T74 - Discovering the Functionality of the Rockwell Automation® Library of Process Objects
Agenda

What’s the Library All About?

How do I Get and Use the Library?

What’s in the Library?

What’s Coming?

Discussion, Questions
PlantPAx

The Modern DCS

- Plantwide Control and Optimization
- SCALABLE and Modular
- SECURE Open and Information-enabled
- FLEXIBLE Delivery and Support
Reusable Library for Design Productivity

- Suite of control and HMI objects to accelerate project engineering
- Role-based feature set for
  - Operation
  - Maintenance
  - Engineering

Rockwell Automation® Standard Library – “out-of-the-box”
Key Benefits

- Improvements in:
  - System “out-of-the-box” experience
  - Engineering efficiency, plus tools, for solution providers
    - Focus on your application engineering vs. building base blocks
  - Consistency of solutions from multiple delivery partners
  - Predictability of system behavior
- Library managed by Rockwell Automation®
- Consistent engineering library framework
  - In line with customer expectations
- TechConnect™ support

Ask for “PlantPAx® Support”
Installation: Get the Library

- **Product Compatibility and Download Center ("PCDC")**
  - Search “Process Solutions” or “PlantPAx®”
Installation: Logix Components

- For Add-On Instructions (AOIs), import only the ones you need.
Use Rung Imports

- Some instructions have AOI and RUNG import files
- A RUNG import includes all the associated Tags and UDTs for In/Out Parameters
  - Example: Drive Fault Codes
  - Import the RUNG (to a Ladder Diagram routine)
- Do this even if you are implementing in Function Block
  - Then simply delete the rung of logic
  - All the other stuff you need stays
Installation: HMI Components

- Add the library components to your project (FactoryTalk® View Site Edition or FactoryTalk® View Machine Edition)
  1. Images – .PNG files (NOTE pull-down!)
  2. Global Objects – .GGFX files
  3. Displays – only the .GFX files you need

- Any platform-required items: Tags, Macros (See Release Notes)
Demonstration

- Over the next few slides, we’ll present how to:
  - Add a P_Motor instance in Logix, connect its I/O
  - Add a motor graphic symbol to a display
  - Link the HMI to Logix via Global Object Parameter
  - Start and stop the motor
  - Add blocks to build up functionality, and add related devices
Create an Instance: Logix

- Add the instruction
  - Ladder
  - Function Block
  - Structured Text
- Create its backing tag
  - Controller or Program scope
- You can do this online
  - Actually, you can do all of this online, including importing AOIs, graphics (SE)
Connect to I/O

New Tag

- Name: Pump_1
- Description: Pump #1 Motor
- Usage: <normal>
- Type: Base
- Alias For:
- Data Type: P_Motor
- Scope: Mosquito
- External Access: Read/Write
- Style:
- Constant
- Open Configuration

Diagram:

- Pump #1 Motor
- Single Speed Motor
- Connections to Local 4:0:Data 0
Create an Instance: FactoryTalk® View

- Open your Display and the appropriate “… Graphics Library” file
- Drag and drop the graphic symbol
Create an Instance: Link View to Logix

KEY LESSON! Just one Global Object Parameter
Let's Try It!
**IMPORTANT:**

Every instruction defaults to the simplest, basic device configuration.

- Motors: outputs only with no run feedback
- Valves: outputs only with no limit switches
- PID: Cascade / Ratio loop mode not enabled

Additional features are used if you configure / enable them

Defaults are listed in the Reference Manual for each instruction
“HAS” and “USE”

- **Has:** the function exists, is coded
  - Under control of Engineering
  - If an AOI does not have a function, it is not visible to operators or maintenance

- **Use:** the function should be used as intended
  - Under control of maintenance
  - Allows bypassing or disabling a function temporarily

- **Maintenance Bypass Indicator**
  - Has but not Used
Designed Around User Roles

- Operation, maintenance, engineering tabs
- Predefined security model
  - User profiles for:
    - operator
    - operating supervisor
    - maintenance
    - maintenance supervisor
    - manager
    - engineer
    - administrator
Library of Process Objects

- Add-On Instructions for Logix V18 or later
- Graphic Symbols and faceplates for FactoryTalk® View SE and FactoryTalk® View ME V7.0 or later
- Reference Manuals
- Additional AOIs, Tools, Reference Information
- Current Release: **3.50.08** (2017-10-13)
- Quarterly maintenance releases

**Motors:**
- Single-speed, two-speed, reversing, generic variable speed drive, hand-operated (monitor)

**Intelligent Motor Control:**
- SMC™-50, SMC™ Flex; PowerFlex® 753, 755, 525, **6000**, 7000; E300, E1Plus, E3/E3Plus

**Valves:**
- Solenoid-operated, motor-operated, mix-proof, hand-operated (monitor)

**Analog inputs with scaling and threshold alarms:** single, dual, multiple; input channel diagnostics

**Advanced analog input adds rate of change, square root extraction, and deviation alarms**

**Analog output (manual loading station)**

**Control valve (analog or pulse, with feedback)**

**Flowmeter or weigh scale dosing, with dribble and self-tuning preact**

**Simple sequencer, manual prompt**

**Continuous control:** PIDE (wrapper AOI), high / low select, fanout, deadband controller
Library of Process Objects

- Discrete Logic with snapshot
- Discrete Input with alarm
- Discrete 2-, 3- or 4-State Device
- n-Position Device (up to 8)
- Discrete Output (with Pulsing)
- Tank Strapping Table
- Logix Diagnostics
- CPU Utilization Monitor
- Task Monitor
- Controller Redundancy Monitor
- Change Detector
- Faceplates for built-in instructions:
  - PIDE
  - RMPS
  - TOT
  - IMC
  - CC
  - MMC

- Updated graphics:
  - Softer images
  - Even gray when normal
- Enhanced navigation
  - Both upstream and downstream
- Permissives with individual bypass
- Interlocks with First-Out indication and individual bypass
- Motor runtime, Starts, Restart Inhibit
- 2-state Valve Statistics
- Standard Modes and Alarms
- Better alignment with ANSI/ISA-18.2-2016 and FactoryTalk® View 8.0+, including:
  - Operator Shelving
  - Program Suppression
  - Maintenance Disable
Application Strategy Templates

- Pre-configured function block diagrams of common process control strategies
- Fully documented and tested
- Reduce implementation time
- Minimize risk
- Template categories
  - I/O Processing
  - Regulatory Control
  - Procedural Control
  - Motors, and Valves
- New Strategies to match LVMCC “Config-to-Order” Bucket Schematics
Rockwell Automation® Library for Electrical Protection Devices

Library of objects to integrate electrical protection devices
- Includes objects for RA, SEL, and ABB protection devices
- Communicates either IEC-61850 or via EtherNet/IP
- Includes instructions for deployment

BENEFITS
- Monitor and control electrical distribution systems with one common platform with simplified and standardized design
Process Library Localization

OVERVIEW

Language switching of RA Library of Process Objects 3.5 faceplates:
- Static (Non-controller) text on library faceplates will be language switchable with translations provided
- Uses native FactoryTalk® View language switching capability at each OWS
- Includes:
  - Portuguese
  - Spanish
  - French
  - Simplified Chinese
  - Korean

BENEFITS

- Support global operations and multi-lingual operators with a consistent interface
## PlantPAx® Library Migration Tool

### Process Library Version

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Where Do I Get More Information?

- Online Literature Library
  - Rockwell Automation® Library of Process Objects
    Product Profile: Pub. PROCES-PP008
  - Rockwell Automation® Library of Process Objects
  - Rockwell Automation® Library of Logix Diagnostic Objects
    Reference Manual: Pub. PROCES-RM003
  - Add-On Instruction Reference Manuals:
    Pub. SYSLIB-RM***
4.0: A Major Release

- Future release (4.0)
  - New look and feel
    - Much grayer, abnormals much more salient
  - New command source model
    - Replaces P_Mode, includes “Out of Service”
  - New device integration
    - PowerFlex® 755TL / TR / TM drives
    - Endress+Hauser Heartbeat function support
    - E+H Promass/Promag 300/500 on EtherNet/IP
  - Lighter-weight Analog Inputs
    - Remove moded Settings: Status / Alarm thresholds become .Cfg (configuration)
  - Area-Based Security
    - Assign users different privileges in different areas of your plant
4.0: Basic and Advanced Faceplates

Lower Tag Count for Improved Performance

Quick Display
- Operation
- Basic Maintenance
- Basic Diagnostics
- Alarms
- Help

Advanced Configuration Display
- Advanced Maintenance
- Advanced Diagnostics
- Engineering / Configuration

[Images of software interfaces showing different modes and settings]
Questions? What Do You Need?
Thank You!