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Relion. Thinking beyond the box.

Designed to seamlessly consolidate functions, Relion relays are smarter, more flexible and more adaptable. Easy to integrate and with an extensive function library, the Relion family of protection and control delivers advanced functionality and improved performance.

ABB Protective Relay School Webinar Series

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ABB Protective Relay School Webinar Series

Introduction to PCM600

Jared Gregory

8-13-2015

Power and productivity
for a better world™

Presenter

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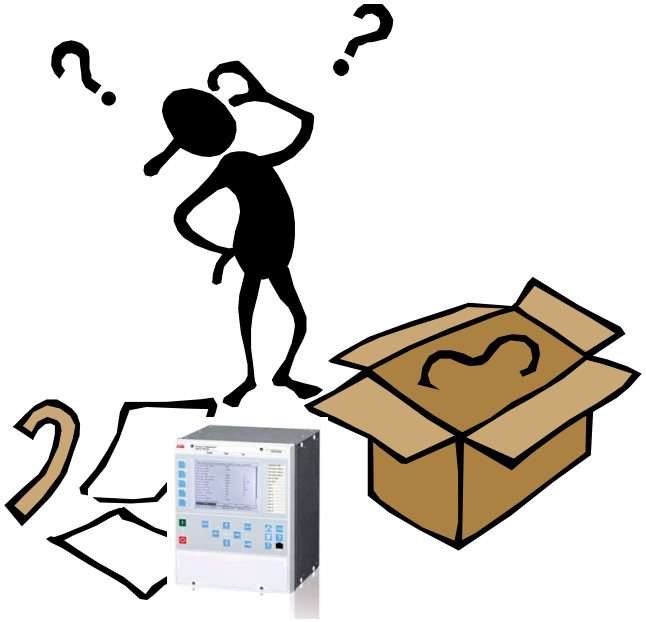
Learning objectives

This webinar will cover the use of the PCM600 software to configure the Relion relays.

- Introduction
- PCM600
- Application Configuration Tool
- Parameter Setting Tool
- Graphic Display Editor
- IEC61850
- Questions

Introduction
Overview



PCM600

- Configure ABB relays
- Interact with ABB IED's
- Build systems
- Communications
- Project Management
- And much more…

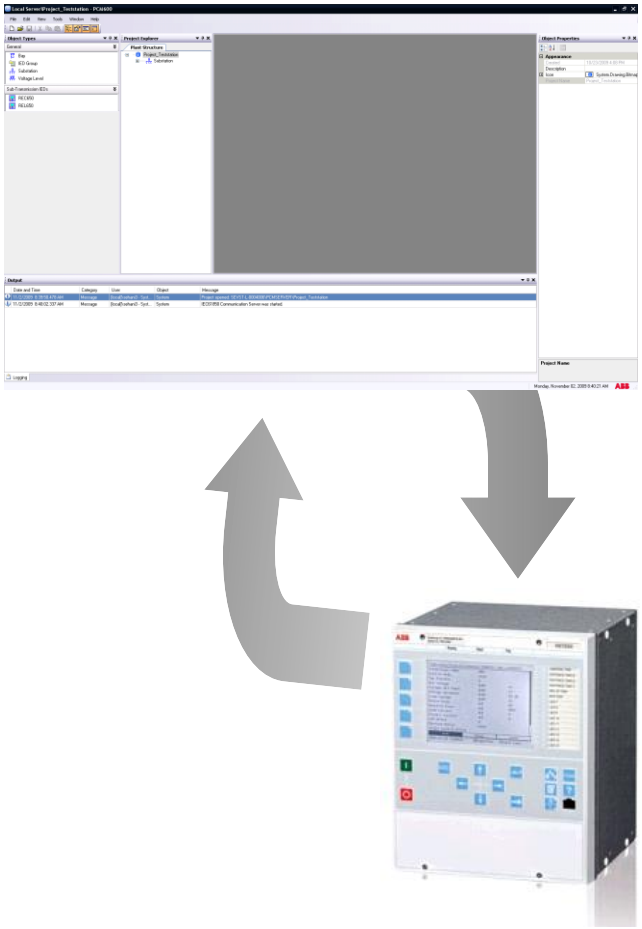
"That sounds simple…so I should be able to just download PCM600 and begin configuring a relay?"

Introduction
Overview

PCM600 components

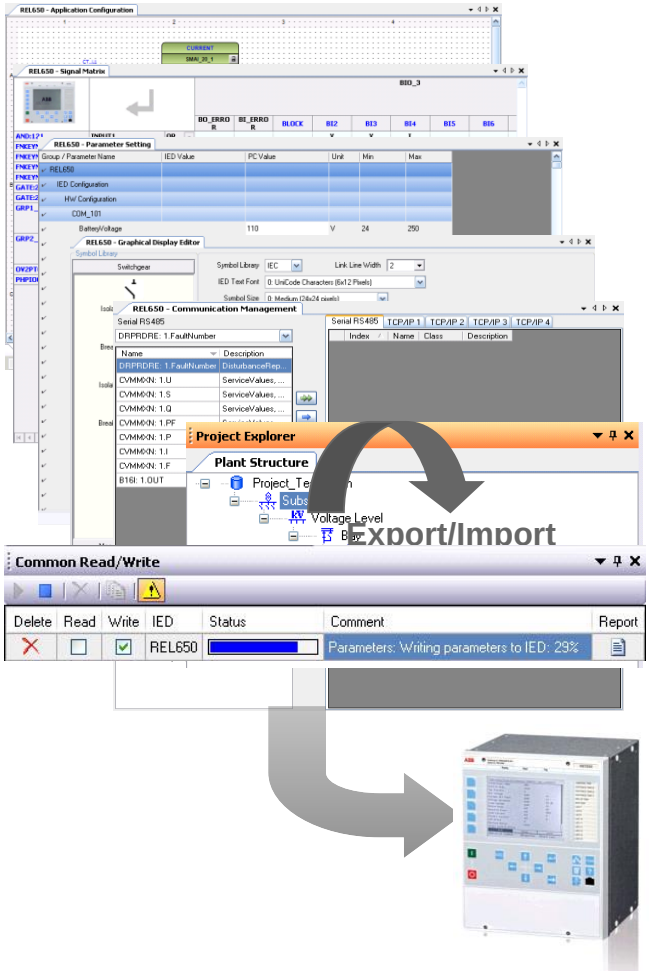
- IED connectivity packages
  - Enables support for specific IED series in PCM600
  - Contains “IED modules” for specific IED types and versions
- Communication connectivity packages
  - Enables support for different communication protocols in PCM600 (communication between PCM600 and the IED)
- These packages can be found in the Update Manager which is downloaded whenever PCM600 is installed

Introduction
Overview



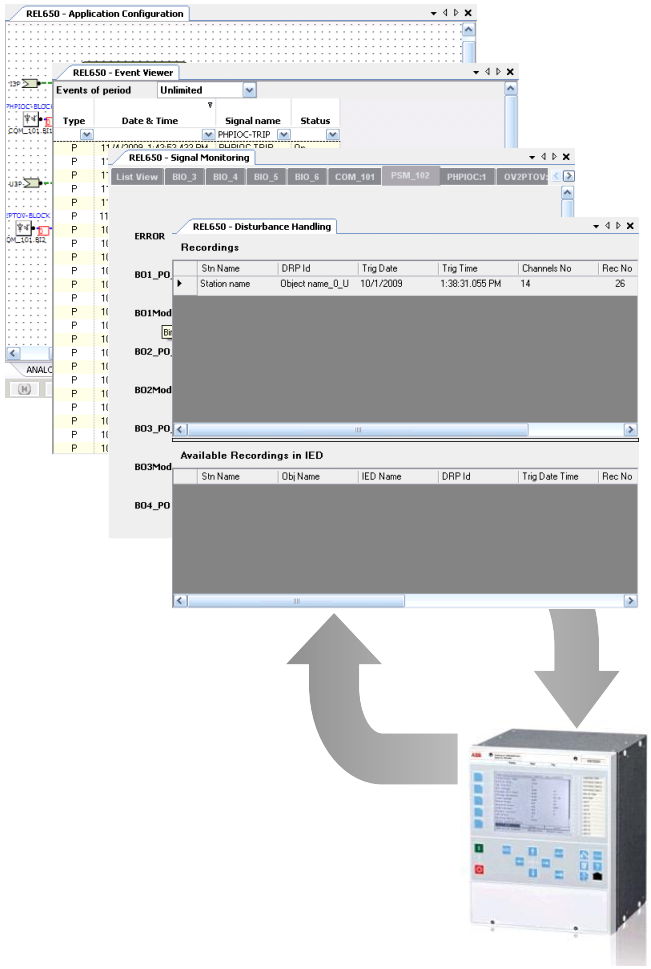
- PCM600 2.6 together with the 650/670 series includes
  - Engineering tools
  - Monitoring tools
  - Project Tools

Introduction
Engineering Tools



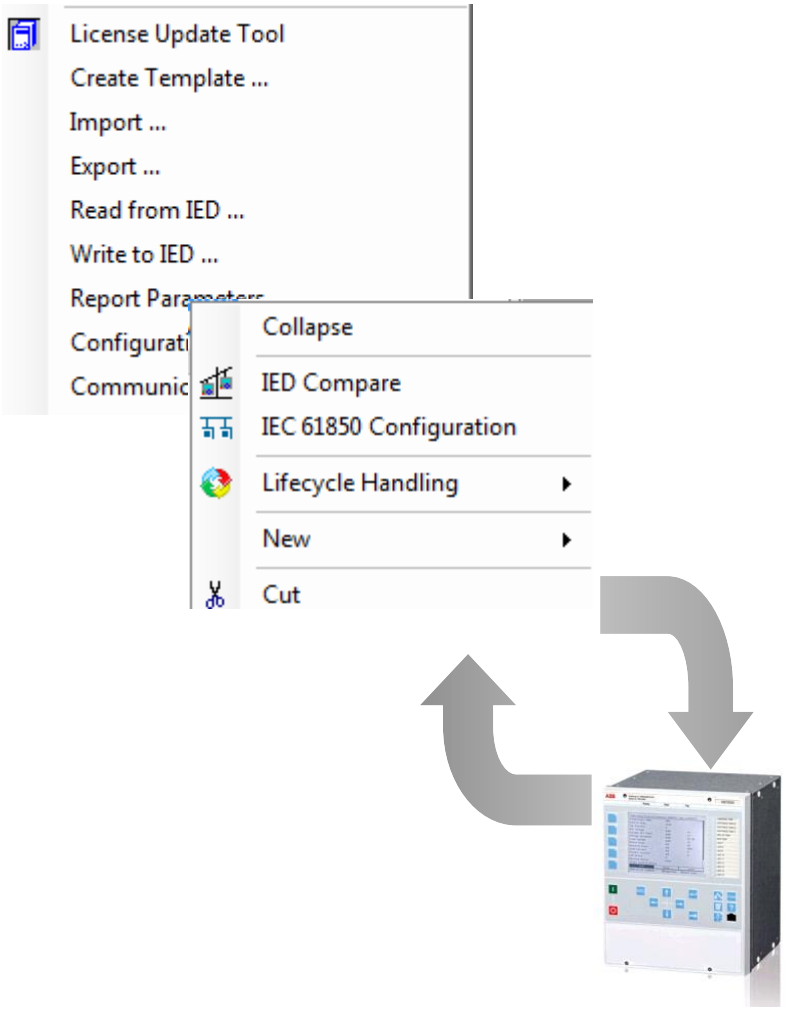
- Hardware Configuration
- Application configuration
- Signal matrix
- Parameter setting
- Graphical display
- Communication management
  - DNP 3.0
- IEC61850 Configuration Tool
- Communication PCM600/IED
  - Common Read/Write Tool
  - Read/Writes all configuration data with one mouse-click

Introduction
Monitoring Tools



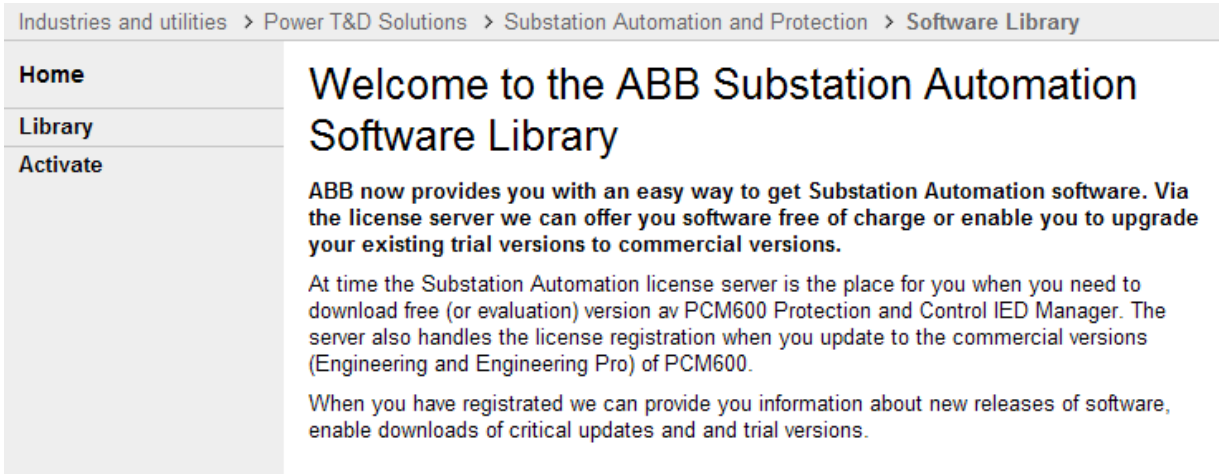
- ACT online monitoring
- Event viewer
- Signal monitoring
- Disturbance handling

Introduction
Project Tools



- Import/Export
- Read/Write to Relay
- License Update Tool
- IED Compare

Introduction
Downloading Software

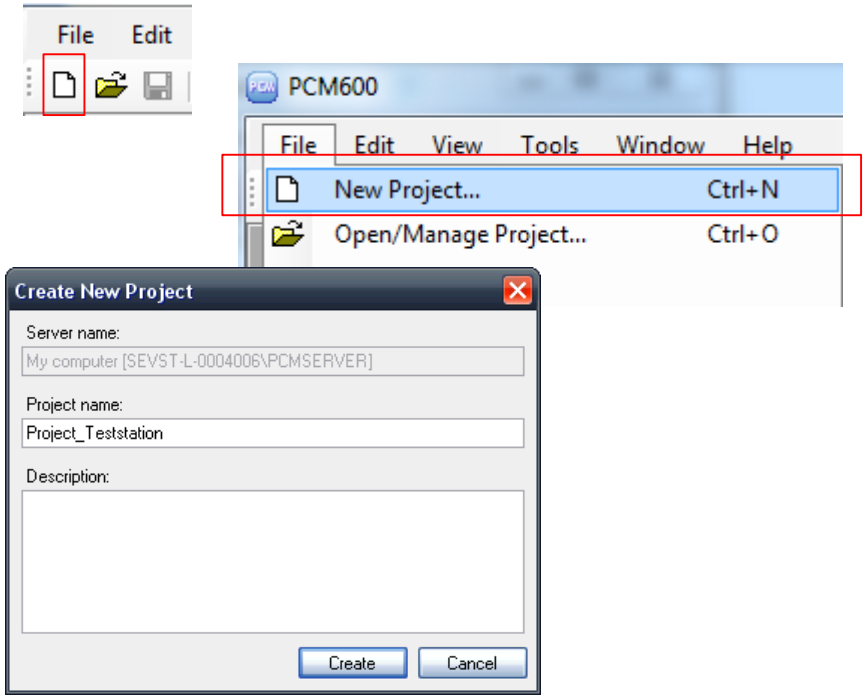


- Current Version: PCM600 v2.6 – No License Necessary
- Software managed by “ABB Substation Automation Software Library”.
  - To access the Software Library, go to https://www143.abb.com/SoftwareLibrary
  - Need to register as a user and create an account

Agenda

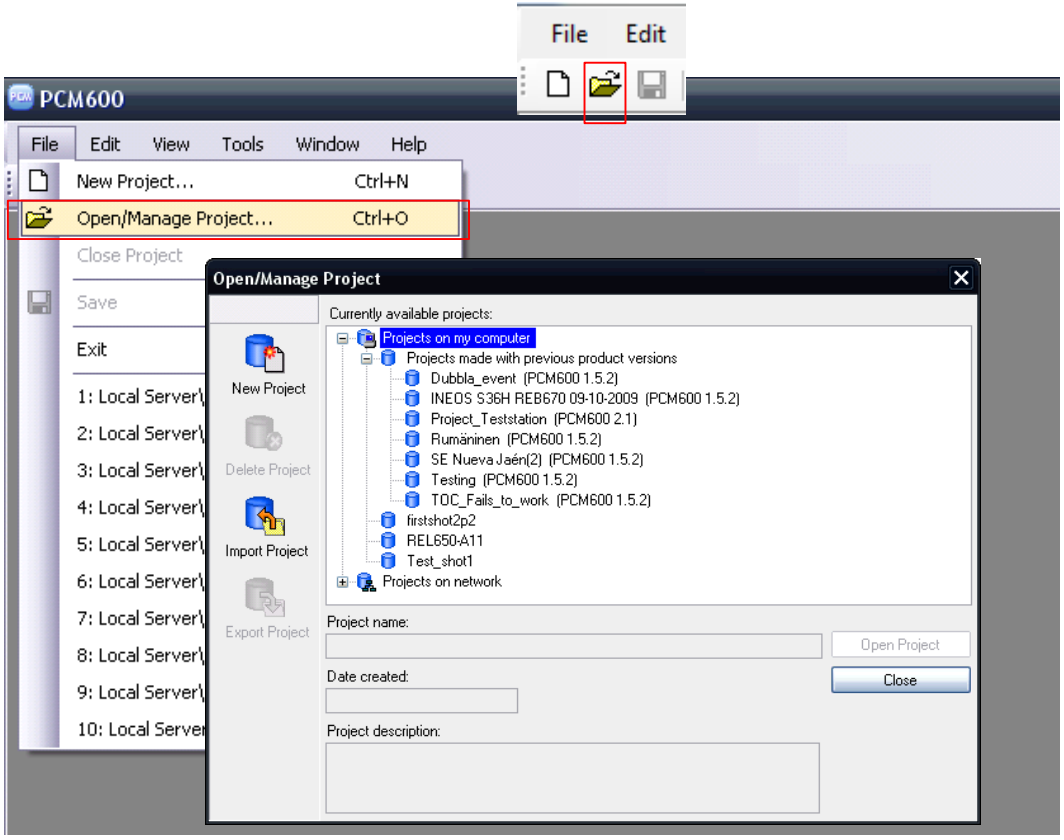
- Introduction
- PCM600
- Application Configuration Tool
- Parameter Setting Tool
- Graphic Display Editor
- IEC61850
- Questions

PCM600
Create a New Project



- Create New Project
  - As name suggest, only provides the option to Create a New Project.
  - Entry Fields
    - Project Name
    - Description

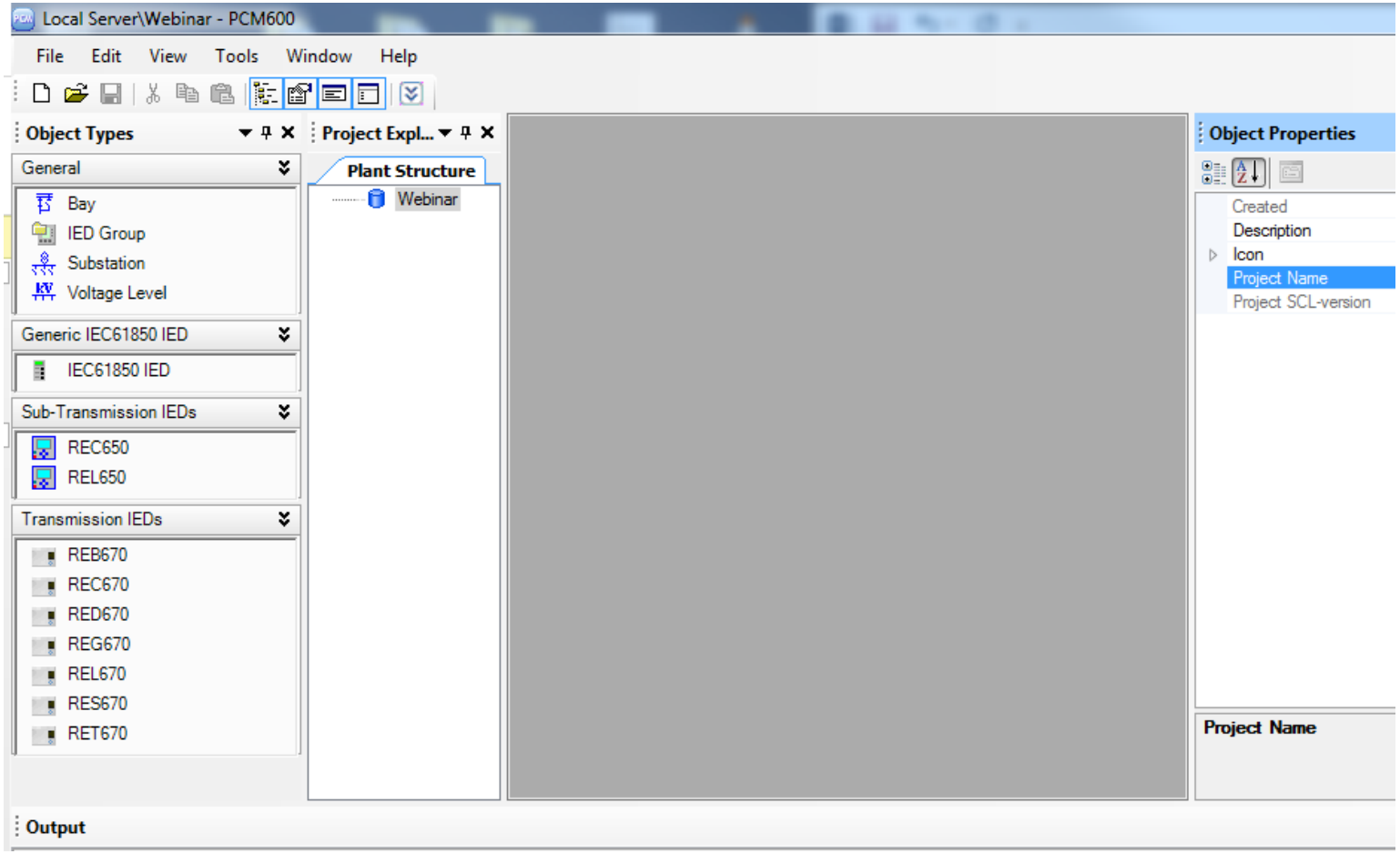
PCM600
Open/Manage Project



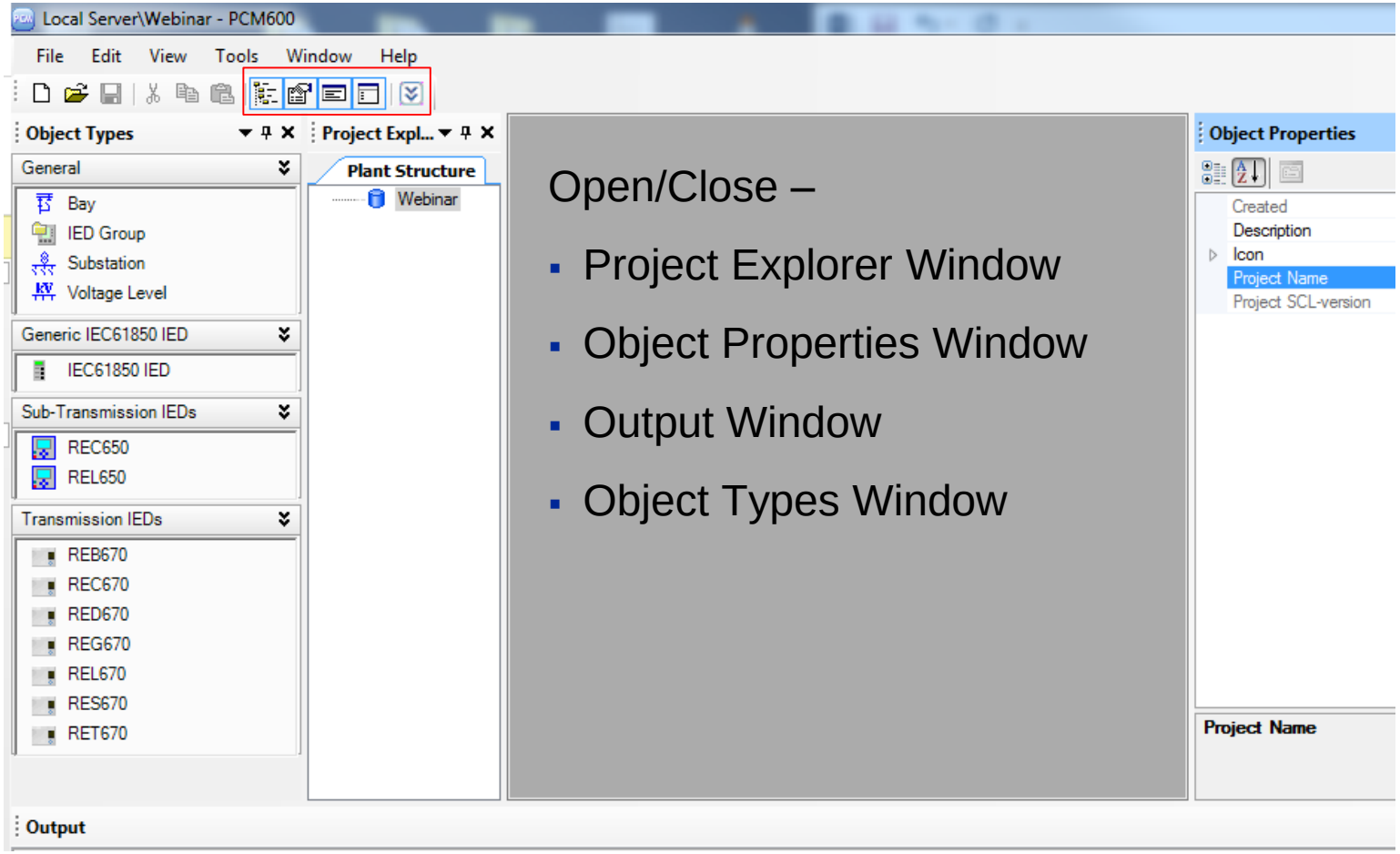
Open/Manage projects

- Create projects
- Delete projects
- Export projects
  - All data within the PCM600 project is exported to a file with extension “.pcmp”. Used for back-up purposes.
- Import projects
  - Use earlier exported .pcmp file
- Rename projects

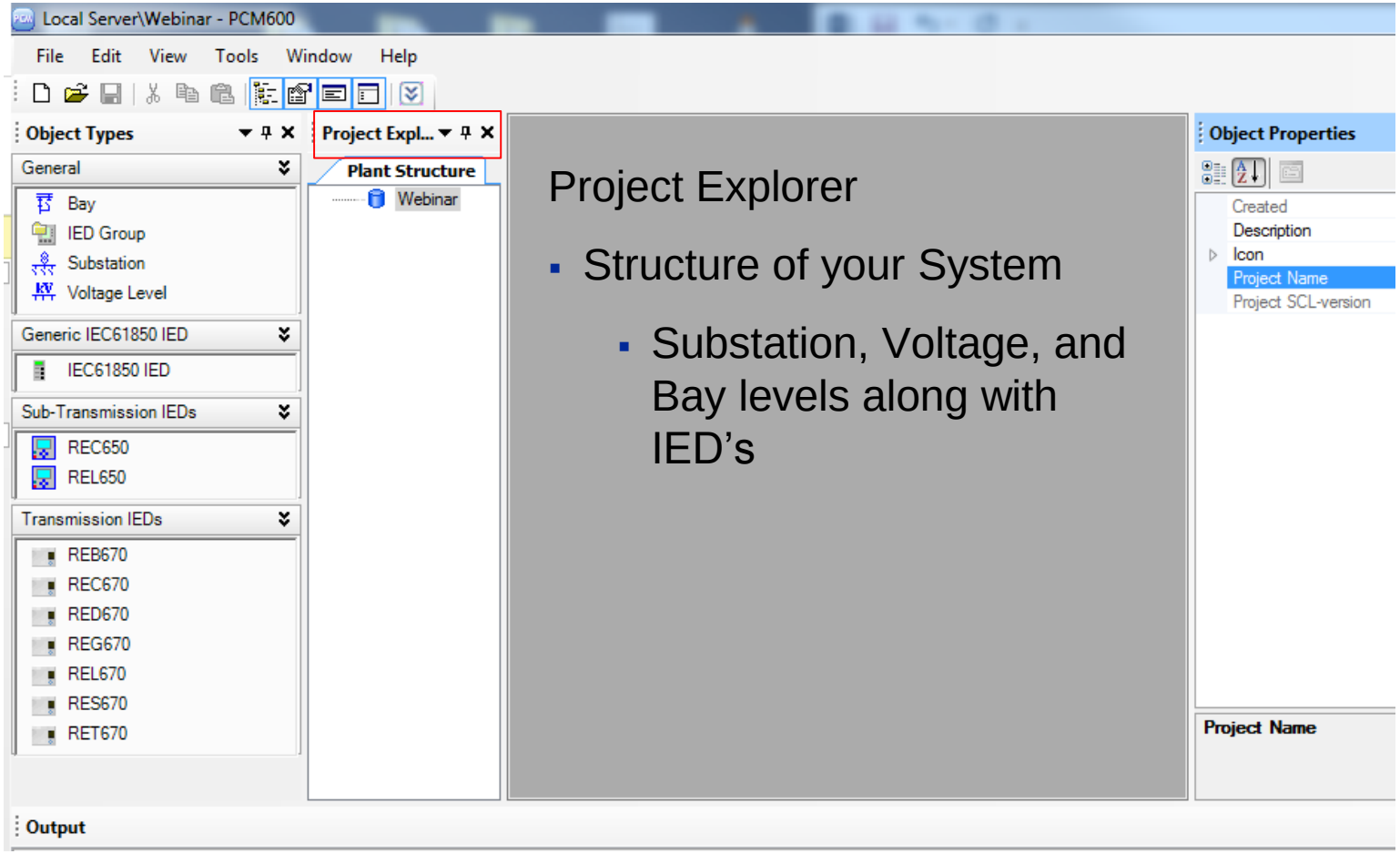
PCM600
Layout



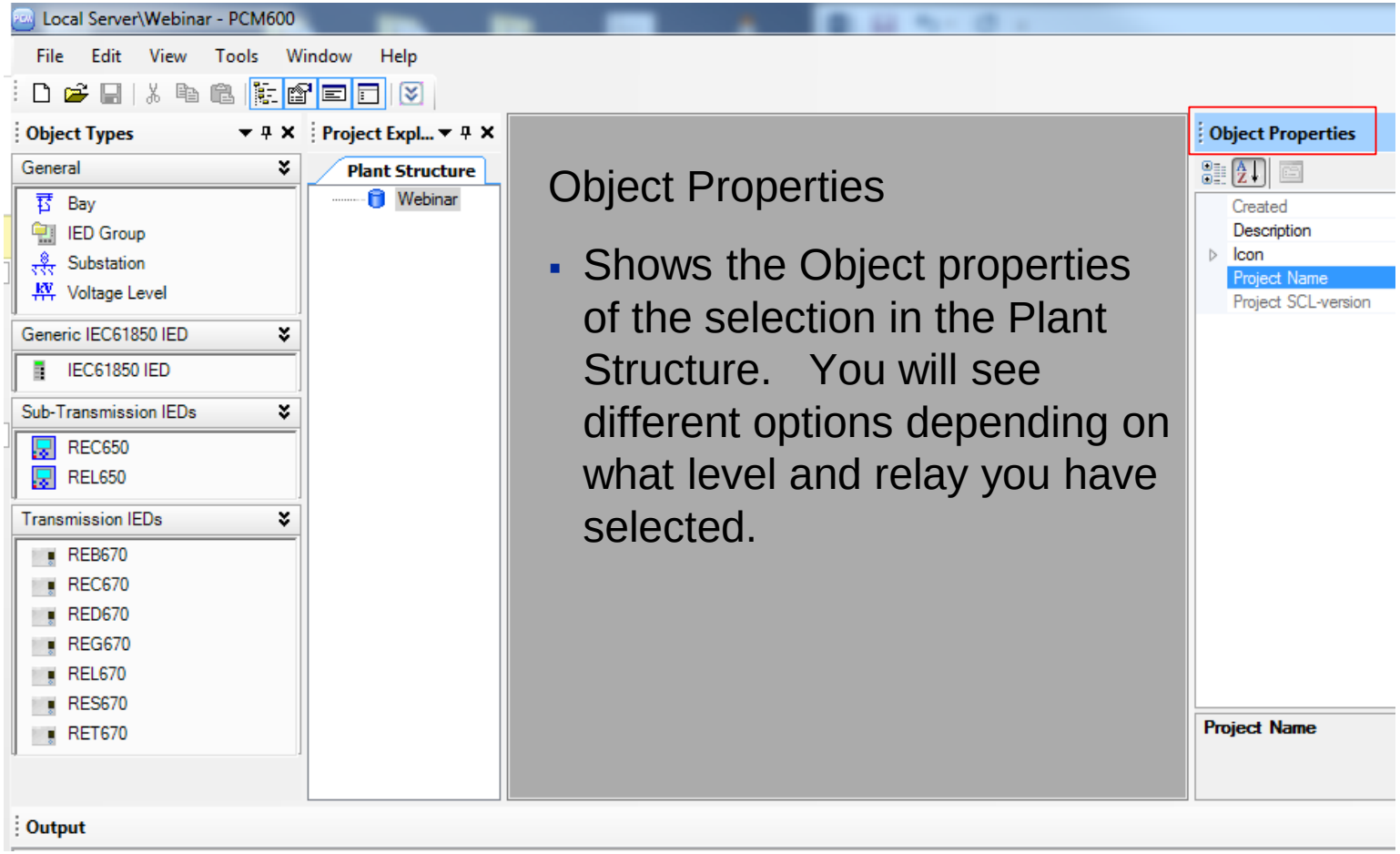
PCM600
Layout



PCM600
Layout



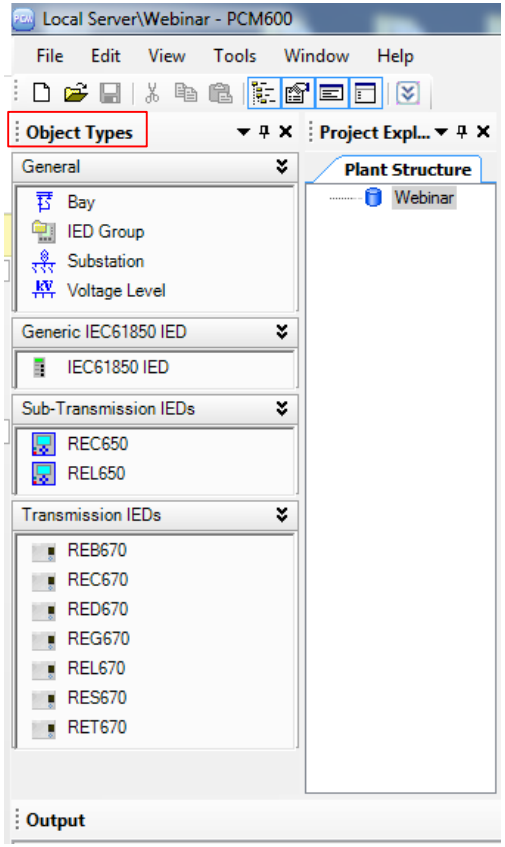
PCM600
Layout



Object Properties

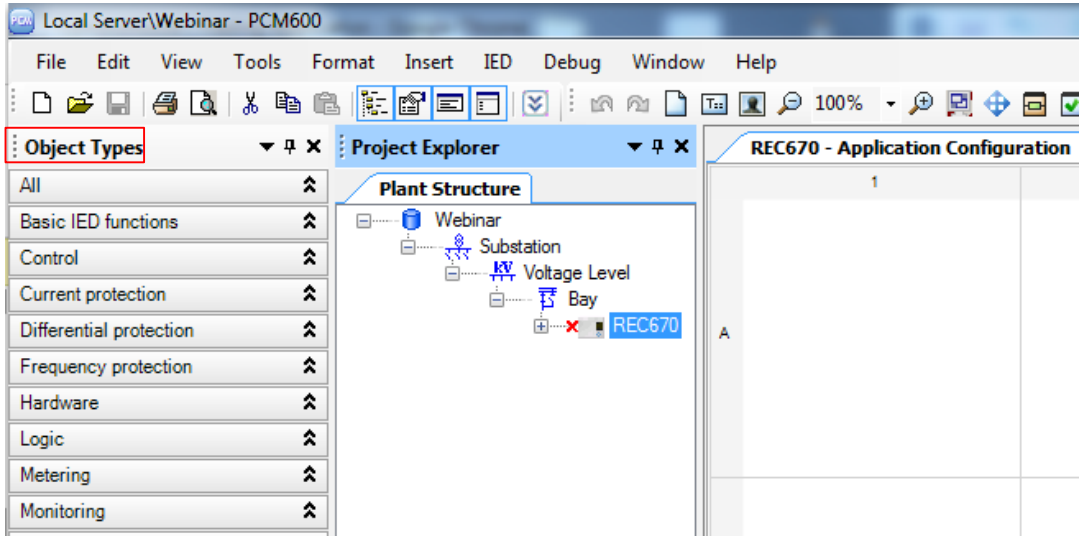
- Shows the Object properties of the selection in the Plant Structure. You will see different options depending on what level and relay you have selected.

PCM600
Layout

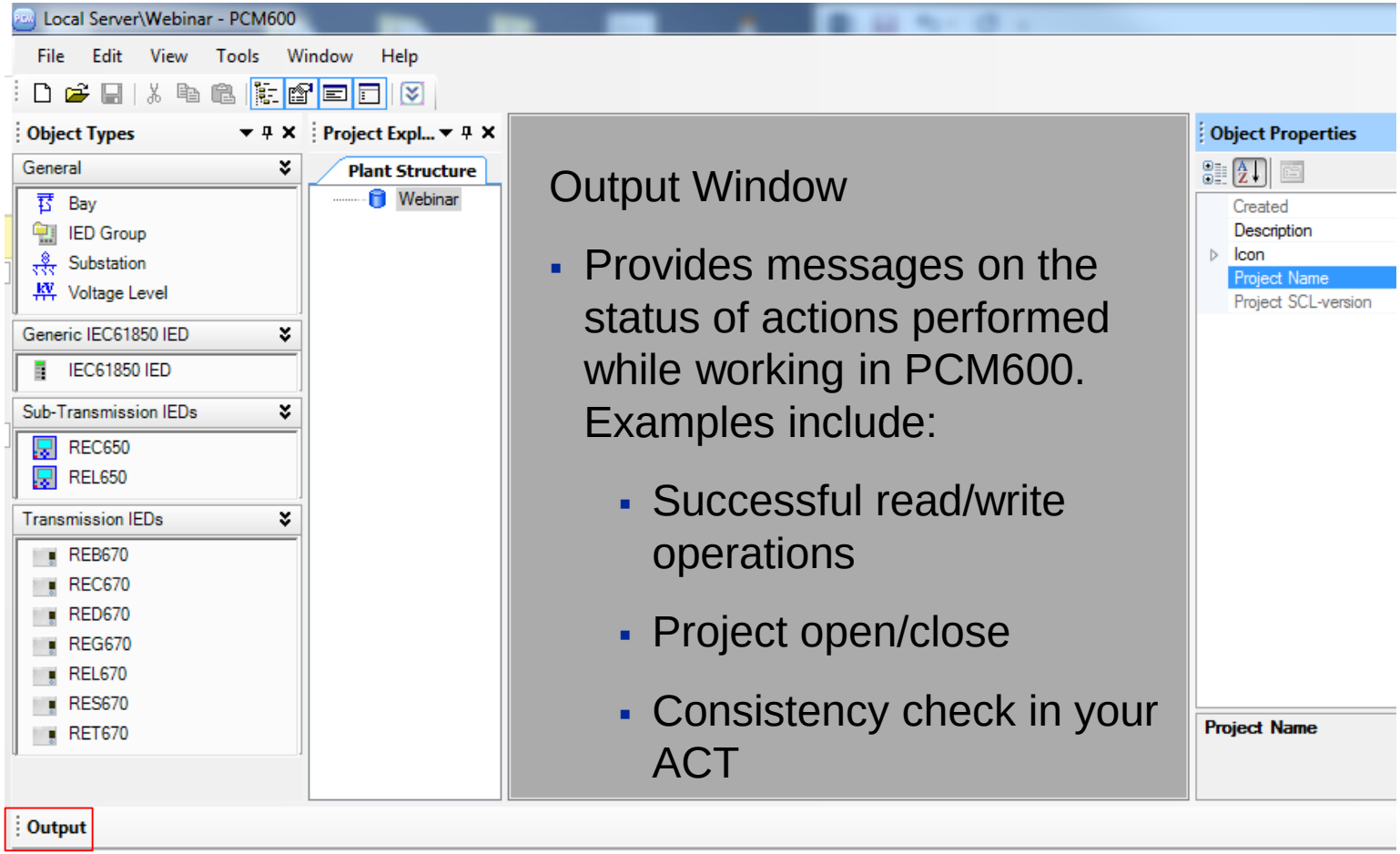


Object Types

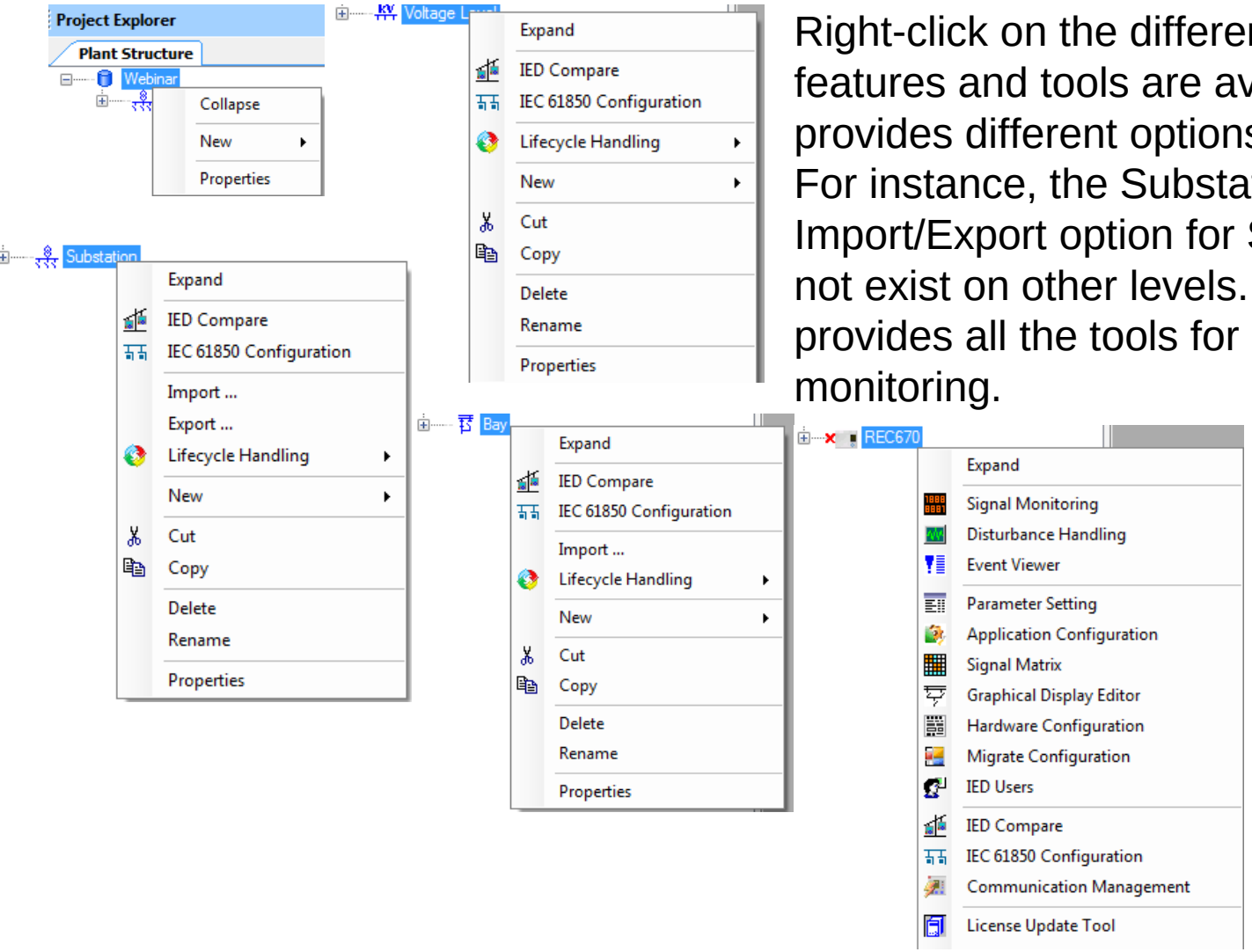
- While in the Plant Structure it provides the building blocks for building the system.
- When you are in the ACT of a relay it provides you with the function blocks available for building your logic configuration



PCM600
Layout

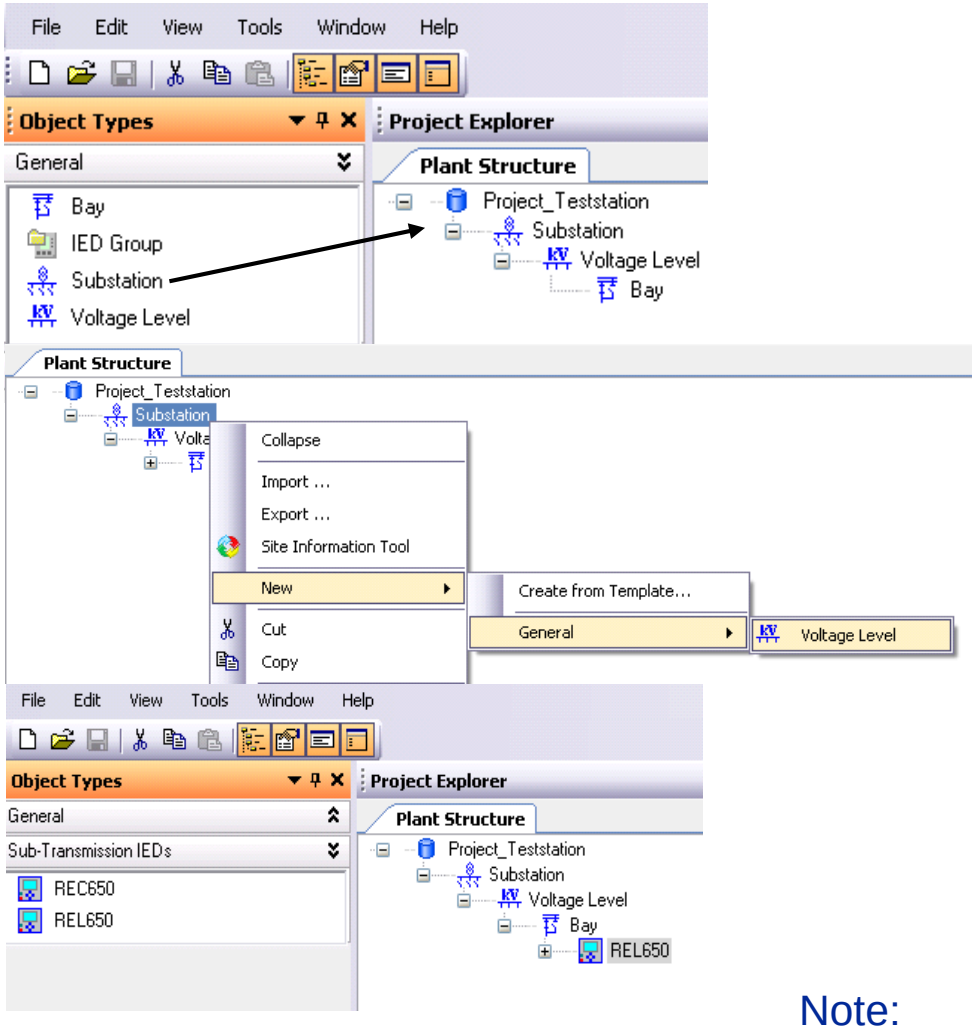


PCM600
Layout



Right-click on the different levels to see what features and tools are available. Each level provides different options available to the user. For instance, the Substation Level provides an Import/Export option for SCD files which does not exist on other levels. The relay level provides all the tools for engineering and monitoring.

PCM600
Creating the Plant Structure

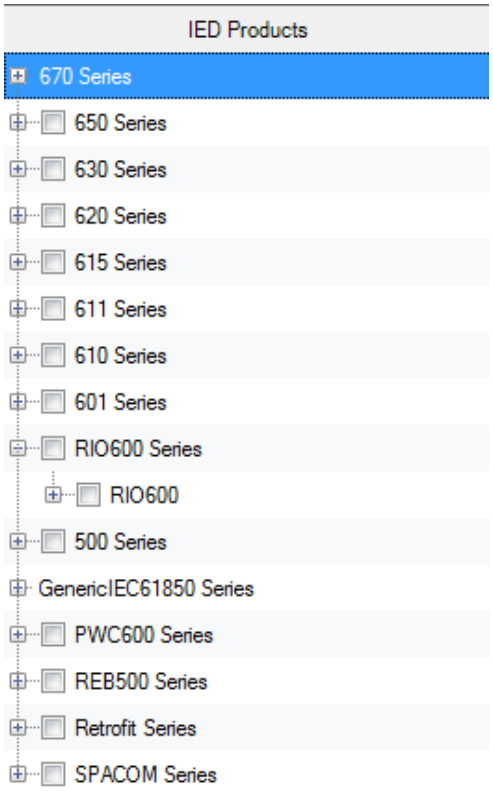


- Two ways to create objects;
  - Drag and drop from Object Types
  - Right click on object, select “New”

Note:
Only one substation level is allowed

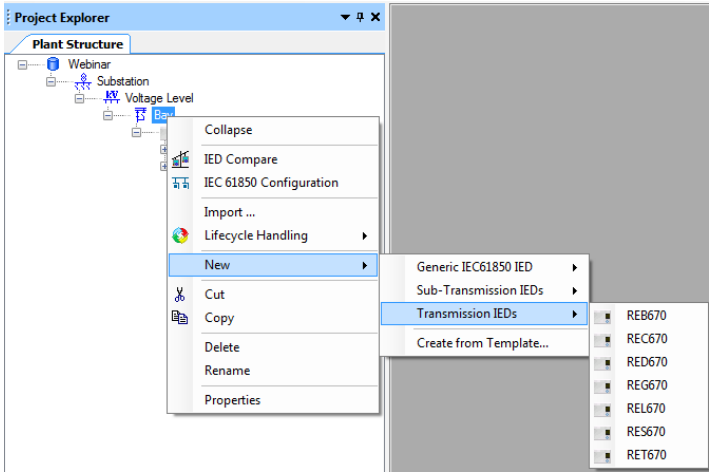
PCM600
IED Objects

IED Objects that work in PCM600 can be seen from the following list:

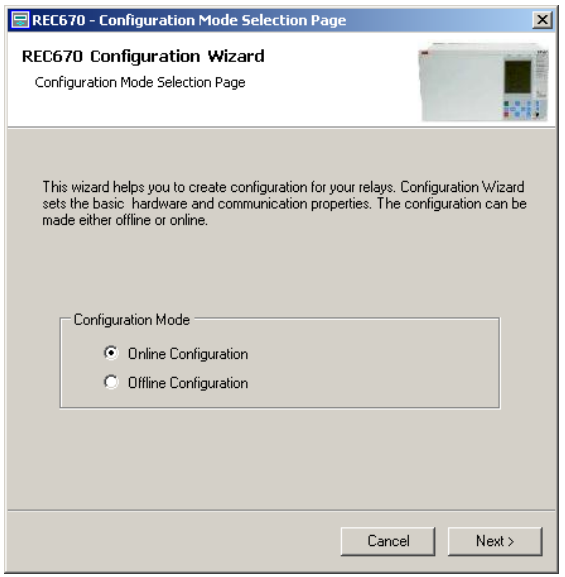


If you want to add an IED Object into PCM600 then it is necessary that you have the connectivity package installed on your computer.

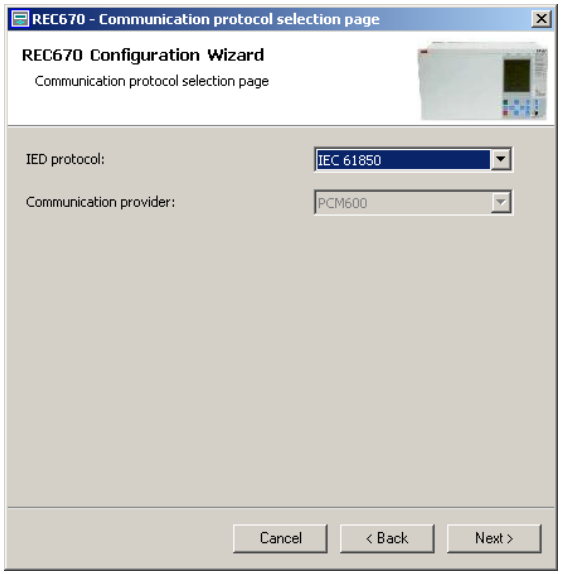
Right-clicking the Bay Level and navigating the selections as seen below will show you what you have available to use. If you do not see the relay you wish to configure then close PCM600, open the Update Manager, and Download the connectivity package.



PCM600
IED Objects



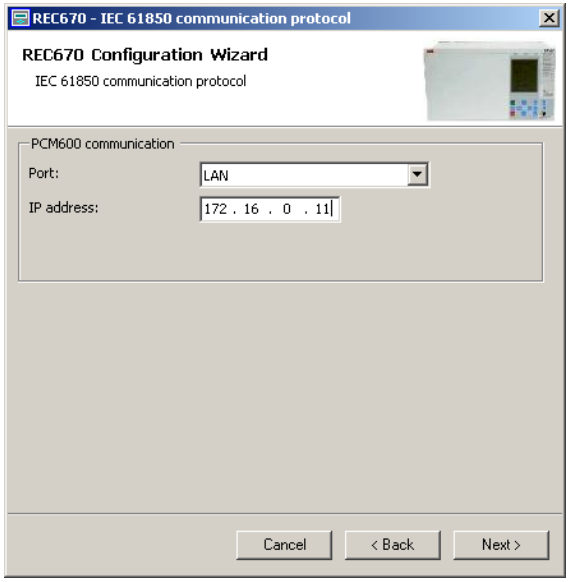
- Configuration modes
  - Online configuration
    - IED available
  - Offline configuration
    - No IED available
    - Use order files
  - Import

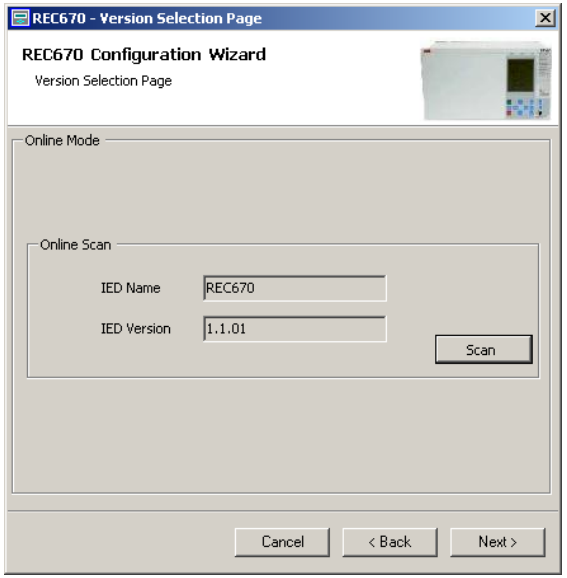


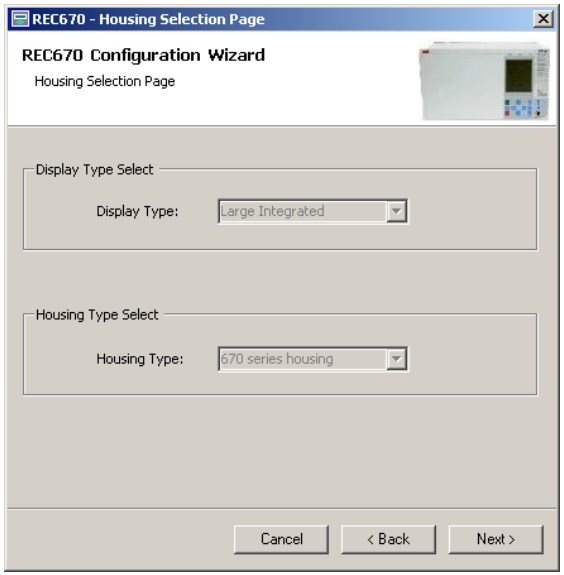
- Select the protocol to use for the PCM600/IED communication

Note: Not possible to communicate between PCM600 and IED via SPA and LON for the 650 series

PCM600
IED Objects – Online Configuration



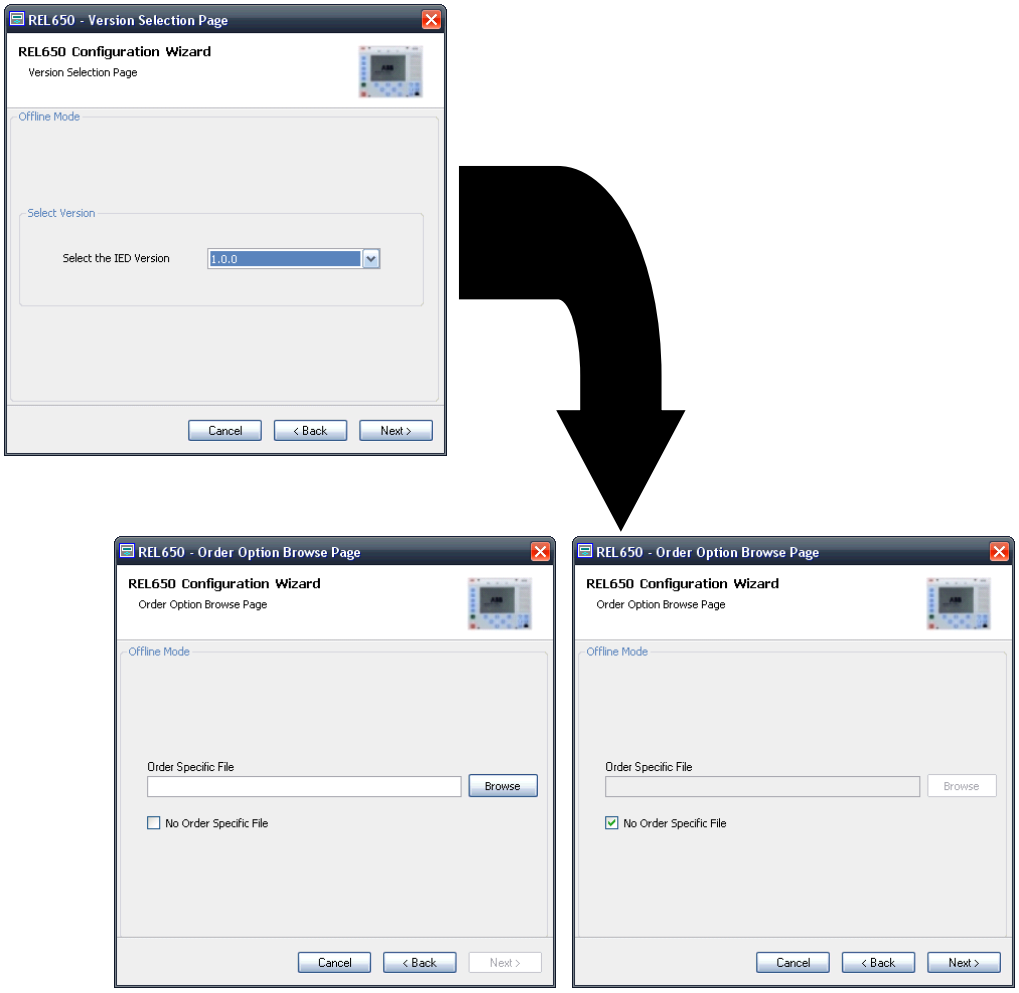




- Set IP address to use
- Different default values for “Front” and “Rear” port, otherwise no meaning with the “Port” selection

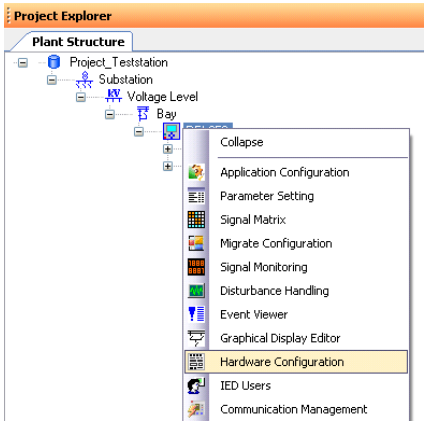
- IED type, version, display type (Local HMI) and housing (size of the IED) is automatically detected in online mode (Use the “Scan” button)

PCM600
IED Objects – Offline Configuration



- IED version must be selected manually
- Order option file available
  - Enables only ordered SW and HW in PCM600
    - No need to synchronize PCM600 and physical IED
- No order option file available
  - Enables all functionality in PCM600
    - Need to synchronize PCM600 and physical IED, use the License Update Tool
    - Possible to configure functionality in PCM600 that later will not be accepted by the IED

PCM600
Hardware Configuration

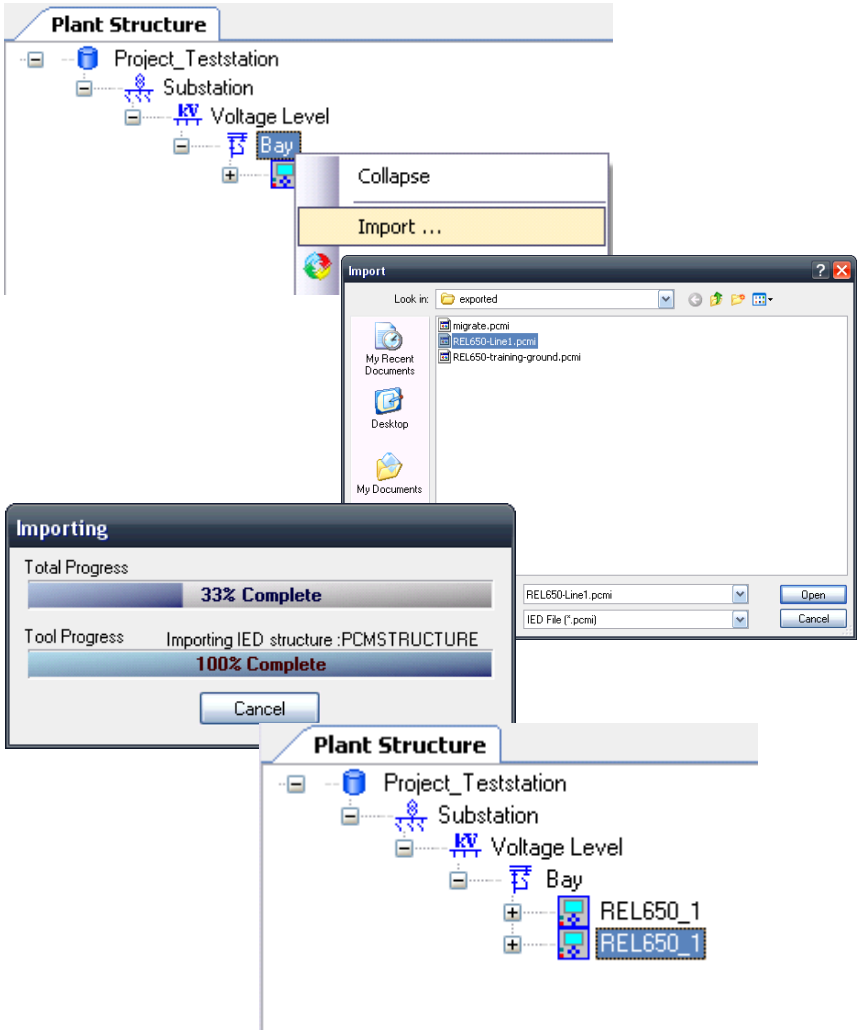


Card Space	Card Type	Card Identifier
p3	BIM	BIM_3
p4		BOM_4
p5		
p6		
p7		
p8		
p9		
p10		
p11		
p12		
p13		
p14		
p15		
p16		
p31	TRM_9I_3U	TRM_9I_3U_31

BIM
BOM
IOM
MIM
SOM
GSM

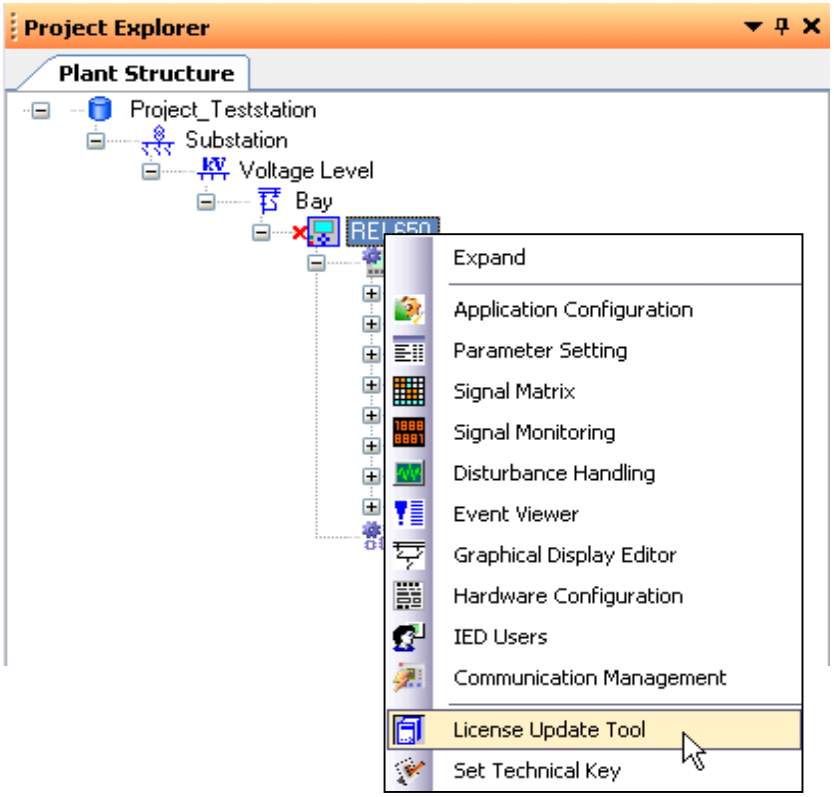
- Possible to manually configure HW/slot positions
  - This information is already available if you have created the IED object in “online mode”
- Select correct card type in correct slot position

PCM600
IED Objects – Import



- Purpose: To reuse a previously configured IED object (pcmi file)
- Import of pcmi files can be made at the “Bay” level object in PCM600

PCM600
License Update Tool

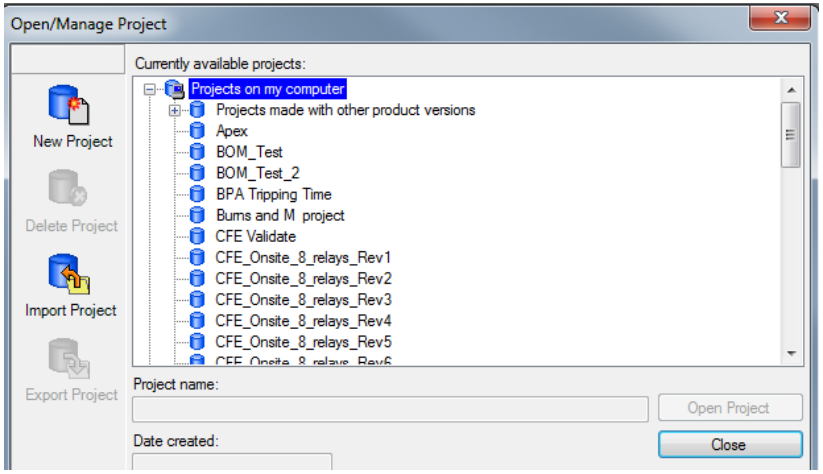


- Synchronizes PCM600 IED object with physical IED capabilities when it comes to;
  - Function options
  - Hardware options

PCM600
File Types

PCMP

The PCMP is the complete project file. It contains your entire project structure, including relays with their configurations and communications. This file is managed from the “Open/Manage Projects” location discussed earlier. From this location it is possible to Import/Export the file. When bringing a project from an older version of PCM600 to a new release, you will find the project in the drop down titled “Projects made with other product versions”.



- Always make a back-up prior to upgrading a project file.
- Most upgrades will occur without a problem but if you run into any issues please contact your RTM or the SA Products Support Team.

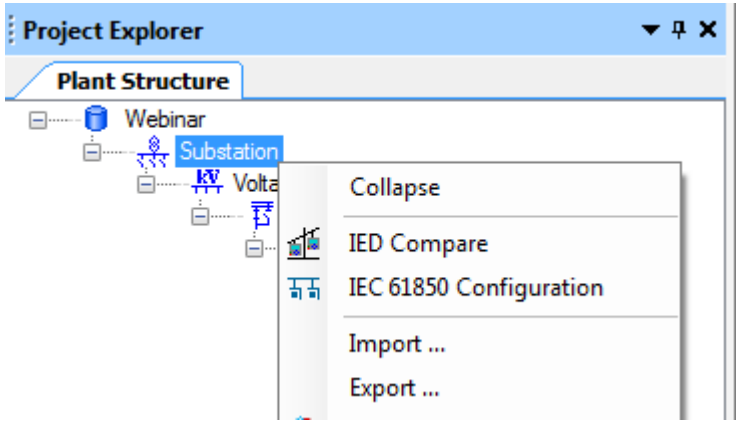
PCM600
File Types

PCMI

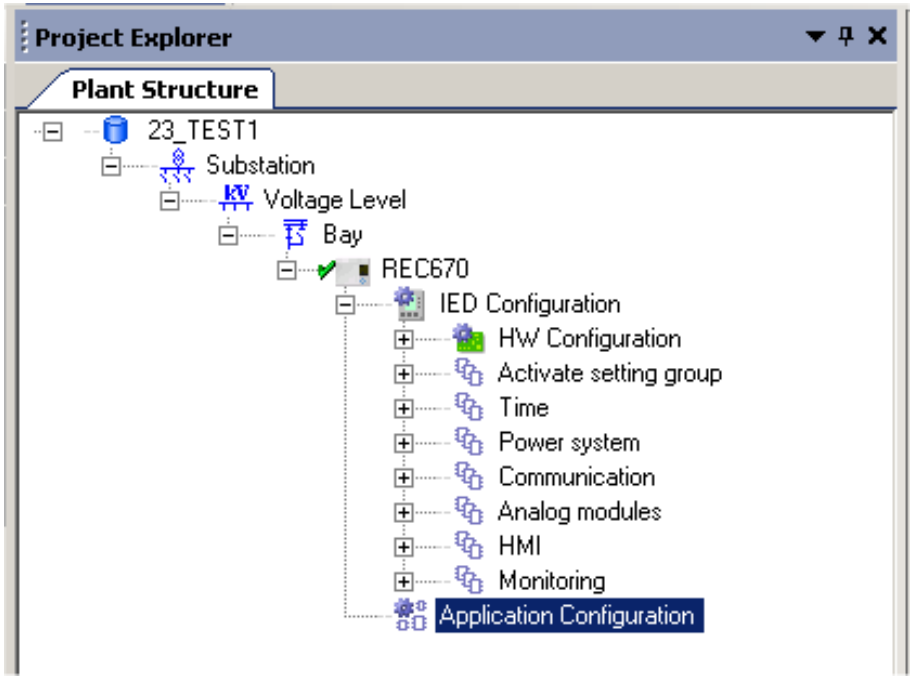
- The PCMI file represents the entire relay configuration.
- IEC61850 Datasets are also included in this file.
- If you are using IEC61850 Goose in your project these connections will not be included when importing/exporting the file
- Import or Export pcmi files from the Bay Level

SCD

- Substation Configuration Description
- Import or Export from the Substation Level

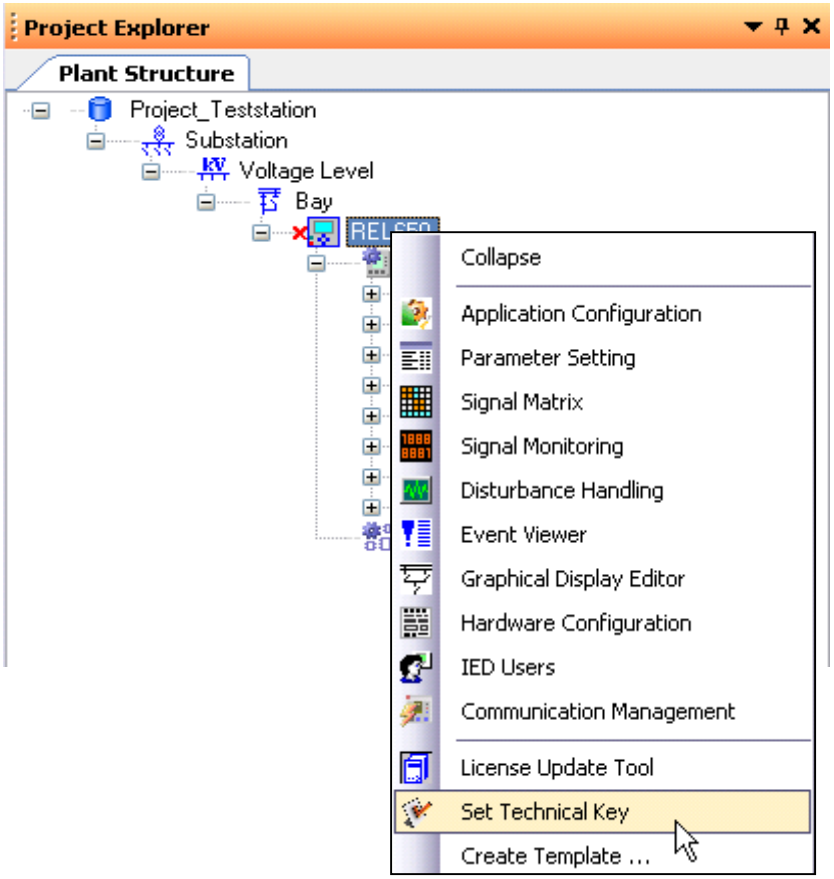


PCM600
Plant Structure



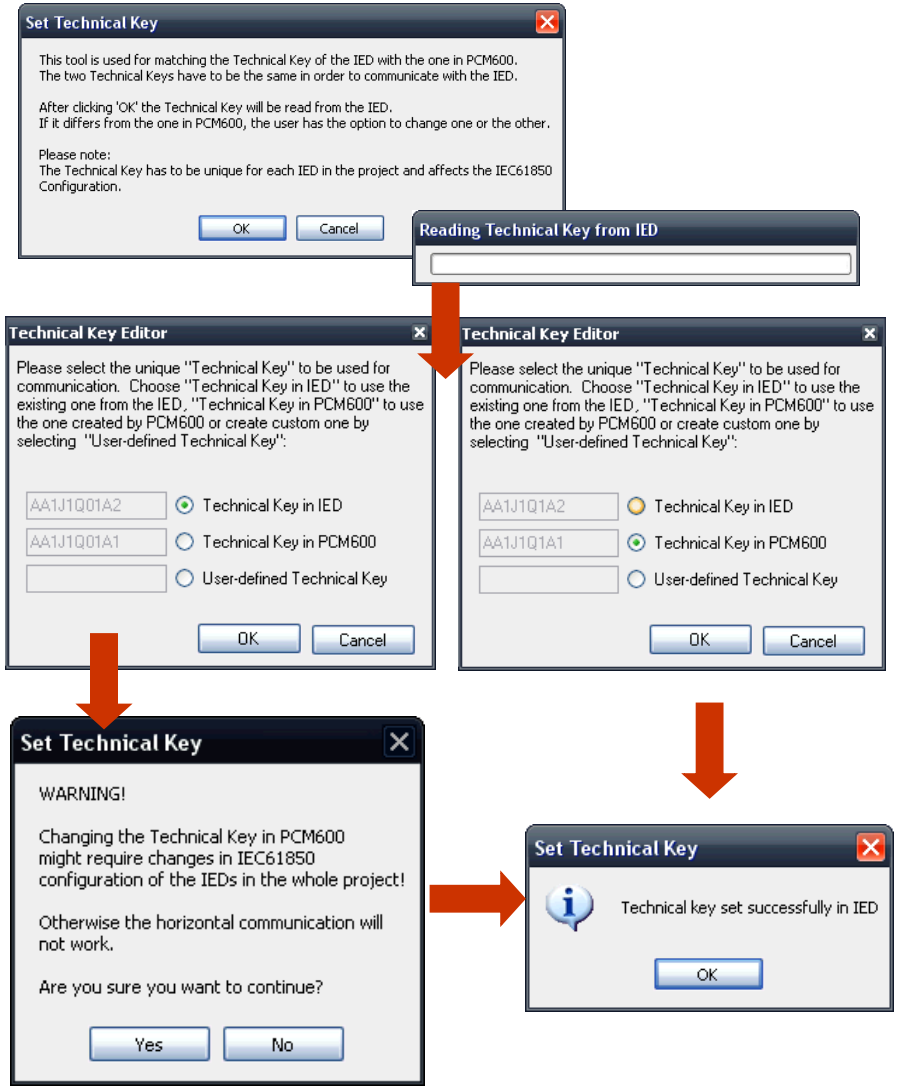
- Two main sections
  - IED configuration structure
    - Contains basic functionality such as communication addresses and HW
  - Application configuration structure
    - Contains the configuration data from the ACT.
    - Synchronized with the Main Application structure configured with ACT.

PCM600
Technical Key



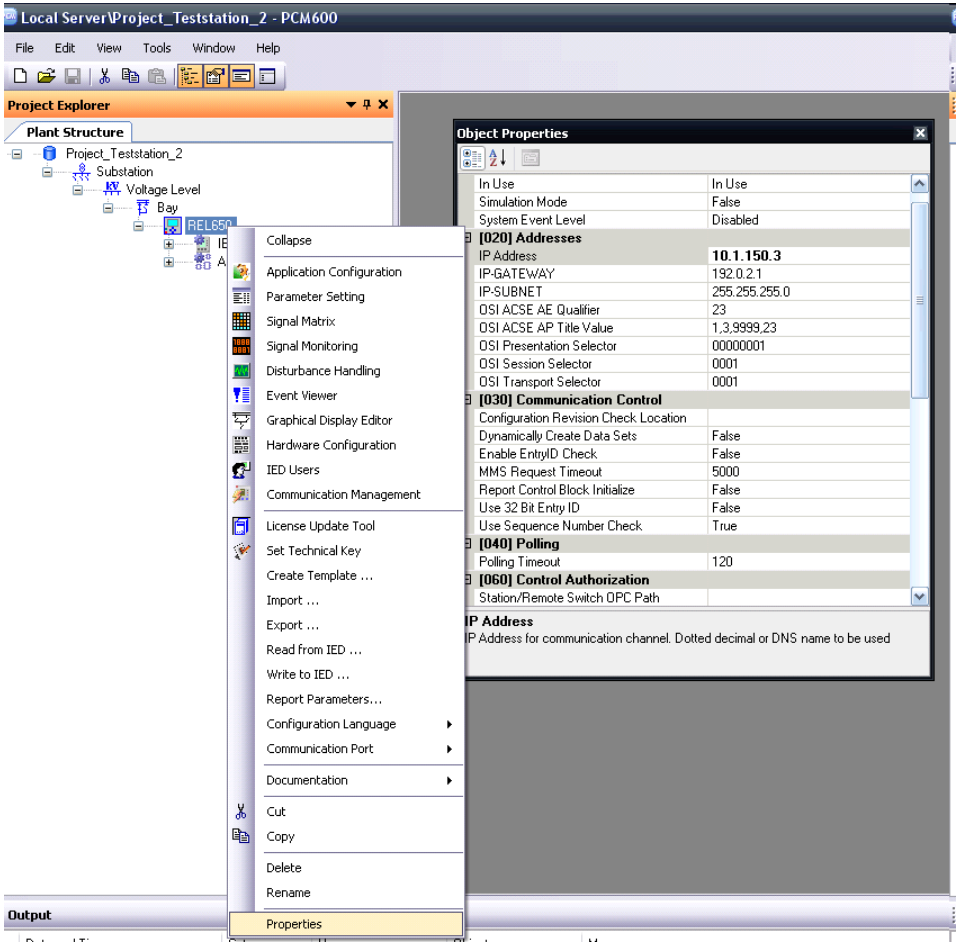
- Is used for security reasons, more difficult to communicate with the wrong IED since the technical key at IED object in PCM600 and in physical IED must match.
- **Unique** identifier for each object in the Plant Structure
  - Is set automatically by PCM600
  - Can be modified by the user
- To synchronize PCM600 and IED technical key, use the “Set Technical Key” Tool
- To change the technical key in PCM600 only, go to object properties for the IED object

PCM600
Technical Key



- Technical key options
  - Use IED Technical key
  - Use PCM600 Technical key
  - User-defined Technical key
    - No special characters
    - Max length 13 characters
    - No numbers in the beginning
- Note that changing the Technical key might have an impact on the IEC61850 configuration in your system

PCM600
Ethernet Port Settings

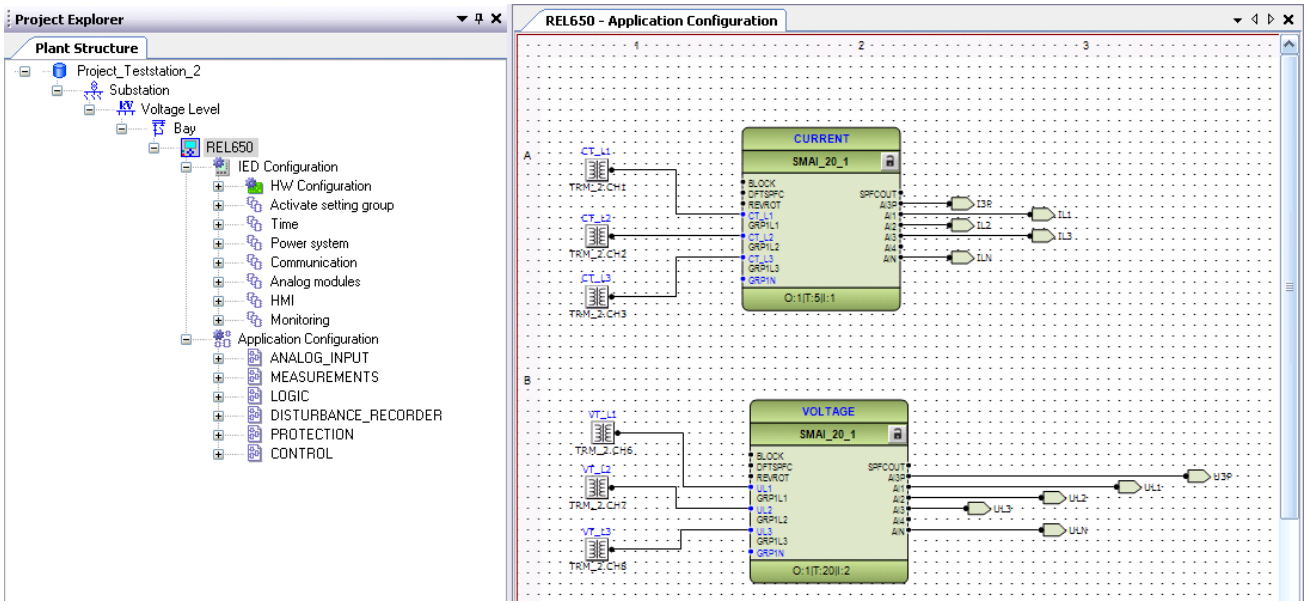


- The IP address of the IED object in PCM600 can be set in two ways;
  - When creating the IED object in PCM600, the IP address can be set in the “Configuration Wizard”
  - Opening “Properties” at IED level object and changing the “IP Address” property

Agenda

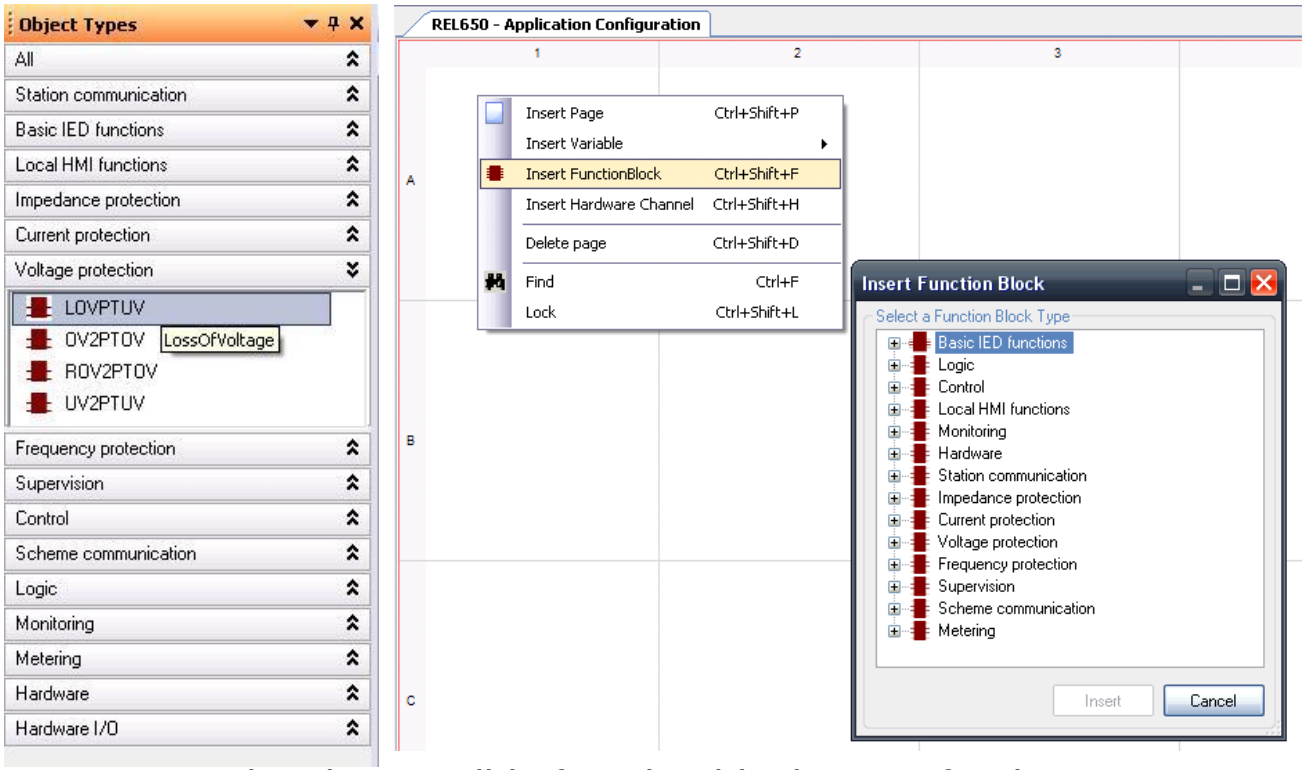
- Introduction
- PCM600
- Application Configuration Tool
- Parameter Setting Tool
- Graphic Display Editor
- IEC61850
- Questions

Application Configuration Tool
Overview



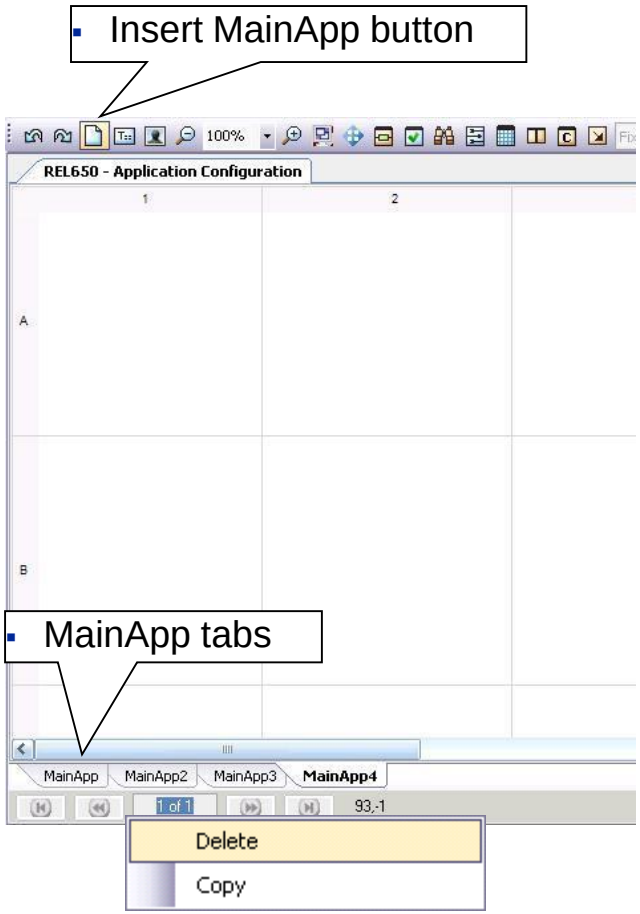
- The main part of the application engineering is done with ACT
  - Graphical programming tool to instantiate function blocks and make connections between function block outputs/inputs
  - With ACT you configure the core functionality of the IED

Application Configuration Tool
Function Library



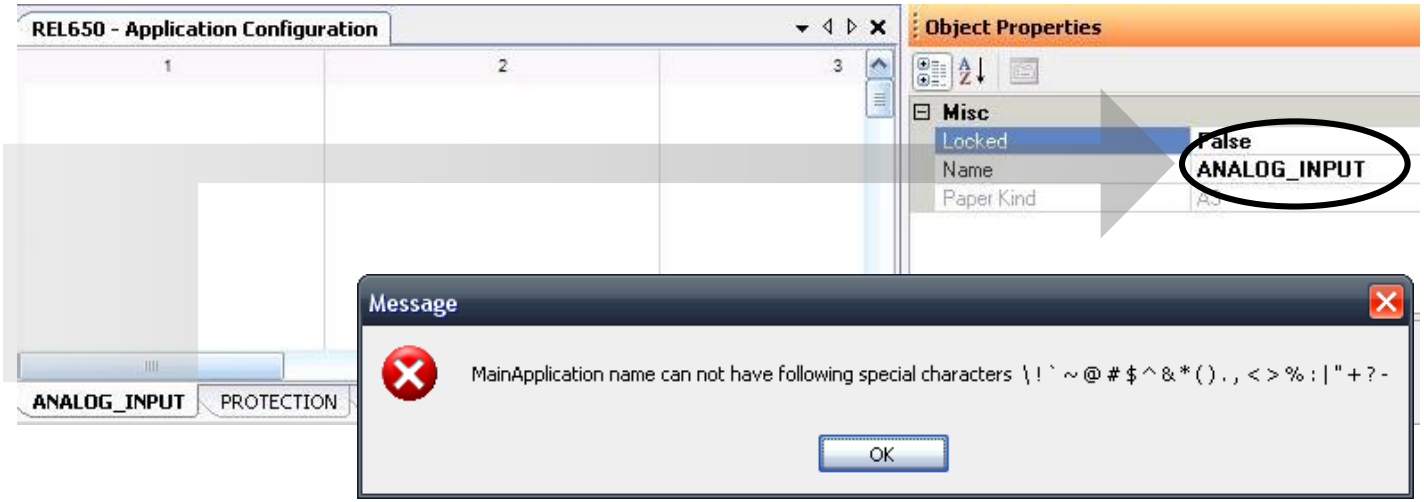
- Contains the possible function block types for the IED type you are working with
- Two ways to access and use function blocks:
  - Function library at Object Types window
    - Drag & Drop into the ACT workspace
  - Right mouse click in ACT workspace –> Insert Function Block
    - Select the function type to instantiate

Application Configuration Tool
Main Applications



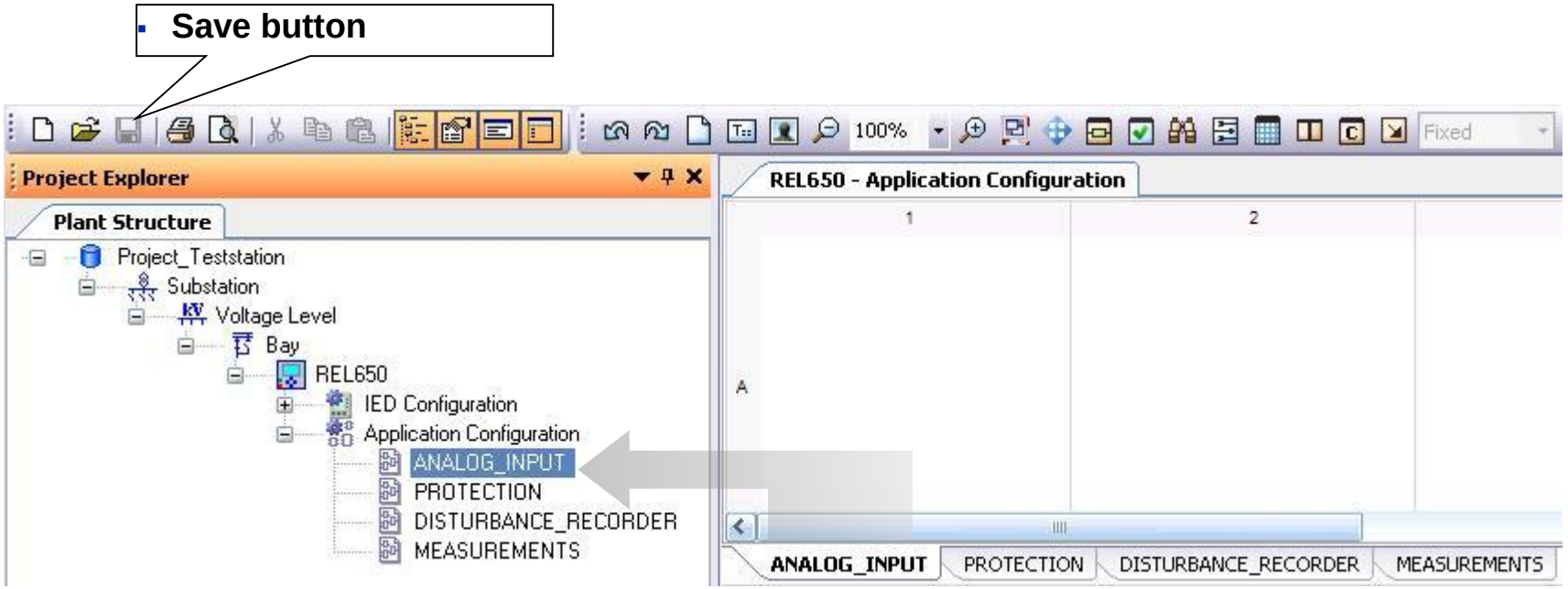
- Use Main Applications to create a logical structure of the configuration
- Insert Main Applications
  - Max 255 Main applications/IED
- Delete and copy
  - Can’t delete default MainApp tab
    - Contains hidden basic system logic
  - Copying MainApps
    - Note that function blocks are not pasted if there are no free instances left to use
- Rearranging MainApp tabs possible
  - Like in MS Excel, drag the Main Application to the correct position

Application Configuration Tool
Renaming Main Applications



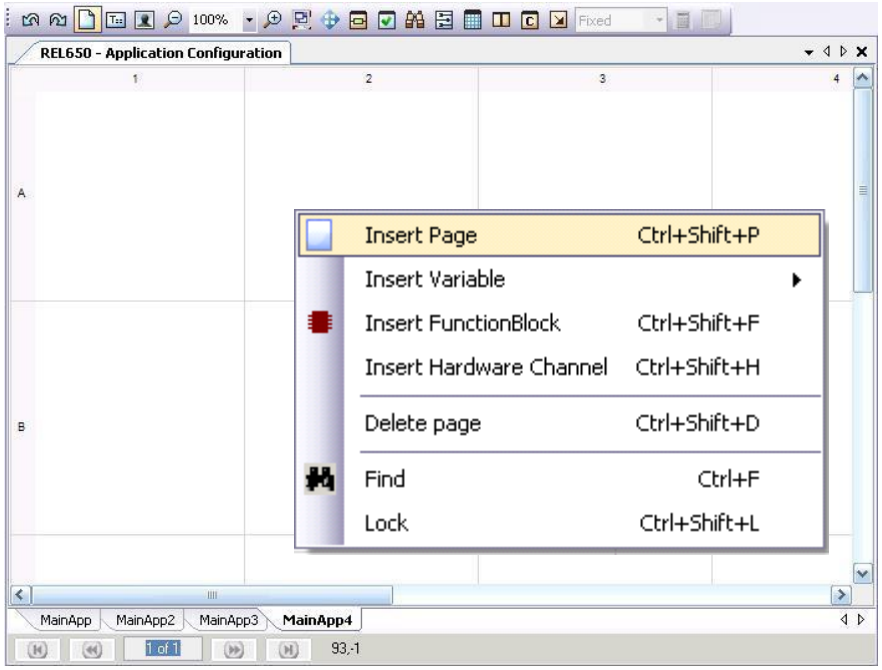
- Renaming is done in Object Properties
- Maximum number of characters: 50
- No special characters are allowed

Application Configuration Tool
Plant Explorer



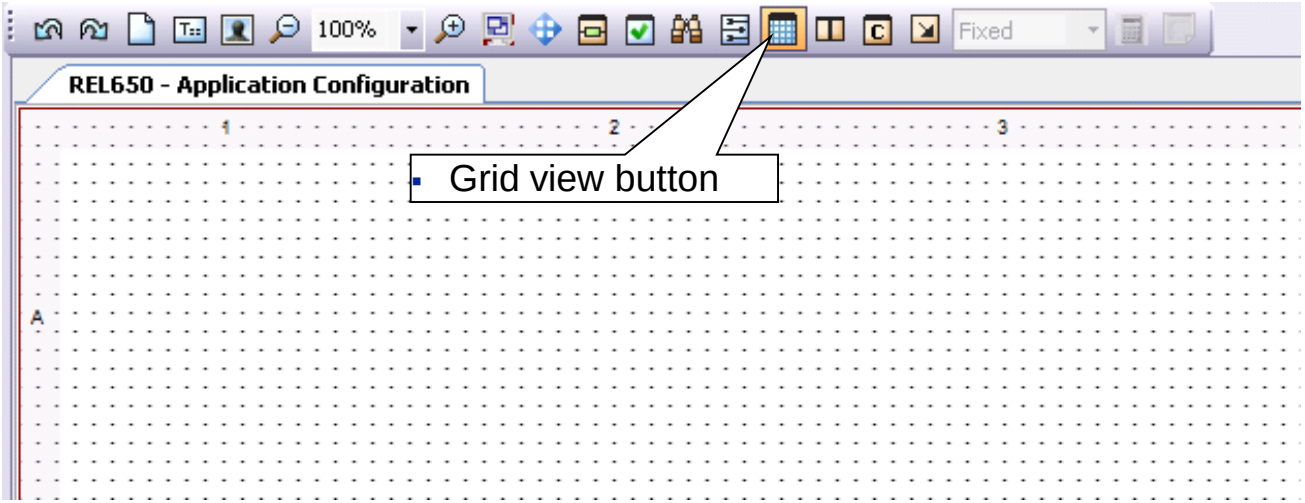
- The Main Applications are also shown in the Plant Explorer
  - Synchronized when the configuration in ACT is saved

Application Configuration Tool
Pages



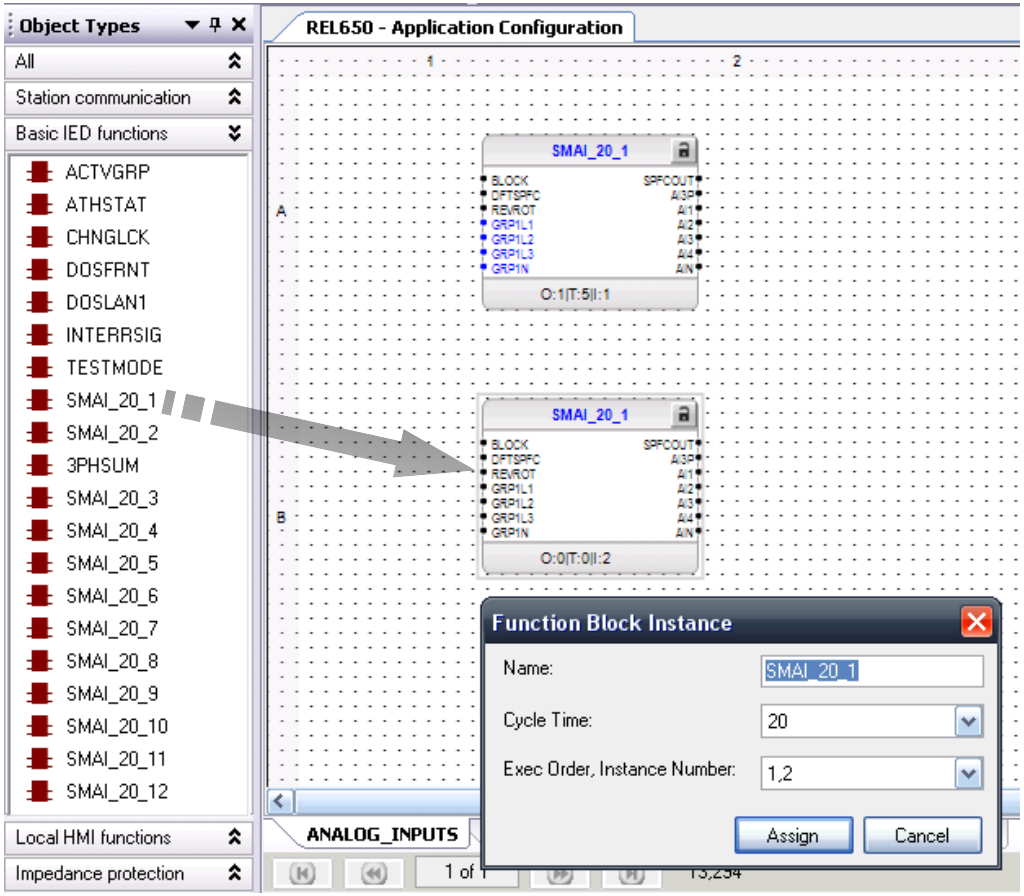
- Depending on the size of a configuration (number of function blocks used), one or several pages within one Main Application might be needed
- Each Main Application can have up to 255 pages

Application Configuration Tool
Grid View



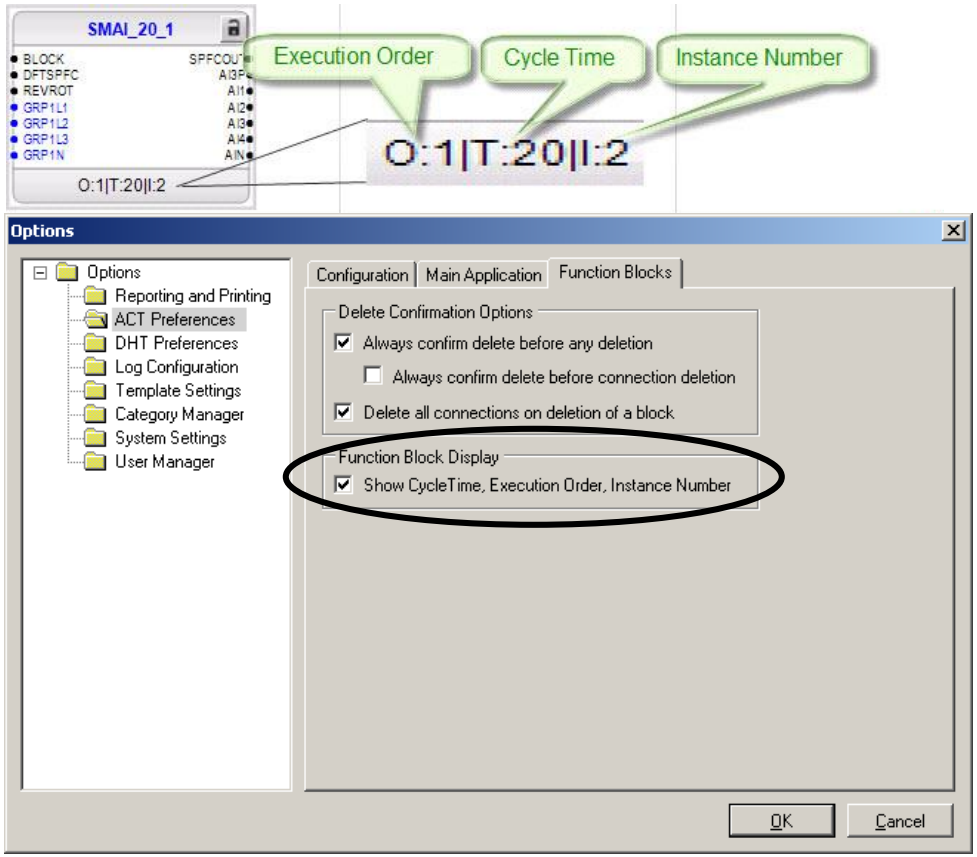
- Enable grid view
  - From Toolbar
- For easier layout (aligning) of function blocks
  - Function blocks snapping to the grid
- Grid width is fixed

Application Configuration Tool
Inserting Function Blocks



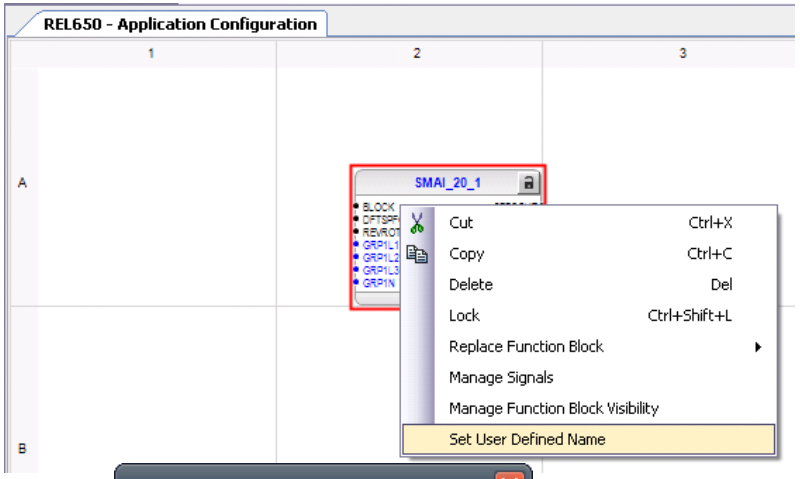
- Parameterization to do when inserting function blocks
  - User defined name (optional)
    - Not possible for all function block types
  - Cycle time (ms)
  - Execution order and Instance number

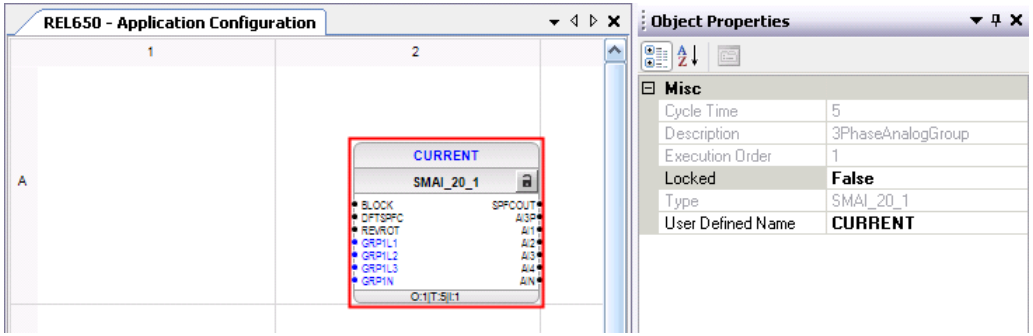
Application Configuration Tool
Function Block Details



- Possibility to show/hide function block details
  - Execution order
  - Cycle time
  - Instance number
- Toggle display
  - Menu Tools->Options
  - General setting for all PCM600 projects

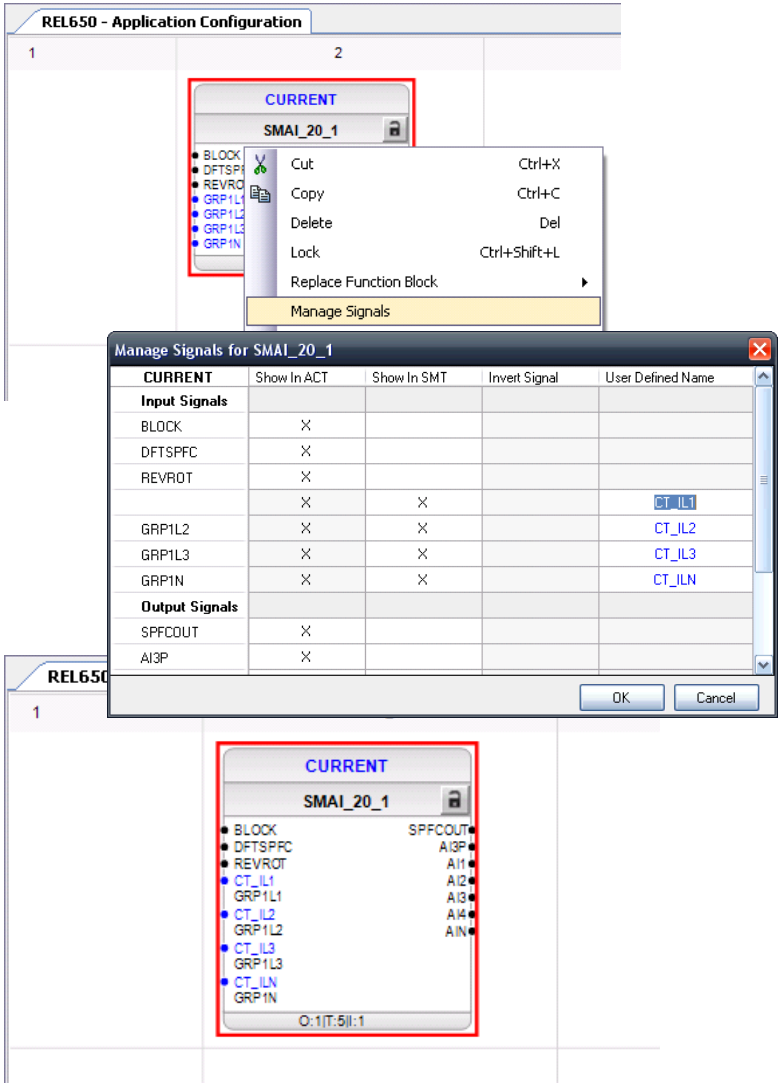
Application Configuration Tool
User Defined Names





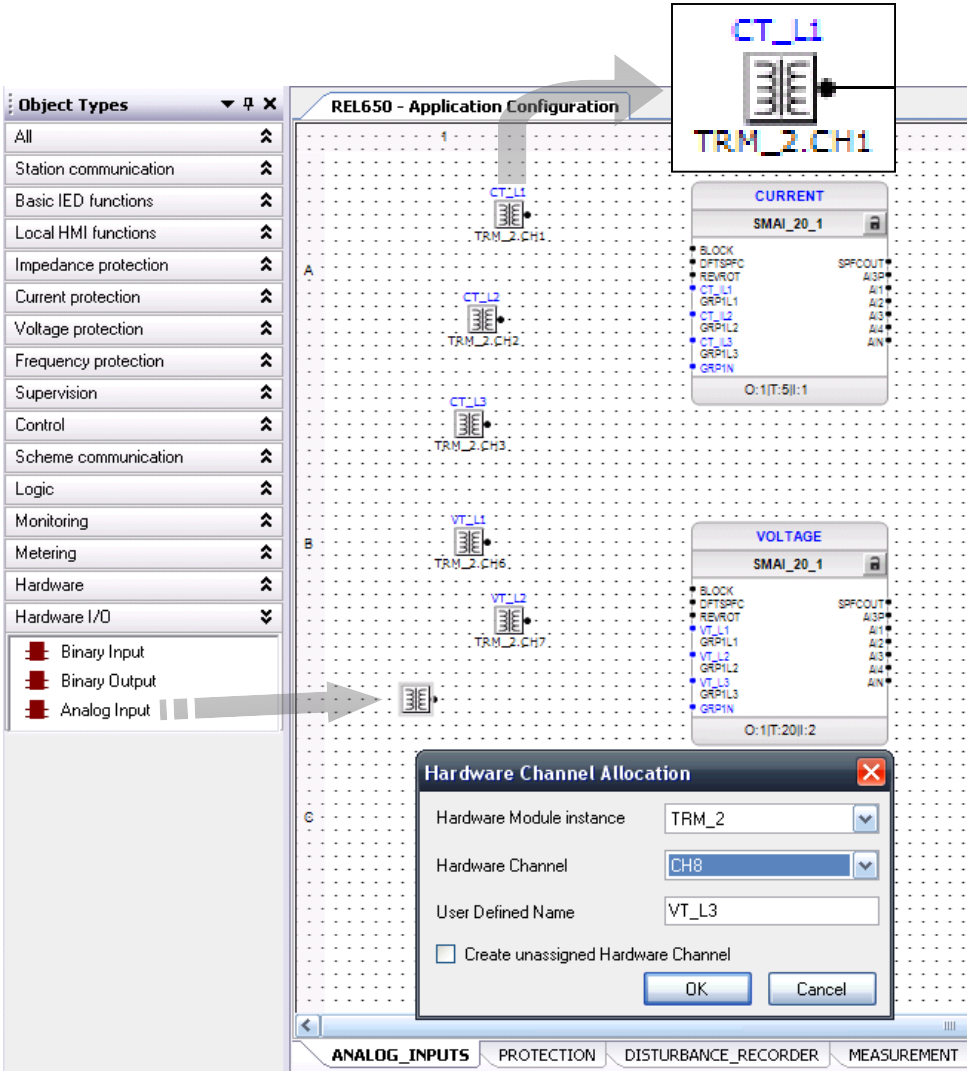
- General
  - Blue text color indicates that a user defined name can be set
  - User defined names will be shown also in other tools (like SMT, GDE etc)
  - Maximum number of characters 13
  - No special characters should be used
- How to set User Defined Names
  - Select function block and right click
  - Select *Set User Defined Name*
- How to revert to the default name
  - Delete the text

Application Configuration Tool
User Defined Names



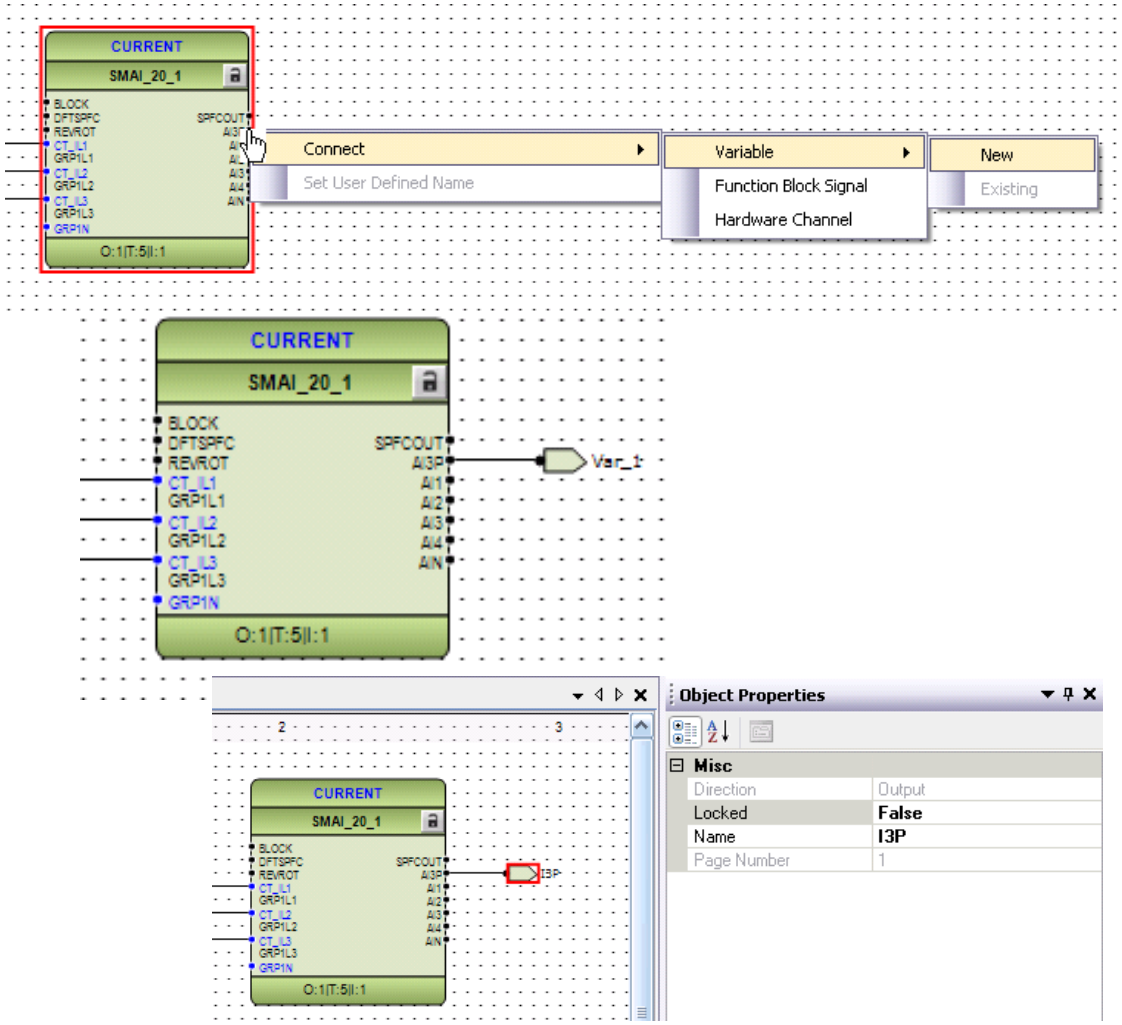
- General
  - Blue text color indicates that a user defined name can be defined
  - User defined names will be displayed also in other tools
  - Maximum number of characters 13
  - No special characters should be used
- How to set User Defined Names for signals
  - Open the *Manage Signals* dialog for a function block
- How to revert to the default name
  - Delete the text

Application Configuration Tool
Hardware Channels



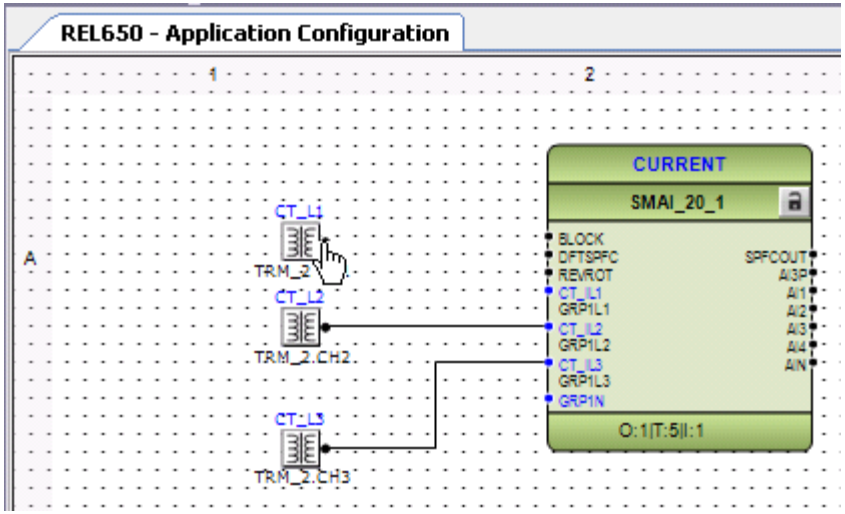
- Map hardware I/O directly in the Application Configuration Tool
  - Can also be done with SMT
  - Changes are transparent to both ACT and SMT
- Hardware Channel Allocation dialog
  - Select Hardware Module
  - Select Hardware Channel
  - Set a user defined name
- Unassigned Hardware channel
  - If IED is not available and HW allocation is not known

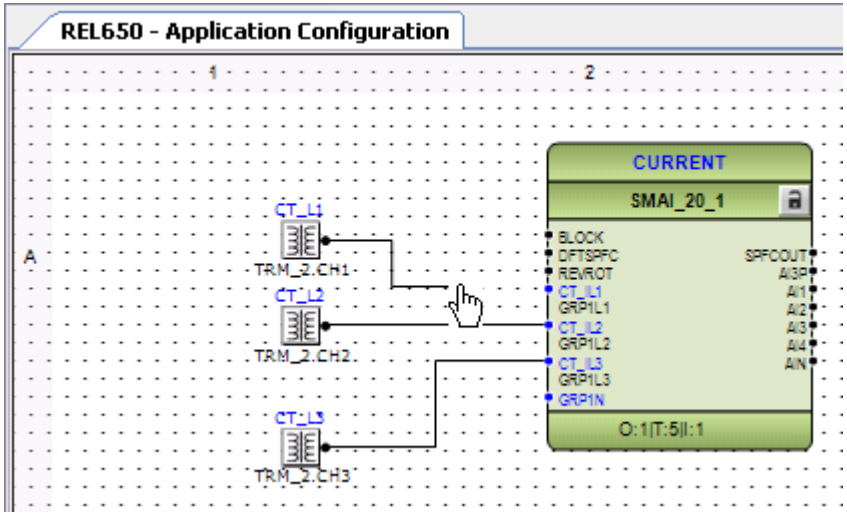
Application Configuration Tool
Variables



- Purpose of variables: To be able to make connections between function blocks residing on different pages or main applications
- Create and connect new variables
  - Place mouse pointer at the input/output in question
  - Right mouse click
  - Select Connect/Variable/New
- Rename variables
  - At Object Properties
- Copy/Paste variables
  - Output variables are renamed
  - Input variables keeps the same name

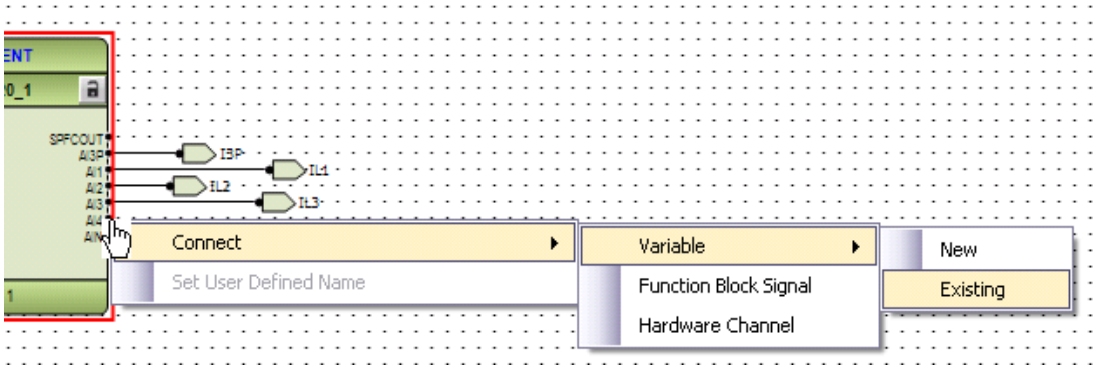
Application Configuration Tool
Connections

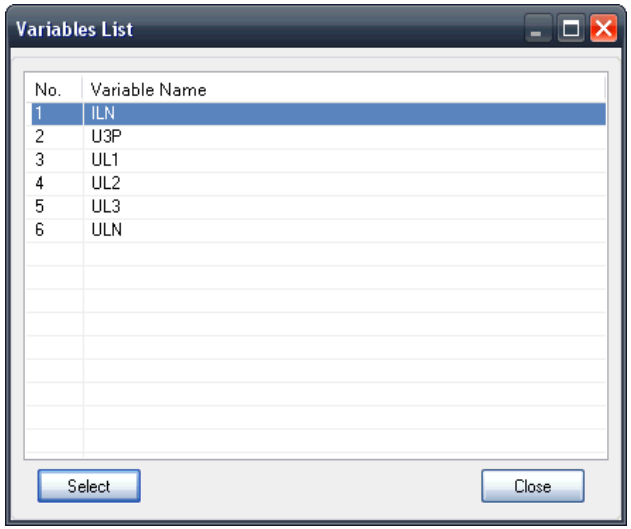




- Place mouse pointer at output
- Push down and hold left mouse button
- Drag and release mouse button at receiving function blocks input signal
- Not connected inputs
  - Inputs may be unconnected
    - If not mandatory
  - Uses the default value

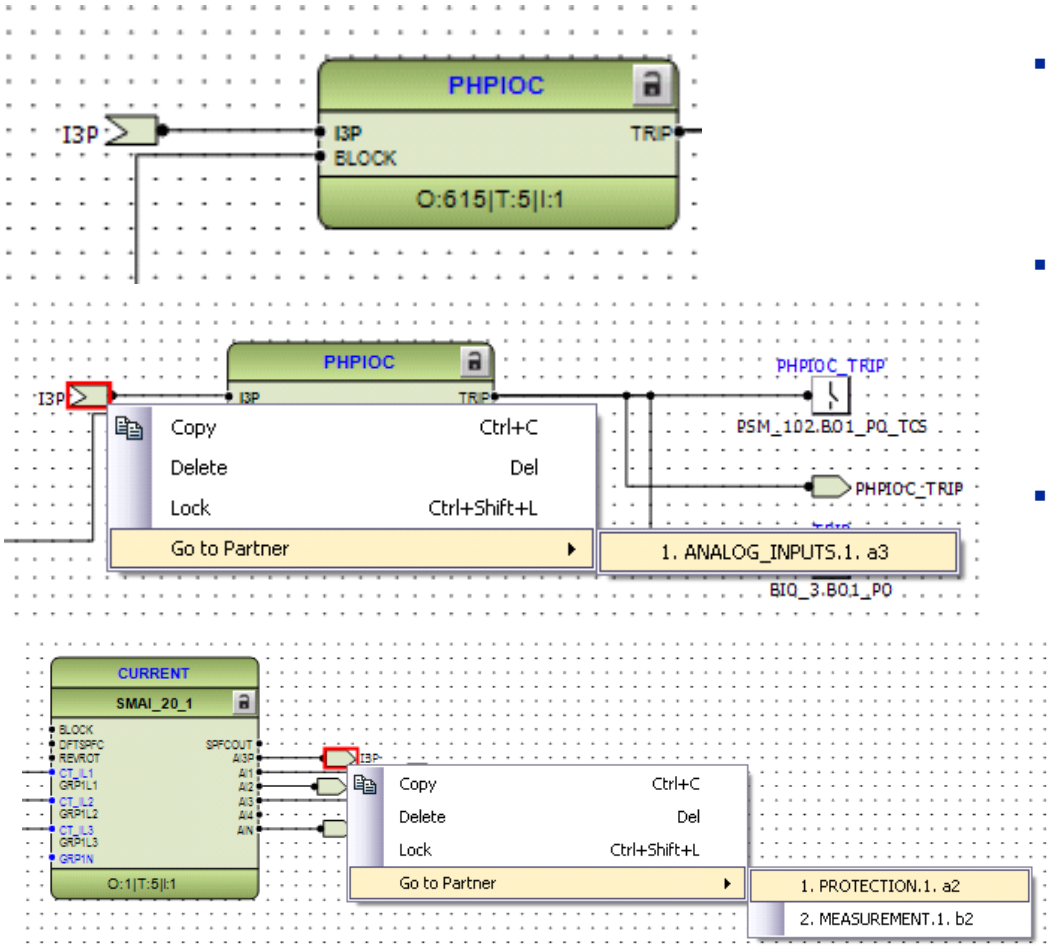
Application Configuration Tool
Connections





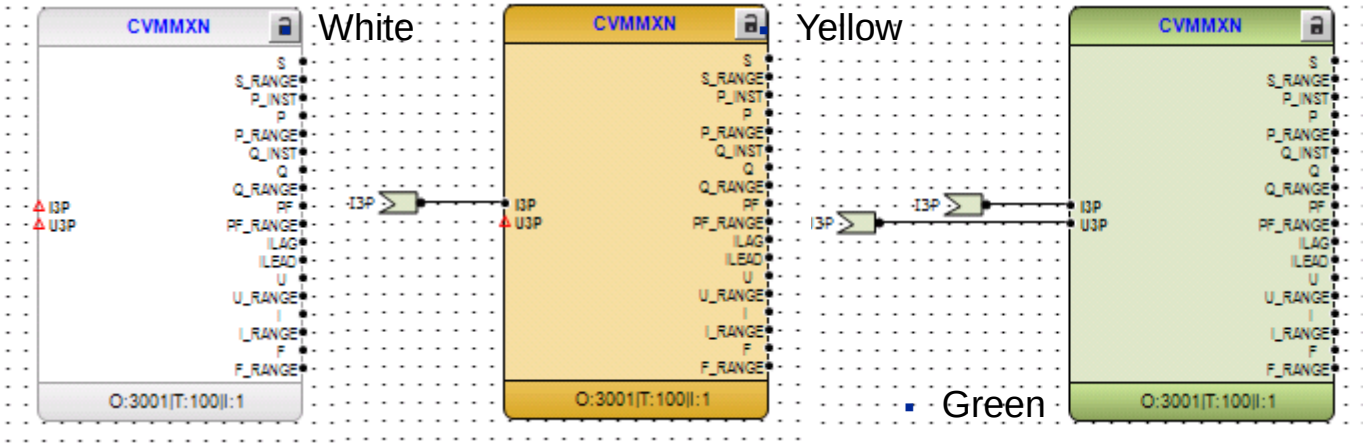
- Right click at input/output
- Select Connect/Variable/Existing
- Select suitable variable in list
  - Only “legal” variables are shown -> signal type sensitive

Application Configuration Tool
Partner Variables



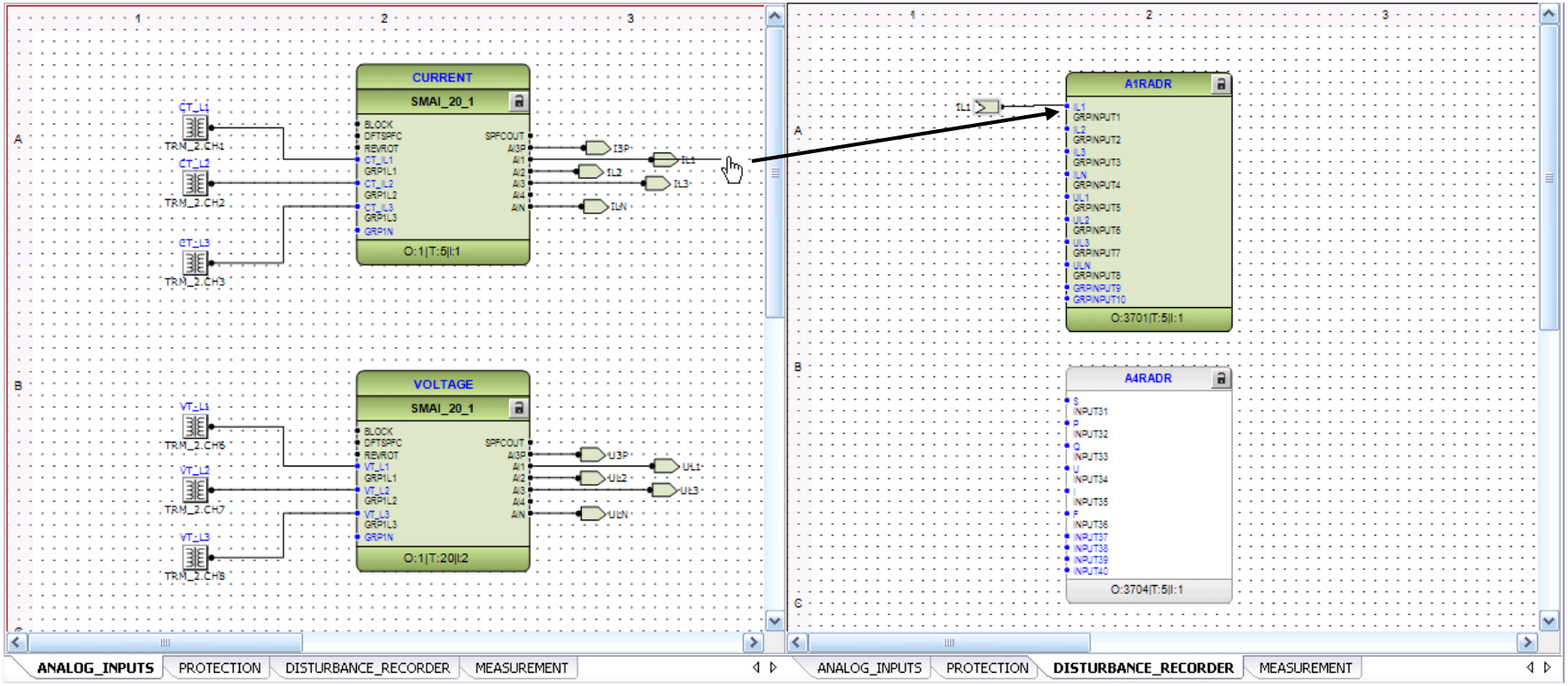
- The “Go to Partner” is used to easily find out all places where a specific variable is used
- Rename variable
  - All partner variables will be renamed
- Delete output variable
  - All partner (input) variables will also be deleted

Application Configuration Tool
Function Block Color Codes



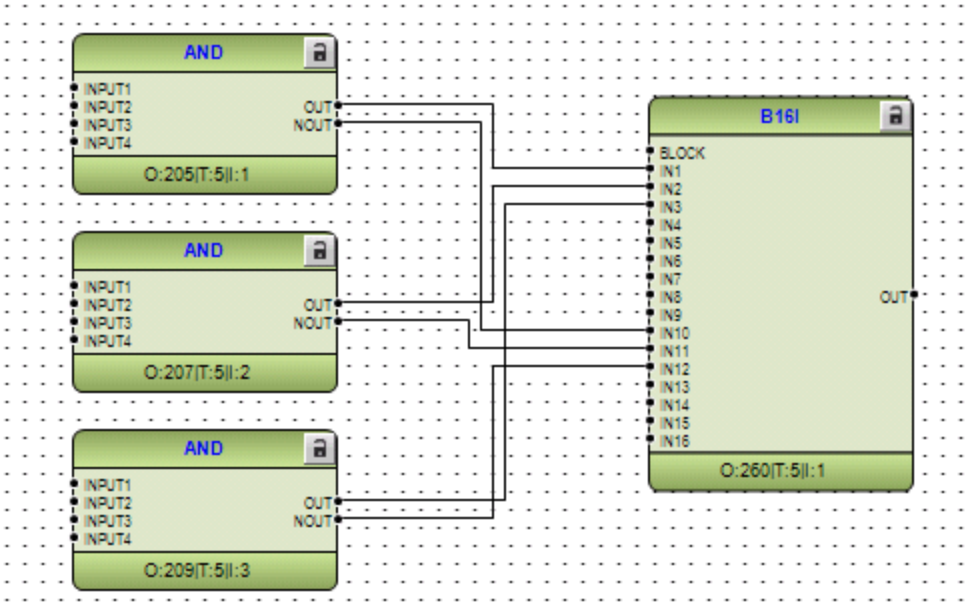
- Three different colors for the function blocks connection status
  - White = unconnected
  - Yellow = partly connected
  - Green = fully connected
    - OK to write configuration to the IED
- Red triangle on input
  - Signals must be connected. Mandatory!

Application Configuration Tool
Split Window



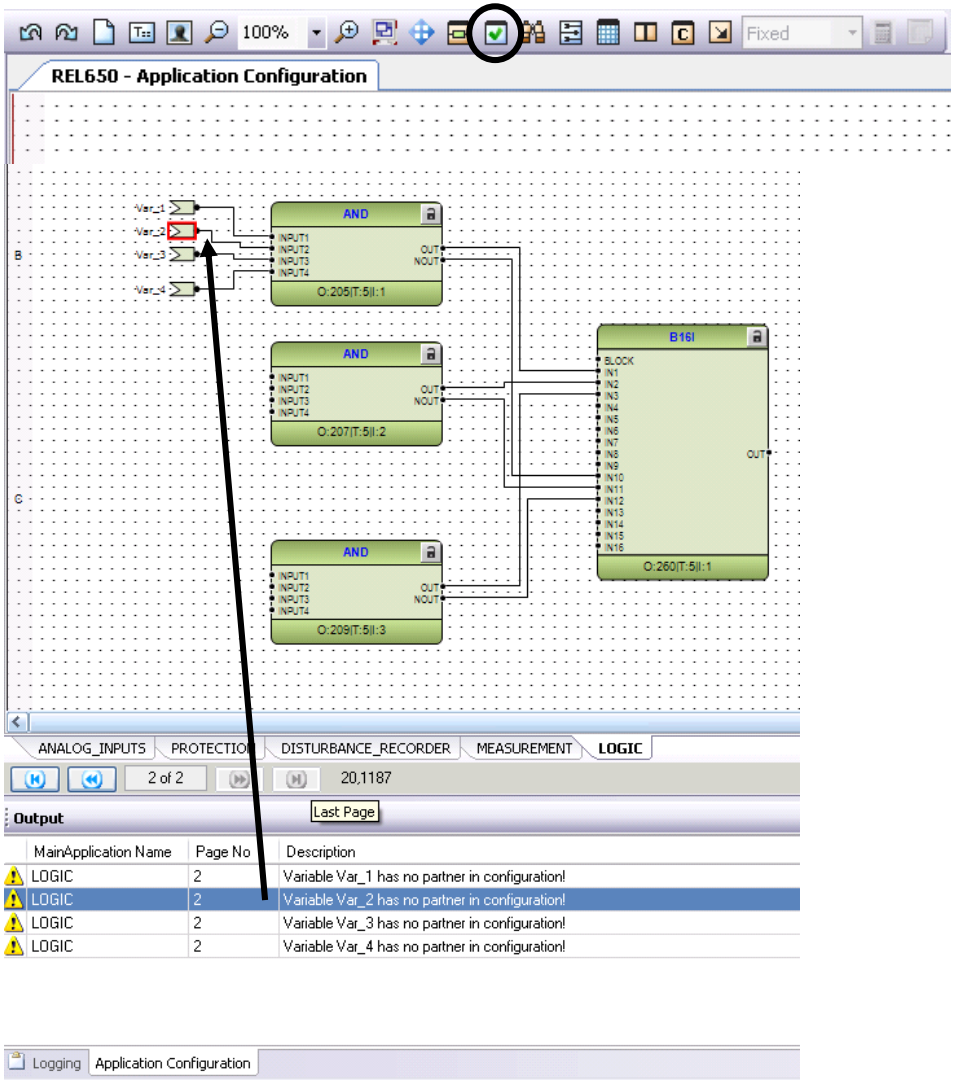
- With Split window active, it is possible to create a connection between function blocks on different pages/main applications as if they were residing on the same page/main application
- Only allowed to drag FROM output TO input
- Connection represented by variables
  - Variables are automatically created at output/input signals

Application Configuration Tool
Auto Routing Connections



- Connection lines
  - Automatically placed in the best possible way
- Auto routing can not be disabled
  - But connection lines can manually be moved
- Connection lines are rerouted if function blocks are moved
  - Do not spend time on manual reallocation of connection lines before your configuration is in the final phase

Application Configuration Tool Validation

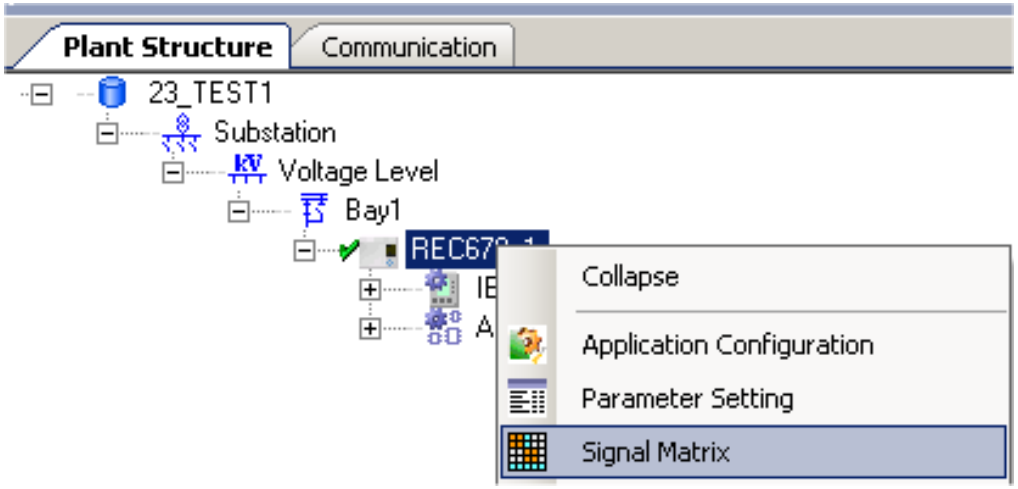


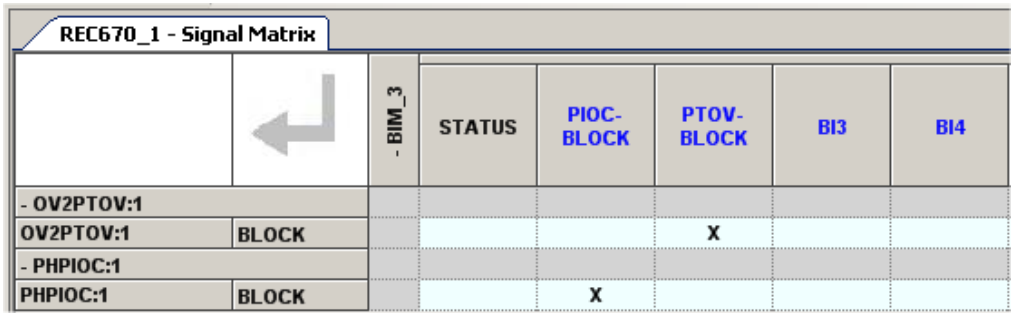
- Purpose is to validate the configuration when it comes to
  - Not connected mandatory signals
  - Connections between function blocks running in different cycle times
  - Unconnected variables
- Errors and warnings are displayed in the Output window
  - Errors: Not possible to write configuration to the IED
  - Warnings: OK to write configuration to the IED but “be aware”
- Double click the error/warning in the output window to jump directly to the source in the configuration

Agenda

- Introduction
- PCM600
- Application Configuration Tool
- Parameter Setting Tool
- Graphic Display Editor
- IEC61850
- Questions

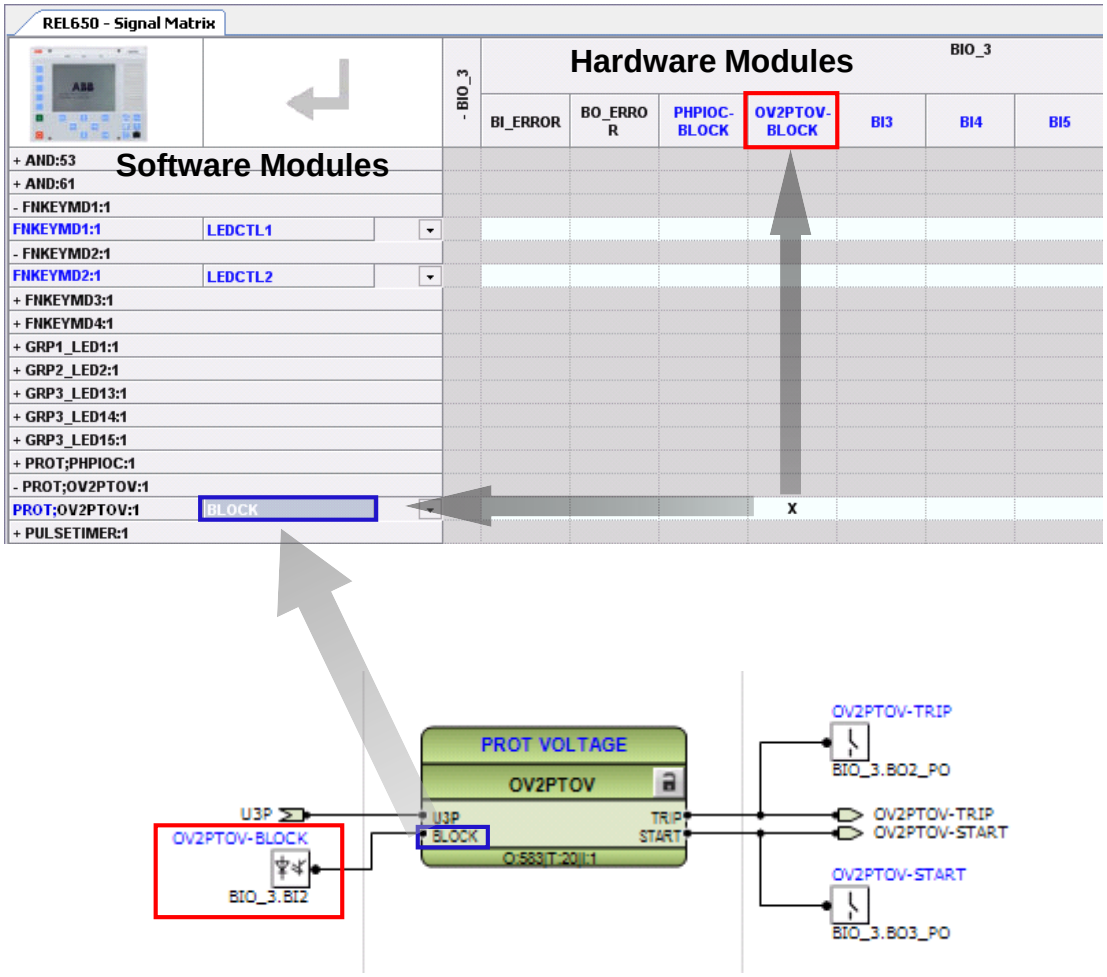
Signal Matrix
Overview





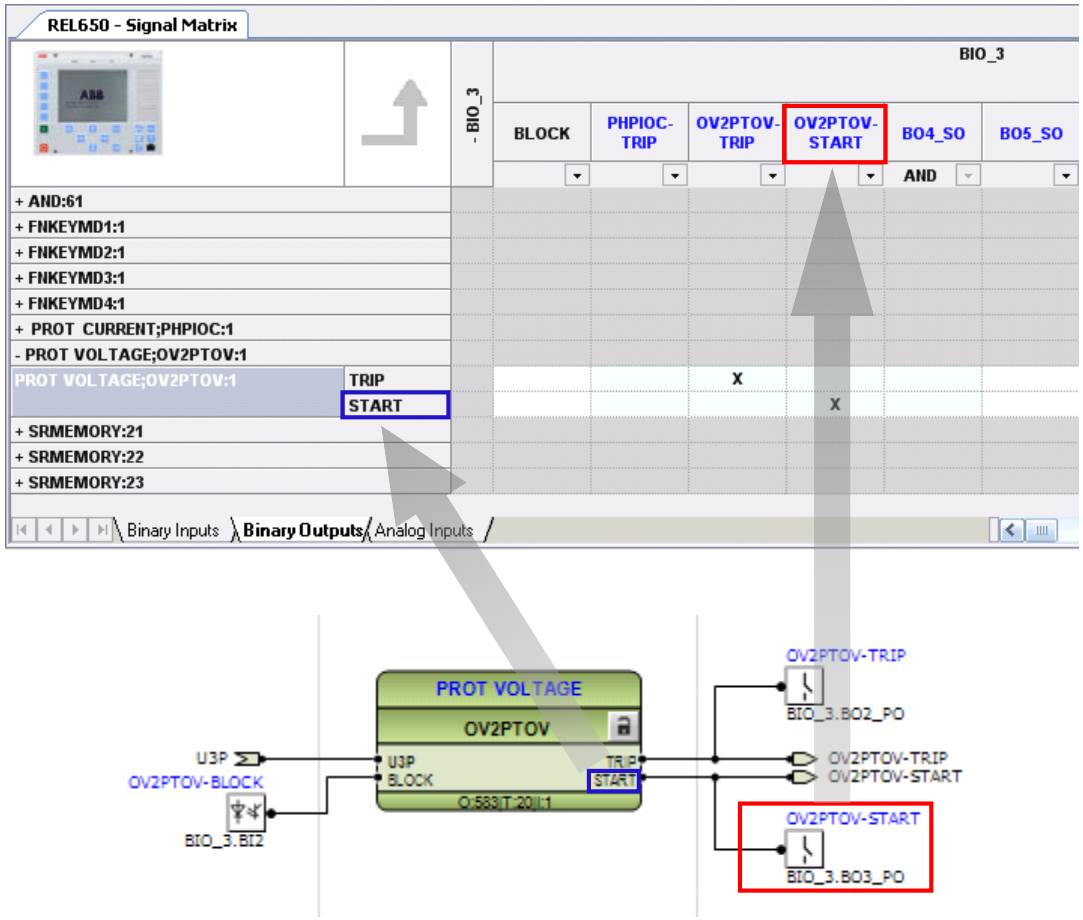
- The Signal Matrix Tool is used for
  - Mapping internal application configuration logic (SW IO) to physical I/O
    - Binary Inputs
    - Binary Outputs
    - Analog Inputs
  - Communication mapping
    - IEC61850 GOOSE
- Can run in parallel with ACT

Signal Matrix
Binary Inputs



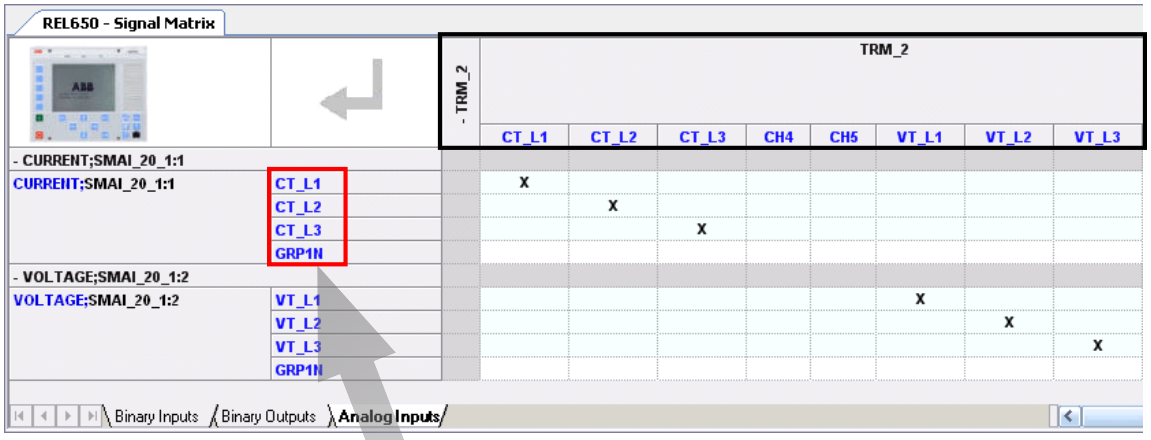
- Physical binary inputs
  - At the top of matrix
- Software I/O
  - At the left of matrix
  - Function block inputs
- To make a mapping
  - Select square
  - HW and SW channel are marked
  - Double left click for **X**
  - Double right click for **I**
    - Inverted channel
  - Press **X** or **I** on keyboard
    - No other keys are accepted

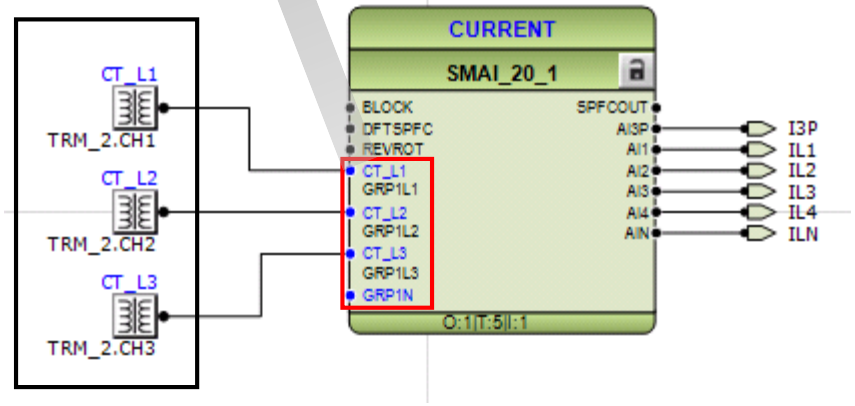
Signal Matrix
Binary Outputs



- Physical binary outputs
  - At the top of the matrix
- Software I/O
  - At the left of the matrix
  - Function block outputs

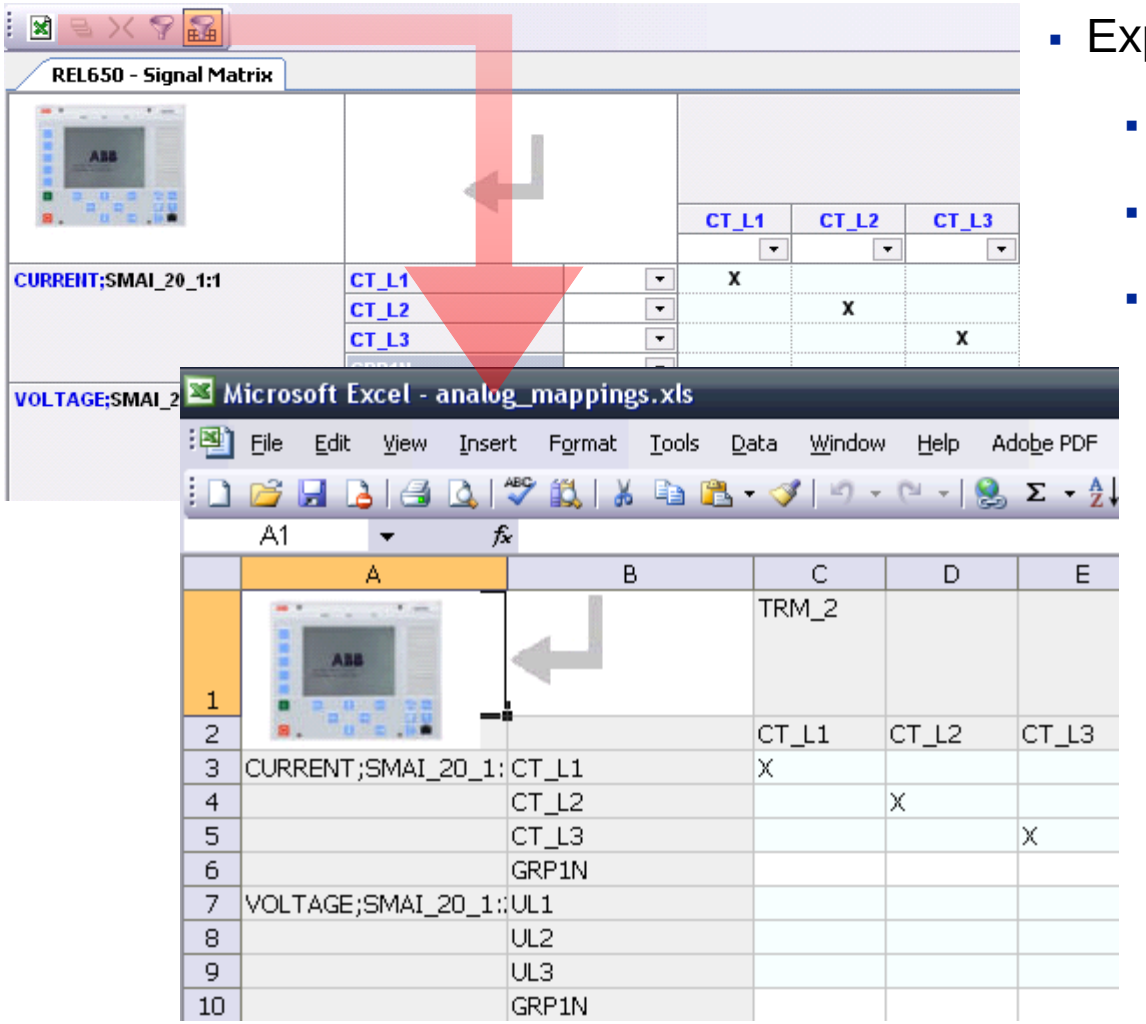
Signal Matrix
Analog Inputs





- Physical analog inputs
  - At the top of the matrix
- Virtual analog Inputs (SMAI)
  - At the left of the matrix
- SMAI block outputs
  - Group signal
    - Contains all 3-phases + Neutral
  - Phase signals
  - Neutral signals
    - Measured neutral – AI4
    - Calculated neutral - AIN

Signal Matrix
Excel Export



- Export each mapping sheet
  - Binary inputs
  - Binary outputs
  - Analog inputs

Agenda

- Introduction
- PCM600
- Application Configuration Tool
- Parameter Setting Tool
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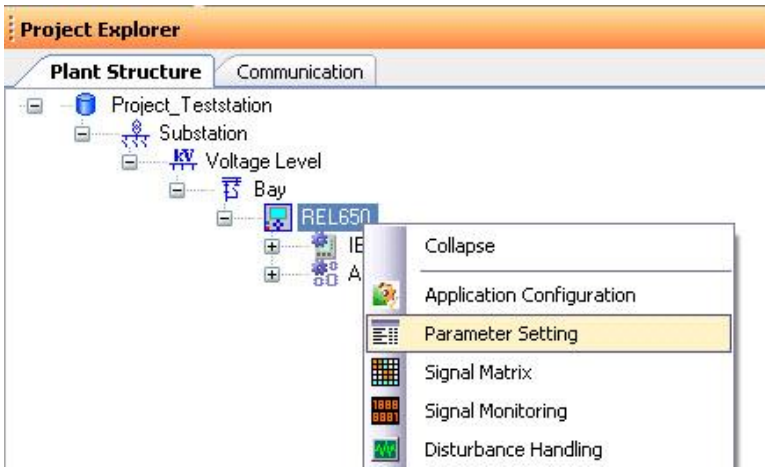
- IEC61850
- Questions

Parameter Setting Tool
Overview

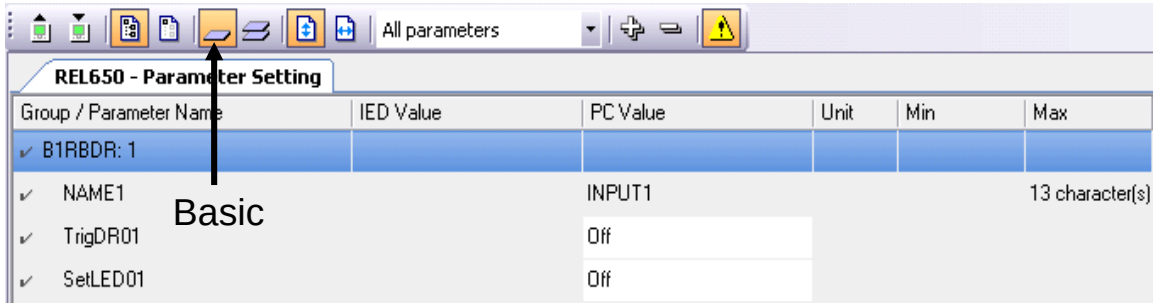


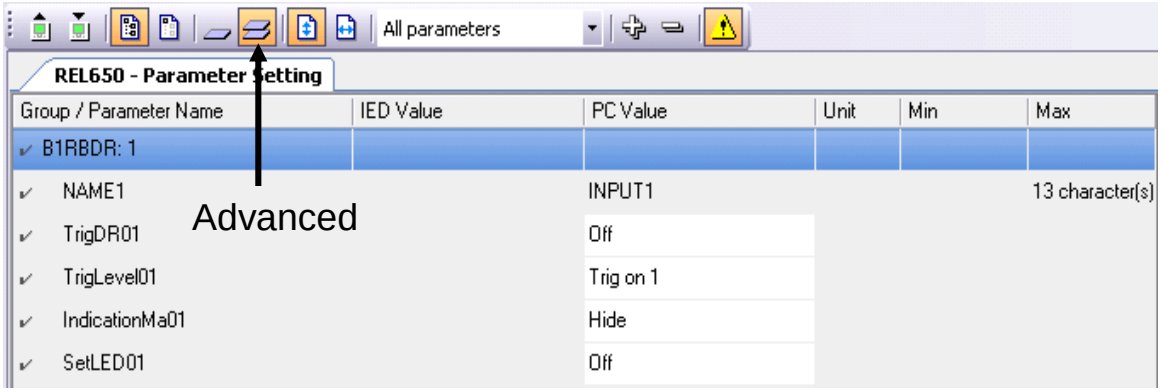
REL650 - Parameter Setting

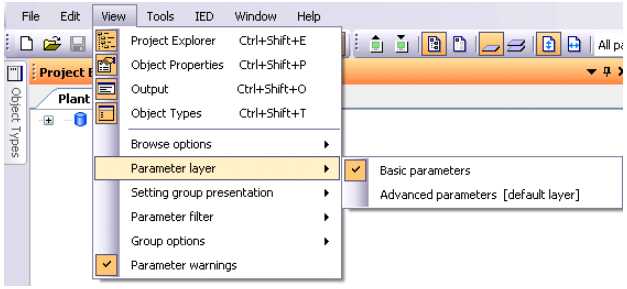
Group / Parameter Name	IED Value	PC Value	Unit	Min	Max
REL650					
IED Configuration					
HW Configuration					
COM_101					
BatteryVoltage		110	V	24	250
BINAME1		BI1			13 character(s)
Threshold1		65	%UB	6	900
DebounceTime1		0.005	s	0.000	0.100
OscillationCount1		0		0	255
OscillationTime1		0.000	s	0.000	600.000
BINAME2		BI2			13 character(s)
Threshold2		65	%UB	6	900
DebounceTime2		0.005	s	0.000	0.100
OscillationCount2		0		0	255
OscillationTime2		0.000	s	0.000	600.000
BINAME3		BI3			13 character(s)

- PST is started by right clicking the IED object or any object below in the plant structure. PST shows parameters for selected object (and objects below) in the plant structure

Parameter Setting Tool
Layers

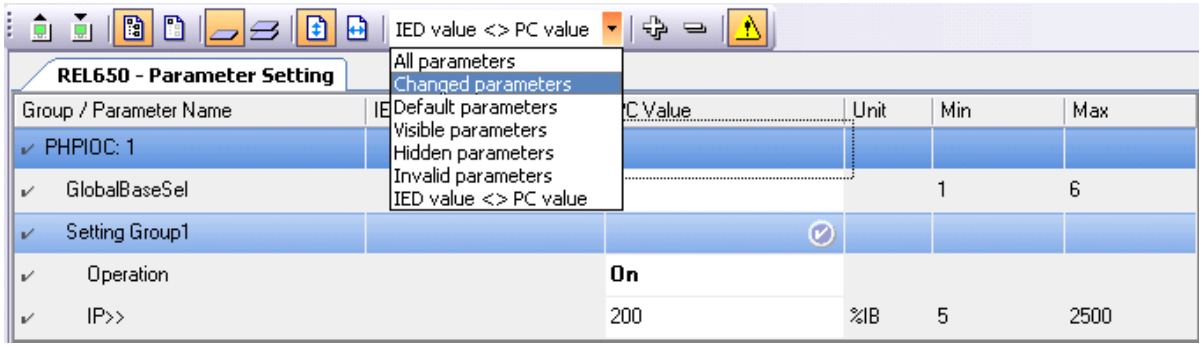


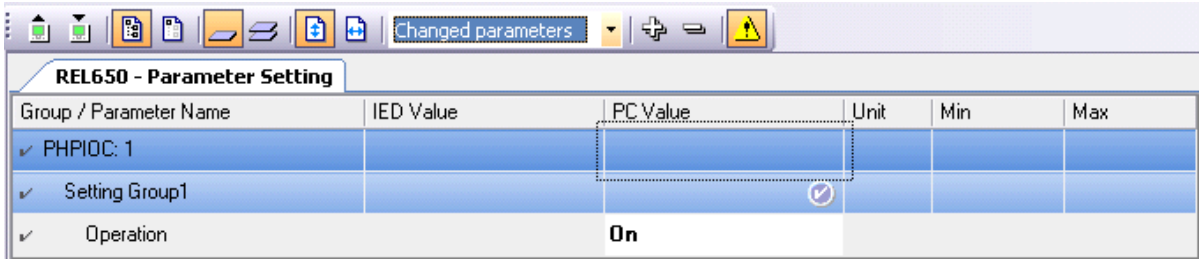




- Hide/show specific parameters
  - Basic parameters
    - Subset of parameters
  - Advanced parameters
    - All parameters

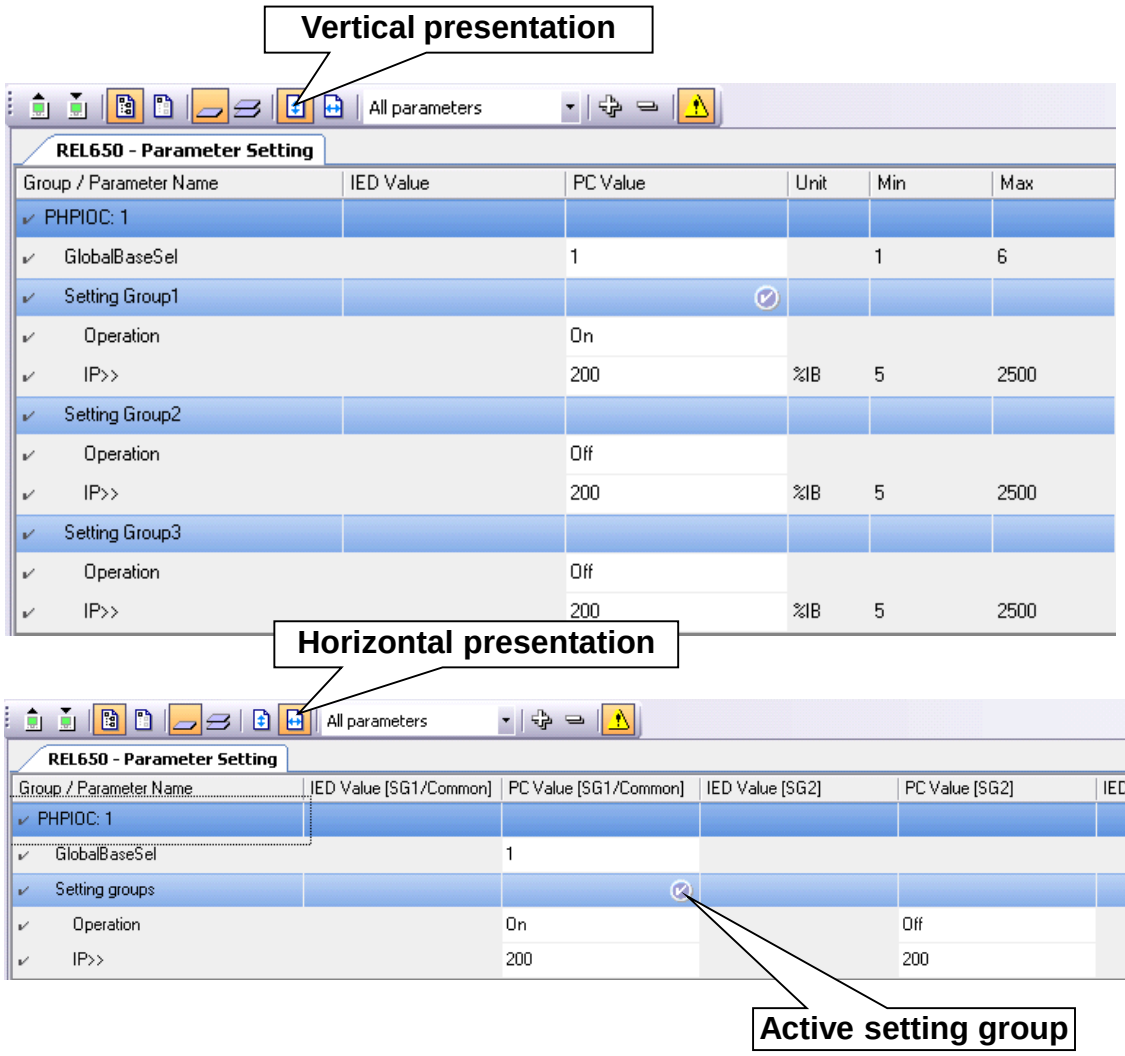
Parameter Setting Tool
Filters





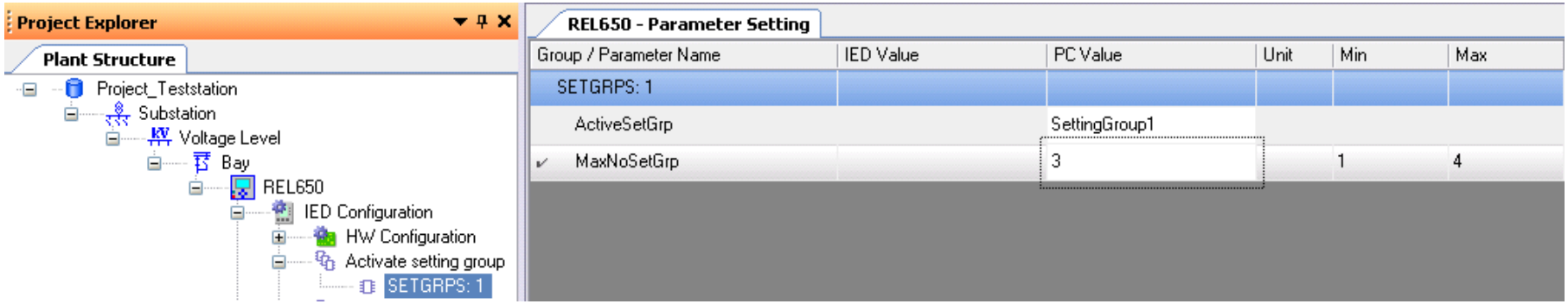
- Filter options
  - Changed parameters
  - Default parameters
  - Visible parameters
  - Hidden parameters
  - Invalid parameters
    - Outside boundaries
  - IED Value <> PC Value
    - Difference between IED and PC values
    - Read parameters from IED
    - Uncheck copy IED values to PC values

Parameter Setting Tool
Layout



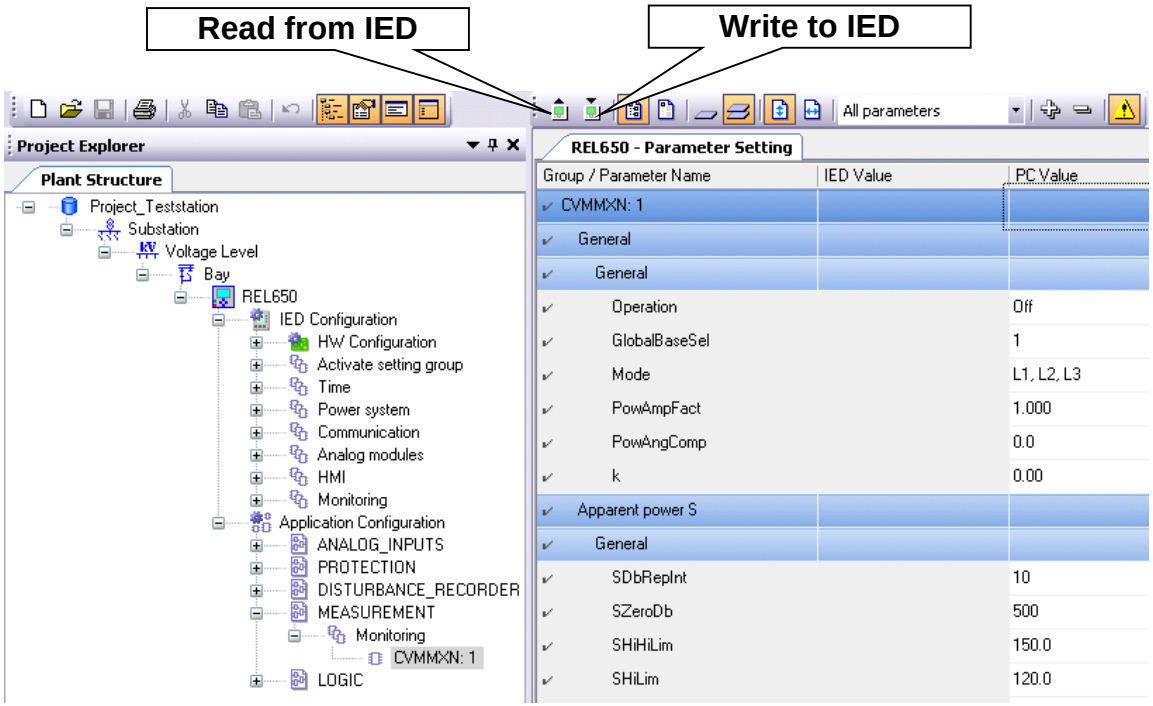
- Two presentation views
  - Vertical
  - Horizontal
- “Check mark” sign indicates the active setting group
- Copy/Paste setting groups
  - Select group
  - Right click, copy/paste

Parameter Setting Tool
Setting Groups



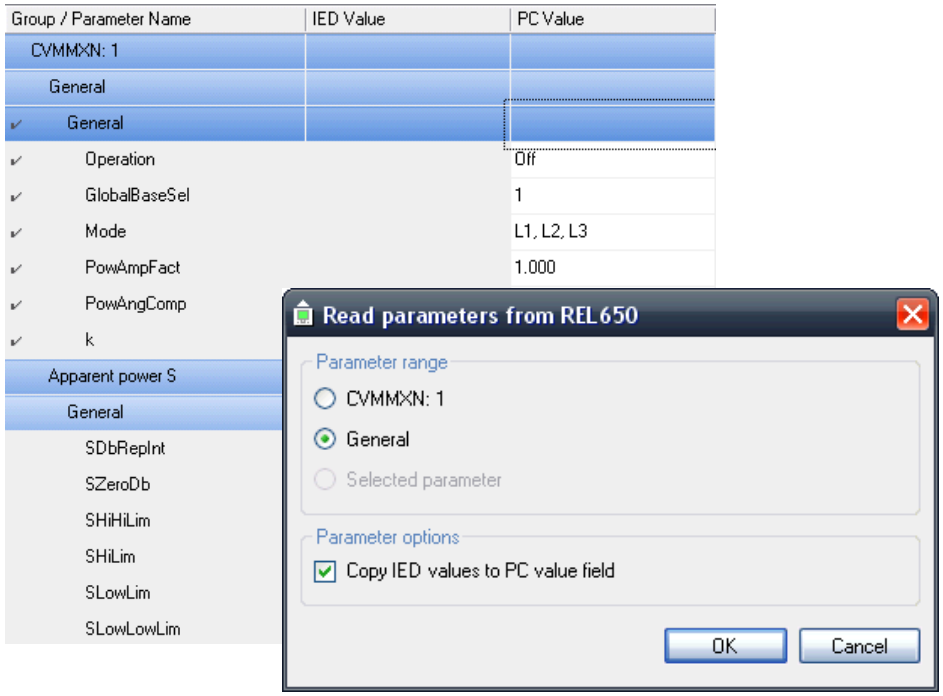
- The number of setting groups are set in PST
- Restart PST after changing the value

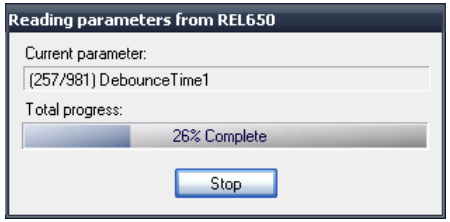
Parameter Setting Tool
Read/Write



- Read/Write of parameters
  - Single parameter
  - A group of parameters
  - All parameters

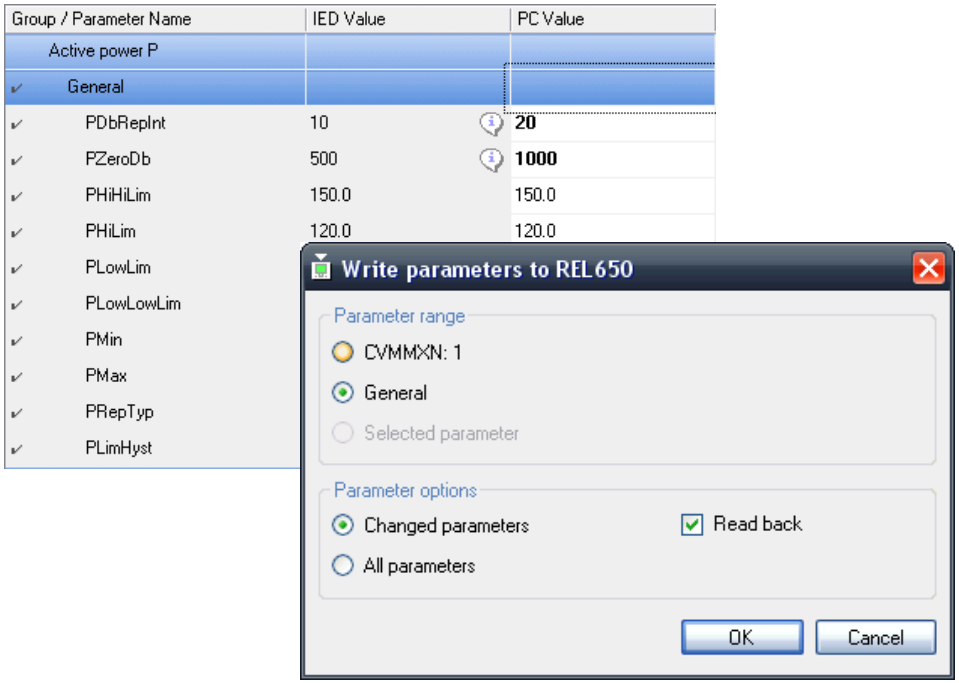
Parameter Setting Tool
Reading Parameters

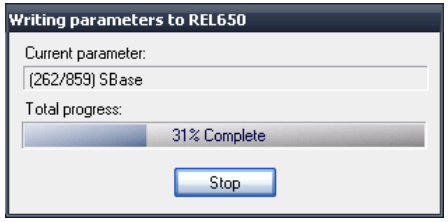




- What to read
  - Parameters marked with the “check mark symbol” in left margin will be read
- Parameter option
  - Copy IED values to PC value field;
    - Uncheck if you would like to keep your settings made offline in PST.

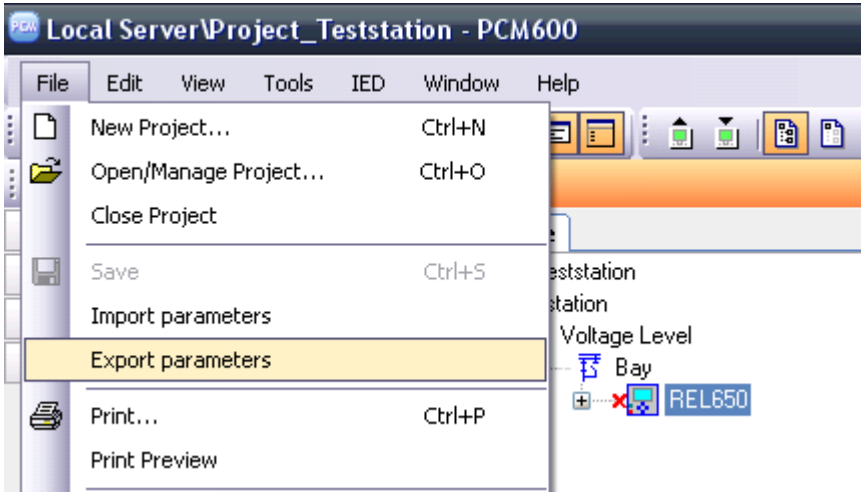
Parameter Setting Tool
Writing Parameters





- Parameter option
  - Write all or changed values
    - Changed values = unsaved settings
  - Read back
    - If you want to be really sure…
- PC value in bold text
  - Indicates unsaved settings
- IED value exclamation mark
  - IED and PC value differs

Parameter Setting Tool
Import/Export Parameters

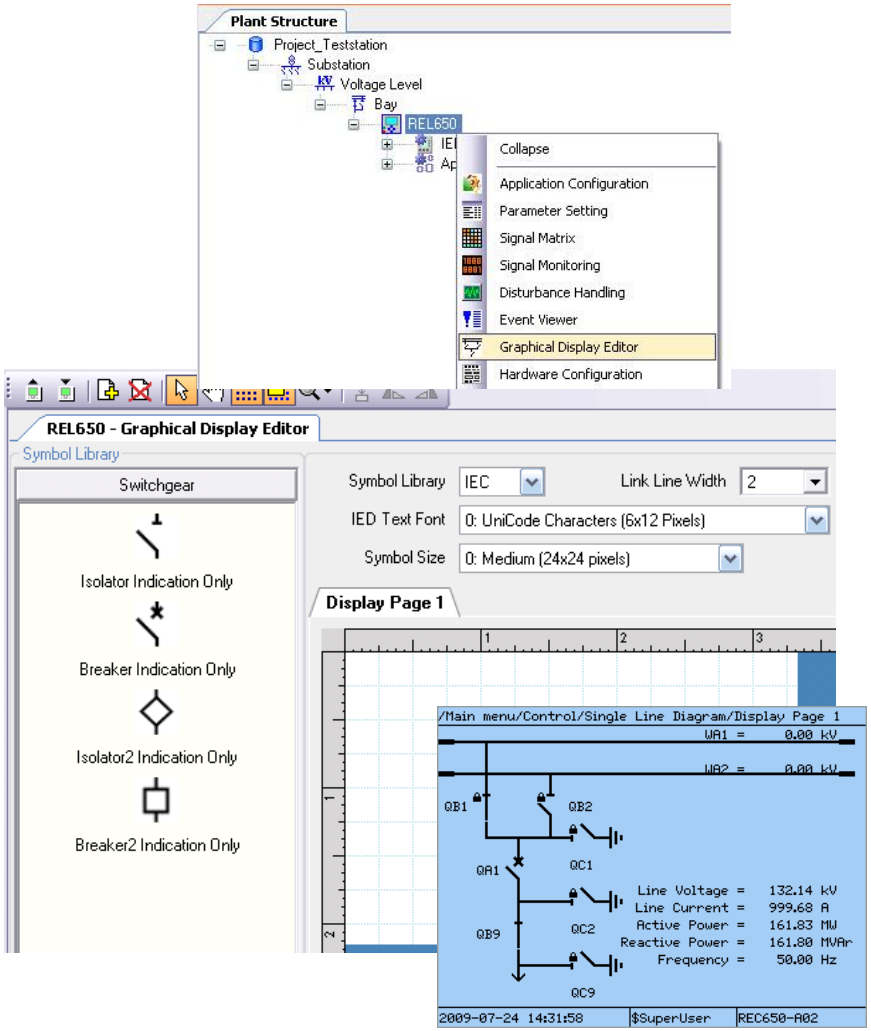


- Export/Import to/from XRIO file
  - Only all parameters possible to export/import, no subsets.

Agenda

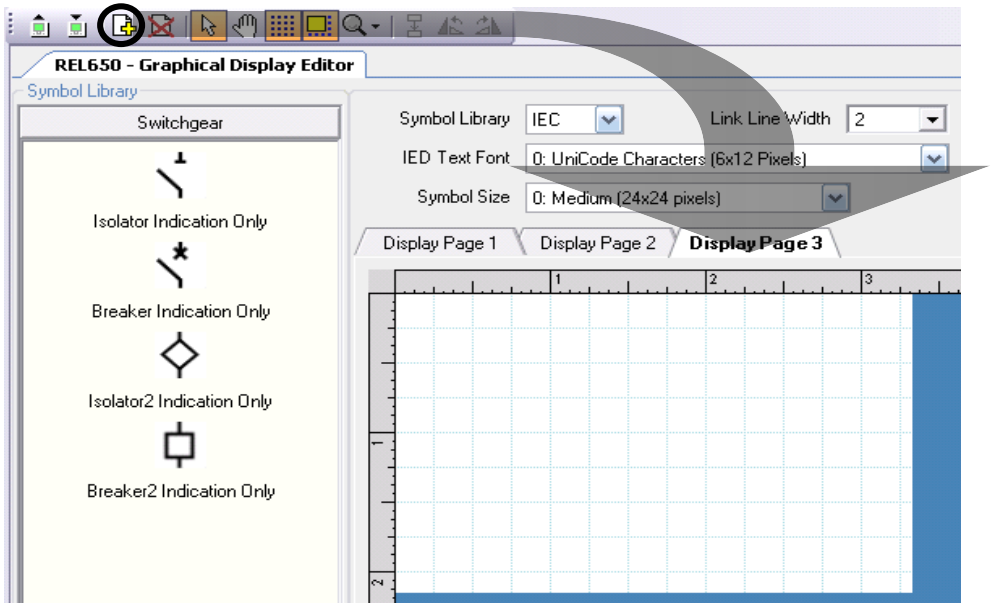
- Introduction
- PCM600
- Application Configuration Tool
- Parameter Setting Tool
- Graphic Display Editor
- IEC61850
- Questions

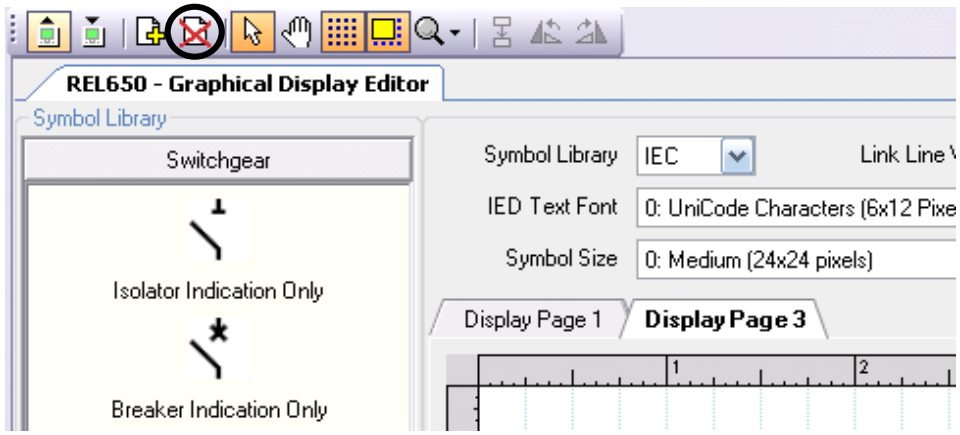
Graphic Display Editor
Overview



- To engineer the single line diagram
  - For LHMI of the IED
  - Demands that function blocks are configured
    - Breaker objects
    - Disconnector objects
    - Measurements

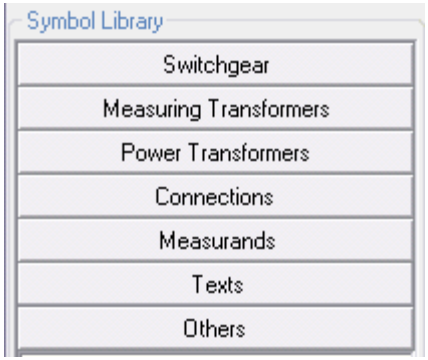
Graphic Display Editor
Pages

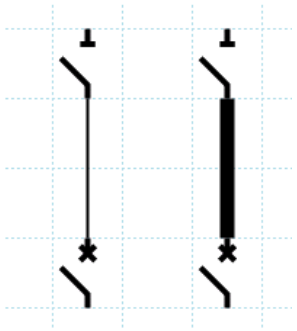


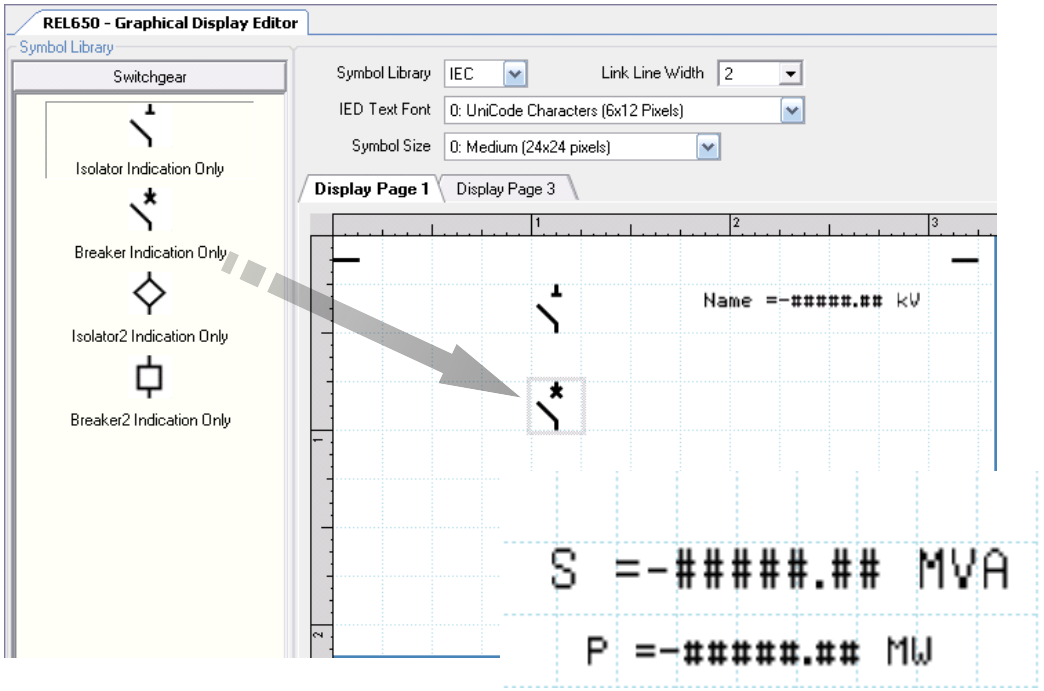


- Multiple pages
  - Add pages
  - Delete pages

Graphic Display Editor
Insert Symbol

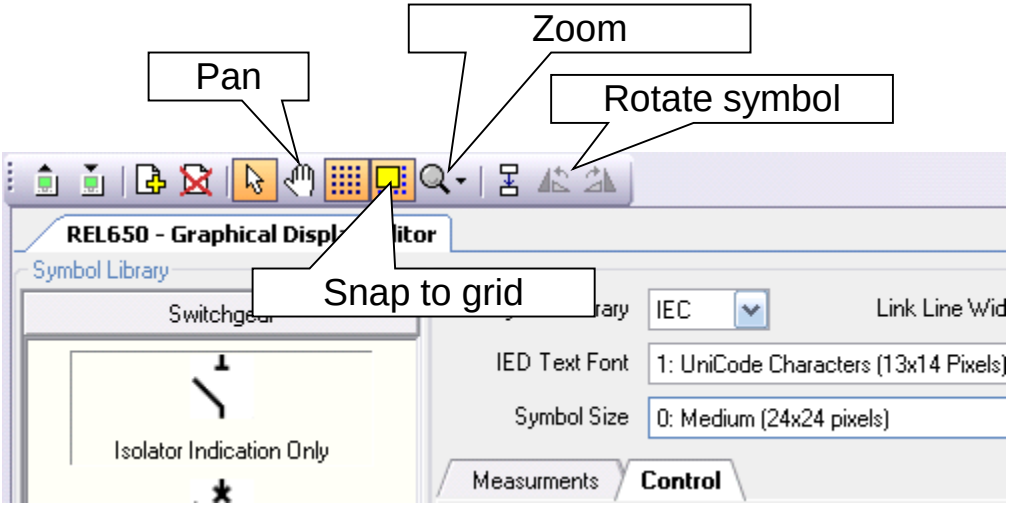






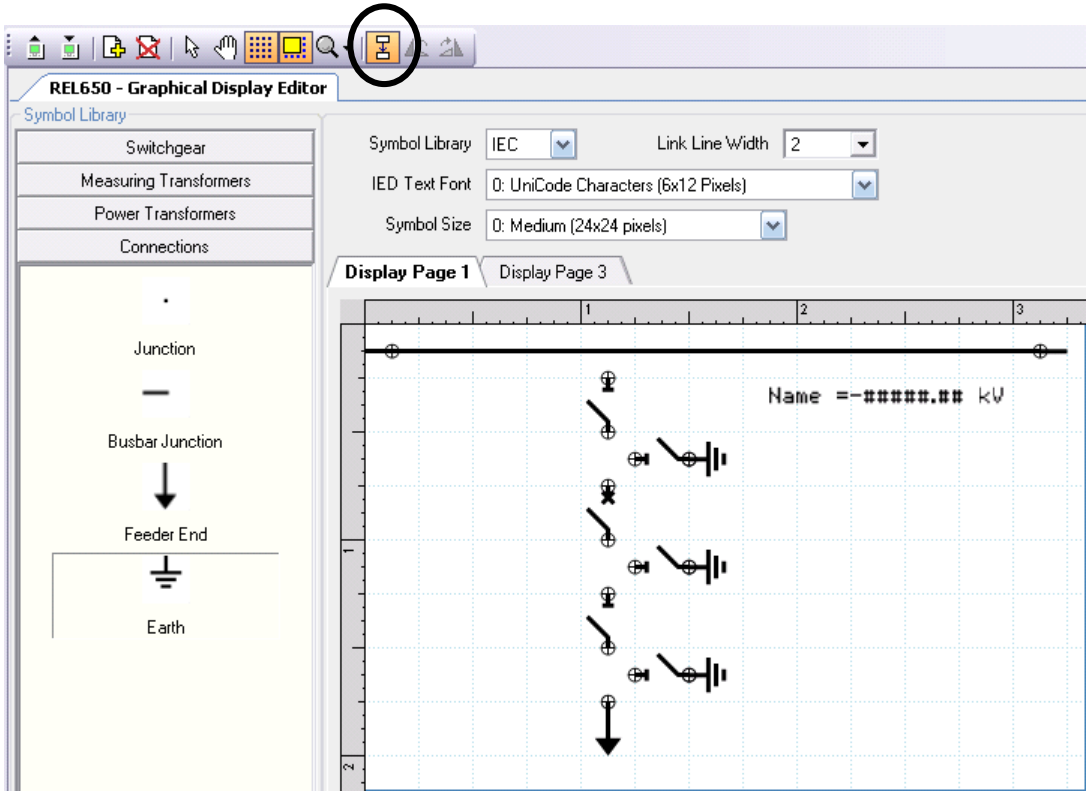
- Symbol Library
  - Fixed set of symbols
  - IEC and ANSI
- Custom symbols not possible
- Drag and drop
- IED Text font
  - Two font sizes
- Symbol size
  - Only one size
- Link line width

Graphic Display Editor
Symbol Handling



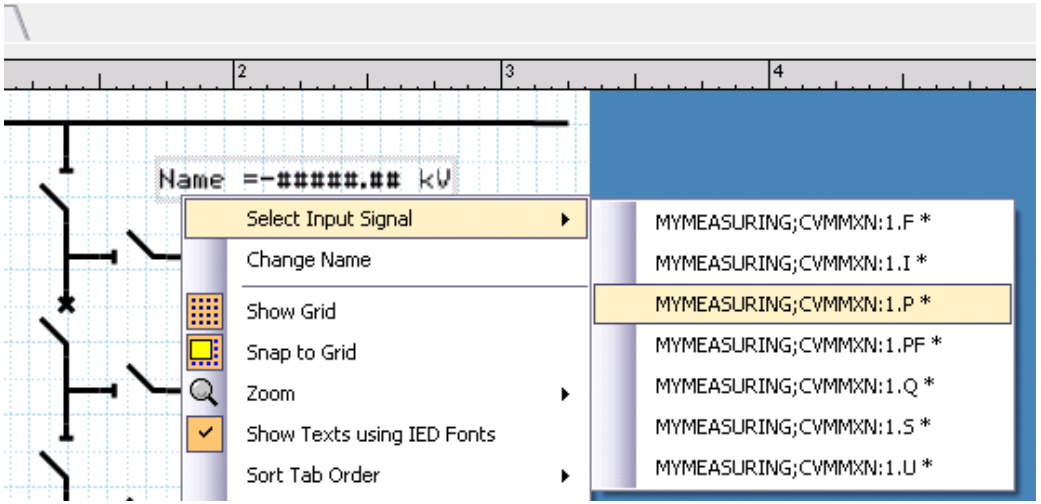
- Snap to grid
- Zoom
- Pan
  - Toggle between Pan and pointer
- Rotate left and right

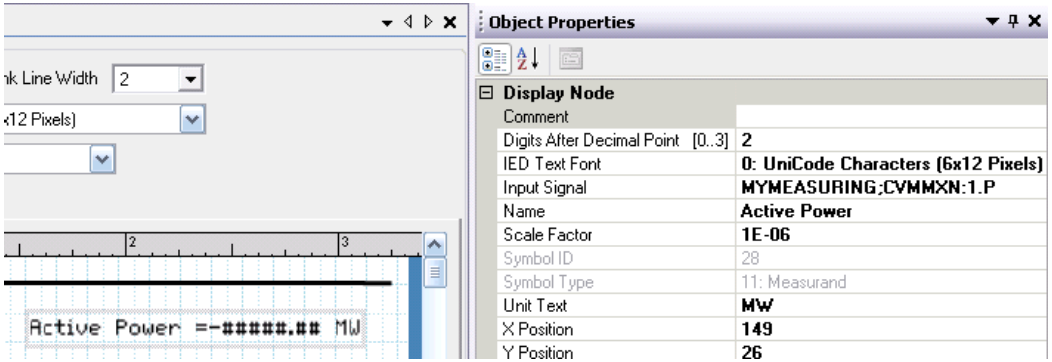
Graphic Display Editor
Link Symbols



- Make linking active
- Draw link
  - Place mouse over first point
  - Left click once
  - Draw to second point
  - Left click once

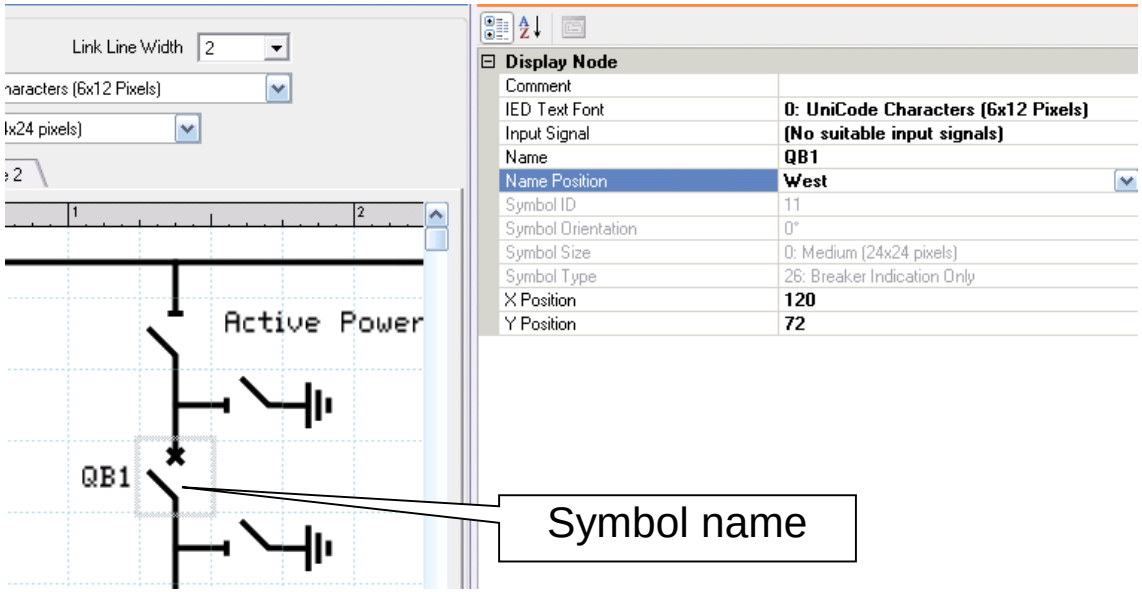
Graphic Display Editor
Associate Symbols





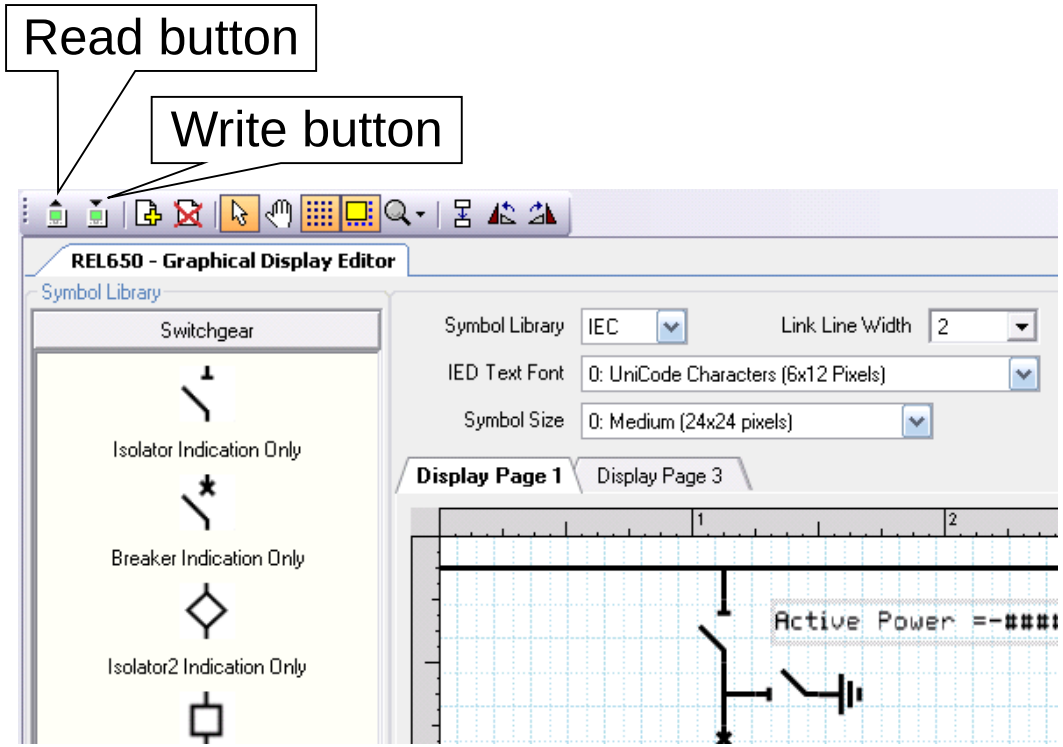
- Associate symbols with functions
  - Measuring functions
  - Control functions
  - User Defined name shown
- Make association
  - Select object
  - Right click
  - Select Input Signal
- Object Properties
  - Make association
  - Renaming
  - Scaling
  - Unit Text

Graphic Display Editor
Symbol Name Positioning



- 5 positions
  - Center
  - North
  - East
  - South
  - West
- Position in Object Properties

Graphic Display Editor
Read/Write

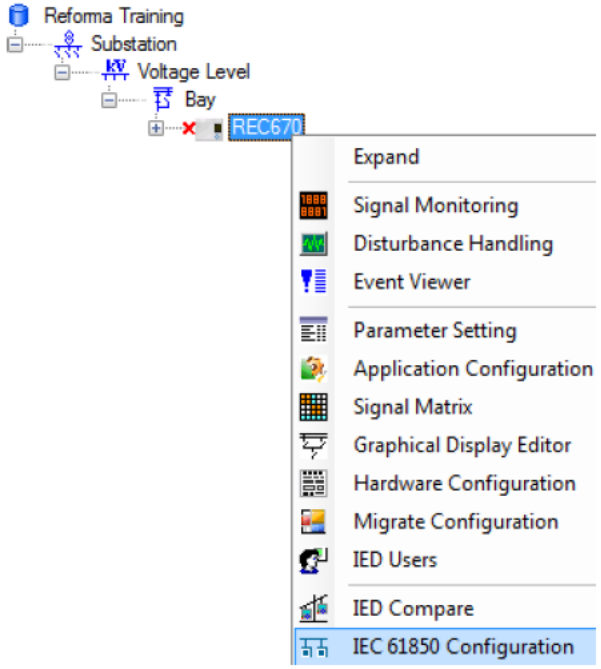


- This Read/Writes only the GDE data

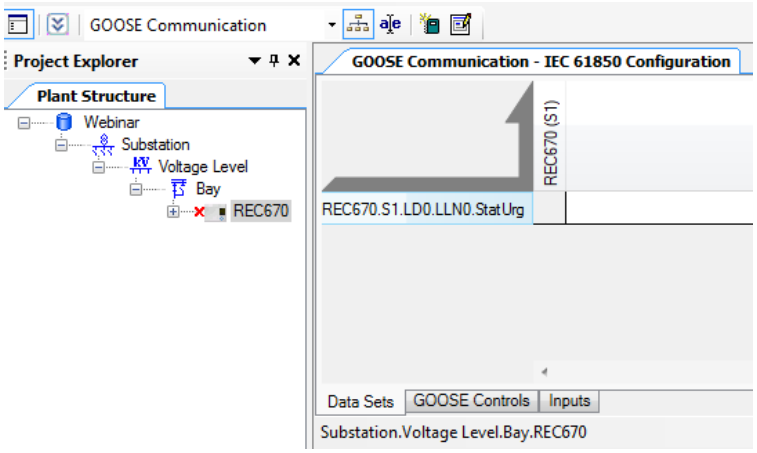
Agenda

- Introduction
- PCM600
- Application Configuration Tool
- Parameter Setting Tool
- Graphic Display Editor
- IEC61850
- Questions

IEC61850
Overview



- PCM600 allows users to edit the IEC61850 information of ABB 650 and 670 devices.
- As functions are added into the ACT, they IEC61850 information for Client/Server will updated
- To edit the IEC61850 information, Right-Click the relay and select “IEC61850 Configuration”
- Once opened the tool will look like the screenshot from below.

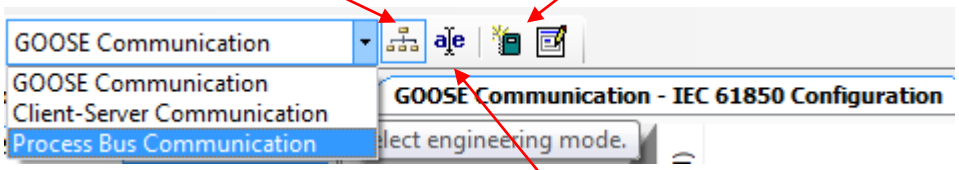


IEC61850
Overview

Toggle On/Off Engineering Mode

- Must be on if you wish to edit

Create a New Object



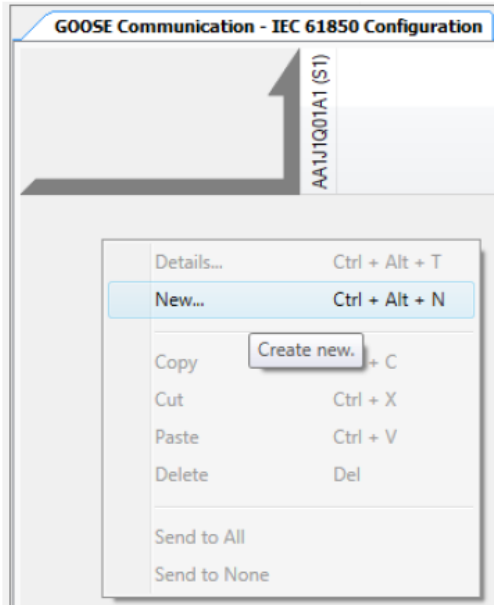
Allows you to select between:

- Goose
- Client-Server
- Process Bus

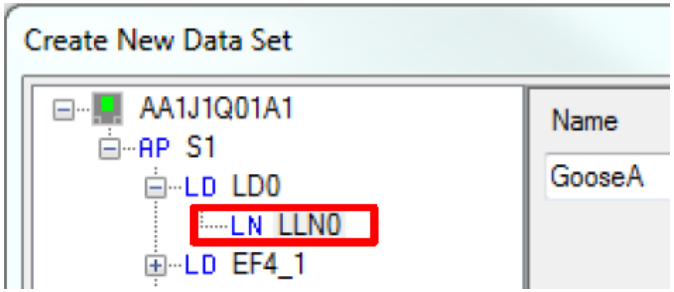
Toggles between IEC61850 and user defined names

IEC61850
Create a Dataset

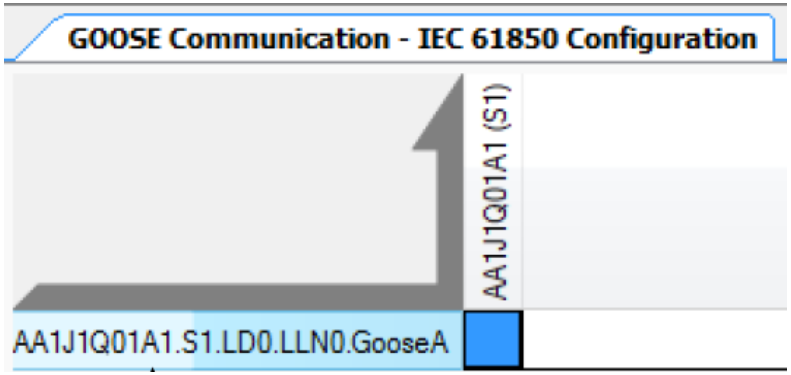
In order to add a Goose Dataset, Right-Click in the blank space and select "New…"



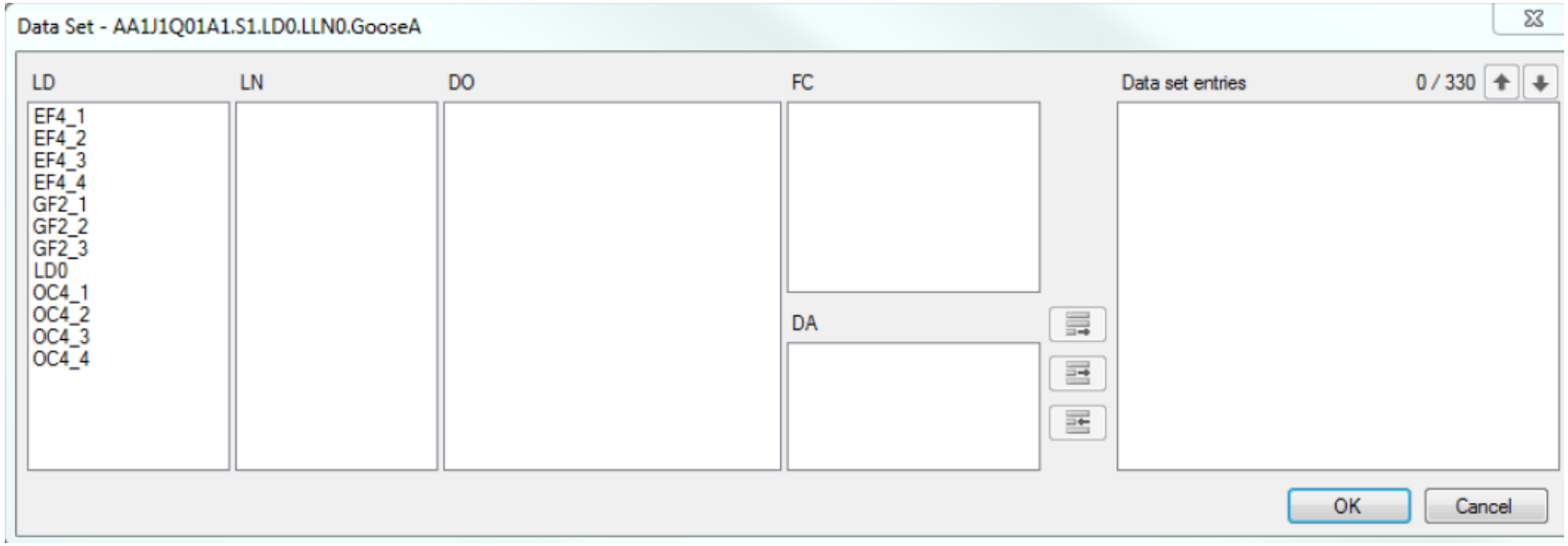
Expand the structure as seen below and select LLNO and then name the goose message before selecting "OK"



IEC61850
Create a Dataset

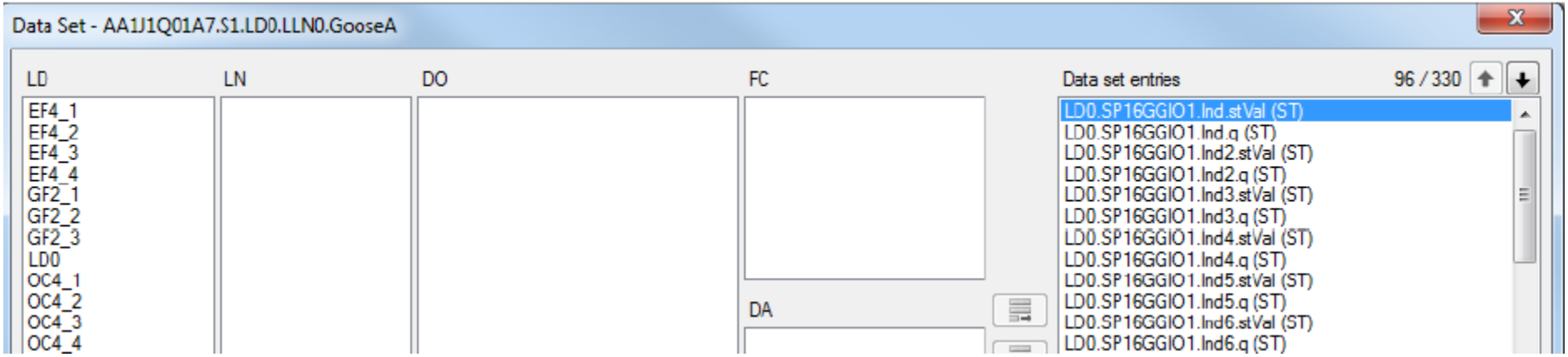


Double click on the goose message after it has been created and the following window will open



IEC61850
Create a Dataset

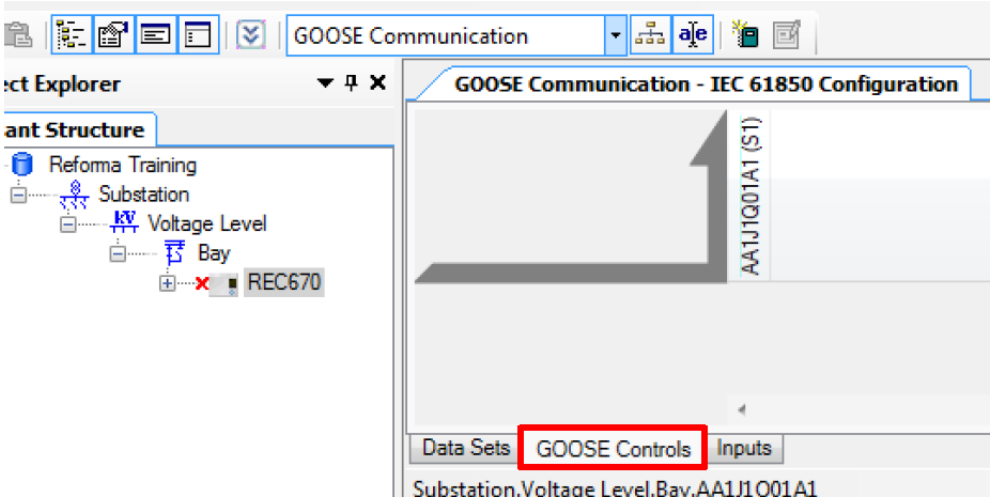
Add signals by making a selection in each of the columns until you reach the desired attribute. Once you have highlighted your desired attribute then select “Append selected” as highlighted by the red box below. Repeat until all desired attributes are connected into the Dataset.



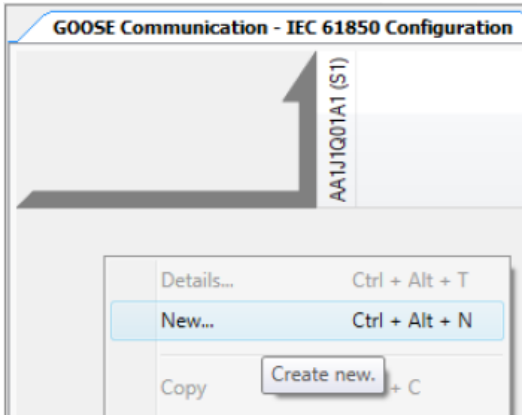
A maximum of 100 pieces of data (in Goose datasets) is allowed for each dataset therefore if you need to send more than it is necessary to make additional datasets. Goose messages require the stVal(status value) and q(quality) bits to be broadcasted. You can add these individually or you can select and add ST in the FC window and that will provided the necessary attributes as well as time for the ABB relay.

IEC61850
Create a GOOSE Control Block

In order to add a Goose Control Block, while in the Goose Communication window select the “Goose Controls” tab found at the bottom of the page.

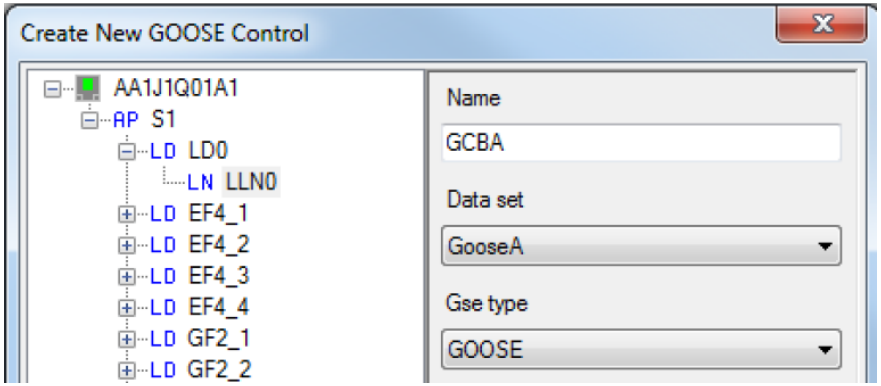


Similar to the dataset creation, right-click the blank area and select “New”



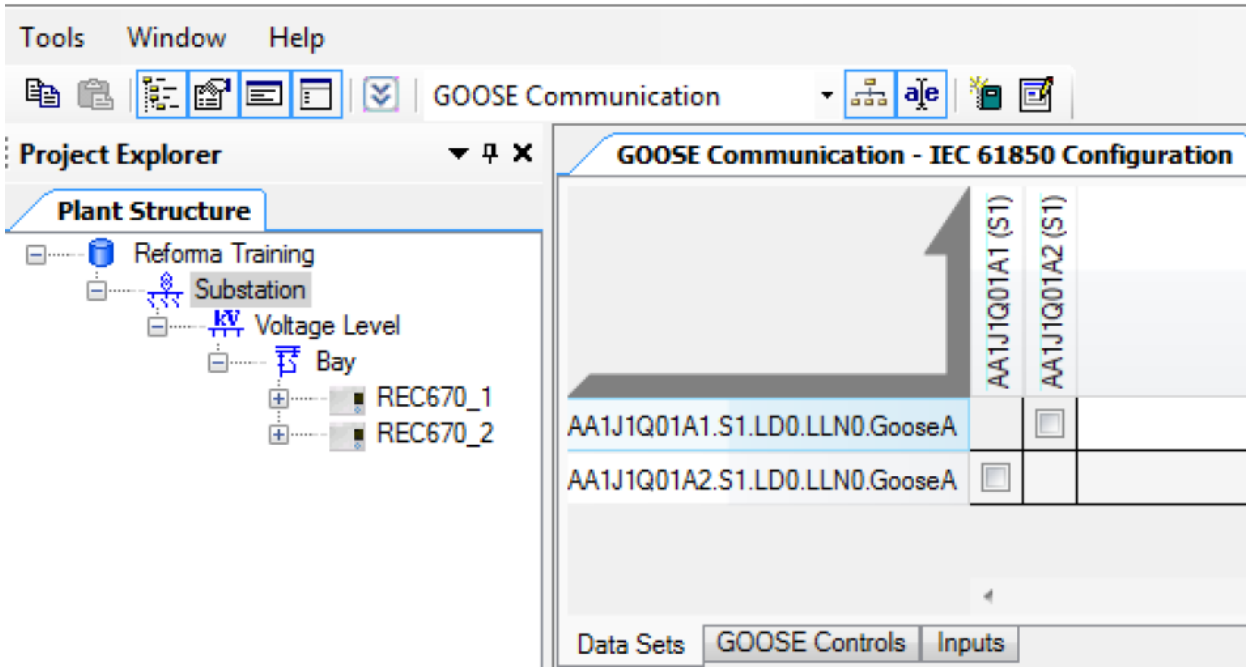
IEC61850
Create a GOOSE Control Block

Navigate to LLNO as seen below, create a name for the GCB, and then select the Data set you would like to be packaged with the GOOSE Control Block. In this example we have GooseA connected to GCBA. Once the selections are made hit “OK”

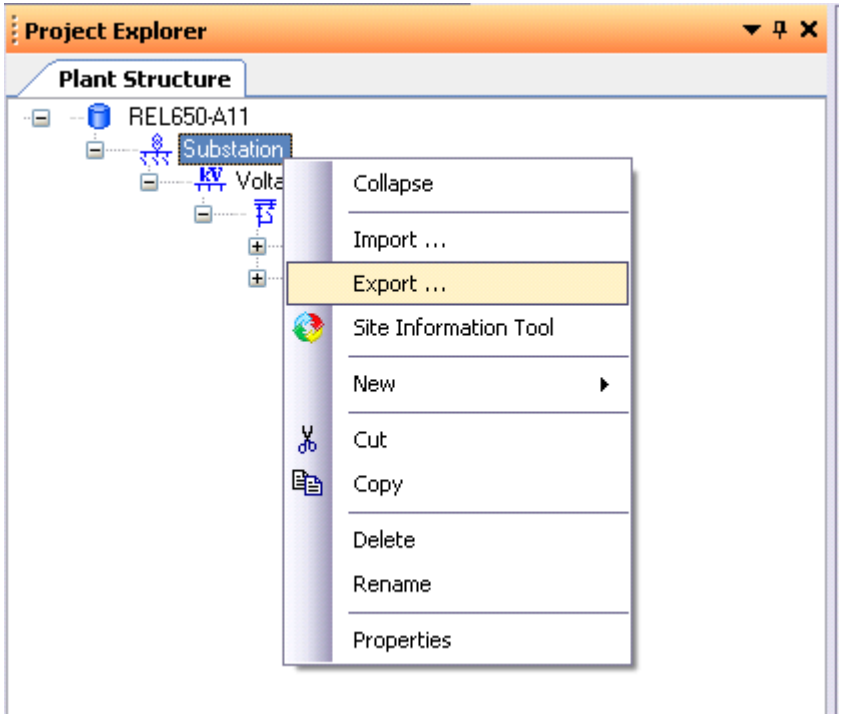


IEC61850
Subscribing Relays

- When multiple relays exist in a project and each have GOOSE Control Blocks, it is possible to subscribe to one another. By bring in another relay, we see the following table available. In order to see this view it is necessary to select the Bay Level or higher and to be in either the Data Sets or GOOSE Controls tab of the GOOSE Communication window.



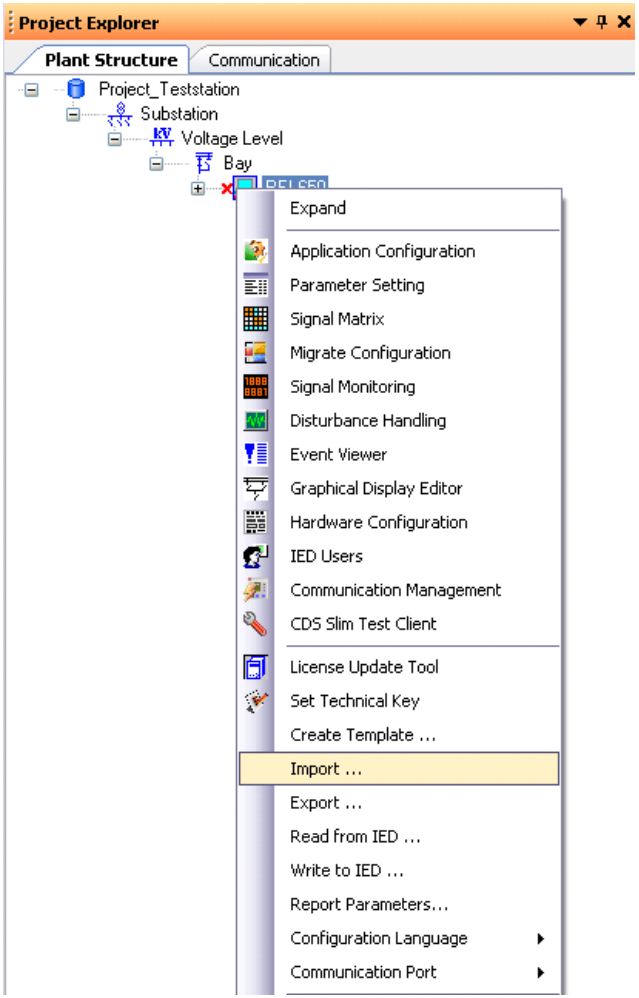
IEC61850
SCD



- SCD file
  - Substations Configuration Description
- Contents
  - SCL information for all IED's within the substation
- Export/Import of SCD file
  - Done at Substation level
  - SCL engineering done outside PCM600, export/import functionality needed.

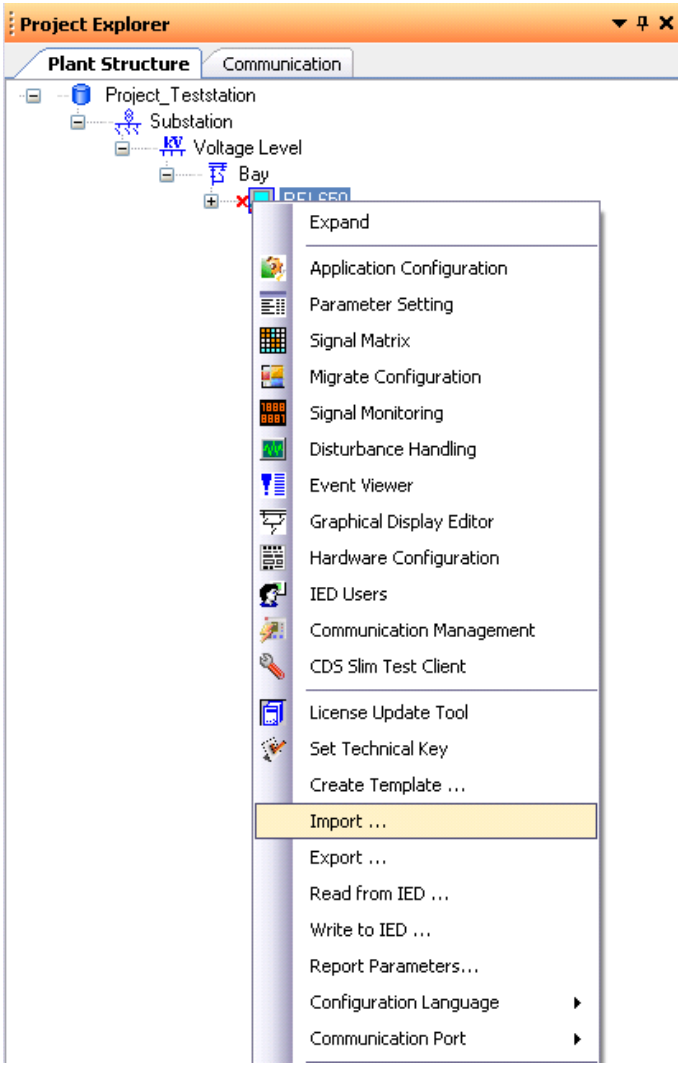
Note! When importing SCL files to PCM600, be sure to import an SCL file that correlates with the PCM600 project or you might loose data

IEC61850
ICD



- ICD file
  - IED Capability Description
- Contents
  - All that's configured in the IED before the system configuration
  - No SA Section
  - No Communication section
  - IEDName = TEMPLATE
- Usage
  - System engineering
    - Merging to an SCD file
- Export/Import of ICD file
  - At IED level

IEC61850
CID



- CID file
  - Configured IED Description
- Contents
  - Extract of the SCD file
  - SCL information for one specific IED
- Export/Import of ICD file
  - At IED level

Agenda

- Introduction
- PCM600
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- Questions

Questions

??????????

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