



expanding **human possibility**™

Overview of the New PlantPAx® 5.0 System

PlantPAx® Marketing



PUBLIC

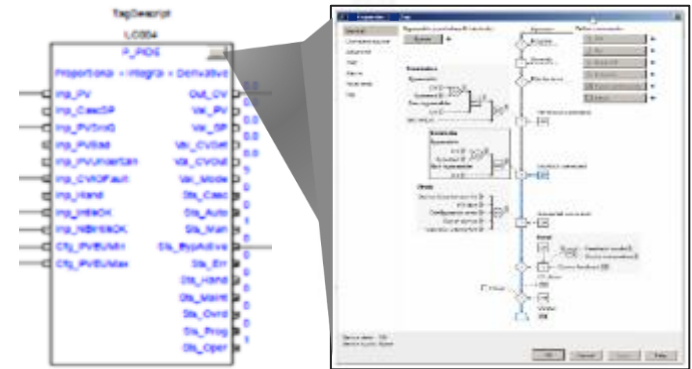
PlantPax® System 5.0

PlantPax® 5.0 was purpose built for plant-wide process and batch control. From the new dedicated Process Controller to the new firmware embedded Process Objects, PlantPax® 5.0 is designed to serve larger and more complex operations in a more secure manner.

- Simplified Architectures with reduced server requirements
- Higher Performance Redundant Process Controllers
- **Embedded Process Objects**
- **Alarms in objects for single configuration**
- **Automatic Hardware Diagnostics**
- **Improved HART configuration/HART data structures**
- **New Organization, Ownership and Arbitration functionality**
- Embedded Libraries support 21CFR11 audit trails & e-signature
- IEC62443-3-3 Cybersecurity Certification

Benefit

- Systems that are easier to deploy and simpler to maintain
- Promotes consistent delivery from site to site.



PlantPax[®] System

Tools and Solutions

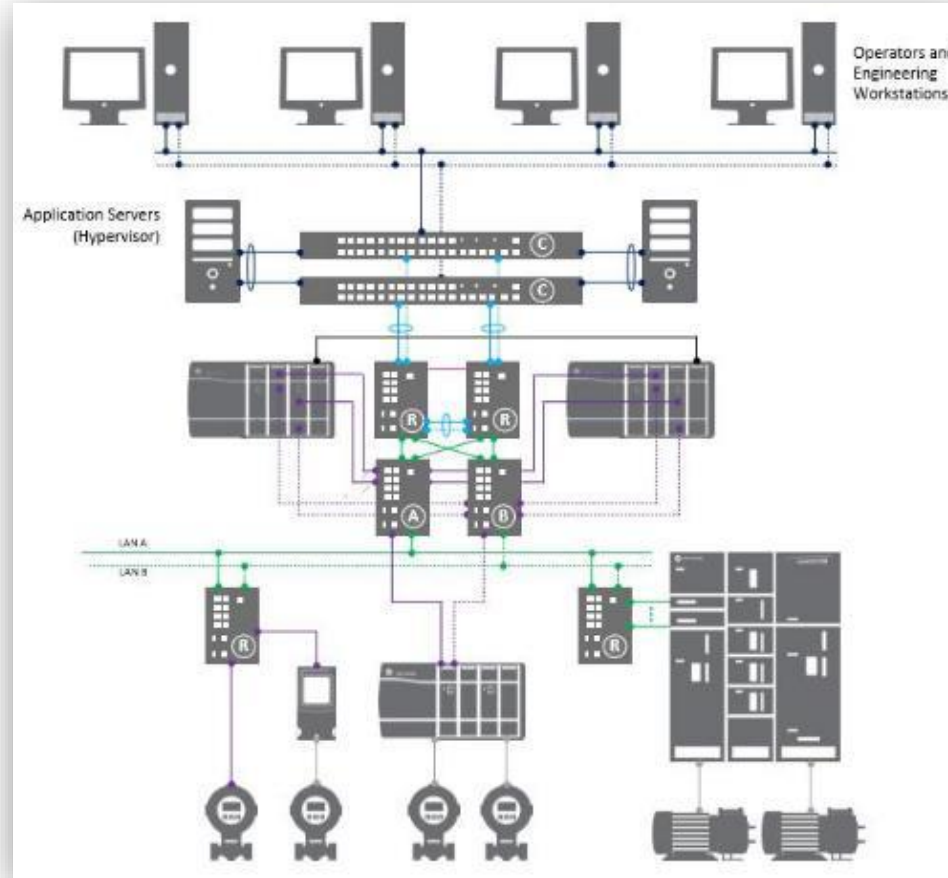
- Process System Estimator (PSE)
- Rapid Code development (ACM)
- Process Object Library Migration Tool

Library of Objects

- Standard Objects reusable objects
- Class-based solutions
- Known performance characterization
- Digital Device & Instrumentation Interface Objects

Reference Architecture

- Network Infrastructure
- Integration Skids
- Cybersecurity



Product Development

- Key Process Features
 - Controller
 - Power
 - HMI
 - Historian
 - Asset Management

Documentation

- System Guidelines
- System References
- User Manuals
- Selection Guides
- Infrastructure Manual
- Online Help



Overview

Leverage native features like embedded instructions and task modeling to minimize project design time.

Available in three ControlLogix® catalogs and two CompactLogix™ catalogs.

Benefit

- Out-of-the-box settings and instructions that follow PlantPAx® guidelines
- 8-series Logix controller performance profile
- Intuitive workflows eliminate unnecessary rework, simplify design and deploy effort

Expanding the Logix Family for Process

Reduce deployment time and variability for process applications in the ControlLogix® and CompactLogix™ families.

Embedded Process Instructions

Simplifying Lifecycle Management

Reduced footprint (Simplification & Strings)

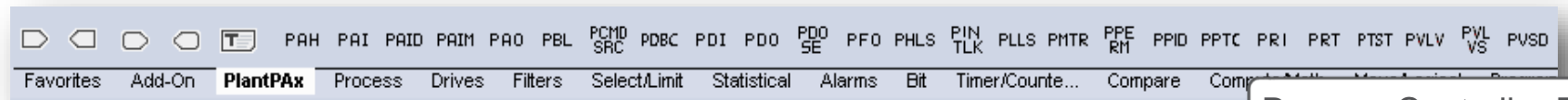
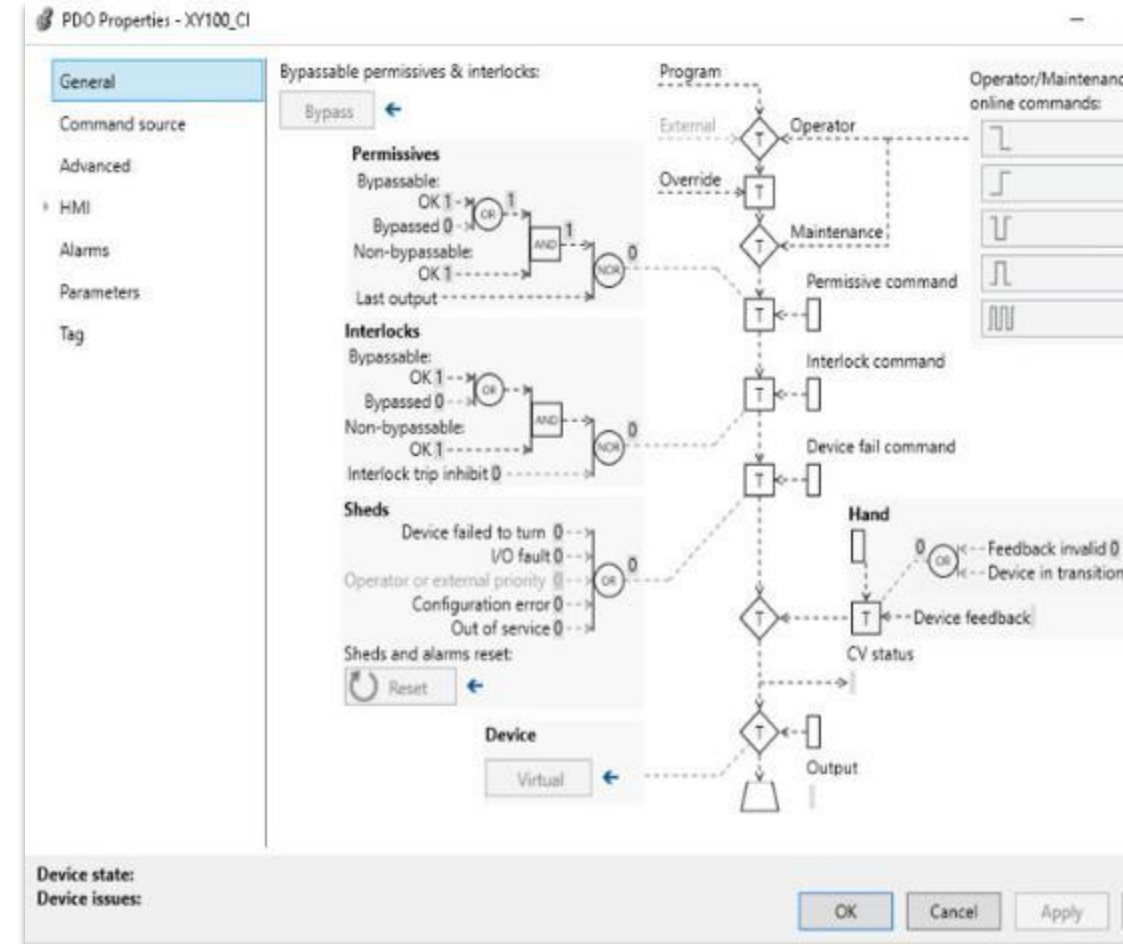
- Many strings moved from instructions to extended tag properties
- Instructions in firmware (No overhead memory consumed)
- Fewer Servers, higher data volumes

Drives consistent delivery

- Library native to controller and design pallet
- Simplifies lifecycle management

Streamlined workflow

- Controller based alarming
- Instructions native to controller (no importing of Add-On Instruction)
- Supports multiple library versions on one system



Process Controller Exclusive

PlantPax[®] System 5.0

Select and Go Alarms within the Instructions

- Simple alarm setup and configuration
- Single environment – deploy alarms when creating control elements in Logix Designer application
- One place to go to add and configure alarms
- One click to add alarms from the object's definition
- Predefined alarms on every object
- Allow users to enable alarms for each instance.

PAI Properties - F10921*

| General | Use Alarm | Gate delay s | Limit m3/h | Deadband m3/h | State |
|---------------|---|-----------------|---------------|------------------|-------|
| PV fail check | <input checked="" type="checkbox"/> High High | 0.000 | 2800 | 1.0 | ... |
| Advanced | <input type="checkbox"/> High | 0.000 | 2500 | 1.0 | ... |
| HMI* | <input type="checkbox"/> Low | 0.000 | 300 | 1.0 | ... |
| Parameters | <input type="checkbox"/> Low Low | 0.000 | 150 | 1.0 | ... |
| Tag | <input type="checkbox"/> High deviation | 0.000 | 0 | 1.0 | ... |
| | <input type="checkbox"/> Low deviation | 0.000 | 0 | 1.0 | ... |
| | <input type="checkbox"/> High RoC | 0.000 | 0 /s | 1.0 /s | ... |

Settings for all alarms

Apply following settings to all alarms

Class:

Alarm group:

FactoryTalk View command:

Allow operator to shelve alarm

Allow maintenance to disable alarm

Process Controller Exclusive

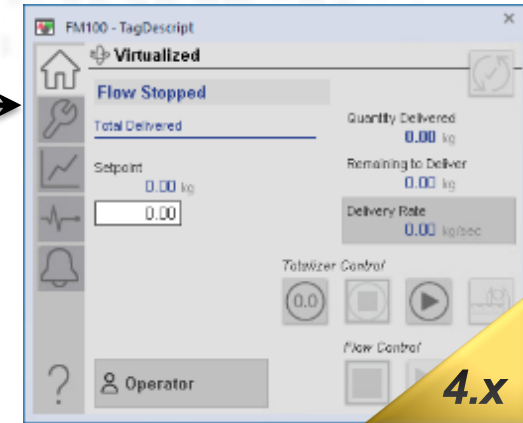
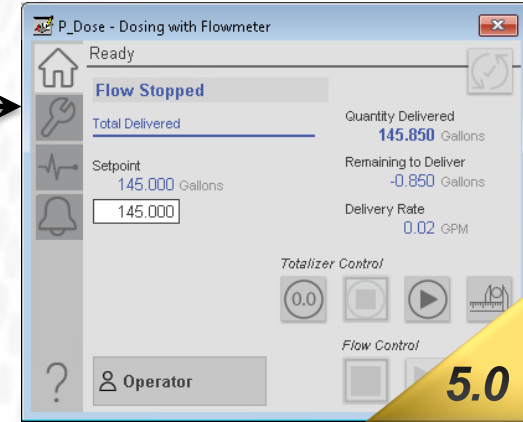
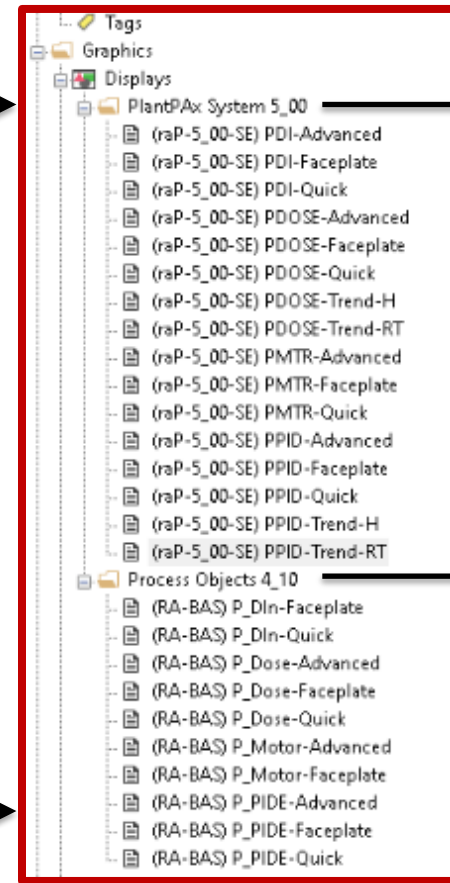
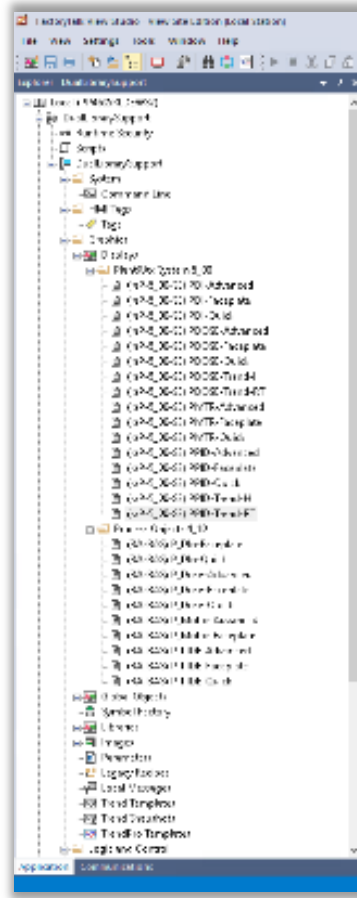
PlantPax[®]: Dual Library Support

Consistent User Experience

- PlantPax[®] 4.x library lives on in parallel with Next Generation (NG)
- Both Add-On Instruction (AOI) and NG objects co-exist together in PlantPax[®] 5.0
- Both AOI and NG faceplates coexist together in PlantPax[®] 5.0

Phased Migration Support

- Mixed library applications are supported
- Allows for gradual adoption of new technology
- Support for AOI and embedded style



Instruction Usage

See PlantPax[®] and Process instruction usage per task for optimal task balancing and visibility

Overview

See a dashboard of each task and the instructions used.

Use with embedded webpage to see CPU utilization and avoid task overlap.

Benefit

- Consistent performance and visibility into task loading during project creation.
- Easier identification of number of control strategies.

The screenshot shows the 'Instruction Usage' window with a table of instruction usage per task. The table has columns for Category, Instruction, Fast, Normal, Slow, System, and Total. The data is as follows:

| Category | Instruction | Fast | Normal | Slow | System | Total |
|----------|-------------|------|--------|------|--------|-------|
| PlantPax | PAI | 0 | 1 | 0 | 0 | 1 |
| PlantPax | PAO | 0 | 1 | 0 | 0 | 1 |
| PlantPax | PCMDSRC | 0 | 18 | 0 | 0 | 18 |
| PlantPax | PDI | 0 | 1 | 0 | 0 | 1 |
| PlantPax | PDO | 0 | 1 | 0 | 0 | 1 |
| PlantPax | PFO | 0 | 1 | 0 | 0 | 1 |
| PlantPax | PTST | 0 | 1 | 0 | 0 | 1 |
| Total | | 0 | 24 | 0 | 0 | 24 |

A context menu is open over the 'Tasks' folder, showing options: New Task..., Cut (Ctrl+X), Copy (Ctrl+C), Paste (Ctrl+V), and Instruction Usage (highlighted with a red box).

Task Model

Automatically create consistent task model in Logix Designer application

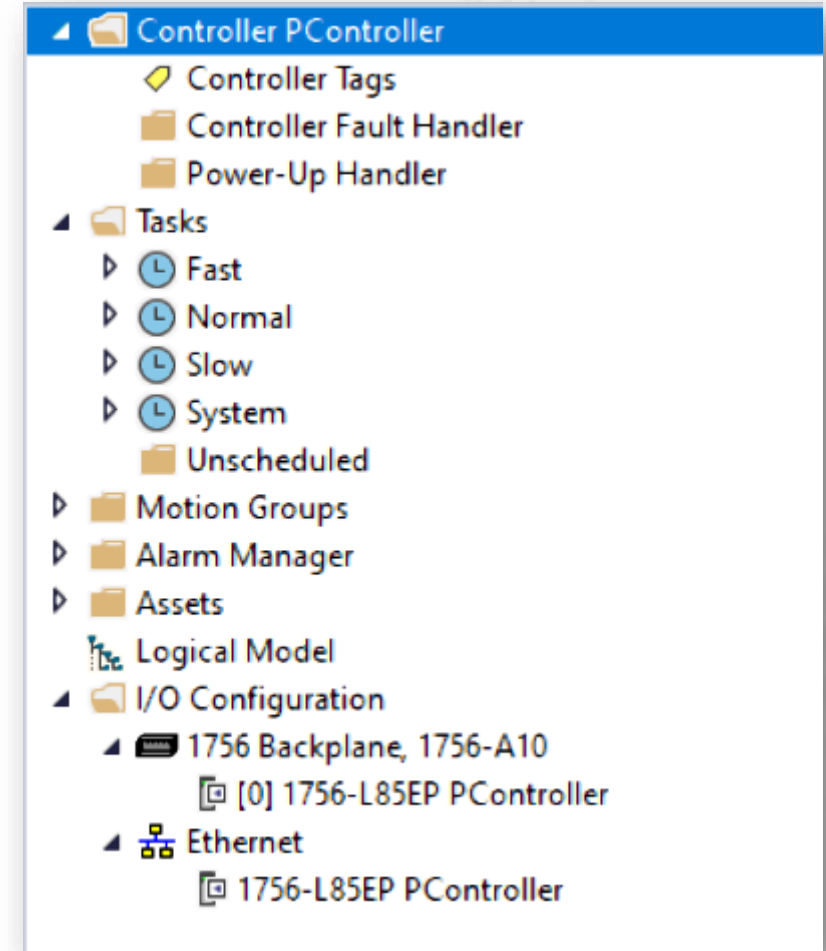
Overview

Start a project with a Fast, Normal, Slow, System periodic tasks already created.

Tasks created with period, priority and names already specified according to PlantPax[®] guidance.

Benefit

- Shorter time dedicated to project creation and layout.
- Consistent project structure that aligns with PlantPax[®] program guidelines.
- More predictable performance estimates and planning.



Process Controller Exclusive

Automatic Diagnostics

FactoryTalk® Alarms and Events v.6.20

The screenshot displays the FactoryTalk Alarms and Events v.6.20 interface. At the top, there is a search bar with 'No Filter' and several icons. Below this is a table of events with columns: Event Time, State, Area, Server Name, Message, Message Code, Subject, Subject Na..., Device Type, Product Na..., Catalog, Major..., Mino..., and Address. The second row is highlighted in blue.

| Event Time | State | Area | Server Name | Message | Message Code | Subject | Subject Na... | Device Type | Product Na... | Catalog | Major... | Mino... | Address |
|--------------------|---------|-----------|-----------------|--------------------|---------------|------------|---------------|----------------|----------------|---------------|----------|---------|-------------|
| <all> | <al...> | <al...> | <all> | <all> | <all> | <all> | <all> | <all> | <all> | <all> | <al...> | <al...> | <all> |
| 11/19/2019 11:5... | 🔊 | /Line1... | FactoryTalk ... | Connection Los... | CONN_LOSS | Device | [ADDA]\$DE... | Communic... | | | 4 | 1 | FTVSEDEM... |
| 11/19/2019 12:2... | 🔊 | /Line1... | FactoryTalk ... | Major Fault T03... | CTRL_FLT_3_16 | Controller | [ADDA]\$CO... | 0 | 0 | | 0 | 0 | FTVSEDEM... |
| 11/19/2019 12:2... | 🔊 | /Line1... | FactoryTalk ... | Connection Los... | CONN_LOSS | Unknown | [ADDA]\$DE... | General Pur... | 1756-OB32/A | 1756-OB32/A | 3 | 2 | FTVSEDEM... |
| 11/19/2019 12:2... | 🔊 | /Line1... | FactoryTalk ... | Connection Los... | CONN_LOSS | Device | [ADDA]\$DE... | Communic... | 5094 Ethern... | 5094-AEN2S... | 4 | 1 | FTVSEDEM... |

Below the table, the details for the selected event are shown:

Event Time: 11/19/2019 12:24:36 PM
Assessment:
State: Active and Unsuppressed
Area: Line1_Data
Server Name: FactoryTalk Linx
Message: Major Fault T03:C16 - I/O Fault: I/O module connection failed on required module.
Message Code: CTRL_FLT_3_16
Subject: Controller
Subject Name: [ADDA]\$CONTROLLERSV33_AD_demo
Vendor: 0
Device Type: 0
Product Name: 0
Catalog:
Major Revision: 0
Minor Revision: 0
Address: FTVSEDEMO19\Ethernet\192.168.1.85\Backplane\6



Organization, Ownership, and Arbitration

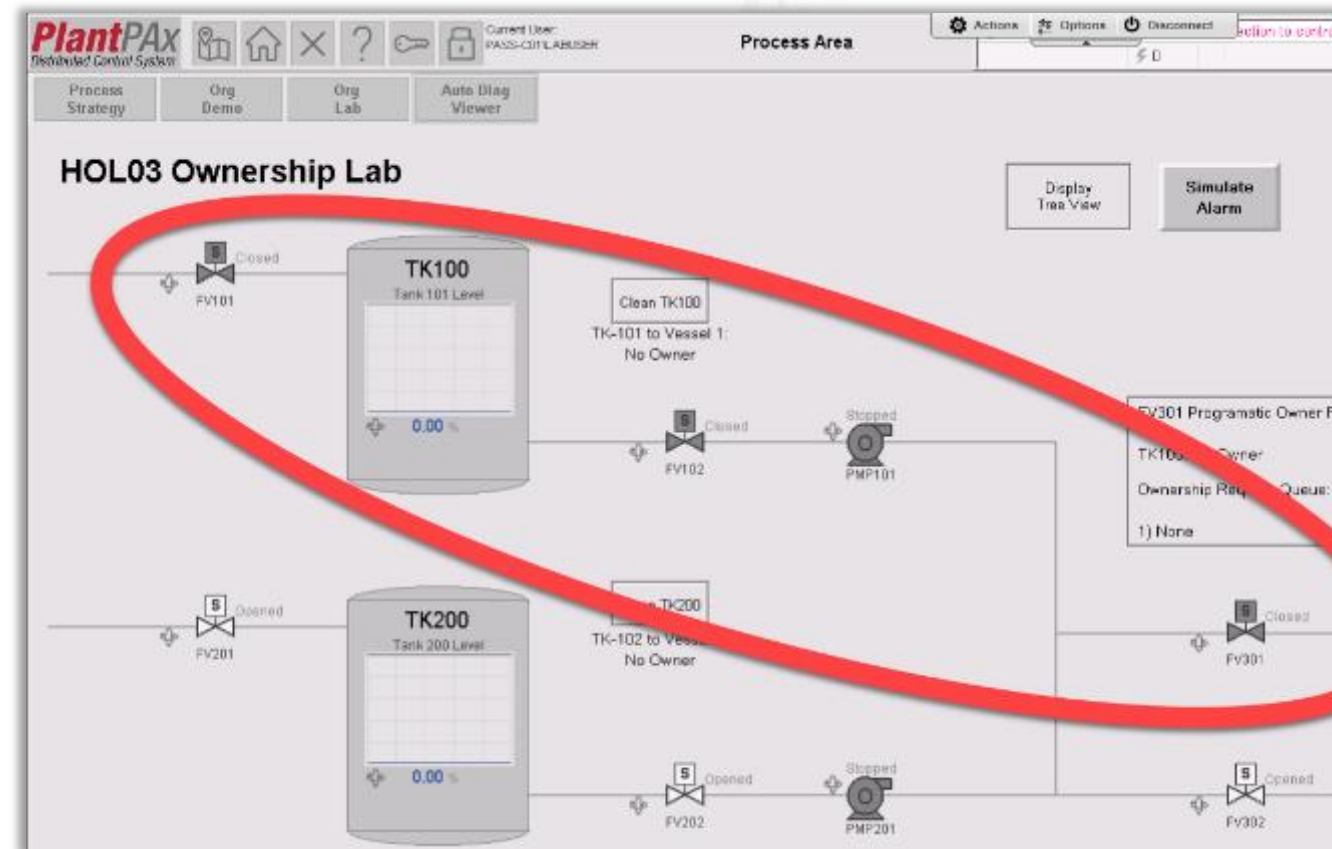
Managing equipment using native functionality on PlantPAx® 5.0 objects

Overview

- Create organizational trees of related devices directly from the HMI
- Manage and prioritize device ownership within these trees
- Propagate commands down and statuses up the organizational trees (ie: Alarms, Physical vs. Virtual Mode, and Command Source)

Benefits

- Ability to command devices as an equipment group
- No custom code required to create equipment groups
- Identifies ownership status of equipment groups
- Queues ownership requests of an equipment group and allows user to set custom arbitration rules
- Get statuses and issue commands to equipment groups from a single request
 - Commands propagate down from selected parent
 - Status propagates up from children



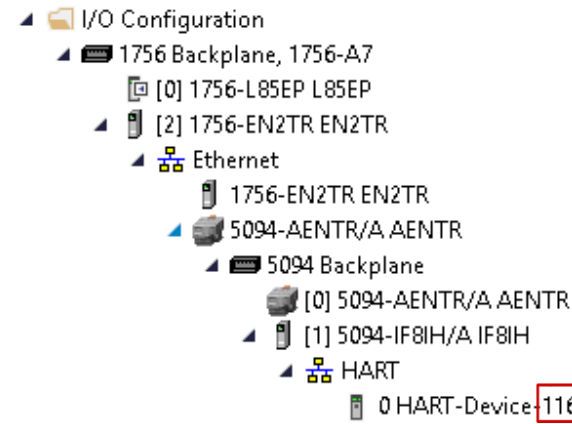
Highly Integrated HART

Features

- Add and replace HART devices online
- HART signals & connection status indicated Logix Designer application I/O tree
- Integrated device diagnostics via profile
- PlantPax[®] connection type selection

Benefits

- Intuitive Integration
- Device diagnostics included in PlantPax[®] data type connection
- Out of the box Faceplate renders HART content



Catalog 5094-IF8IH
Catalog 5094-OF8IH



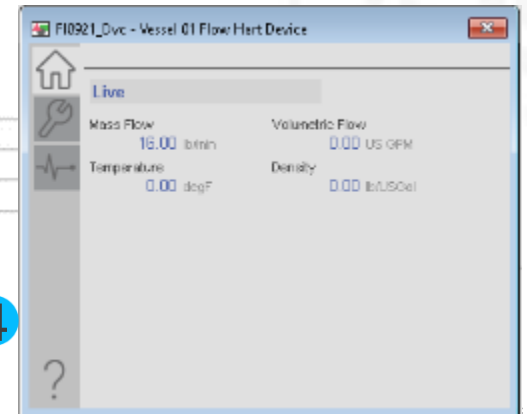
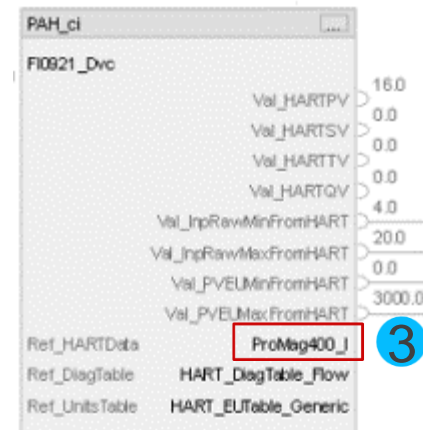
Module Definition

Define Module, Electronic Keying and Connection

Revision: 22 001

Electronic Keying: Compatible Module

Connection: PlantPax



Process Instructions

Native instructions minimize extra compliance work in validated industries as a common, off the shelf solution.

Off the Shelf

- Instructions can be referenced as a standard offering without needing “Add-ons”
- Developed using a standard documented process with quality plan
- Standardized naming conventions
- Documented functional requirements and test requirements

Compliance

- E-signatures on operator actions (FDA 21 CFR pt 11)
- Audit trails on operator actions (FDA 21 CFR pt 11)



Process Controller Exclusive

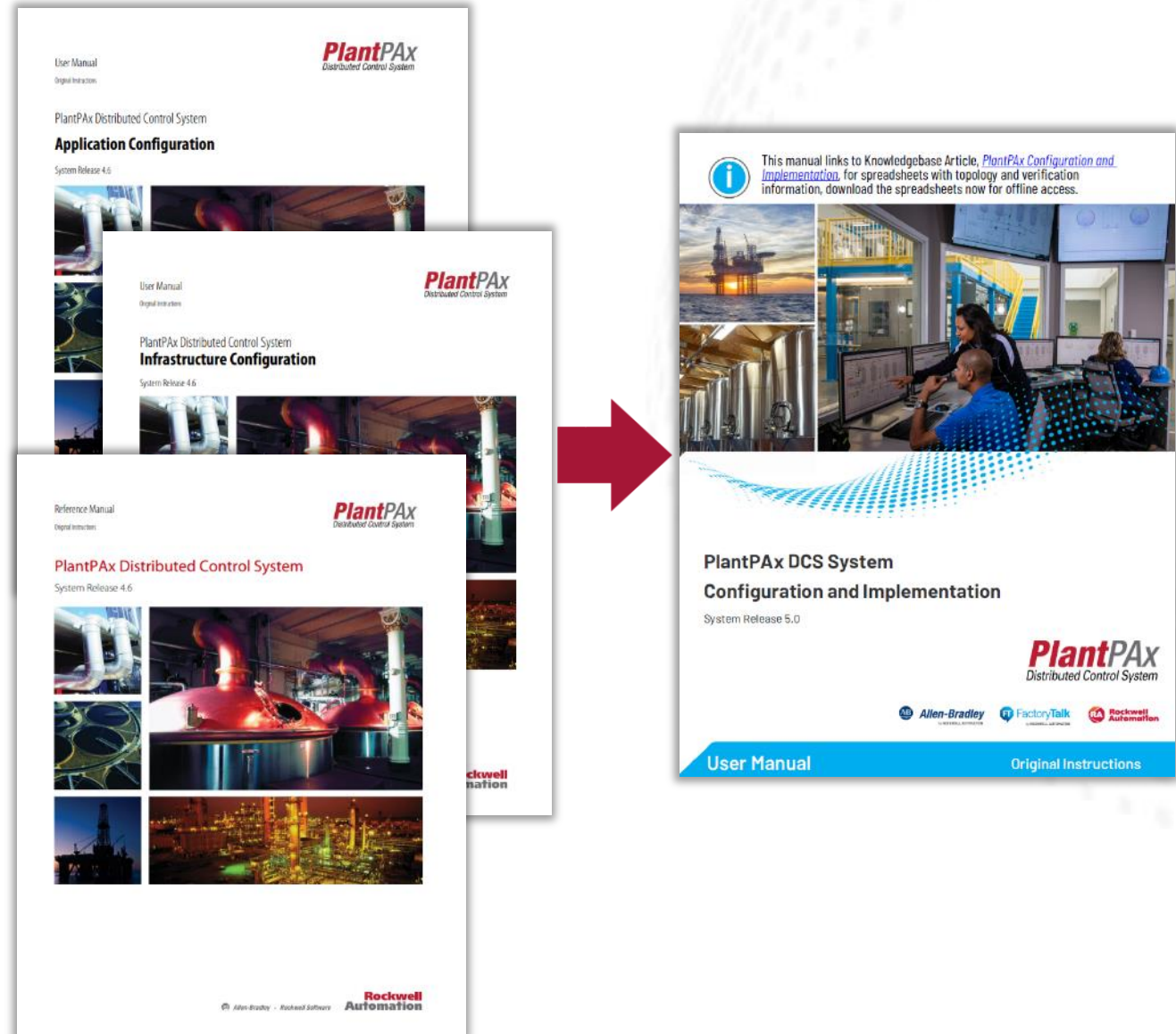
PlantPAX[®] 5.0 Documentation Restructure

Focus: Consolidation and Simplification

- Each chapter (main section) based on overall system workflow
- Collapses detailed steps from existing documentation into higher-level steps to focus on the 'Why'
- Links to related product documentation for more information

Benefits

- Combines related content in one publication
- Focuses on PlantPAX[®] specific details
- Provides clearer picture of where to start and where to go



ControlLogix® Process Controller High Availability

Available at Launch of PlantPAx® 5.0!



- Intended as an addition to the 5570 redundancy solution (also available in V33)
- Leverages the 1756-RM2 modules
- No memory reduction when selecting redundancy - effectively doubling memory available over the 5570 redundant solutions



expanding **human possibility**™

Thank you



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