It allow to immediately view and analyze real-time data trends.
3. **Historical Trends:** Allow to view and analyze past data values collected over time.
4. **Logs Messages:** Provide a chronological history of system activity.
5. **Tracing:** Refers to the process of recording and displaying detailed information about the internal behavior of the system.

### 3.2. Edit Section Content

To edit the content of each section, follow these steps:

1. Click the **Edit** button in the configuration menu for the specific section you want to edit.
2. A configuration panel for the selected section will appear. This panel allows to customize and adjust the settings, layout, and content of the section.
3. Once the updates are done, click **Save** or **Apply** button to confirm the changes and update the content of the selected section.



**Figure 71: Section Configuration Panel – Left Side**

**(!) Note:**

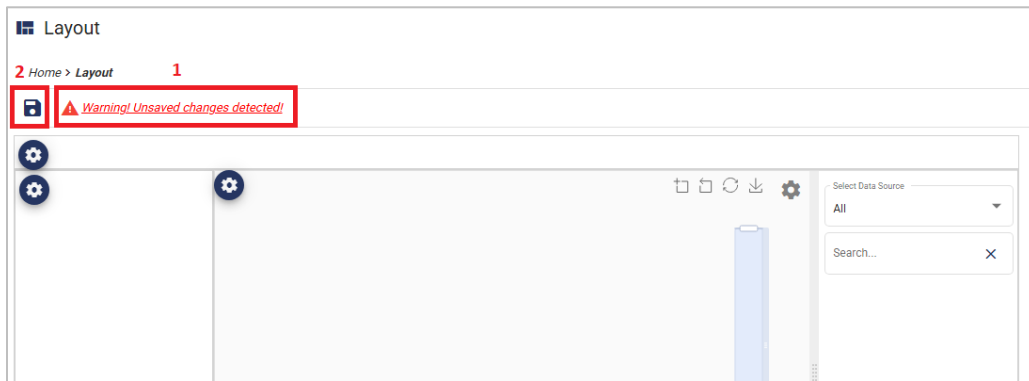
- You can add any item available in the dashboard and SCADA toolboxes within any section.
- When configuring the component frame in the layout sections, it is recommended to use proportional positions and sizes. This ensures that the components maintain consistent proportions and adjust dynamically based on the container's dimensions.

### 3.3. Delete Section

To remove a section, use can use one of the following methods:

1. Remove it from the list of sections displayed in the top bar.
2. Disable it from the drop-down list using the + button in the top bar.
3. Use the **Delete** button under the section configuration menu.

Once the layout view configuration is done, click **Save** to confirm the changes and update the content of the layout view.

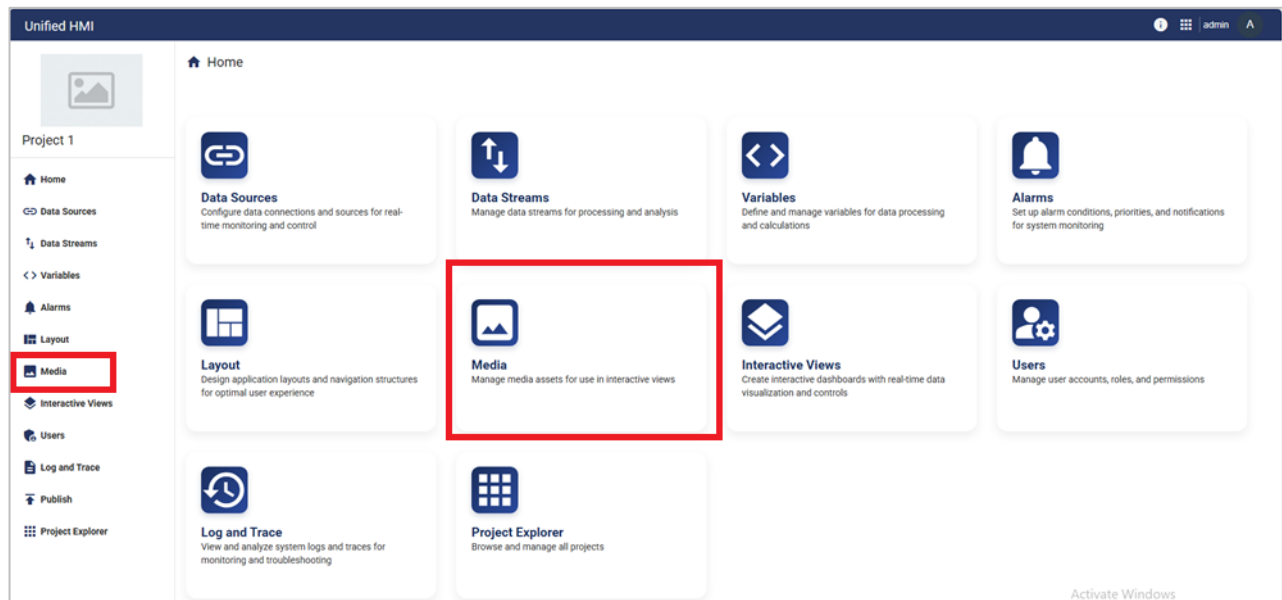


**Figure 72: Layout Configuration - Save Changes**

# MEDIA

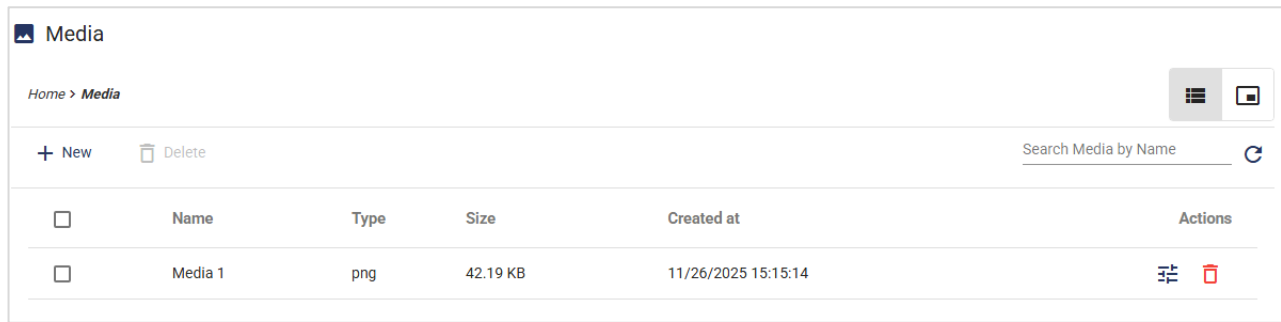
Unified HMI enables you to import images into the Media so that you can use them to design your dashboard and enrich your user interface. By accessing the Media workspace, you can easily manage and incorporate images into your project, enhancing the visual appeal and user experience of your application.

To access the **Media** page, you can either click on the **Media** card on the project home page or select the **Media** from the sidebar menu.



**Figure 73: Access Media Page**

Upon reaching the **Media** page, you will find an explorer listing all the added media, each one presented on a separate line.



**Figure 74: Media Explorer**

The following actions are available for each media:



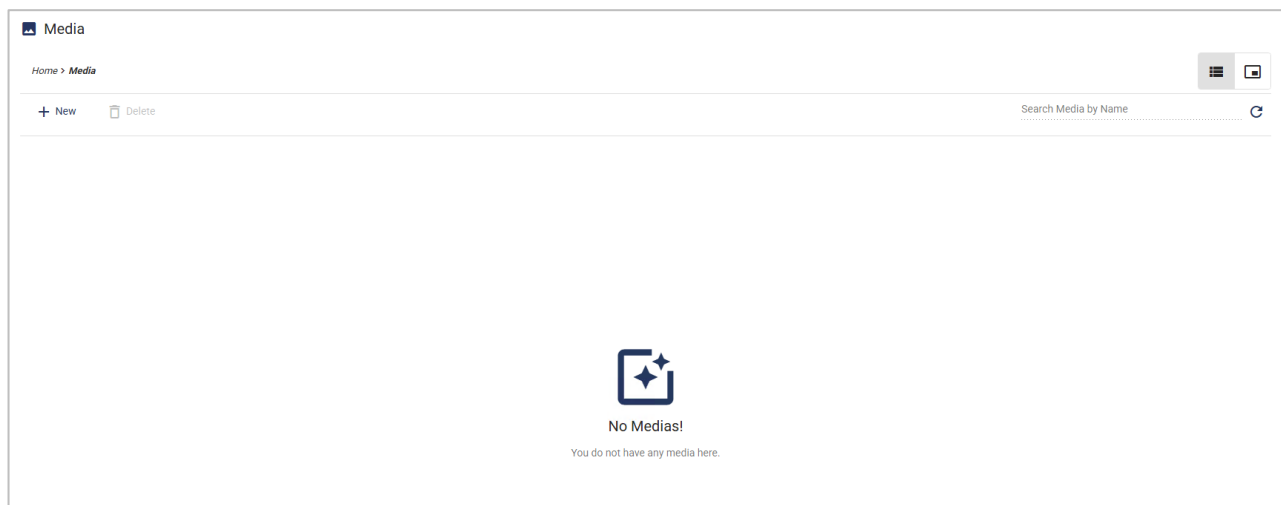
**Edit:** This action enables you to update the media.



**Delete:** This action allows you to delete a media from the list if it is no longer needed or not valid anymore.

## 1. Add Media


To add a new media, click **New**. If no media has been added yet, you can click **New Media**.





**Figure 75: Add a New Media**

Once clicked on the “New” button, a popup will be displayed, where you can configure the new media parameters.

### New Media



Drop image or click to upload

 Max Image Size: 100 KB
   
 Supported Files: JPG, JPEG, PNG, GIF

Name

Cancel

Save

**Figure 76: New Media Configuration View**

Parameter	Description
<b><i>Image container</i></b>	Allows to select a file from the local device.
<b><i>Name</i></b>	The unique name of the media, which is automatically generated.

**Table 10: New Media Parameters**



Once configured, click **Save** to add the media.

By following these steps, you can easily upload and manage media files in your project, making them available for use in your dashboard and other user interface.

## 2. Edit Media

To update existing media, follow these steps:

1. Open the Media page by either clicking the Media card on the project home page or selecting Media from the sidebar menu.
2. Locate the media you want to edit.
3. In the Actions column of the media table, click the Edit icon.
4. A pop-up will appear, displaying the current configuration of the media.
5. You can edit the name or choose a different file for the selected media.
6. Once the updates are done, click Save to submit the changes.

## 3. Delete Media

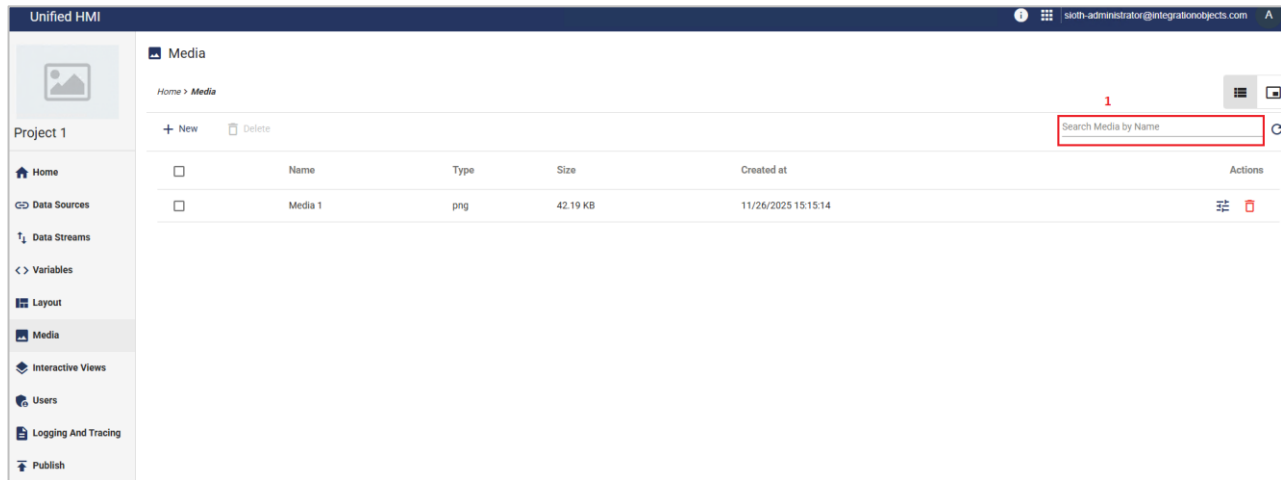
To delete existing media, follow these steps:

1. Open the **Media** page by either clicking the **Media** card on the project home page or selecting **Media** from the sidebar menu.
2. Locate the media you want to delete.
3. In the **Actions** column of the media table, click the **Delete** icon.
4. A confirmation message will pop up, prompting you to confirm the deletion.
  - a. Click **OK** to confirm and delete the media.
  - b. Click **Cancel** to abort the deletion and retain the media.

By following these steps, you can easily delete unwanted or unnecessary media from your project.

## 4. Search Media

You can search for media by entering the suggested name in the search area located at the top-right area of the page.

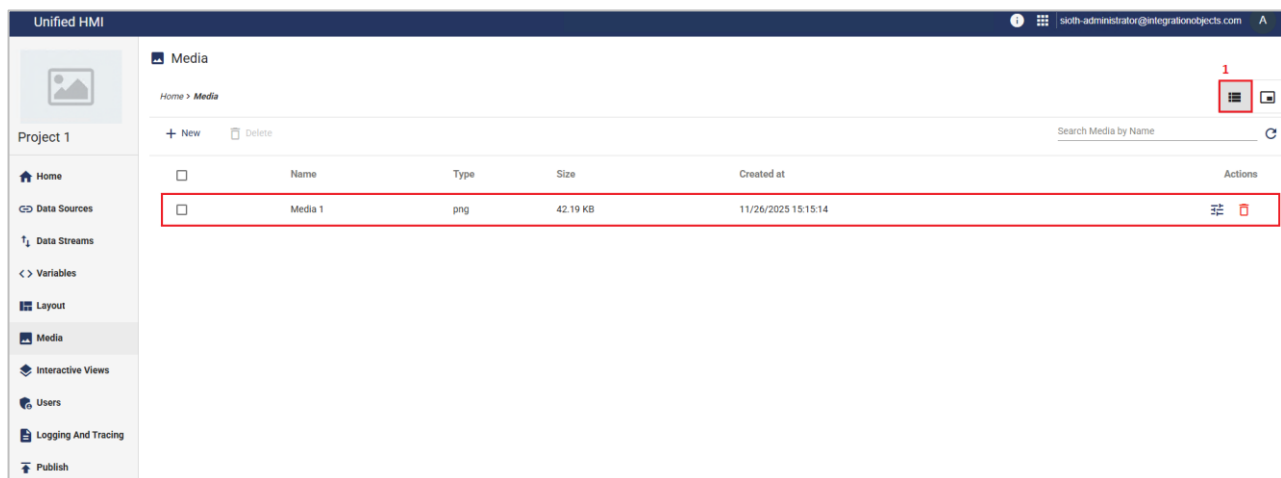


**Figure 77: Search Media**

## 5. Options Views

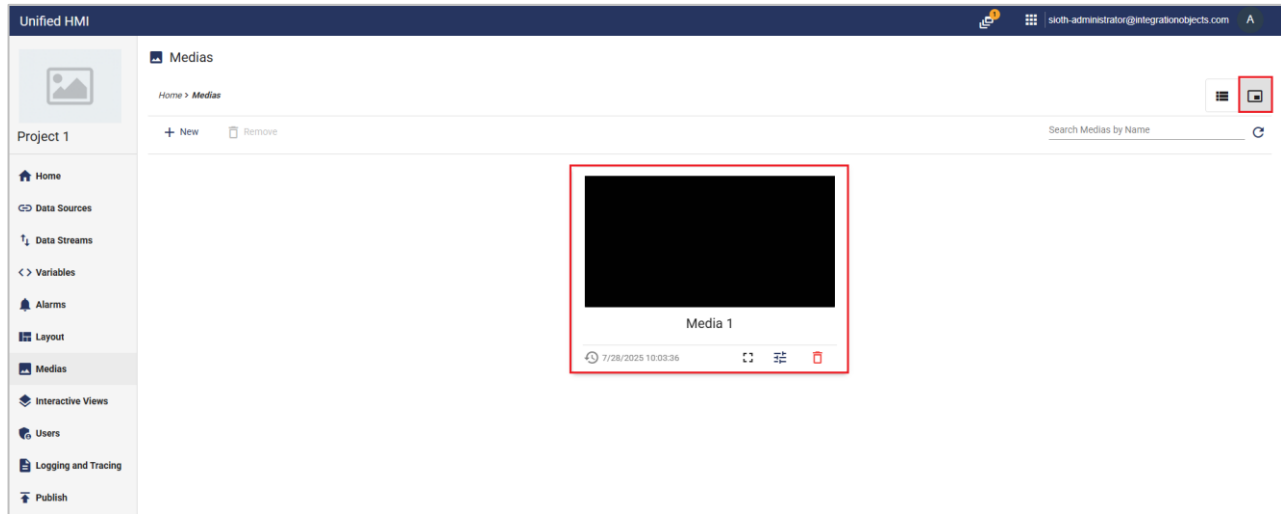
The **Options Views** allows to choose how medias are displayed in the **Media** view. Two display modes are supported:

1. **List View:** Displays media in a horizontal list format.



**Figure 78: Media Displayed as List**

2. **Grid View:** Displays media in a table-like grid format.

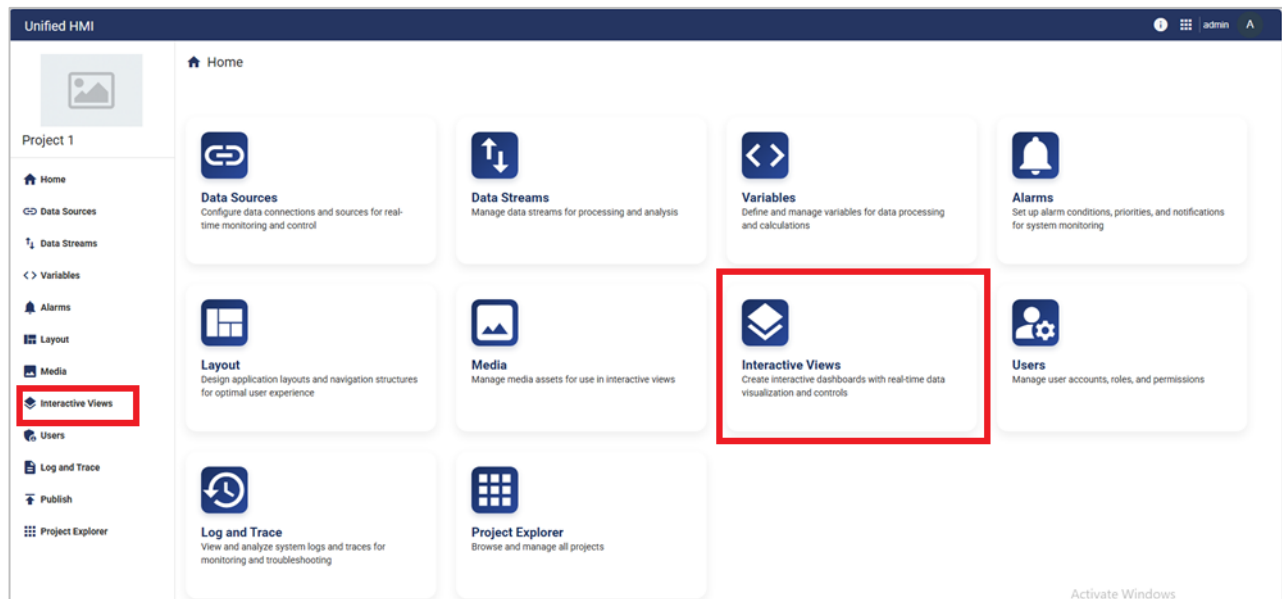


**Figure 79: Media Displayed as Grid**

# INTERACTIVE VIEWS

Interactive View is a versatile workspace within Unified HMI that allows designers to create and configure dashboards, views, and pop-ups. IVs serve as the building blocks for developing complete application with seamless navigation and interaction. By linking multiple IVs, designers can build visually engaging and user-friendly interfaces.

To access the **Interactive Views** page, you can either click on the **Interactive Views** card on the project home page or select the **Interactive Views** from the sidebar menu.



**Figure 80: Access Interactive Views Page**

Upon reaching the **Interactive Views** page, you will find an explorer listing all the added interactive views, each one presented on a separate line.

The following actions are available for each interactive view:



**Design:** This action opens the interactive view editor page.



**Preview:** This action enables to launch a runtime preview of the interactive view.













**Edit:** This action allows to edit the information of the interactive view.



**Duplicate:** This actions allows to duplicate the interaction view.



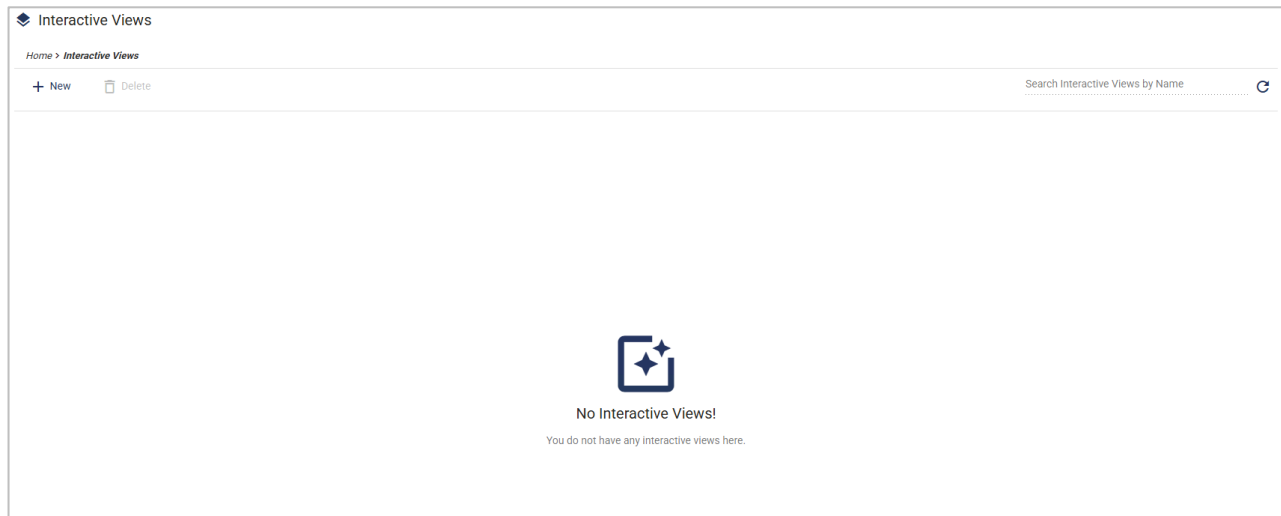
**Delete:** This action allows you to delete an interaction view from the list if it is no longer needed or not valid anymore.

Interactive Views						
Home > Interactive Views						
+ New		Remove		Search Interactive Views by Name		
<input type="checkbox"/>	Name	Title	Displayed as	Created at	Modified at	Actions
<input type="checkbox"/>	IV2	IV2 Title	Page	3/28/2022 14:38:26	3/28/2022 14:38:26	    
<input type="checkbox"/>	IV1	Interactive View Title	Page	3/28/2022 14:33:29	3/28/2022 14:33:44	    

**Figure 81: Interactive Views Explorer**

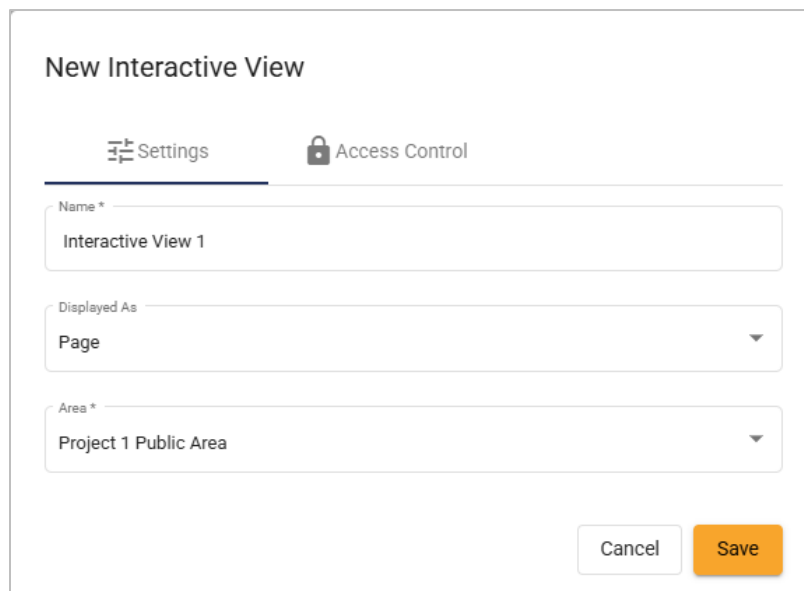
## 1. Add In Interactive View

To add a new interactive view, click **New**. If no media has been added yet, you can click **New Interactive View**.



**Figure 82: Add a New Interactive View**

Once clicked, a popup will be displayed, where you can configure the new interactive view parameters.



The screenshot shows a 'New Interactive View' configuration popup. It has two tabs: 'Settings' (selected) and 'Access Control'. Under the 'Settings' tab, there are three input fields: 'Name \*' with the value 'Interactive View 1', 'Displayed As' with a dropdown menu showing 'Page', and 'Area \*' with a dropdown menu showing 'Project 1 Public Area'. At the bottom right, there are two buttons: 'Cancel' and 'Save'.

**Figure 83: Interactive View Configuration View**

Parameter	Description
<b>Name</b>	The unique name of the interactive view, which is automatically generated.
<b>Displayed As</b>	Refers to how the interactive view will be displayed. Possible options are: <ol style="list-style-type: none"> <li>1. Page</li> <li>2. Pop-up</li> </ol>
<b>Width</b>	This is applicable when the <b>Displayed As</b> parameter is set to <b>Pop-up</b> . It defines the width of the pop-up.
<b>Height</b>	This is applicable when the <b>Displayed As</b> parameter is set to <b>Pop-up</b> . It defines the width of the pop-up.
<b>Area</b>	Used to divide the runtime application into multiple units/regions. One area contains at least one view and is accessible by one or multiple user roles. By default, the interactive view belongs to the project's public area.

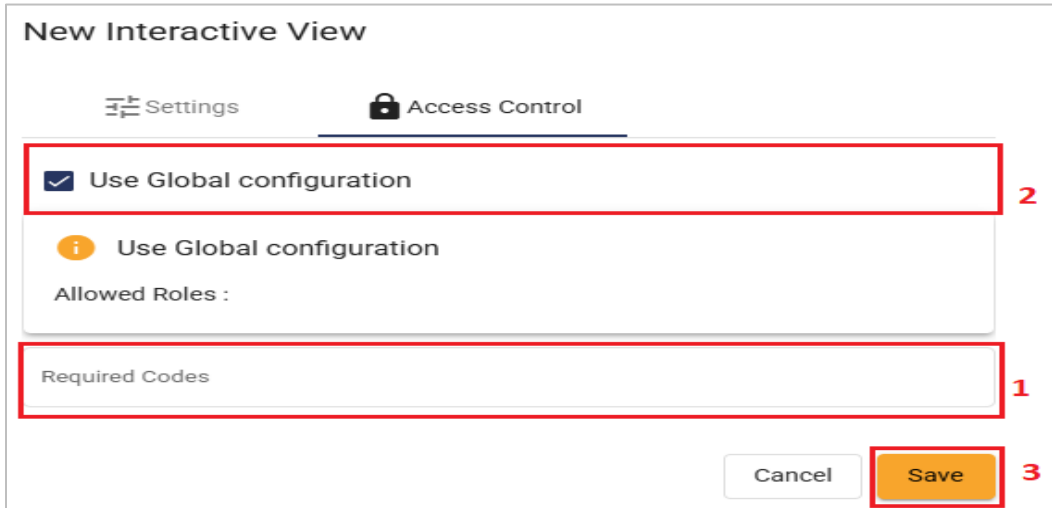
**Table 11: New Interactive View Parameters – Settings Tab**

The **Access Control** tab allows you to define the access permissions for interactive views. This feature enables you to specify which roles are allowed to view or perform actions on a particular interactive view and set any required codes for access.

**(!) Note:**

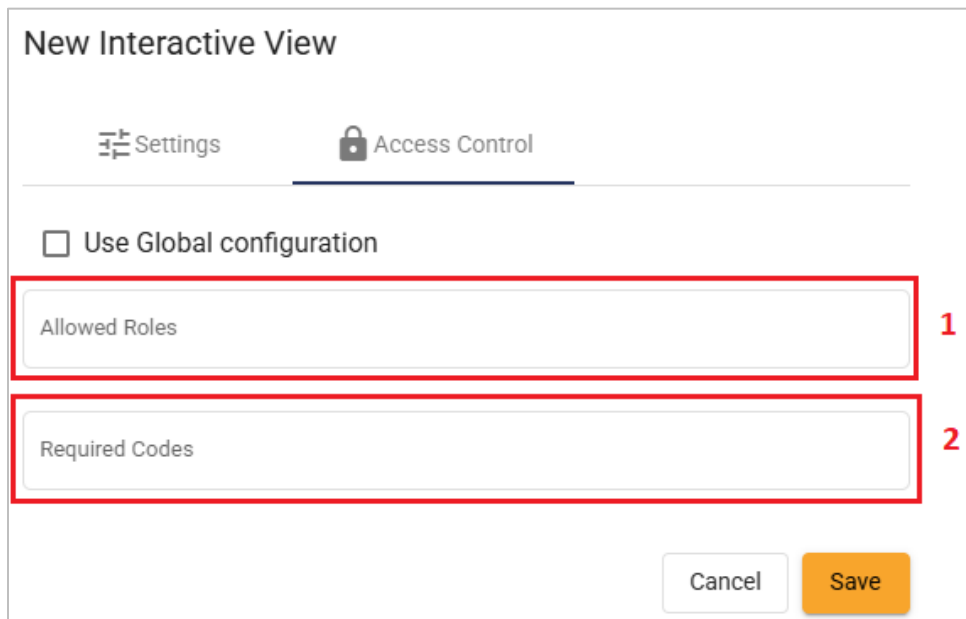
- More details about access control are available in the "Runtime Users Management" section.

You can define the access permissions for an interactive view by filling in the **required codes** (1), selecting the “**Use Global Configuration**” option (2) to apply all configured roles, and finally clicking **Save** (3) to add the interactive view.



**Figure 84: Interactive View Configuration View – Access Control**

If the **Use Global Configuration** option is disabled, you will have to select the role from the **Allowed Roles** dropdown list (1) and fill the required codes in the **Required Codes** field (2).



**Figure 85: Interactive View Configuration View – Use Global Configuration Option Disabled**



## 2. Design an Interactive View

An interactive view is divided into four main parts: (1) the toolbar, (2) the toolbox, (3) the drawer and (4) the configuration Panel.

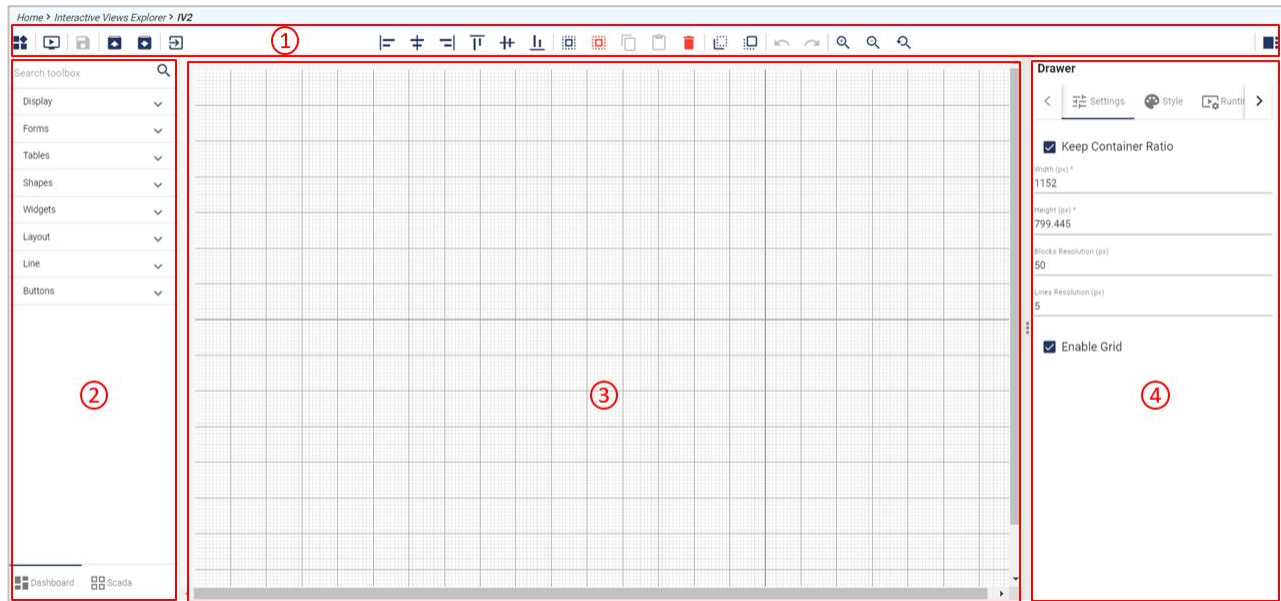


Figure 86: Interactive View Editor

### 2.1. Toolbar

The toolbar provides controls that you can use while working on the view:



**Collapse Toolbox:** Hide/show the toolbox.



**Preview:** Launch a preview of the application in runtime mode without publishing it.



**Save:** Save the current view. This button is disabled if no changes have been.



**Publish:** Publish the project to the runtime.



**Export:** Export the configuration of the current view widgets as a Json file.



**Import:** Import a configuration of the widget as a Json file and add it to the view.



**Exit:** Exit the current view to reach the **Interactive Views** page.



**Left Align:** Align the selected objects to the left.



**Center Horizontally:** Align the selected objects to the center.



**Right Align:** Align the selected objects to the right.



**Top Align:** Align the selected objects to the top.



**Center Vertically:** Align the selected objects to the middle.



**Bottom Align:** Align the selected objects to the bottom.



**Select All:** Select all widgets from the current view. You can also use the keyboard shortcut (Ctrl+A) to perform this action.



**Unselect All:** Unselect all selected widgets in the current view. You can also use the keyboard shortcut (Ctrl+Q) to perform this action.



**Copy:** Place a copy of the selected object on the clipboard, allowing you to paste it in the same view or into other views.



**Paste:** Insert the contents of the clipboard into the view. This button is disabled if the clipboard is empty. Widgets are pasted with the same parameters as the copied widget. No data is modified.



**Duplicate:** Duplicate the selected widgets.



**Group:** Group the selected widgets.



**Ungroup:** Ungroup the selected widgets.



**Remove:** Delete the selected widgets.



**Add Custom Component:** Add the selected widget as a custom component



**Send to Back:** Send the selected objects behind all other objects.



**Send to Front:** Bring the selected objects behind all other objects.



**Undo:** Undo the latest action. You can also use the keyboard shortcut (Ctrl+Z) to perform this action.



**Redo:** Redo the undone action. You can also use the keyboard shortcut (Ctrl+Y) to perform this action.



**Zoom In:** Zoom in to view the content larger.



**Zoom Out:** Zoom out to view the content smaller.



**Reset Zoom:** Reset to the default zoom level.

Forms

**Forms:** Define the list of the forms control.

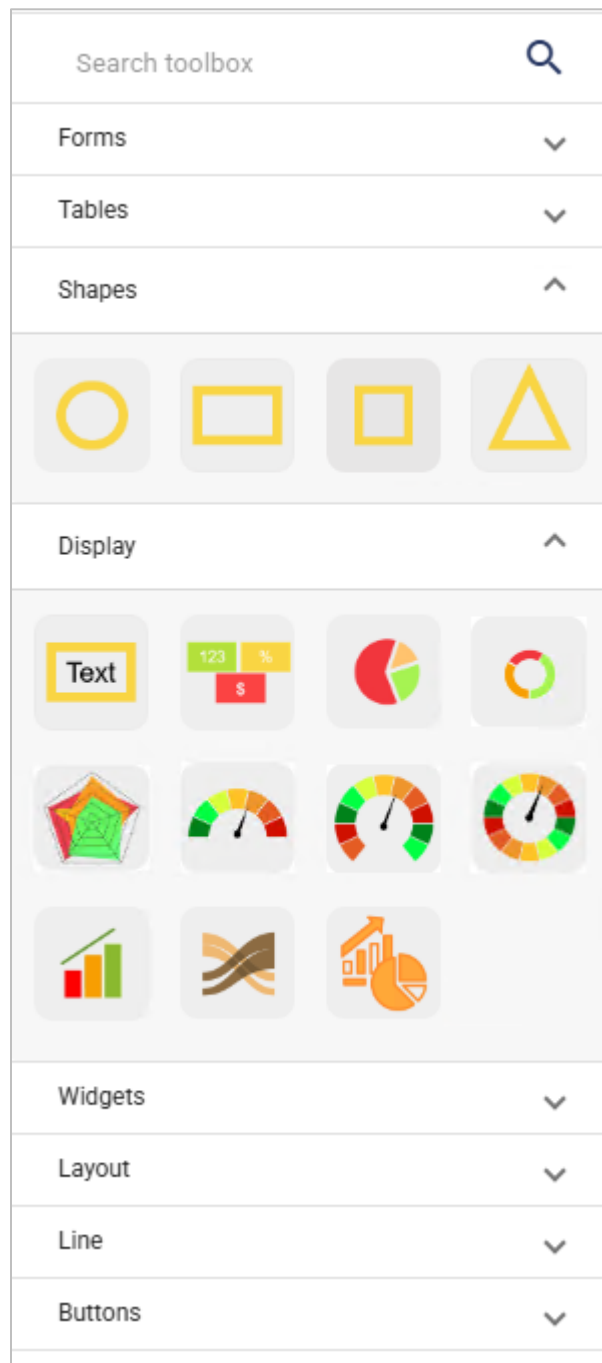


**Collapse Configuration:** Hide/show the configuration panel.

## 2.2. Toolbox

Unified HMI Designer Toolbox is a collection of dashboard, SCADA components and widgets that designers can use to build their applications. These components and widgets are organized into different categories, making it easier to find and use to create interactive and dynamic user interfaces.

You can search for a widget by typing its name in the search zone.

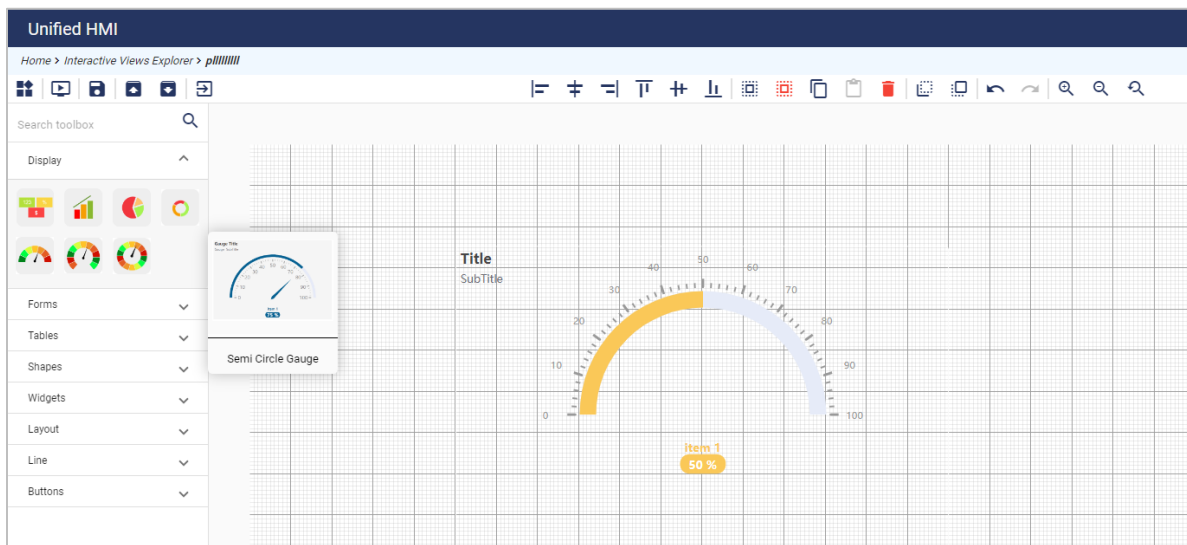


**Figure 87: Interactive View Toolbox**

## 2.3. Drawer

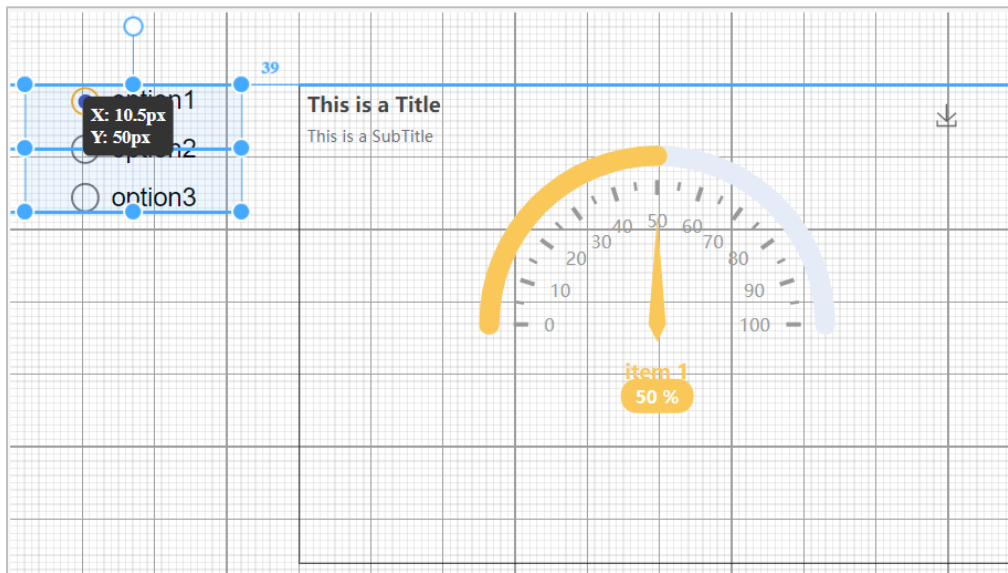
Unified HMI Drawer is the primary workspace for designing the content of each view in your application. It provides a canvas where you can create and customize the layout of your dashboard or SCADA applications. The Drawer gives you full control over the design process, allowing you to add, customize, resize, move, and remove widgets to build the user interface as required.

To add a component to the drawer, either drag it from the toolbox and drop it in the workspace or click the component in the toolbox to insert it automatically.



**Figure 88: Add Widget to the Drawer Workspace**

When moving widgets within a drawer, placement assistance is provided to help you position components more accurately. The system displays the widget's current position along with its distance from the nearest widgets, making it easier to align and organize the layout.



**Figure 89: Move Widget within the Drawer**

You can adjust the width, height, and resolution of the component using the drawer configuration panel.

Additionally, multiple components can be grouped together to form a single entity. This allows you to configure the position, width, and height of the entire group simultaneously. It simplifies the management of complex layouts by enabling you to manipulate multiple components as a cohesive unit.

## 2.4. Drawer Configuration Panel


You can effortlessly modify various aspects of the configuration by utilizing the drawer configuration panel. This includes adjusting the width, height, and resolution to seamlessly update the desired settings.

**(!) Note:**

- Details of widgets parameters are detailed in the Widgets section.

## 3. Preview an Interactive View

To launch a preview of an interactive view, follow these steps:

1. Open the **Interactive Views** page by either clicking the **Interactive Views** card on the project home page or selecting **Interactive Views** from the sidebar menu.
2. Locate the interactive view you preview.
3. In the **Actions** column of the interactive views table, click the **Preview** icon.
4. A pop-up will appear, displaying the preview of the selected interactive view.
5. Once done, click the  icon to close the preview pop-up.

## 4. Edit Interactive View

To update an interactive view, follow these steps:

1. Open the **Interactive Views** page by either clicking the **Interactive Views** card on the project home page or selecting **Interactive Views** from the sidebar menu.
2. Locate the interactive view you want to edit.
3. In the **Actions** column of the interactive views table, click the **Edit** icon.
4. An update pop-up will appear, displaying the current configuration of the interactive view.
5. Edit the parameters in the displayed pop-up.
6. Once the updates are done, click **Save** to submit the changes.

## 5. Duplicate Interactive View

To duplicate an interactive view, follow these steps:

1. Open the **Interactive Views** page by either clicking the **Interactive Views** card on the project home page or selecting **Interactive Views** from the sidebar menu.
2. Locate the interactive view you want to duplicate.
3. In the **Actions** column of the interactive views table, click the **Duplicate** icon.
4. An update pop-up will appear, displaying the configuration of the interactive view that will be duplicated.
5. Edit the parameters in the displayed pop-up.
6. Once the updates are done, click **Save** to submit the changes.

Once confirmed, a new interactive view will be added containing the same designs and configuration as the original view.

## 6. Delete Interactive View

To delete an interactive view, follow these steps:

1. Open the **Interactive Views** page by either clicking the **Interactive Views** card on the project home page or selecting **Interactive Views** from the sidebar menu.
2. Locate the interactive view you want to delete.
3. In the **Actions** column of the interactive views table, click the **Delete** icon.
4. A confirmation message will pop up, prompting you to confirm the deletion.
  - a. Click **OK** to confirm and delete the interactive view.
  - b. Click **Cancel** to abort the deletion and retain the interactive view.

By following these steps, you can easily delete unwanted or unnecessary interactive views from your project.

### Deleting Interactive View



Are you sure you want to delete the Interactive View 1 interactive view?

Cancel

OK

**Figure 90: Delete Interactive View Confirm Message**

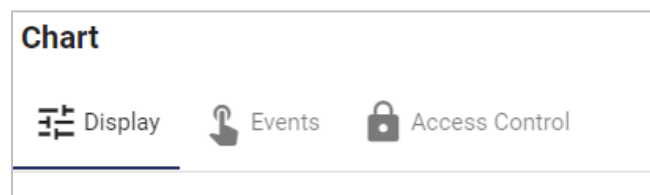


# WIDGETS

Widgets are preconfigured components available in the interactive view toolbox. You can easily add, customize, resize, move, and remove these components as needed. To add a widget to the Interactive View drawer, drag it from the toolbox and drop it. The widget's properties can then be modified by adjusting its parameters in the Configuration Panel located in the at the right of the workspace.

## 1. Widget Common Configuration

In general, the widgets configuration panel is organized into three main tabs: **Display**, **Events** and **Access control**.



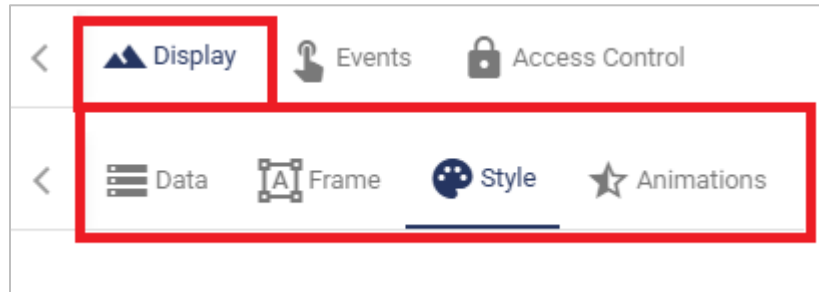
**Figure 91: Widgets Configuration Common Tabs**

### 1.1. Display

In the Unified HMI **Drawer**, you can configure a wide range of parameters related to the layout, style, and data of the widgets that are added to your views. Depending on the selected widget, you can customize the appearance and behavior to fit the needs of your application.

The configuration options may include Data Configuration, Chart Configuration, Table Columns, Filter Fields, and more, depending on the widget type.


All settings related to data, frame, style, and animation are managed within the Display section of the configuration panel.

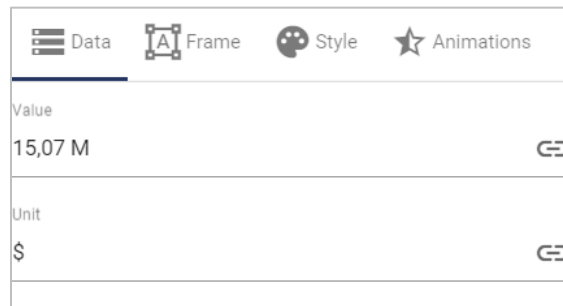


**Figure 92: Widgets Configuration - Display Section**


### 1.1.1 Link a Widget Parameter to a Data Source

Widgets parameters, such as KPI values, chart data or table data need to be updated in real-time to provide meaningful insights. Unified HMI allows you to bind widget parameters to predefined data streams and variables.

Whenever there is the link icon  next to a field in the configuration panel, it indicates that the field's value can be linked to a data source or variable.



**Figure 93: Widgets Configuration - Linkable Fields**

To bind the field to a data source, click the link icon  next to the field. A pop-up window will appear, prompting you to choose the data source.



**Figure 94: Widgets Configuration - Select Data Mode**

The available data source options are:

1. **Static:** In this mode, selected by default, you manually enter the value in the corresponding text field.

The example below demonstrates a Generic Table populated with static data. The resulting table contains seven columns (guid, isActive, age, name, gender, company, email, registered) and three rows.

```
[
  {
    "guid": "1d2e161a-7276-40f4-a849-7f22704d36ee",
    "isActive": true,
    "age": 22,
    "name": "Colleen Harvey",
    "gender": "female",
    "company": "MEDESIGN",
    "email": "colleenharvey@medesign.com",
    "registered": "2014-04-27T06:29:14 -01:00"
  },
  {
    "guid": "01c633c0-1297-4ac8-8b7e-bd56a18f6879",
    "isActive": false,
    "age": 21,
    "name": "Glenn Kaufman",
    "gender": "male",
    "company": "ZANILLA",
    "email": "glennkaufman@zanilla.com",
    "registered": "2017-11-02T08:04:53 -01:00"
  },
  {
    "guid": "af2fa5c5-d663-40fa-91ee-35c6218a003e",
    "isActive": false,
    "age": 29,
    "name": "Torres Joyner",
    "gender": "male",
    "company": "QUILTIGEN",
    "email": "torresjoyner@quiltigen.com",
    "registered": "2017-01-31T12:34:03 -01:00"
  }
]
```

**Figure 95: Static Data Source Value Configuration Example**

2. **Data Stream:** In this mode, you can link a widget to a previously added data stream. From the **Choice** drop-down list, select the data stream you want your widget to be linked to. If needed, you can apply a **Transformer Function** to the selected stream. This function, written in **JavaScript**, allows you to define conditions, mappings, or formatting rules for the input data and return a single value. A preview of the resulting value type is also available for validation.

Select Data Mode

Source  
Data Stream

Explore Data Streams

Value Type

Transformer Function

```

1  (obj) => {
2    return obj;
3  }

```

Cancel Save

**Figure 96: Data Stream Source Configuration View**

3. **Variable:** In this mode, you can link a widget to a previously added variable. From the **Choice** drop-down list, select the variable you want your widget to be linked to. If needed, you can apply a **Transformer Function** to the selected stream. This function, written in **JavaScript**, allows you to define conditions, mappings, or formatting rules for the input data and return a single value. A preview of the result displaying the value type is also available for validation.

Select Data Mode

Source  
Variable

Choice  
test

Value Type  
string

Transformer Function

```

1  (value) => {
2    return value;
3  }

```

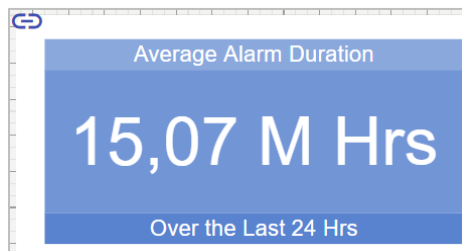
Cancel Save

**Figure 97: Variable Source Configuration View**

**(!) Note:**


To get significant data, variable and data streams shall be with the same type as the Object to be linked with.

Whenever a parameter of a widget is linked to a data stream or a variable, the link icon will appear next to the component in the drawer.



**Figure 98: Displayed Link Icon for Linked Widget**

### 1.1.2 Color Picker

The color picker allows to customize text, widgets, and dashboards. You can access the color picker by clicking on the **eyedropper** icon  within the color configuration field.



**Figure 99: Color Selection Field**

Once clicked, a new pop-up will be displayed and that contains five components:

1. **Color field (1):** Displays variations in saturation from left to right and variations in brightness from top to bottom. It appears as a square area at the top.



**Figure 100: Color Picker Control**

2. **Color Slider (2):** Determines the hue, which is the color portion of the color model. It appears as a horizontal slider with a spectrum of colors.
3. **Opacity Slider (3):** Determines the transparency of the selected color by setting the alpha (opacity) component in the RGBA color model (Red, Green, Blue, Alpha).
4. **RGBA (Red, Green, Blue, Alpha) Color (4):** Represents the combination of red, green, blue, and alpha (opacity) components that define the color as numbers.
5. **Predefined Colors (5):** Defines a set of colors provided for quick access.

To customize color:

1. Choose the hue using the slider (2).
2. Click and drag the circle within the color field (1) to adjust the shade and saturation, then release the click when the desired color is reached.
3. Adjust the opacity using the slider (3).

As you make changes, the resulting color is displayed in the preview square to the right of the sliders.

**(!) Note:**

- Red, Green, and Blue values range from 0 to 255, while the Alpha value (opacity) ranges from 0 to 100.

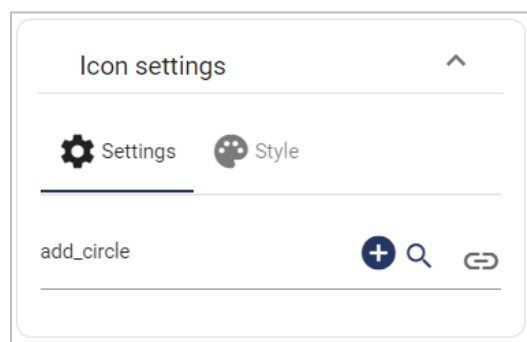
Colors can also be specified in **Hex** format, starting with a # symbol followed by two-digit hexadecimal values for each color channel (Red, Green, Blue), ranging from 00 to FF. For example, "#00FF00" represents green.

Once you have selected a color, click the **Select** button to apply it to the component.

### 1.1.3 Icons Explorer

Unified HMI provides the option to enhance and customize widgets, such as menus, tables, and buttons, by adding icons. Icons can visually enrich the user interface and provide intuitive representations of various actions or functionalities.

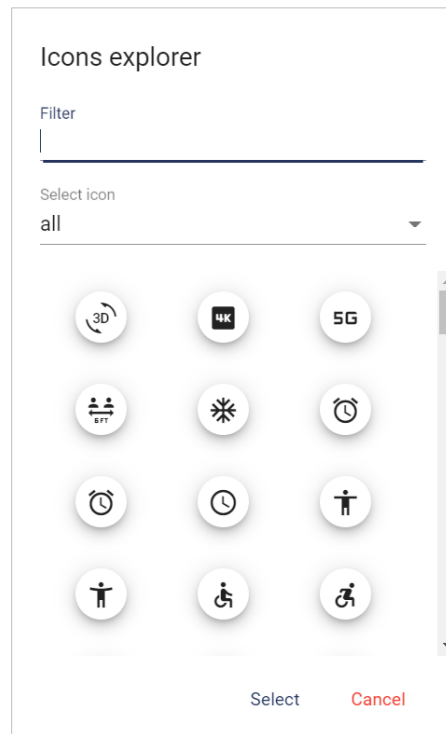
To access the icons explorer, click the loop icon within the icon configuration field.



**Figure 101: Icon Configuration View**

Within the explorer, you can make a search on filters by typing the name of the searched icon in the field **Filter**. You can also show only a specific category of icons by choosing the category from the

dropdown list **Select Icon**. Finally, click on the chosen icon then on **Select** to save the selection or **Cancel** to abort.



**Figure 102: Icons Explorer View**

### 1.1.4 Frame Configuration

Widgets are initially added to the Drawer in a default position and default size. After adding a widget, you should first set its **alignment** and **scale**. This can be done in the configuration panel under **Display** → **Frame**.



**Size:**

Width
368.9597424'
px
▼

Height
193.26
px
▼

**Position:**

|=

≠

=|

|↔|

Left
783
px
▼

|

≠

||

≡

Top
100
px
▼

**Rotation:**

Angle
0
°
-90° ↺
+90° ↻

**Figure 103: Frame Configuration Section**

Parameter	Description
<b>Width</b>	Specifies the width of the widget. You can define the unit of the width by selecting px (pixel) or % (percentage) in the drop-down menu next to the value field.
<b>Height</b>	Specifies the height of the widget. You can define the unit of the height by selecting px (pixel) or % (percentage) in the drop-down menu next to the value field.
<b>Horizontal Float</b>	Specifies the horizontal alignment of the widget within the view. The default option is None, which allows you to freely move the widget in the workspace. You can change the behavior to Left, Right, Center or leave it to None.
<b>Vertical Float</b>	Specifies the vertical alignment of the widget within the view. The default option is None, which allows you to freely

	move the widget in the workspace. You can change the behavior to top, center, bottom or leave it to None.
<b>Left</b>	Specifies the left position of the widget within the view. You can define the unit of the position by selecting px (pixel) or % (percentage) in the drop-down menu next to the value field.
<b>Top</b>	Sets the top position of the widget within the view. You can define the unit of the position by selecting px (pixel) or % (percentage) in the drop-down menu next to the value field.
<b>Rotation</b>	Determines the rotation degree of the widget. The rotation value must be less than or equal to 360°, allowing you to rotate the widget to the desired angle.

**Table 12: Frame Configuration Parameters**

### 1.1.5 Style Configuration

Under the Style tab, you can set and adjust the parameters related to the font style.

Parameter	Description	Default
<b>Size</b>	The size of the text. This field is hidden when the field <b>Fit Container</b> is checked.	18
<b>Fit to Container</b>	When this field is checked, the size of the text will be proportional to the widget layout.	Checked by default
<b>Style</b>	Choose the style of the text: <b>Underline</b> or <b>Italic</b> or <b>Bold</b> .	Normal
<b>Family</b>	Choose the font family of the text from the drop-down list of available families.	Helvetica

<b><i>Color</i></b>	Set the color of the text using the color picker.	black
<b><i>Justify Left</i></b>	Set the position of the text to the <b>Left</b> .	Not checked by default
<b><i>Justify Center</i></b>	Set the position of the text to the <b>Middle</b> .	Checked by default
<b><i>Justify Right</i></b>	Set the position of the text to the <b>Right</b> .	Not checked by default

**Table 13.Style Configuration Parameters**

**(!) Notes:**

- "Fit to Container" functionality may not be available or supported in all font configurations.
- Some functionalities may not be available for some widgets.

### 1.1.6 Animations Configuration

Under the Animation tab, you can choose and adjust the parameters related to animations.

Parameter	Description	Default
<b><i>Visibility</i></b>	You can choose whether to make the widget visible or not by checking the checkbox Visibility.	Checked by default
<b><i>Frame Animation</i></b>	When enabled, Position X, Position Y and the Rotation angle need to be specified.	Disabled by default
<b><i>Blink Animation</i></b>	A visual effect that makes an element appear blinking.	Unchecked by default

<b>First Background Color</b>	The initial background color shown when the blink animation is activated.	Red
<b>Second Background Color</b>	The second background color shown when the blink animation is activated.	Green
<b>Background Duration</b>	The speed in seconds of the widget's blinking duration.	1 second
<b>Border Blink Animation</b>	A visual effect that makes the border of an element blinking.	Disabled
<b>First Border Color</b>	The initial first border color shown when the border blink animation is activated.	Red
<b>Second Background Color</b>	The second background color shown when the border blink animation is activated.	Green
<b>Border Duration</b>	The speed in seconds of the border's blinking duration.	1 second

### 1.1.7 Single Select

Single Select is an input control that allows you to choose only one option from a predefined list of mutually exclusive choices.



**Figure 104: Single Select Configuration Option**

### 1.1.8 Multiple Select

Multiple Select is an input control that allows you to choose multiple options simultaneously from a predefined list of choices.



A configuration panel for the Multiple Select widget. It contains four options, each with a checkbox and a label:

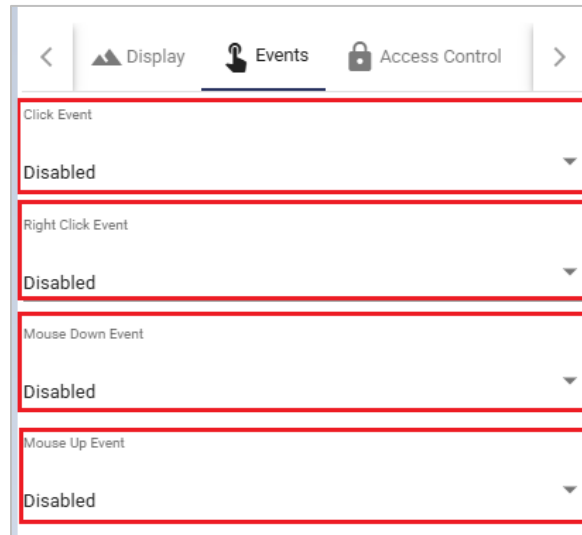
- ☐ Active
- ☒ Cleared
- ☒ Acknowledged
- ☐ Unacknowledged

**Figure 105: Multiple Select Configuration Option**

## 1.2. Events

For widgets, you can enable or disable the following interaction events:

1. **Click Event:** Triggered when the widget is clicked.
2. **Right Click Event:** Triggered when the widget is right-clicked.
3. **Mouse Down Event:** Triggered when a mouse button is pressed down on the widget.
4. **Mouse Up Event:** Triggered when a mouse button is released after being pressed on the widget.

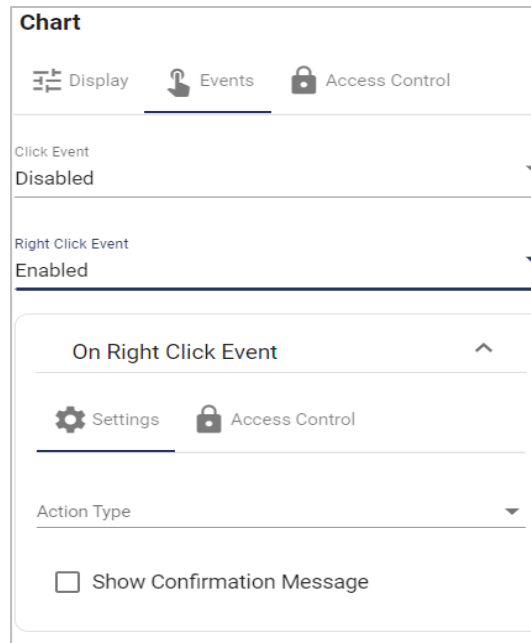


A configuration panel for widget events. It features a top navigation bar with three tabs: 'Display' (selected), 'Events', and 'Access Control'. Below the tabs, there are four rows, each representing a different event type. Each row has a dropdown menu currently set to 'Disabled'.

Event Type	Status
Click Event	Disabled
Right Click Event	Disabled
Mouse Down Event	Disabled
Mouse Up Event	Disabled

**Figure 106: Supported Events**

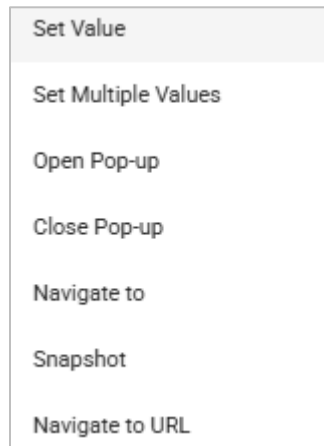
Using the **Events** tab, you can define the actions to be performed when a user interacts with the widget using the different mentioned events.



**Figure 107: Widget Events Configuration View**

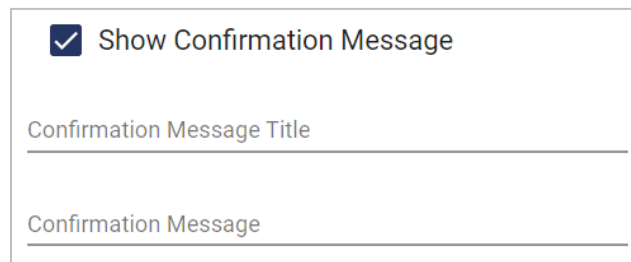
You can enable an event by setting its corresponding field to **Enabled**. Once enabled, the event configuration fields will be displayed, allowing you to define:

1. **Action Type:** This defines the action to perform when the user interacts with the widget. A set of predefined action types are available, and depending on the selected action, additional fields will be displayed to be configured.



**Figure 108: Event Action Types**

2. **Show Confirmation Message:** If you want a confirmation message to appear before executing the action, enable the **Show Confirmation Message** option. Once enabled, you will need to configure the following:
  - a. **Confirmation Message Title:** The title displayed at the top of the confirmation dialog.
  - b. **Confirmation Message:** The body text of the confirmation dialog shown to the user.



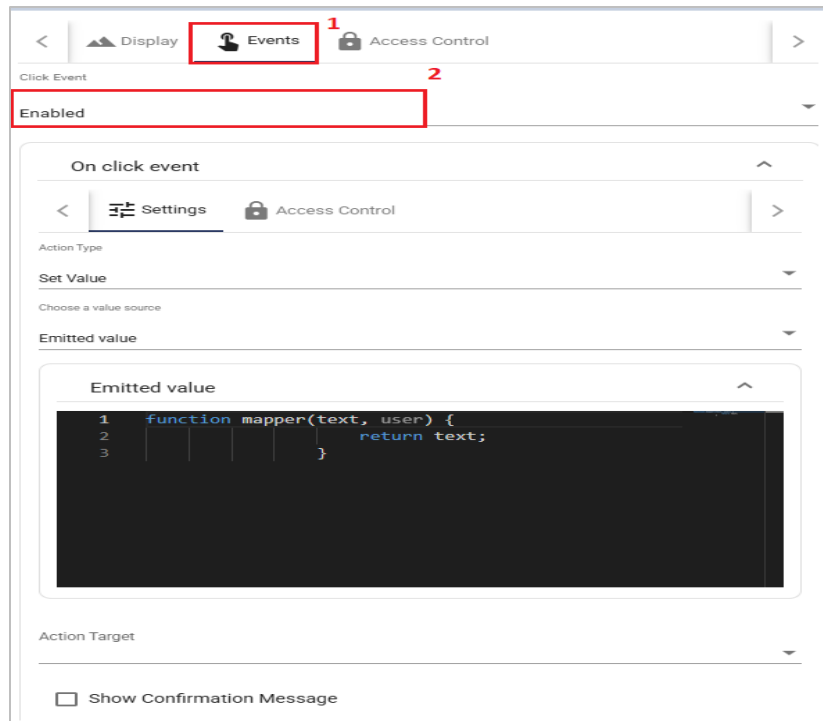
**Figure 109: Show Confirmation Message Configuration Section**

### 1.1.1 Set Value Action

This action allows you to assign a new value to a data stream or variable. To configure the **Set Value** action, follow these steps:

1. From the widget configuration panel, select the **Events** tab.

2. Click the drop-down list of one of the displayed events and select **Enabled**.
3. Once enabled, the event parameters will be displayed.



**Figure 110: Click Event Enabled View**

4. Click the **Action Type** drop-down list and select **Set Value**
5. Click the **Choose a value source** drop-down list and select one of the following options:
  - a. **Data Stream:** link the value directly to an existing data stream.
  - b. **Variable:** use the value of another variable.
  - c. **Expression:** use an expression to transform a value from source. The following figure illustrates how users can construct and apply such expressions to manipulate source data.



Select Data Mode

Source

Expression

Expression Sources

Source	Choice	Value Type	Transformer Name	
Data Stream	Random/Int1	object	value1	<div></div> <div></div>
Data Stream	Random/Int2	object	value2	<div></div> <div></div>

Transformer Function

```

1 (value1,value2) => {
2   return value1*value2;
3 }

```

Cancel

Save

**Figure 111: Set Value Action - Expression Example**

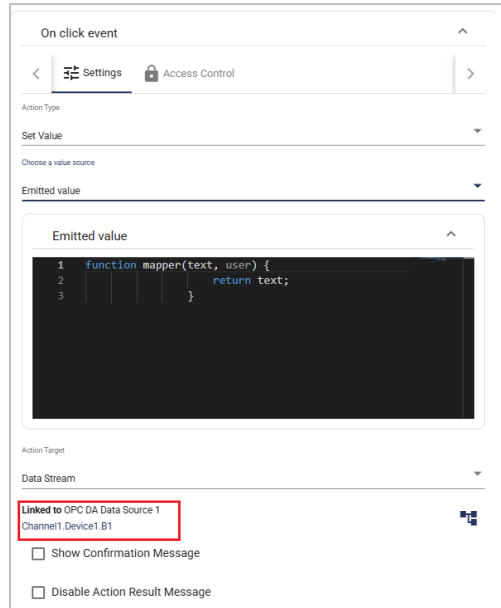
- d. **Emitted Value (Input Text):** take the value provided through an input field.
  - e. **Static Value:** manually set a fixed value.
6. Click the Action Target drop-down list and select one of the following options:
    - a. **Data Stream:** set the target to an existing data stream. You must choose the destination data stream by clicking the **Explorer** button (1).

**Figure 112: Set Value Action Configuration – Target Destination Data Stream**

- i. The **Data Stream Explorer** view is displayed, where you can select the item to be linked.

**Figure 113: Set Value Action Configuration – Data Stream Selection**

- ii. Click **Save** to store the data stream configuration. Once saved, the item and the data source item will be displayed below the **Action Target** drop-down list.



On click event

< Settings Access Control >

Action Type

Set Value

Choose a value source

Emitted value

Emitted value

```
1 function mapper(text, user) {
2   return text;
3 }
```

Action Target

Data Stream

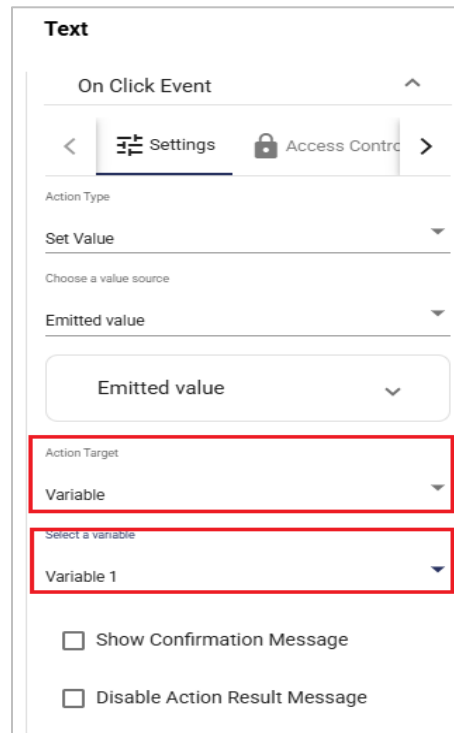
Linked to OPC DA Data Source 1  
Channel1.Device1.B1

☐ Show Confirmation Message

☐ Disable Action Result Message

**Figure 114: Set Value Action Configuration – Data Stream Successfully Linked**

- b. **Variable:** set the target to an existing variable. You must choose the destination variable from the drop-down list.



**Text**

On Click Event ^

< Settings Access Control >

Action Type

Set Value ▼

Choose a value source

Emitted value ▼

Emitted value ▼

Action Target

Variable ▼

Select a variable

Variable 1 ▼

☐ Show Confirmation Message

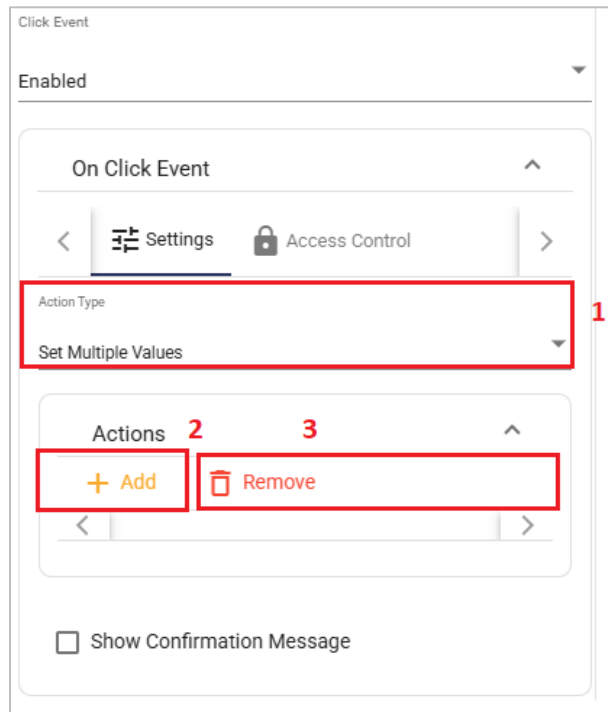
☐ Disable Action Result Message

**Figure 115: Set Value Action Configuration – Target Destination: Variable**

### 2.1.1 Set Multiple Values Action

This action allows you to assign a new value to multiple data streams and variables. To configure the **Set Value** action, follow these steps:

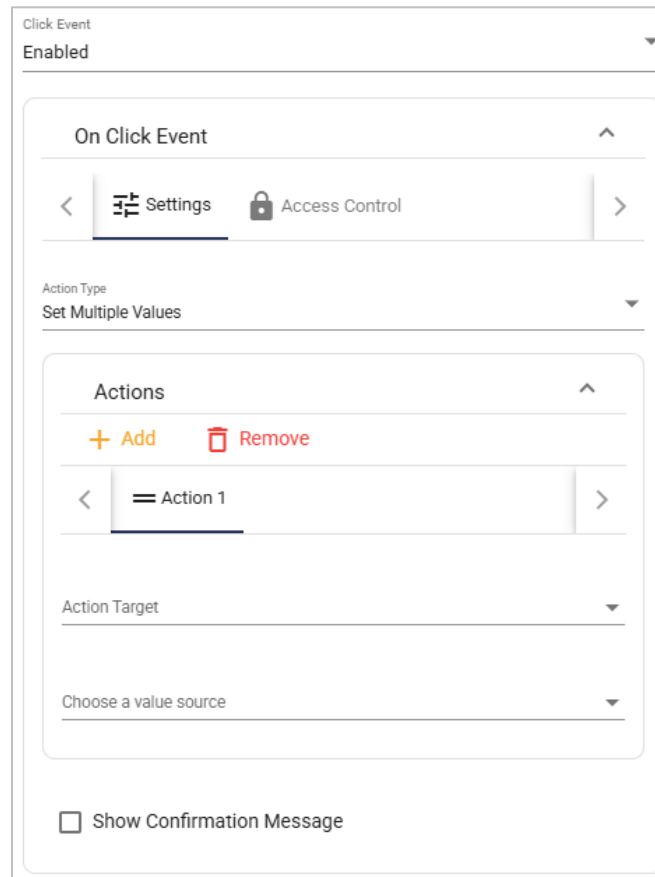
1. From the widget configuration panel, select the **Events** tab.
2. Click the drop-down list of one of the displayed events and select **Enabled**.
3. Once enabled, the event parameters will be displayed.
4. Click the **Action Type** drop-down list and select **Set Multiple Values**.



**Figure 116 : Set Multiple Values Action Configuration View**

To add an action, click the **Add** button (2) in the Actions section and to delete an action, click on the **Remove** button (3).

When clicking the **Add** button (2), the **Action Target** and **Choose a value source** drop-down list will be displayed.



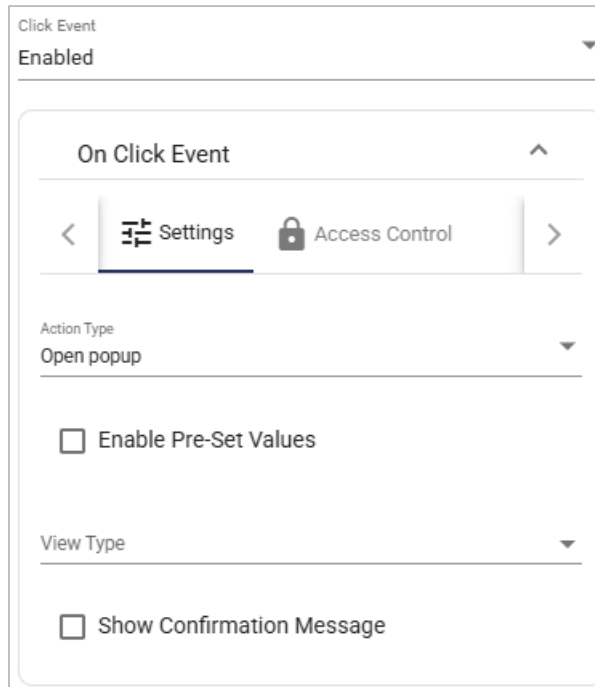
**Figure 117: Set Multiple Values Action Configuration**

### 3.1.1 Open Pop-up Action

This action allows you to open a popup dialog containing a specified view. To configure the **Open popup** action, follow these steps:

1. From the widget configuration panel, select the **Events** tab.
2. Click the drop-down list of one of the displayed events and select **Enabled**.
3. Once enabled, the event parameters will be displayed.
4. Click the **Action Type** drop-down list and select **Open Pop-up**.
5. From the **View Type** drop-down list, select the view type to be opened from the following options:
  - a. **Interactive view:** Opens a predefined interactive view designed within the application.

- b. **Data Stream trend:** Displays a real-time trend of the selected data stream.
- c. **Historical Data Stream Trend:** Displays historical trends of a data stream over a specified time range.



**Figure 118: Open Popup Action Configuration**

### 4.1.1 Close Pop-up Action

This action allows you to close a pop-up dialog containing a specified view. To configure the **close pop-up** action, follow these steps:

1. From the widget configuration panel, select the **Events** tab.
2. Click the drop-down list of one of the displayed events and select **Enabled**.
3. Once enabled, the event parameters will be displayed.
4. Click the **Action Type** drop-down list and select **Close Pop-up**.
5. From the **View Type** drop-down list, select the desired view. The available options are:
  - a. **Interactive View:** Closes a predefined interactive view designed within the application.

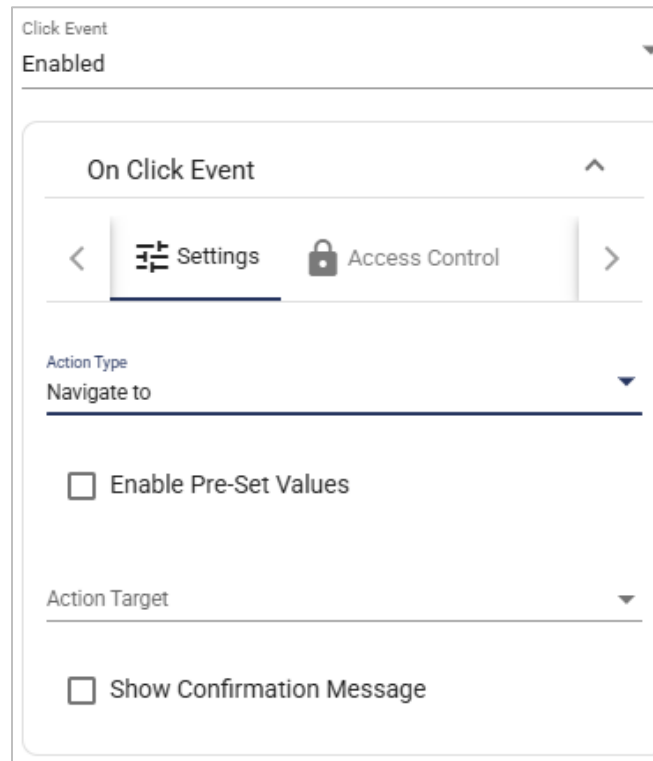
- b. **Data Stream Trend:** Closes a real time trend related to a specific data stream.
- c. **Historical Data Stream Trend:** Closes an historical trend related to a specific data stream.

### 5.1.1 Navigate to Action

This action allows you to redirect the user to a specific view. To configure the **Navigate to** action, follow these steps:

1. From the widget configuration panel, select the **Events** tab.
2. Click the drop-down list of one of the displayed events and select **Enabled**.
3. Once enabled, the event parameters will be displayed.
4. Click the **Action Type** drop-down list and select **Navigate To**.
5. From the **Action Target** drop-down list, select the desired target. The available options are:
  - a. **Interactive View:** Opens a predefined interactive view within the application.
  - b. **Monitors:** Navigates to a monitor view for real-time observation of system performance or variables.
  - c. **Historical Trends:** Displays historical trends of selected data streams over a specified period.
  - d. **Log Messages:** Writes a custom log message for tracking user actions or system states.
  - e. **Tracing Page:** Redirects to the tracing page for advanced monitoring and troubleshooting.
  - f. **Logout:** Logs the current user out of the Runtime application.





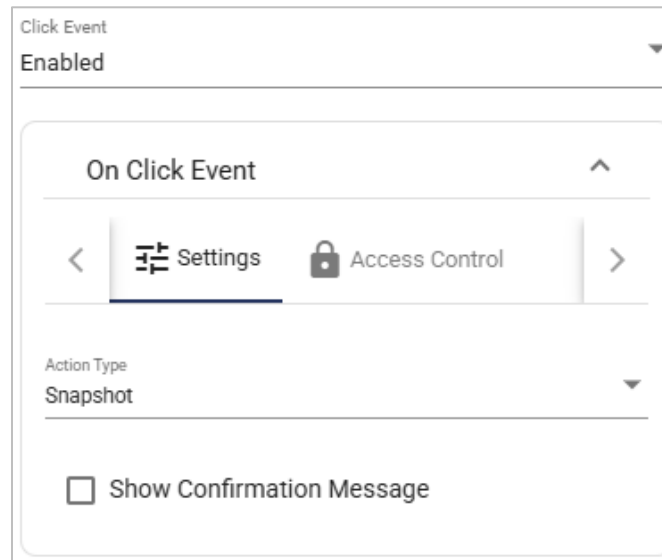
**Figure 119: Navigate to Action Configuration View**

### 6.1.1 Snapshot Action

This action captures a screenshot of the Runtime Application configuration when a specific event is triggered.

To configure the **Snapshot** action, follow these steps:

- From the widget configuration panel, select the **Events** tab.
- Click the drop-down list of one of the displayed events and select **Enabled**.
- Once enabled, the event parameters will be displayed.
- Click the **Action Type** drop-down list and select **Snapshot**.



**Figure 120: Snapshot Action Configuration View**

### 7.1.1 Navigate to URL Action

This action allows you to redirect the user to a defined URL. To configure the **Navigate to URL** action, follow these steps:

1. From the widget configuration panel, select the **Events** tab.
2. Click the drop-down list of one of the displayed events and select **Enabled**.
3. Once enabled, the event parameters will be displayed.
4. Click the **Action Type** drop-down list and select **Navigate to URL**.

Click Event  
Enabled

On Click Event

Settings
Access Control

Action Type  
Navigate to URL

Please provide the URL you want to navigate to

☐ Show Confirmation Message

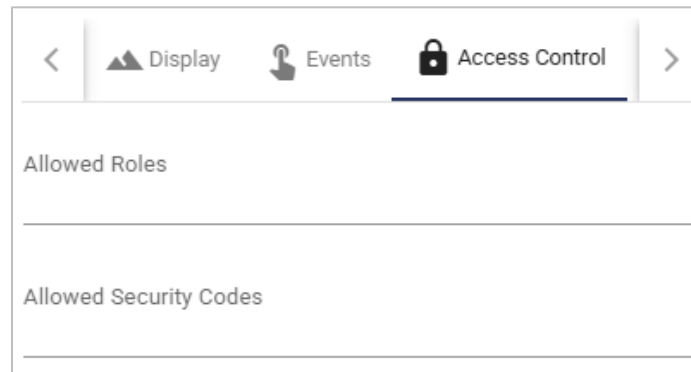
**Figure 121: Navigate to URL Action Configuration View**

### 1.3. Access Control

Using the **Access Control** tab, you can define which users are allowed to access the widget in the runtime application by assigning roles and security codes.

To configure the **Access Control** for a widget, follow these steps:

1. Select the role that is allowed to access the widget in the runtime from the **Allowed Roles** field.
2. Enter the user-provided security code in the allowed security code field.



**Figure 122: Widget Access Control Configuration View**

## 2. Forms Common Configuration

A set of forms control is available such as text boxes, checkboxes, radio buttons, drop-down lists, and buttons that allow users to enter, select, or submit information for processing.

In order to use forms within the project, a list of forms must first be defined. To add a new form, the user needs to create and configure it.

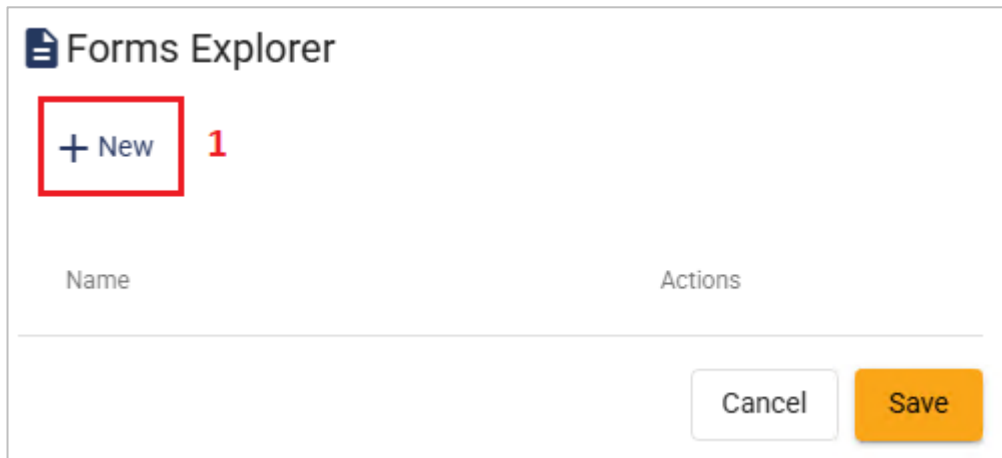
Follow the steps below to complete this process:

1. Click on the **"Forms"** button located on the toolbar as shown in the figure below.



**Figure 123: Add a new form**

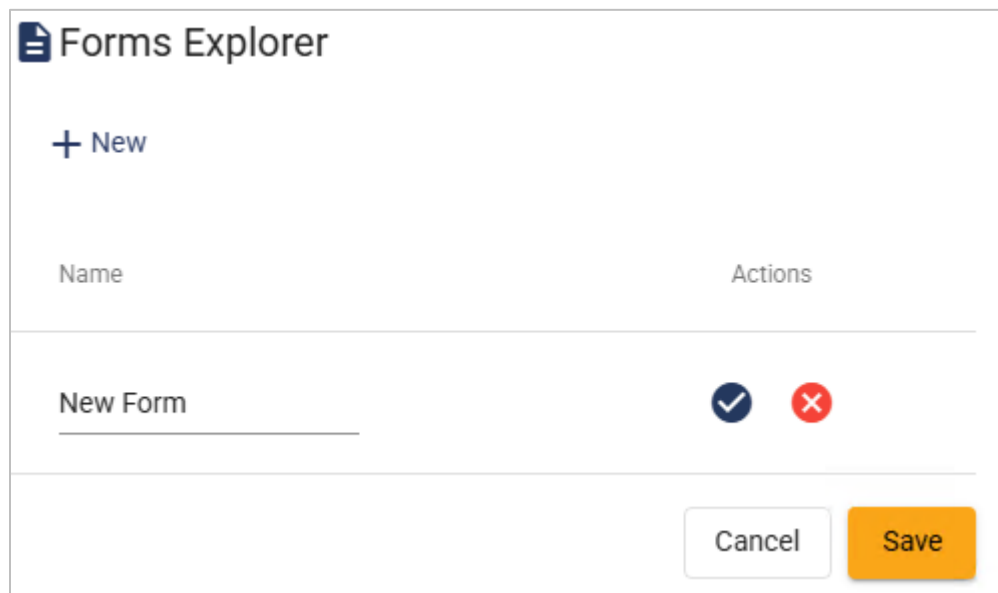
2. Once clicking on the "Forms" button, the "Forms Explorer" interface is displayed.
3. To add a new form, click on the **"New"** button (1).



The screenshot shows the 'Forms Explorer' window. At the top left, there is a '+ New' button with a plus icon and the word 'New'. This button is highlighted with a red rectangular box, and a red number '1' is placed to its right. Below the button, there is a table with two columns: 'Name' and 'Actions'. The table is currently empty. At the bottom right of the window, there are two buttons: 'Cancel' and 'Save'.

**Figure 124: Add a new form**

4. The system automatically generates a default form name. If you prefer, you can replace it by typing a new name. Once you have entered the desired form name, click the **Save** button to confirm.

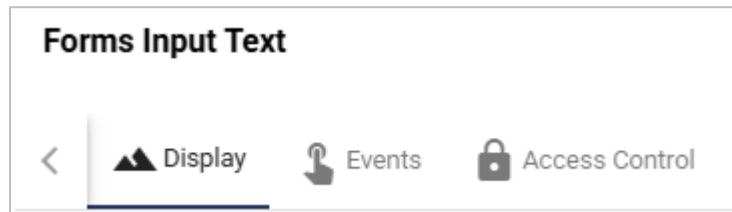


This screenshot shows the 'Forms Explorer' window after a new form has been added. The '+ New' button is still present. The table now contains one entry with the name 'New Form' in the 'Name' column. In the 'Actions' column for this entry, there are two circular icons: a blue checkmark and a red 'X'. The 'Cancel' and 'Save' buttons remain at the bottom right.

**Figure 125: Saving a new added form**

5. From the toolbox, locate and select the **Forms** section.
6. Drag and drop the desired form onto the drawer.

In general, the forms configuration panel is organized into three main tabs: **Display**, **Events** and **Access control**.



**Figure 126: Forms Common Configuration**

## 2.1. Display

All settings related to data, frame, style, and animation are managed within the Display section of the configuration panel.

### 1.1.1 Data Configuration

To configure a form control, you have to follow the following steps:

1. From the “**Forms List**” dropdown menu, select the form you have recently created. This step ensures that the new form control is correctly associated with the chosen form.
2. In the “**Attribute Name**” field, type the desired attribute name. This will define the identifier used for the attribute in the form.
3. Configure the parameters specifically related to the component, you can refer the [Widget Common Configuration](#) section to configure it.

### 2.1.1 Frame Configuration

The configuration steps for the form’s controls frame are the same as those used for the common widgets frame. For detailed instructions, please refer to the [Frame Configuration](#) section of this guide.

### 3.1.1 Style Configuration

The configuration steps for the form’s controls style are the same as those used for the common widgets style. For detailed instructions, please refer to the [Style Configuration](#) section of this guide.

### 4.1.1 Animations Configuration

To complete animations configuration steps, please refer to the [animation](#) section for detailed configuration instructions.

## 2.2. Events

To complete events configuration steps, please refer to the [events](#) section for detailed configuration instructions.



## 2.3. Access Control









To complete access control configuration steps, please refer to the [access control](#) section for detailed configuration instructions.

## 3. Dashboard


A set of input forms is available to facilitate user interaction within Unified HMI Designer. These forms are designed to be intuitive and easy to configure, enabling the creation of dynamic views and dashboards. By using input forms, you can interact with data directly and apply changes in real-time, enhancing both usability and responsiveness of the application.

### 3.1. Forms Widgets

Widget	Icon	Description
<b>Checkbox</b>		The <b>Checkbox</b> , Selection Box, or Tick Box is a small interactive box that can be checked to indicate an affirmative or negative choice.
<b>Date Picker</b>		The <b>Date Picker</b> allows to pick a date and a time from a calendar view.




<b><i>Date Time Range Picker</i></b>		The <b>Date Time Range Picker</b> allows to pick a start and end dates and times respectively from a Start Date and End Date calendar views.
<b><i>Date Time Range Input</i></b>		The <b>Date Time Range Input</b> allows to select a start and end date/time interval.
<b><i>Multi Selector</i></b>		The <b>Multi Selector</b> allows to choose one or more options from a list of available choices. It provides a convenient way to select multiple items simultaneously.
<b><i>Single Selector</i></b>		The <b>Single Selector</b> , also known as a Dropdown List, displays a list of options in a drop-down menu. It allows to select only one option from the list.
<b><i>Input Text</i></b>		The <b>Input Text</b> allows to type text responses. This interactive field can be used to enter information such as usernames, passwords, search queries, or any other text-based input required by the.
<b><i>Radio Box</i></b>		The <b>Radio Box</b> presents a list of options from which you can choose a single option from among several mutually exclusive choices.
<b><i>Toggle Button</i></b>		The <b>Toggle Button</b> allows to switch between two predefined options, often represented as <b>ON</b> and <b>OFF</b> or <b>YES</b> and <b>NO</b> .
<b><i>Vertical Slider</i></b>		The <b>Vertical Slider</b> allows to set a value by sliding an indicator along a vertical track. It is commonly used to adjust numeric values within a specified range.



<b><i>Horizontal Slider</i></b>		The <b>Horizontal Slider</b> allows to set a value by sliding an indicator along a horizontal track. It is commonly used to adjust numeric values within a specified range.
---------------------------------	---	---


**Table 14: Dashboard – Forms Widgets List**




### 3.2. Tables Widgets

Widget	Icon	Description
<b><i>Table</i></b>		The <b>Table</b> is a versatile data table that offers various customization and styling options to display tabular data.
<b><i>Real-Time Alarms</i></b>		<b>Real-time Alarms</b> displays the real-time status of all configured system alarms in one component. It can be configured at many levels to show active, acknowledged, unacknowledged and cleared alarms.
<b><i>Historical Alarms</i></b>		The <b>Historical Alarms</b> displays alarms that have occurred between a start and End dates.

**Table 15: Dashboard – Tables Widgets List**


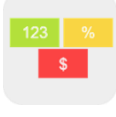

### 3.3. Shapes Widgets






Widget	Icon	Description
<b><i>Circle</i></b>		The <b>Circle</b> is a shape that can be used to represent a state, variable, or component. The circle can change color or style based on the monitored process conditions.

<b>Rectangle</b>		The <b>Rectangle</b> is a shape that can be used to represent a state, variable, or component. The circle can change color or style based on the monitored process conditions.
<b>Square</b>		The <b>Square</b> is a shape that can be used to represent a state, variable, or component. The circle can change color or style based on the monitored process conditions.
<b>Triangle</b>		The <b>Triangle</b> is a shape that can be used to represent a state, variable, or component. The circle can change color or style based on the monitored process conditions.

**Table 16: Dashboard – Shapes Widgets List**

### 3.4. Display Widgets

Widget	Icon	Description
<b>Text</b>		The <b>Text</b> allows displaying a text with a single style. This text can be configured to be displayed either on a single line or multiple lines. It can be used to display labels, headings, or any textual content within the dashboard.
<b>Tile</b>		The <b>Tile</b> allows to display trends through key performance indicators such as values and goals.
<b>Pie Chart</b>		The <b>Pie Chart</b> Represent one-to-many comparisons between different data sets. It is circular graph that use slices to visually display the relative sizes of data points in relation to the whole. Each slice corresponds to a category or data set, and its size is proportional to the data it represents. It is effective for illustrating relative magnitudes, frequencies, percentages, and breakdowns.

<b><i>Donut Chart</i></b>		<p>The <b>Donut Chart</b> is a variation of the Pie Chart with the center area cut out, displaying categories as <b>arcs</b> rather than slices.</p> <p>An additional advantage of Donut Charts is that extra information can be displayed in the center of the chart, enhancing clarity and usability.</p>
<b><i>Semi-Circle Gauge</i></b>		<p>The <b>Semi-Circle Gauge</b> is a visualization that represents the value of a metric in comparison to a defined target or range.</p> <p>It displays the gauge as a half-circle, like a car speedometer. This style is compact and provides a quick overview of the metric in relation to its range.</p>
<b><i>5-6 Circle Gauge</i></b>		<p>The <b>5-6 Circle Gauge</b> is a visualization that represents the value of a metric in comparison to a defined target or range .</p> <p>It shows a gauge covering about five-sixths of a circle. It offers more visual space than a semi-circle while leaving room for additional labels, legends, or values.</p>
<b><i>Circle Gauge</i></b>		<p>The <b>Circle Gauge</b> is a visualization that represents the value of a metric in comparison to a defined target or range. It represents the gauge as a complete circle, with the needle moving across the entire circumference. This style provides maximum visual continuity and is effective when a full 360° range representation is required.</p>
<b><i>Chart</i></b>		<p>The <b>Chart</b> is a powerful time-series graph that visualizes one or more values over time. It allows to analyze trends, patterns, and relationships in data by presenting it in various formats. It supports different types of charts, including line, bar, scatter, and effect scatter diagrams.</p>




<b>Sankey Chart</b>		The <b>Sankey Chart</b> is a flow diagram that visualizes the movement of quantities (such as energy, materials, signals, or costs) between different nodes in a system. The width of each flow is proportional to the quantity it represents, making it easy to identify major transfers, losses, or accumulations within the process.
<b>Custom Chart</b>		The <b>Custom Chart</b> is a powerful component that allows you to completely customize and visualize visualizes one or more values over time.
<b>Radar Chart</b>		The <b>Radar Chart</b> is a powerful visualization component that allows you to compare and display multiple variables across different categories, all in a single, easy-to-read graphic.

Table 17: Dashboard – Display Widgets List

### 3.5. Widgets



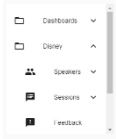
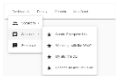

Widget	Icon	Description
<b>Image</b>		The <b>Image</b> allows to link to an image from the <b>Media</b> section or to upload one from the local machine.
<b>Icon</b>		The <b>Icon</b> lets you add a visual symbol from a predefined set of icons, which can be styled (size, color, alignment) to enhance the interface and highlight actions or statuses.




Table 18: Dashboard – Widgets List




### 3.6. Layout Widgets

Widget	Icon	Description
<b>Side Navigation menu</b>		The <b>Side Navigation Menu</b> is a convenient navigation tool located on the left side of the dashboard interface. It allows to quickly navigate between different sections or views featured in the Dashboard View menu.
<b>Top Navigation menu</b>		The <b>Top Navigation Menu</b> is a convenient navigation tool located at the top of the dashboard interface. It allows to quickly and easily navigate between different sections or views featured in the Dashboard View menu. Main menu items horizontally. When a parent item is clicked, the corresponding sub-menu items are revealed and displayed vertically.
<b>User Avatar</b>		User <b>Avatar</b> provides access to user-related profile information.

**Table 19: Dashboard – Layout Widgets List**





### 3.7. Lines



Widget	Icon	Description
<b>Bidirectional Line</b>		A line with arrows at both ends, used to represent two-way connections or relationships between elements.
<b>Curved Line</b>		A line that bends smoothly between two points, often used to represent flexible or non-linear connections.
<b>Dashed Line</b>		A segmented line used to indicate optional, secondary, or non-physical connections.

<b>Directional Line</b>		A line with an arrow at one end, used to represent a one-way flow or directional relationship.
<b>Line</b>		A straight connector between two points, used to represent basic relationships or links.
<b>Pipe Line</b>		A line styled as a pipe, often used to represent flows of materials, energy, or signals in a process diagram.

**Table 20: Dashboard – Line Widgets List**

### 3.8. Buttons Widgets

Widget	Icon	Description
<b>Button</b>		The <b>Button</b> is an interactive control element used to trigger actions or commands within the interface. It enables real-time interaction with the system, such as starting or stopping a process, or sending a command.
<b>Momentary Button</b>		The <b>Momentary Button</b> is a type of control button used in SCADA systems to send a command only while it is being pressed. Once released, the command stops or reverts to its previous state.
<b>Icon Button</b>		The <b>Icon Button</b> is a customizable button that uses an icon instead of text to represent an action or command in the interface. It is often used to create more compact or visually intuitive components.
<b>Push Button</b>		The <b>Push Button</b> is an interactive component used to execute an action or send a command when clicked. It is commonly


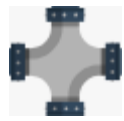
		used in interfaces to start or stop a process, change the state of equipment, or trigger a specific function.
<b>On/Off Button</b>		<p>An <b>On/Off Button</b> is a type of control element that allows to toggle between two discrete states:</p> <ul style="list-style-type: none"> <li>• <b>ON</b> (1 / True / Active)</li> <li>• <b>OFF</b> (0 / False / Inactive)</li> </ul>
<b>On/Off Switch Button</b>		<p>The <b>On/Off Switch Button</b> allows you to toggle between two states: <b>ON</b> and <b>OFF</b>. This component is commonly used in SCADA systems to represent the activation or deactivation of a device or process.</p>






**Table 21: Dashboard – Buttons Widgets List**

## 4. SCADA


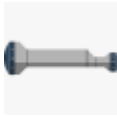





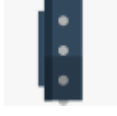


The SCADA toolbox groups all the SCADA components into categories such as Piping, Utils, Valves, Vessels, Agitators, Motors and Pumps, ISA Components, Reactors and Exchangers, Tanks and Vessels, Electrical components and other components.












### 4.1. Piping












Widget	Icon	Description
<b>Pig</b>		A <b>Pig</b> is a device inserted into a pipeline and pushed by the flow to clean, separate products, or inspect the pipe's condition. It helps maintain safe and efficient pipeline operation.
<b>Cross Pipe</b>		A <b>Cross Pipe</b> is a pipe fitting with four openings arranged in the shape of a cross. It connects four pipes together.











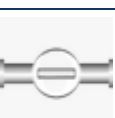
		allowing the distribution or collection of fluid from different directions.
<b>Top Right Elbow</b>		A <b>Top Right Elbow</b> is a pipe fitting that changes the flow direction upward and to the right.
<b>Top Left Elbow</b>		A <b>Top Left Elbow</b> is a pipe fitting that changes the flow direction upward and to the left.
<b>Bottom Left Elbow</b>		A <b>Bottom Left Elbow</b> is a pipe fitting that changes the flow direction downward and to the left.
<b>Bottom Right Elbow</b>		A <b>Bottom Right Elbow</b> is a pipe fitting that changes the flow direction downward and to the right.








		
<b>Pig Launcher</b>		A <b>Pig Launcher</b> is a pipeline device used to insert a Pig into the pipeline. It allows safe and controlled launching of the Pig for cleaning, separating, or inspecting the pipeline.
		
		
<b>Pig Receiver</b>		A <b>Pig Receiver</b> is a pipeline device used to safely retrieve a Pig at the end of its run. It collects the Pig after it has completed cleaning, separating, or inspecting the pipeline.
<b>Pipe</b>		A <b>Pipe</b> is a cylindrical conduit used to transport fluids (liquids or gases) from one point to another in a piping system.
		
<b>Pipe Cover</b>		A <b>Pipe Cover</b> is a protective casing placed around a pipe to prevent damage, corrosion, or heat loss and to ensure safe operation.
<b>Tpipe</b>		A <b>T-Pipe</b> is a pipe fitting with three openings arranged in a "T" shape. It allows fluid to flow in two directions from a single pipeline or to combine flows from two pipelines into one.
		

<b><i>Horizontal Pipe</i></b>		A <b>Horizontal Pipe</b> is a pipe installed parallel to the ground, used to transport fluids in a straight, level direction within a piping system.
		
<b><i>Top Right Elbow Pipe</i></b>		A <b>Top Right Elbow Pipe</b> is a pipe fitting that changes the flow direction upward and to the right.
		
<b><i>Top Left Elbow Pipe</i></b>		A <b>Top Left Elbow Pipe</b> is a pipe fitting that changes the flow direction upward and to the left.
		
<b><i>Bottom Right Elbow Pipe</i></b>		A <b>Bottom Right Elbow Pipe</b> is a pipe fitting that changes the flow direction downward and to the right.
		
<b><i>Bottom Left Elbow Pipe</i></b>		A <b>Bottom Left Elbow Pipe</b> is a pipe fitting that changes the flow direction downward and to the left.
		
<b><i>Top Tpipe</i></b>		




		A <b>Top T-Pipe</b> is a T-shaped pipe fitting where the branch extends upward from the main horizontal pipeline, allowing fluid to flow in three directions.
<b>Bottom Tpipe</b>		A <b>Bottom T-Pipe</b> is a T-shaped pipe fitting where the branch extends downward from the main horizontal pipeline, allowing fluid to flow in three directions.
		
<b>Left Tpipe</b>		A <b>Left T-Pipe</b> is a T-shaped pipe fitting where the branch extends to the left from the main horizontal pipeline, allowing fluid to flow in three directions.
		
<b>Right Tpipe</b>		A <b>Right T-Pipe</b> is a T-shaped pipe fitting where the branch extends to the right from the main horizontal pipeline, allowing fluid to flow in three directions.
		
<b>H pipe</b>		An <b>H-Pipe</b> is a pipe fitting with three openings arranged in an "H" shape, connecting two parallel pipelines and allowing fluid to flow between them.
		
<b>Short Right Drain Pipe</b>		A <b>Short Right Drain Pipe</b> is a short pipe segment that directs fluid flow downward and to the right, typically used for drainage purposes in a piping system.
		



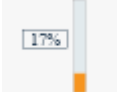


<b>Vertical Inline Flow Meter</b>		A <b>Vertical Inline Flow Meter</b> is a device installed vertically in a pipeline to measure the flow rate of fluids passing through the pipe.
		
<b>Short Top Filter</b>		A <b>Short Top Filter</b> is a compact filter installed on top of a pipeline to remove impurities from the fluid and ensure clean flow.
		
<b>Top Flow Meter</b>		A <b>Top Flow Meter</b> is a device mounted on the top of a pipeline to measure the flow rate of fluids moving through the system.
		
<b>Short Bottom Filter</b>		A <b>Short Bottom Filter</b> is a compact filter installed at the bottom of a pipeline to remove impurities from the fluid and maintain clean flow.
		
<b>Right Flow Meter</b>		A <b>Right Flow Meter</b> is a device mounted on the right side of a pipeline to measure the flow rate of fluids moving through the system.
		
<b>Horizontal Inline Flow Meter</b>		

		A <b>Horizontal Inline Flow Meter</b> is a device installed horizontally in a pipeline to measure the flow rate of fluids passing through the pipe.
<b>Horizontal Broken Pipe</b>		A <b>Horizontal Broken Pipe</b> represents a damaged or disconnected horizontal pipeline segment.
		
<b>Long Horizontal Broken Pipe</b>		A <b>Long Horizontal Broken Pipe</b> represents an extended horizontal pipeline segment that is damaged or disconnected.
		

**Table 22: SCADA – Piping Widgets List**




## 4.2. Utils











Widget	Icon	Description
<b>Navigation Link</b>		The Navigation Link allows users to navigate directly to another view, page, or section within the application.
<b>Alert Symbol</b>		The Alert Symbol highlights warnings, errors, or critical system states, ensuring operators are promptly informed of abnormal conditions.
<b>Arrow Tag Left</b>		The Arrow Tag Left is a directional label component used to emphasize or annotate information with a left-oriented arrow.

<b>Arrow Tag Right</b>		The Arrow Tag Right is a directional label component used to emphasize or annotate information with a right-oriented arrow.
<b>Direction Arrow</b>		The Direction Arrow visually indicates flow, direction, or movement within a process or diagram.
<b>Linear Gauge</b>		The Linear Gauge represents values along a straight scale, often used to monitor performance or progress toward a defined range.
<b>Level Gauge</b>		The Level Gauge is designed to represent levels (e.g., tank fill levels, fluid levels) in a vertical or horizontal bar format.
<b>Switcher</b>		The Switcher is an interactive toggle component that allows users to switch between two or more states or modes of operation.

**Table 23: SCADA – Utils Widgets List**

### 4.3. Valves

Widget	Icon	Description
<b>Ball Valve</b>		Represents a ball valve, commonly used for quick shutoff applications. It provides tight sealing and is suitable for controlling the flow of liquids or gases.
<b>SDV Valve</b>		Represents a Shutdown Valve (SDV), typically used as a safety device to stop the flow of fluids or gases in emergency conditions.
<b>Valve</b>		A generic valve symbol used to represent flow control components where no specific type is required.

<b>Control Valve</b>		Represents a control valve used to regulate process variables such as flow, pressure, temperature, or level by modulating the fluid passage.
<b>Generic Valve</b>		A simplified valve symbol that can be used for general-purpose flow representation in process diagrams.
<b>Manual Valve</b>		Represents a valve operated manually by an operator, often used for on-site adjustments or maintenance.
<b>On / Off Valve</b>		Represents a valve that toggles between two discrete states: fully open (On) or fully closed (Off).
<b>On / Off Valve</b>		
<b>Valve</b>		A Valve is a mechanical device used in piping systems to control, regulate, or direct the flow of liquids, gases, or slurries by opening, closing, or partially obstructing passageways.
<b>Ball Valve</b>		A Ball Valve is a valve that uses a rotating ball to start or stop the flow of fluid, offering quick and reliable shutoff.
		
<b>Valve</b>		A Valve is a mechanical device used in piping systems to control, regulate, or direct the flow of liquids, gases, or slurries by opening, closing, or partially obstructing passageways.
		










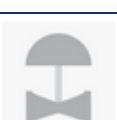
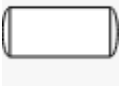
		
		
Valve 3		
Valve		
		
		
		
Valve 7		
Valve		
		

Table 24: SCADA – Valves Widgets List




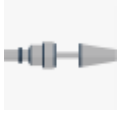










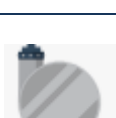


#### 4.4. Vessels










Widget	Icon	Description
<b><i>Tank</i></b>		The Tank widget visually represents the fill level of a container, such as a water tank, fuel tank, or chemical reservoir. It is commonly used in SCADA applications to monitor and display real-time process levels.

**Table 25: SCADA – Vessels Widgets List**

#### 4.5. Agitators, Motors and Pumps







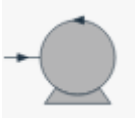
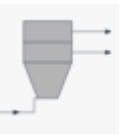
Widget	Icon	Description
<b><i>Agitator 1</i></b>		Represents a basic agitator, typically used in industrial processes to mix or stir fluids within a tank or container.
<b><i>Agitator 2</i></b>		Represents an alternative agitator design, providing a different visualization style for mixing or stirring equipment.
<b><i>Blower</i></b>		The Blower widget illustrates equipment that supplies air or gas flow. It is commonly used in process diagrams to indicate ventilation, aeration, or pneumatic systems.
<b><i>Compressor</i></b>		The Compressor widget represents machinery that compresses gases. It is typically used in SCADA dashboards to monitor and control air or gas compression processes.
<b><i>Motor</i></b>		The Motor is a device that converts electrical energy into mechanical motion to drive equipment or machinery in industrial processes.
		


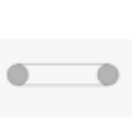








<b><i>Motor 1</i></b>		
<b><i>Pump 1 (Left up)</i></b>		The left-up pump is a pump positioned on the left side and oriented upward, used to move fluids through a piping system in industrial processes.
<b><i>Pump 1(Left)</i></b>		The Pump Left is a pump located on the left side of the system, used to move fluids through pipelines in industrial processes.
<b><i>Pump 1(Right up)</i></b>		The Pump Right Up is a pump positioned on the right side and oriented upward, used to transport fluids through pipelines in industrial processes.
<b><i>Pump 1(Right)</i></b>		The Pump Right is a pump located on the right side of the system, used to move fluids through pipelines in industrial processes.
<b><i>Pump 2 (Left)</i></b>		The Pump Left is a pump located on the left side of the system, used to move fluids through pipelines in industrial processes.
<b><i>Pump 2 (Left up)</i></b>		The left-up pump is a pump positioned on the left side and oriented upward, used to move fluids through a piping system in industrial processes.
<b><i>Pump 2 (Right up)</i></b>		The Pump Right Up is a pump positioned on the right side and oriented upward, used to transport fluids through pipelines in industrial processes.
<b><i>Pump 2 (Right)</i></b>		The Pump Right is a pump located on the right side of the system, used to move fluids through pipelines in industrial processes.

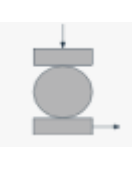
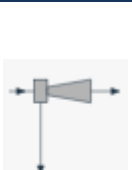

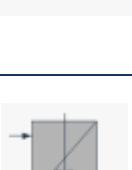
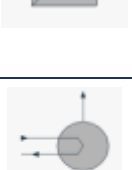
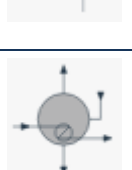
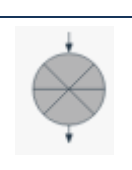
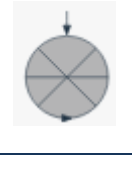
<b>Pump 3</b>		A centrifugal pump moves liquid by using a rotating impeller to increase fluid velocity and pressure. It is commonly used for water supply, industrial processes, and fluid circulation.
<b>Pump</b>	     	The pump is a mechanical device that moves fluids by creating flow and pressure, commonly used to circulate liquids in industrial systems.
<b>Oil Pump 3D</b>		The oil pump is a mechanical device that moves oil through pipelines or systems, providing the necessary flow and pressure for industrial processes.
<b>Oil Pump</b>		

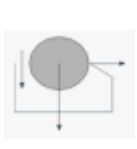

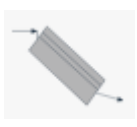
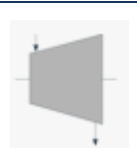
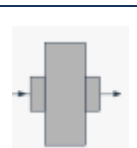
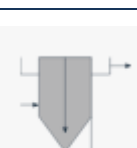
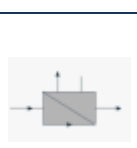

**Table 26: SCADA – Agitators, Motors, Pumps Widgets List**


## 4.6. ISA Components

Widget	Icon	Description
<b><i>Autoclave</i></b>		An Autoclave is a sealed vessel that uses high-pressure steam to sterilize equipment, materials, or process substances.
<b><i>Ball Mill</i></b>		A Ball Mill is a rotating cylindrical device used to grind or blend materials into fine powder.
<b><i>Barometric</i></b>		A Barometric is a device that measures atmospheric pressure, commonly used for weather monitoring and process control.
<b><i>Blower</i></b>		A Blower is a device that moves air or gas at high speed to provide ventilation, cooling, or process airflow in industrial systems.
<b><i>Blowing Egg</i></b>		A Blowing Egg is a device used in industrial piping systems to remove air, gas pockets, or unwanted fluids, ensuring smooth flow and system efficiency.
<b><i>Bucket Conveyor</i></b>		A Bucket Conveyor is a mechanical system that uses a series of buckets attached to a belt or chain to transport bulk materials vertically.
<b><i>Centrifugal</i></b>		A Centrifugal is a device that uses rotational force to separate, move, or process fluids and solid.
<b><i>Centrifuge</i></b>		A Centrifuge is a device that uses rapid spinning to separate substances of different densities.

<b>Compressor</b>		A Compressor is a device that increases the pressure of gases by reducing their volume.
<b>Conveyor</b>		A Conveyor is a mechanical system that transports materials or products from one location to another within industrial or manufacturing processes.
<b>Cyclone</b>		A Cyclone is a device that uses centrifugal force to separate particles from air or gas streams.
<b>Cyclone Step</b>		A Cyclone Step is a component of a cyclone system that helps in separating particles by size or density.
<b>Drum Settler</b>		A Drum Settler is a cylindrical device that separates solids from liquids by allowing particles to settle under gravity.
<b>Exchanger 4</b>		An Exchanger is a device that transfers heat between two or more fluids without mixing them.
<b>Exchanger 5</b>		
<b>Exchanger 6</b>		
<b>Film Dryer</b>		A Film Dryer is a device that dries liquid or slurry by spreading it as a thin film over a heated surface.
<b>Gate</b>		A valve with a sliding gate mechanism for flow control.







<b>Grinder</b>		A Grinder is used to mechanically reduce the size of solid materials into smaller particles or powder typically for processing, missing or easier handling.
<b>Jet Mixer</b>		A Jet Mixer is a device that uses high-velocity fluid jets to mix or agitate liquids in a tank or vessel, ensuring uniform composition and preventing sedimentation.
<b>Mill</b>		A Mill is an industrial machine used to grind, crush, or pulverize raw materials into smaller particles, facilitating further processing in manufacturing or production.
<b>Mixer</b>		A Mixer is used to combine two or more substances uniformly within a process. It controls the blending speed and duration to ensure consistent product quality.
<b>Reboiler</b>		A Reboiler provides heat to the bottom of a distillation column, causing the liquid to vaporize and drive the separation of components in the process.
<b>Reboiler 1</b>		
<b>Rotary Feed 1</b>		A Rotary Feed regulates the controlled feeding of bulk materials or fluids into a process, typically using a rotating mechanism to ensure a consistent flow.
<b>Rotary Feed 2</b>		

<b><i>Rotary Sep</i></b>		A Rotary Sep separates materials or phases in a process using a rotating mechanism, typically for solids from liquids or gases, ensuring efficient separation and continuous operation.
<b><i>Rotary VAC FLT</i></b>		A Rotary VAC FLT separates continuously solids from liquids by applying a vacuum to a rotating drum.
<b><i>Screener</i></b>		A Screener is used to separate materials based on size by passing them through a mesh or perforated surface, ensuring consistent particle sizing in a process.
<b><i>Turbine</i></b>		A Turbine converts the energy of flowing fluids (steam, gas, or water) into mechanical rotation, which can drive generators or other machinery in a process.
<b><i>Tunnel</i></b>		A Tunnel provides a controlled enclosed passage for materials, fluids, or personnel to move through a process, often used for conveying, drying, or treatment purposes.
<b><i>Thickener</i></b>		A Thickener concentrates solids in a liquid by allowing them to settle, separating the clarified liquid from the dense slurry for further processing or disposal.
<b><i>Superheater</i></b>		A Superheater increases the temperature of steam beyond its saturation point, enhancing energy efficiency and ensuring optimal performance in steam-driven processes.
<b><i>Scrubber</i></b>		A Scrubber removes pollutants or impurities from gases or liquids by contacting them with a scrubbing liquid, ensuring cleaner emissions and process streams.









<b><i>Screw Conveyor</i></b>		A Screw Conveyor is an ISA component that moves bulk materials or liquids through a rotating helical screw, providing controlled and continuous transport within a process.
------------------------------	---	---

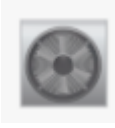









**Table 27: SCADA – ISA Components List**











#### 4.7. Other







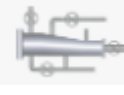




Widget	Icon	Description
<b><i>Antenna H</i></b>		An Antenna H is a device that transmits or receives radio frequency signals.
<b><i>Antenna V</i></b>		An Antenna V is a device that transmits or receives vertically polarized radio frequency signals.
<b><i>Battery</i></b>		A Battery is a device that stores electrical energy and provides power to equipment or systems when needed, ensuring uninterrupted operation.
<b><i>Flare H</i></b>		A Flare H is a safety device that burns off excess gases in industrial processes, preventing pressure buildup and reducing the risk of hazardous emissions.
<b><i>Flare V</i></b>		A Flare V is a safety device that vertically releases and burns excess gases from industrial processes, helping to control pressure and minimize hazardous emissions.
<b><i>Ground Flare</i></b>		A Ground Flare is a safety device that safely combusts excess or waste gases at ground level, preventing pressure buildup and reducing environmental and safety risks.












<b>Indicator</b>		An Indicator is a device that displays or signals the status, level, or measurement of a process variable, providing real-time information for monitoring and control.
<b>Chiller</b>		A Chiller is a device that removes heat from a liquid or process stream, providing cooling for industrial equipment, HVAC systems, or other process applications.
<b>Hopper</b>		A Hopper is a container used to store and funnel bulk materials, such as powders or granules, into a process or conveyor system in a controlled manner.
<b>Solar Panel</b>		A Solar Panel is a device that converts sunlight into electrical energy, providing a renewable power source for industrial system.
<b>Wellhead</b>		A wellhead is a component at the surface of an oil or gas well that provides the structural and pressure-containing interface for the drilling and production equipment.
<b>Wellhead</b>		
<b>Mixer 1</b>		A Mixer is a device that combines or blends materials uniformly, ensuring consistent composition in industrial or process applications.
		

<b>FAN 3D</b>		A Fan is a device that moves air or gas to provide ventilation, cooling, or circulation in industrial or process systems.
<b>FAN</b>		
<b>Pressure Blower</b>		A Pressure Blower is a device that generates high-pressure airflow to move gases or air through ducts, equipment, or processes in industrial systems.
		
<b>Pressure Gauge</b>		A Pressure Gauge is a device used to measure the pressure of fluids, gases, or steam in a system. It helps in monitoring and ensuring the proper functioning of various systems by detecting pressure changes that could indicate leaks or performance issues.
		
<b>Thermal Fluid Heater 3D</b>		A Thermal Fluid Heater is a system that utilizes an indirect heating method by heating a liquid medium, such as oil or water-glycol mixtures, and then transferring heat to the end user.
<b>Thermal Fluid Heater</b>		
<b>Diffuser</b>		A Diffuser is a device that slows down and evenly distributes the flow of fluids or gases, reducing velocity and increasing pressure for efficient operation in oil and gas processes.
		


<b>Filter</b>		A Filter is a device that removes impurities, particles, or contaminants from liquids or gases, ensuring clean and efficient operation in industrial processes.
		
<b>Indicator</b>		An Indicator is a device that shows the status or measurement of a process variable, such as pressure, temperature, or level, for monitoring and control purposes.
<b>Sensor</b>		A Sensor is a device which detects or measures a physical property and records, indicates or otherwise responds to it.
<b>RTD 3D</b>		A RTD (Resistance Temperature Detector) is an electronic device used to determine the temperature by measuring the resistance of an electrical wire.
<b>RTD 2D</b>		
<b>Toggle 3D</b>		A Toggle is used to switch usually into two different options, states or activities.
<b>Toggle</b>		
<b>M Sludge 3D</b>		A Microwave Sludge is an equipment used to handle, collect, or process sludge material in industrial and wastewater treatment systems.
<b>M Sludge</b>		








<b>Digital Indicator 3D</b>		A digital Indicator is a precision measurement tool that provides highly accurate and easy to read measurements.
<b>Digital Indicator</b>		
<b>Boiler 3D</b>		A boiler is a closed vessel in which fluid is heated.
<b>Boiler</b>		
<b>Robot 3D</b>		A Robot is an automated machine designed to perform programmed tasks such as handling, assembly, or inspection in industrial processes.
<b>Robot</b>		
<b>Pig Launcher Receiver</b>		Pig launchers and receivers are used to introduce and retrieve pipeline inspection gauges (pigs) for cleaning, inspection and maintenance without interrupting the flow of transported products.
		
<b>Speed Reducer</b>		A Speed Reducer is used to reduce the input velocity of the engine while increasing the torque produced by the input.
		
<b>Actuator</b>		

		An Actuator is used to produce force, torque or displacement, when an electrical, pneumatic or hydraulic input is supplied to it in a system.
<b>Submersible Mixer</b>		A Submersible Mixer is a mechanical device that is used to mix sludge tanks and other liquid volumes.
		
<b>Vaporator</b>		A Vaporator is equipment used to convert liquids into vapor, typically by applying heat.
		
<b>Turbine</b>		A Turbine is a rotary mechanical device that converts fluid energy (steam, gas, or water) into mechanical power for driving equipment or generating electricity.
		
<b>Generator</b>		A Generator is a machine that converts mechanical energy into electrical power for use in industrial processes.
		

**Table 28: SCADA – Other Widgets List**

## 4.8. Reactors and Exchangers





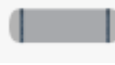





Widget	Icon	Description
<b>Boiler</b>		A boiler is a closed vessel in which fluid is heated.











<b>Exchanger</b>		An Exchanger is a device that transfers heat between two fluids without mixing them, commonly used for heating or cooling processes.
<b>Exchanger 2</b>		
<b>Exchanger 3</b>		
<b>Forced Air Exchanger</b>		A Forced Air Exchanger is a heat exchanger that uses fans or blowers to force air across the surface, enhancing heat transfer for cooling or heating processes.
<b>Gas Separator</b>		A Gas Separator is a device that removes gas from a liquid stream or separates mixed gases from fluids in industrial processes.
<b>Oil Heater</b>		An Oil Heater is equipment used to heat oil to the required temperature for processing, circulation, or energy generation.
<b>Reactor</b>		A Reactor is a vessel where controlled chemical reactions take place to produce, transform, or refine substances in industrial processes.

**Table 29: SCADA – Reactors and Exchangers Widgets List**












## 4.9. Tanks and Vessels








Widget	Icon	Description
<b>Barrel</b>		

	 	A Barrel is a cylindrical container used for storing, transporting, or measuring liquids and other bulk materials in industrial processes.
<b>Horizontal Tank</b>		A Horizontal Tank is a cylindrical storage vessel mounted horizontally, used for holding liquids or gases in industrial processes.
<b>Horizontal Tank 1</b>		
<b>Horizontal Tank 2</b>		
<b>Process Vessel 1</b>		A Process Vessel is a container designed to hold, mix, or process liquids, gases, or solids under controlled conditions in industrial operations.
<b>Process Vessel 2</b>		
<b>Process Vessel 3</b>		
<b>Process Vessel 4</b>		
<b>Process Vessel 5</b>		

<b><i>Sphere Tank</i></b>		A Sphere Tank is a spherical storage vessel used to safely store gases or liquids under high pressure in industrial processes.
<b><i>Storage Facility 1</i></b>		A Storage Facility is a designated area or structure used for storing liquids, gases, or solids safely and efficiently in industrial operations.
<b><i>Storage Facility 2</i></b>		
<b><i>Vertical Tank</i></b>		A Vertical Tank is a cylindrical storage vessel mounted upright, used for holding liquids or gases in industrial processes.
<b><i>Vertical Tank 1</i></b>		
<b><i>Vertical Tank 2</i></b>		
<b><i>Vertical Tank 3</i></b>		
<b><i>Vertical Tank 4</i></b>		
<b><i>Tank</i></b>		A Tank is a storage vessel used to hold liquids, gases, or bulk materials in industrial processes.
<b><i>Tank</i></b>		

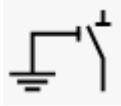


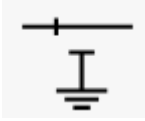
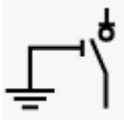




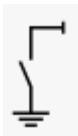

<b><i>Tank 2 3D</i></b>		
<b><i>Tank</i></b>		
<b><i>Tank3 3D</i></b>		
<b><i>Tank</i></b>		
		
		
		
		
		
		
		



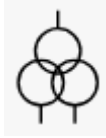



	  	
<b>Filter</b>		A Filter is a device that removes impurities, particles, or contaminants from fluids or gases to protect equipment and ensure process quality.
<b>Filter</b>		
<b>Spherical Storage</b>		Spherical Storage refers to a spherical vessel designed for safely storing gases or liquids under high pressure in industrial operations.
		

**Table 30: SCADA – Tanks and Vessels Widgets List**

## 4.10. Electrical

Widget	Icon	Description
<b>Earthing Switch (vertical)</b>		An Earthing Switch (Vertical) is a safety device installed in a vertical orientation to safely discharge or ground electrical current, preventing accidental energization during maintenance.



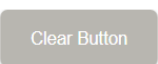




<b><i>Earthing Switch (Horizontal)</i></b>		An Earthing Switch (Horizontal) is a safety device installed in a horizontal orientation to safely discharge or ground electrical current, preventing accidental energization during maintenance.
<b><i>Earthing Switch Disconnecter</i></b>		An Earthing Switch Disconnecter is a combined device that functions both as a disconnecter and an earthing switch.
<b><i>Switch</i></b>		A Switch is an electrical device used to open or close a circuit, controlling the flow of electric current.
<b><i>No Contact</i></b>		A state indicates that electrical contacts are open, preventing current flow in the circuit.
<b><i>Fuse</i></b>		A Fuse is a safety device that protects an electrical circuit from overcurrent.
<b><i>Interrupter</i></b>		An Interrupter is an electrical device that interrupts or breaks the flow of current in a circuit.
<b><i>Grounding Terminal Contact</i></b>		A Grounding Terminal Contact is a point in an electrical system that provides a secure connection to the ground.
<b><i>Disconnecter</i></b>		A Disconnecter is an electrical device used to isolate a section of a circuit by physically opening the circuit.

<b><i>Circuit breaker</i></b>		A Circuit Breaker is an electrical device that automatically interrupts the flow of current in a circuit when an overload or short circuit occurs.
<b><i>Traction Transformer(1)</i></b>		A Traction Transformer is a specialized transformer used in railway or electric traction systems to step down or step up voltage for traction motors.
<b><i>Traction Transformer(2)</i></b>		
<b><i>Traction rectifier</i></b>		A Traction Rectifier is an electrical device used in railway or electric traction systems to convert alternating current (AC) into direct current (DC), supplying power to traction motors for trains or electric vehicles.
<b><i>Battery charger rectifier</i></b>		A Battery Charger Rectifier converts AC power to DC power to charge and maintain batteries, ensuring a stable and reliable power supply for critical systems.
<b><i>Withdrawable circuit breaker</i></b>		A withdrawable circuit breaker designed to be easily inserted or removed from its housing or panel.

**Table 31: SCADA – Electrical Widgets List**

## 5. Forms

A set of form controls is available to facilitate user interaction within Unified HMI. These forms are designed to be intuitive and easy to configure, enabling the creation of customized interfaces that streamline data entry, monitoring, and control operations.

Widget	Icon	Description
<b><i>Forms Input Text</i></b>		The forms input text allows users to type text.
<b><i>Submit Button</i></b>		The submit button executes a submit action when clicked.
<b><i>Clear Button</i></b>		The clear button allows users to clear all input texts.
<b><i>Email Input</i></b>		The Email Input allows users to type Emails.
<b><i>Radio box Form</i></b>		The radio box form allows only a single selection from a group of options.
<b><i>Check Box</i></b>		The checkbox form indicates whether a particular condition is on or off. It is commonly used to present a Yes/No or True/False selection to the user.
<b><i>Single Selector Form</i></b>		The single selector form is a user interface element that allows the user to choose one option only from a predefined list or set of choices.

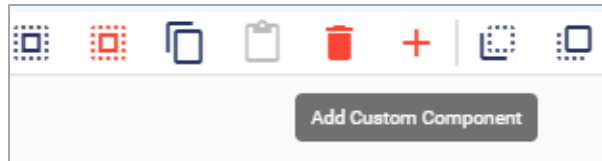
## 6. Custom

While Unified HMI offers a wide variety of preconfigured widgets, you can create your own custom components based on existing widgets from the toolbox. These custom components can also have user-defined default parameters, allowing for reuse and consistency.

### 6.1. Add Custom Component

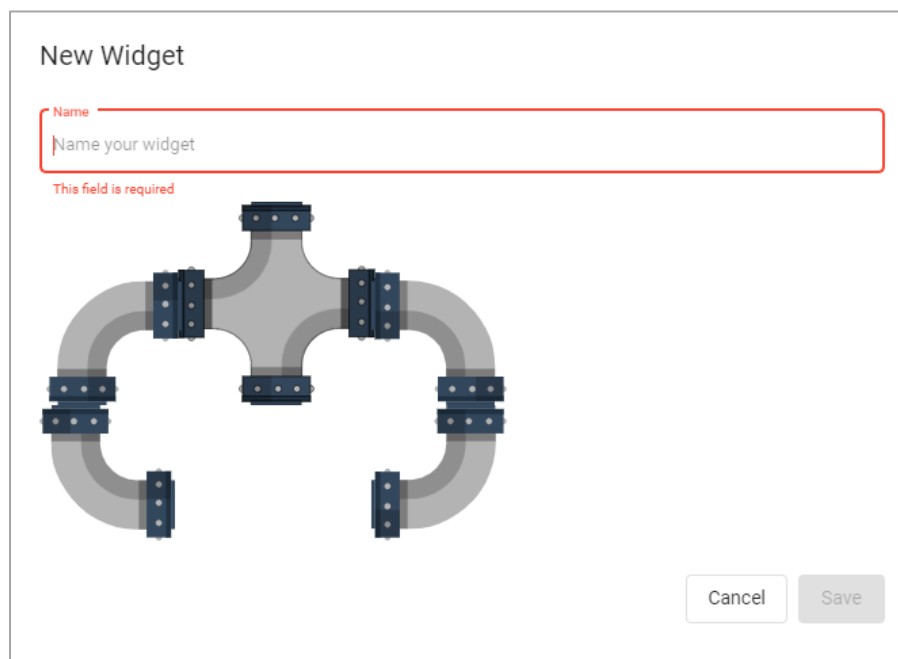
To create a custom component, follow these steps:

1. Select a widget or a grouped set of widgets from the workspace.
2. Click the + button from the toolbar.



**Figure 127: Add Custom Component Button**

3. A pop-up will be displayed showing the custom component definition. You can preview the corresponding image for the newly created custom component.



**Figure 128: Add Custom Component Configuration View**

4. Provide a name for the new custom component.
5. Click **Save** to submit the changes and ensure its future use.

**(!) Note :**

- The selected items will be added to the custom component with the same configuration as the selected one, except for the link configuration, which will be set to default. The groups and sub-groups of the selected widgets will be preserved and saved in the new custom component.

## 6.2. Use Custom Component

To use a custom component, follow these steps:

1. From the toolbox, navigate to the **Custom** tab (1).
2. Locate the custom component you want to use.
3. Either drag the custom component from the toolbox and drop it into the workspace or click the component in the toolbox to insert it automatically (2).

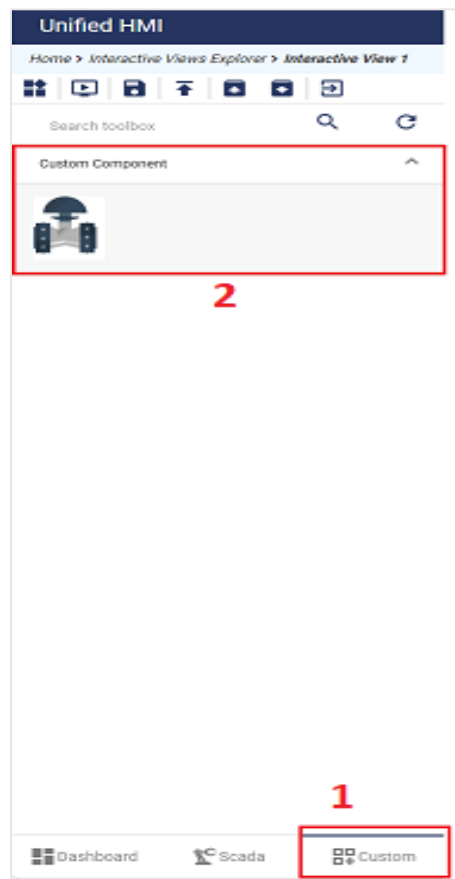


Figure 129: Custom Component Location in the Toolbox

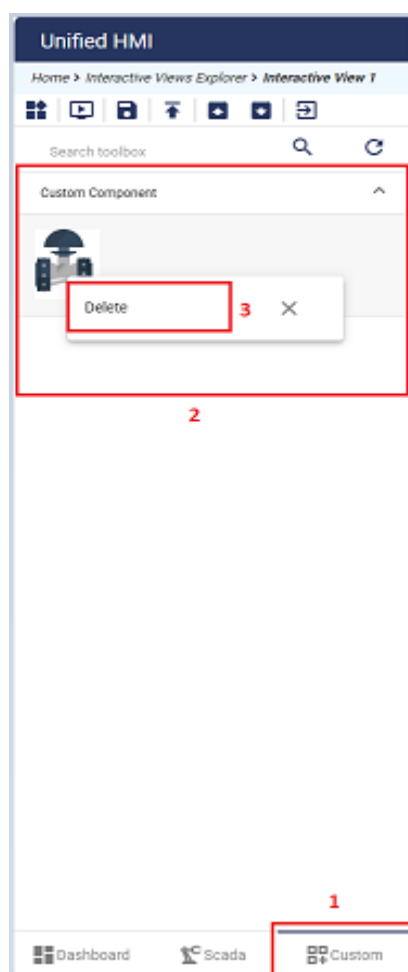
### 6.3. Delete Custom Component

To delete a custom component, follow these steps:

1. From the toolbox, navigate to the **Custom** tab.
2. Right-click the custom component you want to delete.
3. Click the **Delete** button from the newly displayed menu.

By following these steps, you can easily delete unwanted or unnecessary custom components from your toolbox.





**Figure 130: Delete Custom Component**

# USERS

Unified HMI user management involves defining and administering users, roles, and their access levels to resources, views and applications. It ensures that roles and privileges are aligned with business logic, allowing controlled exploration and interaction with system resources.

The user management system is built on the following core components:

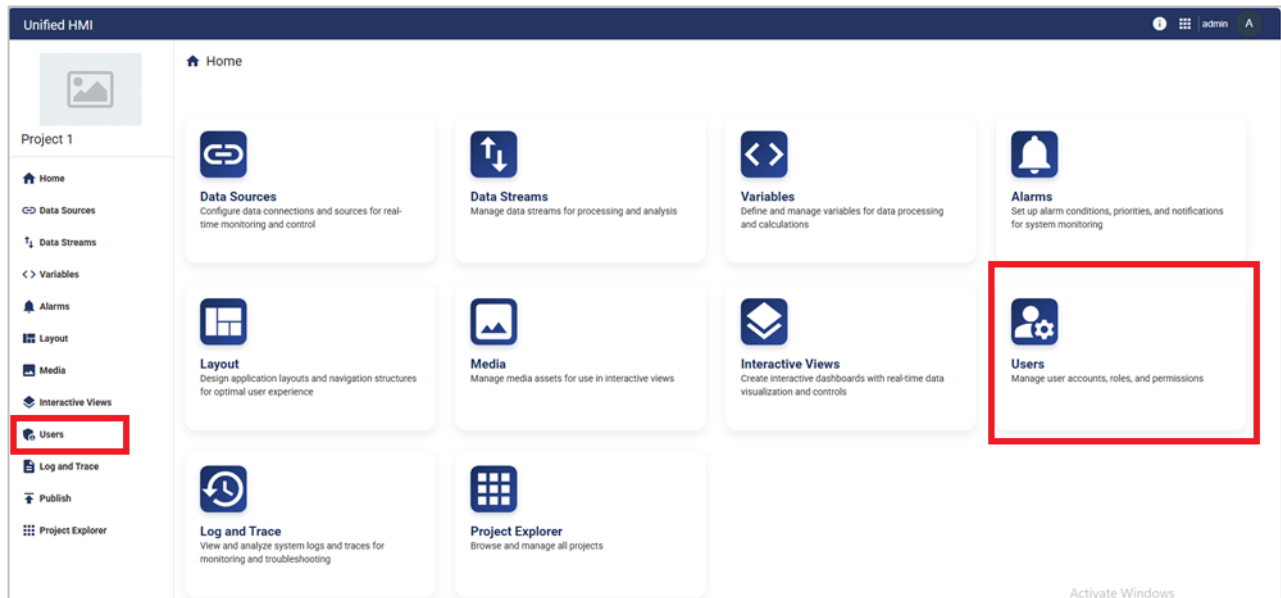
1. **Privileges:** A privilege represents a specific right or authorization granted to a user or a group of users, enabling them to perform an action on a system. Privileges can be granted or revoked by a system administrator.
2. **User Roles:** A user role is a collection of privileges grouped together for simplified management. Instead of assigning privileges individually to each user, administrators can create roles (e.g., **Administrator**, **Operator**, **Guest**) and assign them to users. Each role defines a distinct set of permissions. When modifying the privileges for a specific role, it automatically updates the permissions of all users assigned to that role. This approach streamlines administration and ensures consistency in access control.

**(!) Note:**

- User management is set at the **project level**. Each project maintains its own set of users and roles, allowing access rights to be tailored independently across projects.

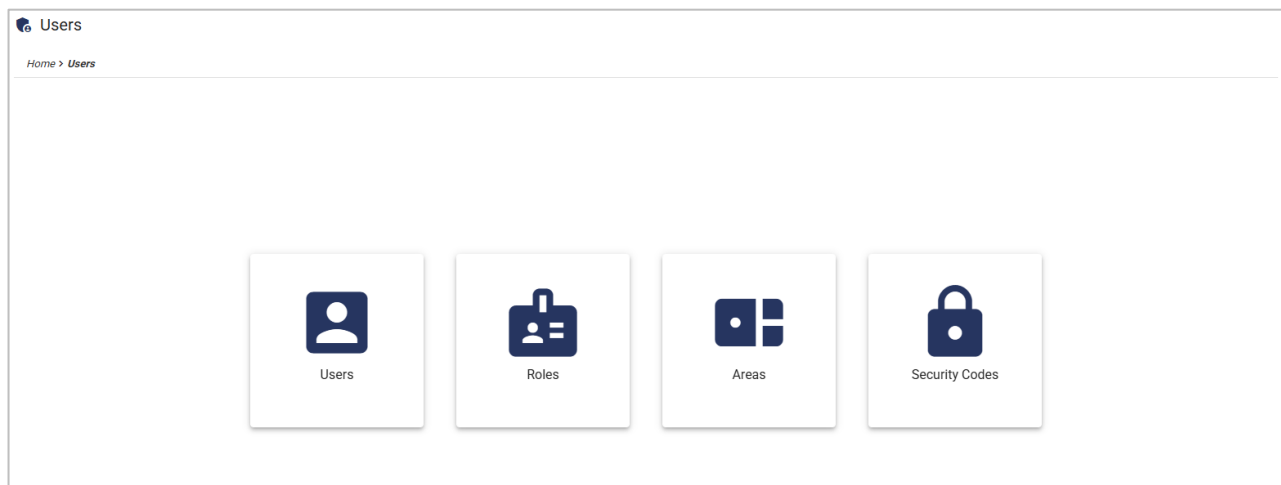
The user management module is divided into two main parts: Designer User Management and Runtime User Management. Each part serves different purposes and allows different levels of control over user access and permissions within the application.

To access the **Users** page, you can either click on the **Users** card on the project home page or select the **Users** from the sidebar menu.



**Figure 131: Access Users Page**

Upon reaching the **Users** page, you will find an explorer listing all the areas that you will manage as part of the project user management.



**Figure 132: Users Management Page**

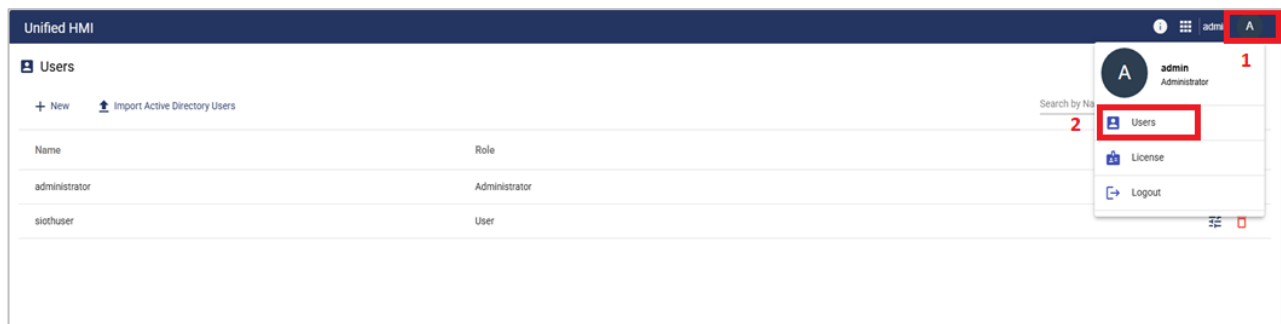
## 1. Users

### 1.1 Manage Users

To open the Users Explorer page:

1. Click the logged-in user icon located in the top-right corner of the Unified HMI.
2. The user menu appears.
3. Select **Users**.

The Users interface displays the list of system users.



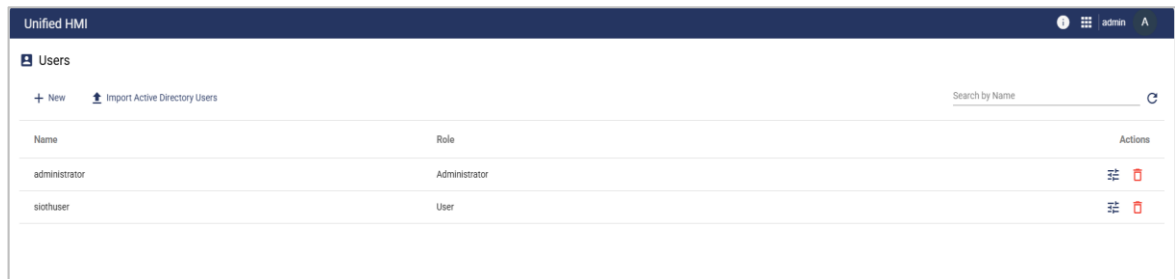
**Figure 133: Navigation to the Users Explorer Page from User Menu**

The Users Explorer table shows all available users, including default system accounts and newly created users.

For each user, the following information is displayed:

- **Name:** The login identifier of the user.
- **Role:** The assigned access level (Administrator or User).
- **Actions:** Options to edit or delete the user.

The list automatically updates when new users are added or removed.



Name	Role	Actions
administrator	Administrator	[Edit] [Delete]
slotohuser	User	[Edit] [Delete]

**Figure 134: Users Explorer Page**

### 1.1.1 Create User

To add a new user to the project, you need to follow these steps:

1. Click **New**.
2. Enter the required information:
  - **Username**
  - **Password**
  - **Confirm Password**
  - **Role**
3. Click **Save** to create the user.

The new user will appear in the Users list.

Create User

Username \*

user1

Password \*

Confirm Password \*

Role \*

User

Cancel Save

**Figure 135. Create User-Parameters**

Parameter	Description
<b>Username</b>	A unique identifier assigned to a user to log into the system.
<b>Password</b>	The authentication credential used by the user to access the system
<b>Confirm Password</b>	Re-enter the password to verify that it was typed correctly.
<b>Role</b>	Defines the user access level and permissions within the platform (e.g., Administrator or User).

**Table 32.Add User - Parameters**

### 1.1.2 Edit User


To modify a user account, follow these steps:

1. Click on the Edit  button (4).

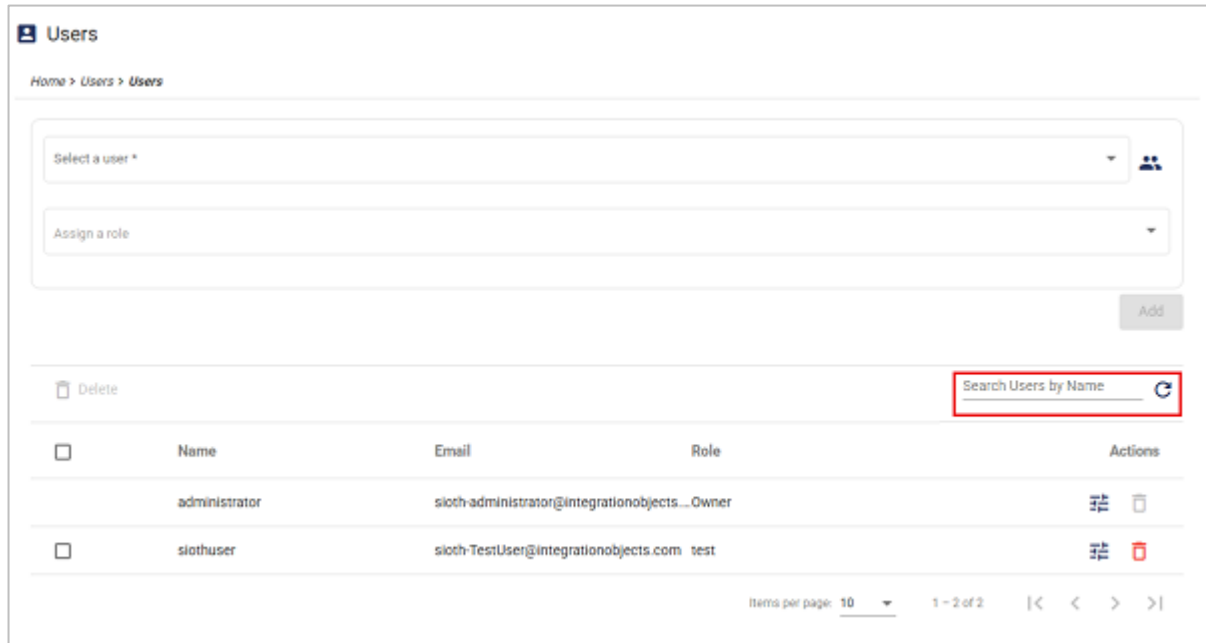
2. Make the desired changes to the specific fields, then click the 'Save' button. Once completed, the user account will be updated.

### 1.1.3 Delete User

To delete a user, follow these steps:

1. Click on the Remove  button (5).
2. Confirm the deletion of the user account by clicking the 'OK' button. Once this action is completed, the user will be removed from the list of existing users.

Alternatively, you can search for a user by entering their name in the 'Search by Name' field, as illustrated in the figure below.



The screenshot shows the 'Users' management page. At the top, there's a breadcrumb 'Home > Users > Users'. Below it, there are two dropdown menus: 'Select a user \*' and 'Assign a role', followed by an 'Add' button. A 'Delete' button is also visible. A search bar labeled 'Search Users by Name' with a refresh icon is highlighted with a red box. Below the search bar is a table with columns: Name, Email, Role, and Actions. The table contains two rows: 'administrator' (sioth-administrator@integrationobjects.com, Owner) and 'siothuser' (sioth-TestUser@integrationobjects.com, test). The 'Actions' column for each row has icons for edit and delete. At the bottom, there's a pagination bar showing 'Items per page: 10' and '1 - 2 of 2'.

**Figure 136. Search for users by name**

## 1.2 Assigning User Role

In addition to adding a new user and assigning this role, follow these steps:

1. Select the user from the first drop-down list (1), as shown in the figure below.
2. Assign a role by selecting it from the second drop-down list (2), as shown in the figure below.

- Click the 'Add' button (3).

Home > Users > Users



1

Select a user \*

2

Assign a role

3

Add

**Figure 137: Add a new user and assign a role**

- Select All Areas checkbox (4) to give access to the user to have access to all existing areas or you can select only the desired area by clicking and selecting the area from the drop-down list (5) as shown in the figure below.
- Select the user security code from the user security codes drop down list (6) as shown in the figure below.



Select a user \*

Owner 4

Select All Areas 5

Select user areas

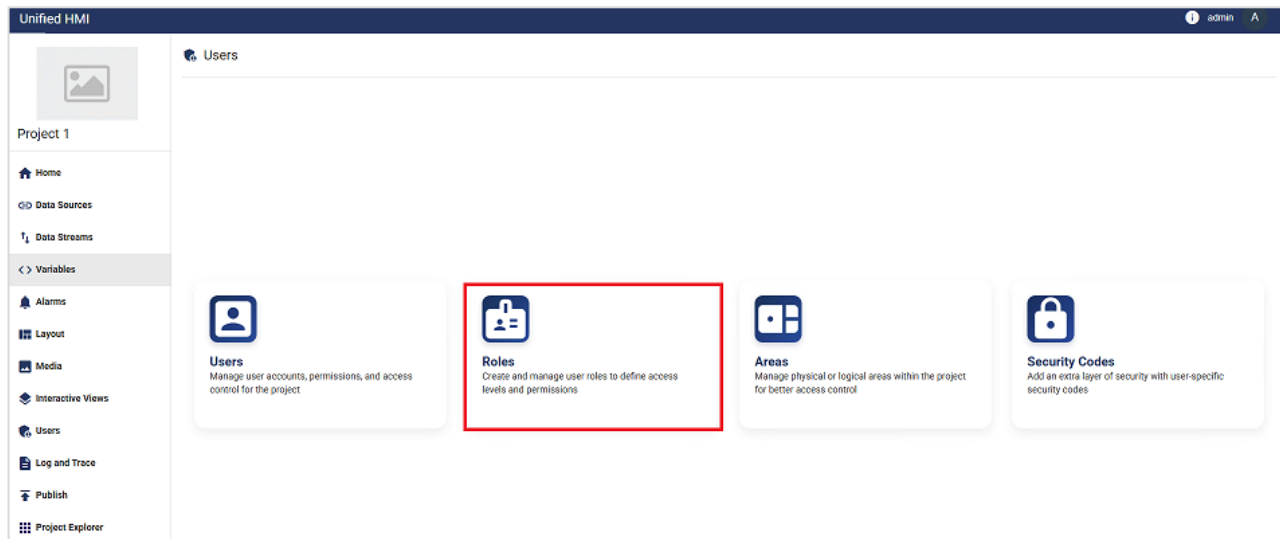
Select user security codes 6

Once this action is completed, the user will be successfully added.

## 2. Roles

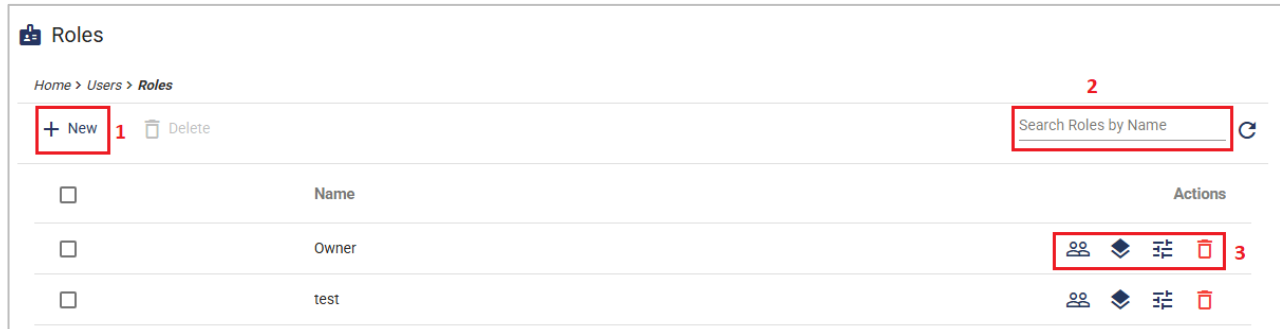
To access the **Roles** page, click the **Roles** card within the user management page.





**Figure 138: User Management Page – Roles**

Upon reaching the **Roles** page, you will find an explorer listing all the added roles, each one presented on a separate line.



**Figure 139: Roles Explorer**

**(!) Note:**

- The **Owner** role is created by default when the project is created and assigned to the user who created it.

The following actions are available for each role:



**Users:** Lists all the users linked to the selected role.



**Interactive Views:** Lists all the interactive views that are configured with the selected role.



**Edit:** This action enables you to update the role.

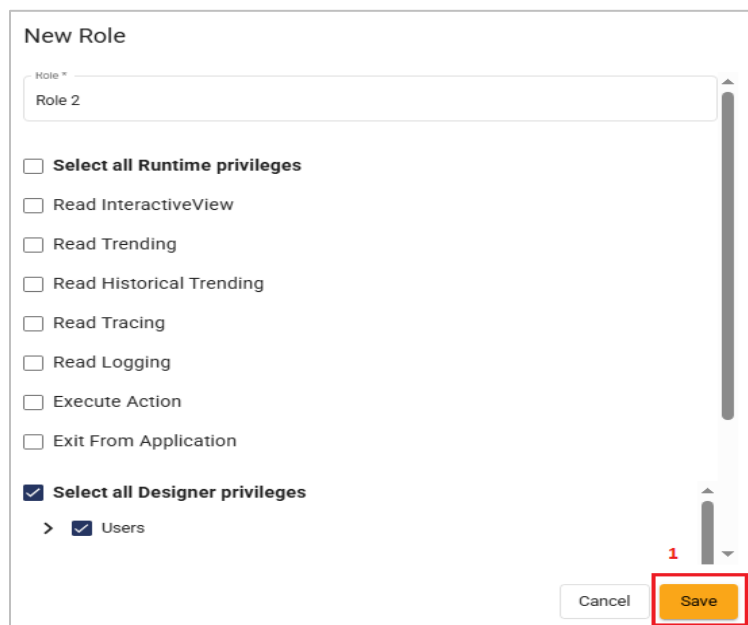


**Delete:** This action allows you to delete a role from the list if it is no longer needed or not valid anymore.

## 2.1 Add New Role

To add a new role, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Roles** card within the User management page.
3. Click the **New** button located at the top-left area of the roles explorer.
4. A popup will be displayed, where you can configure the new role parameters.



The screenshot shows a 'New Role' configuration dialog. At the top, there is a text input field labeled 'Role \*' containing the text 'Role 2'. Below this, there are two sections of checkboxes. The first section, 'Select all Runtime privileges', is unchecked and includes options for 'Read InteractiveView', 'Read Trending', 'Read Historical Trending', 'Read Tracing', 'Read Logging', 'Execute Action', and 'Exit From Application'. The second section, 'Select all Designer privileges', is checked and includes a sub-section with a checked 'Users' option. At the bottom right, there are 'Cancel' and 'Save' buttons. The 'Save' button is highlighted with a red box and a red number '1' next to it.

**Figure 140: New Role Configuration View**

5. Define a name for the new role.
6. Check and select the collection of privileges and access levels that you want to associate with the new role.
7. Click **Save** to add the new role.

The available privileges for the Designer are grouped into the following categories:

Category	Privileges
<b><i>Users</i></b>	<ul style="list-style-type: none"> <li>• Create Areas</li> <li>• Edit Areas</li> <li>• Delete Areas</li> <li>• Explore Areas</li> <li>• Create Security Codes</li> <li>• Edit Security Codes</li> <li>• Delete Security Codes</li> <li>• Explore Security Codes</li> <li>• Create Roles</li> <li>• Edit Roles</li> <li>• Delete Roles</li> <li>• Explore Roles</li> <li>• Create Users</li> <li>• Edit Users</li> <li>• Delete Users</li> <li>• Explore Users</li> </ul>
<b><i>Media</i></b>	<ul style="list-style-type: none"> <li>• Create Medias</li> <li>• Edit Medias</li> </ul>

	<ul style="list-style-type: none"> <li>• Delete medias</li> <li>• Explore Medias</li> <li>• Preview Medias</li> </ul>
<b><i>Views</i></b>	<ul style="list-style-type: none"> <li>• Create Views</li> <li>• Design Views</li> <li>• Edit Views</li> <li>• Save Changes Views</li> <li>• Delete Views</li> <li>• Explore Views</li> <li>• Preview Views</li> </ul>
<b><i>Projects</i></b>	<ul style="list-style-type: none"> <li>• Create Projects</li> <li>• Edit Projects</li> <li>• Delete Projects</li> <li>• Explore Layout</li> <li>• Edit Projects Layout</li> <li>• Publish Projects</li> <li>• Export Projects</li> <li>• Projects Logging</li> <li>• Projects Tracing</li> </ul>
<b><i>Data Sources</i></b>	<ul style="list-style-type: none"> <li>• Create Data Sources</li> <li>• Edit Data Sources</li> <li>• Delete Data Sources</li> <li>• Explore Data Sources</li> <li>• Create Data Stream</li> </ul>

	<ul style="list-style-type: none"> <li>• Create Variable</li> </ul>
<b>User Management</b>	<ul style="list-style-type: none"> <li>• Explore User Management</li> </ul>

**Table 33: Available Privileges for the Designer Application**

The available privileges for the Runtime:

1. Read Interactive View
2. Read Trending
3. Read Historical Trending
4. Read Tracing
5. Read Logging
6. Execute Action
7. Exit From Application

## 2.2 Edit Role


To update a role configuration, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Roles** card within the User management page.
3. Locate the role you want to edit.
4. In the **Actions** column of the roles table, click the **Edit** icon.
5. An update pop-up will appear, displaying the current configuration of the role.
6. Edit the parameters in the displayed pop-up.
7. Once the updates are done, click **Save** to submit the changes.

## 2.3 View Allowed Users


To view the list of users who are included in the role, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Roles** card within the User management page.

3. Locate the role you want to view its included users.
4. In the **Actions** column of the roles table, click the  icon.
5. An update pop-up will appear, displaying the list of included users for this role.

## 2.4 View Linked Interactive Views

To view the list of interactive views that are linked to a role, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Roles** card within the User management page.
3. Locate the role you want to view its linked interactive views.
4. In the **Actions** column of the roles table, click the  icon.
5. An update pop-up will appear, displaying the list of linked interactive views for this role.

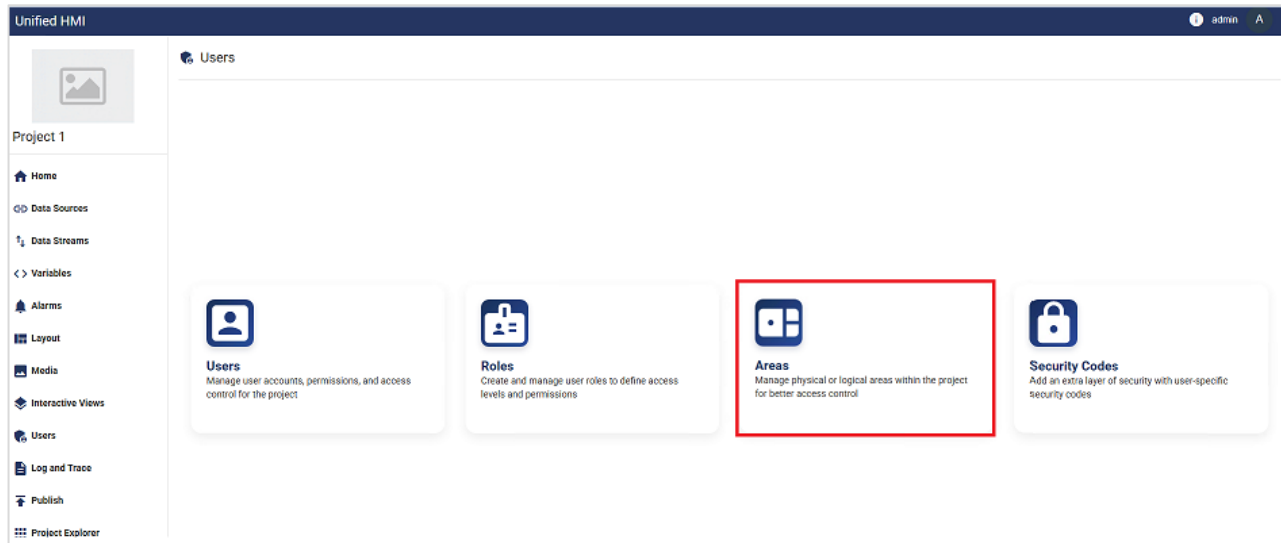
## 2.5 Delete Role

To delete a role, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Roles** card within the User management page.
3. Locate the role you want to delete.
4. In the **Actions** column of the roles table, click the **Delete** icon.
5. A confirmation message will pop up, prompting you to confirm the deletion:
  - a. Click **OK** to confirm and delete the role.
  - b. Click **Cancel** to abort the deletion and retain the role.

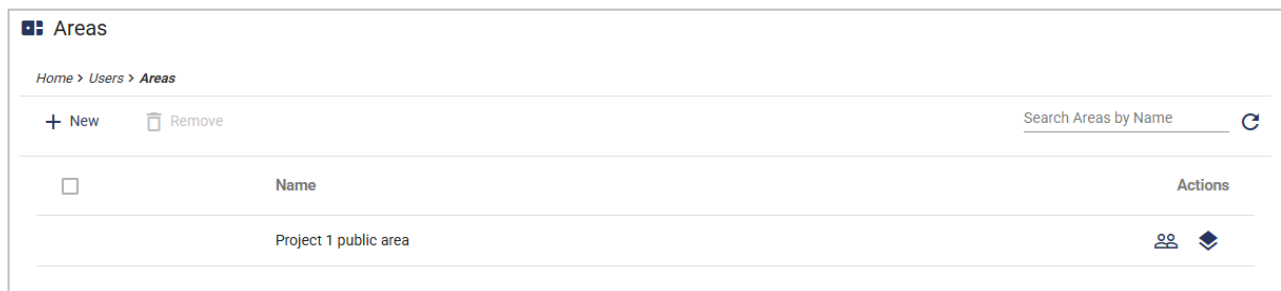
## 3. Areas

To access the **Areas** page, click the **Areas** card within the user management page.



**Figure 141: User Management Page – Areas**

Upon reaching the **Areas** page, you will find an explorer listing all the added areas, each one presented on a separate line.



**Figure 142: Areas Explorer**

The runtime application can be structured into multiple units or regions called **Areas**. Each Area typically contains one or more views, and access to these views can be restricted or granted to specific user roles.

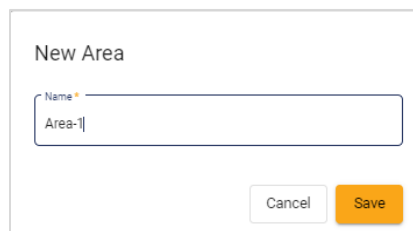
**(!) Note:**

- By default, all the views are included in a public area, which is accessible to all existing roles. Every user can view all the views contained within this area.

## 3.1 Add New Area

To add a new area, follow these steps:

1. Open the **User Management** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Areas** card located on the User Management page.
3. Click the **New** button located at the top-left of the areas explorer.
4. A popup will be displayed, where you can configure the new area.



The image shows a 'New Area' configuration popup. It has a title 'New Area' at the top. Below the title is a text input field with a placeholder 'Name' and a small orange asterisk icon. The input field contains the text 'Area-1'. At the bottom right of the popup are two buttons: 'Cancel' (light gray) and 'Save' (orange).

**Figure 143: New Area Configuration View**

5. Define a name for the new area.
6. Click **Save** to add the new area.

## 3.2 Edit Area

To update an area configuration, follow these steps:


1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Areas** card located on the User Management page.
3. Locate the area you want to edit.
4. In the **Actions** column of the areas table, click the **Edit** icon.
5. A pop-up will appear, displaying the current configuration of the area.



6. Edit the parameters in the displayed pop-up.
7. Once the updates are done, click **Save** to submit the changes.


### 3.3 View Allowed Users

To view the list of users who are allowed to preview and access an area, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Areas** card located on the User Management page.
3. Locate the area you want to view its assigned users.
4. In the **Actions** column of the areas table, click the  icon.
5. A pop-up will appear, displaying the list of allowed users for this area.

### 3.4 View Linked Interactive Views

To view the list of interactive views that are linked to an area, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Areas** card located on the User Management page.
3. Locate the area you want to view its linked interactive views.
4. In the **Actions** column of the areas table, click the  icon.
5. An update pop-up will appear, displaying the list of linked interactive views for this area.

### 3.5 Delete Area

To delete an area, follow these steps:

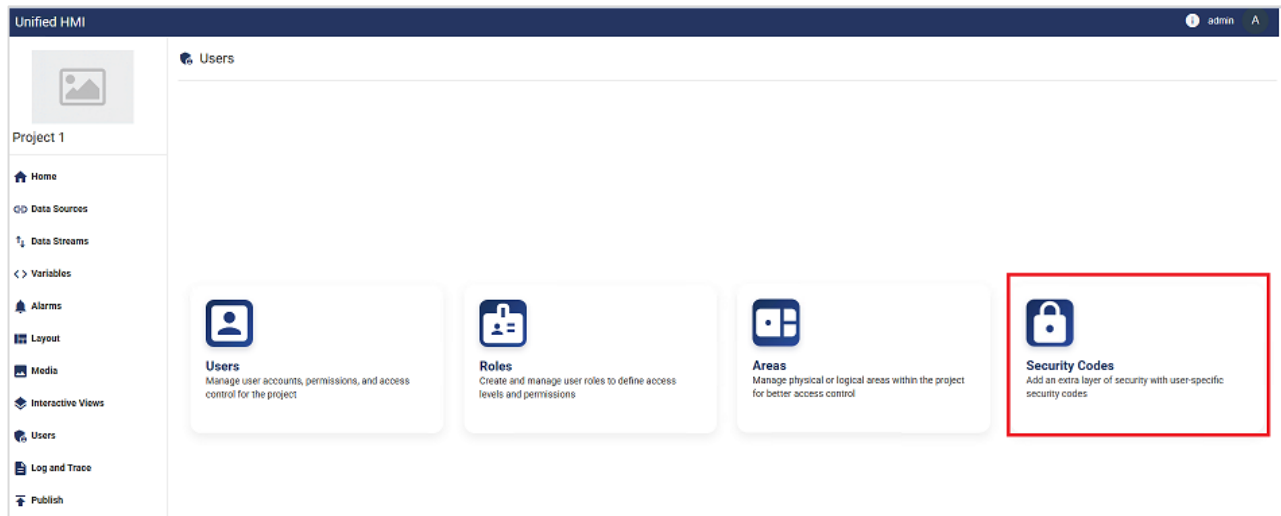
1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Areas** card located on the User Management page.
3. Locate the area you want to delete.
4. In the **Actions** column of the areas table, click the **Delete** icon.
5. A confirmation message will pop up, prompting you to confirm the deletion.
  - a. Click **OK** to confirm and delete the area.

- b. Click **Cancel** to abort the deletion and retain the area.

## 4. Security Codes

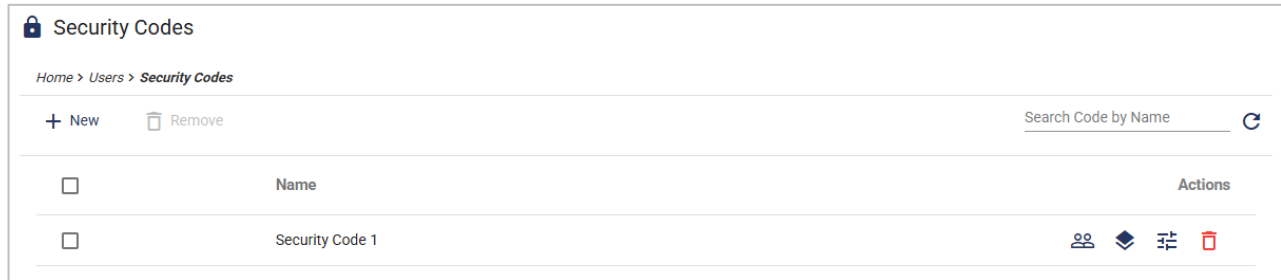
Runtime security codes act as additional security layers beneath user roles. They allow you to restrict access to specific parts of the application only to users who have the appropriate security code. This mechanism is particularly useful when a critical component or an interactive view requires stricter security beyond the standard area or role (privilege) configuration.

To access the **Security Codes** page, click the **Security Codes** card within the user management page.



**Figure 144: User Management Page – Security Codes**

Upon reaching the **Security Codes** page, you will find an explorer listing all the added security codes, each one presented on a separate line.

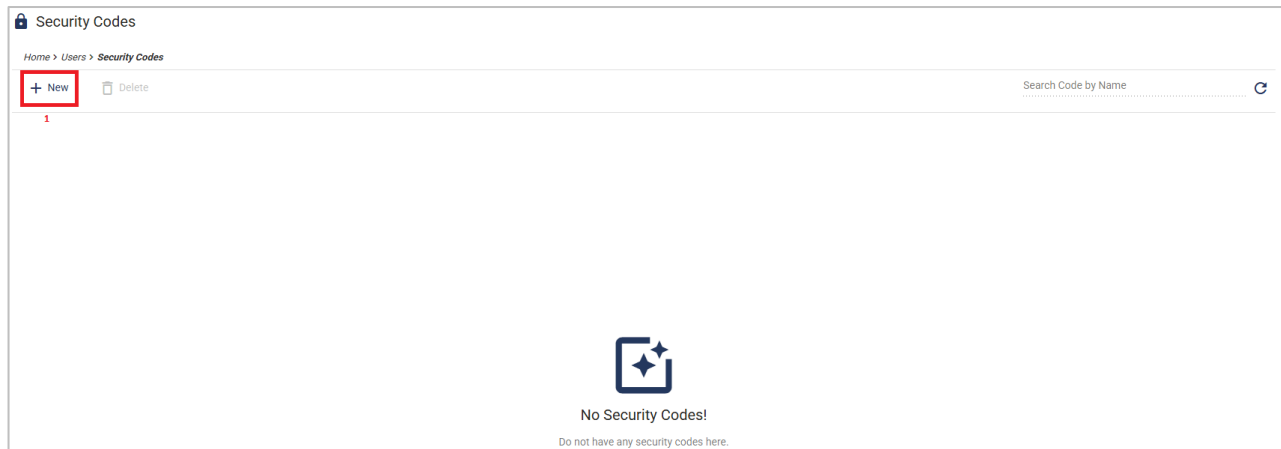


**Figure 145: Security Codes Explorer**

## 4.1 Add New Security Code

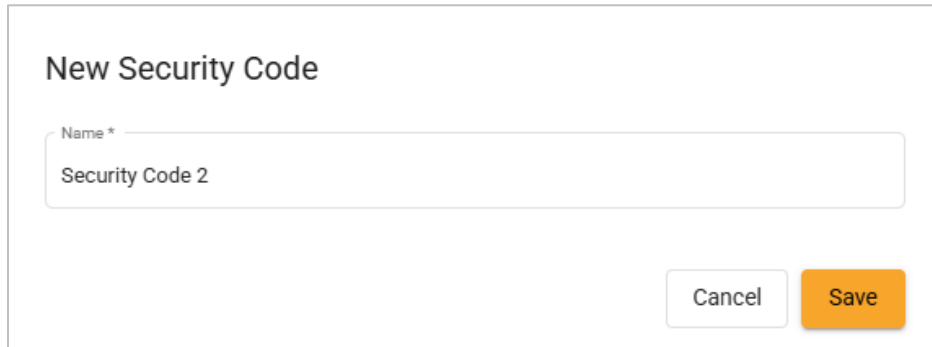
To add a new security code, follow these steps:

1. Open the **User Management** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Security Codes** card within the User management page.
3. Click the **New** button located at the top-left of the security codes explorer.



**Figure 146: Add a New Security Code**

4. A popup will be displayed, where you can configure the new security code.
5. Define the content of the security code.



The image shows a 'New Security Code' configuration window. It has a title 'New Security Code' at the top. Below the title is a text input field with a placeholder 'Name \*' and a label 'Security Code 2' inside it. At the bottom right of the window are two buttons: 'Cancel' and 'Save'.

**Figure 147: Security Code Configuration View**

6. Click **Save** to add the security code.


## 4.2 Edit Security Code

To update the security code configuration, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Security Codes** card within the User management page.
3. Locate the security code you want to edit.
4. In the **Actions** column of the security codes table, click the **Edit** icon.
5. An update pop-up will appear, displaying the current configuration of the security code.
6. Edit the parameters in the displayed pop-up.
7. Once the updates are done, click **Save** to submit the changes.


## 4.3 View Allowed Users

To view the list of users who are allowed to use the security, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Security Codes** card within the User management page.
3. Locate the security code you want to view its assigned users.
4. In the **Actions** column of the security codes table, click the  icon.
5. An update pop-up will appear, displaying the list of allowed users for this security code.

## 4.4 View Linked Interactive Views

To view the list of interactive views that are linked to a security code, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Security Codes** card within the User management page.
3. Locate the security code you want to view its linked interactive views.
4. In the **Actions** column of the security codes table, click the  icon.
5. An update pop-up will appear, displaying the list of linked interactive views for this security code.

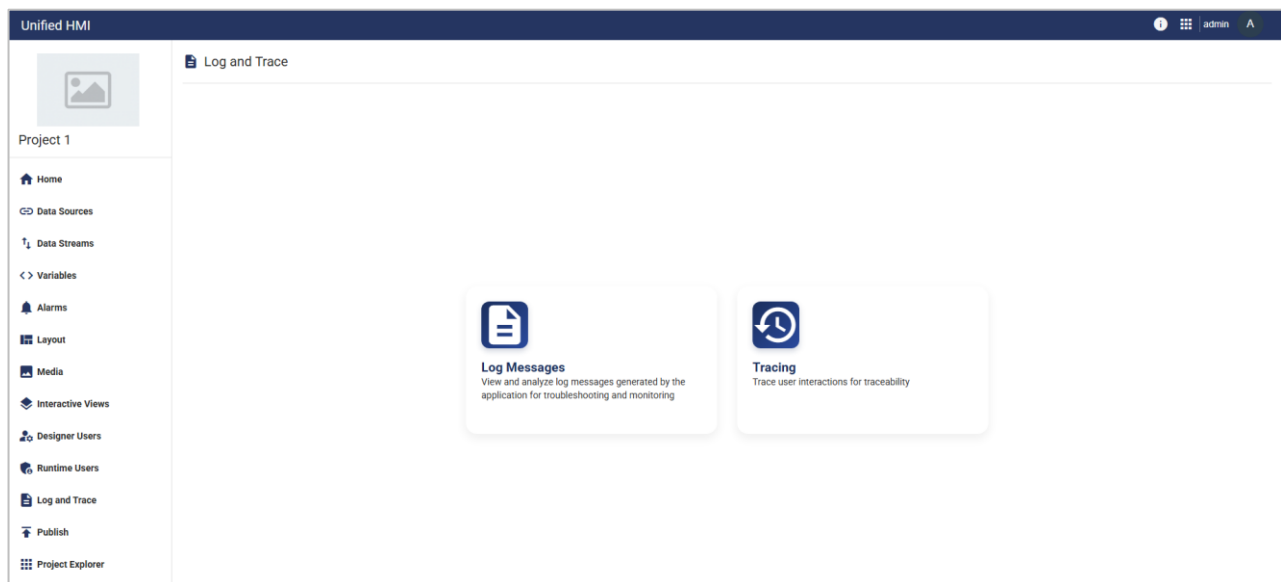
## 4.5 Delete Security Code

To delete a security code, follow these steps:

1. Open the **Users** page by either clicking the **Users** card on the project home page or selecting **Users** from the sidebar menu.
2. Click the **Security Codes** card within the User management page.
3. Locate the security code you want to delete.
4. In the **Actions** column of the security codes table, click the **Delete** icon.
5. A confirmation message will pop up, prompting you to confirm the deletion.
  - a. Click **OK** to confirm and delete the security code.
  - b. Click **Cancel** to abort the deletion and retain the security code.

# LOGGING AND TRACING

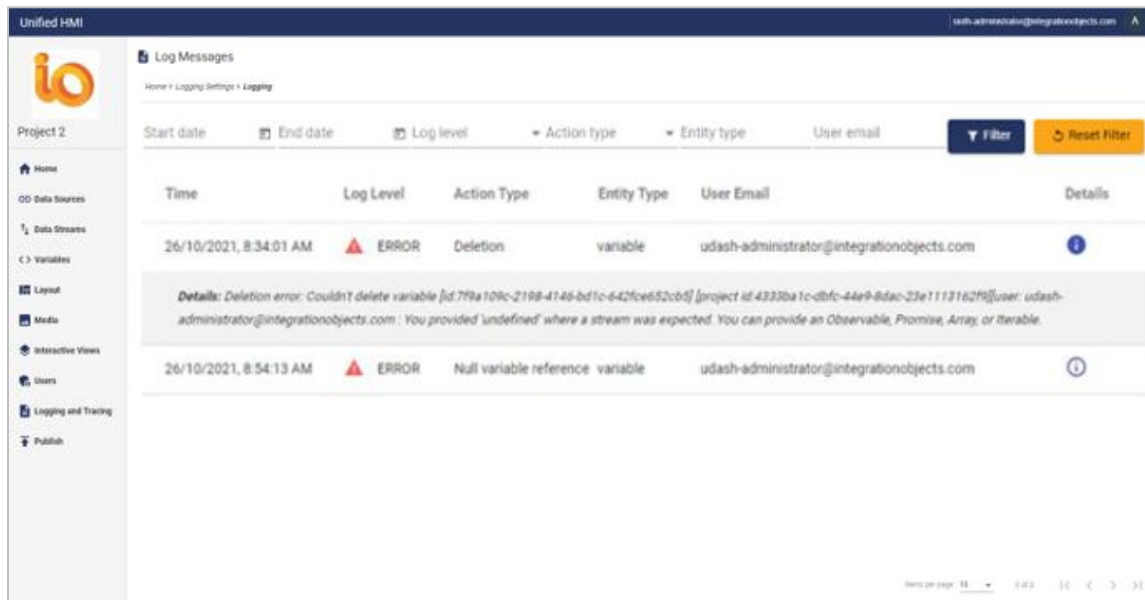
The **Logging and Tracing** module provides two dedicated pages:



**Figure 148: Logging and Tracing**

## 1. Log Messages

The Log Messages section provides a list of messages, errors and informational logs that occur while performing actions or operations.

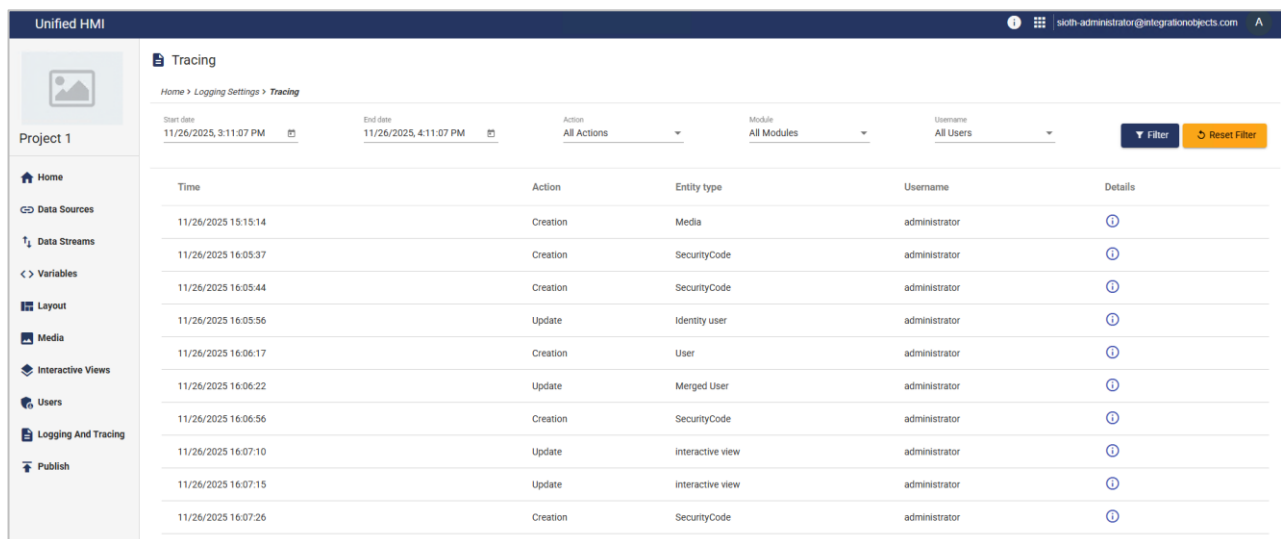


Time	Log Level	Action Type	Entity Type	User Email	Details
26/10/2021, 8:34:01 AM	ERROR	Deletion	variable	udash-administrator@integrationobjects.com	<a href="#">Details</a>
<b>Details:</b> Deletion error: Couldn't delete variable [id:7f9a109c-2198-4145-bd1c-642f6e52cb5] (project id:4332ba1c-dbf0-44e9-8da0-23e1113162f9) [user: udash-administrator@integrationobjects.com : You provided 'undefined' where a stream was expected. You can provide an Observable, Promise, Array, or iterable.					
26/10/2021, 8:54:13 AM	ERROR	Null variable reference	variable	udash-administrator@integrationobjects.com	<a href="#">Details</a>

**Figure 149: Log Messages View**

## 2. Tracing

The Tracing section provides detailed tracking capabilities to monitor user activities, including operations such as adding, editing, deleting, publishing, writing to sources, etc.

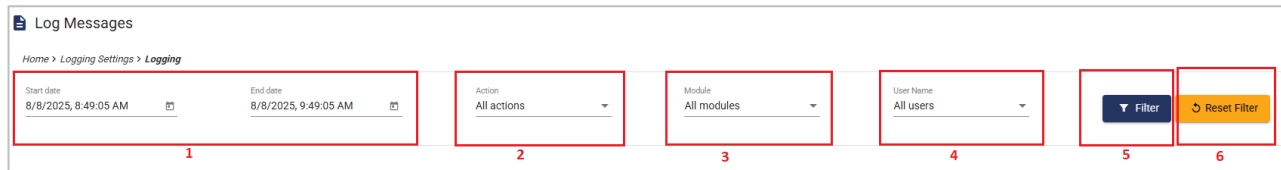


Time	Action	Entity type	Username	Details
11/26/2025 15:15:14	Creation	Media	administrator	<a href="#">Details</a>
11/26/2025 16:05:37	Creation	SecurityCode	administrator	<a href="#">Details</a>
11/26/2025 16:05:44	Creation	SecurityCode	administrator	<a href="#">Details</a>
11/26/2025 16:05:56	Update	Identity user	administrator	<a href="#">Details</a>
11/26/2025 16:06:17	Creation	User	administrator	<a href="#">Details</a>
11/26/2025 16:06:22	Update	Merged User	administrator	<a href="#">Details</a>
11/26/2025 16:06:56	Creation	SecurityCode	administrator	<a href="#">Details</a>
11/26/2025 16:07:10	Update	interactive view	administrator	<a href="#">Details</a>
11/26/2025 16:07:15	Update	interactive view	administrator	<a href="#">Details</a>
11/26/2025 16:07:26	Creation	SecurityCode	administrator	<a href="#">Details</a>

**Figure 150: Tracing View**

### 3. Filtering

You can use the different filtering areas to narrow down the log messages displayed.



**Figure 151: Filters**

Parameter	Description
<b>Start Date</b>	Specify the start date to filter log messages from that point in time onward.
<b>End Date</b>	Specify the end date to filter log messages up to that point in time.
<b>Action</b>	<p>Filter log messages based on the type of action performed. Available options include:</p> <ul style="list-style-type: none"> <li>• <b>All Actions:</b> Displays logs for all performed actions.</li> <li>• <b>Creation:</b> Displays logs related to the creation of elements.</li> <li>• <b>Update:</b> Displays logs for updates or modifications.</li> <li>• <b>Deletion:</b> Displays logs for deleted items.</li> <li>• <b>Publish:</b> Displays logs for publishing events.</li> <li>• <b>Permission Denied:</b> Displays logs where access was restricted or denied.</li> <li>• <b>Layout Update:</b> Displays logs for layout configuration changes.</li> </ul>



<b>Module</b>	<p>Filter log messages by selecting a specific module from the drop-down list. Available options include:</p> <ul style="list-style-type: none"> <li>• <b>All Modules:</b> Displays logs for all application modules.</li> <li>• <b>Data Source:</b> Displays logs related to configured data sources.</li> <li>• <b>Interactive View:</b> Displays logs related to interactive views.</li> <li>• <b>Variable:</b> Displays logs related to variable configuration or updates.</li> <li>• <b>Alarm:</b> Displays logs for alarm creation, updates, or triggers.</li> <li>• <b>Media:</b> Displays logs related to media elements such as images or videos.</li> <li>• <b>Identity User:</b> Displays logs related to user accounts and identity management.</li> <li>• <b>Datastream:</b> Displays logs for data stream configuration and updates.</li> <li>• <b>Layout:</b> Displays logs for layout adjustments or modifications.</li> <li>• <b>Project:</b> Displays logs related to project-level actions.</li> </ul>
<b>Username</b>	<p>Filter log messages by selecting a specific user from the drop-down list. Available options include:</p> <ul style="list-style-type: none"> <li>• <b>All Users:</b> Displays logs related to actions performed by all users.</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Administrator:</b> Displays logs specifically for actions performed by the <i>Administrator</i> account.</li> </ul> <p>Any user that has been added in the <b>User Management</b> section will be displayed in the drop-down list.</p>
--	--

**Table 34: Filters Details**

Once the filters are configured, click the **Filter** button (5) to display the corresponding log messages.

To clear all filters and return to the default view, click the **Reset Filter** button (6).

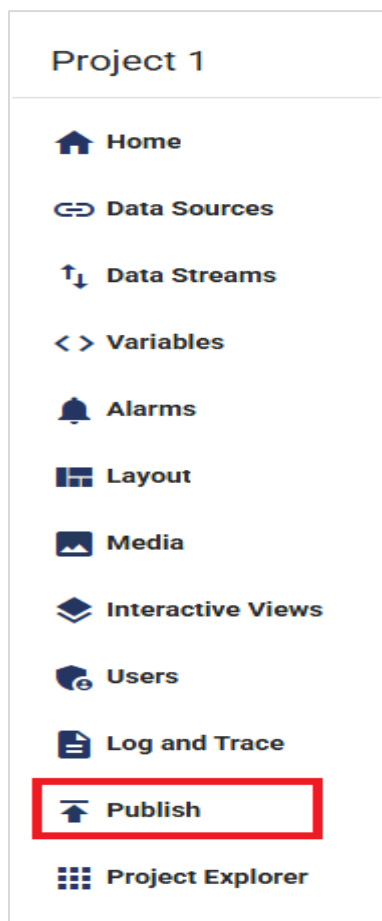
# RUNTIME APPLICATION

Once you have designed your application views or dashboard, the next step is to **publish and deploy** it. Publishing a project from the **Unified HMI Designer** makes it available in **Runtime**, allowing end users to access and interact with the application as intended.

## 1. Publish Project

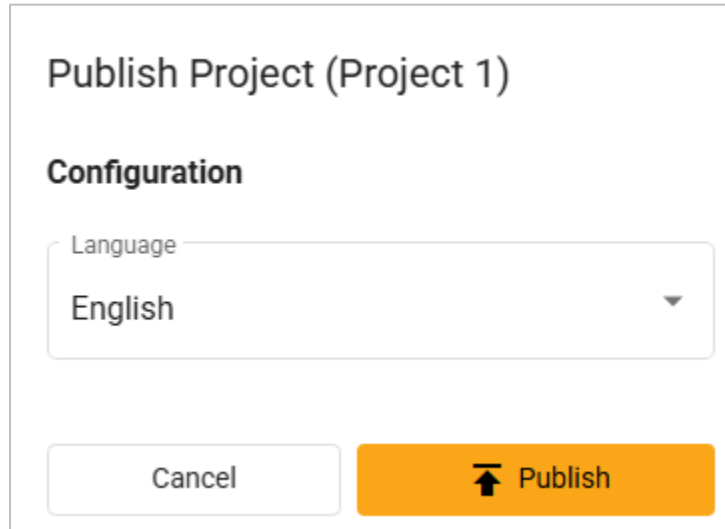
To publish a project for Unified HMI Runtime, follow these steps:

1. Click **Publish** from the project side menu in the Design view.



**Figure 152: Publish Project**

2. A pop-up will appear, displaying the publishing parameters to be configured.



The image shows a 'Publish Project (Project 1)' configuration window. It has a title bar at the top. Below the title, there is a section labeled 'Configuration'. Inside this section, there is a dropdown menu for 'Language' with 'English' selected. At the bottom of the window, there are two buttons: a 'Cancel' button and a 'Publish' button with an upward arrow icon.

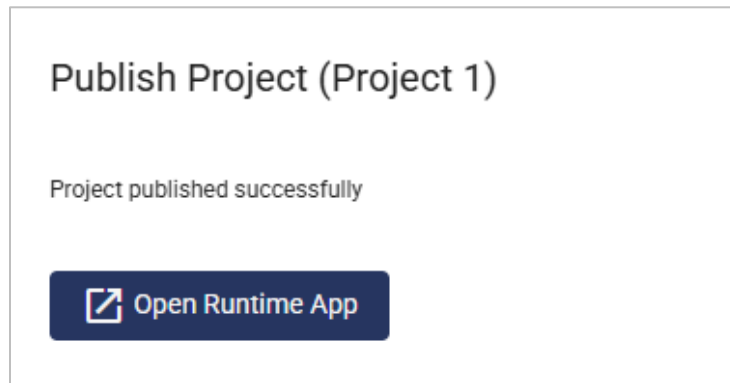
**Figure 153: Publish Project Configuration View**

Parameter	Description
<i><b>Language</b></i>	Specifies the language used for the project interface and runtime display.

**Table 35: Publish Project Configuration Parameters**

3. Click **Publish** to save the configuration and publish the project.

Once the project is successfully published to Runtime, a pop-up window is displayed, indicating that the project has been successfully published and allowing you to open the runtime application.



**Figure 154: Project Successfully Published**

To open the Runtime Application to view the project, click the **Open Runtime App** button. Once clicked, you will be redirected to the Runtime module where you can browse and select your project to be viewed in runtime mode.

**(!) Note**

- Each time you perform an update or change in the application design, you need to publish the application so that the changes are applied in the runtime application.

## 2. Applications Explorer

**Unified HMI Runtime** is the environment where the final published project runs, enabling end-users to interact with the application.

To access the **Runtime**:

1. If the UHMI Runtime is installed as part of the SIOTH® platform, click the **UHMI Runtime** in the SIOTH® home page.

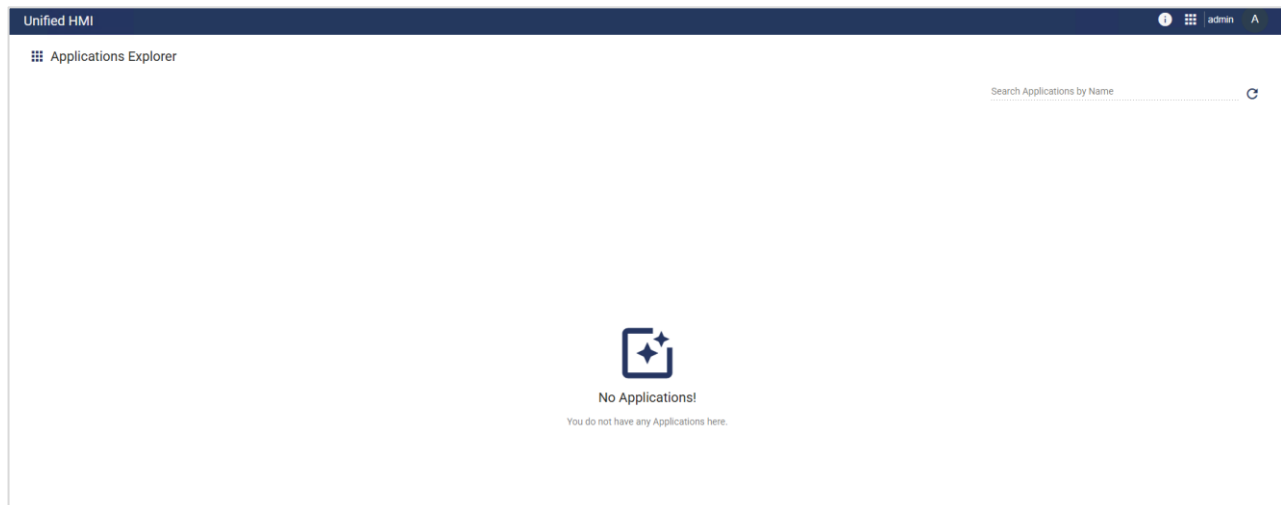


**Figure 155: UHMI Runtime Selection through STIOH Home Page**

2. If the Unified HMI module is deployed as a separate installation, click the **UHMI Runtime** icon from your desktop.

The Unified HMI Runtime displays the list of the projects that have been successfully published or imported using exported files.

You can add a new application by publishing a project from the **Designer** application or importing a file by clicking the **New Application** button.



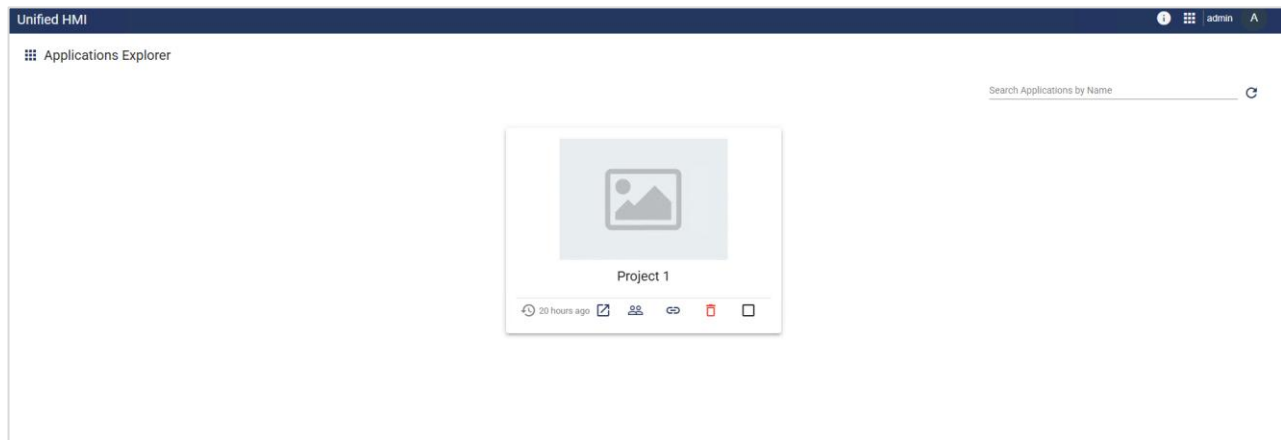
**Figure 156: Unified HMI Application Explorer**

Once projects are available on the **Application Explorer** page, you can navigate between different deployed projects by clicking on the corresponding application card to select the project.

## 2.1 Import Application File

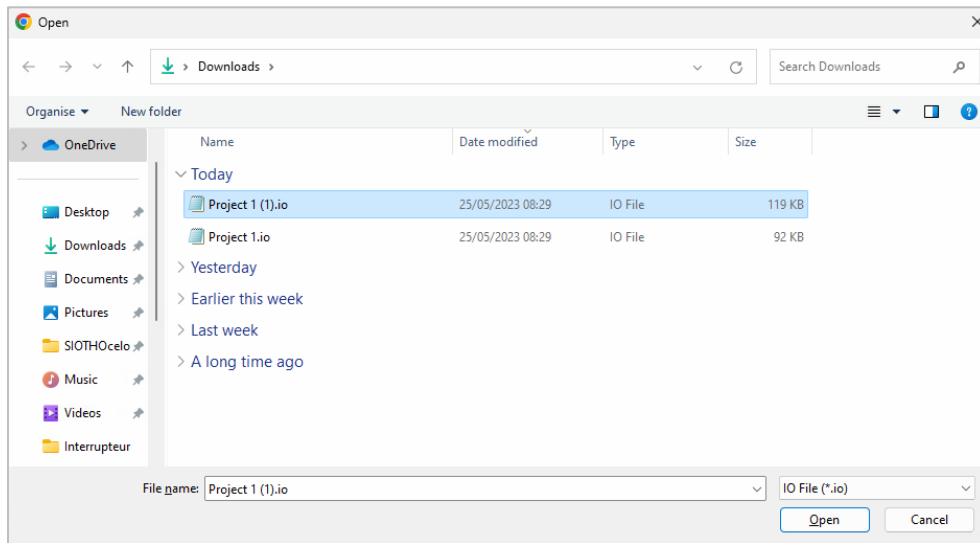
To add a new application, follow these steps:

1. click **New Application**.



**Figure 157: Runtime Home Page – New Application**

2. A File Explorer dialog will be displayed allowing you to choose the project file that refers to the application to be imported from your device. Once the project file is selected, click **Open** to add the application.



**Figure 158: New Application – Project File Selection**

3. A pop-up will be displayed to show the selected project information.

### New Application

Import from file

Project 1.io

Application Name

Project 1

Cancel

Save

**Figure 159: New Application – Project Information**

Parameter	Description
<b><i>Import from File</i></b>	Displays the name of the selected file. Note that this field is read only and cannot be edited.








<b><i>Application Name</i></b>	The name of the project of the imported file, which can be edited.
--------------------------------	--

**Table 36: New Application Parameters**

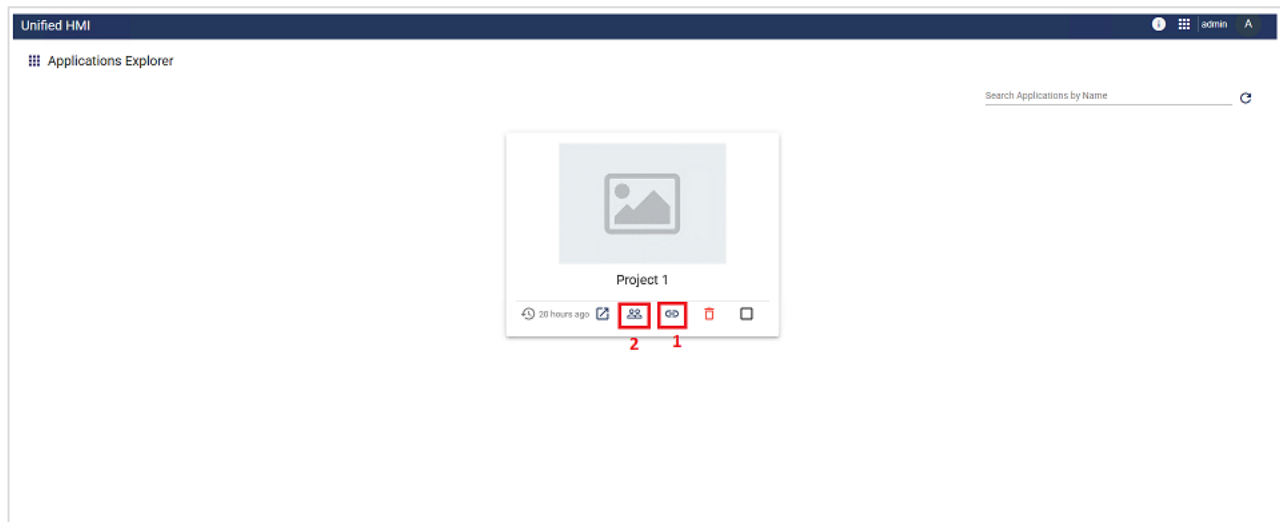
4. Click **Save**.
5. Once done, an information message is displayed “**Application imported successfully**” and the project is added in the Applications Explorer page.

Some actions are also available at the bottom of each application card allowing to manage:

-  Navigate to the home page of the selected application.
-  Manage users and their roles for the selected application.
-  Displays the data sources used in the application.
-  Delete the application upon confirmation of the action.
-  Set the selected project as the default application to be opened in Runtime.

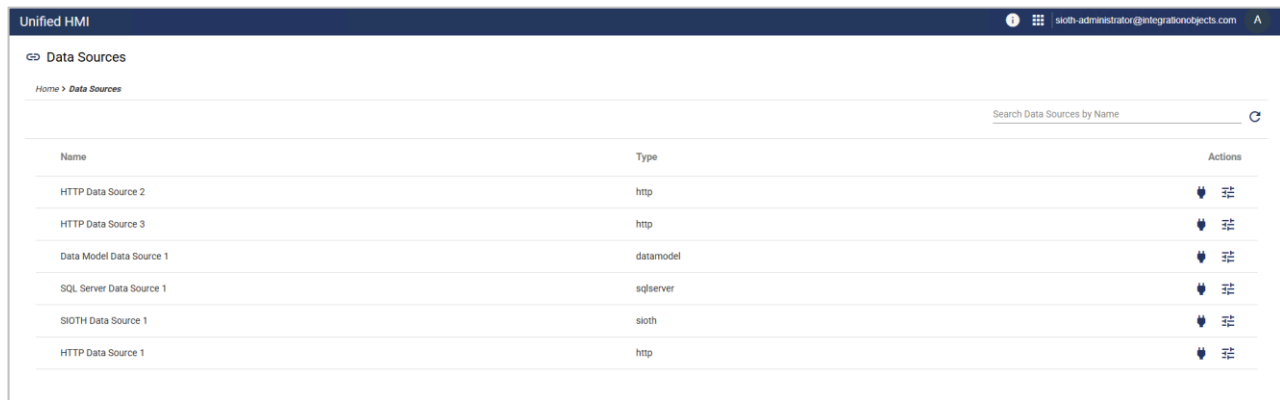
## 2.2 Data Source Configuration Page













The **Data Sources** configuration page allows you to explore data sources related to the application. These data sources can be used to retrieve and display data within the application views and components. To open the Data Sources configuration page, click the **Data Sources** icon (1) in the selected application card.



**Figure 160: Application Explorer – Data Sources Action Selection**

Upon reaching the **Data Sources** page, you will find an explorer listing all the added data sources, each one presented on a separate line.



Name	Type	Actions
HTTP Data Source 2	http	 
HTTP Data Source 3	http	 
Data Model Data Source 1	datamodel	 
SQL Server Data Source 1	sqlserver	 
SIOTH Data Source 1	siOTH	 
HTTP Data Source 1	http	 

**Figure 161: Data Sources Explorer**

The following actions are available for each data source:



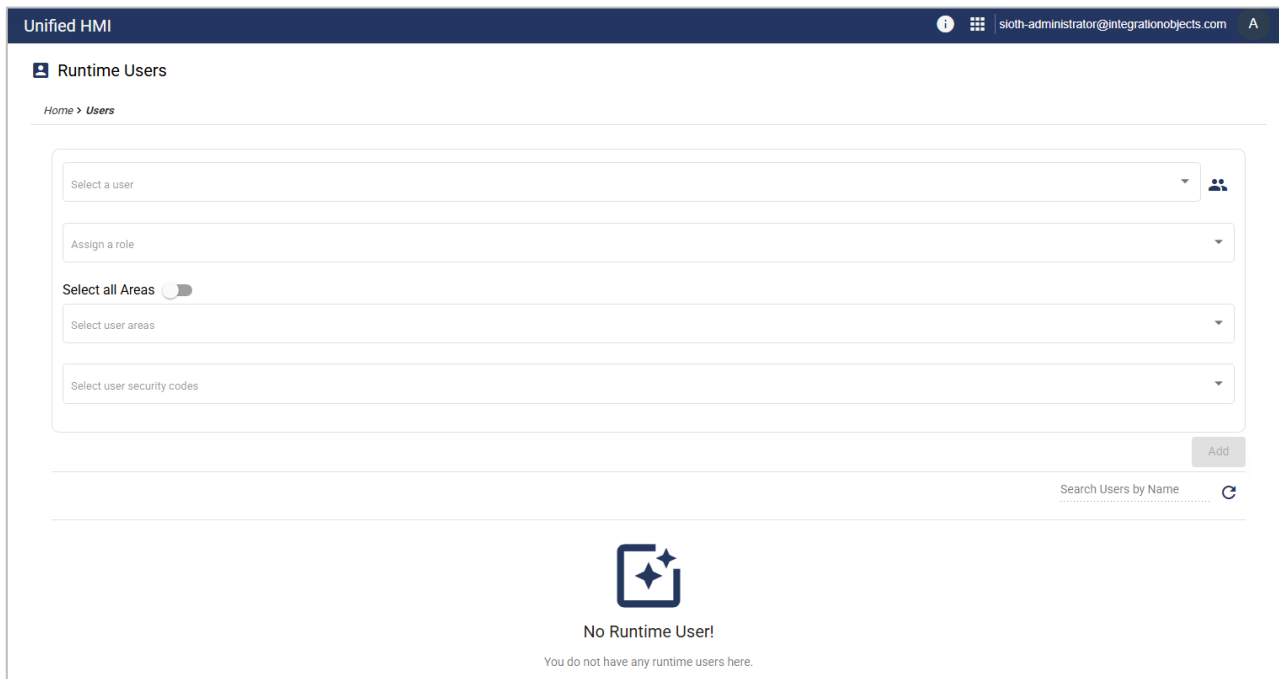
**Test Connection:** This action allows you to test the connection to the data source. It validates the connectivity and ensures that the data source is accessible.



**Edit:** This action enables you to update the connection parameters related to the data source. The “Edit” action is only available for the Microsoft SQL Server Data Source and the HTTP Data Source.

## 2.3 User Configuration Page

The **Users** configuration page allows you to explore, search, create, edit, and delete users assigned to each application. To open the **Users** configuration page, click **Users** icon in the selected application card.



**Figure 162: Users Configuration Page**

The user configuration in the **Runtime** application is identical to the user configuration in the **Unified HMI Designer**, allowing consistent management of users, roles, and access privileges across both environments.

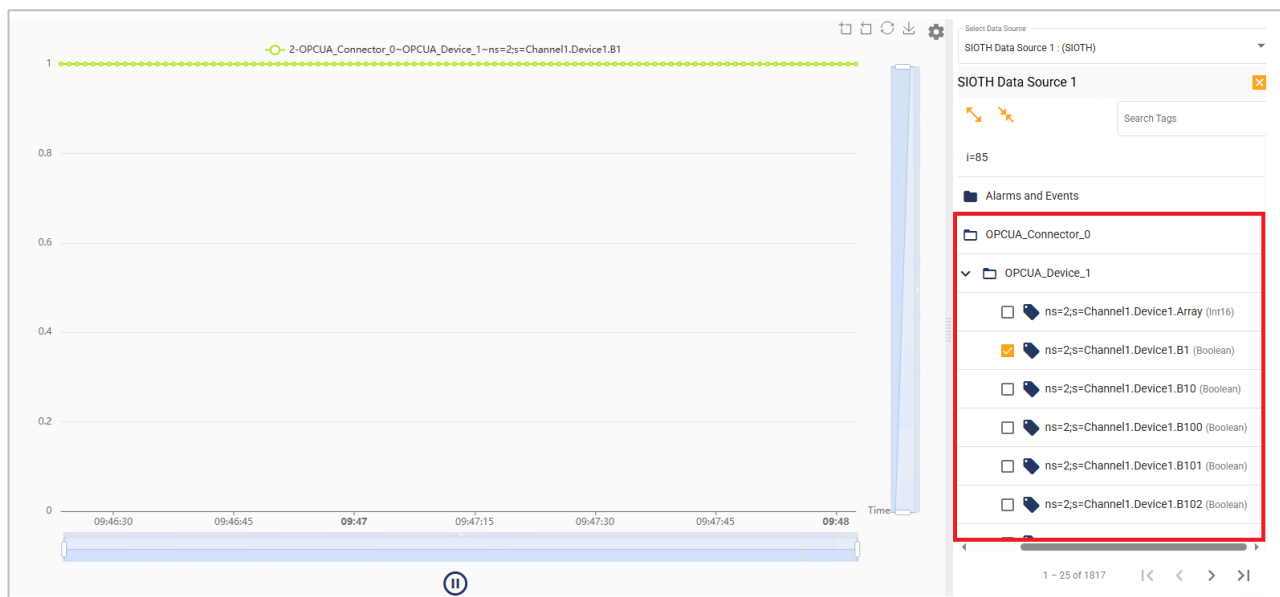
## 3. Application Content

### 3.1 Trend Pages

Trend pages are used to visualize and analyze trends in data over time, making it easier to identify patterns, detect anomalies, and view historical changes.

### 3.2 Real-time Trend

To visualize real-time trends, select the data streams to be interpreted from the panel on the right side. Once selected, the corresponding chart will be automatically displayed:



**Figure 163: Real-Time Trend**

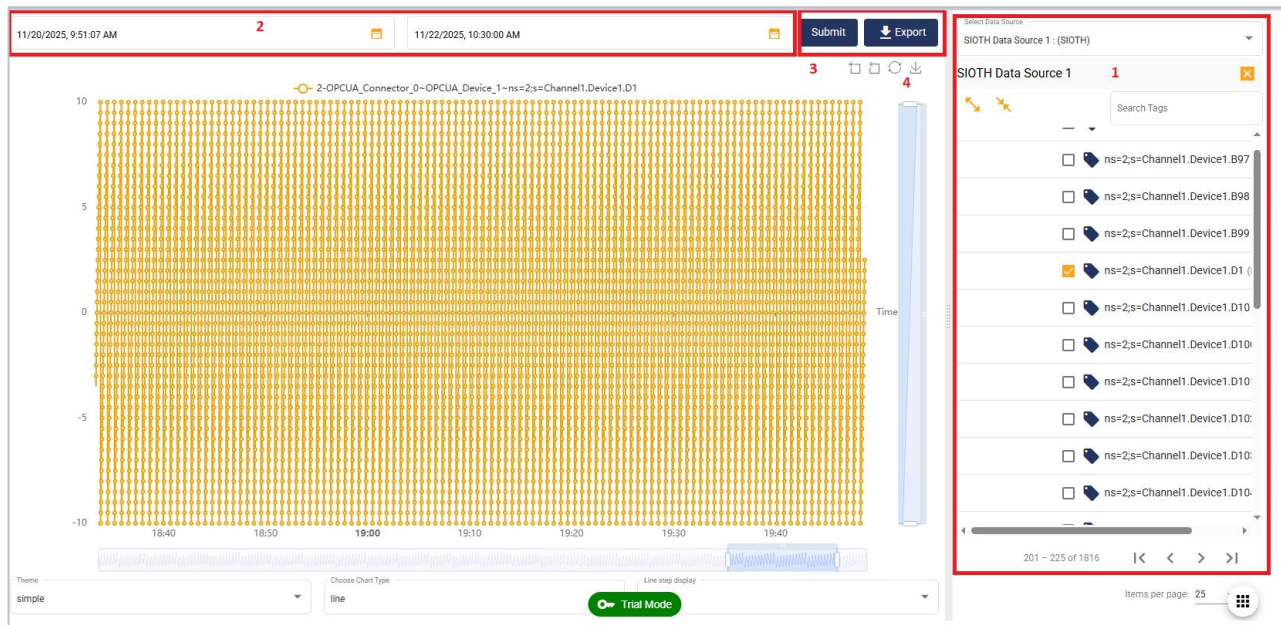
### 3.3 Historical Trend

To visualize Historical Trends:

1. Select the data streams (1) to be interpreted from the panel on the right side.
2. Enter the period (2) of the data to be retrieved.
3. Click **Submit** (3).

The corresponding chart will be displayed. You can also export by clicking the **Export** button (4).

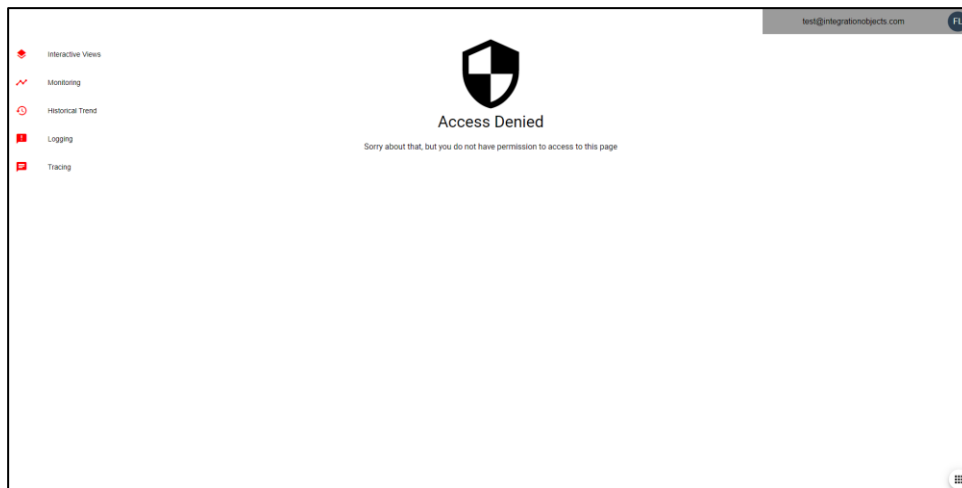
The 'Export' function enables users to save data as a CSV or Excel file.



**Figure 164: Historical Trend**

### 3.4 Unauthorized Page

As a secure application, each user is assigned access controls and roles that define the features they are permitted to use. If the user attempts to access a module that is not authorized for their role, an **“Access Denied”** interface will be displayed.



**Figure 165: Unauthorized Page**

For additional information on this guide, questions, or problems to report, please contact:

**Offices**

- Americas: +1 713 609 9208
- Europe-Africa-Middle East: +216 71 195 360

**Email**

- Support Services: [customerservice@integrationobjects.com](mailto:customerservice@integrationobjects.com)
- Sales: [sales@integrationobjects.com](mailto:sales@integrationobjects.com)

To find out how you can benefit from other Integration Objects' products and services, please visit our website:

**Online**

- [www.integrationobjects.com](http://www.integrationobjects.com)