



Examine IEC 61850 Devices

IEDScout® is an ideal tool for protection and substation automation engineers working with IEC 61850 devices. It provides access to the IEDs (intelligent electronic devices) and performs numerous useful functions for working with them.

Unveil the Inside View of any IEC 61850 Device

IEDScout allows the engineer to look inside the IED. All data modeled becomes visible and accessible.



Additionally, IEDScout serves numerous useful tasks, which could otherwise only be performed with dedicated engineering tools or even a functioning master station.

Application: Testing and Troubleshooting

Substation engineers can use this tool for testing and troubleshooting, e.g. for assessing the status of an IED, manipulating data, or obtaining the information required to configure testing with GOOSE messages.

Application: Commissioning

During commissioning, IEDScout provides client functionality without requiring a functioning master station. It checks the availability and proper operation of the installed IEDs. Control sequences can be sent to the IEDs and their responses (e.g. unsolicited reports) can be received and verified.

Application: IED Development

IED developers can use this tool to verify the structure and the functionality of the devices under development. IEDScout is an extremely valuable tool for generating the mandatory IED configuration files from prototype implementations. This provides the necessary configuration data for integrating devices into systems without the need for custom SCL tools.



Benefits

- Works with IEC 61850 compatible IEDs from any vendor
- Simultaneous investigation of multiple IEDs
- Access to devices even with missing or incomplete configuration information
- Supports unplanned and improvised testing situations, especially during commissioning and troubleshooting
- Provides client functionality for developers of IEC 61850 IEDs (servers)
- Allows creation of SCL files for devices without additional engineering tools
- In-depth investigation of GOOSE messages from multiple IEDs

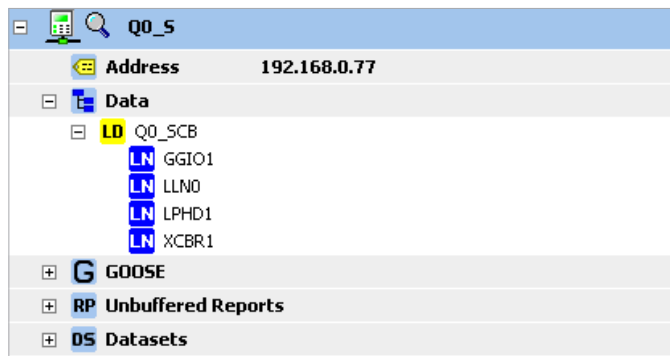
Features

- Retrieval of the data model from the IED
- Reading the actual data from the IED
- Writing data to the IED, including control sequences
- Detailed information on Control Blocks and Datasets, and exercise all reporting options
- Polling data from multiple IEDs
- Creating SCL files from IED data
- Use of SCL files for fast connection without discovery of the IED data model
- GOOSE Simulation and Monitoring
- GOOSE Recording in COMTRADE format
- Verification of the IED's data model against the specifications in IEC 61850-7



Discovering the IED's Data Model

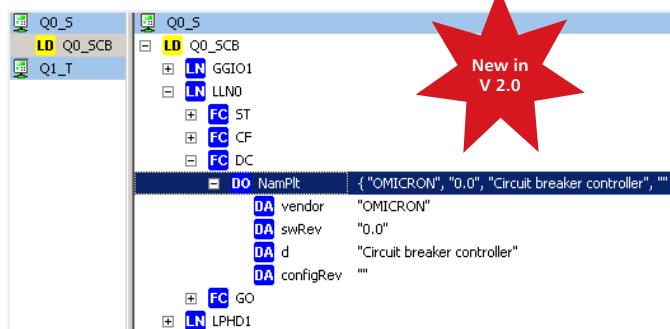
Knowledge of the IED's IP-address is typically the only information needed to connect to an IEC 61850 device.



Once the connection to the IED's server is established, IEDScout issues so-called "Get-Directory" requests and reads the self description of the IED to obtain the structure of the data model.

Browsing the Actual IED Data

The actual values contained in the data model are read and displayed in a tree view. The new Data View is split into two panes. The left pane is for quickly changing the scope between IEDs or Logical devices, while the right pane displays the details of the data model.



The tree structure can be expanded down to the leaf level for the detailed inspection of any of the contents. Specific type information is provided on demand.

Fast Connection Using SCL Files

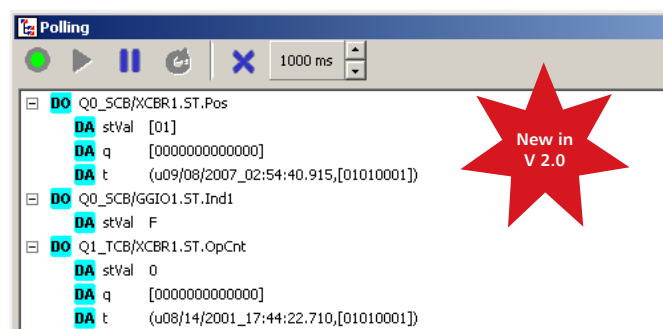
By using an existing SCL file for a specific device, the workflow is essentially accelerated since the time consuming discovery process is not required and only the actual values have to be read from the IED.

Saving SCL Files

The data model obtained during the discovery process and additional information accessible from the context can be saved in SCL format. For testing, this provides a convenient link to import GOOSE data into testing tools. For IED development, this provides IED Capability Description (ICD) files for the engineering process, even without the availability of SCL tools for the IED.

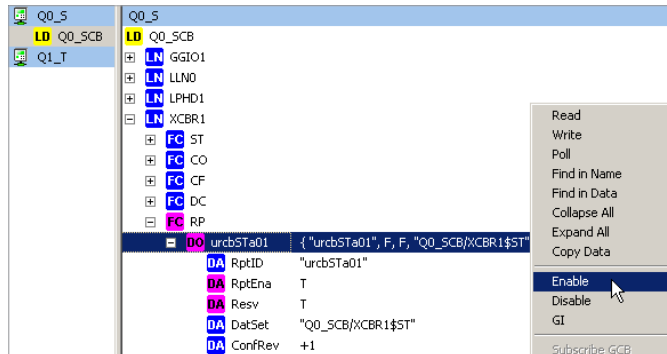
Polling Data

Distinct portions of the data model (Data Objects or single Data Attributes) can be polled at regular intervals to have their values constantly updated. This is useful for monitoring values which are not in the scope of a reporting mechanism. While polling was already possible in Versions 1.x, the updated data were displayed within the data tree and data from distant branches could often not be observed simultaneously. IEDScout V 2.0 has the new easy-to-use Polling Window, where all polled data items are collected and viewed in one place.

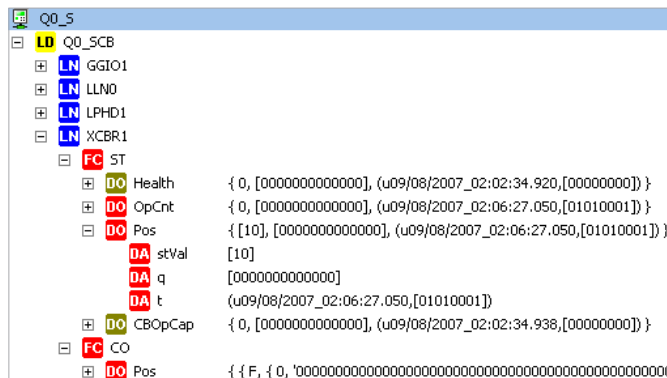


Receiving Reports

IEDScout can obtain reports just as any other client, e.g. the master station. Reports are enabled by enabling the corresponding report control block (RCB).

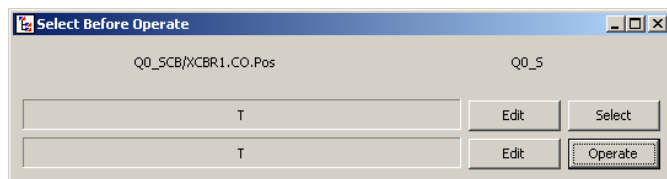


Data updated through reports are indicated by the changing colors of the icons in the data tree.



Writing Data and Control Structures

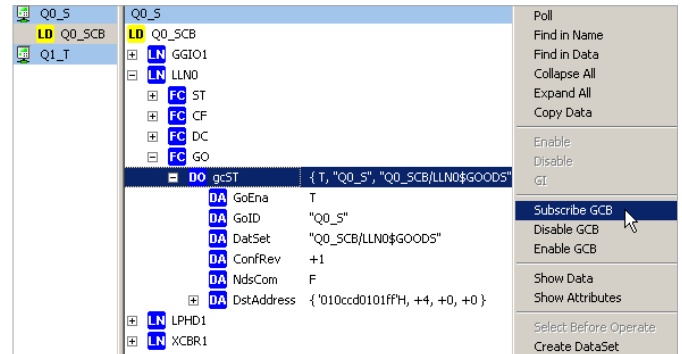
Writable data can be modified by writing to the data attributes. Even complex control sequences, such as select-before-operate, can be issued.



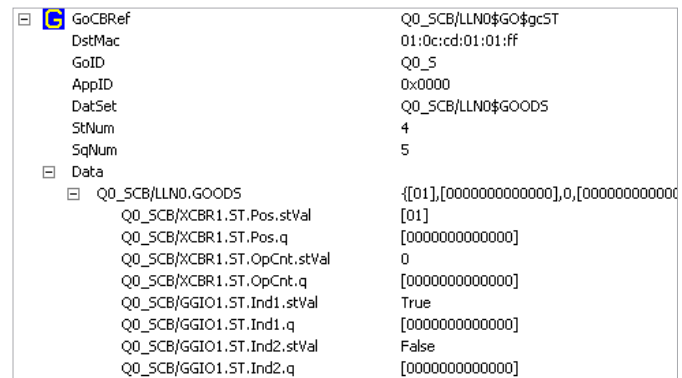
Services such as GOOSE and reporting can be controlled by modifying the data in the corresponding control blocks.

Subscribing to GOOSEs

GOOSEs published from IEDs can be subscribed. These subscribed GOOSEs are permanently monitored and displayed with their actual values.

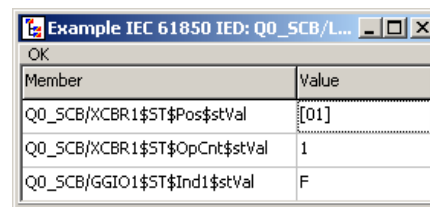


Complete subscriptions can be set up with one mouse click by using the information from GOOSE control blocks.



Control Block and DataSet Display

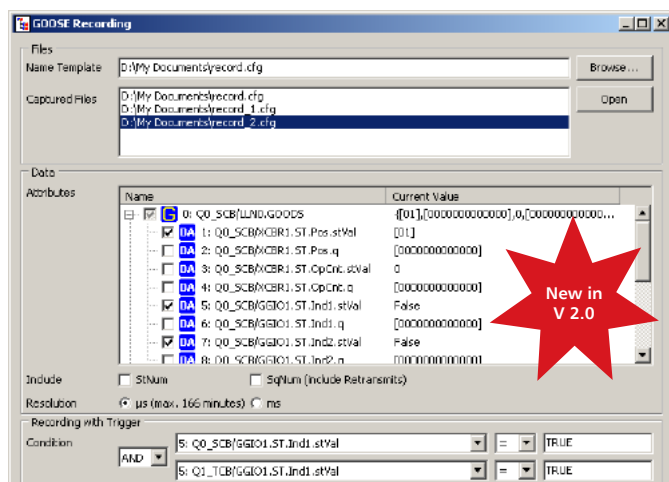
All control block and dataset detail information is easily accessible.



The detail views for the datasets provide full information of the structure (semantics) for the contained data.

Recording GOOSE Traffic in COMTRADE Format

GOOSE is a fast real-time protocol and in practice events involving GOOSE typically execute too fast to and involve more data than can be traced online by a human observer. IEDScout can record selected data items from subscribed GOOSEs input streams into COMTRADE files. Recordings can be started manually or automatically by using a trigger condition. Once recorded, the events can be analyzed in detail by investigating the COMTRADE records.



The COMTRADE files can be directly opened from IEDScout if a suitable COMTRADE viewer is installed.

Publishing GOOSEs

GOOSEs with arbitrary parameters and datasets can be published. Cyclic data changes can be defined as a sequence of steps.

Checking the Data Model

IEDScout is aware of the definitions in IEC 61850-7 and can verify the IED's data model against them. This feature is mainly for IED development and does not take into account the interpretations introduced by IEC 61850-8-1 and IEC 61850-6.

Free Evaluation Version

A free evaluation version of IEDScout can be downloaded from the OMICRON website:

<http://www.omicron.at/iedscout>

The evaluation version has no time limit and can be installed on as many PCs as desired. Compared to the full version, the following features are restricted or disabled:

- Saving of SCL files
- Polling of data
- Reporting (only one report can be enabled)
- Editing / saving / loading of GOOSE configurations (GOOSE features work in a fixed demo configuration)
- Display of GOOSE control block information
- GOOSE Recording
- Checking of the data model against IEC 61850-7

Ordering Information

To use the full feature set, IEDScout can be ordered from OMICRON with order number: VESC 1500. After purchase, a USB key will be delivered which turns the evaluation version into the fully featured IEDScout (without the need for re-installation).

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