# Object Oriented SCADA

Linking reusable logic elements to reusable graphic elements to reduce development effort, increase reliability and improve customer experience.

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## SUBMISSION TYPE

30 minute presentation

## KEYWORDS

SCADA, PLC, HMI, standardization, time management

## ABSTRACT

Controls engineers are constantly striving to quickly and efficiently deliver an end product to their customers.  Integrating various products from the field I/O all the way up to the SCADA end user HMI can be a time consuming complex process.  Custom Controls Unlimited set out to make defined libraries of objects to cut down on development time and make HMI integration a seamless process.

At Custom Controls Unlimited we are constantly seeking to improve our engineering practices and outcomes.  One of the ways that we do this is by attempting to re-use work products that have already been developed and thoroughly tested, including code segments and HMI graphical elements.  As we have been doing this over the years we have often struggled with the limitations of traditional copy-paste-modify code reuse techniques.  These techniques can be nearly as time consuming and error prone as rewriting from scratch and there was no easy way to link program elements to HMI elements.  By combining object oriented programming philosophy with in-depth knowledge of the processes being controlled we were able to develop new internal standards for reusable program elements and documentation. We then implement these standards across PLC and HMI programming environments using shared code libraries and a decision-making framework for development and testing.  This enables continuous improvement with faster deployment and less testing and rework.

This presentation will cover:  Automation program development using an object oriented mindset across software packages contrasted with traditional automation programming.  We will cover examples of how we improved on the traditional methods and how this method has been implemented in a finished SCADA HMI system.  We will discuss challenges of implementing these methods, knowledge gained, and future goals.  The audience of this presentation will be programmers, integrators, and water/wastewater owners and operators.

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**ABOUT THE AUTHORS**

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