

INSTRUCTION BOOKLET

AQtivate 300 IEC61850

configuration

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Changes	Updated GOOSE publisher chapter.

1 INTRODUCTION

This guide will show the basic steps on how to configure AQ300 series devices when it comes to IEC61850 communication. This document is applicable for all models in the AQ300 product family. AQtivate 300 software is needed to setup IEC61850 configuration. Some relay functions require the user to connect through “web server interface” which can be done with most web browsers (Internet Explorer, Firefox, Chrome, Opera). Contact Arcteq Relays to get the latest AQtivate 300 software.

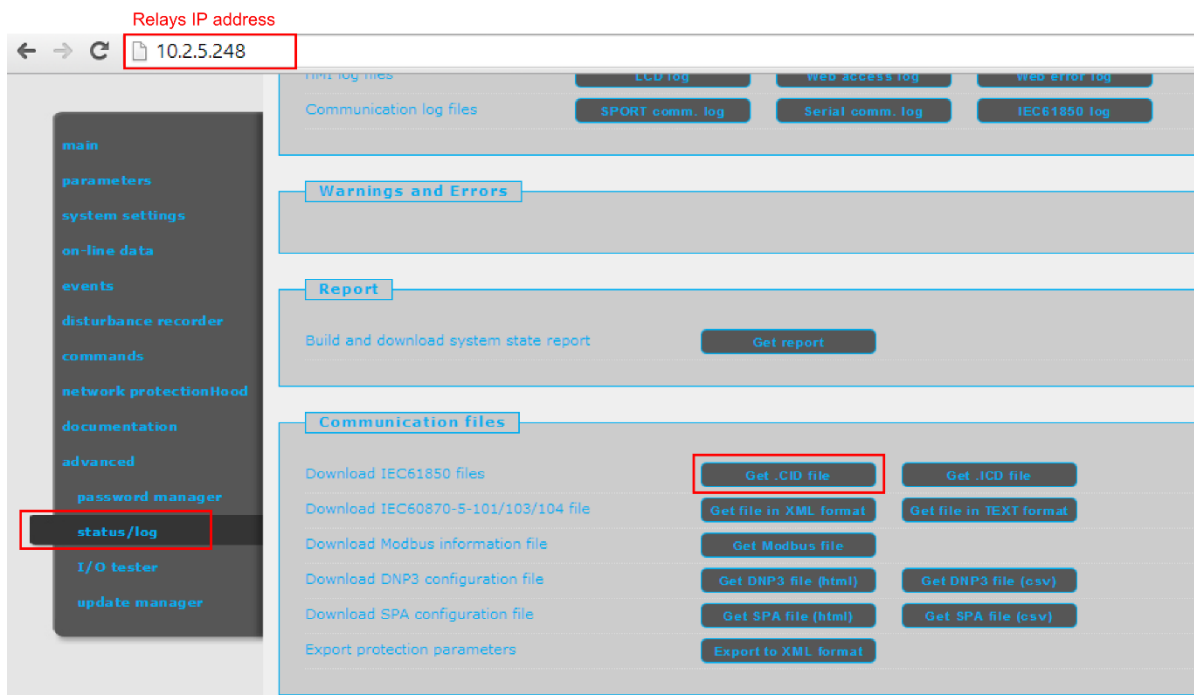
More detailed instructions of web server interface and AQtivate300 setting tool can be downloaded from Arcteq Relays website www.arcteq.fi.

2 WEB SERVER

AQ300 series relays have a web server interface which can be accessed via web browser. Open your web browser (Mozilla Firefox, Google Chrome, Internet Explorer etc.) and enter the IP address of the relay into the URL bar.

2.1 DOWNLOADING CID-FILE

CID-file can be downloaded under **Advanced** → **Status/log** menu by clicking **Get .CID-file**.



2.2 ENABLING IEC61850

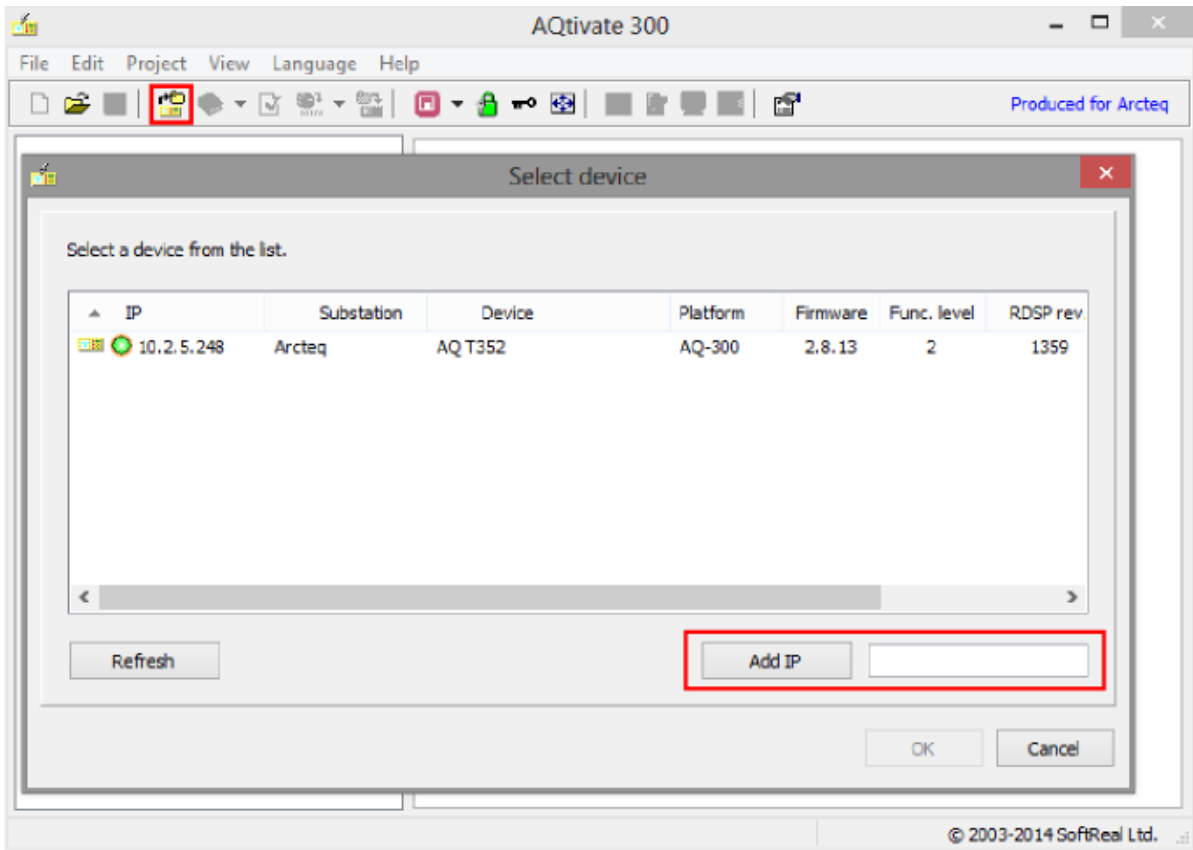
For IEC61850 to be functioning in the AQ3xx series relay you must enable it. See picture below. This is the only step needed to get IEC61850 started in the device. After this it is possible to connect to the device using an IEC61850 client. (As long as IP address information is setup).

The screenshot shows the 'Settings' interface. On the left is a sidebar with menu items: main, parameters, system settings (highlighted), on-line data, events, disturbance recorder, commands, network protectionHood, documentation, and advanced. A 'Set settings' button is at the bottom of the sidebar. The main area has buttons for 'Expand all', 'Collapse all', and 'Print'. Below these are expandable sections: '[+] System parameters', '[+] Station bus settings', and '[-] Ethernet comm.'. The 'Ethernet comm.' section contains a table with the following data:

	Device value	New value
IEC61850 enabled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
GOOSE repeat rate	5 sec	5 sec
IEC104 enabled	<input type="checkbox"/>	<input type="checkbox"/>
Modbus TCP enabled	<input type="checkbox"/>	<input type="checkbox"/>
DNP3 TCP enabled	<input type="checkbox"/>	<input type="checkbox"/>

3 AQTIVATE300-SOFTWARE

To get the configuration from an AQ300 device open the AQtivate300 software and press **Upload** button. A list of devices in the network will appear. Sometimes your computer may not find the relays in the network. In these cases insert the IP address manually.



It is advised to always log into **Master view** as it is required to do any sort of changes to configurations. Press the green lock to open and a view selection will appear.

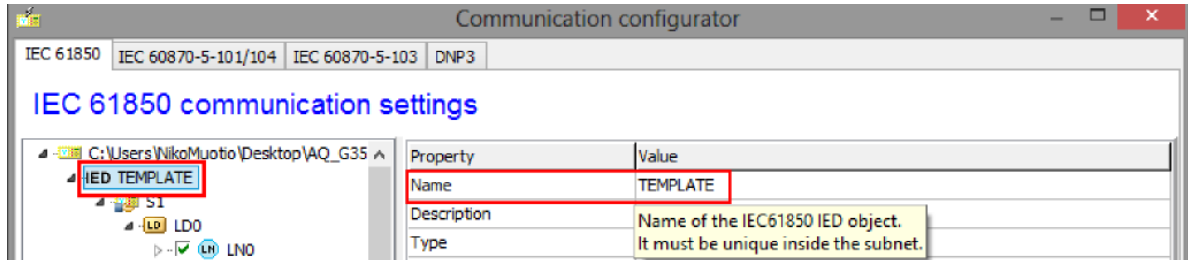
3.1 COMMUNICATION CONFIGURATOR

IEC61850 configuration can be opened with the **Communication Configurator**.



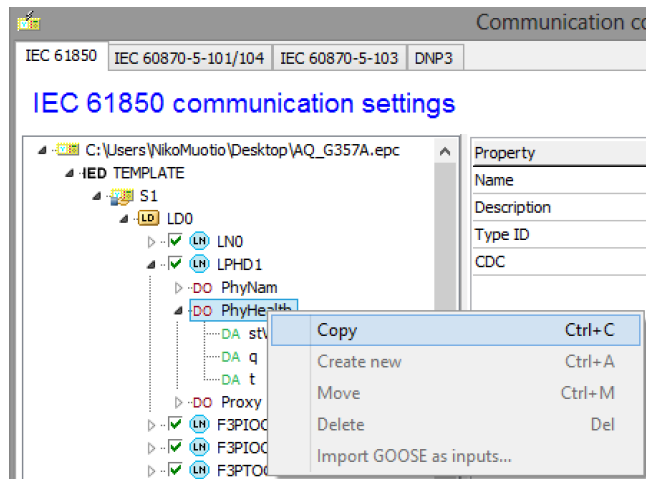
3.1.1 IED NAME

Relays IEDNAME must be set as a unique name in the system.

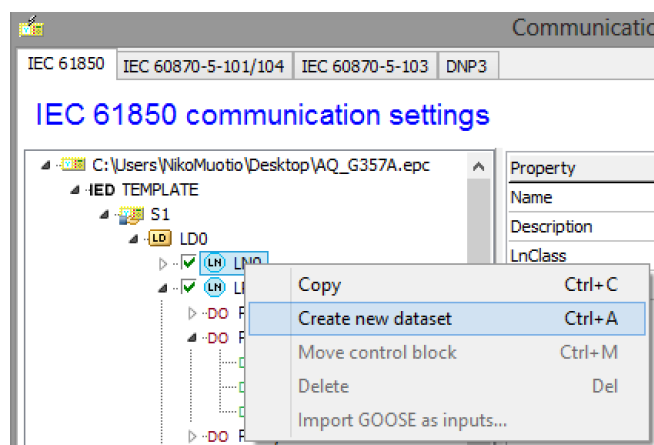


3.1.2 ADDING A DATASET

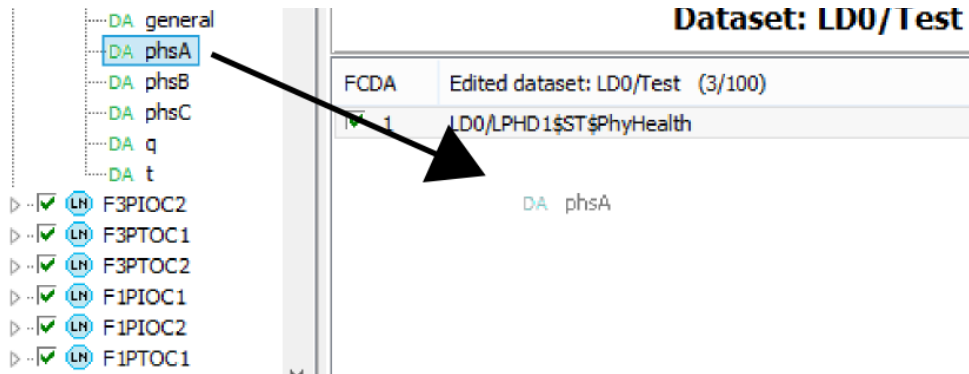
To make a new dataset copy a data object you want to include in the new dataset.



Then right click on LNO and choose **Create new dataset**.

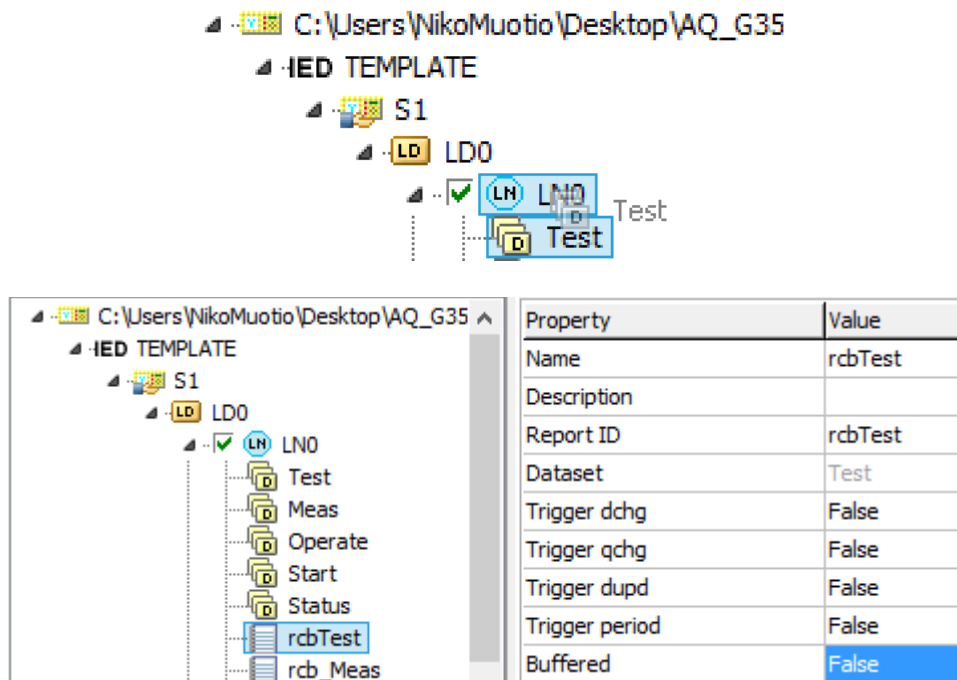


After that it is possible to rename the dataset and start including other objects in it with drag-and-drop. When you want to add objects to a dataset click the dataset and then drag and drop the wanted objects into the box in bottom right corner.



3.1.3 ADDING A REPORT CONTROL BLOCK

To link the just added dataset to a report control block, drag the dataset onto LNO. After this you can rename the RCB and make choice if it is going to be buffered or unbuffered.



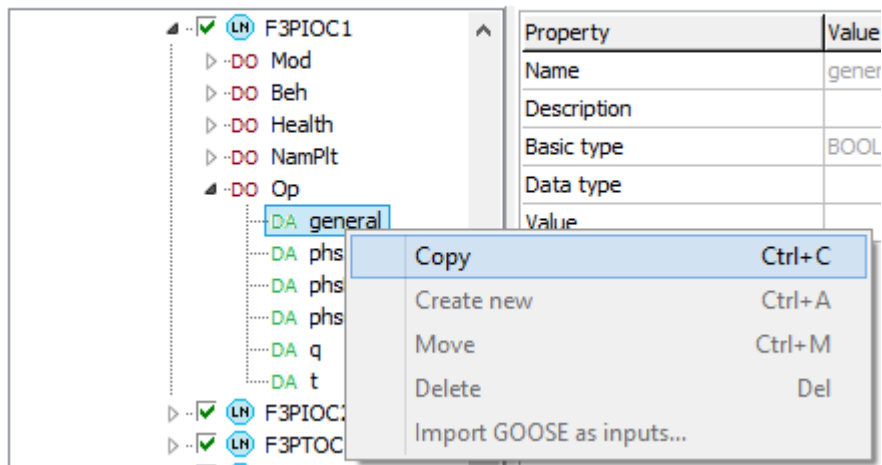
Server collects, buffers and reports buffered control blocks information even if there is no subscription from the client. Unbuffered report control block reports only when there is a subscription from the client.

3.2 GOOSE PUBLISHER

To make a GOOSE control block for publishing with linked dataset follow the same steps as for making a new dataset. Just remember to add items to the dataset on Data Attribute level and include **GOOSE** in the dataset name.

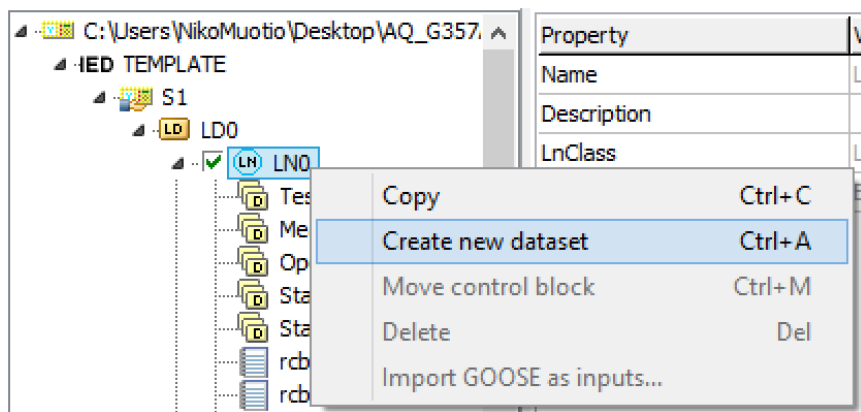
Copy the first signal on **Data Attribute level**.

IEC 61850 communication settings



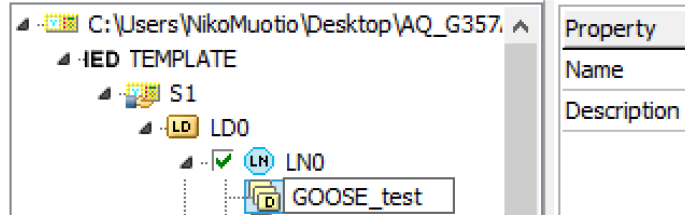
Create new dataset by right clicking on LN0 and **Create new dataset**.

IEC 61850 communication settings



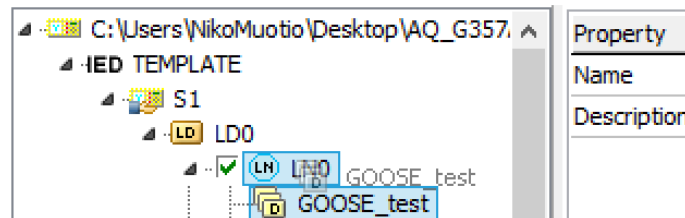
Give a name for the new dataset (include “GOOSE” in the name).

IEC 61850 communication settings

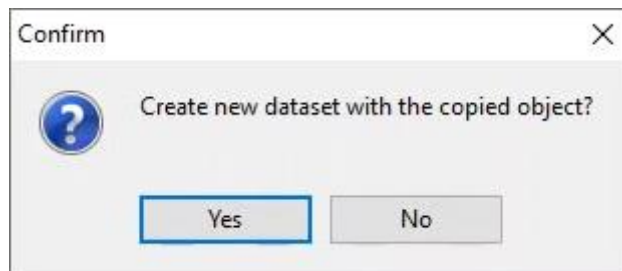


Drag the GOOSE dataset to LN0.

IEC 61850 communication settings



Deny the first request.

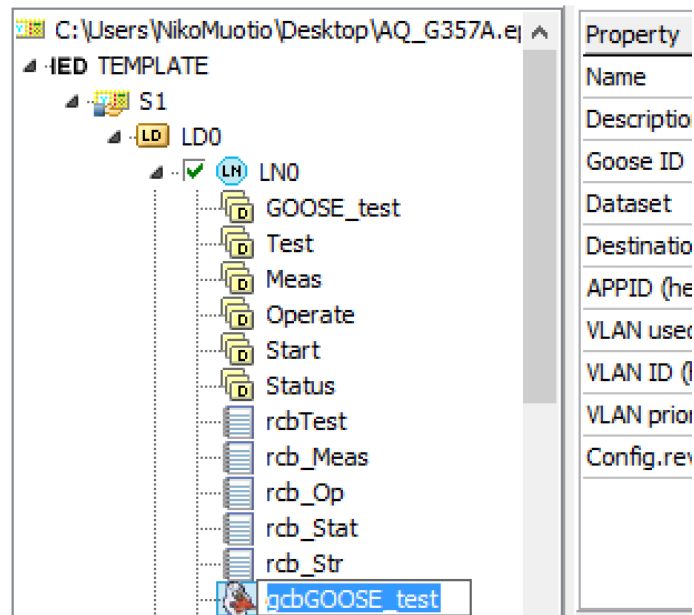


Accept the second request.

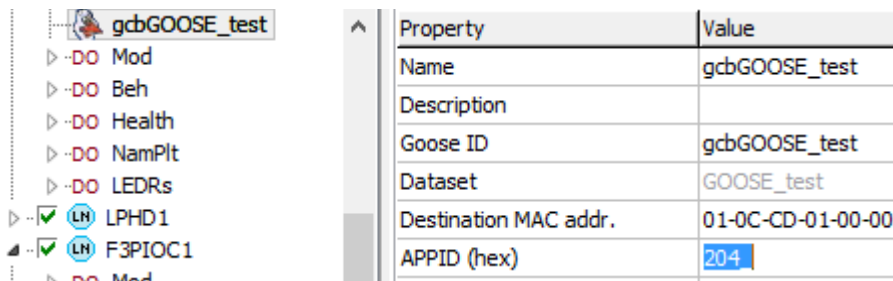


Give the GOOSE publisher a name.

IEC 61850 communication settings

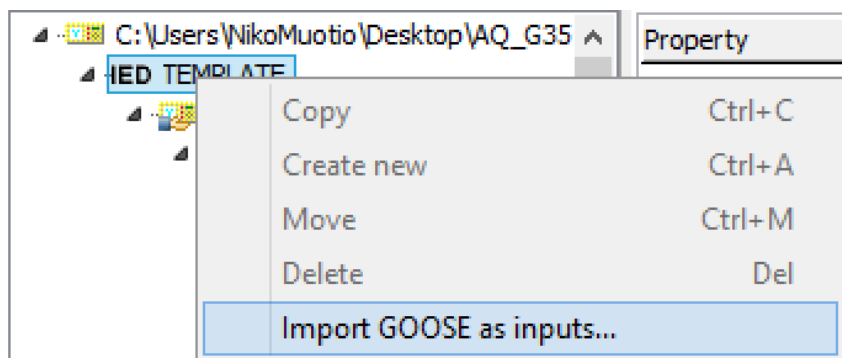


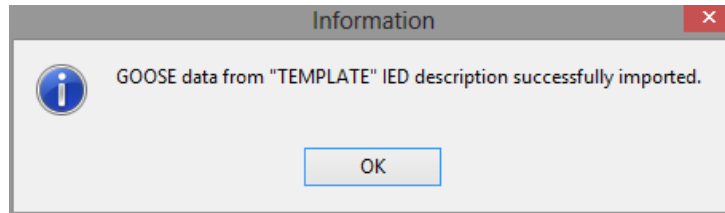
In the control APPID needs to be set as a unique number. Please note that the number will be hexadecimal.



3.3 GOOSE SUBSCRIBER

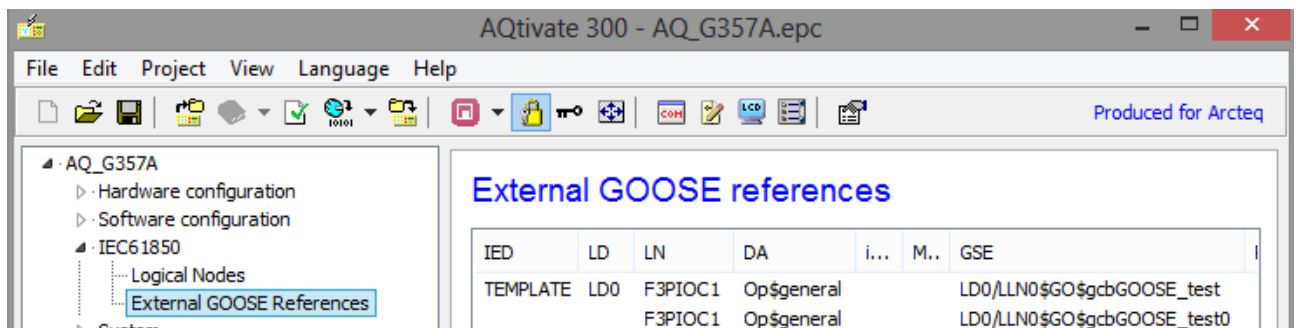
To configure GOOSE subscriber you have to import a .cid file from device with GOOSE publisher. This is done by right clicking on the IED level in the tree.



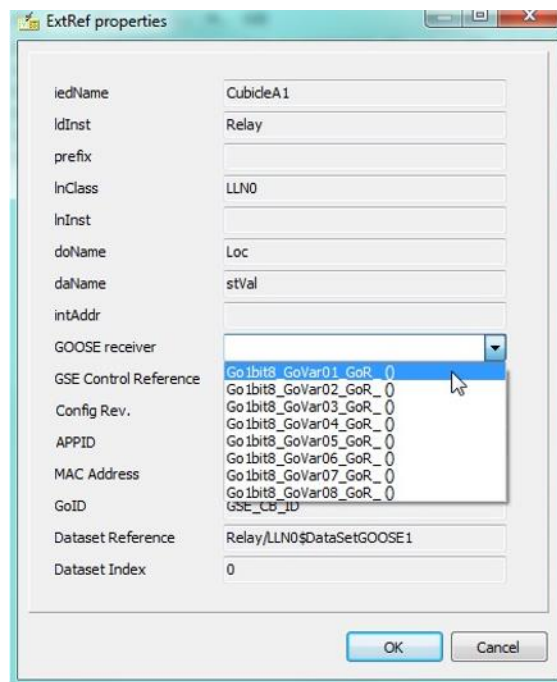


After this you can close the Communication Configurator and continue in the setting tool.

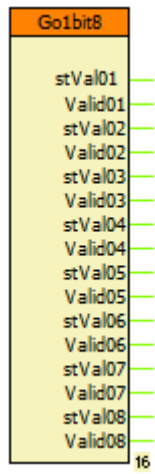
The subscribed data must be linked in the relay configuration. This is done by opening the IEC61850 and the External GOOSE References in the tree on the left side and double-clicking on the data you wish to link.



In the ExtRef properties you select to which of the 8 1-bit GOOSE inputs of the GOOSE input function block you like to link the data. Later the outputs from this function block can be used in the relay configuration.



GOOSE subscriber function block in the logic editor.



4 REFERENCE INFORMATION

Manufacturer information:

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