

FANOX

Safely protected

IEC 61850 configuration tool



FNX

61850

SOFTWARE

STEP BY STEP MANUAL

Index

Index.....	2
Table of illustrations and figures	3
1. Overview	4
1.2 Load existing file	4
2. Working with the model	5
2.1 Edit.....	5
2.2 Add.....	7
2.3 Remove	8
3. Warnings and errors.....	9
4. Syntax view.....	10
5. Save file.....	11
6. Data Set	12
Add FCDA by Data Set Edition	12
Add FCDA Manually.....	13
Add FCDA by Context menu	14
Recommendations	15
7. Reports.....	16
8. GOOSE Publisher.....	18
Goose Subscription	20
9. Upload SCL file	23
10. License	24

Table of illustrations and figures

Figure 1 – Overview	4
Figure 2 – Buttons	4
Figure 3 - Tree view	5
Figure 4 - Non editable data example	6
Figure 5 - Editable data example	6
Figure 6- Context menu: Insert DataSet example.	7
Figure 7 - Context menu: Remove DataSet example.	8
Figure 8 - Error message box.....	9
Figure 9 - Syntax view.....	10
Figure 10 - Save file.	11
Figure 11 - Data Set Edition window	12
Figure 12 - Addition of fc attribute in FCDA object	13
Figure 13 - FCDA form	13
Figure 14 - Add FCDA using context menu	14
Figure 15 - Add fc to the FCDA object	14
Figure 16 - cvc-pattern-valid message	15
Figure 17 - cvc-pattern-valid message solution	15
Figure 18 - Add GSEControl using context menu.	18
Figure 19 - GSEControl parameters.....	18
Figure 20 - Add GSE using context menu.	19
Figure 21 - GSE parameters and address tree.....	19
Figure 22 - GOOSE subscribe context menu.....	20
Figure 23 - SCD file loaded for GOOSE subscription.....	20
Figure 24 - GOOSE subscription mapping example.....	21
Figure 25 - GOOSE subscription change information screen	21
Figure 26 - GOOSE subscription private section added.....	22
Figure 27 - Send SCL file to relay.	23
Figure 28 - License loaded.....	24

1. Overview

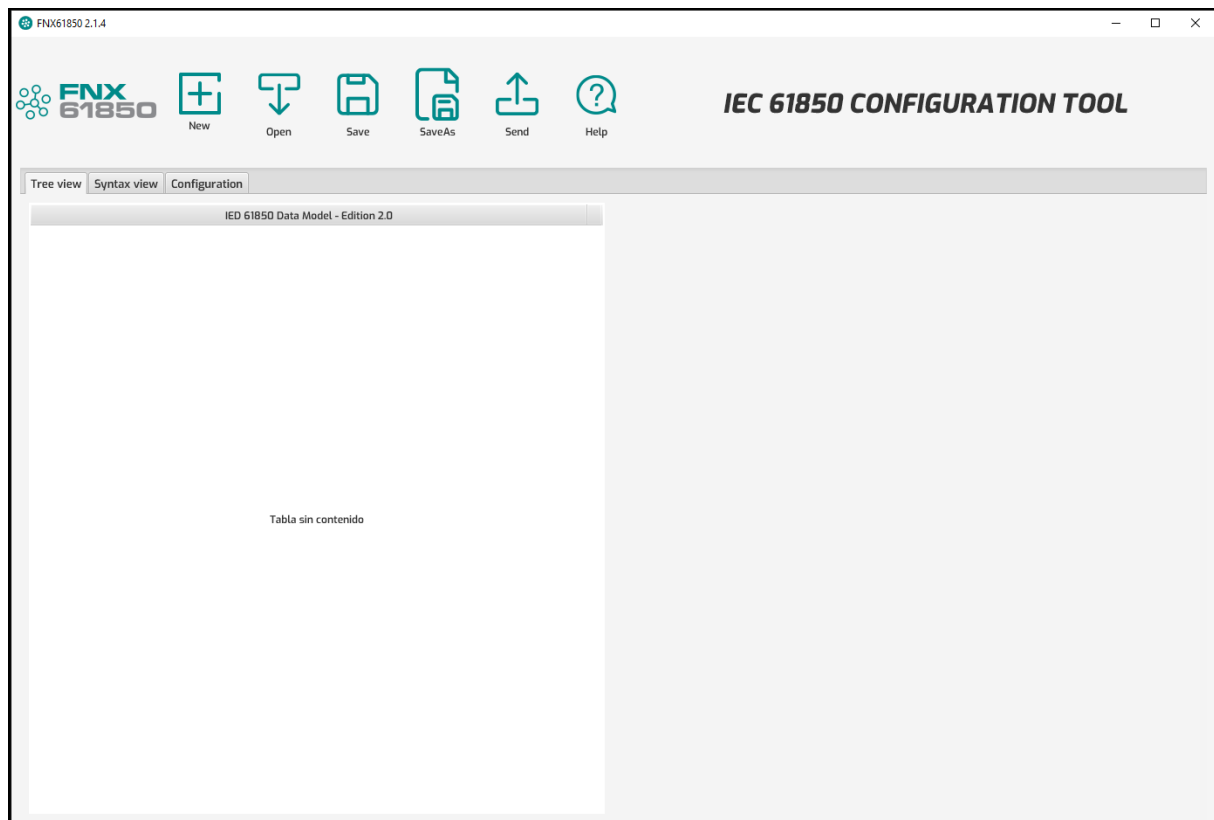


Figure 1 – Overview

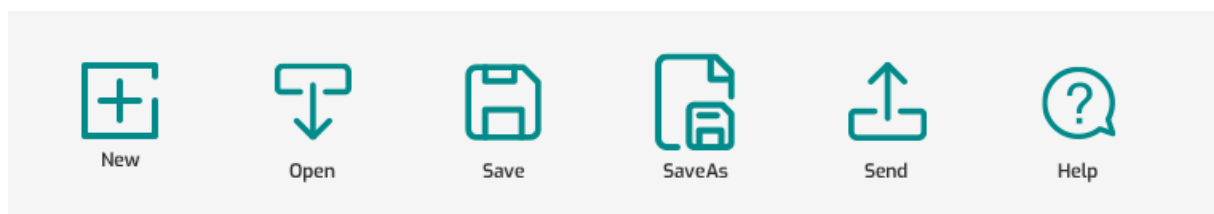


Figure 2 – Buttons

1.2 Load existing file

To load existing SCL file, click **Open** button and choose config file with CID, ICD or SCD extension. The data model defined in the file will appear in the **Tree view**.

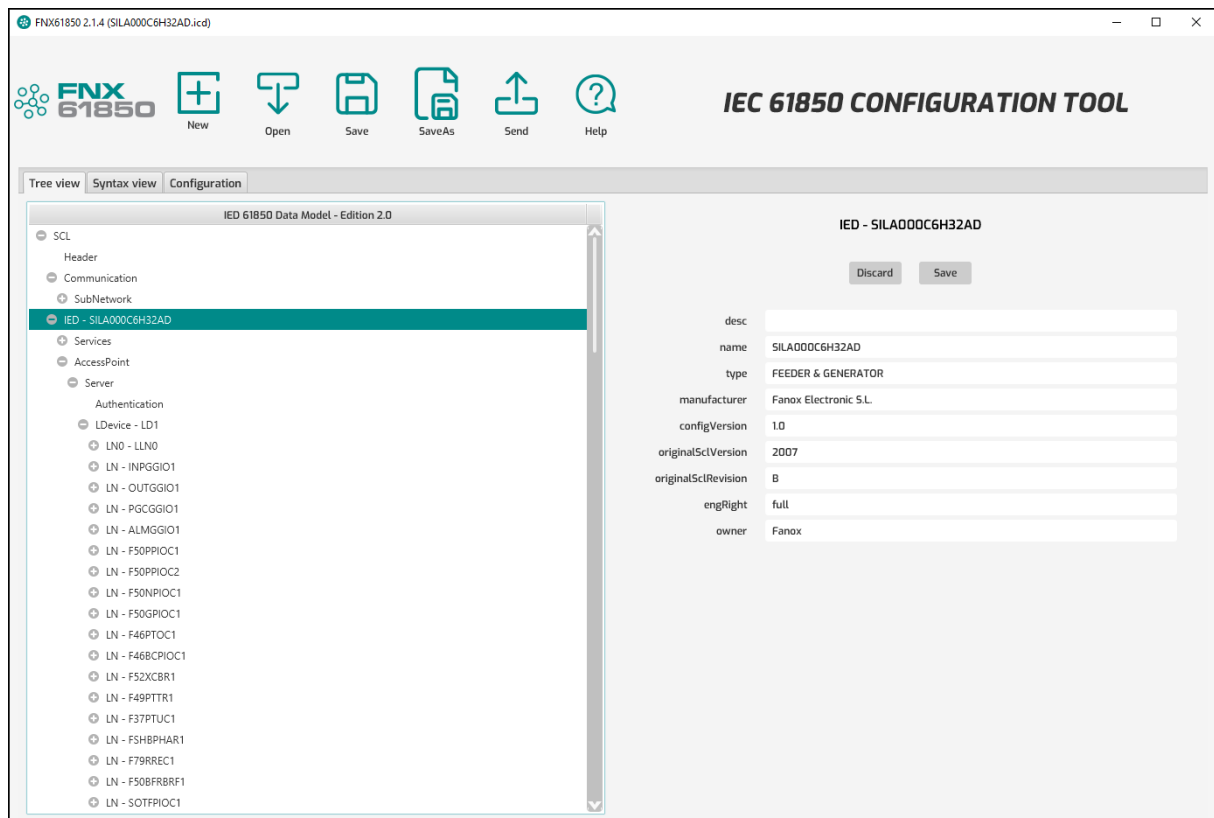


Figure 3 - Tree view

2. Working with the model

2.1 Edit

When you click on an element on the tree, then its attributes appear on the form on the right side. For editable data, “Discard” and “Save” buttons are available.

To edit data, enter new values into the form and click **“Save”** button above the form. If you change your mind about new values, you might click **“Discard”** button to restore the last saved values.

The data model is not editable.

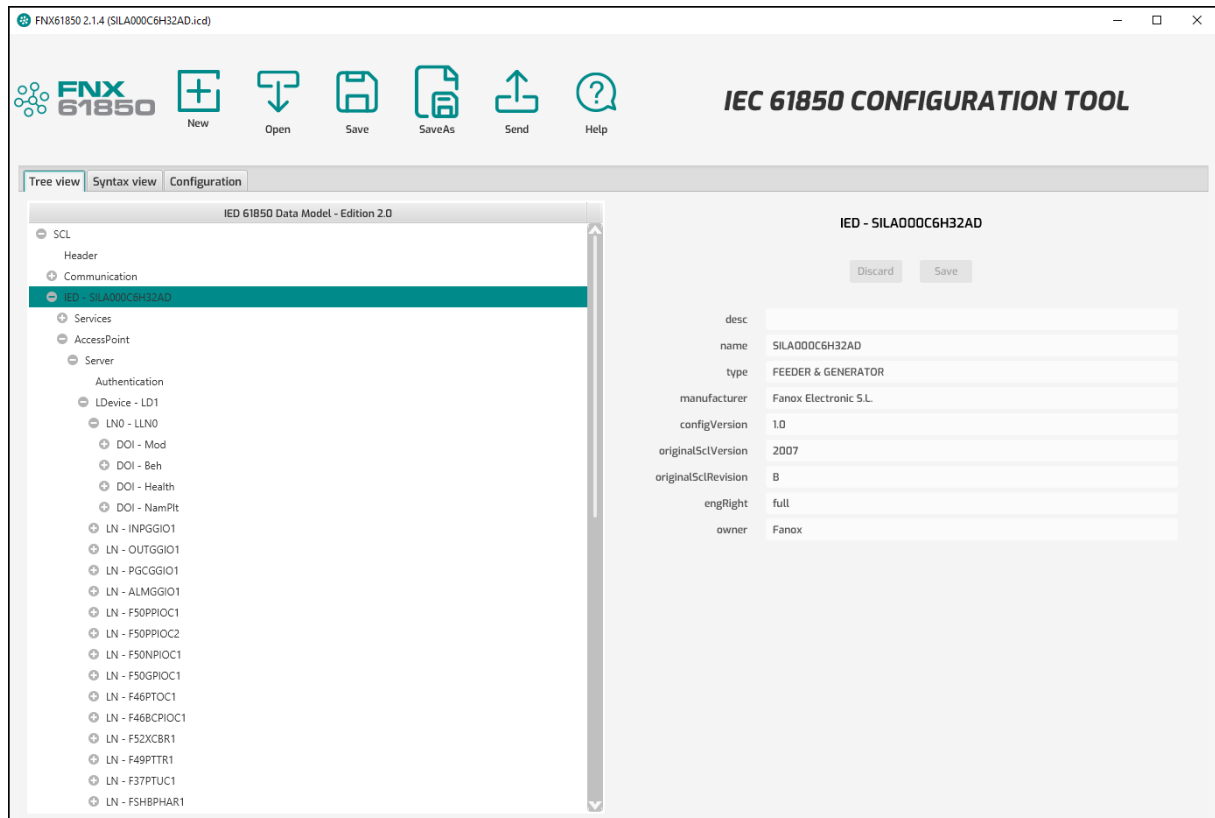


Figure 4 - Non editable data example

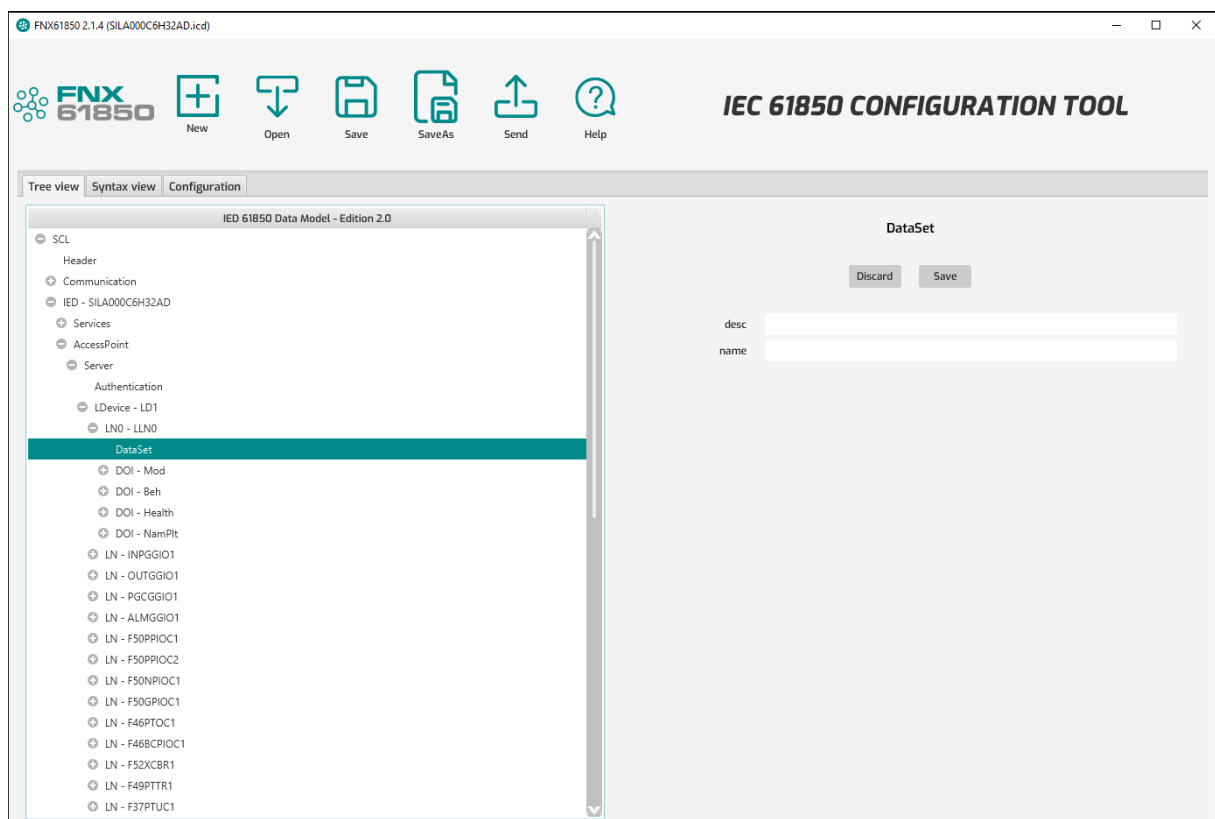


Figure 5 - Editable data example

2.2 Add

It is possible to add new elements to the file. Available elements include datasets, reports, and GOOSE related elements.

To add a new element, right-click on the parent element, choose **“Insert”** option from the context menu and select the right element type form the list of available elements.

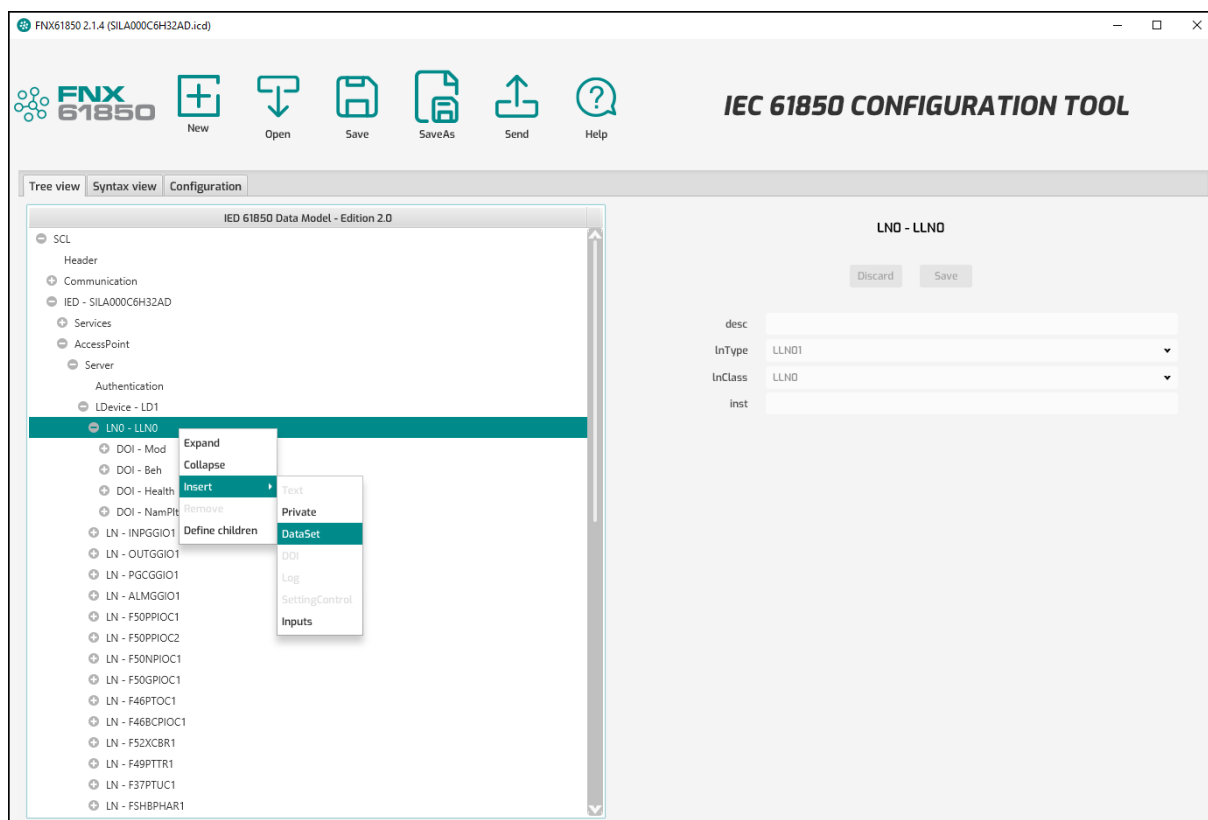


Figure 6- Context menu: Insert DataSet example.

2.3 Remove

To remove an element from the data model, right-click on it and choose “**Remove**” option from context menu. Element will be deleted with all its children. This operation is only available for added elements and it cannot be undone.

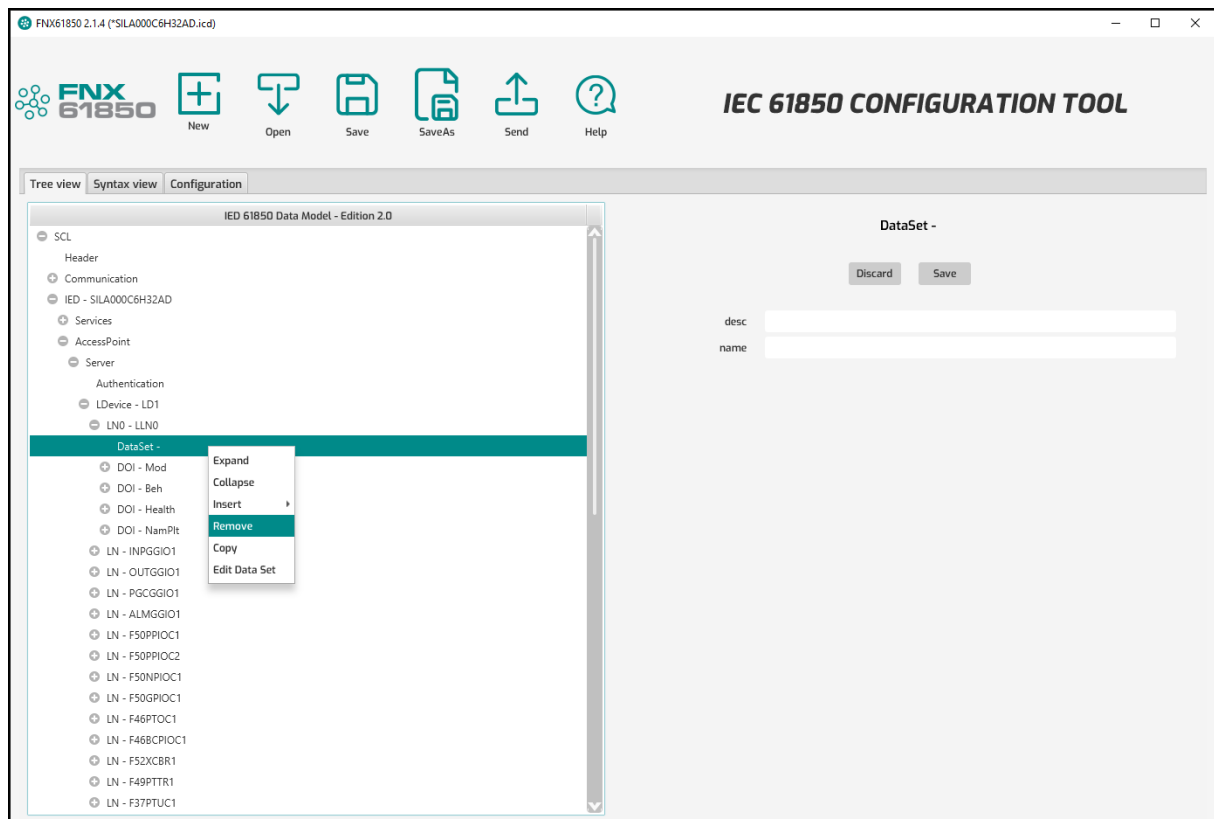


Figure 7 - Context menu: Remove DataSet example.

3. Warnings and errors

After each operation data model is checked by XML schema validator. When information is missing or any error occurs, the error message is shown in the box at the bottom of the right side.

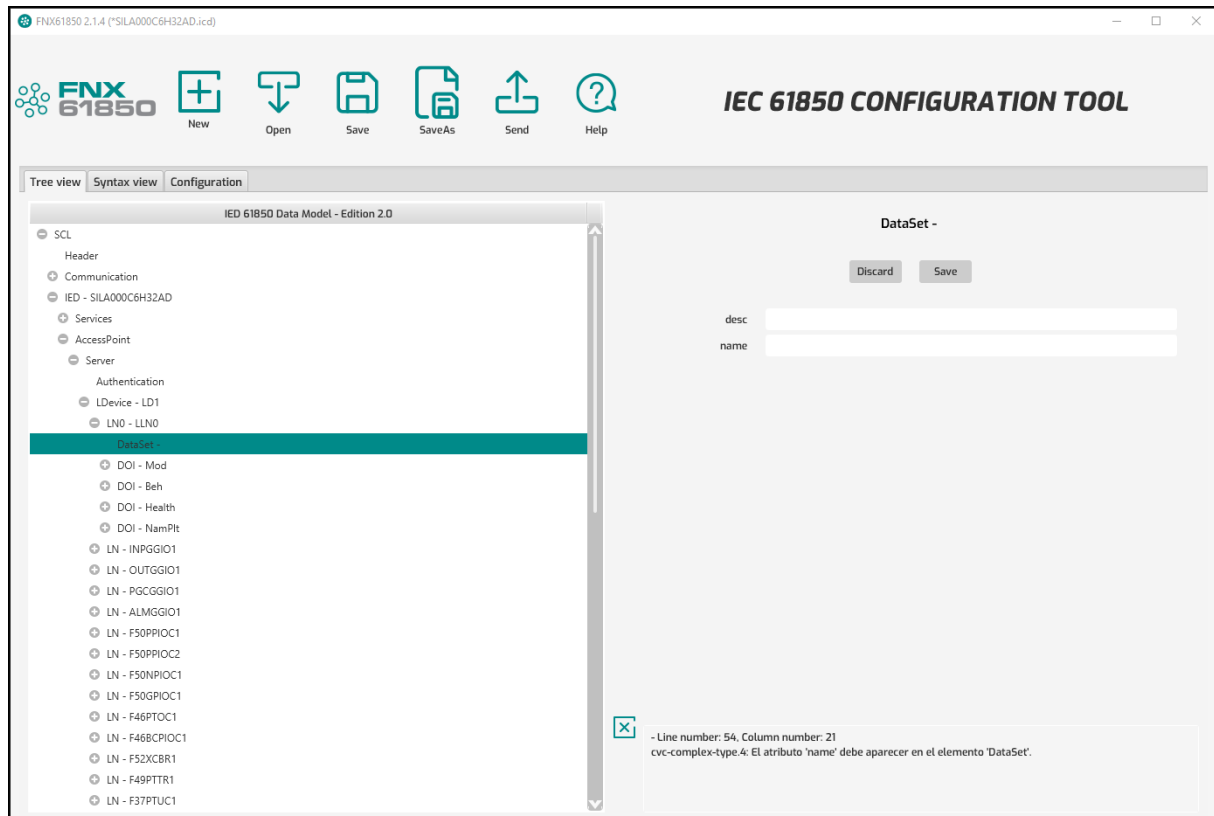


Figure 8 - Error message box

4. Syntax view

Current file text is available in “**Syntax view**” window. From this window is not possible to edit any of the information of the file.

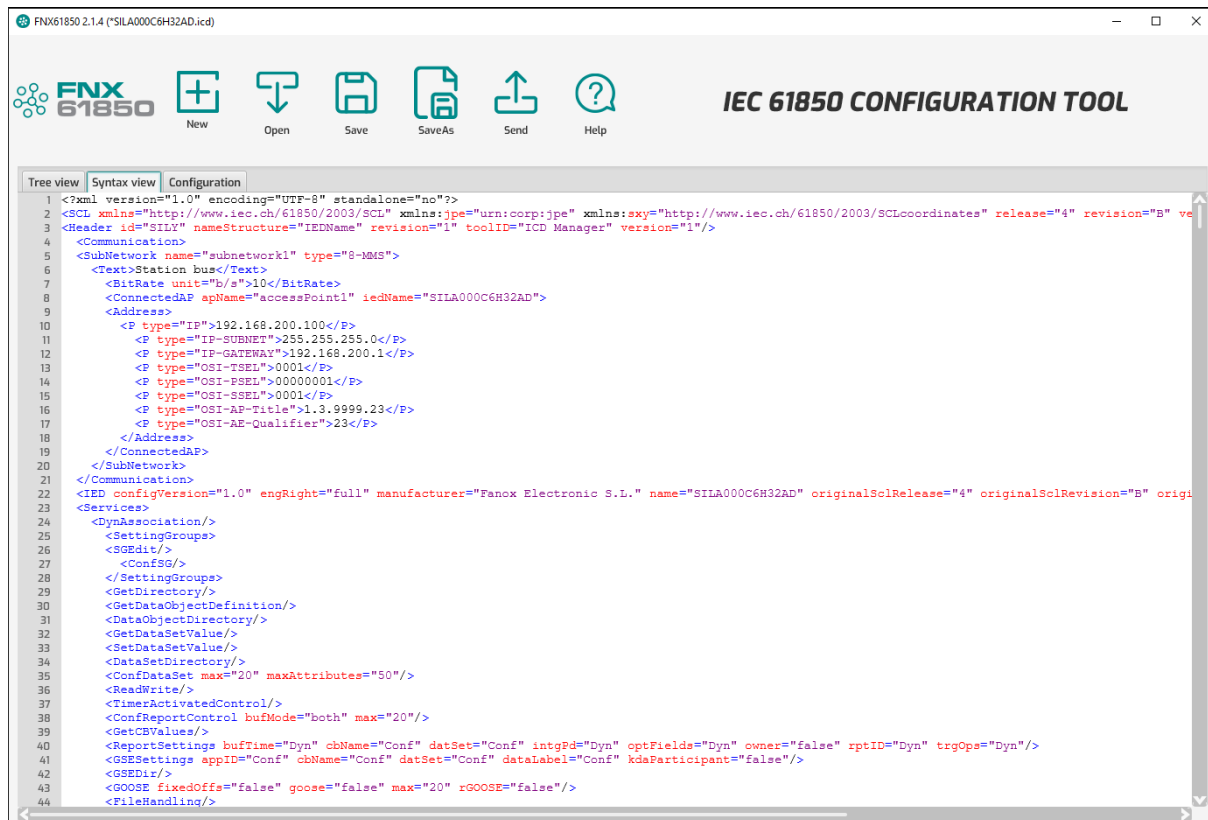


Figure 9 - Syntax view

5. Save file

Click **“Save”** button to save current file after modification. If the application is closed without saving, the modification will be lost.

For saving into a new file, click **“Save As”** button for opening a file explorer window.

In case there are errors on the file when saving, a warning will be shown. Click **“Ok”** to save it anyways, or **“Cancel”** to go back to editing without saving.

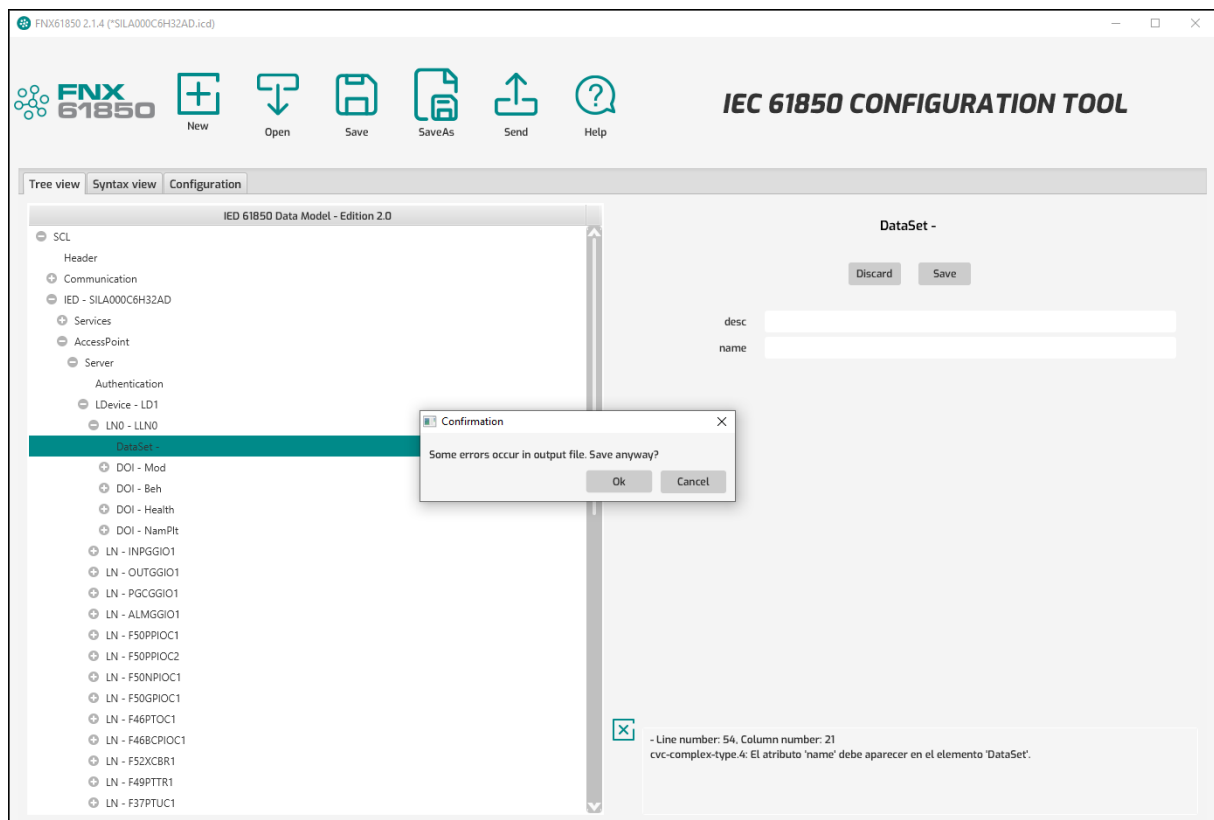


Figure 10 - Save file.

6. Data Set

There are 3 ways to add a new FCDA object to the Data Set.

Add FCDA by Data Set Edition

When adding a new Data Set, the Data Set Edition window will open automatically. From this screen it is possible to change data set parameters and add or remove FCDA objects from the Data Set by checking or unchecking elements from the list.

It is possible to search elements from the list, writing part of object's path in the "Search element" text field above the list.

When pressing **Ok**, the data set, with the selected FCDA will be created.

For opening again the Data Set Edition window, right-click on the Data Set and choose option **Edit Data Set**.

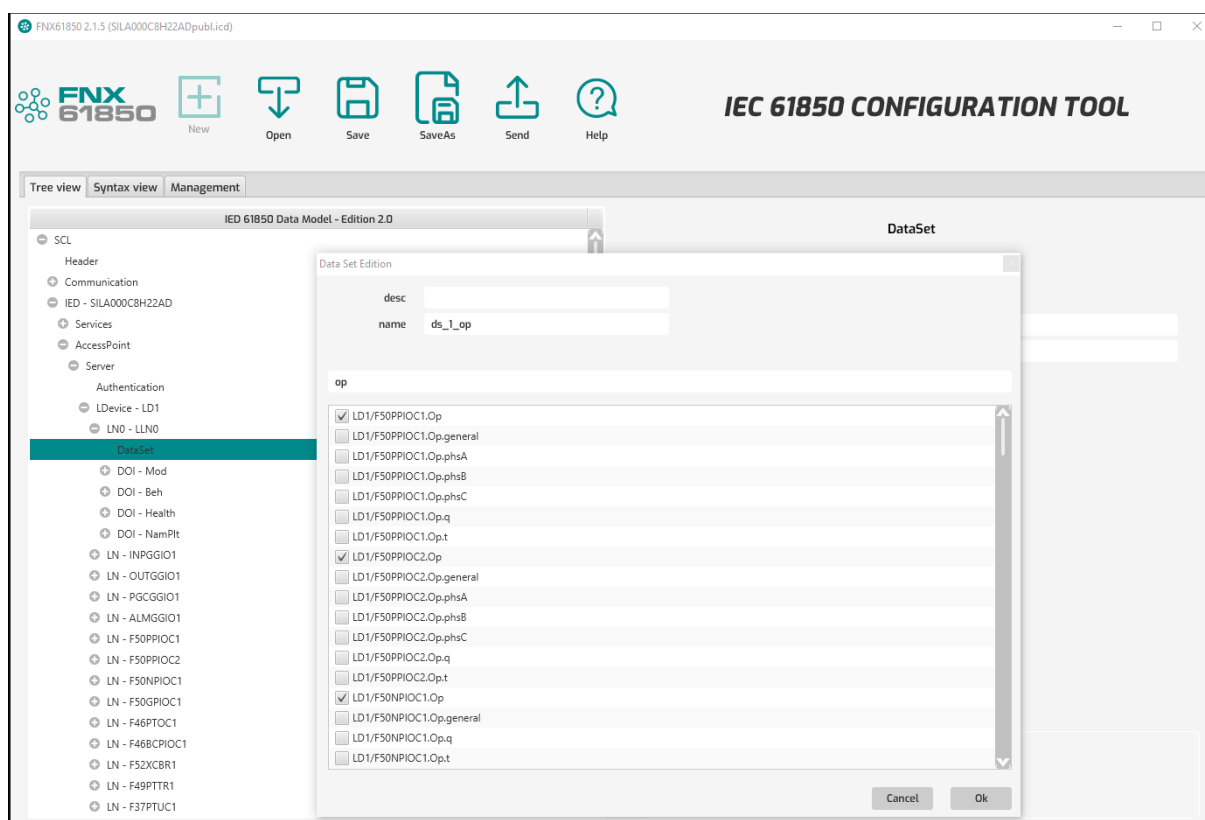


Figure 11 - Data Set Edition window

After adding the desired FCDA objects, it is necessary to add **fc** attribute value manually for each FCDA object. Click **Save** button after adding the fc attribute to save the change.

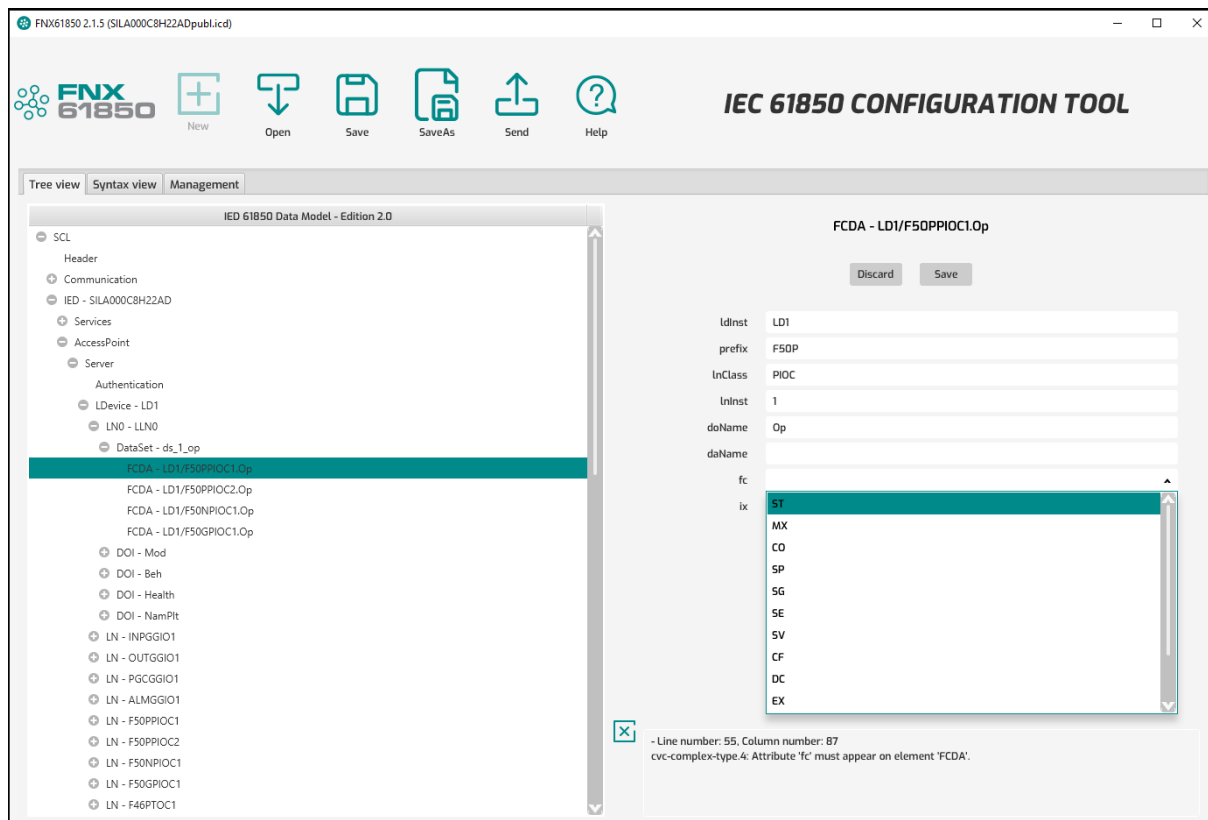


Figure 12 - Addition of fc attribute in FCDA object

Add FCDA Manually

Right-click on Data Set and choose FCDA from insert option. Insert values on the right side form and click **Save**.

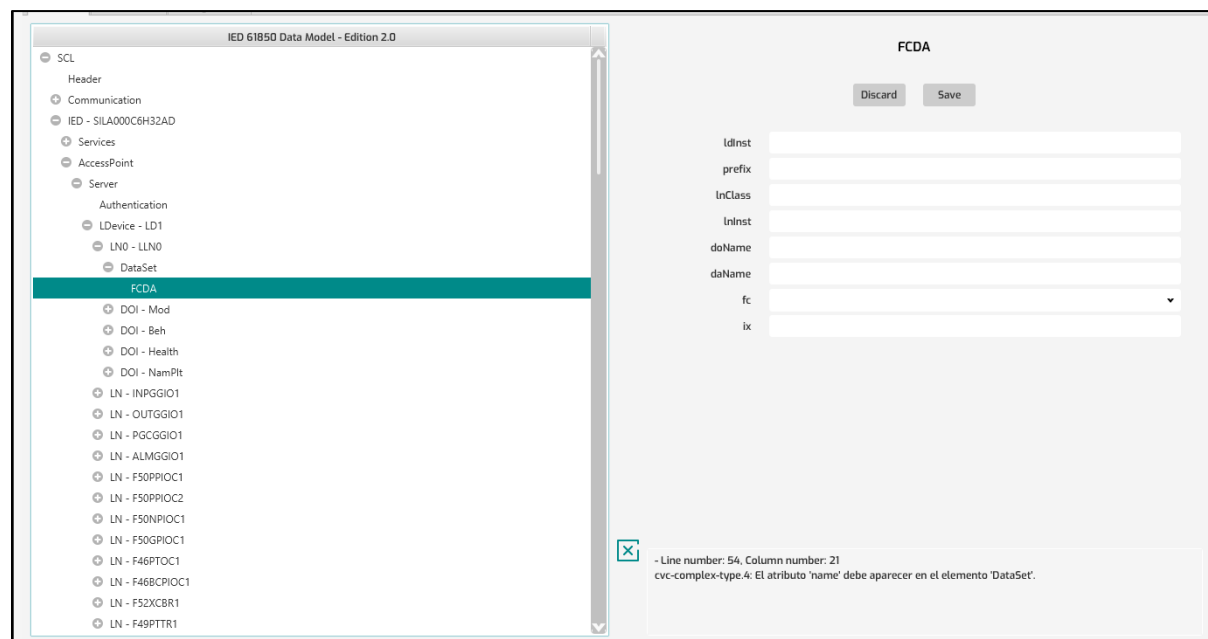


Figure 13 - FCDA form

Add FCDA by Context menu

After inserting minimum one Dataset on the LLN0 node, right-click on DOI, SDI or DAI object, choose option **Add to Data Set** and choose data set desired.

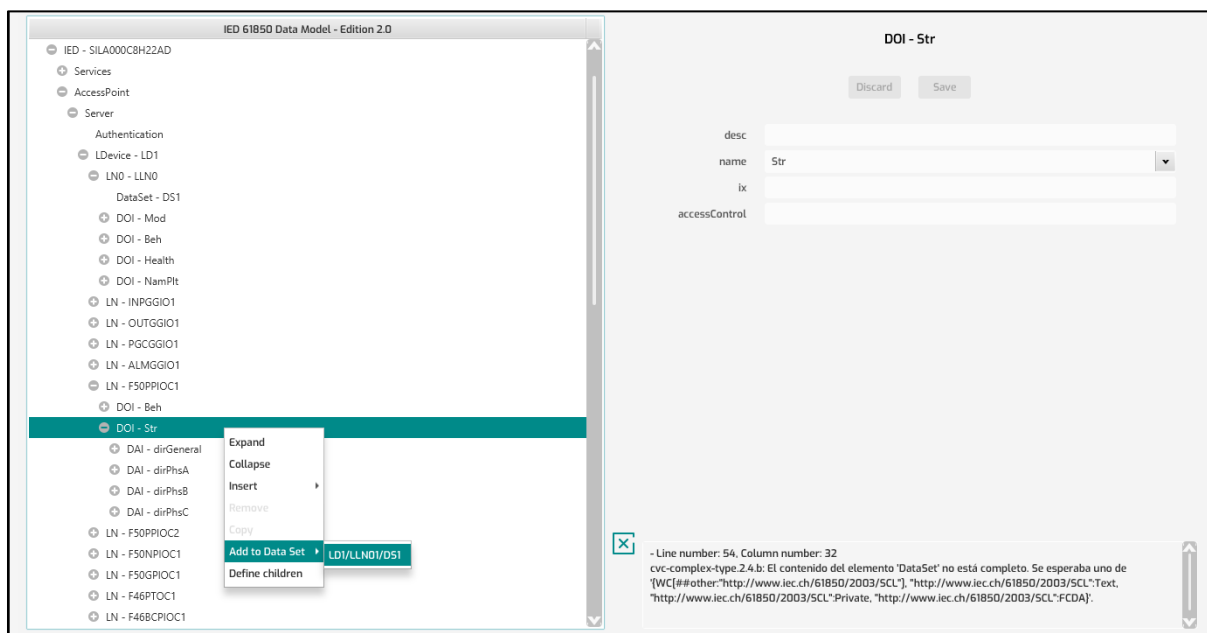


Figure 14 - Add FCDA using context menu

When adding FCDA with this option, it is necessary to insert the **fc** information manually and click **Save** after the change.

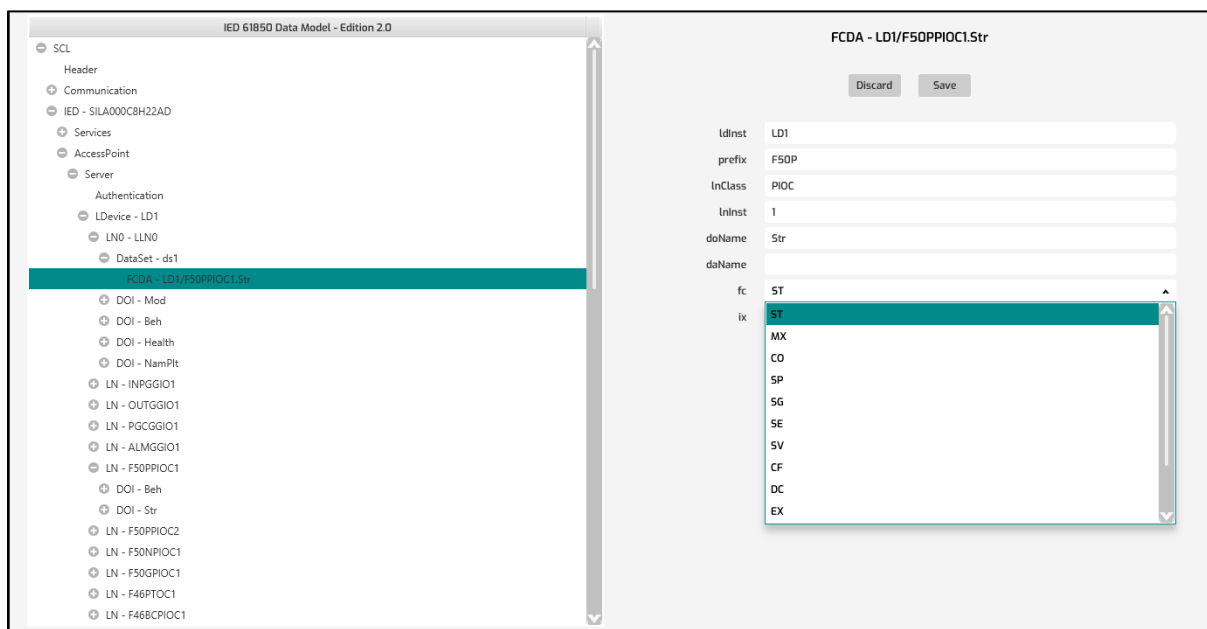


Figure 15 - Add fc to the FCDA object

Recommendations

When the FCDA element is too long and the “cvc-pattern-valid” message appears, click on the FCDA, and edit the *doName* field to a name with only one dot, putting the rest on the *daName* field.

For example, for inserting the current measurement of phase A:
LD1/MMXU1.A.phsA.instCVal.mag.f

Divide it as:

doName: a.phsA

daName: instCVal.mag.f

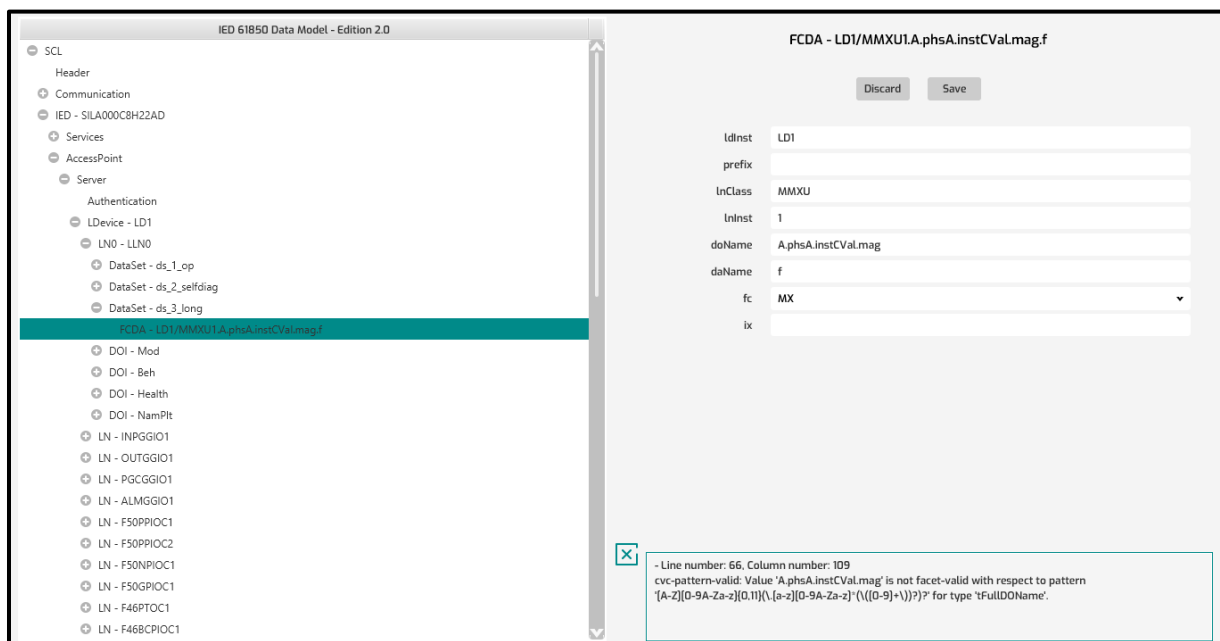


Figure 16 - cvc-pattern-valid message

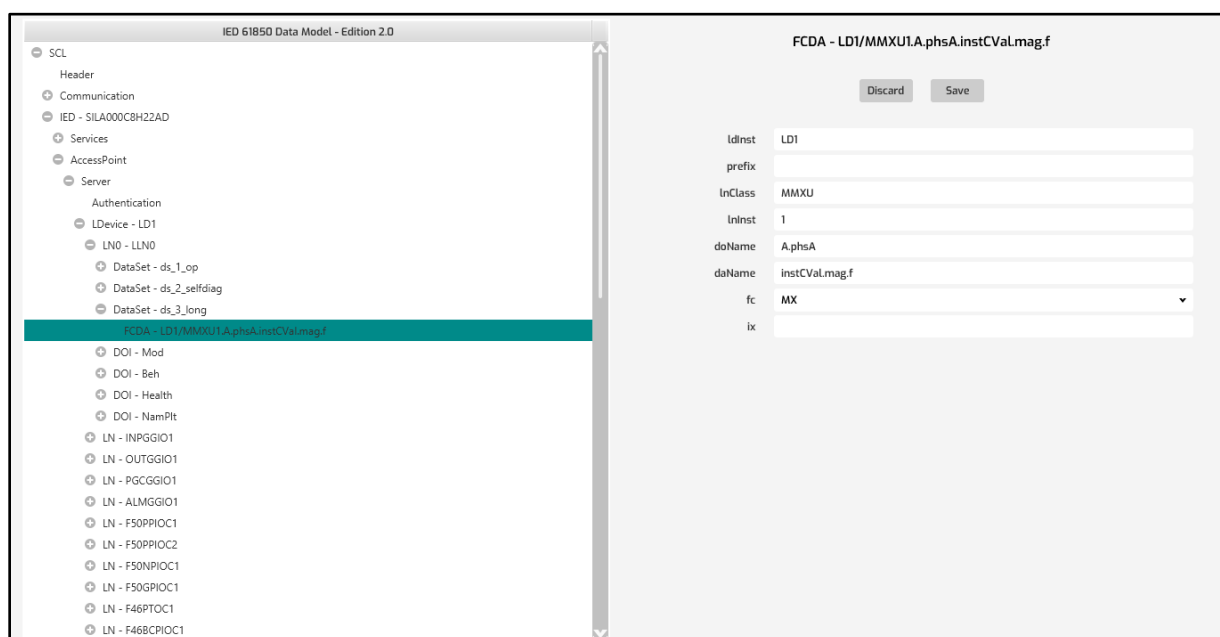


Figure 17 - cvc-pattern-valid message solution

7. Reports

Insert a report control block in the IED LLN0 node from the context menu

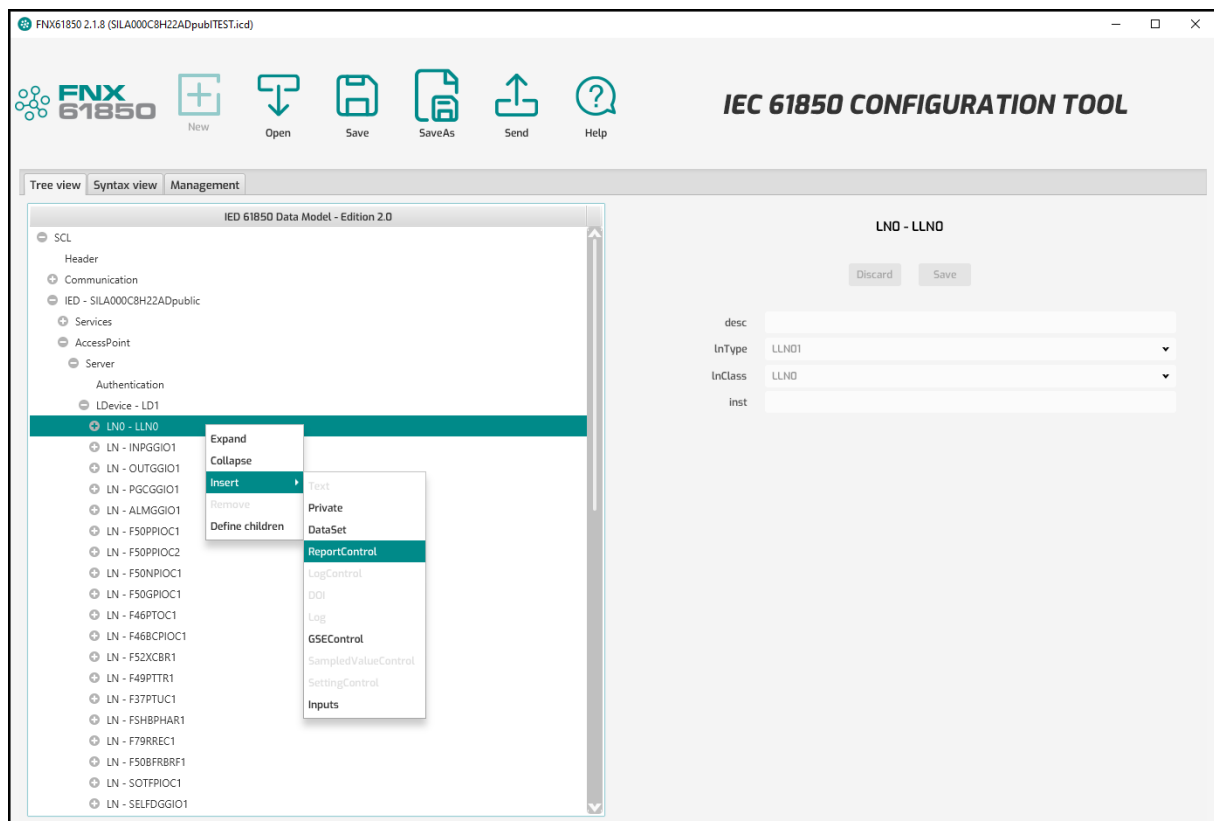


Figure 18 - Insert Report Control

Complete the required fields (confRev and name). Select from this screen also the DataSet to be sent, specify desired Integrity Period, and whether the report is buffered or unbuffered. Save the changes.

Right click on the report created and insert mandatory elements for the report: Trigger Options (TrgOps) and Option Fields (OptFields).

Trigger Option allows to set the situation in which the report will be sent.

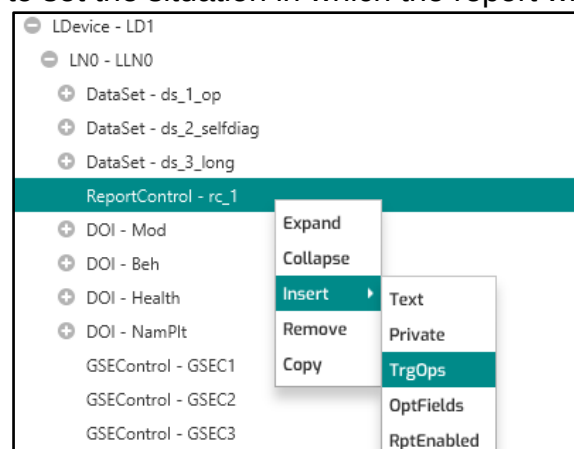


Figure 19 - Insert Trigger options.

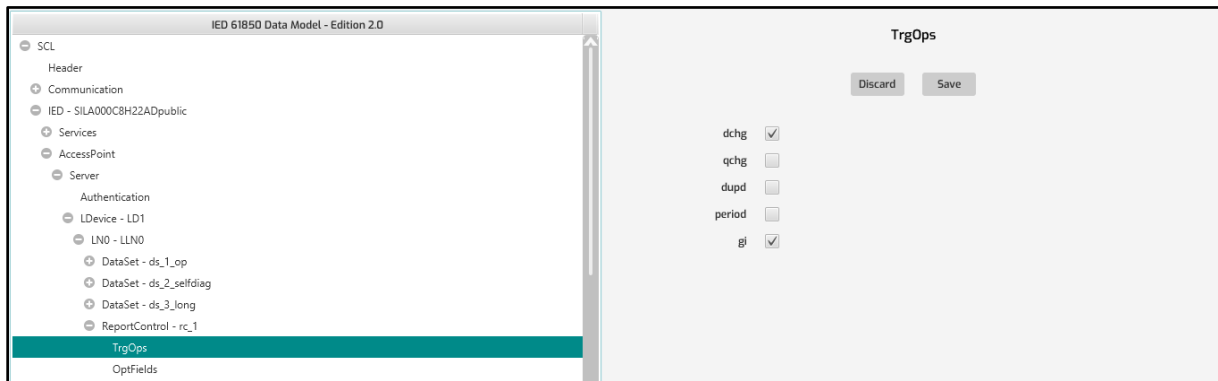


Figure 20 - Report trigger options selection

Option Fields allows to define additional fields that will be included in the report.

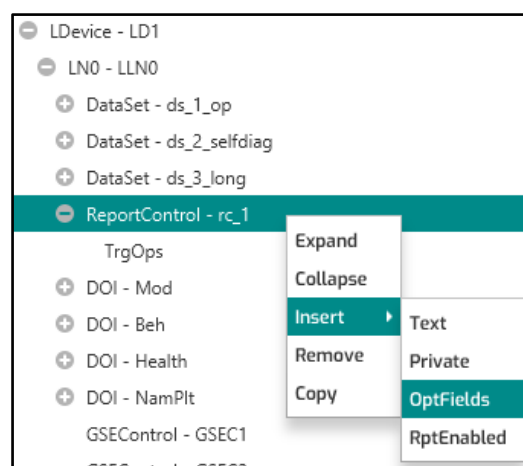


Figure 21 – Insert Optional Fields

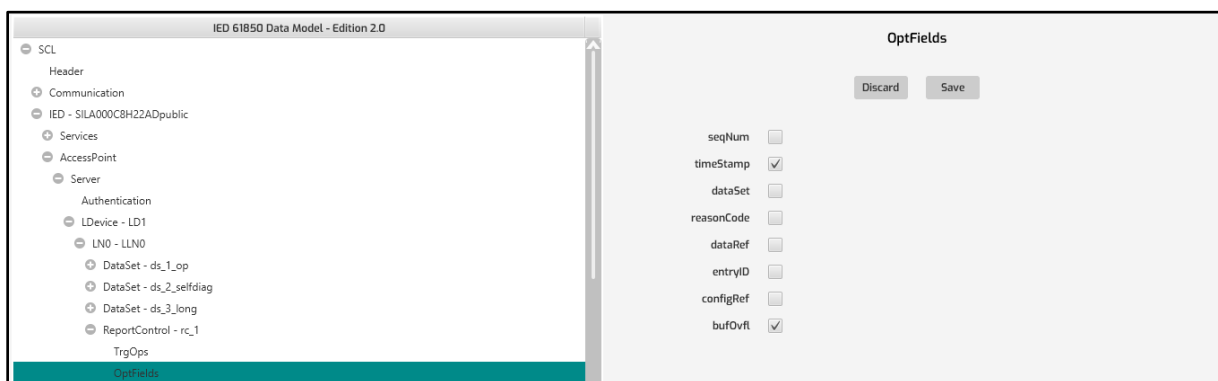


Figure 22 - Report optional fields

8. GOOSE Publisher

To define Goose subscription, click on LLN0 and add *GSEControl*, which defines published GOOSE message configuration.

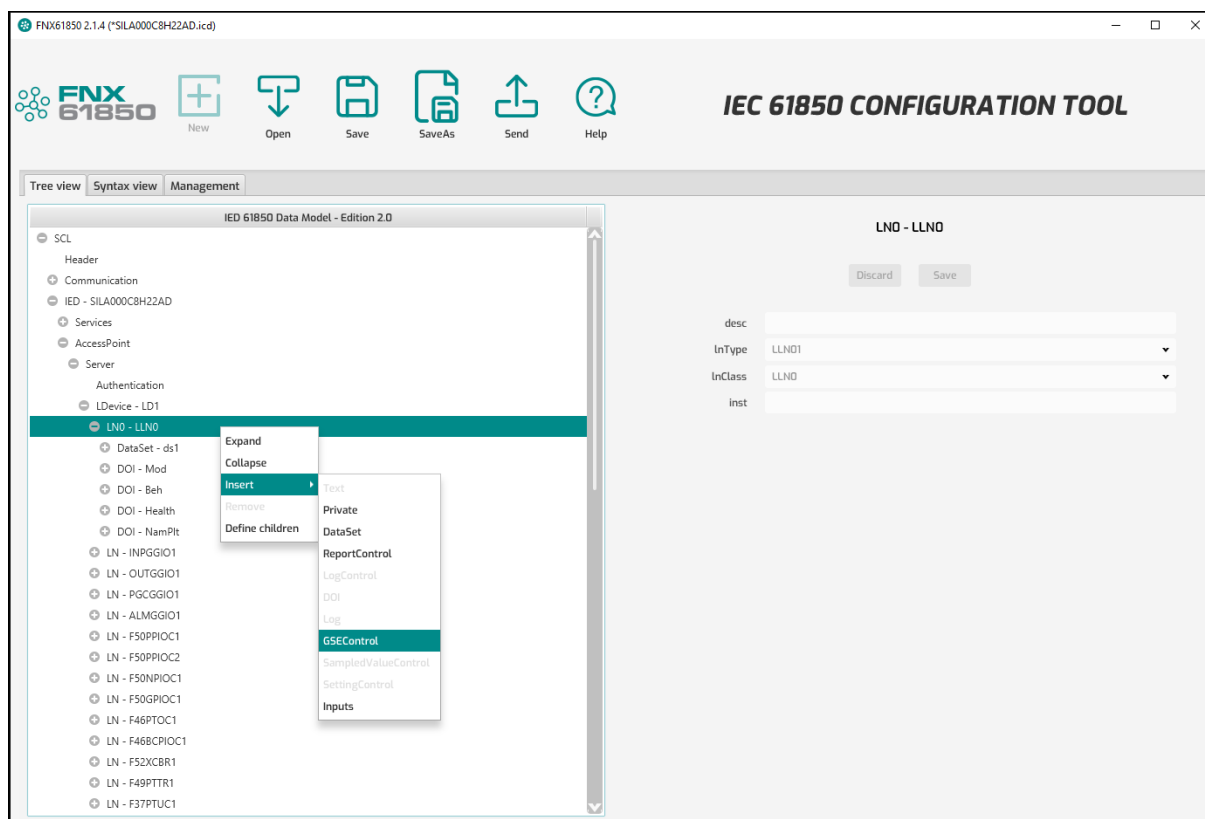


Figure 23 - Add GSEControl using context menu.

Complete the required fields (appID, name, datSet) and save changes. After saving, the newly added GOOSE will be available on the LLN0 tree.

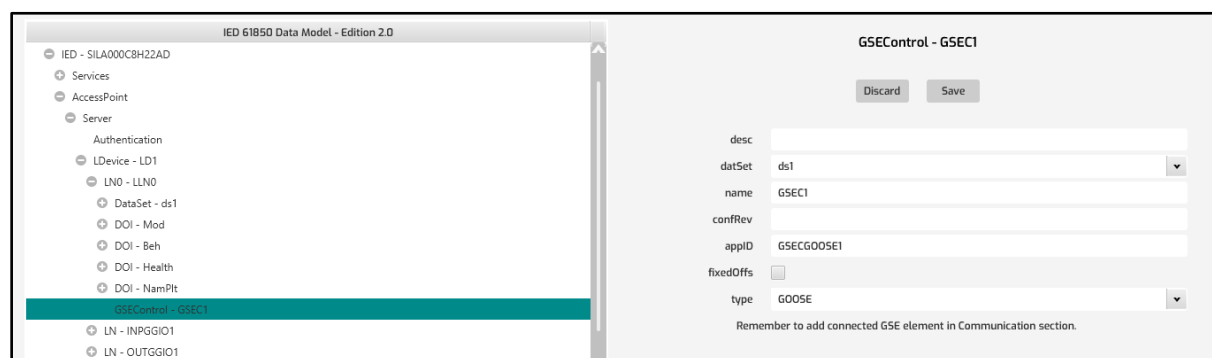


Figure 24 - GSEControl parameters

Now insert a GSE element in the communication section to define the GOOSE message attributes.

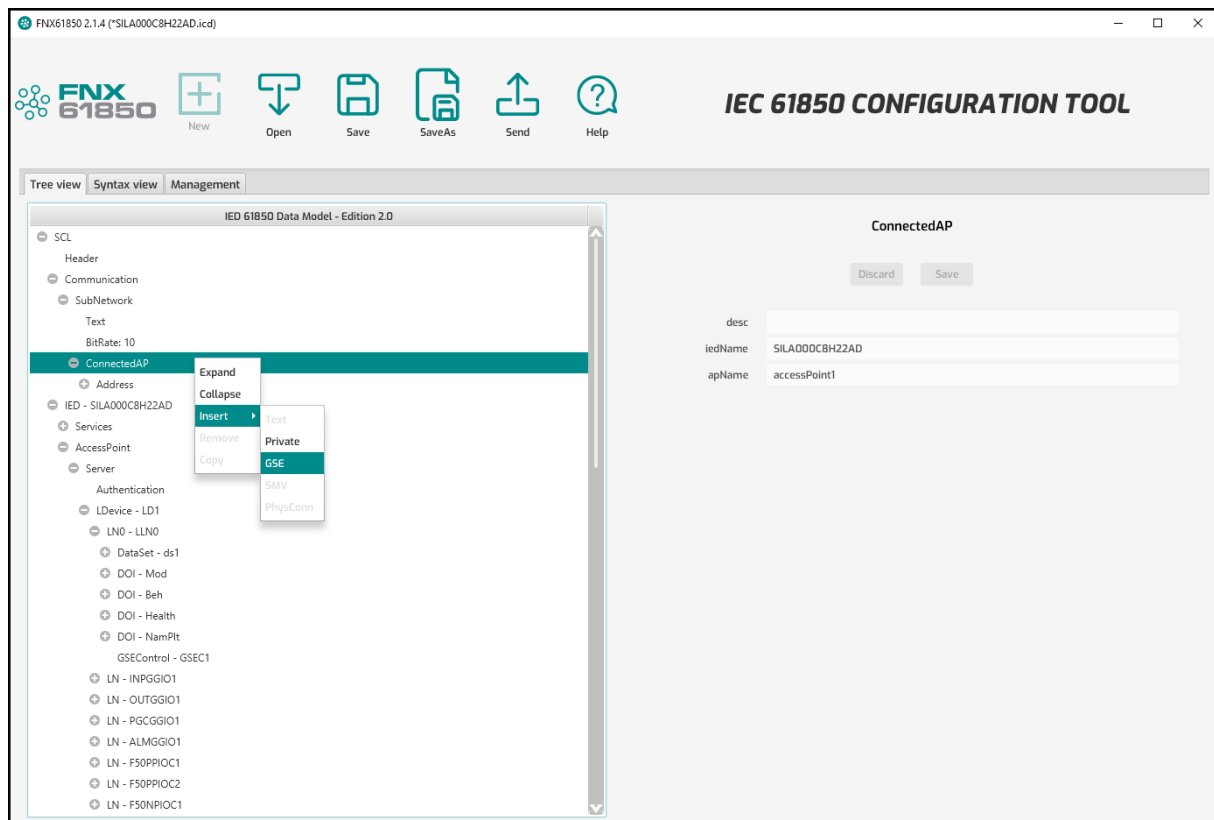


Figure 25 - Add GSE using context menu.

Complete the required fields and save changes (desc, IdInst, cbName)

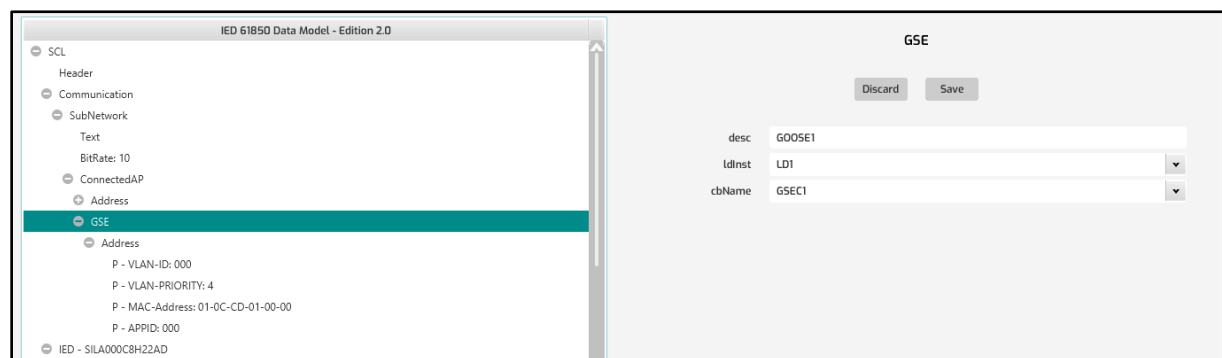


Figure 26 - GSE parameters and address tree

Open the tree to configure the addresses for the added GOOSE. Configure each parameter (VLAN-ID, VLAN-PRIORITY, MAC ADDRESS, APPID) and save changes after each change.

For the MAC Address, the last two digits can be modified: 01-0C-CD-01-XX-XX

Additionally, it can be inserted MinTime and MaxTime which define GOOSE sending times from the GSE context menu.

Goose Subscription

To define Goose subscription, click **GOOSE subscribe** on IED element context menu.

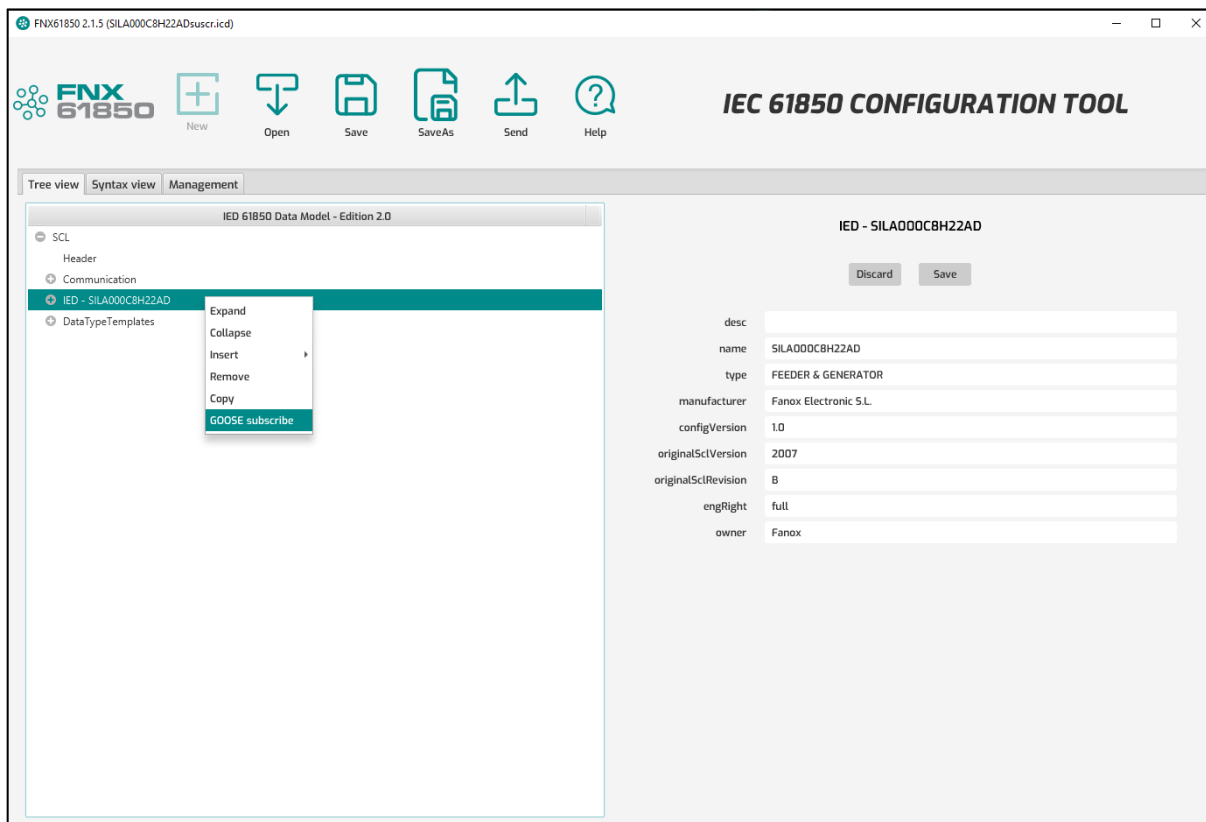


Figure 27 - GOOSE subscribe context menu.

It will open a new window to load a SCD file from the device the subscription will be made. Search for the file and click **Load button** to display data.

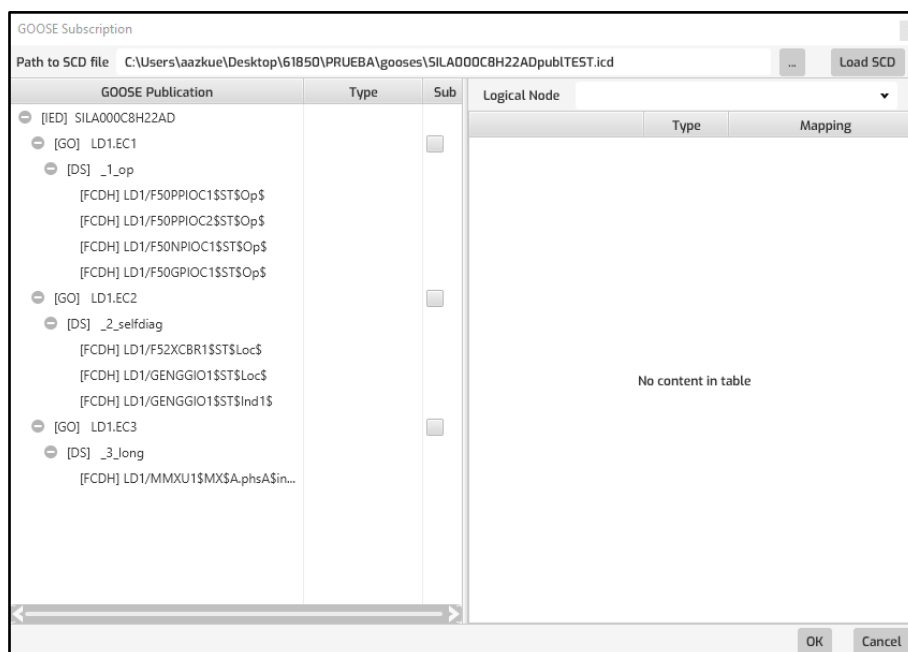


Figure 28 - SCD file loaded for GOOSE subscription.

After loading the file, all GOOSE publications will be displayed on the left side of the window. In the right part select **LD1/GINGGIO** to map the values obtained from GOOSE to the GOOSE related criteria on the relay. Use drag and drop mechanism to complete the mapping. Drag the GOOSE publisher item and drag it to the selected GOOSE Indication of GINGGIO node.

For example, in the next image GOOSE 2, with F52XCBR1 logical node, Loc attribute information from publisher IED, is mapped to Ind3 attribute of GINGGIO1 logical node of the subscriber IED.

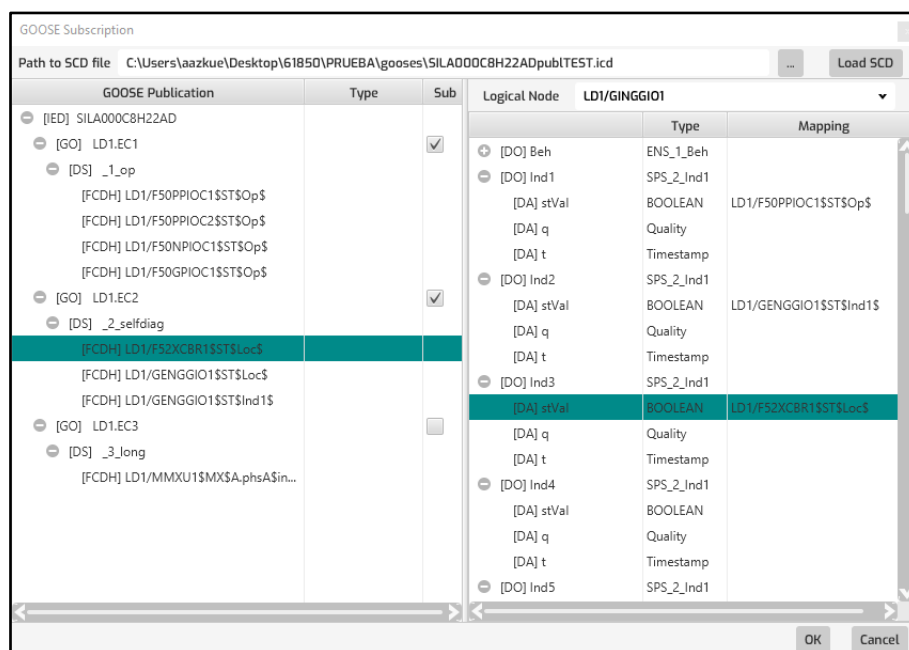


Figure 29 - GOOSE subscription mapping example

Select elements and click **Ok** button. Then the private section with goose subscription will be added to IED element. Click **Ok** button on the goose subscription change information screen.

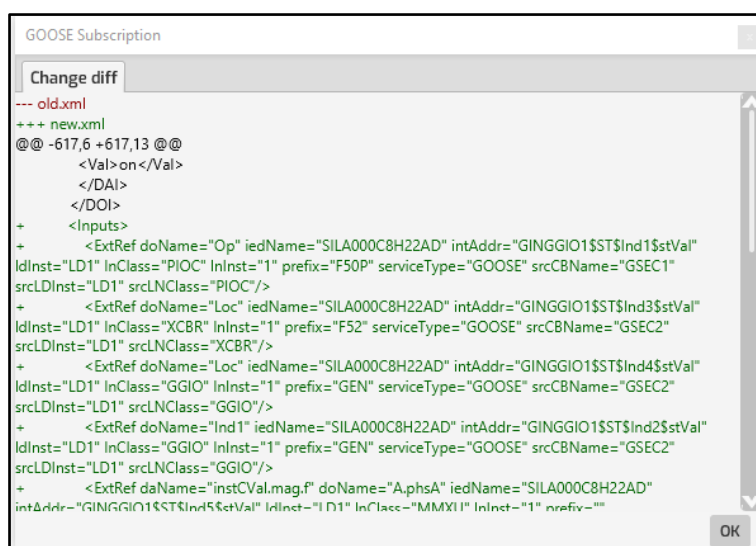


Figure 30 - GOOSE subscription change information screen

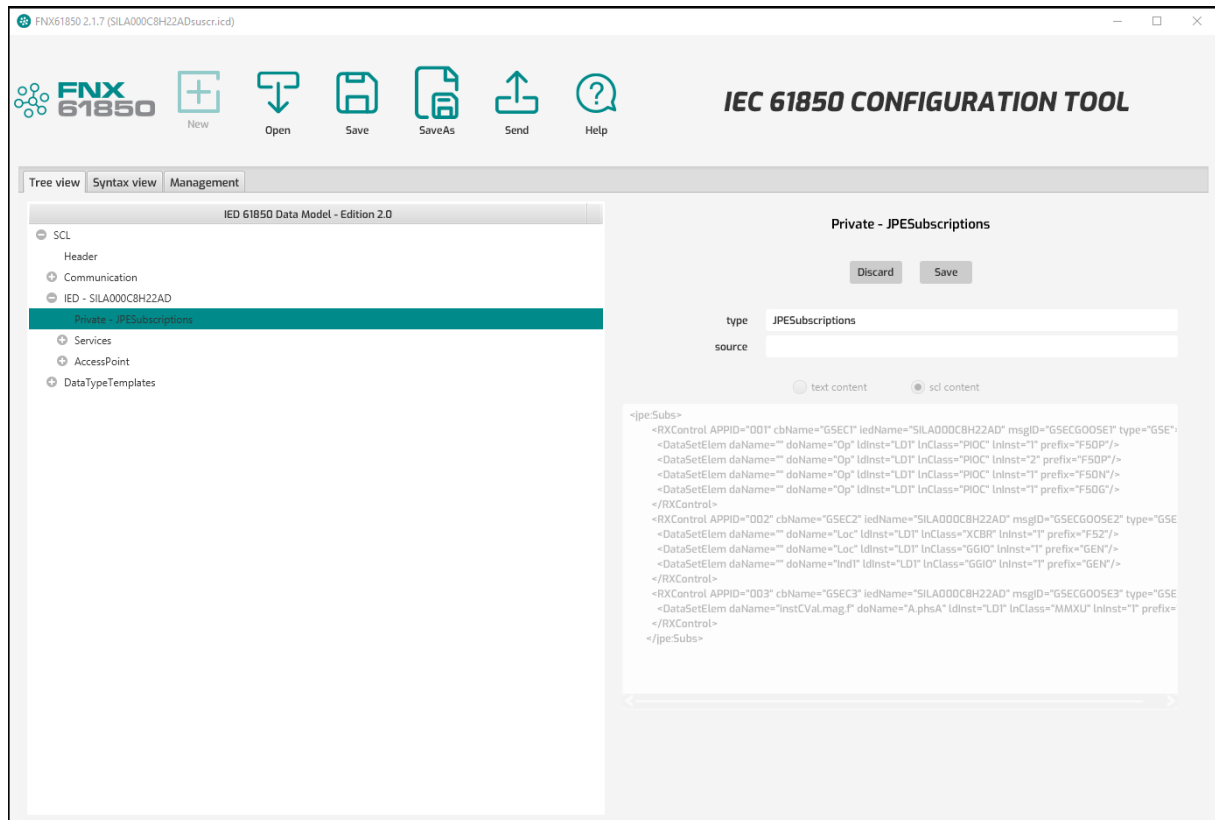


Figure 31 - GOOSE subscription private section added.

9. Upload SCL file

To upload the SCL file into the relay go to **Management** section.

Enter the IP of the relay in **IP ADDRESS** field and click **Send** button to complete the uploading process.

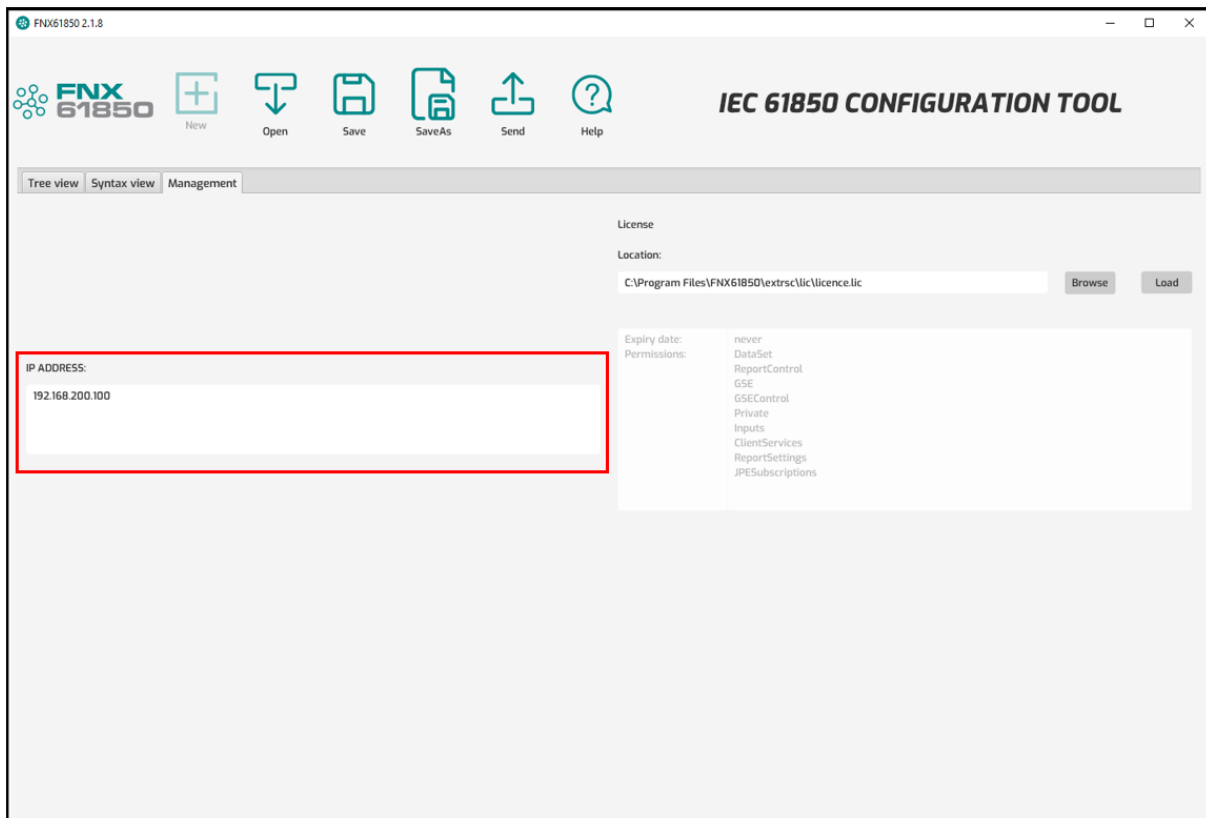


Figure 32 - Send SCL file to relay.

10. License

After the installation, execute the FNX61850 software and go to **Management** section. On the right side of the screen, choose the path to the license with **Browse** button. The license can be found on the installation path, on *FNX61850\extrsc\lic\licence.lic* path. After browsing the for the license click **Load** button. Information about license will be shown in the txt field below.

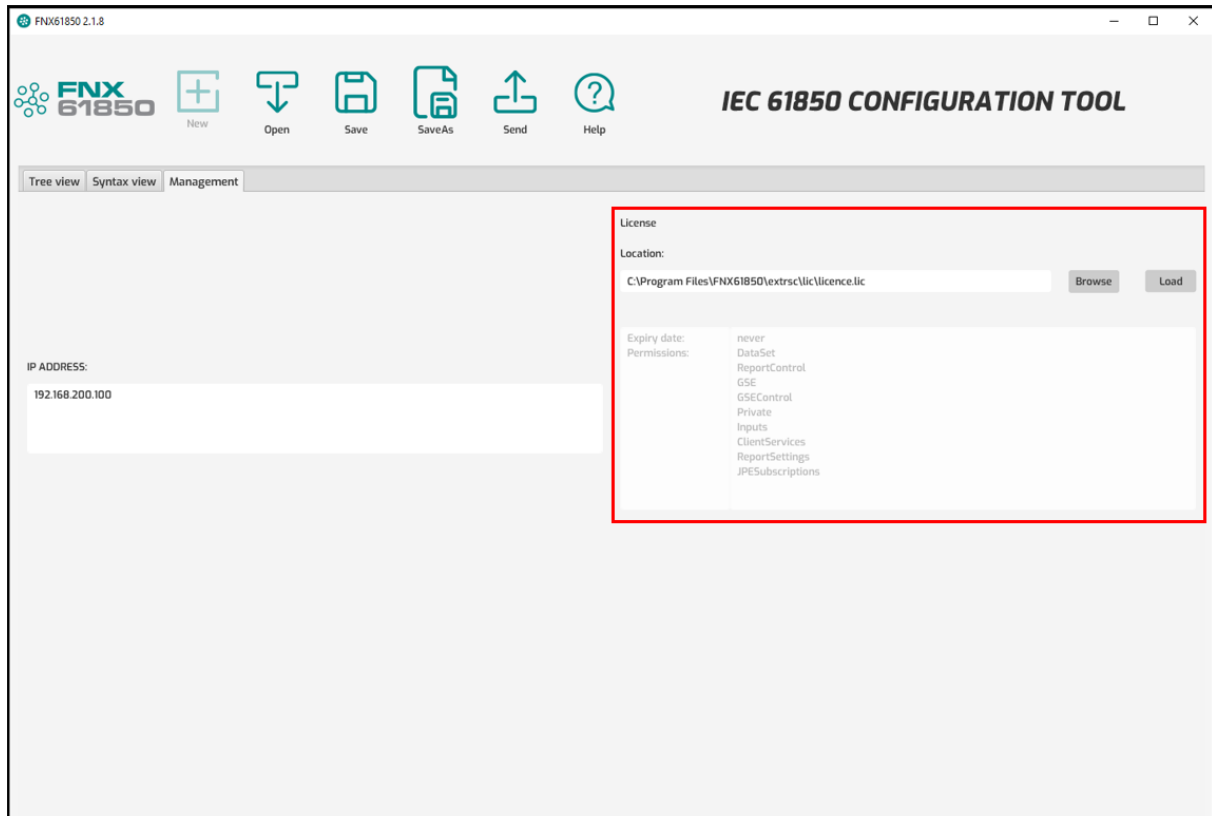


Figure 33 - License loaded.

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