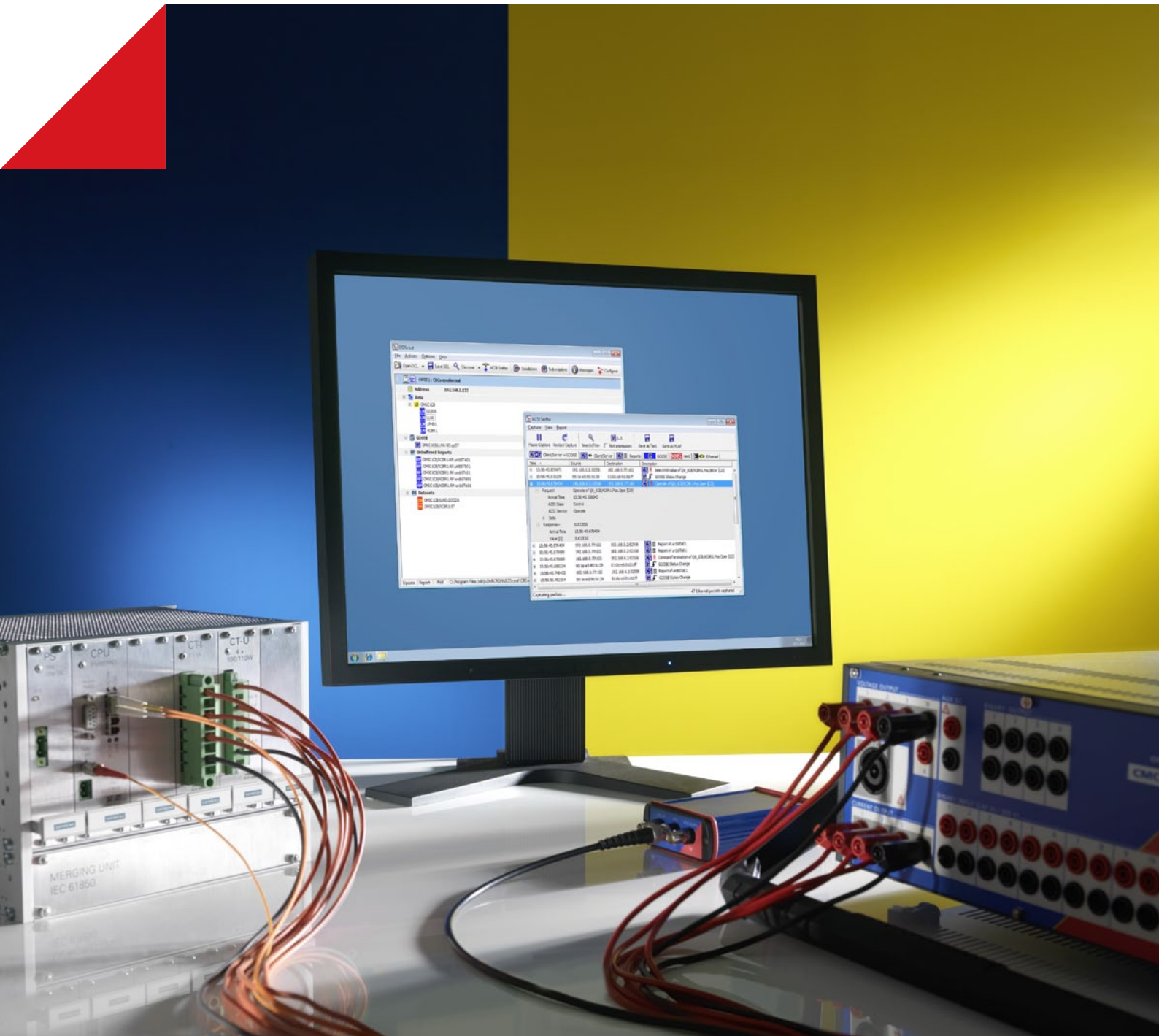


IEDScout

The Universal Tool for working with IEC 61850 IEDs



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 and at its communication. All data modeled and exchanged 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.



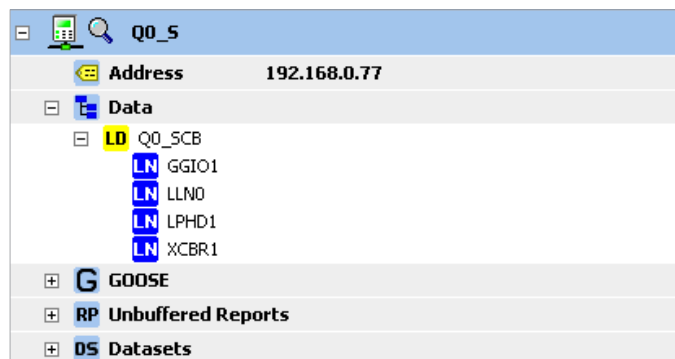
Features

- > Reading and writing the actual data in the IED, including control sequences
- > Detailed information on control blocks and datasets
- > Polling data from multiple IEDs
- > Creating SCL files from IED data
- > Use of SCL files for offline viewing and fast connection without discovery of the IED
- > GOOSE sniffing, monitoring, and simulation
- > GOOSE recording in COMTRADE format
- > Common, time-aligned view for Client/Server events and GOOSE
- > MMS view and drill-down to lower protocol layers

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.



Saving SCL Files

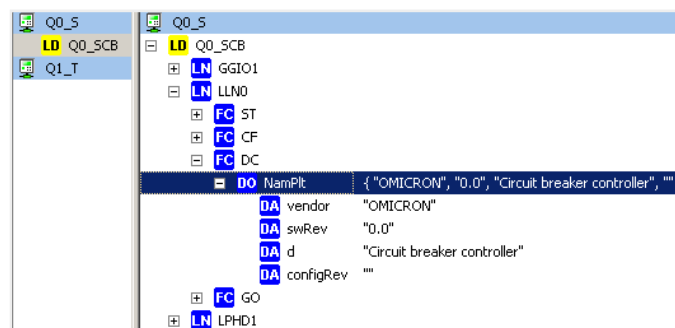
The data model obtained during the discovery process and additional information accessible from the context can be saved in SCL format. For testing, this provides a convenient link to import GOOSE data into testing tools. For IED development, this provides IED Capability Description (ICD) files for the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

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.

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.

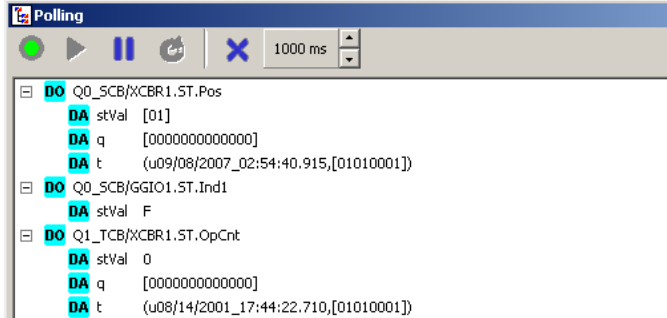


The tree structure can be expanded down to the leaf level for the detailed inspection of any of the contents. Specific type information is provided on demand.



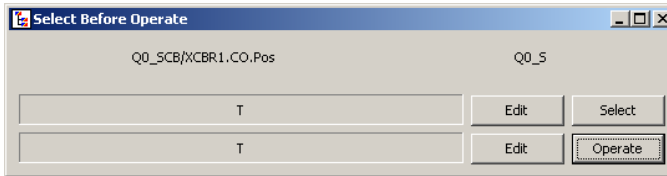
Polling Data

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.



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.



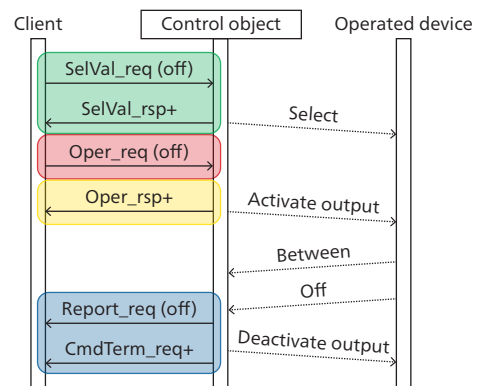
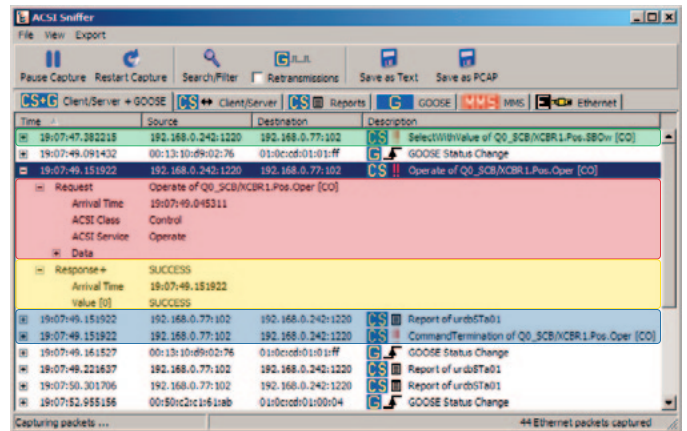
Services such as GOOSE and reporting can be controlled by modifying the data in the corresponding control blocks.

Analyzing Client/Server Traffic on ACSI Level

IEDScout provides functionality to analyze Client/Server communication. In a substation, the C/S communication is mainly used for SCADA. The client is typically the station controller and the server is typically an IED such as a protection relay.

In the context of IEC 61850, the term "MMS" is often used when C/S is actually meant. The function captures not only the messages related to the C/S traffic, but also the GOOSE messages, so these two ACSI services are covered together in one list of events.

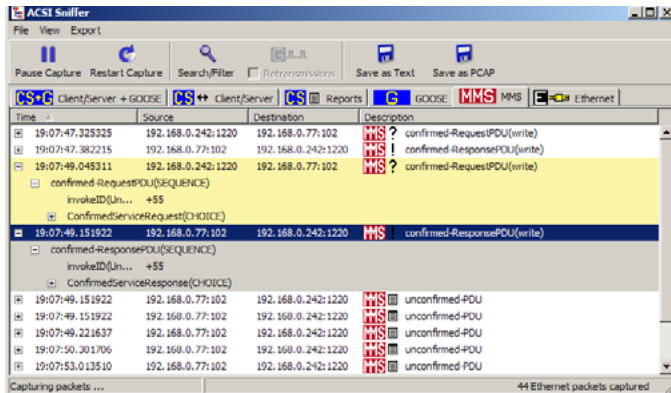
The C/S communication between station controllers and IEDs typically consists of sequences of requests and responses. IEDScout analyses the messages, groups requests, and responses that belong together.



IEDScout displays the events corresponding to the service models in IEC 61850-7-2.

Drilling Down to more Details

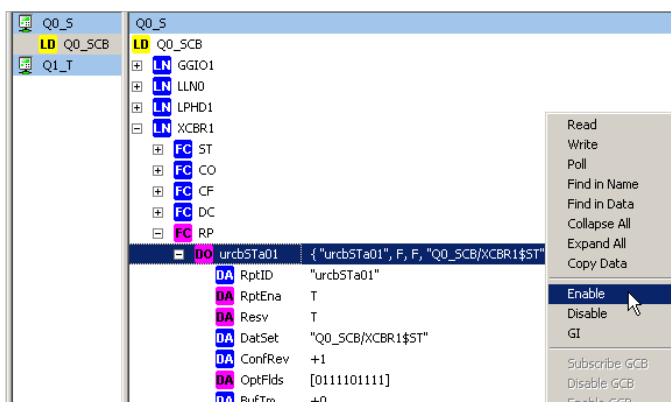
To investigate the traffic in more detail, drilling down to lower protocol layers (MMS and Ethernet) is also possible. To analyze the transactions, the items can be expanded to reveal more details.



For inspection on the byte level in an external protocol analysis software, the Ethernet packets belonging to a selected scope can be exported to PCAP files. Filters limit the traffic to relevant parts and search functions help to find specific messages.

Receiving Reports

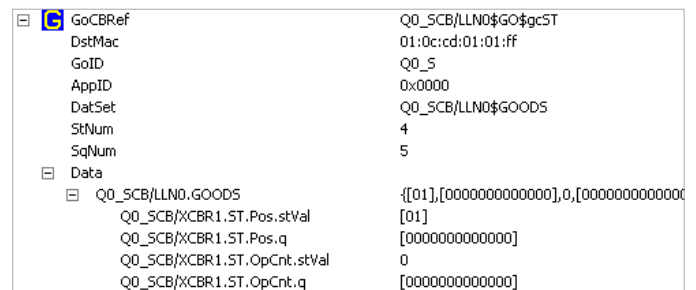
IEDScout can obtain reports just as any other client, e.g. the master station. Reports are enabled by enabling the corresponding report control block (RCB).



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.



Publishing GOOSEs

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

GOOSE Sniffing

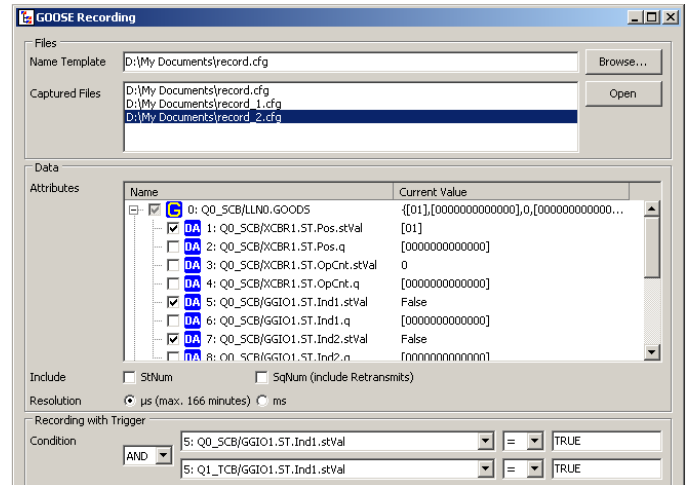
IEDScout scans the network for any GOOSE and presents them for subscription. Detected GOOSE information can be transferred to the GOOSE Configuration Module for the CMC test set.

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.



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
- > Creation of SCL files for devices without additional engineering tools
- > In-depth investigation of GOOSE messages
- > In-depth investigation of Client/Server traffic

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
- > Display of details of Client/Server and MMS messages
- > Exporting and saving of Client/Server messages

Ordering Information

VESC1500	IEDScout
VESC1503	Upgrade to IEDScout 3 from prior versions

The features described in this brochure refer to IEDScout 3.

IEDScout supports IEC 61850 Edition 1. The Simulation Flag of IEC 61850 Edition 2 for GOOSE is also supported.



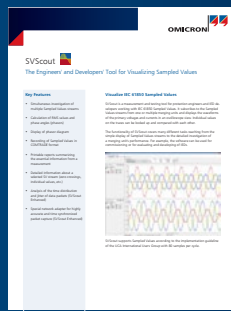
OMICRON is an international company serving the electrical power industry with innovative testing and diagnostic solutions. The application of OMICRON products allows users to assess the condition of the primary and secondary equipment on their systems with complete confidence. Services offered in the area of consulting, commissioning, testing, diagnosis, and training make the product range complete.

Customers in more than 140 countries rely on the company's ability to supply leading edge technology of excellent quality. Broad application knowledge and extraordinary customer support provided by offices in North America, Europe, South and East Asia, Australia, and the Middle East, together with a worldwide network of distributors and representatives, make the company a market leader in its sector.

The following publications provide further information on testing solutions for IEC 61850 and other secondary applications:



Testing Solutions for Protection Systems



SVScout brochure



CM Line product catalog (secondary equipment)

For a complete list of available literature please visit our website.

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