BRODERSEN
simplifying systems

IEC61850 Client in RTU32 Series

Presentation
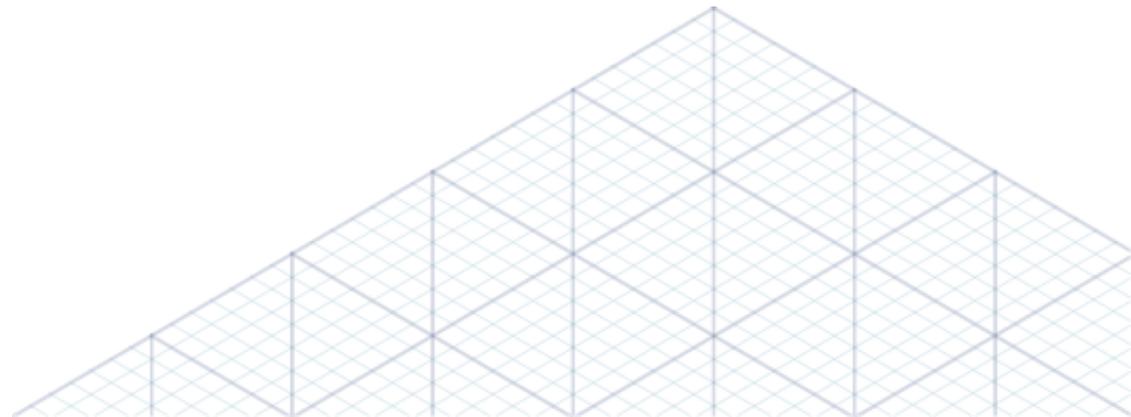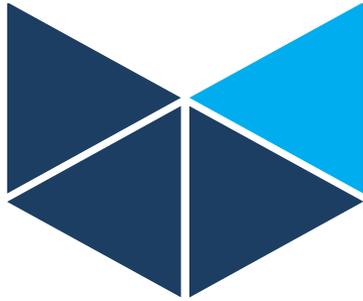
Features and how to configure the RTU32 IEC61850 Client

IEC61850 Client Driver in RTU32 / STRATON WorkBench
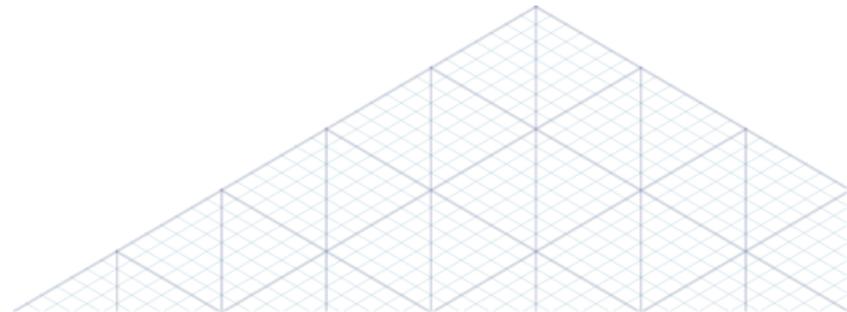
RTU32 IEC61850 Client driver facts

- Client driver is integrated in the RTU32 PLC – and configured in STRATON.

- Delivered as add-on Runtime License

- The driver is configured in STRATON standard Bus Configurator and variables are loaded from IEC61850 Server or from SCL file and the driver is automatically generating with all nessesary profiles and variables.

- You can freely adjust the configuration and add your own application

- STRATON Programming environment online Help provide all nessesary details

RTU32 IEC61850 Client features

- ICD (SCL) support
- Report Control Blocks (RCB)
  - Predefined
  - Dynamic
- File Transfer (GetFile & DeleteFile)
- Unbuffered reporting
- Buffered reporting

How to configure IEC61850 Client in RTU32 PLC / STRATON
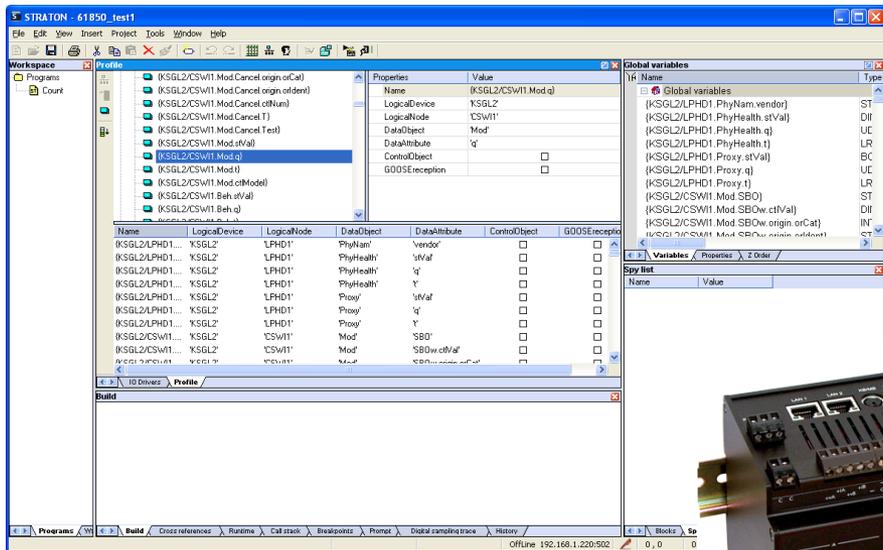
If the IEC61850 Server do not support the possibility to read configuration directly from the device – you will need the SCL file from the device

- An SCL editor is the tool necessary to create the configuration of an IED up to a complete system. Use e.g. Kalki SCL-Manager or ASE Visual SCL.

- The output file is a SCL configuration file – save it on your PC
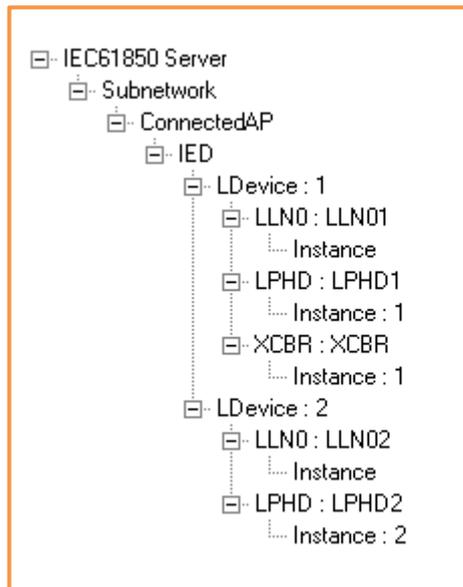
SCL editor   **RTU32**

Start the RTU32 Programming environment – STRATON WorkBench

Choose IEC61850 Client in the STRATON Fieldbus Configurator
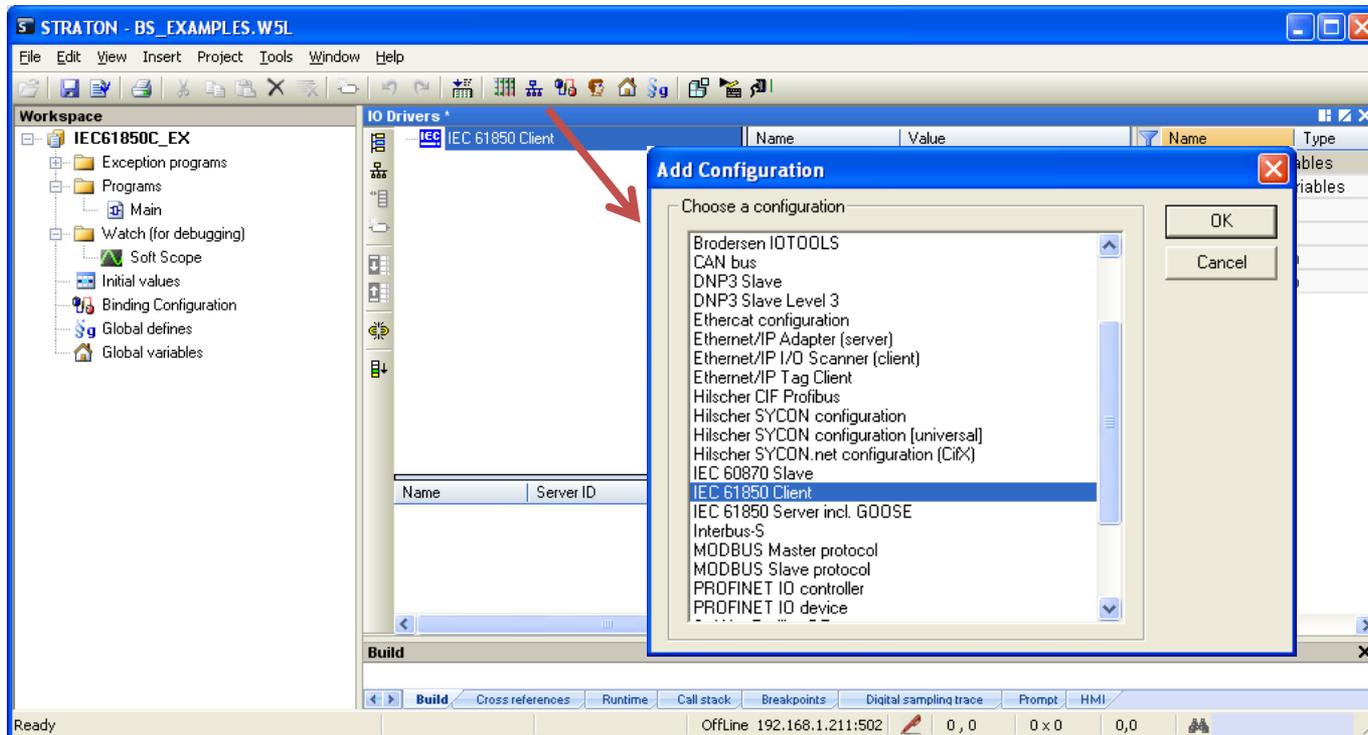
Insert Master/port
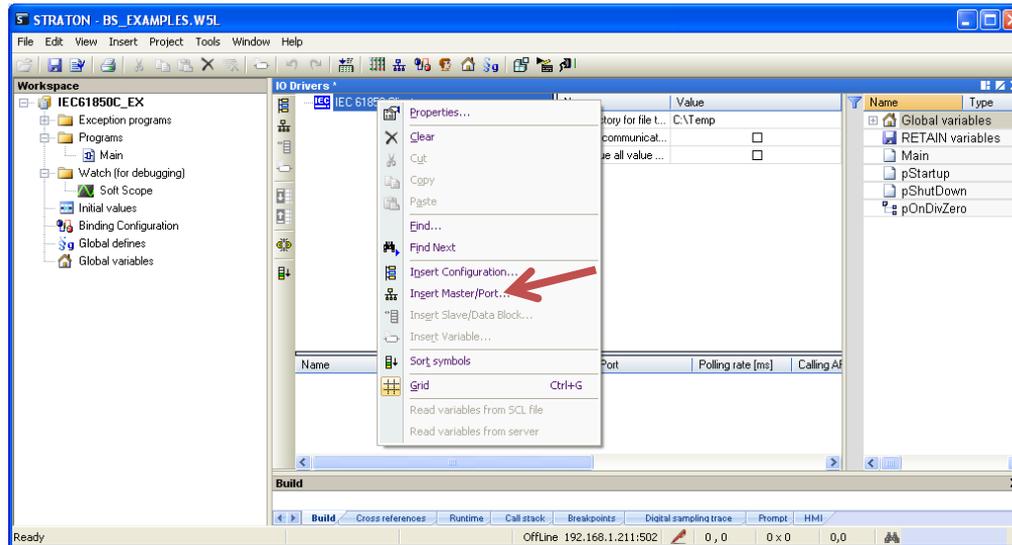
And setup the nessesary properties for each Server connection
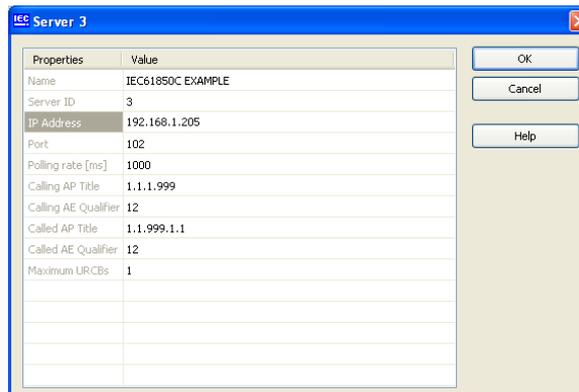
Import IEC61850 Server object data and create variables from the Server or from a SCL file

Based on a uploaded data list, you select/define the relevant data you need as variables in your application.

Now use the Profile Editor to monitor the complete imported Data Set.

Link between STRATON and IEC61850 is done though the parameters: LogicalDevice, LogicalNode, DataObject, DataAttribute.

Function Blocks in simple PLC program can be used for some IEC61850 Client functions like File Transfer etc.

FileTranfer used for uploading e.g. COMTRADE files from IEC61850 Server devices. You have to define;

- Path for placing the files in the RTU32 (defined in the basic driver configuration)
- IEC61850 Server Id
- File name

- The stored files can be access and uploaded/downloaded via FTP from The RTU32. You can used USB Memory if you want files stored outside the normal file systems drives.

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IEC61850 General Logical Node Overview

IEC61850 type of Logical Nodes

Name	Description
Axxx	Automatic Control (4). ATCC (tap changer), AVCO (volt. ctrl.), etc.
Cxxx	Supervisory Control (5). CILO (Interlocking), CSWI (switch ctrl), etc.
Gxxx	Generic Functions (3). GGIO (generic I/O), etc.
Ixxx	Interfacing/Archiving (4). IARC (archive), IHMI (HMI), etc.
Lxxx	System Logical Nodes (2). LLN0 (common), LPHD (Physical Device)
Mxxx	Metering & Measurement (8). MMXU (meas.), MMTR (meter.), etc.
Pxxx	Protection (28). PDIF, PIOC, PDIS, PTOV, PTOH, PTOC, etc.
Rxxx	Protection Related (10). RREC (auto reclosing), RDRE (disturbance)..
Sxxx	Sensors, Monitoring (4). SARC (archs), SPDC (partial discharge), etc.
Txxx	Instrument Transformer (2). TCTR (current), TVTR (voltage)
Xxxx	Switchgear (2). XCBR (breaker), XCSW (switch)
Yxxx	Power Transformer (4). YPTR (transformer), YPSH (shunt), etc.
Zxxx	Other Equipment (15). ZCAP (cap ctrl), ZMOT (motor), etc.
Wxxx	Wind (Set aside for other standards)
Oxxx	Solar (Set aside for other standards)
Hxxx	Hydropower (Set aside for other standards)
Nxxx	Power Plant (Set aside for other standards)
Bxxx	Battery (Set aside for other standards)
Fxxx	Fuel Cells (Set aside for other standards)

As of the flexible implementation of IEC61850 in RTU32 – special Logical Nodes are also supported!

IEC61850 Client Driver configuration in RTU32

After configuration of the IEC61850 Client Driver you can:

- Link variables directly to physical I/Os

- Link variables to your own designed User Defined Function Blocks – that could be often used blocks or parts of your application

- Link variables to PLC programs where you have manipulated the data after your own requirements

Note that:

- You can find details of setup and configuration in the STRATON HELP

- Details of supported functions – ACSI Conformance Statement are also found in STRATON Help

- The RTU32 PLC/RTU is the ultimate Gateway as you can:

    - Run several drivers parallel incl. IEC61850 Server, IEC60870, DNP3, Modbus, ProfiBus etc.

    - Freely exchange and manipulate data as all are available as STRATON PLC variables.

- You use STRATON WorkBench with unlimited I/Os when you are working with IEC61850 Drivers as you will quickly add-up many variables in your application.