

Integration Objects'

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

Smart IoT Highway

Version 2.4.3 Rev.1

**DATA MODEL
GUIDE**

Integration Objects' Smart IoT Highway Data Model Guide Version 2.4.3 Rev 1

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PREFACE

About This User Guide

This guide:

- Present the Integration Objects' Smart IoT Highway (SIOTH[®]) Data Model module.
- Details steps to configure classes, instances and procedures within SIOTH[®] Data Model.

Target Audience

This document is intended for users, application engineers, and IT/OT integrators who are responsible for configuring Integration Objects' Smart IoT Highway, with a particular focus on the Data Model module.

Document Conventions

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

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INTRODUCTION

Smart IoT Highway (SIOTH[®]) 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. SIOTH[®] 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 SIOTH[®] platform operates on robust functional architecture, as illustrated in the figure below:

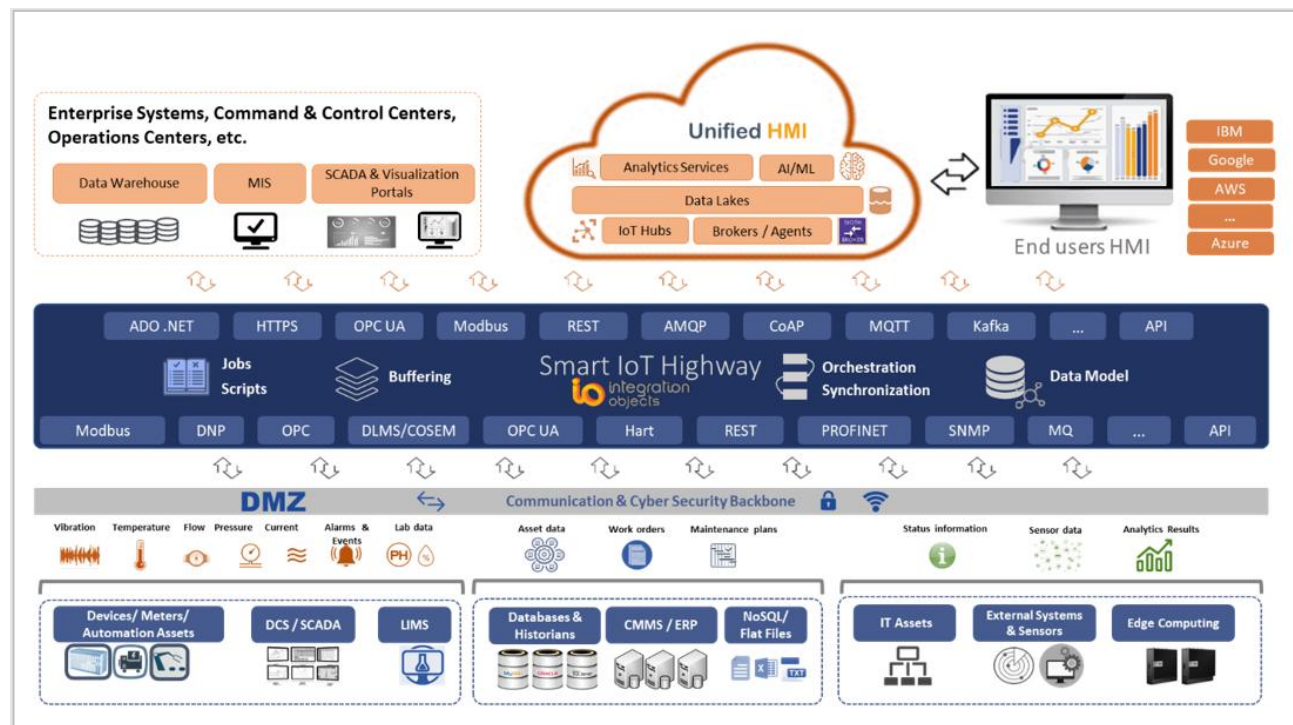


Figure 1: SIOTH[®] Platform Overview

SIOTH® Data Model provides a user-friendly, meaningful, unified, and hierarchical structure for organizing and managing data. It enables users to organize and interact with data collected from various sources in a structured and consistent way.

- **Hierarchical Organization**

Data elements are arranged in a hierarchical model, making it easier to navigate, interpret, and manage relationships between different data entities.

- **Object-Oriented Design**

The Data Model follows an object-oriented approach based on data element definitions known as classes.

- **Classes** define the attributes that describe the properties of the data elements, along with the methods that can be executed on them.
- **Instances** are concrete representations of classes that reference live data sets. These values can be constant, originate from SIOTH® connectors or be derived using expressions.

- **Integration with SIOTH® Connectors**

Instances of defined classes can directly reference data retrieved by source connectors, making them available across the platform, including the SIOTH® Job Engine rules and workflows.

- **Real-Time and Historical Data**

The model supports:

- **Real-time access** to the latest attribute value.
- **Historical data storage**, which can be leveraged in the SIOTH® Job Engine for analytics, monitoring, and rule execution.

CONFIGURATION

The **Data Model** module in **SIOTH**® provides a robust and structured framework for managing and organizing industrial data. It is based on an object-oriented paradigm, enabling users to define reusable classes with well-defined attributes. These classes can then be instantiated as objects to efficiently map, process and manage real-time data.

The **Data Model** module is accessible from the **Application Configuration** section in the left-side menu of the SIOTH® user interface.

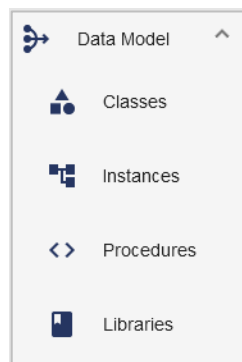


Figure 2: Data Model Menu

1. Classes

Navigate to **Data Model > Classes** from the left-side menu to access the **Data Model Classes** page. On this page, an explorer view displays all the existing classes, with each class listed on a separate line.

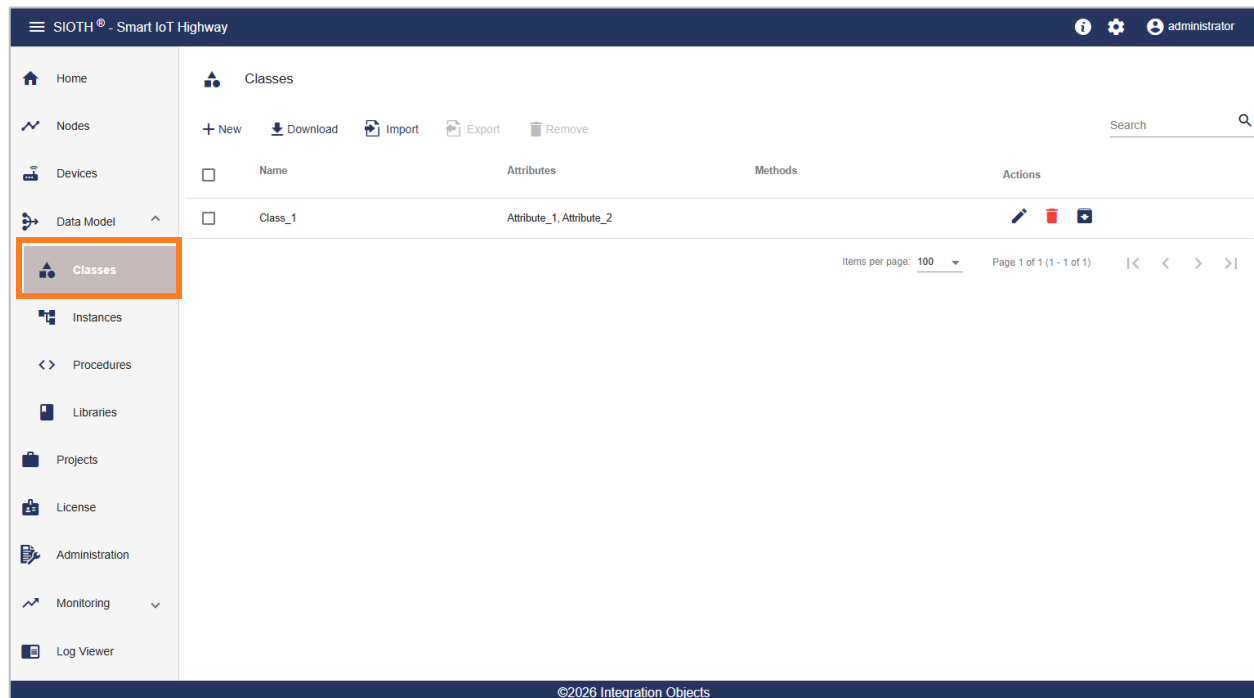





Figure 3: Data Model Classes Explorer

The **Data Model Classes** menu provides the following actions for managing and maintaining class configurations:

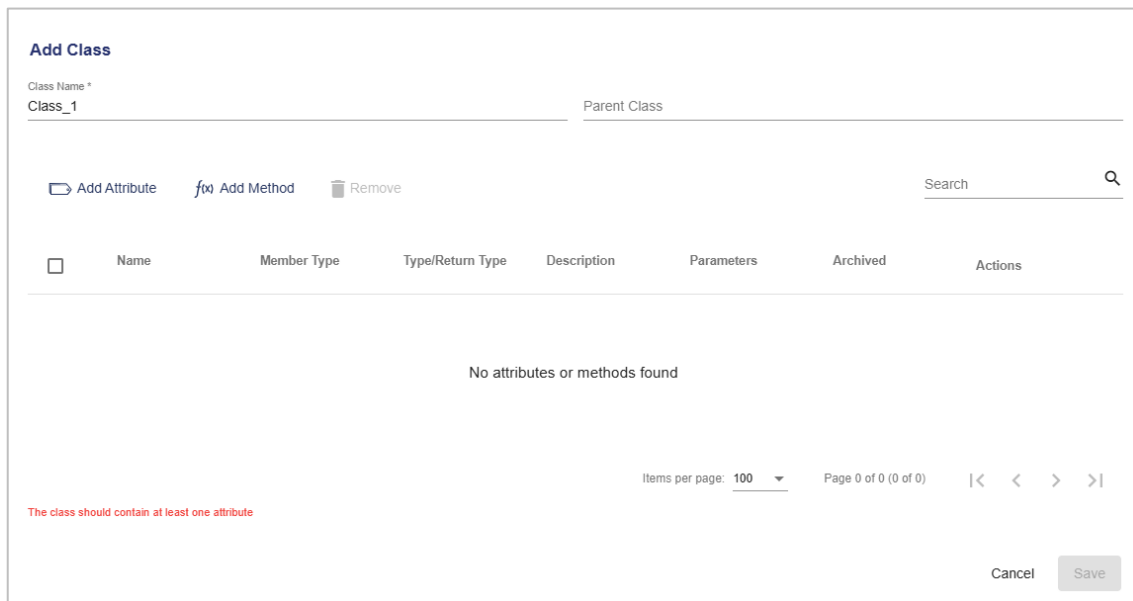
- **New:** Creates a new class.
- **Import:** Imports classes configuration from a CSV file.
- **Download:** Download a template CSV file for reference.
- **Export:** Exports the configuration of the selected classes to a CSV file.
- **Remove:** Deletes the selected classes. This option is grayed out when no class is selected.

The following actions are available for each class:

-  **Edit Class:** Opens the selected class for editing.
-  **Delete Class:** Deletes the selected class from the list.
-  **Export Class:** Exports the configuration of the selected class to a CSV file.

1.1. Add New Class

Click **Classes** in the left-side menu, then click **New**. A configuration dialog is displayed, allowing you to define the class parameters, including inheritance, attributes and methods.



The 'Add Class' configuration dialog is shown. It includes a 'Class Name' field with the value 'Class_1' and a 'Parent Class' field. Below these are buttons for 'Add Attribute', 'Add Method', and 'Remove'. A search bar is also present. A table with columns: Name, Member Type, Type/Return Type, Description, Parameters, Archived, and Actions is displayed, but it is empty with the message 'No attributes or methods found'. At the bottom, there is a pagination control showing 'Page 0 of 0 (0 of 0)' and a 'Save' button. A red error message at the bottom left states: 'The class should contain at least one attribute'.

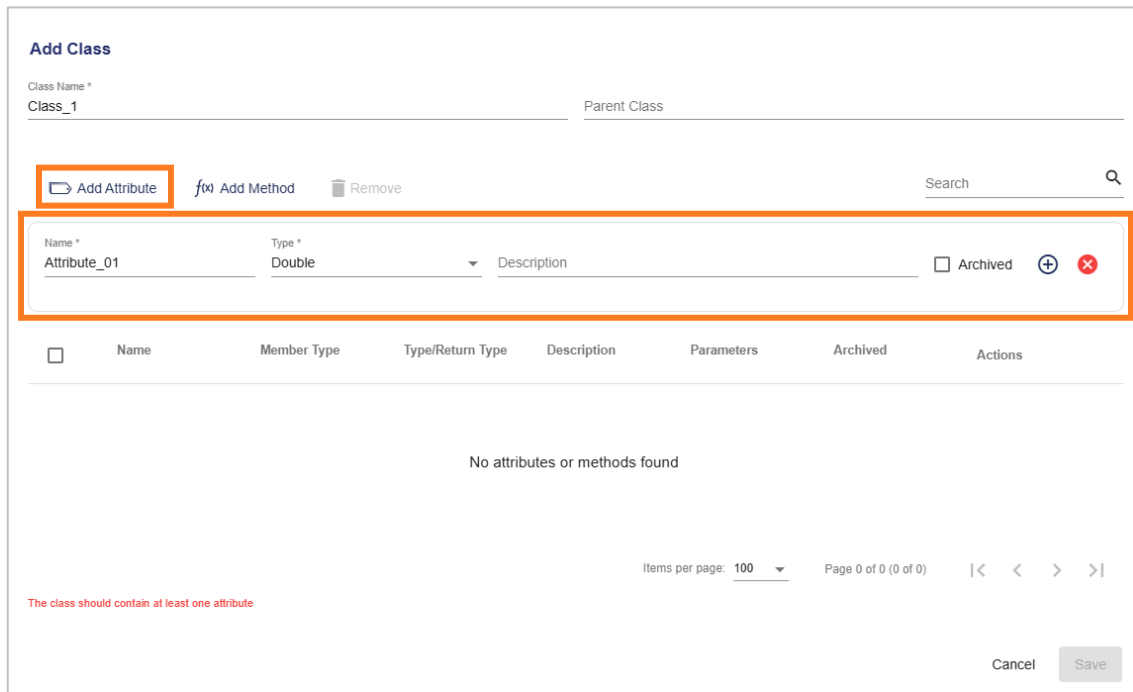
Figure 4: Add New Class Configuration View

The first section is used to define the main class parameters.

Parameter	Description	Default Value
<i>Name</i>	Specifies the unique name of the class. It must be distinct from all existing classes.	Class_1
<i>Inheritance</i>	Defines the parent class from which attributes and methods are inherited. If not specified, the class does not inherit from any class.	

Table 1: Add New Class - Main Parameters Definition

Each class must contain at least one attribute. Attributes represent the data elements associated with the class. Click the **Add Attribute** button. A new configuration section will be displayed.







The screenshot shows the 'Add Class' interface. At the top, there's a 'Class Name' field with 'Class_1' and a 'Parent Class' field. Below these are buttons for 'Add Attribute' (highlighted with an orange box), 'Add Method', and 'Remove'. A search bar is also present. Below the buttons is a table for attributes. The table has columns: Name, Type, Description, Archived, and Actions. The first row shows 'Attribute_01' with type 'Double'. Below the table, it says 'No attributes or methods found'. At the bottom, there's a pagination bar showing 'Page 0 of 0 (0 of 0)' and a red error message: 'The class should contain at least one attribute'.

Figure 5: Add New Class - Add New Attribute

Parameter	Description	Default Value
Name	Specifies the attribute name. It must be unique within the class and any inherited parent classes.	
Type	Defines the attribute data type (e.g., Double, Integer, String, Boolean, DateTime).	String
Description	Optional description explaining the purpose of the attribute.	

<i>Archived</i>	Enables or disables historical data tracking for the attribute. When enabled, attribute values are stored over time.	Unchecked
------------------------	--	-----------

Table 2: Add New Class - Attribute Parameters Definition

Click the **Add** icon  to save the attribute configuration and add it to the attributes list or click the **Cancel** icon  to discard the changes. Existing attributes can be edited using the **Edit** icon  and deleted by clicking the **Delete** icon .

SIOTH® Data Model also supports defining methods, which represent actions or operations that a class can perform. Click the **Add Method** button. A method configuration view is displayed.

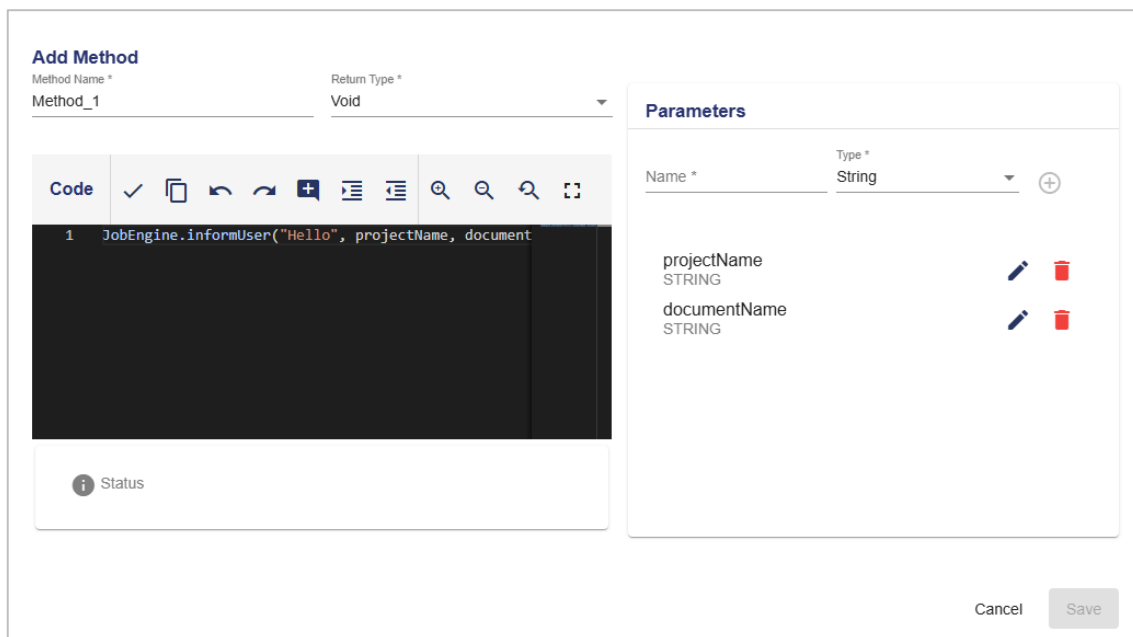


Figure 6: Add New Class - Add New Method







Parameter	Description	Default Value
Method Name	Specifies the method name.	Method_1
Return Type	Defines the return data type of the method (e.g., Double, Integer, String, Boolean, DateTime). Select Void if no value is returned.	Void
Parameters	Defines the input parameters for the method. Parameters can be added using the Add icon  , edited using the Edit icon  , or deleted using the Delete icon  .	
Editor	Provides a Java script editor for implementing the method logic. Click the Compile icon  to validate the script before saving.	


Table 3: Add New Class - Method Parameters Definition



Click **Save** to add the method to the class or click **Cancel** to discard the changes. Existing methods can be edited using the **Edit** icon  and deleted by clicking the **Delete** icon .

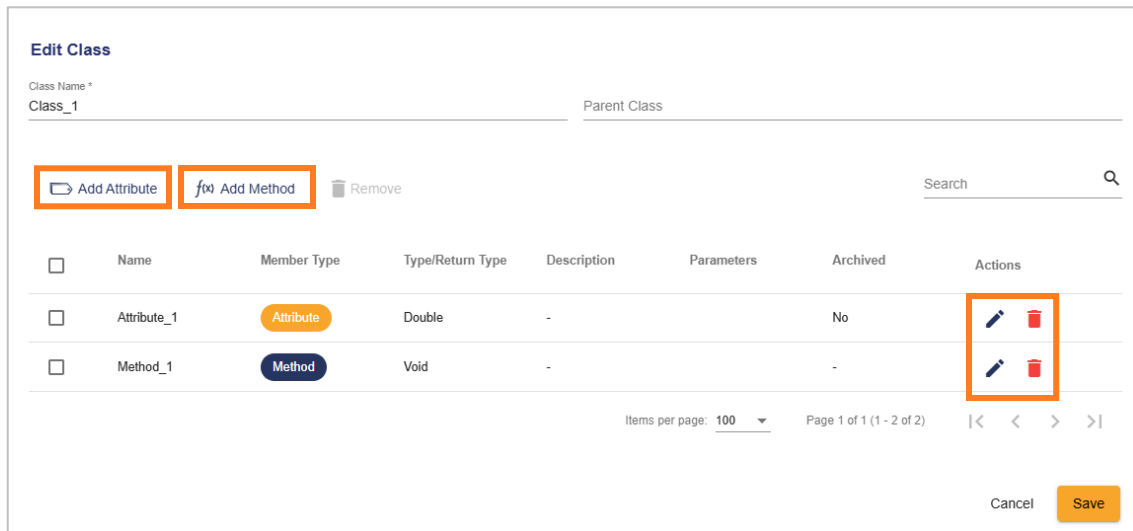
After completing the class configuration, click **Save** to create the class and add it to the Data Model classes list.

1.2. Edit Class

To edit an existing class, follow these steps:

- Click **Classes** in the left-side menu.
- Locate the class to be modified.
- Click the **Edit** icon  in the **Actions** column.




A dialog opens displaying the current class configuration. Use the **Add Attribute** button to create new attributes and the **Add Method** button to define new methods. Existing attributes and methods can be modified using the **Edit** icon  or removed using the **Delete** icon .








Edit Class


Class Name *
Class_1

Parent Class

Search 

<input type="checkbox"/>	Name	Member Type	Type/Return Type	Description	Parameters	Archived	Actions
<input type="checkbox"/>	Attribute_1	Attribute	Double	-		No	 
<input type="checkbox"/>	Method_1	Method	Void	-		-	 

Items per page: 100 Page 1 of 1 (1 - 2 of 2) 


Cancel 

Figure 7: Edit Class Configuration View


Click **Save** to apply the changes. A confirmation message appears indicating that all related instances will be updated. Click **Yes** to confirm and apply the changes.

(!) Note

Editing a class automatically updates all related instances to reflect the new configuration.

1.3. Delete Class

To delete a class, follow these steps:

- Click **Classes** in the left-side menu.
- Locate the class to be modified.
- Click the **Delete** icon  in the **Actions** column.

A confirmation dialog is displayed.

- Click **Yes** to permanently delete the class and all related instances.
- Click **No** to abort the operation and retain the class.

(!) Note

Deleting a class permanently removes all instances associated with it.

1.4. Managing Multiple Classes

The **Data Model** module supports bulk class management through CSV import and export.

Click the **Download** button to obtain the CSV template file.

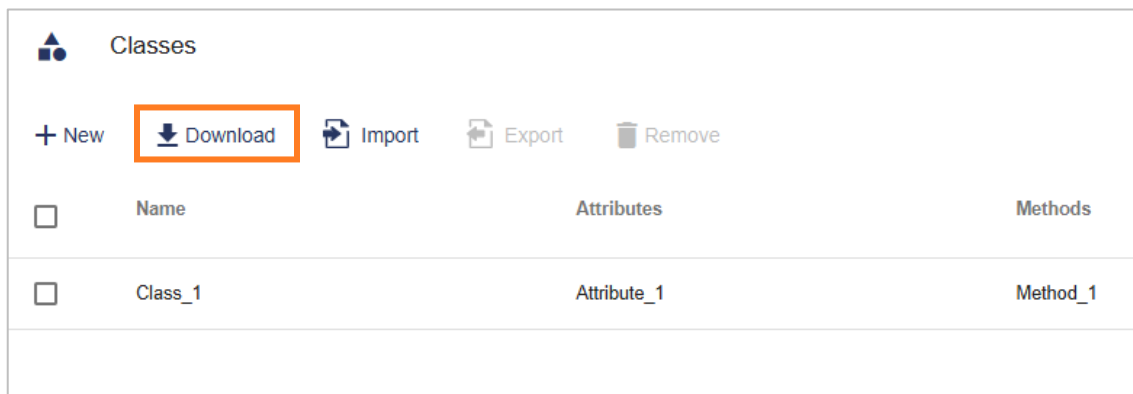


Figure 8: Managing Multiple Classes - Download Template File

The template illustrates an example of class structure that can be used as a reference.

	A	B	C	D	E	F	G	H	I	J
1	MemberKind	MemberName	MemberClass	ClassInheritance	AttributeType	AttributesArchived	AttributeDescription	MethodParameters	MethodReturnType	MethodCode
2	Class	BaseTemplateClass								
3	Attribute	Inherited_Attribute	BaseTemplateClass		String	FALSE	Inherited Attribute Example			
4	Method	printString	BaseTemplateClass					stringParameter: String	Void	System.out.println(stringParameter);
5	Class	TemplateClass		BaseTemplateClass						
6	Attribute	Byte_Attribute	TemplateClass		Byte	TRUE	Byte Example Attribute			
7	Attribute	SByte_Attribute	TemplateClass		SByte	TRUE	SByte Example Attribute			
8	Attribute	Boolean_Attribute	TemplateClass		Boolean	TRUE	Boolean Example Attribute			
9	Attribute	Int16_Attribute	TemplateClass		Int16	TRUE	Int16 Example Attribute			
10	Attribute	UInt16_Attribute	TemplateClass		UInt16	TRUE	UInt16 Example Attribute			
11	Attribute	Int32_Attribute	TemplateClass		Int32	TRUE	Int32 Example Attribute			
12	Attribute	UInt32_Attribute	TemplateClass		UInt32	TRUE	UInt32 Example Attribute			
13	Attribute	Int64_Attribute	TemplateClass		Int64	TRUE	Int64 Example Attribute			
14	Attribute	UInt64_Attribute	TemplateClass		UInt64	TRUE	UInt64 Example Attribute			
15	Attribute	Float_Attribute	TemplateClass		Float	TRUE	Float Example Attribute			
16	Attribute	Double_Attribute	TemplateClass		Double	TRUE	Double Example Attribute			
17	Attribute	String_Attribute	TemplateClass		String	TRUE	String Example Attribute			
18	Attribute	DateTime_Attribute	TemplateClass		DateTime	TRUE	DateTime Example Attribute			
19	Attribute	String_List_Attribute	TemplateClass		String_List	TRUE	String_List Example Attribute			
20	Method	generateRandomDouble	TemplateClass						Double	return java.util.Random.nextDouble();

Figure 9: Managing Multiple Classes - Classes Template File

Column	Description
<i>MemberKind</i>	Specifies the type of member defined in the row. Available options are: <ul style="list-style-type: none"> • Class. • Attribute. • Method.
<i>MemberName</i>	Defines the name of the class, attribute, or method.
<i>MemberClass</i>	Indicates the class to which the attribute or method belongs.
<i>ClassInheritance</i>	Specifies the parent class from which the class inherits, if applicable.
<i>AttributeType</i>	Defines the data type of the attribute.
<i>AttributeIsArchived</i>	Indicates whether history tracking is enabled for the attribute or not.
<i>AttributeDescription</i>	Provides a description of the attribute's purpose.
<i>MethodParameters</i>	Defines the input parameters of the method.
<i>MethodReturnType</i>	Specifies the return data type of the method.
<i>MethodCode</i>	Contains the implementation code of the method.

Table 4: Classes CSV Template File - Columns Description

Populate the required fields in the template and save the file. Then, click **Import**, select the completed CSV file, and click **Open** to import the classes.

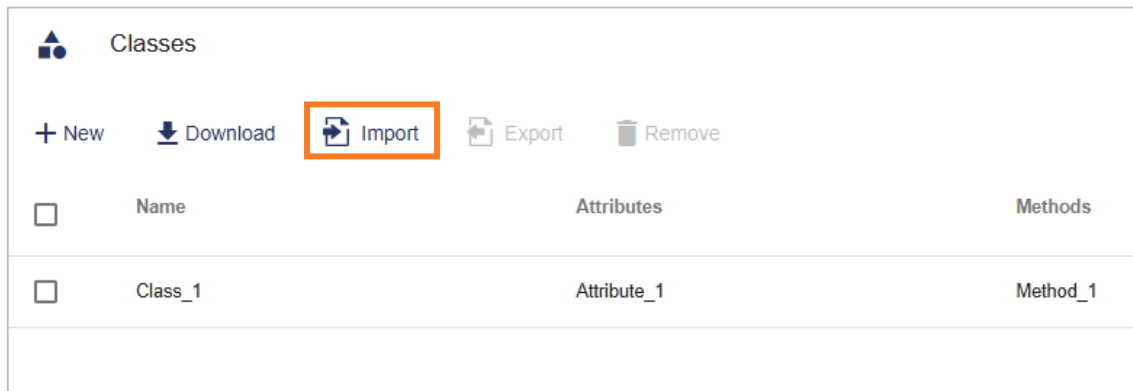


Figure 10: Managing Multiple Classes - Import Classes

Classes can be exported for backup or bulk modification purposes. Options to export are as follow:

- Click **Export** next to the desired class in the **Actions** column.










<input type="checkbox"/>	Name	Attributes	Methods	Actions
<input type="checkbox"/>	Measure	Capacity		  
<input type="checkbox"/>	Tank	Temperature_C, Temperature_F + 1 other		  
<input type="checkbox"/>	ConnectionStatus	Name, Type + 2 others		  

Figure 11: Managing Multiple Classes - Export Single Class

- Select one or multiple classes and click **Export** from the Classes Explorer menu.
















					Search 
<input checked="" type="checkbox"/>	Name	Attributes	Methods	Actions	
<input checked="" type="checkbox"/>	Measure	Capacity		  	
<input checked="" type="checkbox"/>	Tank	Temperature_C, Temperature_F + 1 other		  	
<input checked="" type="checkbox"/>	ConnectionStatus	Name, Type + 2 others		  	

Figure 12: Managing Multiple Classes - Export Multiple Classes

Update the exported CSV file and save it. Then, click **Import**, select the updated CSV file, and click **Open** to import the classes.

2. Instances

Navigate to **Data Model > Instances** from the left-side menu to access the **Data Model Instances** page. On this page, an explorer view displays the hierarchical structure of the existing instances.

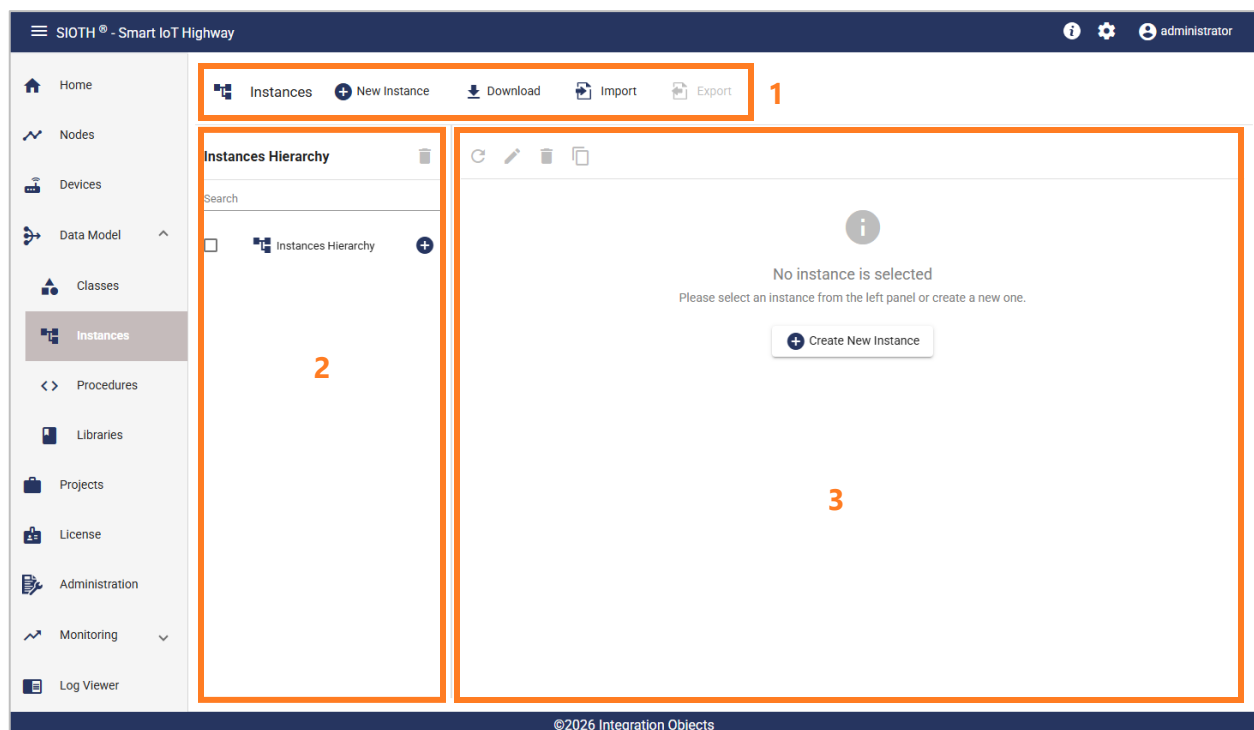


Figure 13: Data Model Instances Explorer

The **Data Model Explorer** is divided into three main sections:

- **Instances menu (1)**

This section provides the main operations for managing instances:



- **New Instance:** Creates a new instance.
- **Download:** Downloads a CSV template file for reference.
- **Import:** Imports instances configuration from a CSV file.

- **Export:** Exports the configuration of the selected instances to a CSV file.

- **Instances Hierarchy (2)**

This section displays the hierarchical structure of all class instances within the Data Model. Each node represents an instance and is organized according to its containment relationship. Nodes can be expanded or collapsed to navigate between parent and child instances.





The following actions are available:

- **New Instance** : Creates a new instance either at the root level of the hierarchy (when clicked from the Instances Hierarchy node) or as a child of an existing instance.
- **Delete Selected Instances** : Deletes the selected instances along with all their child instances.

- **Instance Details (3)**



This section displays detailed information about the selected instance, including its attributes and their current values.

The following actions are available:

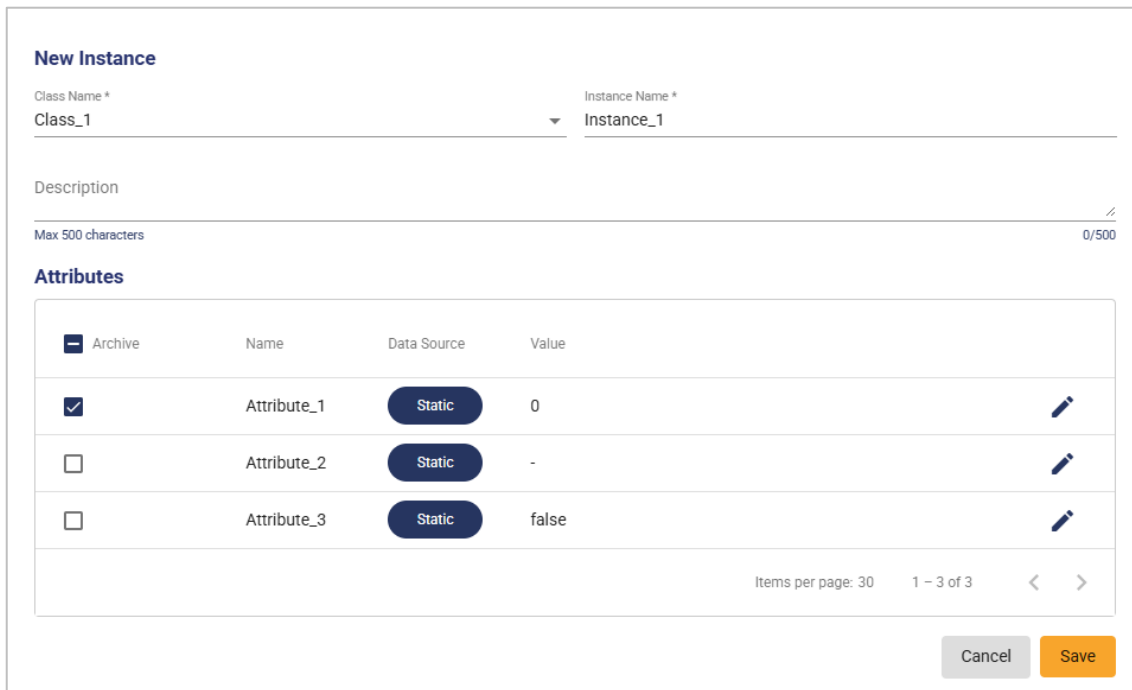
- **Refresh Instance** : Reloads the detailed information of the selected instance.
- **Edit Instance** : Opens the selected instance for editing, allowing modification of its attribute configuration.
- **Delete Instance** : Deletes the selected instance and all its child instances from the hierarchy.
- **Duplicate Class** : Creates an exact copy of the selected instance, including its attributes and configuration.

2.1. Add Instance

Click **Instances** in the left-side menu and use one of the following options:

- Click the **New Instance** button in the **Instances Menu**.
- Click the **Create New Instance** card in the **Instances Details** view.
- Click the  button next to the **Instances Hierarchy** root to add the instance at the root level.
- Click the  button next to an existing instance in the hierarchy to create a child instance.

A configuration dialog is displayed, allowing you to define the parameters of the new instance.



The 'New Instance' configuration dialog includes the following fields and sections:

- Class Name ***: A dropdown menu with 'Class_1' selected.
- Instance Name ***: A text input field with 'Instance_1' entered.
- Description**: A text area with a character count of '0/500'.
- Attributes**: A table listing attributes with checkboxes, names, data sources, and values.

Archive	Name	Data Source	Value
<input checked="" type="checkbox"/>	Attribute_1	Static	0
<input type="checkbox"/>	Attribute_2	Static	-
<input type="checkbox"/>	Attribute_3	Static	false
- Footer**: 'Cancel' and 'Save' buttons.

Figure 14: Add New Instance Configuration View

The first section of the **Add Instance** view is used to define the main instance parameters.

Parameter	Description	Default Value
<i>Class Name</i>	Specifies the class from which the instance is created.	

Instance Name	Specifies the unique name of the instance. It must be distinct from all existing instances.	
Description	Provides an optional description of the instance.	

Table 5: Add New Instance – Main Parameters Definition

When a class is selected, its attributes are automatically listed, allowing you to configure their values. You can enable or disable history tracking for each attribute using the **Archive** option. At the instance level, you may retain the default configuration inherited from the class or override it for the specific instance.

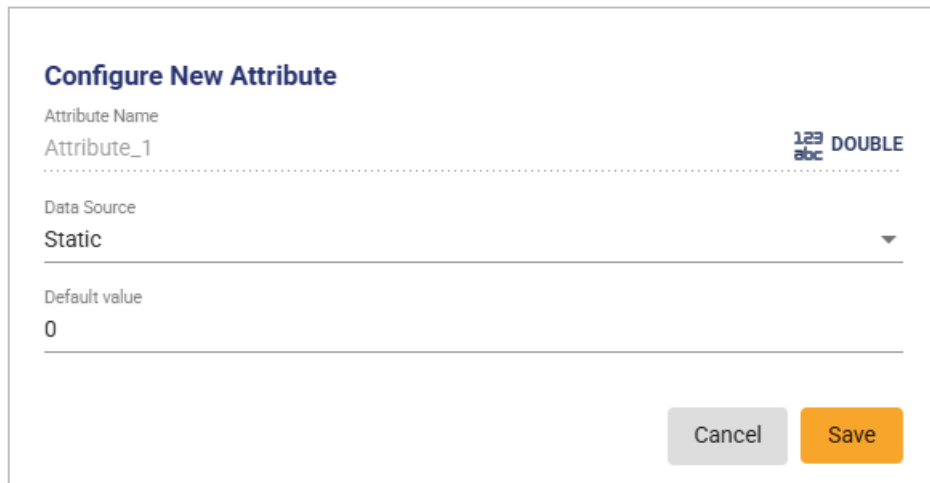
(!) Note:

By default, the history retention period for the **SIOTH® Data Model** is set to **2 hours** during installation.

You can modify the retention policy as follow:

1. Open the file "**Influx - Update SIOTHDataModel Retention.bat**" located at:
<SIOTH Installation Folder>\Components\InfluxDB\
2. Update the retention duration in the following command (highlighted section in green):
*influx -database 'SIOTHDataModel' -execute "ALTER RETENTION POLICY DM_TrackerRetention ON SIOTHDataModel DURATION **2h** REPLICATION 1 SHARD DURATION 1h DEFAULT"*
3. Save the file.
4. Execute the batch file to apply the updated retention policy.
5. Restart the **Data Model** and **Data Model Archiver** services to ensure that the changes are taken into consideration.

Click the **Edit Mapping**  icon. A configuration dialog is displayed.



Configure New Attribute

Attribute Name
Attribute_1 123 abc DOUBLE

Data Source
Static

Default value
0

Cancel Save

Figure 15: Configure New Attribute View

The displayed configuration fields depend on the selected **Data Source**. Once configuration is complete, click **Save** to apply the changes or **Cancel** to discard them.

The following data source options are available:

2.1.1. Static

This option indicates that the attribute does not have a dynamic data source. You can define a default value, which may later be modified through the **Job Engine** or **UHMI** modules.



Set Attribute Datasource

Attribute Name
Attribute1 123 abc STRING

Data Source
Static

Default value
MyStringValue

Cancel Save

Figure 16: Configure New Attribute View - Data Source as Static

Parameter	Description	Default Value
-----------	-------------	---------------

Default Value	Specifies the initial value of the attribute.	
----------------------	---	--

Table 6: Configure New Attribute Parameters - Data Source as Static

2.1.2. SIOTH Connectors

This option links the attribute to a specific tag from a SIOTH connector.

Set Attribute Datasource

Attribute Name
Attribute1 123 STRING

Data Source
SIOTH Connectors

Attribute Mapping

Project Name *

Project_1

Connector *

OPCDA_Connector_1

Point *

Channel1.Device1.Tag1

Advanced Mapping ^

ID

TagName

Value

Value

Timestamp

TimeStamp

Quality

Quality

Access Right

AccessRight

Cancel

Save

Figure 17: Configure New Attribute View - Data Source as SIOTH® Connectors

Parameter	Description	Default Value
<i>Project Name</i>	Specifies the project from which the connector is selected.	
<i>Connector</i>	Selects the connector providing the data.	
<i>Value</i>	Defines the tag or point linked to the attribute.	
<i>Advanced Mapping</i>		
<i>ID</i>	References the TagName field of the selected connector.	TagName
<i>Point</i>	References the Value field of the selected connector.	Value
<i>Timestamp</i>	References the Timestamp field of the selected connector.	Timestamp
<i>Quality</i>	References the Quality field of the selected connector.	Quality
<i>Access Right</i>	References the AccessRight field of the selected connector.	AccessRight

Table 7: Configure New Attribute Parameters - Data Source as SIOTH® Connectors

(!) Note

The **Point** field displays all attributes associated with the selected connector. Only points with compatible data types can be selected; points with incompatible types will appear grayed out.

(!) Note

During **Advanced Mapping** configuration, not all connector fields may be visible by default. To make additional fields available, select them in the **Fields** section of the connector configuration. Refer to the **SIOTH® Application Configuration Guide** for more information on configuring SIOTH® connectors.

2.1.3. Expressions

This option specifies that the attribute value is computed using a user-defined expression. Expressions may reference attributes from the current instance, other instances, and constant values.

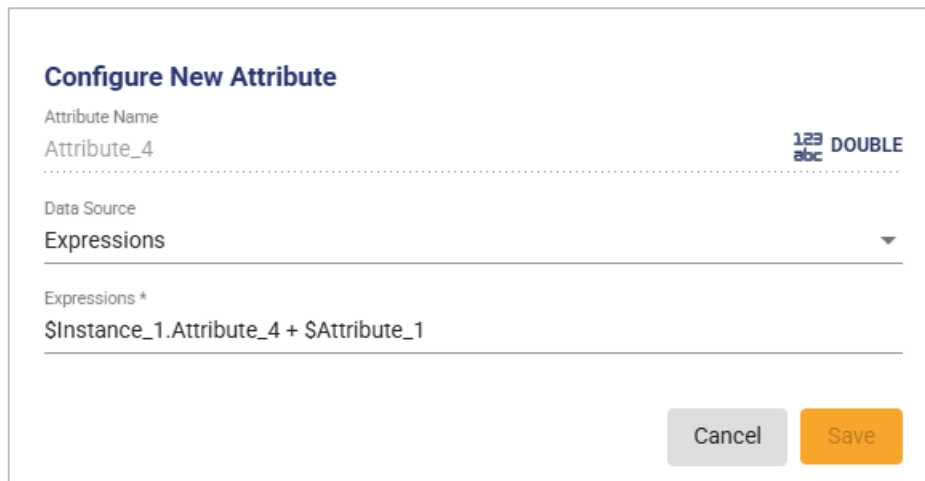


Figure 18: Configure New Attribute View - Data Source as Expressions

Expressions can combine attributes and constants using supported operators and functions. Operators are applied only when operand types are compatible.

Operator	Attributes Type	Description	Example
	Boolean	Logical OR operation.	true false
&&	Boolean	Logical AND operation.	true && false

Concat	String	Concatenates two or more strings.	String.Concat("Hello", "World")
+	Numeric	Adds two numeric values.	5 + 3
-	Numeric	Subtracts one numeric value from another.	10 - 4
*	Numeric	Multiplies two numeric values.	6 * 7
/	Numeric	Divides one numeric value by another.	8 / 2
%	Numeric	Returns the remainder of a division.	10 % 3


Table 8: Attribute Data Source as Regular Expressions Operators


(!) Note

Refer to the **SIOTH® Data Model Expressions Reference** for detailed information on configuring attribute expressions.

2.2. Edit Instance

To edit an existing instance, follow these steps:

- Click **Instances** in the left-side menu.
- Locate the instance to be modified.
- Click the **Edit Instance** icon  in the **Instance Details** section.

A dialog opens displaying the current instance configuration. Use the **Edit Mapping**  icon next to an attribute to modify its mapping.

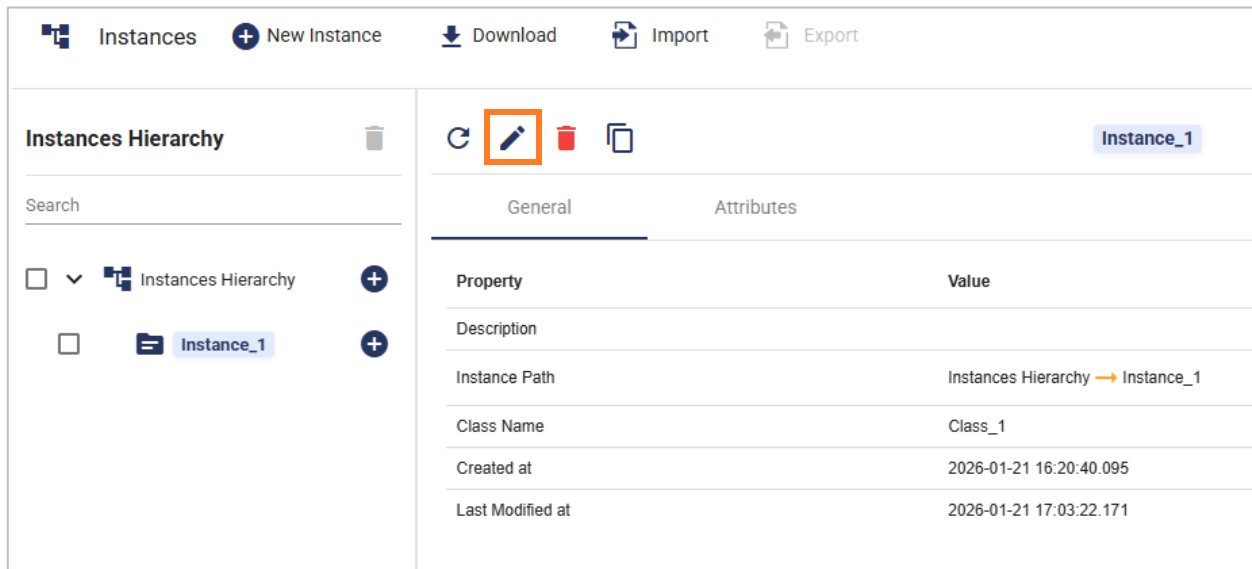


Figure 19: Edit Instance Button

Edit Instance

Class Name
Class_1

Instance Name *
Instance_1

Description
Max 500 characters
0/500

Attributes

Archive	Name	Data Source	Value	
<input checked="" type="checkbox"/>	Attribute_1	Static	0	
<input type="checkbox"/>	Attribute_2	Static	-	
<input type="checkbox"/>	Attribute_3	Static	false	
<input type="checkbox"/>	Attribute_4	Static	0	

Items per page: 30
1 - 4 of 4

Cancel
Save

Figure 20: Edit Instance Configuration View


Click **Save** to apply the changes.

(!) Note

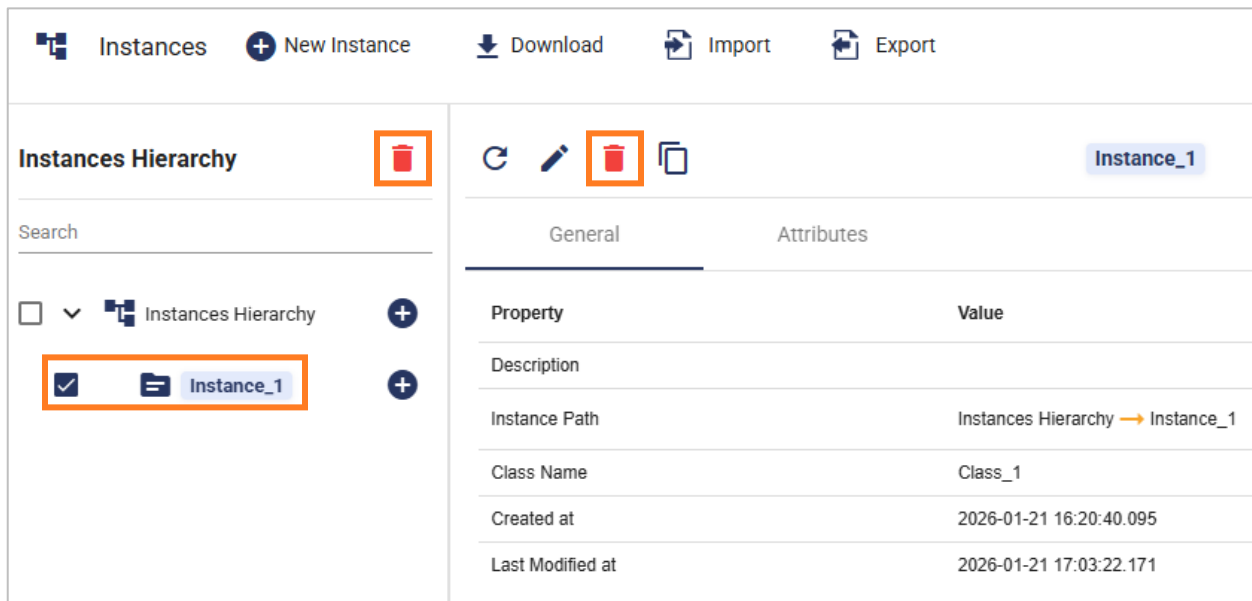
When changing the data source type of an attribute, the previous configuration (Default Value, Connector parameters, or Expression) will be replaced by the new configuration. All previous settings will be lost.

2.3. Delete Instance

To delete an instance, follow these steps:

- Click **Instances** in the left-side menu.
- Locate the instance to be deleted.
- Click the **Delete Instance** icon  in the **Instance Details** section.

Alternatively, select the instance in the **Instances Hierarchy** section and click the **Delete Selected Instances**  icon.



The screenshot displays the 'Instances' management interface. At the top, there are navigation buttons: 'Instances', '+ New Instance', 'Download', 'Import', and 'Export'. The left sidebar shows the 'Instances Hierarchy' with a search bar and a tree view. In the tree view, 'Instance_1' is selected and highlighted with an orange box. The main area on the right shows the 'Instance Details' for 'Instance_1'. At the top of this section, there are icons for refresh, edit, delete (highlighted with an orange box), and copy. Below these icons are two tabs: 'General' and 'Attributes'. The 'General' tab is active, showing a table with the following properties and values:

Property	Value
Description	
Instance Path	Instances Hierarchy → Instance_1
Class Name	Class_1
Created at	2026-01-21 16:20:40.095
Last Modified at	2026-01-21 17:03:22.171

Figure 21: Delete Instance Button

A confirmation dialog is displayed.

- Click **Yes** to permanently delete the instance and all related child instances.
- Click **No** to abort the operation and retain the instance.

(!) Note

Deleting an instance permanently removes the selected instance and all its child instances from the hierarchy.

2.4. Duplicate Instance

Click the **Duplicate Instance** icon.

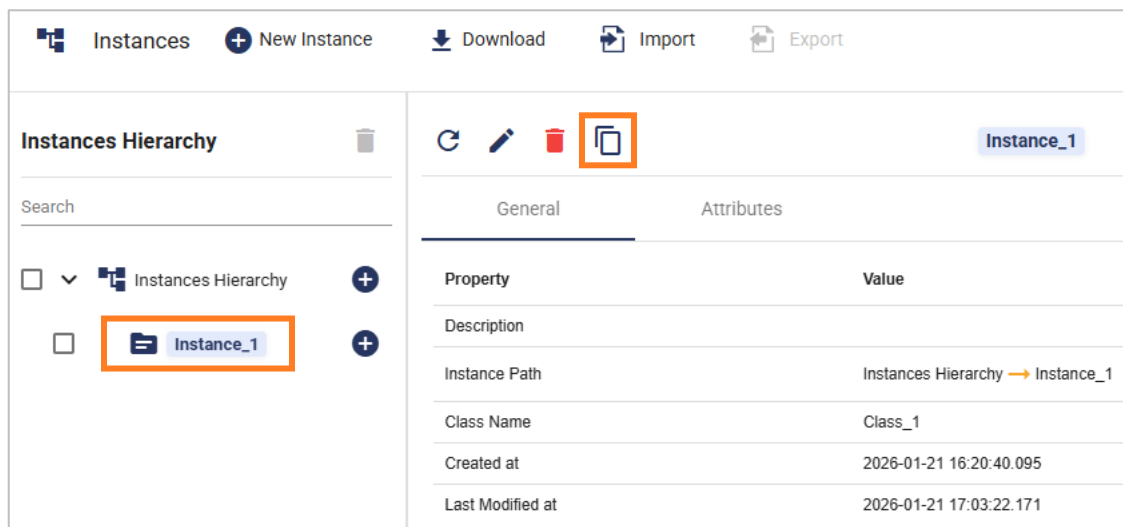


Figure 22: Duplicate Instance Button

A configuration dialog opens displaying the settings of the copied instance. Modify the required parameters for the new instance, then click **Save** to create it.

Duplicate Instance

Class Name
Class_1

Instance Name *
Instance_1_Copy

Description
Max 500 characters 0/500

Attributes

Archive	Name	Data Source	Value
<input checked="" type="checkbox"/>	Attribute_1	Static	0
<input type="checkbox"/>	Attribute_2	Static	-
<input type="checkbox"/>	Attribute_3	Static	false
<input type="checkbox"/>	Attribute_4	Static	0

Items per page: 30 1 - 4 of 4

Cancel Save

Figure 23: Duplicate Instance Configuration View

2.5. Managing Multiple Instances

The **Data Model** module provides import and export capabilities to efficiently manage multiple instances.

Click the **Download** button to obtain the CSV template file.

Instances
New Instance
Download
Import
Export

Instances Hierarchy

Search

Instances Hierarchy

Instance_1

General
Attributes

Property	Value
Description	
Instance Path	Instances Hierarchy → Instance_1
Class Name	Class_1
Created at	2026-01-21 16:20:40.095
Last Modified at	2026-01-21 17:03:22.171

Figure 24: Managing Multiple Instances - Download Template File

A configuration dialog opens. Select the class from which the instance template will be generated, specify the number of instances to create, and click **Save**.

Download Instances Template

Copy Number *
100

Class *
Car

Cancel
Save

Figure 25: Download Instances Template Configuration View

The generated template illustrates an example instance structure and can be used as a reference.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	MemberKind	MemberParent	MemberName	InstanceClass	InstanceDescription	AttributeKind	AttributesArchived	AttributeD	AttributeE	AttributeC	AttributeC	AttributeC	AttributeC	AttributeC	AttributeC	AttributeC	AttributeC	AttributeC	AttributeC	AttributeC
2	Instance	TemplateInstance1	TemplateInstance1	TemplateClass	Example Instance #1	Static	TRUE	255												
3	Attribute	TemplateInstance1	Byte_Attribute			Expression	FALSE	-90												
4	Attribute	TemplateInstance1	SByte_Attribute			Connector	TRUE			Project_1	OPCDA_Cc	TagName	Device1.Ti	Value	Timestamp	Quality	AccessRight			
5	Attribute	TemplateInstance1	Boolean_Attribute			Static	TRUE	-1000												
6	Attribute	TemplateInstance1	Int16_Attribute			Expression	FALSE	1000 * 2 + 10												
7	Attribute	TemplateInstance1	UInt16_Attribute			Connector	TRUE			Project_1	OPCDA_Cc	TagName	Device1.Ti	Value	Timestamp	Quality	AccessRight			
8	Attribute	TemplateInstance1	Int32_Attribute			Static	TRUE	1000000												
9	Attribute	TemplateInstance1	UInt32_Attribute			Expression	FALSE	-2E+09												
10	Attribute	TemplateInstance1	Float_Attribute			Connector	TRUE			Project_1	OPCDA_Cc	TagName	Device1.Ti	Value	Timestamp	Quality	AccessRight			
11	Attribute	TemplateInstance1	Double_Attribute			Static	TRUE	1000000												
12	Attribute	TemplateInstance1	String_Attribute			Expression	FALSE	1000000.361798 * 2 + 10												
13	Attribute	TemplateInstance1	Date_Time_Attribute			Connector	TRUE			Project_1	OPCDA_Cc	TagName	Device1.Ti	Value	Timestamp	Quality	AccessRight			
14	Attribute	TemplateInstance1	String_List_Attribute			Static	TRUE	2026-01-22T07:31:39.9374804Z												
15	Attribute	TemplateInstance1	Inherited_Attribute			Connector	TRUE	["OPC", "OPC UA", "MQTT"]												
16	Attribute	TemplateInstance1				Static	TRUE			Project_1	OPCDA_Cc	TagName	Device1.Ti	Value	Timestamp	Quality	AccessRight			
17	Attribute	TemplateInstance1				Connector	TRUE													
18																				

Figure 26: Managing Multiple Instances - Instances Template File

Column	Description
MemberKind	Specifies the type of member defined in the row. Available options are: <ul style="list-style-type: none"> Instance. Attribute.
MemberParent	Identifies the parent instance in the hierarchy, if applicable.
MemberName	Defines the name of the instance or attribute.

<i>InstanceClass</i>	Specifies the class from which the instance is created.
<i>InstanceDescription</i>	Provides an optional description of the instance.
<i>AttributeKind</i>	Defines the type of attribute configuration. Available options are: <ul style="list-style-type: none"> • Static. • Connector. • Expression.
<i>AttributeIsArchived</i>	Indicates whether history tracking is enabled for the attribute.
<i>AttributeKind = Static</i>	
<i>AttributeDefaultValue</i>	Specifies the default value of the attribute.
<i>AttributeKind = Expression</i>	
<i>AttributeExpression</i>	Defines the expression used to compute the attribute value.
<i>AttributeKind = Connector</i>	
<i>AttributeConnectorProjectName</i>	Specifies the project name associated with the connector.
<i>AttributeConnectorName</i>	Specifies the name of the connector providing the data.
<i>AttributeConnectorIdField</i>	Defines the field used as the identifier in the connector mapping.
<i>AttributeConnectorIdValue</i>	Specifies the identifier value used to link the attribute to the connector.
<i>AttributeConnectorValueField</i>	Defines the connector field providing the attribute value.

<i>AttributeConnectorTimestampField</i>	Defines the connector field providing the timestamp.
<i>AttributeConnectorQualityField</i>	Defines the connector field providing the quality information.
<i>AttributeConnectorAccessRightField</i>	Defines the connector field providing access rights information.

Table 9: Instances CSV Template File - Columns Description

Populate the required fields in the template and save the file. Then, click **Import**, select the completed CSV file, and click **Open** to import the instances.

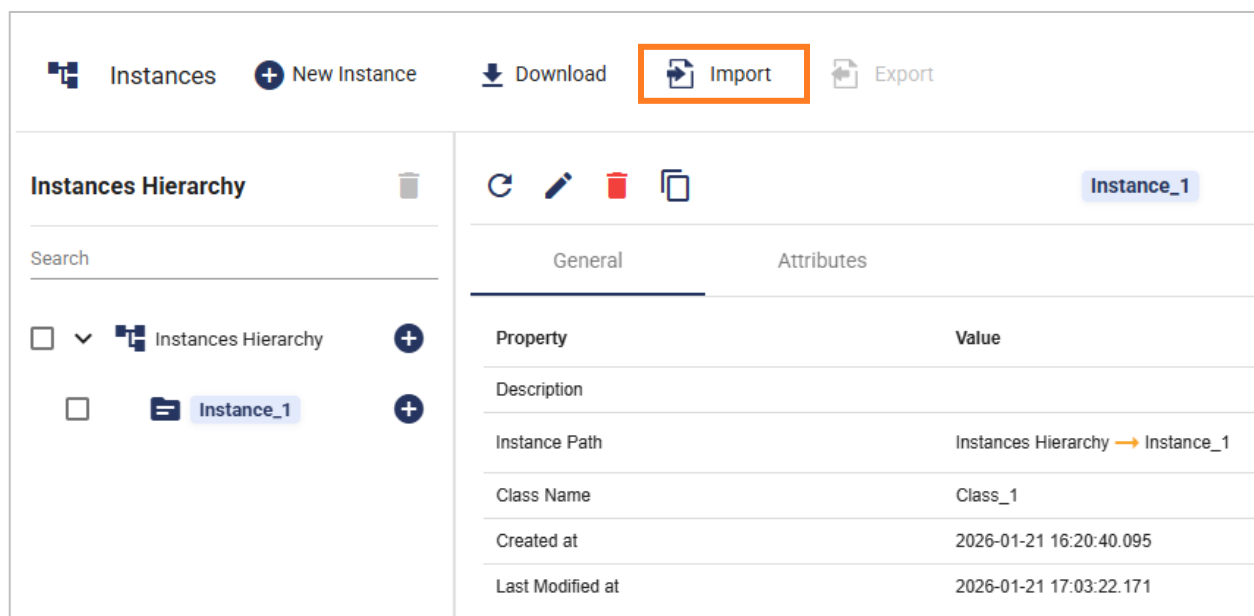


Figure 27: Managing Multiple Instances - Import Instances

To modify multiple instances at once, export the existing instance configurations, update the exported CSV file as needed, and then reimport it.

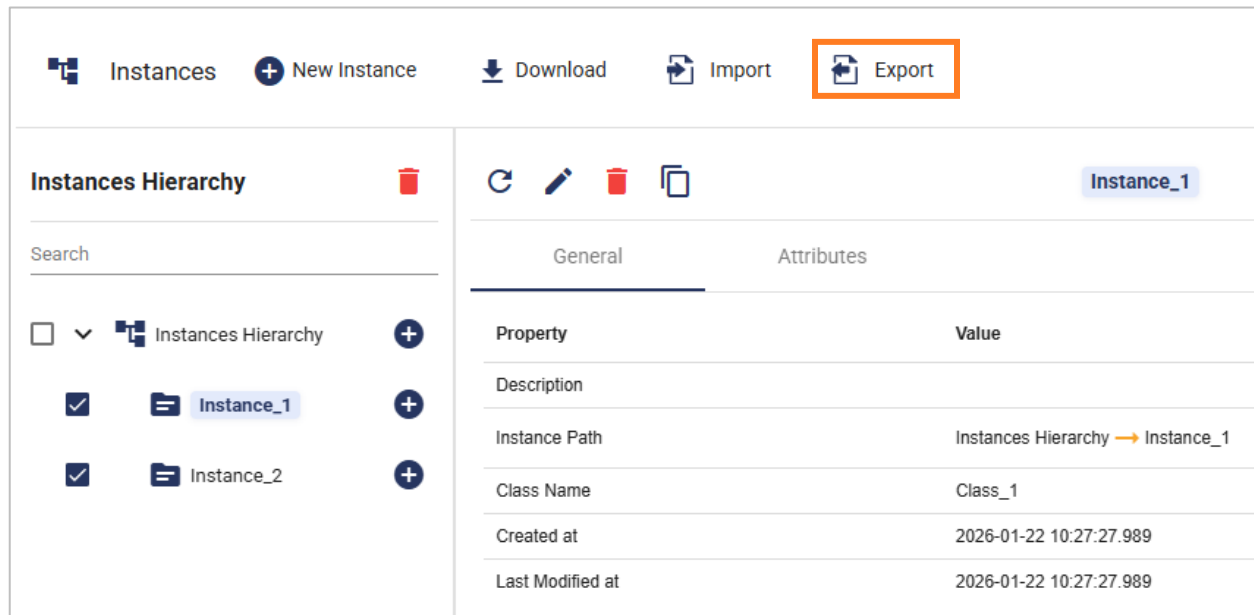


Figure 28: Managing Multiple Instances - Export Instances

3. Procedures

The **Procedures** feature allows you to define reusable procedures that can be referenced when scripting rules and workflow logic within the **Job Engine** module.

Navigate to **Data Model > Procedures** from the left-side menu to access the **Data Model Procedures** page. On this page, an explorer view displays all the existing procedures, each listed on a separate line.

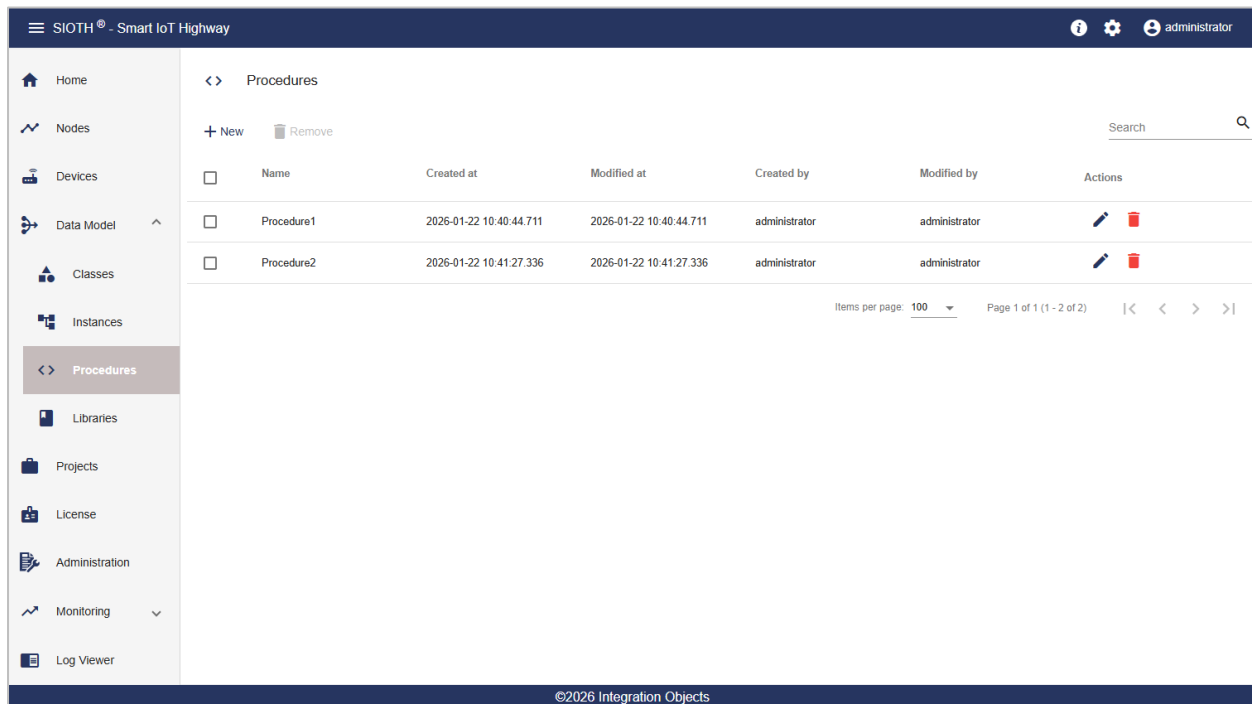




Figure 29: Procedures Explorer

The **Procedures** menu provides the following actions for managing procedure configurations:

- **New:** Creates a new procedure.
- **Remove:** Deletes the selected procedures. This option is disabled when no procedure is selected.

The following actions are available for each procedure:

 **Edit Procedure:** Opens the selected procedure for editing.

 **Delete Procedure:** Deletes the selected procedure from the list.

3.1. Add Procedure

Click **Procedures** in the left-side menu, then click **New**. A configuration dialog is displayed, allowing you to define the procedure parameters and write the Java-based script for the procedure.

Add Procedure

Name *

Procedure

Return Type *

Void

Code

1

System.out.println("Hello, World");

Status

Parameters (0)

Imports (0)

Name *

parameter




Type *

Double

Cancel

Save

Figure 30: Add New Procedure Configuration View

Parameter	Description	Default Value
Name	Specifies the name of the procedure.	Procedure
Return Type	Defines the return data type of the procedure (e.g., Double, Integer, String, Boolean, DateTime). Select Void if no value is returned.	Void
Parameters List	Defines the input parameters for the procedure. Parameters can be added using the Add icon  , edited using the Edit icon  , or deleted using the Delete icon  .	
Imports	Specifies the required imports for external classes or packages used in the procedure.	




<i>Libraries</i>	Lists the external libraries referenced by SIOTH®. New libraries can be added by clicking the Upload icon  in the Libraries tab.	
<i>Editor</i>	Provides a Java script editor for implementing the procedure logic. Click the Compile icon  to validate the script before saving.	

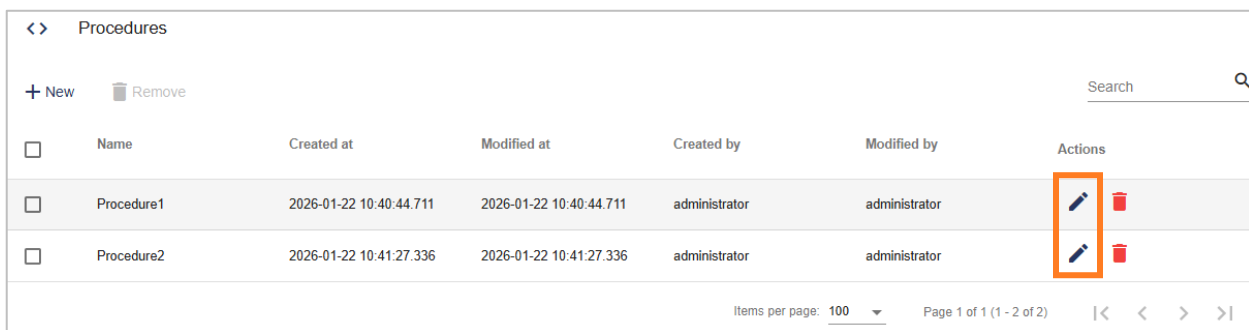
Table 10: Add New Procedure Parameters Definition

Click **Save** to save the procedure and add it to the procedure list or click **Cancel** to discard the changes.

3.2. Edit Procedure

To edit an existing procedure, follow these steps:

- Click **Procedures** in the left-side menu.
- Locate the procedure to be modified.
- Click the **Edit** icon  in the **Actions** column.










<>	Procedures					Search 
+ New	 Remove					
<input type="checkbox"/>	Name	Created at	Modified at	Created by	Modified by	Actions
<input type="checkbox"/>	Procedure1	2026-01-22 10:40:44.711	2026-01-22 10:40:44.711	administrator	administrator	 
<input type="checkbox"/>	Procedure2	2026-01-22 10:41:27.336	2026-01-22 10:41:27.336	administrator	administrator	 
Items per page: 100						Page 1 of 1 (1 - 2 of 2) < < > >

Figure 31: Edit Procedure Button

A dialog opens displaying the current procedure configuration. Make the necessary changes, Click the **Compile** icon  to validate the script and click **Save** to save the changes.

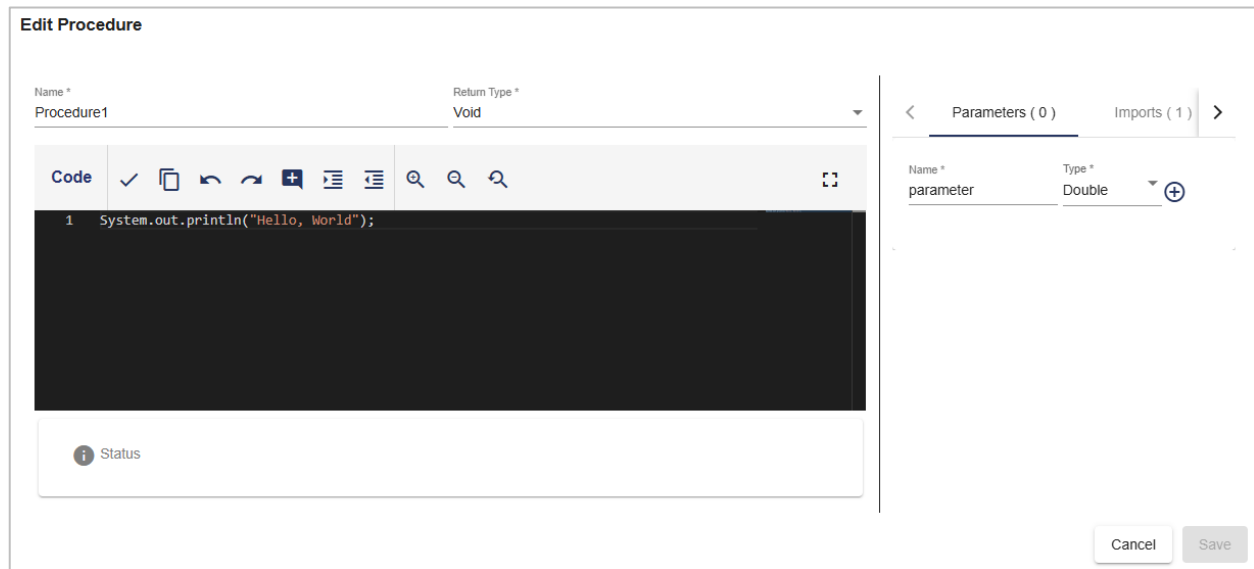



Figure 32: Edit Procedure Configuration View

3.3. Delete Procedure

To delete a procedure, follow these steps:

- Click **Procedures** in the left-side menu.
- Locate the procedure to be modified.
- Click the **Delete** icon  in the **Actions** column.

A confirmation dialog is displayed.

- Click **Yes** to permanently delete the procedure.
- Click **No** to abort the operation and retain the procedure.

(!) Note

You can delete multiple procedures at once by selecting the desired procedures and clicking the **Remove** button in the **Procedures Explorer** menu.





< > Procedures						
+ New	Remove		Search			
	Name	Created at	Modified at	Created by	Modified by	Actions
<input checked="" type="checkbox"/>	Procedure1	2026-01-22 10:40:44.711	2026-01-22 10:40:44.711	administrator	administrator	 
<input type="checkbox"/>	Procedure2	2026-01-22 10:41:27.336	2026-01-22 10:41:27.336	administrator	administrator	 
Items per page: 100 Page 1 of 1 (1 - 2 of 2) < < > >						

Figure 33: Delete Procedure Buttons

4. Libraries

The **Libraries** module allows you to add all libraries required for scripting, including those used in methods, procedures, and Job Engine rules and workflow logic.

Navigate to **Data Model > Libraries** from the left-side menu. On this page, an explorer view displays all the existing libraries, each listed on a separate line.

Home

Nodes

Devices

Data Model

Classes

Instances

Procedures

Libraries

Projects

License

Administration

Monitoring

Log Viewer

Libraries

+ New

Name

Path

Uploaded at

Imported by

Actions

mssql-jdbc-8.4.1.jre8.jar

C:\Program Files\Integration Objects\Integration Objects' Smart IoT Highway\Job Engine\libs\mssql-jdbc-8.4.1.jre8.jar

2026-01-22 11:50:34.132

administrator

Items per page: 100

Page 1 of 1 (1 - 1 of 1)

</

Figure 34: Libraries Explorer

4.1. Add Library

Click **Libraries** in the left-side menu, then click **New**. A Windows Explorer dialog opens, allowing you to browse and select the library to upload. Select the desired jar file and click **Open** to add the library.

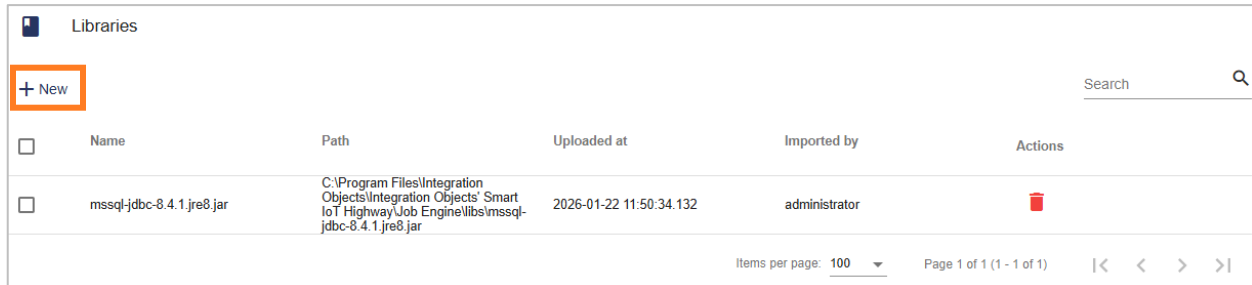



Figure 35: Add Library

4.2. Delete Library

To delete a library, follow these steps:

- Click **Libraries** in the left-side menu.
- Locate the library to be deleted.
- Click the **Delete** icon  in the **Actions** column.

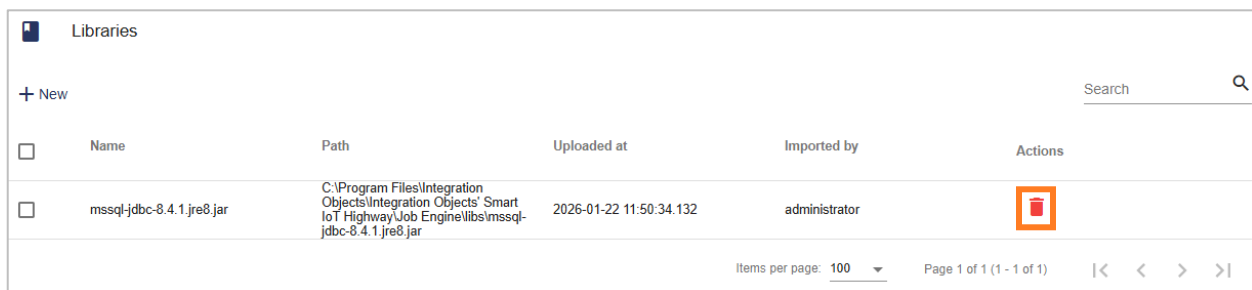


Figure 36: Delete Library Button

A confirmation dialog is displayed.

- Click **Yes** to permanently delete the library.
- Click **No** to abort the operation and retain the library.

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

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