IEC61850 SCL Editor

straton user guide – Rev. 8

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straton

straton

Content

1. Install straton IDE and Runtime

Download and install from https://straton-plc.com/telechargements/

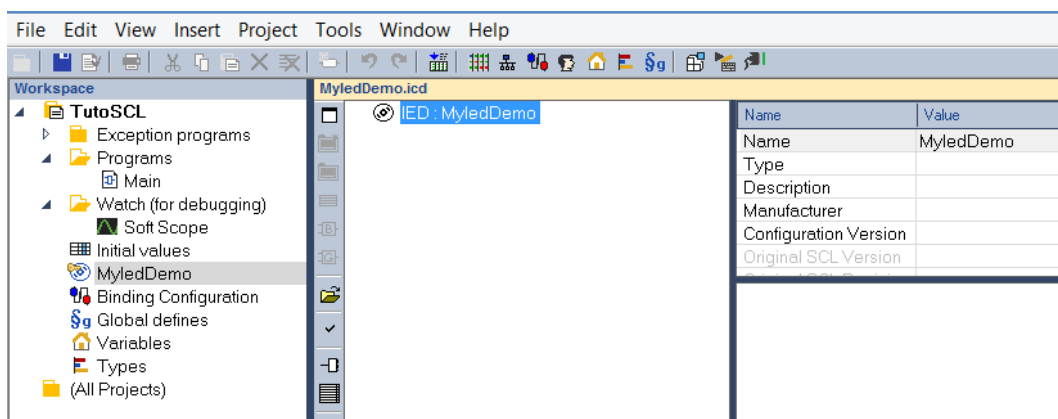# 2. Create a new straton project and open the SCL Editor

Open the Editor and create a new straton project.

Insert an IEC61850 SCL file by doing a right click on the project, select "Insert New Item" and choose the IEC 61850 – SCL Editor:
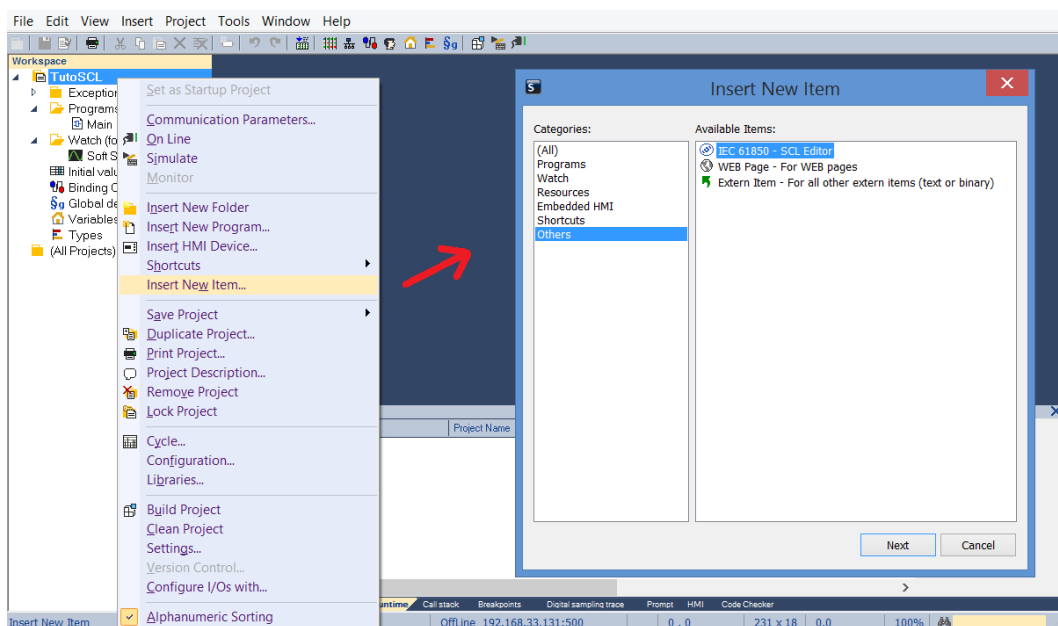
Double click on the item in the Workspace to open the SCL editor.

The SCL file is stored in the project folder:

3. SCL Editor

3.1. Minimum configuration

1. Insert a logical Device ( )
2. Select the Edition of the Standard
3. The mandatory Logical Nodes LLN0 and LPHD are automatically added to your configuration
4. Logical Node can be created from the base class ( ) and optional field can be selected
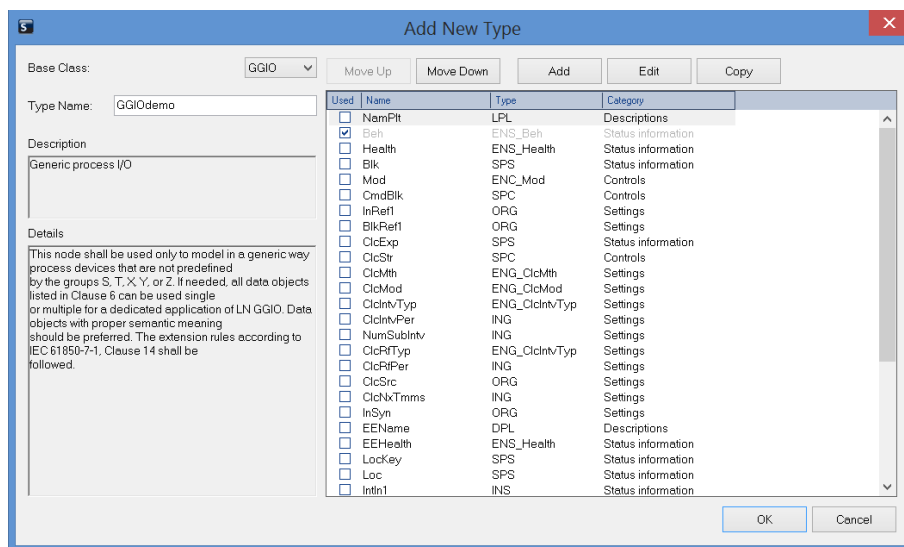
3.2. Logical Nodes

The user can modify the data object and data attributes (DO/DA) contained in a logical node.

Create a new logical node type according to base class ( )

Right click in the Logical node type area and Edit Type:

Edit type features:

1. Select the optional fields
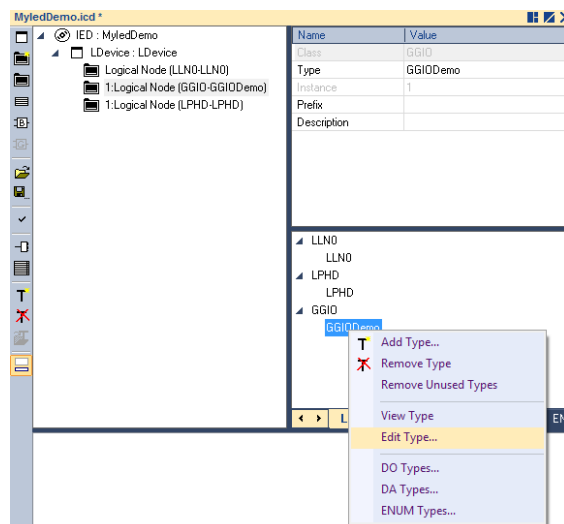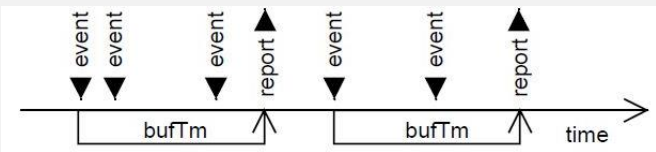2. Reorder the list of Data objects (using **"Up"/"Down"** buttons)
3. Create a new DO in the current logical node (using **"New"** button)
4. Select another DO Type instead of default one (using **"Edit"** or double click on Type column in list) (see section "Managing list of Data Objects (DO)").
5. Copy the selected DO as user DO in the current logical node
6. The grey lines are mandatory data objects and can't be deselected
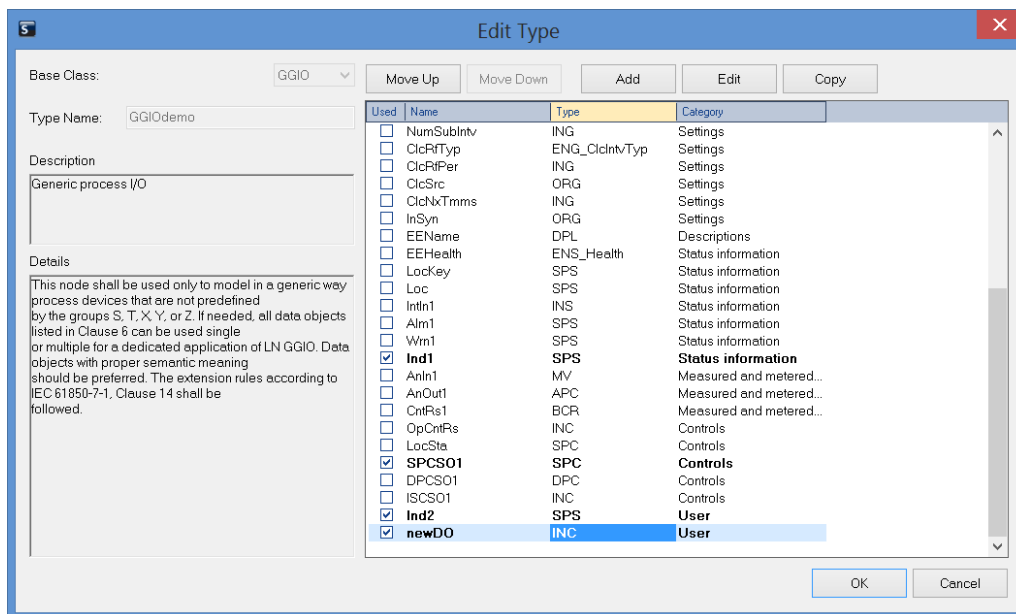
3.3. RCB and DataSet

1. Right click on the logical node and Add DataSet (▤)
2. Double click on the DataSet to configure the data
3. Right click on the logical node and insert a Report Control Block (▣)
4. Select the required DataSet and parameters

Parameters of the Dataset are:

Parameter	Description
Name	Name of the Report Control Block
Description	Comments field
DataSet	Dataset linked to the RCB. **Mandatory field**
Integrity Period	If the TriggerOptions.Period is enabled, this field defines the period in milliseconds of the emission's cycle

Parameter	Description
Configuration Revision	Has to be updated manually when you change the configuration of the RCB. Is emitted with the report if the OptionalFields.ConfigurationRevision is enable.
Buffer Time	It specifies the time interval in milliseconds for the buffering of internal notifications caused by trigger options data-change, quality-change, and data-update for inclusion into a single report. It allows to limit the network load and buffer load for BRCB by limiting the number of reports if several trigger are activated in a defined time range :
Buffered	Define if it is a Buffered RCB or an Unbuffered RCB
Report ID	61850 relative path of the RCB
Indexed	If true, the report control block instance names are built from the supplied name, followed by an index number from 01 up to maximum 99
Optional Fields. Sequence Number	If enabled, includes the sequence number in the reports. The sequence number is an integer which is incremented by 1 each time a report is sent.
Optional Fields. Time Stamp	Sets a timestamp to the report, additionally to the timestamps of the Data Objects.
Optional Fields. Data Set	Includes in each report the name of the DataSet linked to the RCB
Optional Fields. Reason Code	Includes in the reports which trigger is responsible for emission
Optional Fields. Data Attribute Reference	Includes in the report the reference (the path) of the RCB
Optional Fields. Entry ID	If enabled, includes the Entry ID in the reports. It allows the client to have a unique identifier associated to the report. When reconnecting, the client can send the Entry ID of the last received report to make a re-synchronization.
Optional Fields. Configuration Revision	If enabled, the configuration revision is included in each report

Parameter	Description
Optional Fields. Buffer Overflow	If enabled, this flag rises when the buffer is full and older reports have been automatically deleted. After a disconnection / reconnection, it indicates that the client missed some data
Trigger Options. Data Changes	If enabled, a report will be emitted if any data of the dataset changes. The report contains only changes
Trigger Options. Quality Changes	If enabled, a report will be emitted if the quality of a data of the dataset changes. The report contains only changes
Trigger Options. Data Update	If enabled, a report will be emitted if the timestamp of a data of the dataset changes. The report contains only changes
Trigger Options. Period	If enabled, a report will be emitted every "Integrity Period", containing values of the entire dataset
Trigger Options. General Information	If enabled, it allows the client to request a report containing values of the entire dataset
Report Enabled. Max	This is the number of instances of the RCB. Each client needs at least one instance
Report Enabled. Description	Comments

Notes:

▸ A check of the files can be done using the Check syntax button (✓)

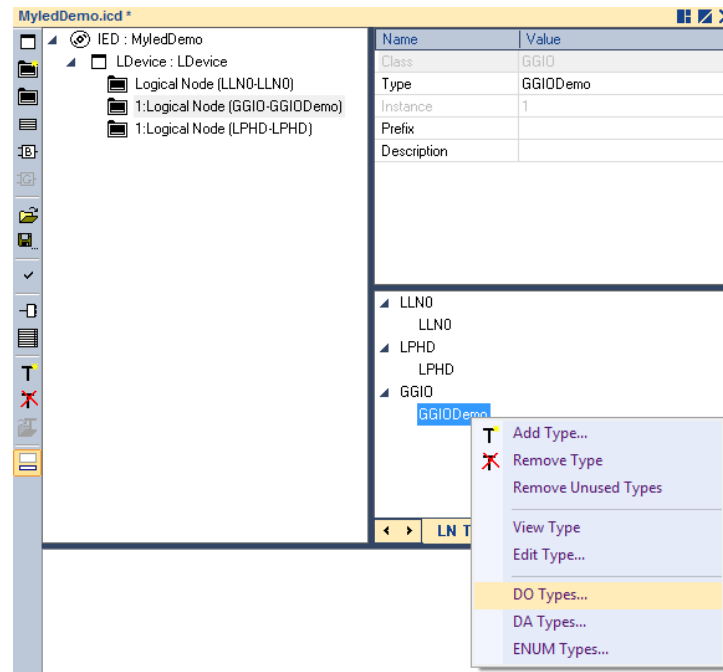▸ An URCB/BRCB must use DataSets containing only Data Objects

Example for a "Check syntax" failed result:

```
A RCB can not use a data set (DS00) that uses a DA (stVal)
A RCB can not use a data set (DS00) that uses a DA (q)
Check failed - 2 errors
```
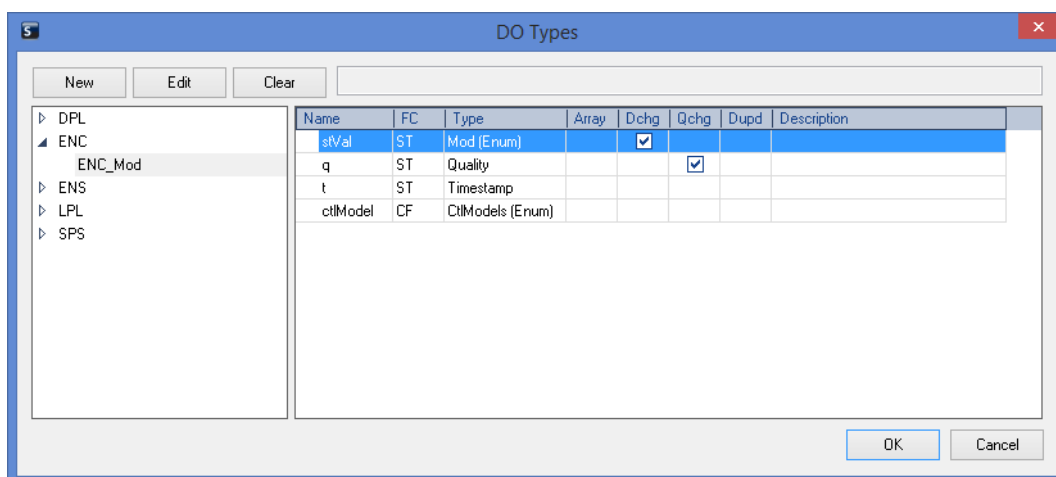
3.4. Managing list of Data Objects (DO)
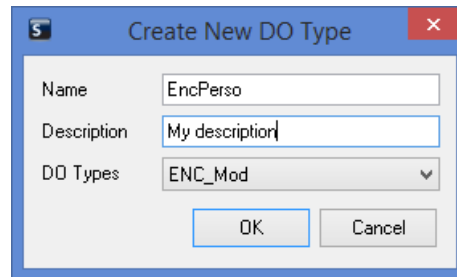
3.4.1. Using "DO Types" dialog

Right click in the Logical node type area and select the "DO Types..." menu:

Data objects can be managed from the "Select DO Type" dialog box:

Click on **"New"** to create a new DO type depending to the selected Common Data Class (CDC):
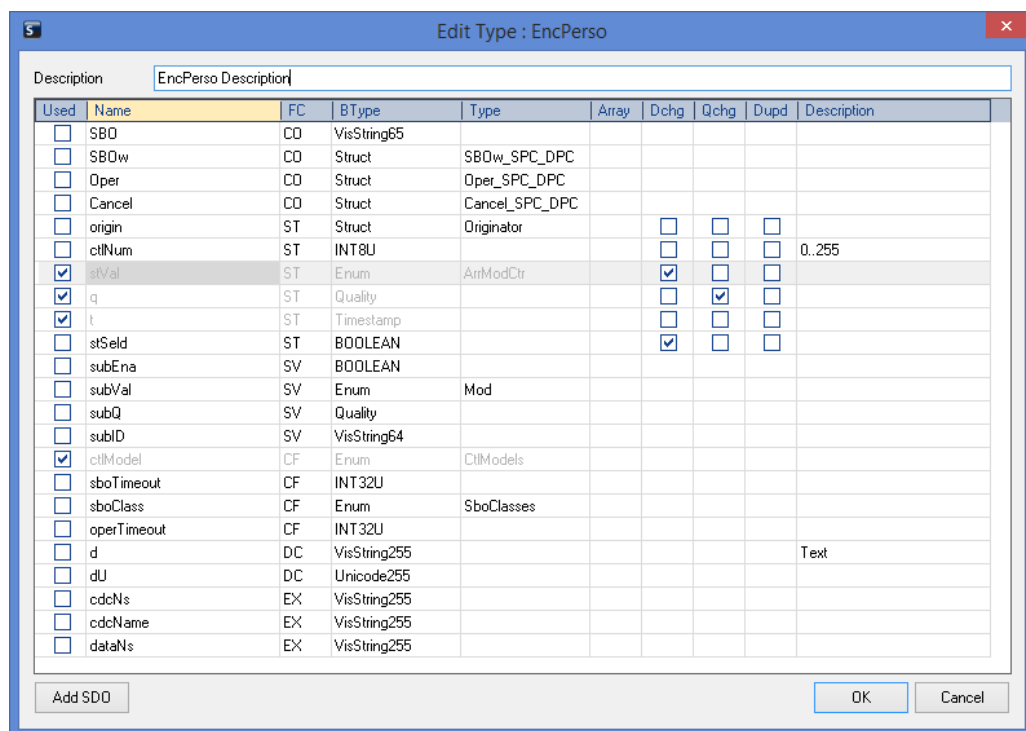

Click on **"Edit"** to modify the selected DO type (or double click in the list on the right):

Click on **"Add SDO"** to add a Sub-DO type in current DO type
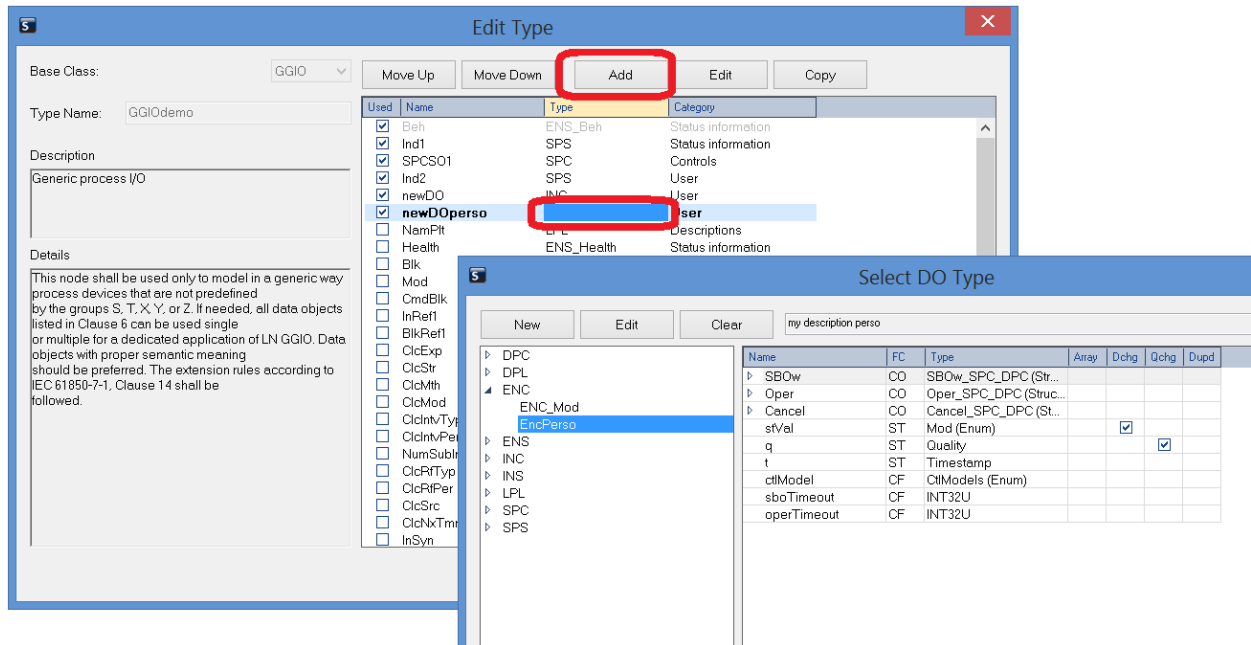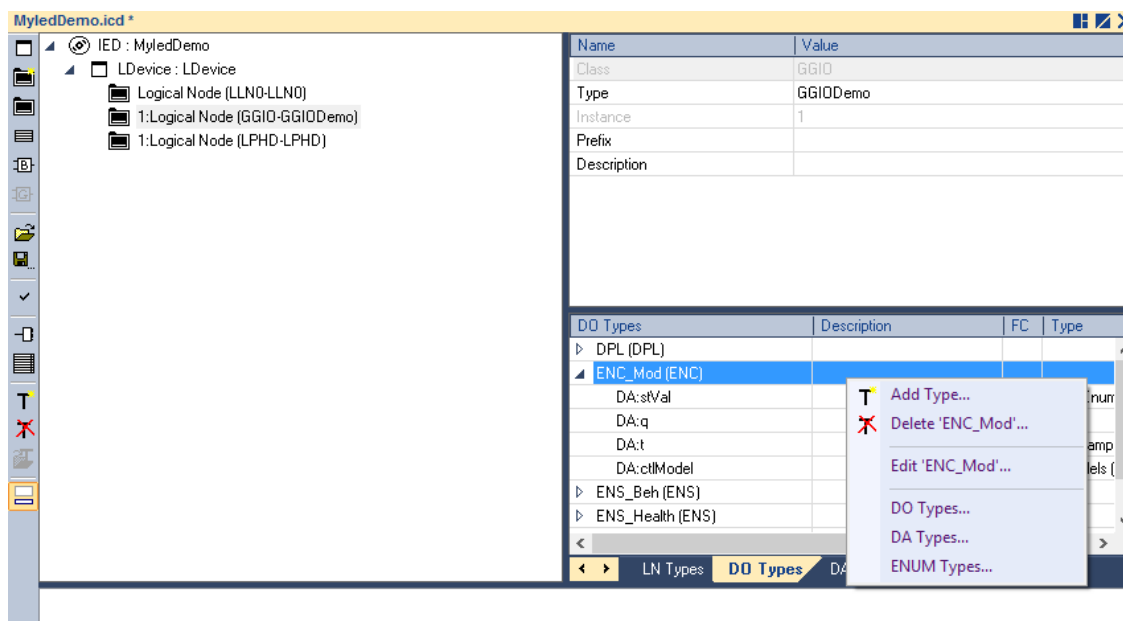
Click on **"Clear"** to remove the selected DO Type.

Now, when doing a right click in the Logical node type area and "Edit types", it is possible to create a new DO using this new DO Type (see part 3.2)

3.4.2. Using "DO Types" list

Edit, Add and Delete commands can be done directly from "DO Types" list on right side of main window:
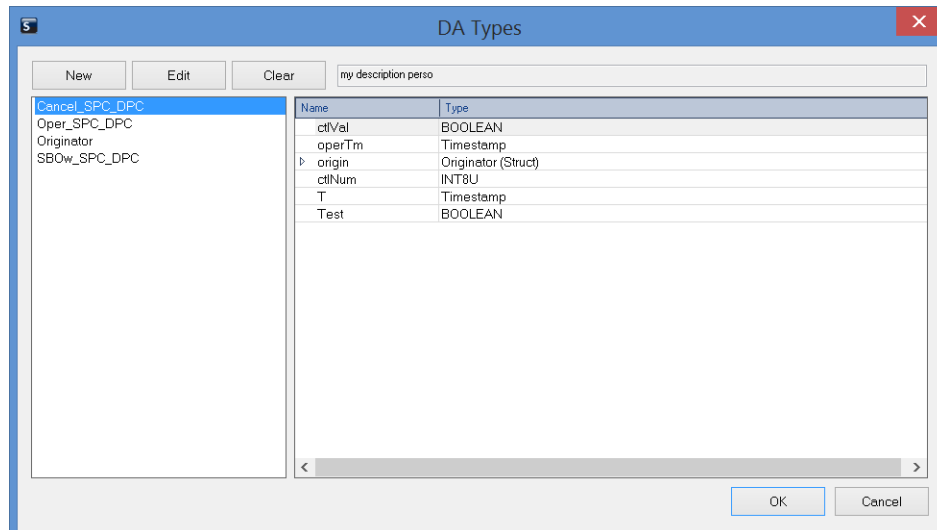

User can continue to use full DO types list in dialog using "DO Types…" popup command.
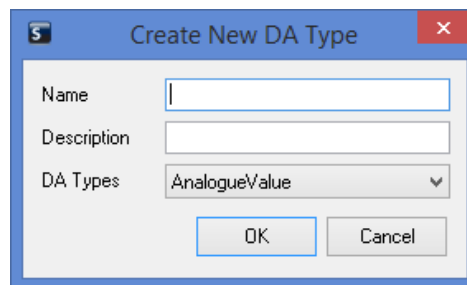
3.5. Managing list of Data Attributes (DA)

3.5.1. Using "DA Types" dialog

Right click in the Logical node type area and select "DA Types..." menu

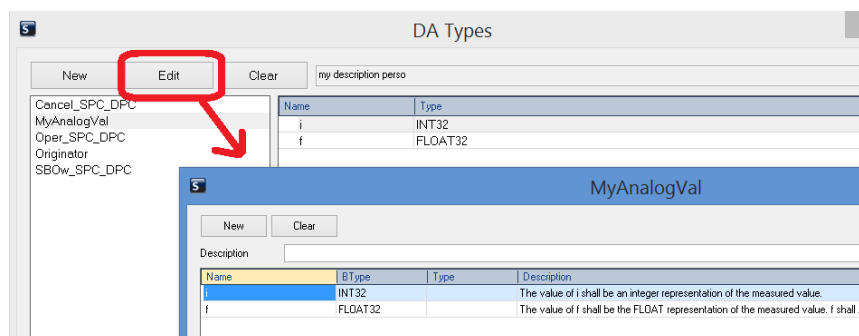Data attributes can be managed from the "Select DA Type" dialog box:

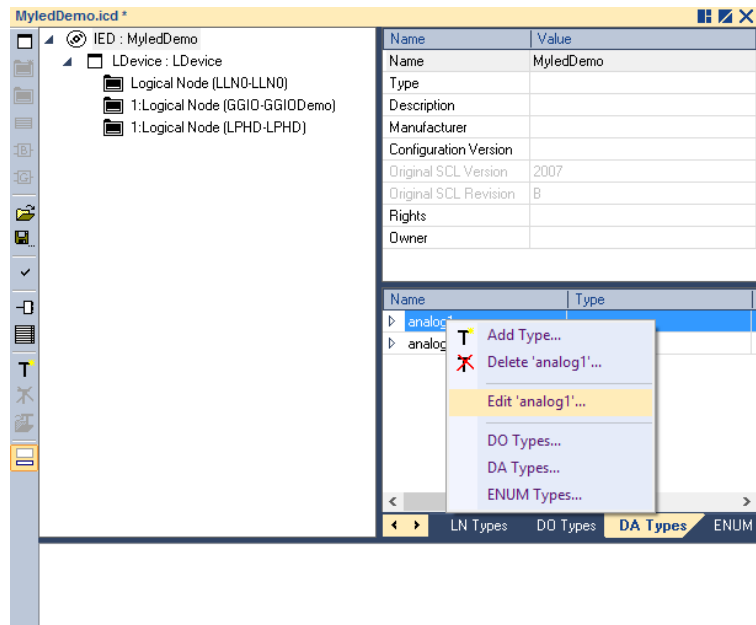Click on **"New"** to create a new DA type:

Click on **"Edit"** to modify the selected DA type (or double click in the list on the right)

Click on **"Clear"** to remove the selected DA Type

3.5.2. Using "DA Types" list

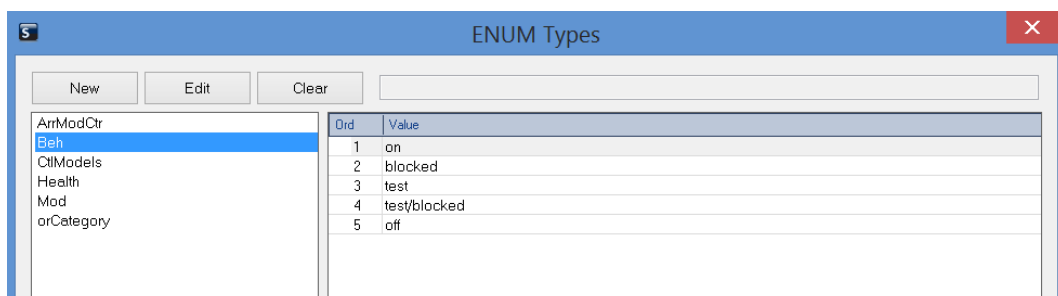Edit, Add and Delete commands can be done directly from "DA Types" list on right side of main window:

User can continue to use full DA types list in dialog using "DA Types…" popup command.

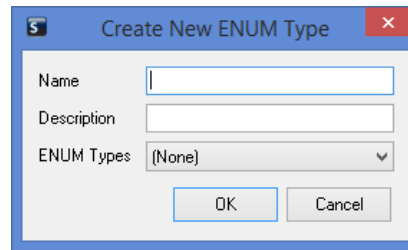# 3.6. Managing list of Enumerated Types

3.6.1. Using "ENUM Types" dialog

Right click in the Logical node type area and select "ENUM Types…" menu.

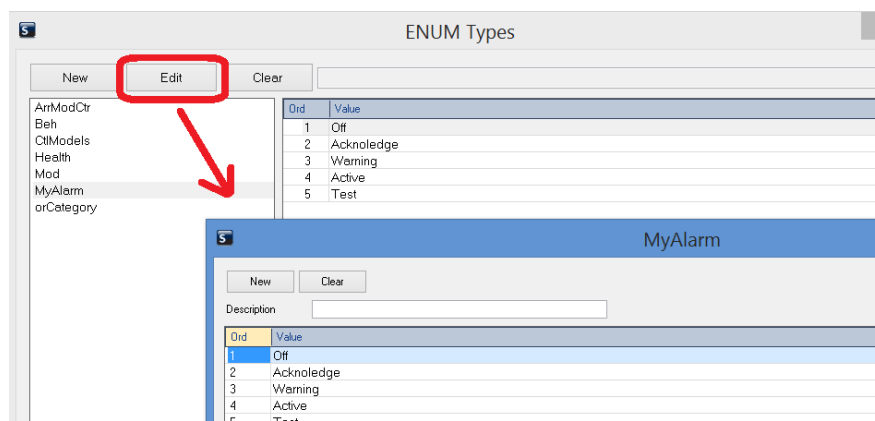Enumerated types can be managed from the "Select ENUM Type" dialog

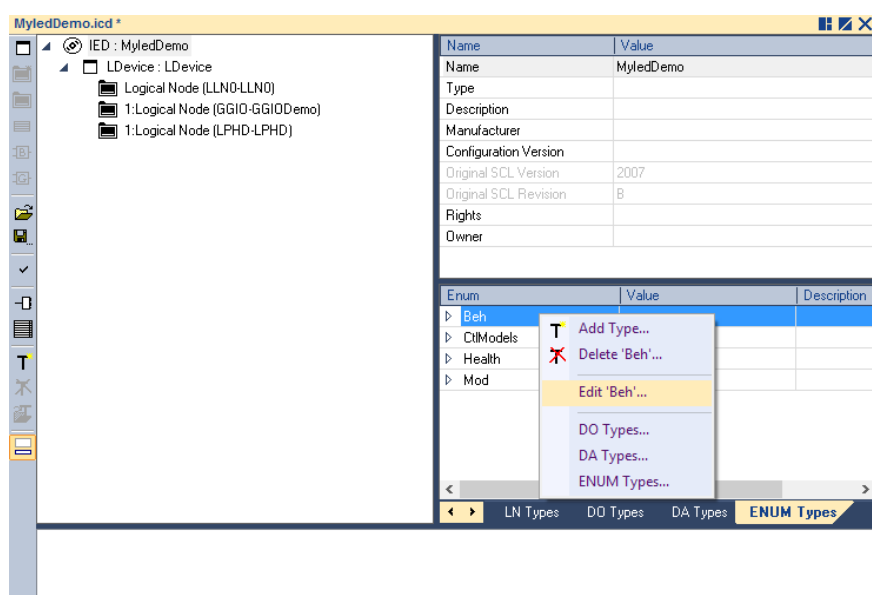Click on **"New"** to create a new Enumerated type

Click on **"Edit"** to modify the selected Enumerated type

Click on **"Delete"** to remove the selected Enumerated Type

3.6.2. Using "ENUM Types" list

Edit, Add and Delete commands can be done directly from "ENUM Types" list on right side of main window:

User can continue to use full ENUM types list in dialog using "ENUM Types..." popup com