



THE REYNOLDS
COMPANY
ELECTRICAL SUPPLY

User Group
Online Seminars

Process System Update

May 19, 2022

Technical Seminars from TRC

Register to receive a calendar invite



TECH TALK

- **Asset Management**
May 25th

USER GROUP

- **ControlLogix Redundant Network Architectures**
June
- **Modernization**
July

Visit our Resources page on reynoldsonline.com

Updated Website

ReynoldsOnline.com

Resources Section includes

- Blog articles
- Podcast
- Videos
- News

The screenshot shows the website header with the company logo, navigation links for 'SERVICES & SOLUTIONS', 'RESOURCES', 'TRAINING & EVENTS', and 'ABOUT US', a search bar, and 'SIGN IN' and 'Cart' buttons. A black banner below the header contains the message: 'Our New Orleans branch will remain closed until power is restored. [Learn more.](#)'

The main content area is titled 'RESOURCES' and includes filter options: 'Filter By Category' (set to 'Show All') and 'Filter By Type' (set to 'Show All'), with a 'CLEAR FILTERS' button. The resources are displayed in a grid of seven cards:

- TRC Talks**: a podcast on industrial automation. Card for 'LOTO Part 1 - The Components of Lockout Tagout' (August 27, 2021 | Safety | Podcasts). Description: 'In this episode of TRC Talks, Brad Freeman speaks with Tim Bohmann from Rockwell Automation on the topic of Lockout Tagout. LOTO is a crucial component of any safety...'
- TechTalk Online Seminars**: Card for 'TechTalk - Spectrum Controls' (August 26, 2021 | Automation | Training & Events). Description: 'In this TRCTechTalk, we are joined by a guest presenter - Spectrum Controls.'
- User Group**: Card for 'User Group - Introduction to InnovationSuite' (August 19, 2021 | Automation | Training & Events). Description: 'FactoryTalk software is built for supporting an ecosystem of advanced industrial applications, including IoT. It all starts at the edge where manufacturing happens and scales from on-...'
- TechTalk Online Seminars**: Card for 'TechTalk - Lockout/Tagout Program Management' (August 12, 2021 | Safety | Training & Events). Description: 'Watch our TechTalk to learn how ScanESC.'
- fiix**: A ROCKWELL AUTOMATION COMPANY. Card for 'Introducing Fiix' (August 04, 2021 | Services | Featured Products). Description: 'Fiix is a Computerized Maintenance.'
- TechTalk Online Seminars**: Card for 'TechTalk - PlantPAX System Estimator' (July 29, 2021 | Networking | Training & Events). Description: 'Watch our TechTalk to learn how to use the...'

Upcoming Events



A Rockwell Automation and Plex Systems Event

Join us for **ROKLive 2022**, happening **June 13-16**
at Loews Royal Pacific Resort in **Orlando, Florida**

ROKLive 2022 Content

Product and Technology Sessions

105 Total Sessions including

6 PartnerNetwork Led Sessions (sponsoring)

Kalypso (4), Fiix (1), PTC (3)

Hands-on Labs

25 Total Labs + Plex Hands-on Labs

ThinManager, Studio 5000, PlantPAx, FactoryTalk Edge Gateway

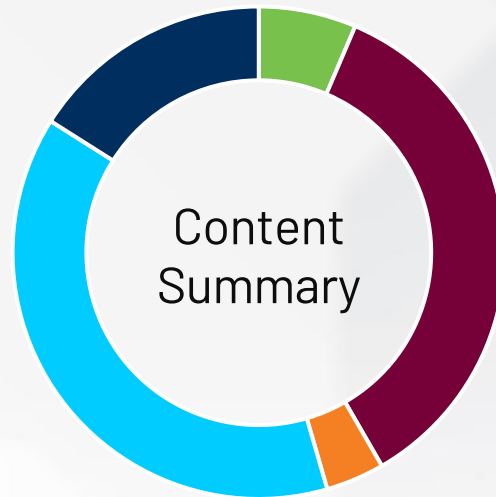
Customer Speakers

5 Smart Industry Magazine award-winning DX Leaders +

~10 from Plex customer base

Peer Exchanges (Monday)

Cybersecurity | Food & Beverage | OEM | Water Wastewater



- Industry Roundtables & Customer Speakers
- RA - Product and Technology
- Partner - Product and Technology
- Plex Content
- Hands-on-Labs

Our Presenters

Mike Masterson
Automation Specialist
The Reynolds Company

David Nute
Business Development Lead
Process and Software
The Reynolds Company

Brian Mikeska
Automation Specialist
The Reynolds Company

Luis Ramos
Business Development Manager
The Reynolds Company



**Rockwell
Automation**

PlantPAx[®] System Release

PlantPax[®] 5.0 System Release

Purpose Built for Plant-wide Control Spanning Batch, Hybrid, and Heavy Industries



Reduced Footprint



Drives Consistent Delivery



Streamlined Workflows



Cyber Secure



Analytics Enabled

PlantPax[®] System

Tools and Solutions

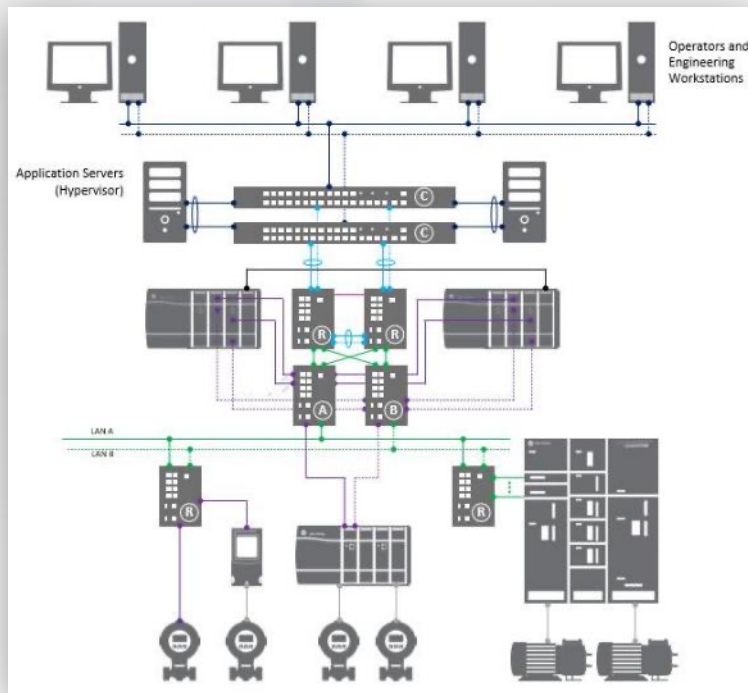
- Rapid Code development
- Process System Estimator
- Process Object Library Migration Tool
- Alarm Builder
- Competitive DCS Migration

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
- Platform Scale
- Known Performance



Product Development

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

Documentation

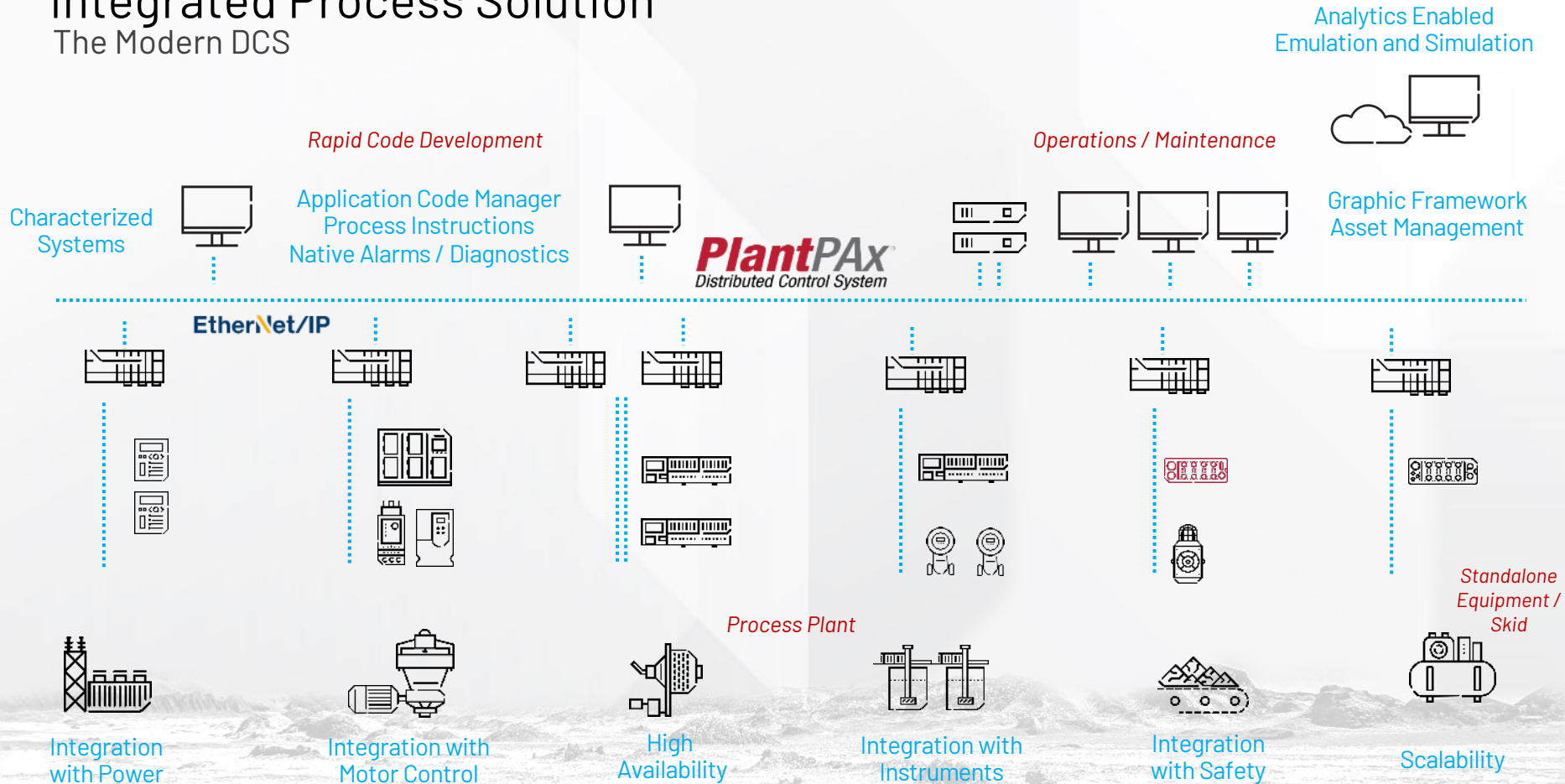
- System Guidelines
- System References
- User Manuals
- Selection Guides
- Infrastructure Manual
- Online Help

Bundling and Services

- Process System Lifecycle Support
- Asset Utilization
- Network Services
- Cybersecurity

Integrated Process Solution

The Modern DCS



PlantPax[®] 5.10

Expanding the capabilities of the 5.0 release!

- P-Controller emulation
- IEC 61850 power integration
- OPC UA alarm
- PASS – C batch
- FactoryTalk[®] Innovation Suite library (Phase 2)
- Event logging
- Expanded portfolio of industrial PCs

PlantPax
Distributed Control System





PlantPAx[®] Architecture



Process controllers in CompactLogix™ and ControlLogix®

Reduce deployment time and variability for process applications

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

Available in three ControlLogix® catalogs and two CompactLogix™ catalogs

BENEFITS

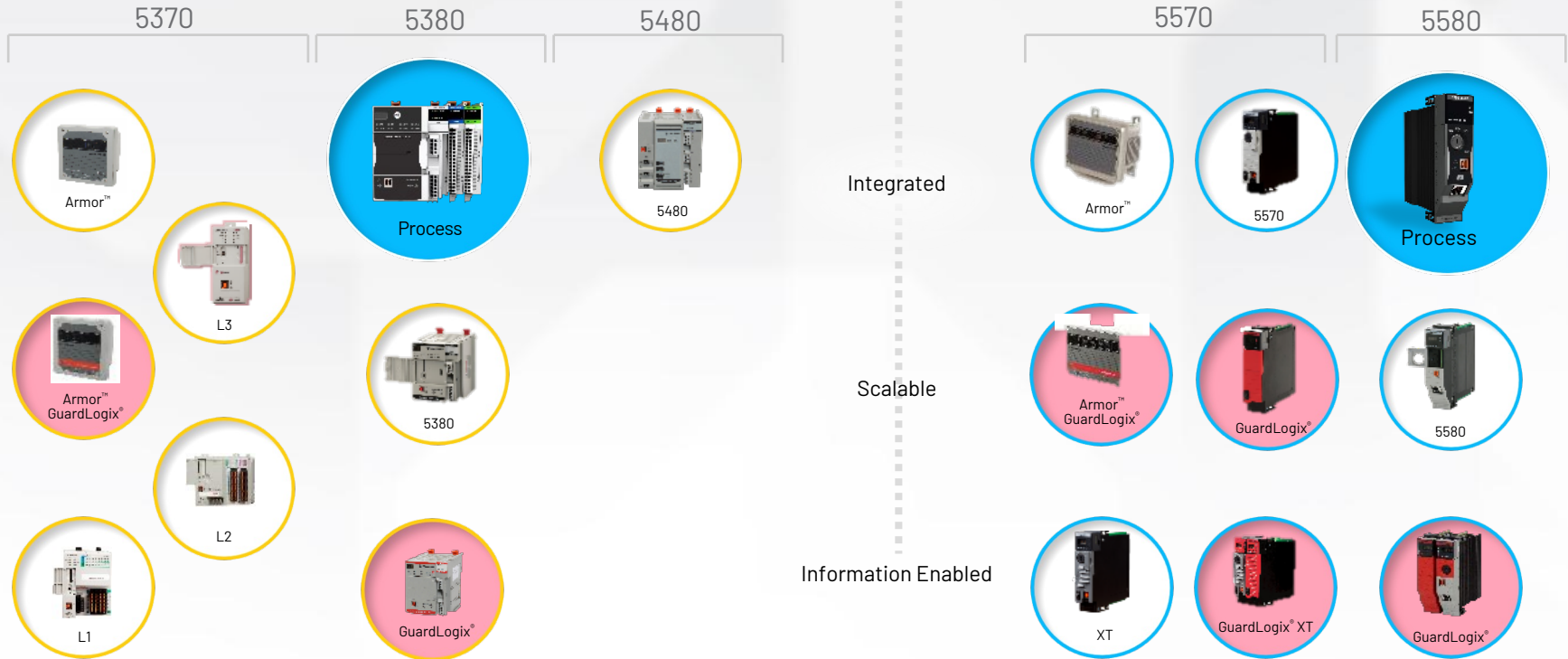
- Out-of-the-box settings and instructions that follow PlantPax® guidelines
- Eight series Logix controller performance profile
- Intuitive workflows eliminate unnecessary rework, simplify design and deploy effort



Process Controllers

Process Skids CompactLogix™ controllers

Process System ControlLogix® controllers



Automatic diagnostics

Access and display diagnostic information without additional programming

Diagnostics automatically created for all devices in IO tree

FactoryTalk® Alarms and Events provide both real time and historic diagnostic information

FactoryTalk® View Site Edition (SE) automatic diagnostics frame is automatically populated with device diagnostics events

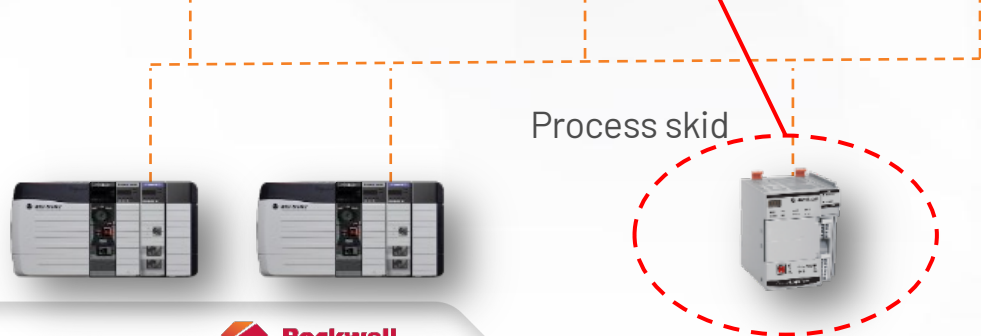
BENEFITS

- No programming through alarms to get and display diagnostic information
- Provide contextual information from the Logix project with the diagnostic event
- Device diagnostics follow the lifecycle of the device

Event Time	State	Area	Server Name	Message	Message Code	Subject	Subject Na...	Device Type	Product Na...	Catalog	Major...	Minor...	Address
11/19/2019 11:5...		/Line1...	FactoryTalk ...	Connection Los...	CONN_LOSS	Device	[ADDA]SDE...	Communic...			4	1	FTVSEDEM...
11/19/2019 12:2...		/Line1...	FactoryTalk ...	Major Fault T03...	CTRL_FLT_3_16	Controller	[ADDA]SCO...	0	0		0	0	FTVSEDEM...
11/19/2019 12:2...		/Line1...	FactoryTalk ...	Connection Los...	CONN_LOSS	Unknown	[ADDA]SDE...	General Pur...	1756-OB32/A	1756-OB32/A	3	2	FTVSEDEM...
11/19/2019 12:2...		/Line1...	FactoryTalk ...	Connection Los...	CONN_LOSS	Device	[ADDA]SDE...	Communic...	5094 Ethern...	5094-AEN2S...	4	1	FTVSEDEM...

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]SCONTROLLERSV33_AD_demo
Vendor: 0
Device Type: 0
Product Name: 0
Catalog:
Major Revision: 0
Minor Revision: 0
Address: FTVSEDEMO19\Ethernet\192.168.1.85\Backplane6

Diagnostic Message



PlantPax Field Device integration on HART

New Logix feature – **Highly Integrated HART**

HART Integration

Visible access to HART devices and device connection fault status representation in I/O tree. Add or replace devices online. Device validation via electronic keying

Studio 5000 Logix Designer

- Ethernet
 - 1756-L85E HIH_5094_L85E_demo
 - 5094-AEN2SFRPX/A ENET_5094
 - 5094 Backplane
 - [0] 5094-AEN2SFRPX/A ENET_5094
 - [1] 5094-IF8IHXT/A HIH_AI
 - HART
 - 0 HART-Device-E328 pH_meter
 - 1 HART-Device-113B Promass_500
 - 2 HART-Device-11A3 Liquiline_CM82
 - 3 HART-Device-11CA Temperature
 - 4 HART-Device-11CE iTEMP_TMT162
 - [2] 5094-OF8IHXT/A HIH_AO
 - HART
 - 0 HART-Device-57EB ValveGuard
 - 1 HART-Device-E2FA IDC24_valve

Process Instructions

Controller firmware embedded process instructions

Studio 5000 Logix Designer

PAI (Process Analog Input)
PAO (Process Analog Output)

PAH (Process Analog HART)

PAH (Process Analog HART) details:

- Val_HARTPV 27.63849
- Val_HARTSV 32.19436
- Val_HARTV 5.0
- Val_HARTV 0.018039889
- Val_HARTLoopCurrent 0.036317
- Sts_IHARTDiagSts 0
- Sts_DiagnosticActive 0
- Ref_HARTData T15001:PAHDevice
- Ref_DiagTable _HART7_DiagTable_TrustSenseTMTx_rev1 *
- Ref_UnitsTable _HART_EUTable_Generic



CompactLogix™ 5380 Process Controller



ControlLogix® 5580 Process Controller

Process Library

Suite of control and HMI objects to accelerate project engineering. ISA101 standards-based look and feel

View Studio

T15001_Dvc - PAH Faceplate

Signal Failure

Device Diagnostics

- 004-Sensor defective

Live

Temperature 25.20 °C Self Calibration 5 #

Device Temp. 31.37 °C Deviation 0.02 °C

T15001 - PAH Faceplate

High

82.5 °C

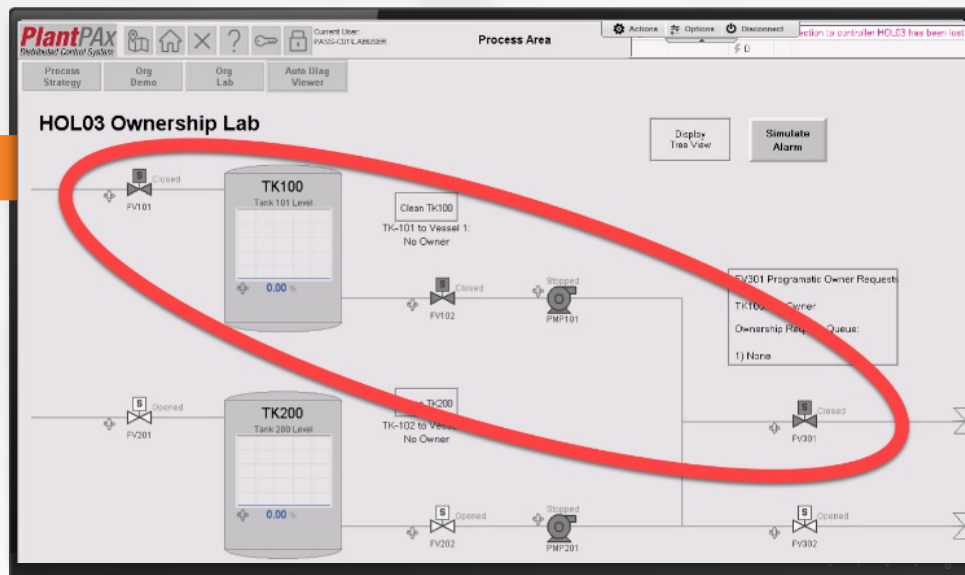
Faceplates

Organization, Ownership, and Arbitration

Managing equipment using native functionality on PlantPAx® 5.0 objects

FEATURES

- 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 (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 one request

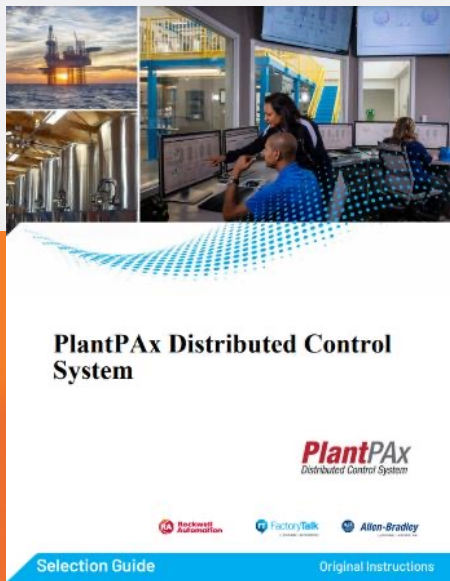


**Rockwell
Automation**

Implementation

PlantPax[®] Manuals

Selection Guide



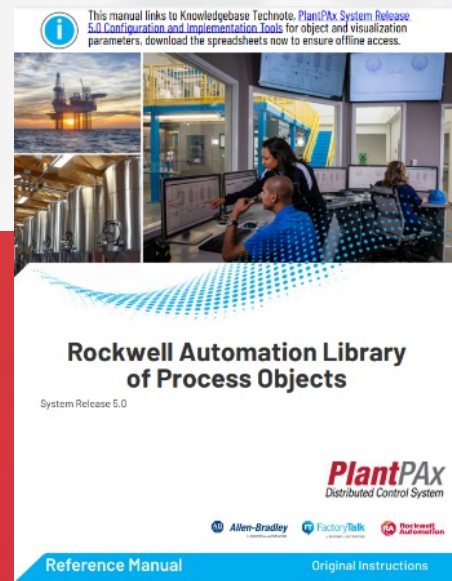
Understand the elements of the PlantPax[®] system to ensure an optimized plant

Configuration and Implementation User Manual



System guidelines and instructions to assist with the deployment of a PlantPax[®] system

Library of Process Objects Reference Manual



Understand the PlantPax[®] instructions and faceplates that are available to develop applications

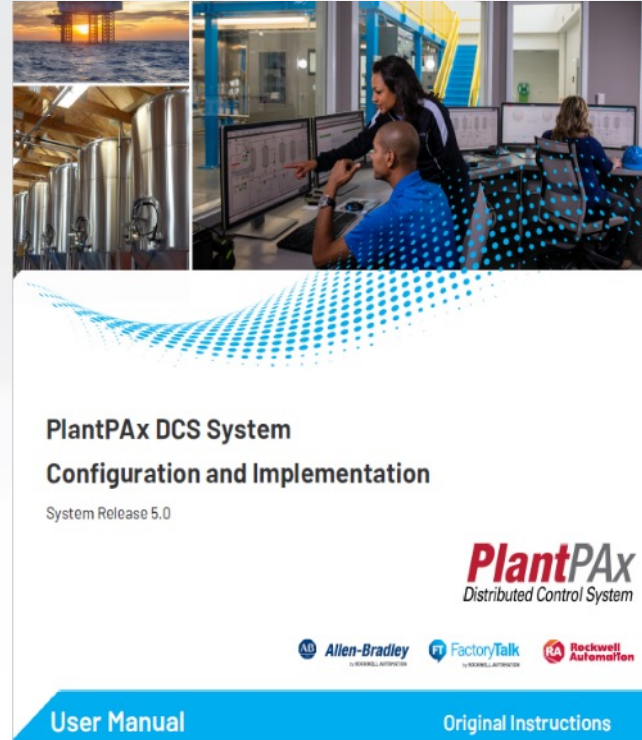
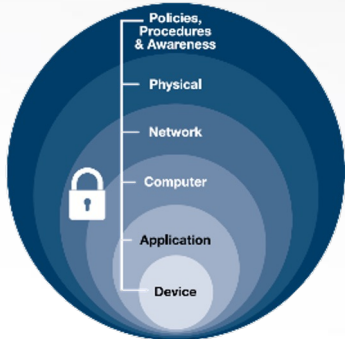
PlantPax[®] 5.0 Configuration and Implementation Guide

ISA99/IEC 62443-3-3 Compliance

System Security Feature Checklists

Characterization of system elements for multiple configurations such as:

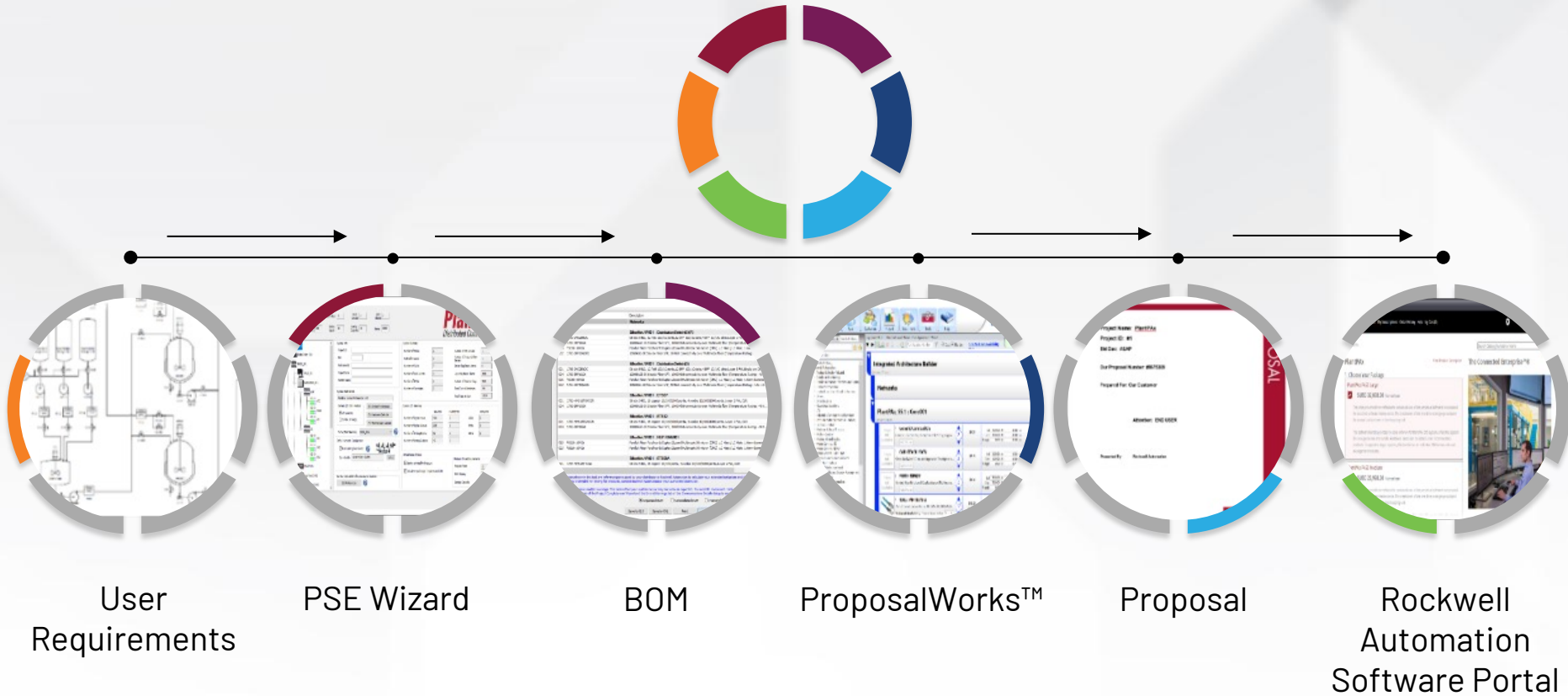
- Wireless and Remote Access
- Multi-site Enterprise topologies
- Firewalled production zones
- FactoryTalk Services
- ThinManager Configuration
- FactoryTalk AssetCentre



- > System Workflow
- > Domain or Workgroup
- > Process Automation System Server
- > Network Infrastructure
- > Process Applications
- > Asset Management
- > Historical Data
- > Batch Management
- > Analytics
- > **PlantPax Security Certification**
- > Firewall Configurations
- > PlantPax Deployment Recommendations and Verification Tool

PROCES-UM100

Typical Workflow of the PSE



Project Workflow

Process System Estimator (PSE)

- Define control strategies
- Define execution times
- Define hardware
- Determine software loading
- Determine network architecture and loading
- Determine virtualized architecture and loading

PlantPax® Configuration Tool

- Setting alarm groups and commands
- Setting interlock text descriptors and navigation
- Sets values in the offline Automatic Call Distribution (ACD) file
- Organize Hardware Bus and System Bus

PlantPax® Verification Tool

- Audit Implementation iteratively as a check to make sure that the system is within boundaries
- Compare against PSE to be sure that the deployment matches the design
- Catches problems early to reduce rework

Project Documentation

- P&ID
- Process Narrative
- Instrument List
- Plant Layout Diagram
- Networking Layout Diagram

Application Code Manager

- Assigns Process Strategies to instruments and devices
- Loads data from Instrument List into each object to avoid manual entry
- Allows efficient creation of large projects
- Creates HMI Graphics
- Creates Historian import file

Deploy Project

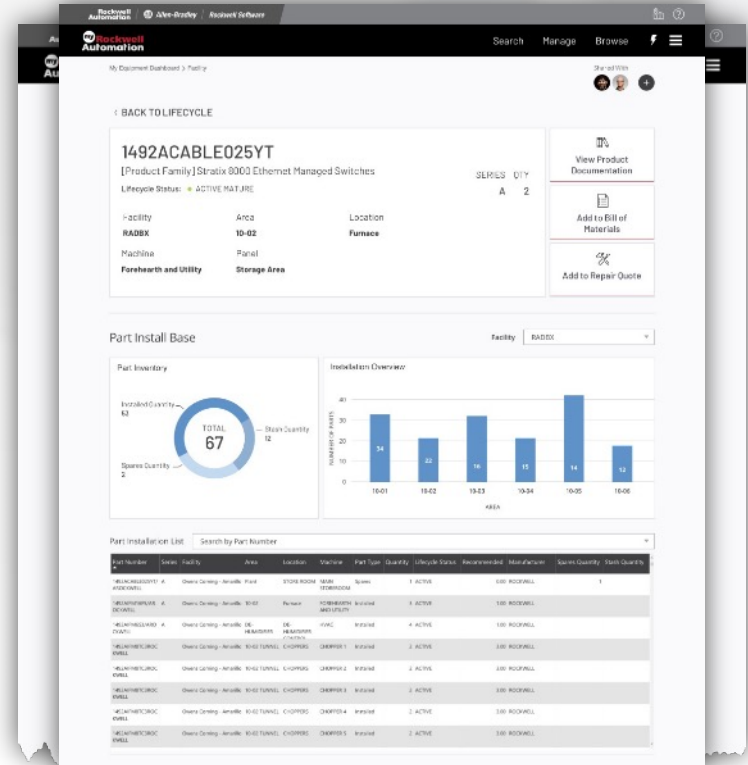
- Deploy servers from templates
- Deploy network per Topology Worksheet
- Finalize server deployment with Configuration and Implementation Guide UM-100
- Import all application files

System ID

A System ID enables a strategic, proactive approach to plant lifecycle management.

The PlantPax® **System ID** is a unique identifier that helps simplify the management of your system over its lifecycle.

- Obsolescence Risk Analysis
- Lifecycle Updates & Notifications
- Product Notices
- Contextualized Reports
- Connected Support Experience



FactoryTalk View SE license simplification

Introducing new licensing tiers for the FactoryTalk View SE portfolio to simplify buying decisions by including everything needed for a visualization solution in one part number

Station Lite	Station	Small	Medium	Large
View SE Station <ul style="list-style-type: none">• 25 display count• Unlimited web clients	View SE Station <ul style="list-style-type: none">• Unlimited display count• Unlimited web clients	View SE Distributed <ul style="list-style-type: none">• HMI server with unlimited display count• 5 HMI clients• Unlimited web clients	View SE Distributed <ul style="list-style-type: none">• HMI server with unlimited display count• 10 HMI clients• Unlimited web clients	View SE Distributed <ul style="list-style-type: none">• HMI server with unlimited display count• 25 HMI clients• Unlimited web clients

Station Add-on Options:

FactoryTalk® View Studio Enterprise

Distributed Add-on options:

Additional HMI client, full or read-only

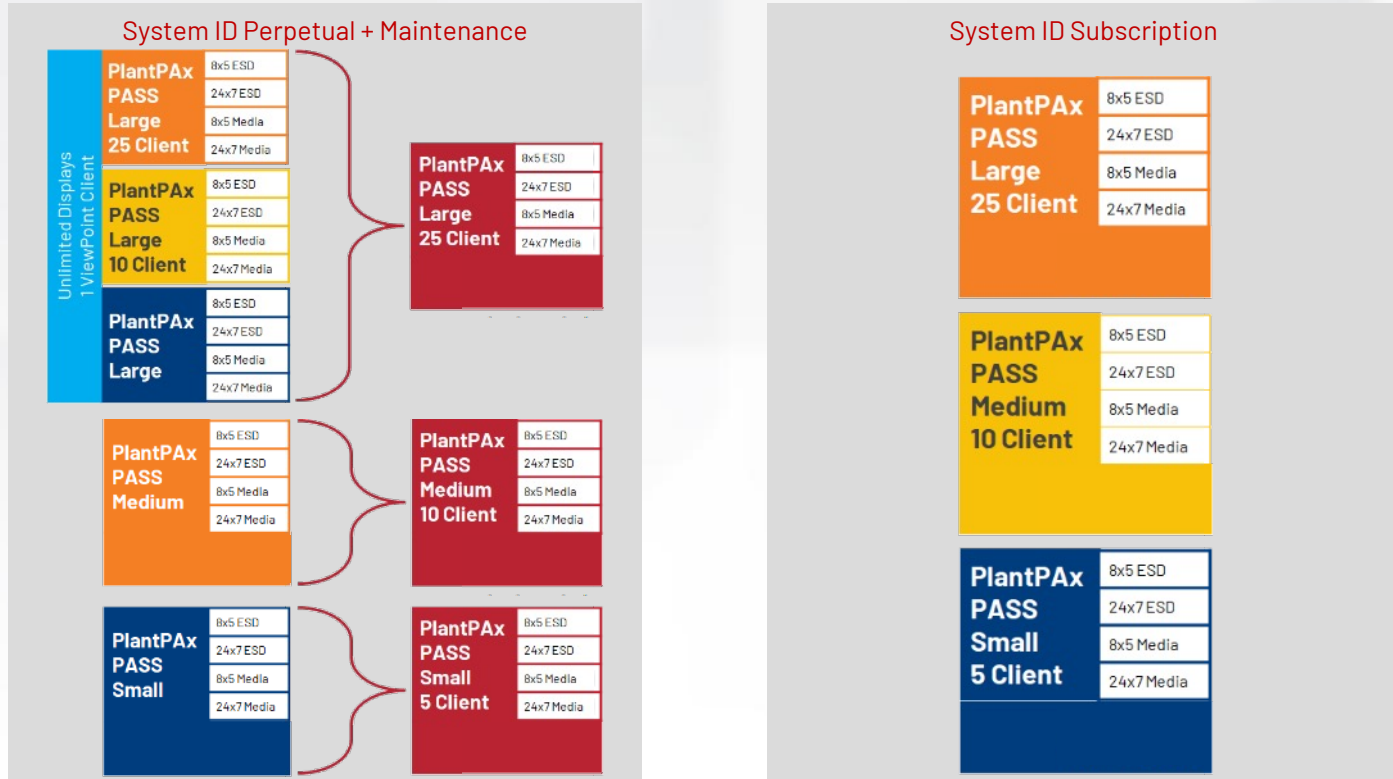
FactoryTalk® View Studio Enterprise

Redundant HMI server

New PlantPax® Software Bundles



Updated to include new FactoryTalk® View SE pricing AND Subscription options





**Rockwell
Automation**

Graphic Framework

PlantPAx 5.0

User Interface and Object Library

Process HMI Style Guide

- Designed using latest guidelines (ISA 101)
- Improves situational awareness
- Easy to troubleshoot

Information Enabled

- Provide diagnostic analytics
- Provide information to improve maintenance and predict failures

Security & Change Management

- Manage who can see what information and perform actions
- Log operator actions for quality records and analysis – who did what / when / where



ISA 101

Reduce complexity, customization, and cost in HMIs across the plant lifecycle



PlantPax[®] Graphic Framework

Organizes HMI with a logical progression of complexity from main area overview down to detailed device information

4 Main Components

- Header
- Process Control Displays
- Navigation
- Alarm Indication

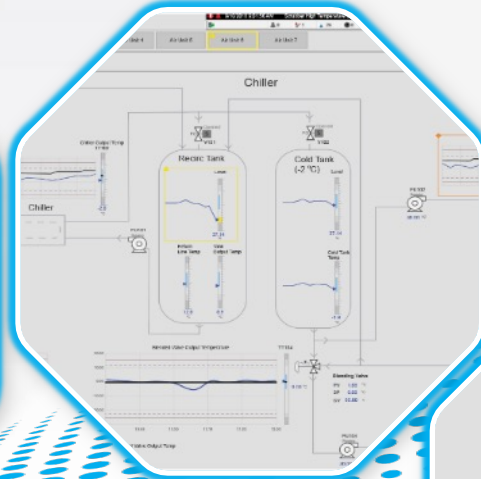


PlantPax[®] Graphic Framework

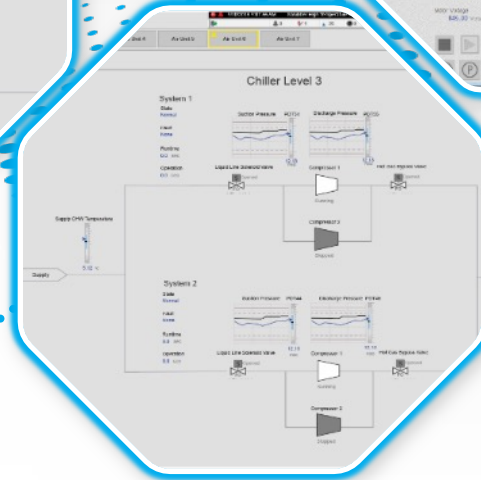
Driving a consistent user experience leveraging ISA101, using accepted industry standards



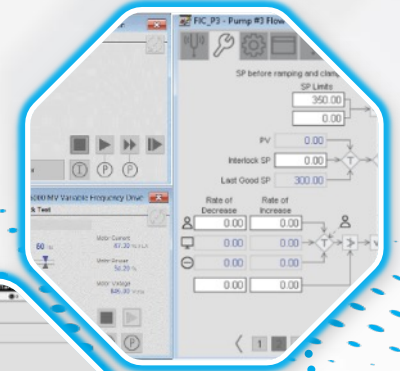
Level 1 Graphics
Overview



Level 3
Detail displays



Level 2
Main control



Level 4
Faceplates

PlantPax 5.0 Graphic Framework

Graphic Framework – Basic Structure for HMI Applications

Modularly Flexible

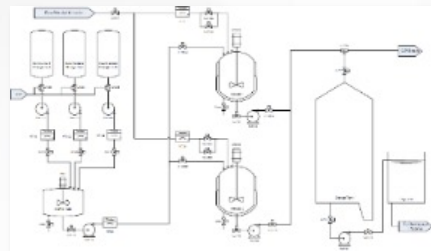
- Delivers different size/complexity of systems using the same Graphic Framework

Intuitive Deployment

- Simplified Graphic directory
- Graphic Framework is configured; not programmed
- Clear direction of global object instantiation in Global Object Files
- Operator displays consistently built from only two component display files
- L2 Navigation Bar is component of header
- L3 Navigation Bar is component of L2/L3 graphic display
- Configuration included in PlantPAX® Manuals

Operational Improvements

- Active Display Indicators
- Navigation bars indicate intuitive alarm “breadcrumbs”
- Control Equipment Agnostic Process Alarms
- Three visible alarms in new banner
- Consistent Alarm Colors in all graphical components
- True Language Switching Enabled



Alarm Management

Alarm and Events Server – Alarm Summary and Alarm History

Alarm Banner

The screenshot displays the PlantPAX Distributed Control System interface. At the top, a banner shows the current date and time (August 25, 2020, 9:38:35 PM) and a critical alarm message: "Mode of controller Hardware has been changed to Program. (Server: RNA://Global/...". Below this is a grid of buttons for different process levels (Level 2 and Level 3). The main interface includes a navigation bar with icons for home, search, and other functions, along with the current user name (USCHISSBLABVAMMILLER). A section titled "Alarm Summary" contains buttons for "Alarm History", "Alarm Shelved", and "Alarm Explorer". Below this is a toolbar with various icons for alarm management. The "Alarm History" table lists the following events:

!	🔔	Event Time	Alarm Name	Message
🔴	🔔	8/25/2020 10:04:52 AM	[Hardware]	Mode of controller Hardw
🟡	🔔	12/31/1997 6:30:10 PM	[L85EP_Testbed]AY300_AOI@Alarms.Alm_OneGood	TagDescript: Only one g
🟡	🔔	12/31/1997 6:34:09 PM	[LAR_Testbed]LS100_AOI@Alarms.Alm_TgtDisagree	TagDescript: Target disa
🟡	🔔	12/31/1997 6:34:09 PM	[LAR_Testbed]MT111@Alarms.Alm_IOFault	TagDescript - Reversing
🔴	🔔	12/31/1997 6:34:10 PM	[LAR_Testbed]FT222@Alarms.Alm_HiHi	EMEA Testbed FT222 H
🟡	🔔	12/31/1997 6:34:10 PM	[LAR_Testbed]FT222@Alarms.Alm_Hi	EMEA Testbed FT222 H

Consistent colors and icons

Alarms sent – report by exception

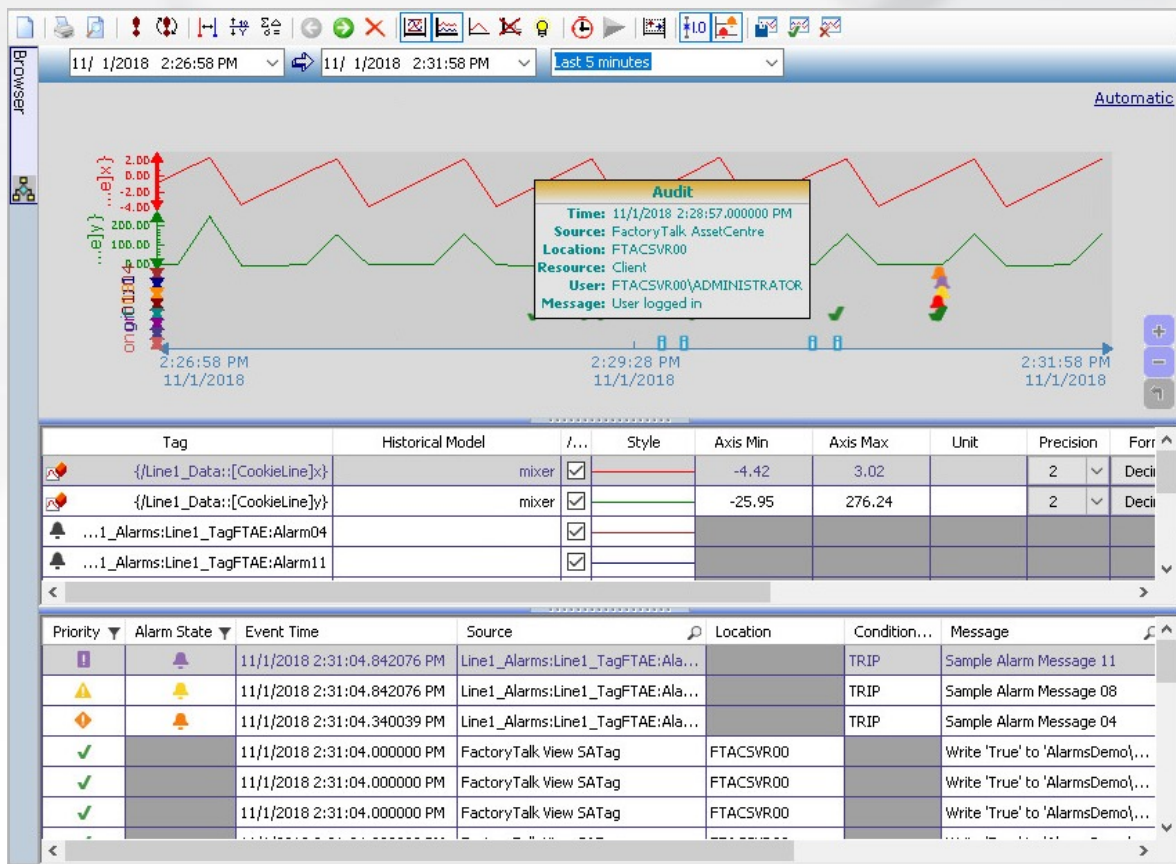
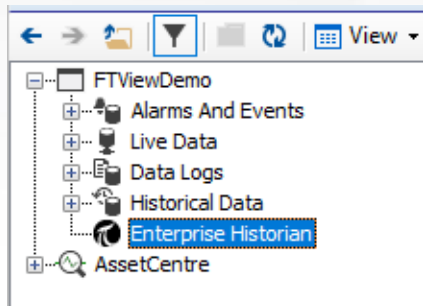


Modern Trending

Advanced Trending and Analysis

Trending Capabilities

- FactoryTalk® Live Data
- FactoryTalk® View SE Data Log
- FactoryTalk® Historian tags
- OSI PI
- FactoryTalk® Alarms and Events
- FactoryTalk® AssetCentre Audits
- XY Plot Control



Process Analytic Reports

Access and display diagnostic process object and event reports

Templates provide insights into process objects

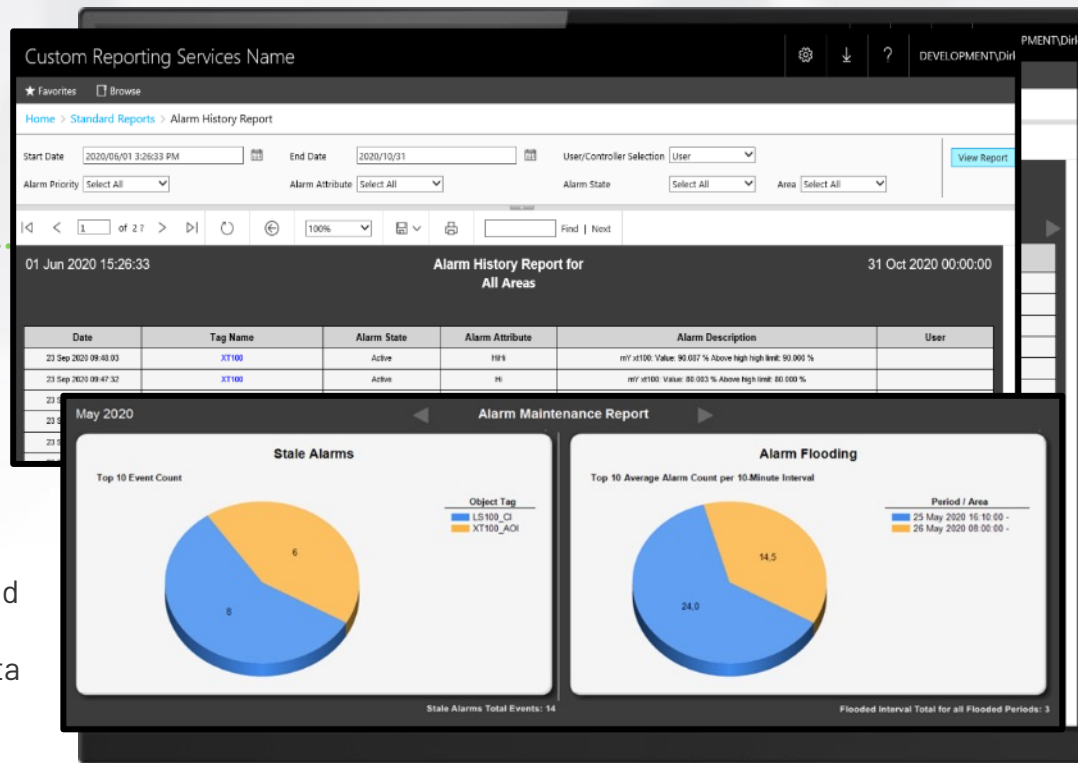
Consolidates data from Alarm and Events, Historian, and AssetCentre

Organize reports by month, day, or shifts

View detailed information on control module values and calculated values

BENEFITS

- Easily view alarm and event data, historical data, and AssetCentre logging data in one report
- Calculate important insights based on historical data
- Creates framework to enable further analytics



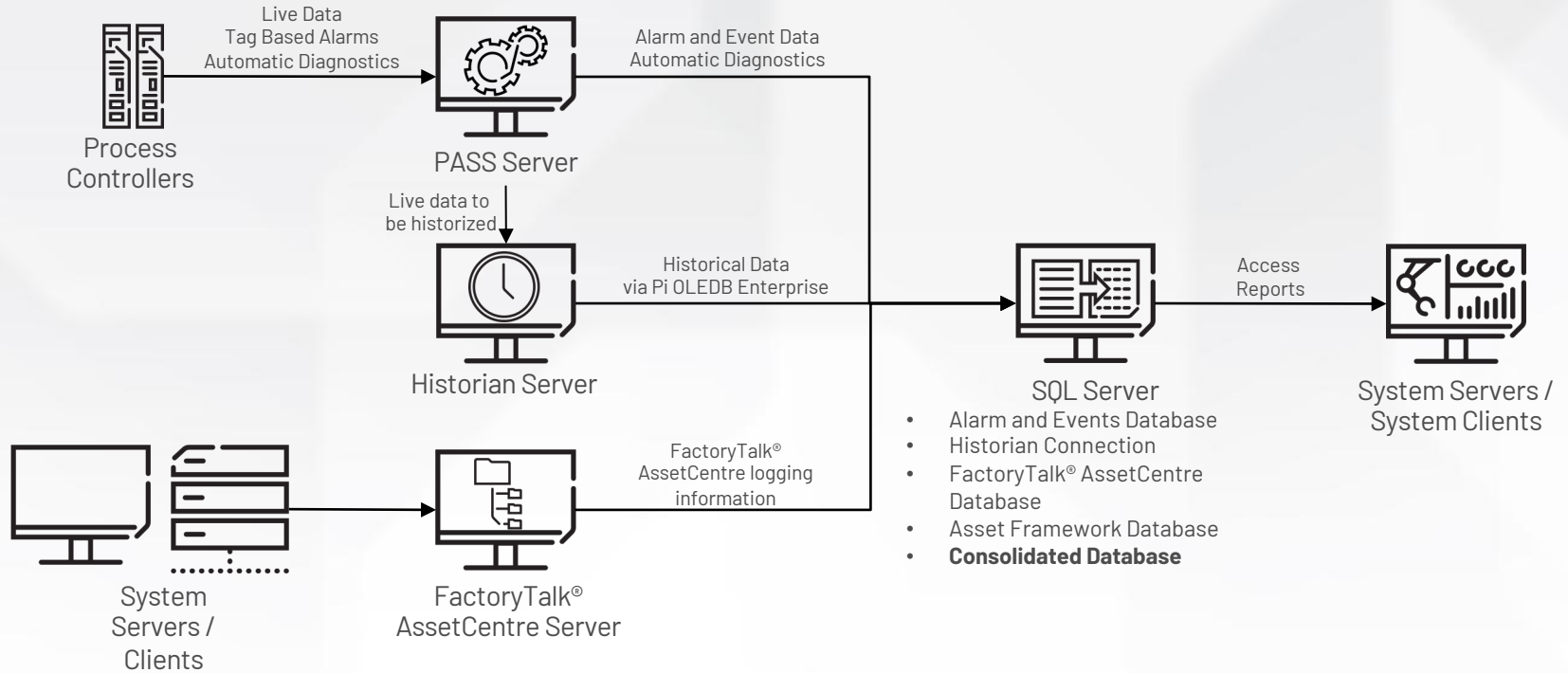
FactoryTalk® Historian Vision (PI Vision)

Replaces FactoryTalk® Historian
ProcessBook to visualize FactoryTalk®
Historian SE data

- Replaces FactoryTalk® Historian ProcessBook
- It is available as subscription and perpetual with maintenance through the MyRockwell Software Portal
- 20 Vision clients are supported per Historian SE Server
- Use Historian Vision (PI Vision) to visualize historical data from FactoryTalk® Historian SE
- View, compare, and analyze your time-series Historian SE data during the time range of a particular event (that is, downtime, batch, and so on)



Process Analytic Reports



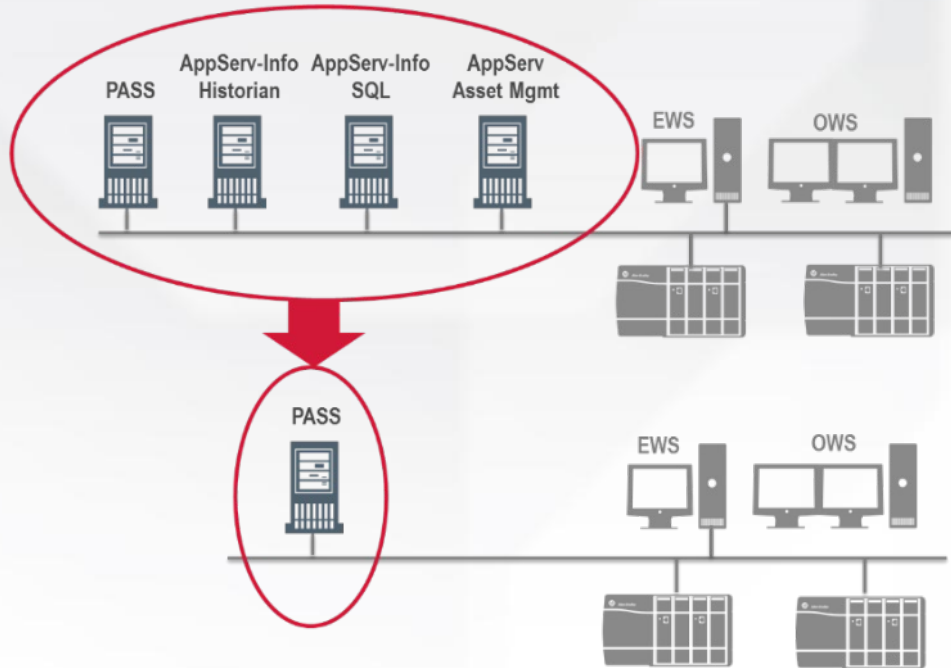


**Rockwell
Automation**

Server Deployment

PlantPax Server Consolidation

What is the PASS-C



PASS-C (Consolidated PASS Solution)

- PASS – Process Automation System Server (HMI Server)
 - FactoryTalk® View Site Edition
- FactoryTalk® AssetCentre
- FactoryTalk® Historian
- Optimized for small PlantPax® Architectures

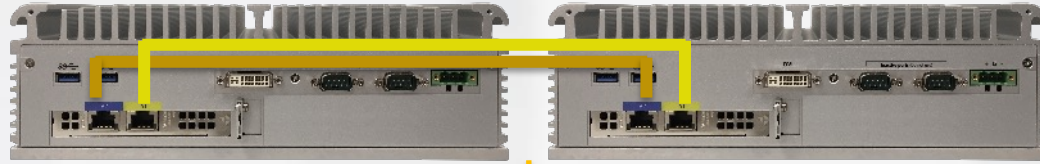
Characterization

- Up to 2,000 I/O points
- Up to 5 single or redundant Logix Controllers
- Up to 10 FT clients
- Up to 5,000 Historian tags

PlantPax Solution-in-a-Box Architecture

Stratus ztC Edge Solution

Stratus ztC Edge Server - 110i (Single / Redundant Node)



Thick / Thin Clients



Stratix
Managed
Switch



Virtual
Servers



DC
PASS-C
RDS

ControlLogix / CompactLogix



Process Example Architecture

Operator Application Server (OAS)

- Server O/S
- RDS role enabled
- FT View Client
- ThinManager

Control Room OAS Thin Clients

- Dual / Quad monitor



Process Areas OAS Thin Clients

- Single/Dual Monitor
- Wired / Wireless Tablet

x20

x20

x20

x20

x20



VM

VM

VM

VM

VM

VM

VM

VM

VM

VM

VM

FactoryTalk Directory

- Server O/S
- FT Directory Server
- FT Activation Server

Process Automation System Server (PASS)

- Server O/S
- Redundant Server
- HMI (FTView SE)
- Data (FT Linx)(dual)
- FTAE (FT Alarm and Events)

Reporting Server

- Server O/S
- SQL Server Standard
- SQL Server Reporting Services
- Asset Framework Server

FactoryTalk Historian Collective

- Server O/S
- Historian SE Server

Asset Management Server

- Server O/S
- FT AssetCentre Server
- FT AssetCentre Agent
- FT AssetCentre Client
- Editing Software (Studio 5000, Linx, etc)

VM



ControlLogix Controllers

- 1756-L85EP, redundant

x50

VM



PADC Domain Controllers

- Server O/S
- For the Control System Domain

System Name	X Large - 25k IO w 120 clier	Controllers	50	PASS Servers	6	OAS Clients	120
Digital Inputs	5000	Digital Outputs	5000	Analog Inputs	10000	Analog Outputs	5000
						Alarms	73500

Engineering Application Server (EAS)

- Server O/S
- FactoryTalk View Studio
- Studio 5000

EAS Thin Clients

x5

Use Case: X-Large: multiple PASS, 25k I/O

Partner Enablement Platforms

Available Training Options



Rockwell University

Dedicated Learning Plans.

Different Modules per Discipline and Capability



OnCourse

Cloud based Demo System.

Virtual, On-Demand Demonstration, training, and learning with Rockwell Automation software and Hardware.



Learning Plus

Access all e-learning content and participate in unlimited virtual classroom sessions.

Gain access by purchasing your annual subscription on the software portal.



ThinManager

Access to a self-paced, on-demand ThinManager certification using downloadable labs that cover all major aspects of the ThinManager platform.

Access through RAU.



THE REYNOLDS
COMPANY
ELECTRICAL SUPPLY

www.reynoldsonline.com