PCS-SCD

Configuration Tool

The PCS-SCD Configuration tool is developed for the engineering implementation of IEC61850. It is the visual configuration tool used to set SCL files, including creating, editing and viewing SCL files that conform to IEC61850-6 regulations. Users can construct the substation configuration, structures and models via this tool, and quickly design and manage substation settings. The PCS-SCD tool provides the following functions:

- Create the substation configuration description (SCD) file in
- accordance with IEC61850-6 regulations.
- Build a single line diagram for the primary system of the substation.
- Manage the version of SCD files.
- Construct different substation structures and create the
- complete system specification description (SSD).
- Import the IED into the ICD that conforms to IEC61850-6.
- Associate different intelligent electronic devices and logical nodes (LN) to substation details, and complete the configuration of the substation system according to IEC61850-6.
- Edit and maintain the functions and date elements in IED.
- Define the substation communication configuration.
- Check the data templates and solve the conflicts.
- Verify standard SCL Schema.
- Provide grammar and semantic check.

Configure SCL Files

- Header Configuration
  Click Header in the SCL browser window, the Header configuration window is popped up.

  The Header configuration window displays the configuration of changed information lists in the SCL file, and provides operations such as New, Delete, Move Up and Move Down for changed information.

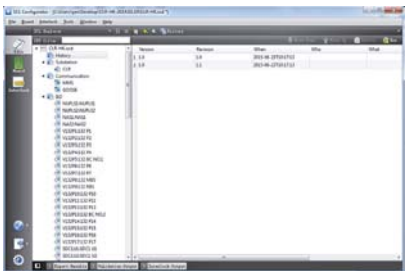

Figure 1 Header configuration window

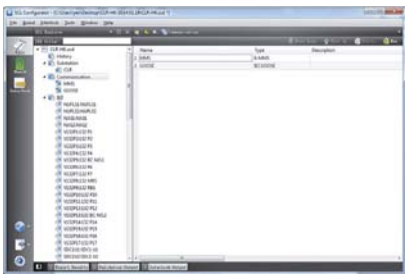

Figure 2 Communication configuration window

- Communication Configuration
  Click Communication in the SCL browser window, the communication configuration window is shown.

  The communication configuration window provides the configuration of SubNetwork lists in the SCL file, and provides operations such as New, Delete, Move Up and Move Down for each SubNetwork.

- Subnetwork Configuration
  Click one SubNetwork under Communication in the SCL browser window to open subnetwork configuration window. The SubNetwork configuration window provides the configuration of ConnectedAP, Address, GSE and SMV under one SubNetwork in the SCL file.

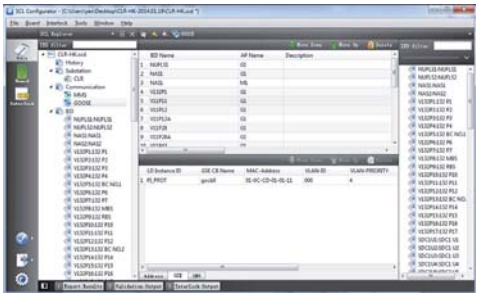

Figure 3 SubNetwork configuration window

- IED List Configuration
  Click IED in the SCL browser window to open IED list configuration window.

  The IED List Configuration Window provides the management and configuration of all IEDs in the SCL file, such as create, update and delete an IED, adjust the position of one certain IED in the SCL file and edit the attributes of an IED.

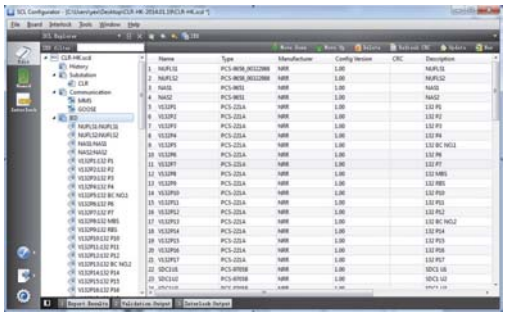

Figure 4 IED list configuration window

- IED Configuration
  Under the IED configuration window, users can configure a certain IED in the SCL file. Including:
  - Logic Node Configuration
  - Data Set Configuration
  - GSE Control Configuration
  - SMV Control Configuration
  - Inputs Configuration
  - Report Control ConfigurationSubstation List Configuration

Click the Substation in the SCL Browser Window, and the Substation List Configuration Window is open.

The Substation List Configuration Window provides the configuration of Substation lists in the SCL file as well as operations for one certain Substation, i.e., New, Delete, Move Up and Move Down. All cells in the configuration window are editable.

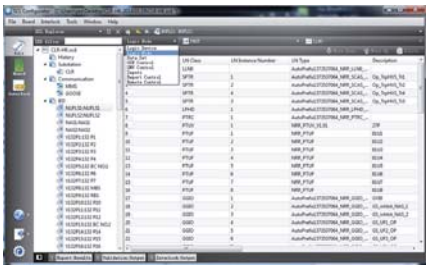

Figure 5 IED configuration window

- Substation Configuration
  The Substation Configuration Window provides the specific configuration of one certain Substation in the SCL file. The Substation Configuration Window is opened by clicking one specific Substation under the Substation in the SCL Browser Window.

  The PCS-SCD tool supports the construction of single line diagram for primary system of the substation in the graphical form, automatically generates the Substation model which conforms to the definition in IEC61850-6 according to the single line diagram, sets the association of the Substation model with the logical node of IED, etc.

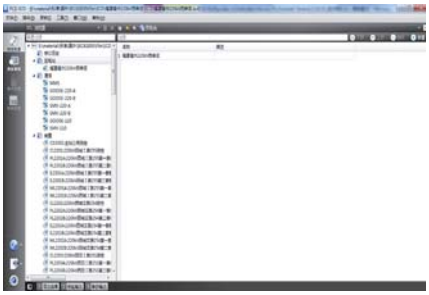

Figure 6 Substation list configuration window

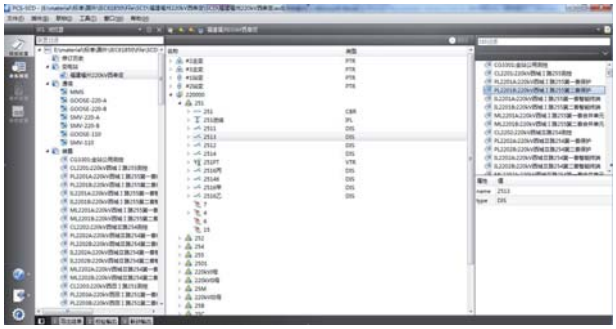

Figure 7 Substation configuration window

Advanced Operations

- Using the Filter in IED Selector
  The IED Selection Window provides the data sources which are acquired from IED during the process of SCL configuration. Considering the IED selector needs a large quantity of data, a filter is provided for data locating.

- Batch Export CID Files
  Select Batch Export CID Files from the Tool to open Batch Export CID Files dialog box. The PCS-SCD tool can export CID files of all IEDs in the current SCL file.

- Batch Export UAPC-GOOSE Files
  Select Batch Export uapc-goose Files from the Tool to open Batch Export uapc-goose Files dialog box. The PCS-SCD tool supports the batch export of all uapc-goose files, and the dialog box lists all IEDs in the current SCL file.

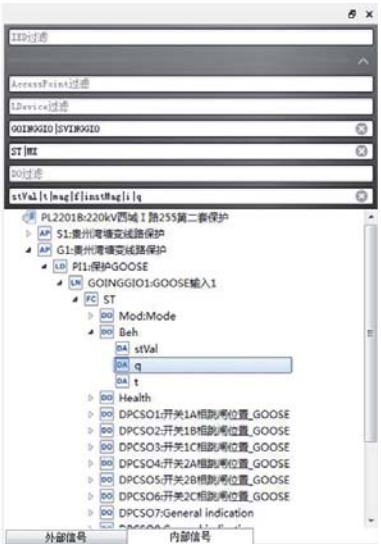

Figure 8 Filter in IED selector

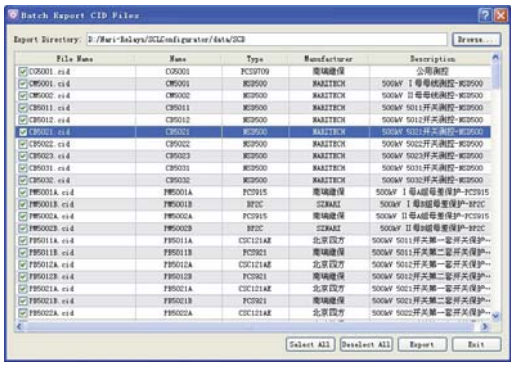

Figure 9 Batch Export CID Files

- Batch Export CID and UAPC-GOOSE Files
  The PCS-SCD tool supports the batch export of all CID and uapc-goose files, and the dialog box lists all IEDs in the current SCL file.

- Batch Export Terminal Map
  The PCS-SCD tool supports the batch export of all terminal map files in Excel format, and the dialog box lists all IEDs in the current SCL file.

- Batch Export CIM XML
  The PCS-SCD tool supports the batch export of IEC61970 CIM XML files in Excel format, and the dialog box lists all IEDs in the current SCL file.

- Schema Validation
  Select Schema Validation in the Tool menu to start the schema validation of current SCL file. The validation results will be shown in the Validation Output Window.

- Semantic Validation
  The PCS-SCD tool supports the validation of the Communication and all IEDs in the current SCL file according to the following rules.

- Communication Validation Contents
  - Validity of ConnectedAP's quoting the IED and AccessPoint
  - Validity and uniqueness of MMS Web's IP Address
  - Validity of GSE's quoting the GSEControl
  - Validity and uniqueness of GSE APPID
  - Validity of SMV's quoting the SampledValueControl

- IED Validation Contents
  - Validity of object instances (DOI, SDI, DAI) under the LN quoting the DataTypeTemplate
  - Validity and uniqueness of GSEControl appID
  - Uniqueness of DataSet FCDA (If there is repetition, FCDA will send off the warning)
  - Validity of DataSet FCDA quoting its internal signal
  - Validity of Inputs quoting its internal and external signals