



## Get The Most Out of IEC 61850

### IEC 61850 Source Code Library

#### Overview

The IEC 61850 Source Code Library from Triangle MicroWorks was designed from the ground up with highly optimized code and advanced protocol parsing techniques. This allows our customers to integrate our code into embedded systems or workstations with low overhead and great performance.

#### Benefits

##### The Most Complete IEC 61850 Stack

- Support Edition 1 and Edition 2 with a single library
- Full IEC 61850 services out of the box (not just MMS)
- IEC 62351 security for MMS, TLS, and IEC 61850

##### A Proven Solution

- Implemented in hundreds of customer applications
- Highly successful interoperability testing

##### High Performance

- Designed from the ground up to operate efficiently in small embedded systems
- Client applications can scale to hundreds of server connections
- Operates in real-time environments

##### Faster Development & Integration

- Servers can be built in weeks, rather than months with our unique approach to integrating application data with MMS/61850
- Free up resources to work on proprietary aspects of your products
- Offered as ANSI-C, C++, or .NET Components for maximum flexibility

##### Dedicated Support

- Web-based video training and teleconferences put you in contact engineers that participate on the IEC 61850 Technical Committees
- First year of the Maintenance and Enhancement plan is included
- Object Model Consultation and Design Review

#### Data Models

- **IEC 61850-7-3** (Common Data Classes) - Ed. 1 and Ed. 2
- **IEC 61850-7-4** (Logical Nodes and Data Objects) - Ed. 1 and Ed. 2
- **IEC 61400-25** (Wind Turbines)
- **IEC 61850-7-410** (Hydroelectric Power Plants)
- **IEC 61850-7-420** (Distributed Energy Resources)

IEC 61850  
Library  
Components

Client

Server

GOOSE

Sampled  
Values



## IEC 61850 Source Code Library

### Supported IEC 61850 Capabilities (Edition 1 & 2)

#### Logging Services

- ✓ All Trigger options, integrity period, etc.
- ✓ Any valid data set can be used in the Log Control Block

#### Reporting Services

- ✓ Un-buffered and buffered Report Control Blocks
- ✓ Any valid Data Set can be used in the Report Control Block
- ✓ Supports all trigger options (data change, quality change, data update, integrity, GI)
- ✓ Supports both data attributes and data objects in data sets

#### External References

- ✓ Server will automatically resolve external references and subscribe to GOOSE or Sampled Values
- ✓ Support for External References in SCL description

#### Control Models

- ✓ All control models for IEC 61850: Status Only
- ✓ Direct Control with normal security
- ✓ Direct Control with enhanced security
- ✓ Select Before Operate with normal security
- ✓ Select Before Operate with enhanced security

#### Discovery

- ✓ Supports Server Device Discovery by Client

#### Sampled Values (-9-2)

- ✓ Supports 9-2 LE Profile
- ✓ Encoded in multicast Ethernet frames

#### GOOSE

- ✓ Any valid DataSet can be used in the GOOSE Control Block
- ✓ Supports both data attributes and data objects in data sets
- ✓ Test and simulation flag support at transport level
- ✓ Multicast GOOSE messaging

#### Data Sets

- ✓ Any combination of Data Attributes and/or Data Objects: Preconfigured, Persistent, Non-Persistent, Application Association Specific

#### File Transfer Services

- ✓ File upload
- ✓ File download
- ✓ File delete
- ✓ Directory browsing

#### Security

- ✓ IEC 62351 based authentication and encryption (TLS)

Reading Services  
Writing Services  
Setting Groups  
Service Tracking

