IEC 61850 Server Front End Toolkit

Design Objective:

Our primary design objective for this product is to provide a rapidly deployed solution for implementing IEC 61850 in a resource-limited device with a low overall cost of development. This is done by providing a Target Application for our IEC 61850 Server Source Code Library (TA – see product literature *Design Details for Implementation*) that runs on a separate front end processor and communicates with your device using Modbus, DNP3, or IEC 60870-5 (Master side). The default implementation requires no modification to the source code. Points received by the Master side are linked to the IEC 61850 Object Model in an IED Capability Description (ICD) file used to initialize the IEC 61850 Server Front End Toolkit.

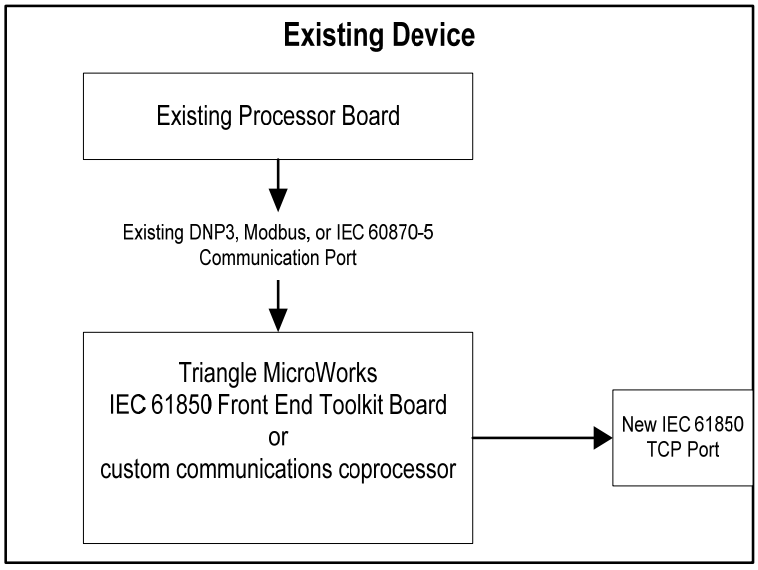
An ICD file is one of the IEC 61850 Substation Configuration Language (SCL) file formats based on XML that are used to exchange configuration data between different tools. The ICD file includes a standardized mechanism for mapping Basic Data Attributes in the object model to alternate protocols. The Server Front End TA makes use of these standardized features to support IEC 61850 access to small serial-based devices with little or no additional programming. Any IEC 61850 model can be supported by simply describing it in an ICD file, assigning the mapping information to the model elements, and installing the ICD file on the Front End device for use in boot-time configuration.

This product is also an excellent solution for target devices that lack the necessary resources to support IEC 61850 on existing hardware (TCP/IP port, ½ Megabyte RAM, ½ Megabyte ROM, spare processing power). Adding a separate communications coprocessor with TCP/IP support solves this problem without expensive redesign of the main processor board. IEC 61850 GOOSE communication is supported, but response time will be limited by the speed of the existing DNP3, Modbus, or IEC 60870-5 Communications port.

Typical Installation Sequence for IEC 61850 Server Front End Toolkit:

1. Customize the provided *Protocol Implementation Conformance Statement* (PICS) for the target device.
2. Create an ICD file representing the logical nodes supported by the target device using the provided ICD file editor or a 3rd party application.
3. Add Modbus/DNP3/IEC 60870-5 Point Numbers to ICD file along with formulas for any data translations required to match IEC 61850 data types.
4. Install Triangle MicroWorks Front End Toolkit Board in target device and load ICD file or download Linux executable and ICD file to custom hardware. For custom hardware not using Linux see product literature on *IEC 61850 Source Code Library Design Details for Implementation* for information on customizing the toolkit.
5. Conduct final testing.

Example diagram for an installation of the IEC 61850 Server Front End Toolkit



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