IEDScout

Versatile software tool for working with IEC 61850 devices
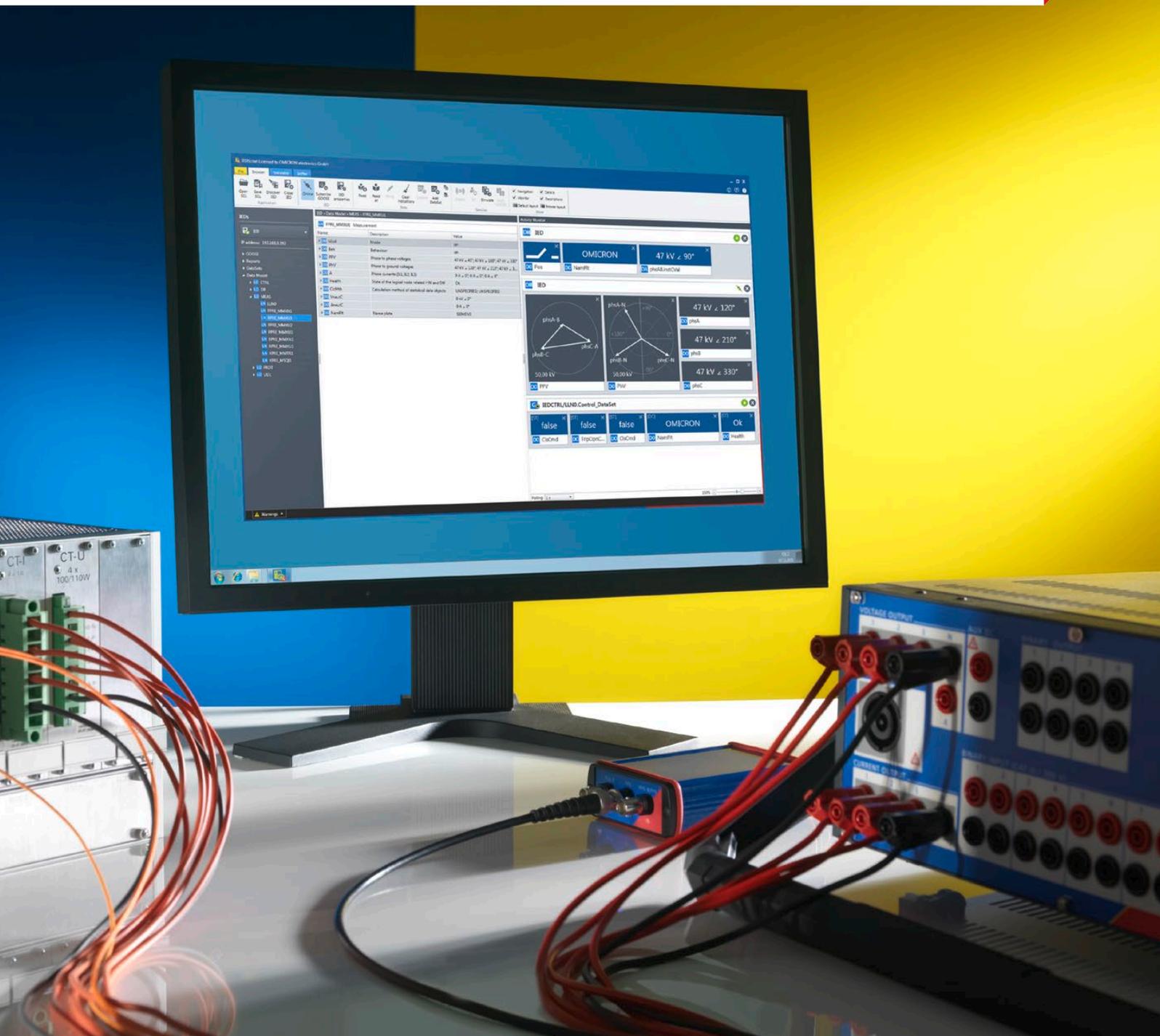
One software tool for working with all IEC 61850 IEDs

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 Intelligent Electronic Devices (IEDs) and performs numerous useful functions when working with them. A new user interface assists to find all relevant information of the IEDs.

Unveil the inside view of any IEC 61850 IED

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.

IEDScout shows an overview representing the typical workflow of commissioning, but also provides detailed information upon request.

Simulating IEDs

Whole IEDs, including their server, Reports, and GOOSE can be simulated based on their SCL file. The data values can be changed. Test mode and Simulation indications are supported and can be set.

Browse and discover the IED's data model

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

Once the connection to the IED is established, IEDScout reads the self-description of the IED to obtain the structure of the data model.

The actual values contained in the data model are read and displayed in data view, showing all GOOSE, transmitted values and Reports at glance.

Activity Monitor

Users can drag and drop information in which they are interested into the new Activity Monitor. This combines Reports, GOOSE, DataSets and any other data of the IED's Data Model. The values are polled automatically.

Work with SCL files

IEDScout comes with an intelligent and powerful SCL parser to check the quality of the engineering files according to IEC 61850-6.
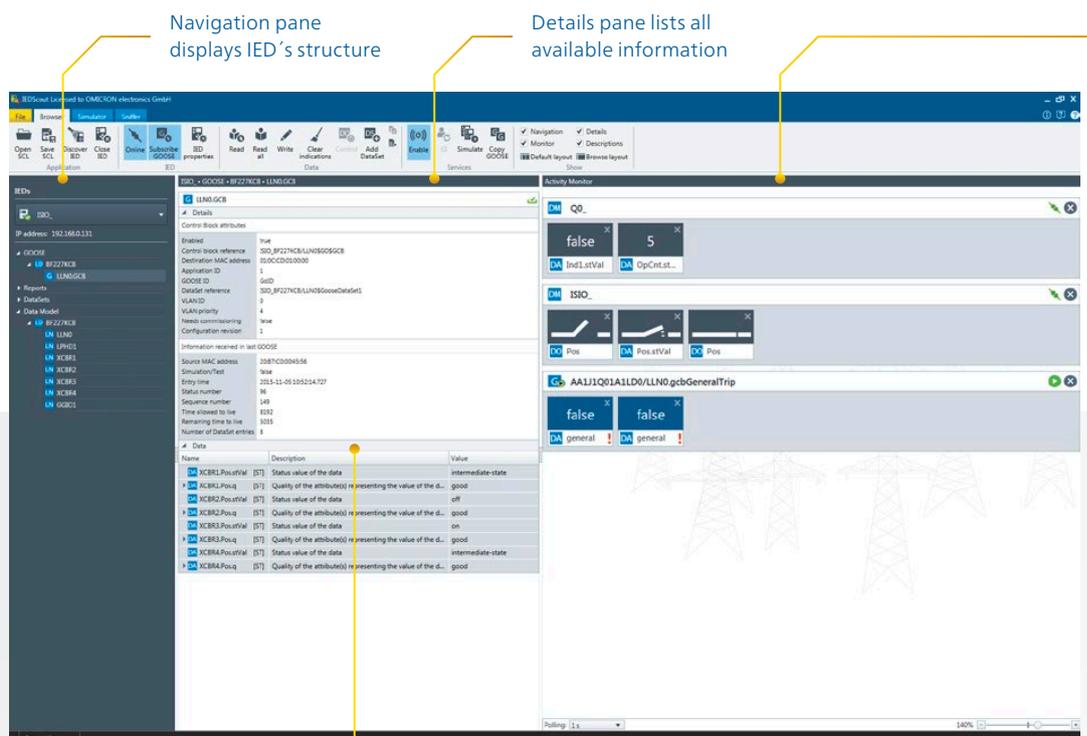
Navigation pane displays IED´s structure

Details pane lists all available information

Optionally show descriptions as also used in the standards

Show descriptions

If explanations of an attribute are needed, the descriptions as defined in the standard can be displayed. Also further viewing options are now available.
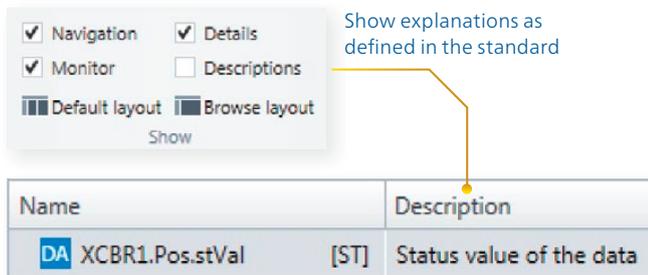
Show explanations as defined in the standard

One software tool for your applications

1 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.

2 Commissioning

During commissioning, IEDScout provides client function-ality 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.

The new Activity Monitor visualizes information in the size needed.

The Simulator allows testing missing IEDs and communica-tion to the SCADA system.

3 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.

Activity Monitor combined with simulated IED in zoomed view for better visibility during commissioning.

Your benefits

> Works with IEC 61850 compatible IEDs from any vendor

> Investigates multiple IEDs simultaneously

> Analyzes SCL files

> Investigates data traffic in-depth – even between other clients and servers

> Simulates IEDs

Advanced possibilities

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 files for the engineering process, even without the availability of SCL tools for the IED. The SCL-scheme to be used can be chosen, including the file type (IID, ICD).

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.

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 Report can be controlled by modifying the data in the corresponding control blocks.

Sniffing values

IEDScout 4 allows to visualize any traffic on your substation network easily. This is possible for GOOSE, Reports and Client/Server (C/S) communication.

Sniffer tab to analyze data traffic

Filters for IED or dedicated traffic

Visualizing any traffic

Detailed investigation

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 analyzes the messages, and groups requests and responses that belong together.

Exporting the details

To investigate the traffic in more detail, exporting the lower protocol layers (MMS and Ethernet) is possible. To analyze the transactions, the PCAP is used.

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 and visualized in the Activity Monitor by drag and drop. Properties and trigger options can be defined.

Subscribing to GOOSE

GOOSE published from IEDs can be subscribed. These subscribed GOOSE are permanently monitored and displayed in the activity window with their actual values.

Simulating IEDs

Any IED defined in an SCL file can be simulated. The simulated server supports GOOSE, Reports (buffered and unbuffered), and Select Before Operate. The simulated IED can send GOOSE with Test/Simulation indication and switching between different Modes/Behaviors is possible.

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.

Supported standards

> IEC 61850 Ed. 1
> IEC 61850 Ed. 2
> IEC 61850-7-410:2013
> IEC 61850-7-420:2009
> IEC 61400-25 1...6:2006...2010

One sniffer for all information

Filters

Analyze information

Import/export and copy to Test Universe
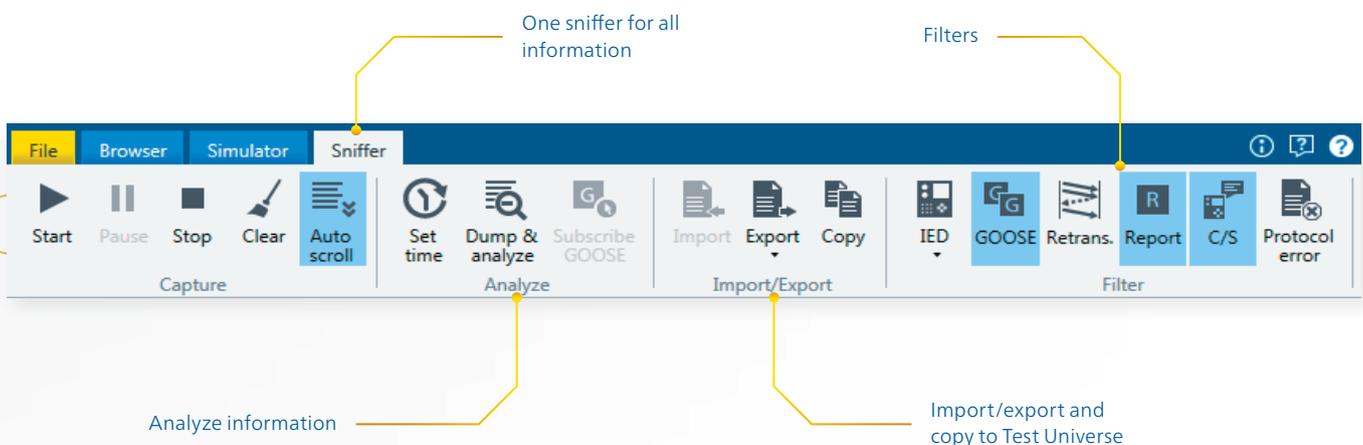
Summing up the new features

Activity Monitor

Dragging any information to the Activity Monitor starts polling, subscribing to GOOSE or enabling a Report.
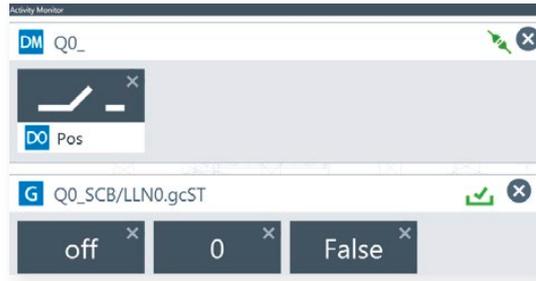
IEDScout 4

Enabling Reports

Trigger options and optional fields can be defined just by enabling them.
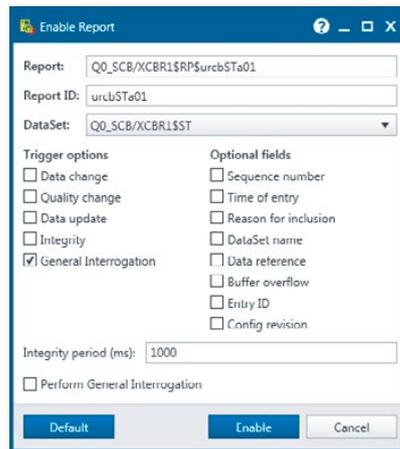
Creating DataSets

Datasets can be created easily – just drag and drop the desired information.
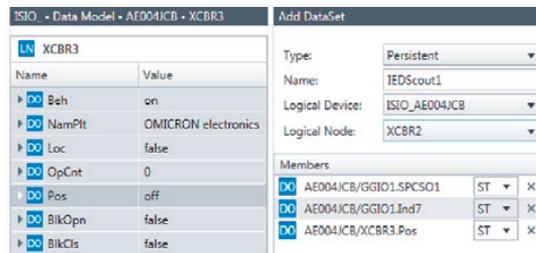
Simulating IEDs

SCL files or discovered IEDs can be used for simulating.
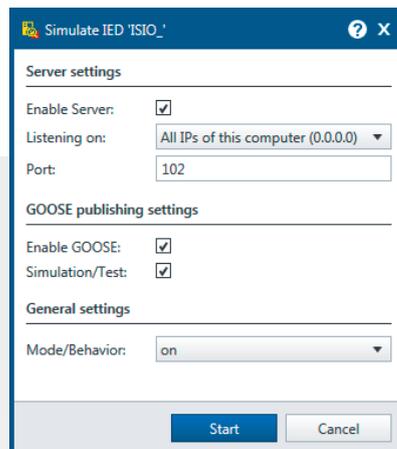
Saving SCL

Save the data model and services of any server, choosing the edition to be used.
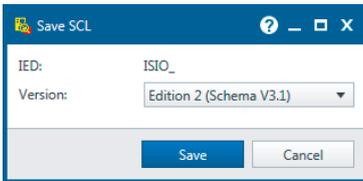
Connecting to network

The network card is visualized with plugged in cables. For sniffing an additional adapter can be used.
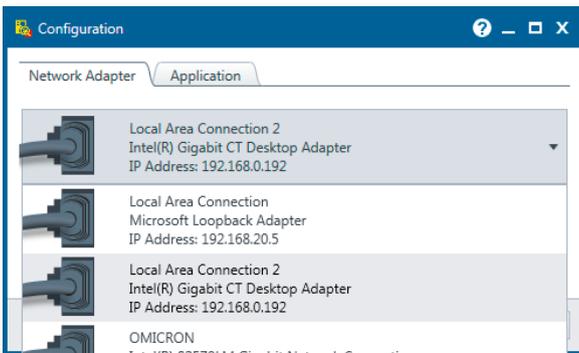
Additional new features

> List of recently used IEDs and files
> Zoomed view: For commissioning you can zoom in to an item in the Activity Monitor, to be able to read it easily from a distance
> Clear overview: IEC 61850 is a huge standard and often regarded as being complicated. IEDScout´s easy overview helps to handle the communication with an IED and understand the implementation of the standard
> Sniff data from a single tab and analyze it
> Show and write values according to their type
> User interface in English and German
> Show enumerators
> Save SCL
> Advanced control dialog
> Hyperlink navigation for DataSet attributes

Ordering information

Description	Order no.
IEDScout standard single license	VESC1500
IEDScout upgrade from version <3.0 to 4	VESC1504
IEDScout upgrade from version 3.0 to 4	VESC1505

Free trial version

Try out the software 30 days for free.
Visit our website for details:

www.omicronenergy.com/iedscout

Note: Microsoft Windows 7 or newer Microsoft operating system required.

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. Service centers on all continents provide a broad base of knowledge and extraordinary customer support. All of this together with our strong network of sales partners is what has made our company a market leader in the electrical power industry.

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