FactoryTalk Optix v1.5

October 2024

FactoryTalk

Rockwell Automation

expanding human possibility®

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FactoryTalk Optix Program Priorities

Core Capabilities

Core product capabilities that create a strong and sustainable platform for core automation visualization and edge applications.

Expanded Architectures

Support for integrated hardware, larger distributed architectures, process systems, remote control, and cloud-based operations.

Digital Design Experience

FactoryTalk Hub integrated workflows for a cohesive customer experience when building a system using SaaS-based design tools.

Data Connectivity

Robust edge connectivity and application platform to enable data and analytics with core operations data.

FactoryTalk® Optix™ Program Priorities

Core Capabilities

- Core features and editors
- Optimized and efficient user workflows
- Flexible licensing
- Library and faceplate development
- OPC UA Companion Specification
- OPC UA Services
- Alarming / Eventing
- Data / Event logging
- Reporting / Charting
- Security – Users/Groups/Roles

Expanded Architectures

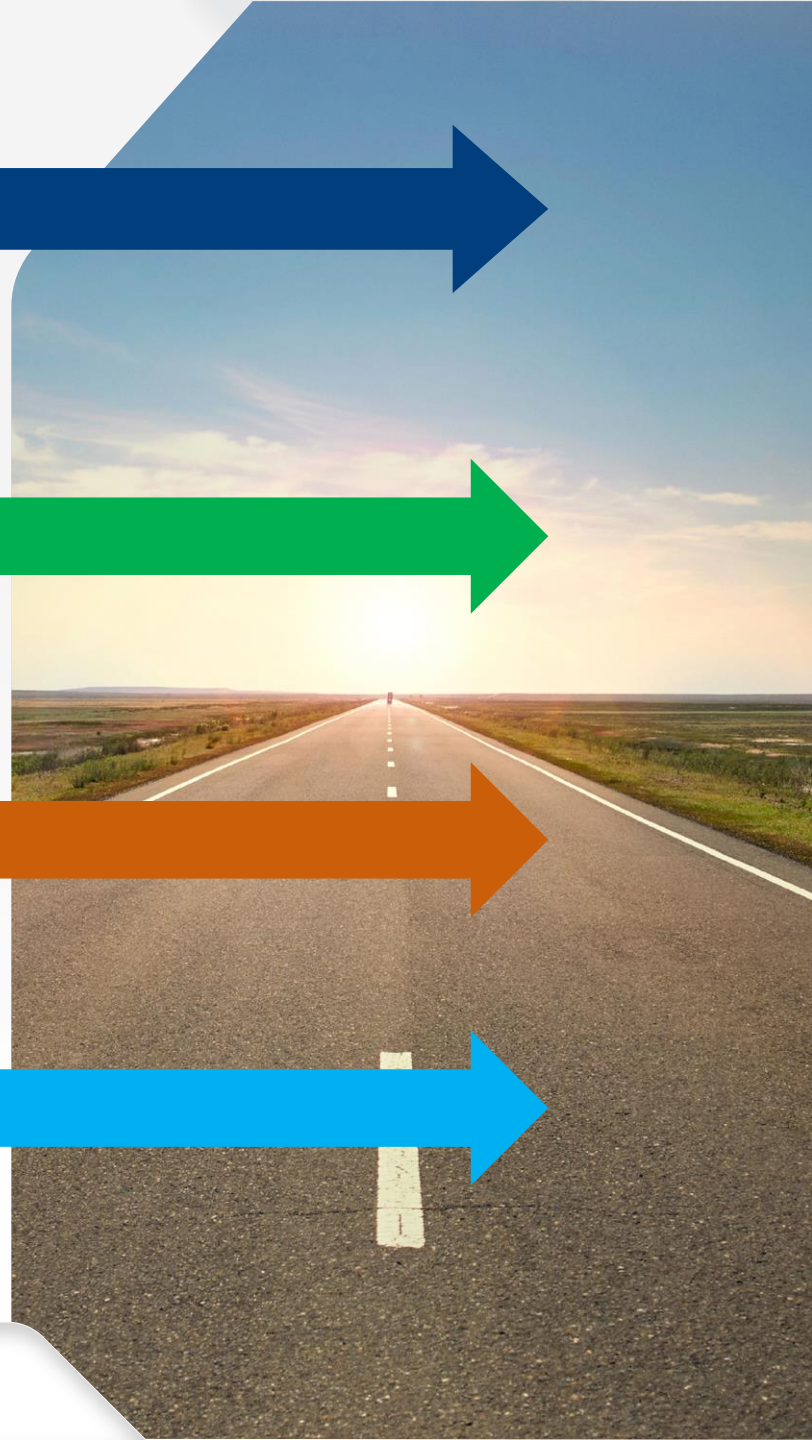
- Embedded panels and gateways
- Distributed architectures
- Cloud / Hybrid
- Linux / Windows / Containers
- Remote management
- Redundancy / High Availability
- Web and workstation clients
- PlantPAx® Support
- Remote Operations Centers
- FactoryTalk® Integration

Digital Design Experience

- Desktop and cloud-based editing, deployment and management
- Multi-user collaboration
- Integrated and open version control
- FactoryTalk® Remote Access™
- FactoryTalk® Design Hub™
- FactoryTalk® Design Studio™
- FactoryTalk® Twin Studio™

Data Connectivity

- Preferred Logix and PowerFlex®
- Rockwell Automation® EtherNet/IP devices
- Major industrial protocols
- BACNet / Micro controllers
- Database connectivity
- MQTT, Azure IoT Hub and Kafka
- FactoryTalk® DataMosaix™
- Edge Applications – Analytics, Energy, OEE, etc.



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FactoryTalk Optix v1.5

Core Capabilities

- Global Search and Replace
- Library dependencies management
- Design-Time Preview for Nav Panel and Panel Loader
- PDF Reports with Trends & Charts
- OAuth 2.0 authentication support
- Stylesheet Merge
- Added Japanese and Korean languages

Expanded Architectures

- Session Independent stylesheets

Digital Design Experience

- Updated device sizing tool
- New Help menu on FactoryTalk Hub

Data Connectivity

- Logix tag-based alarms
- Logix tag extended properties
- OPCUA client – localeID parameter
- InfluxDB Datastore – Embedded
- MQTT Broker
- MQTT Subscriber
- MQTT Publisher
- Store and forward (for databases)

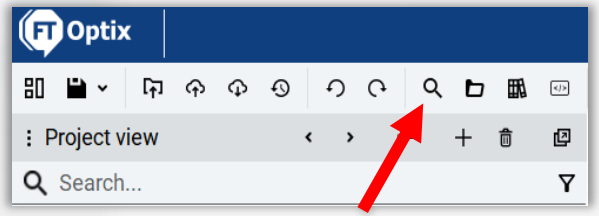
Core Capabilities

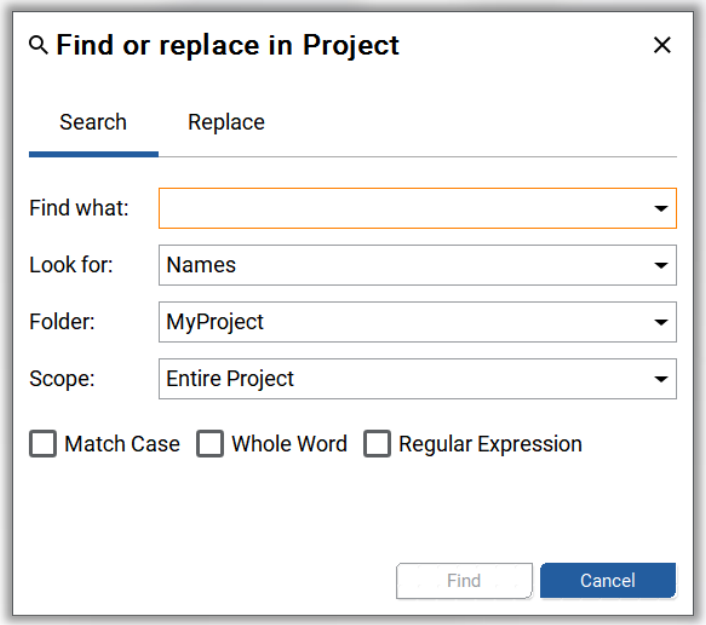
FT Optix

Global Search and Replace

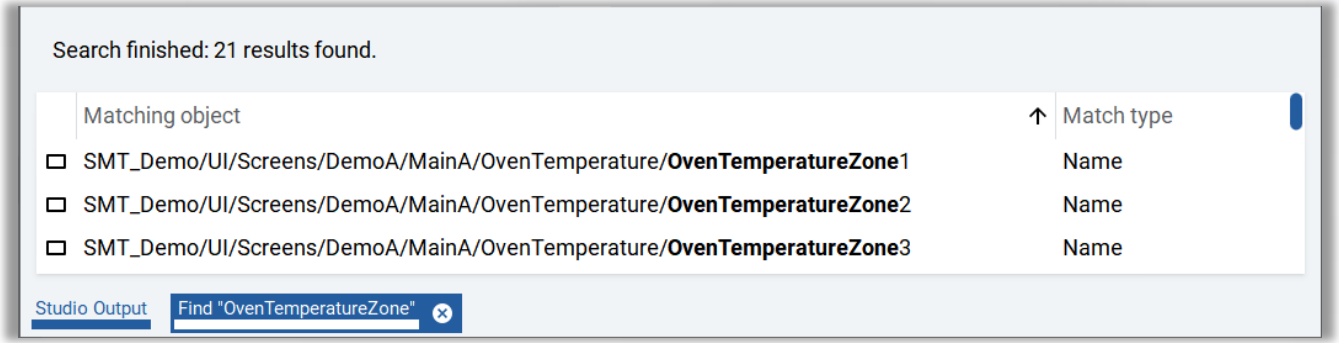
Core Capabilities: IDE

- Accessible via
  - dedicated icon on the toolbar
  - keyboard shortcut: Ctrl + Shift + F
  - right click on a folder selecting "Search from here"





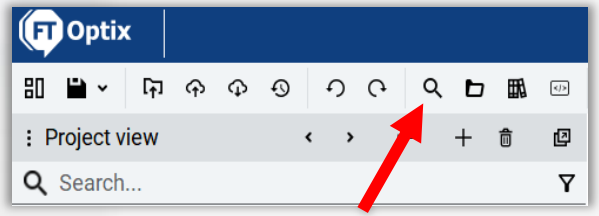
- **Global Search**
  - can be used like a **Cross Reference tool**
  - allows you to search a given string in node's Names and/or node's Values present in the whole project or in a specific folder
  - Supports **Regular expressions**
  - **Results are displayed in the Output panel**, and you can double-click a line to open the matching object

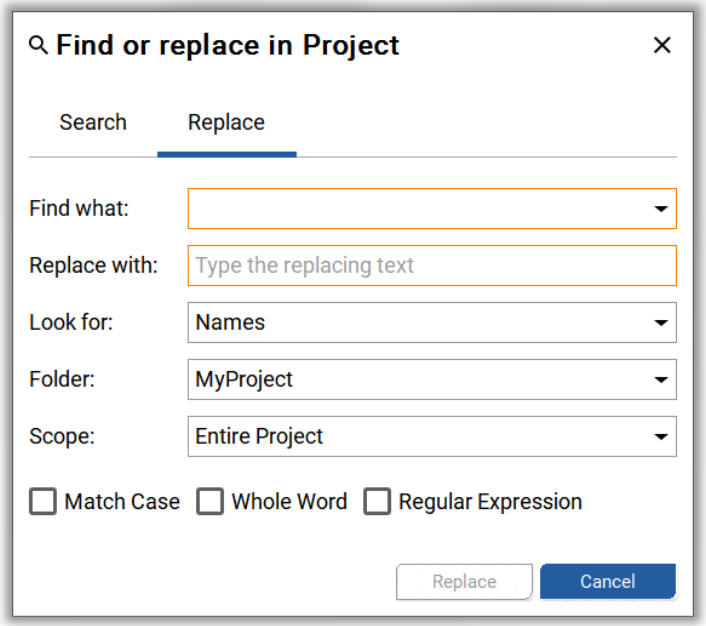


Global Search and Replace

Core Capabilities: IDE

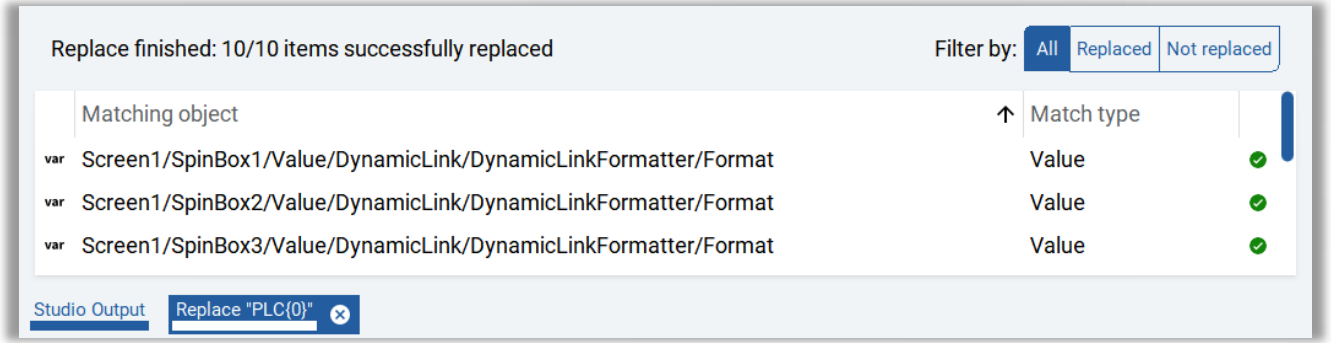
- **Global Replace**
  - allows you to replace
    all the occurrence of given string
    in node's Names and/or node's Values
    present in the whole project or in a specific folder





  - Be careful: does not support UNDO!
    - We recommend that you **commit before performing the Replace**
    - Use the Search tab to check what you want to replace

  - **Results are displayed in the Output panel**,
    and you can double-click a line
    to open the matching object



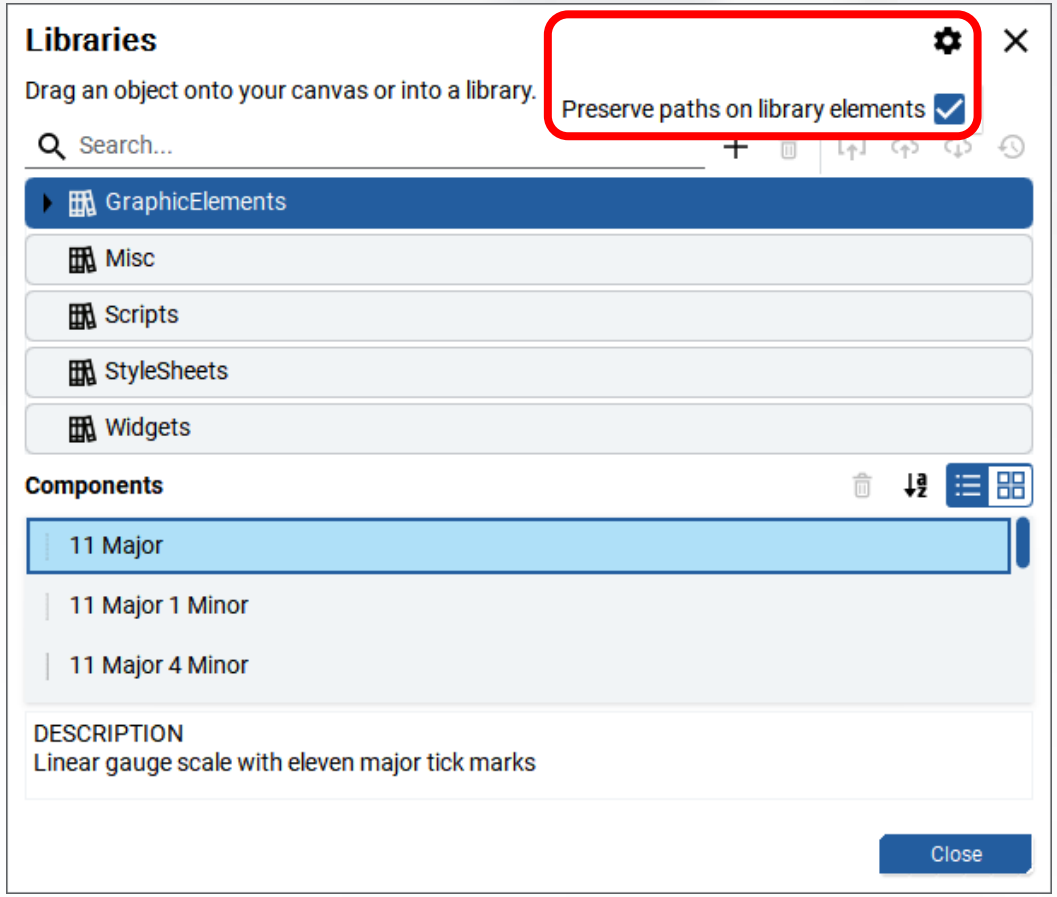
Library dependencies management

Core Capabilities: IDE

- Now it is possible to **preserve the path of dependencies** related to ***a widget***

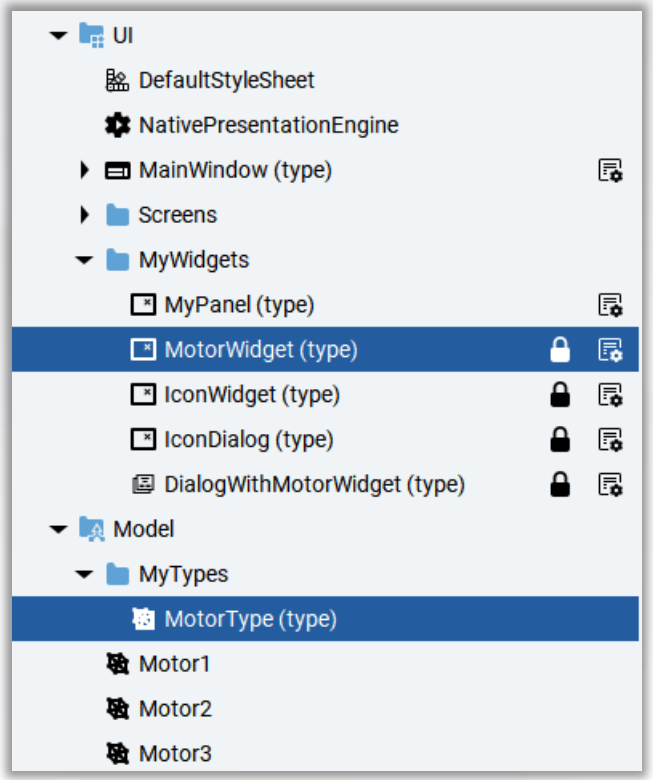
- The option can be enabled (checked)
  - before adding a custom widget from the project in the library
  - before adding a custom widget from the library in project

- The option default is disabled (unchecked) to preserve existing behavior

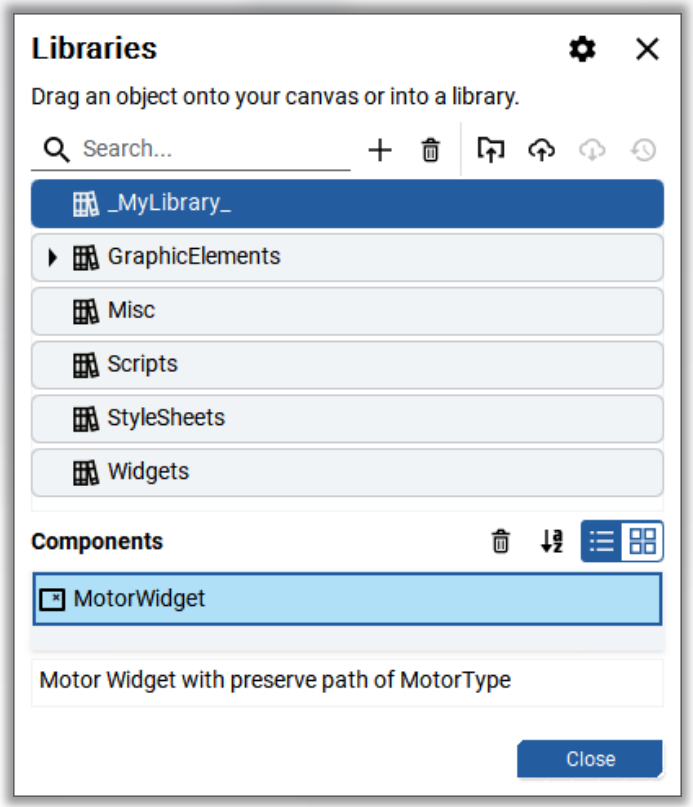


Library dependencies management

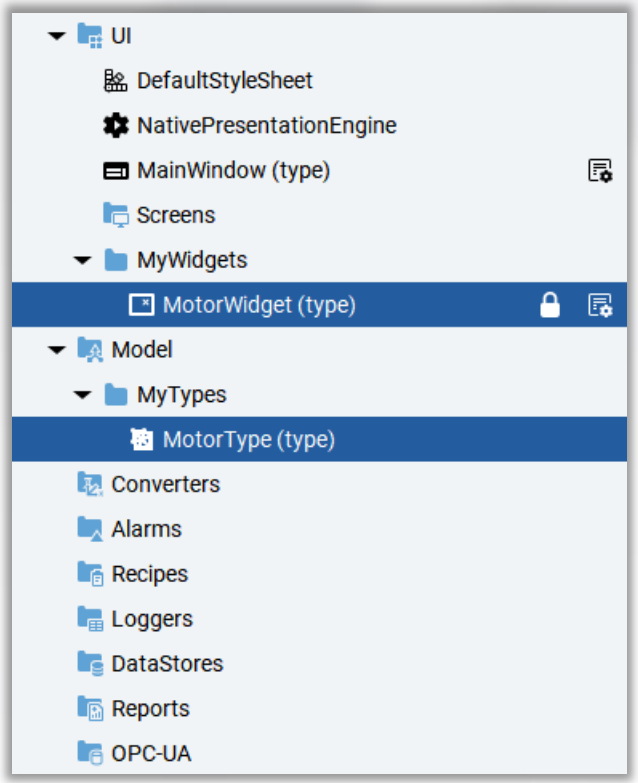
Core Capabilities: IDE



MotorWidget with MotorType dependency in Project A



MotorWidget added to the Library with option "Preserve paths..." enabled

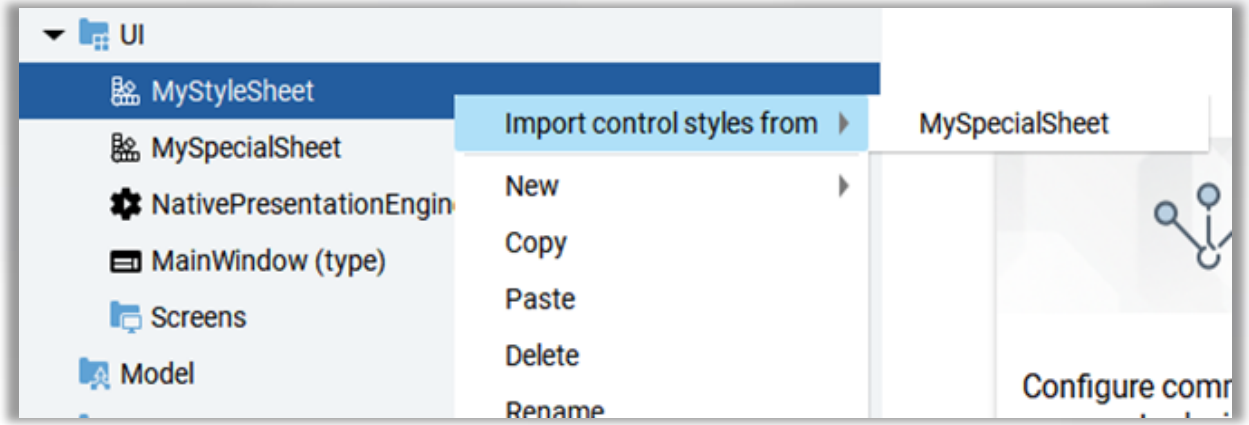


MotorWidget is placed in Project B from the Library with "Preserve paths..." enabled. The MotorType dependency is placed into the same path as it was in Project A

StyleSheet Merge

Core Capabilities: IDE

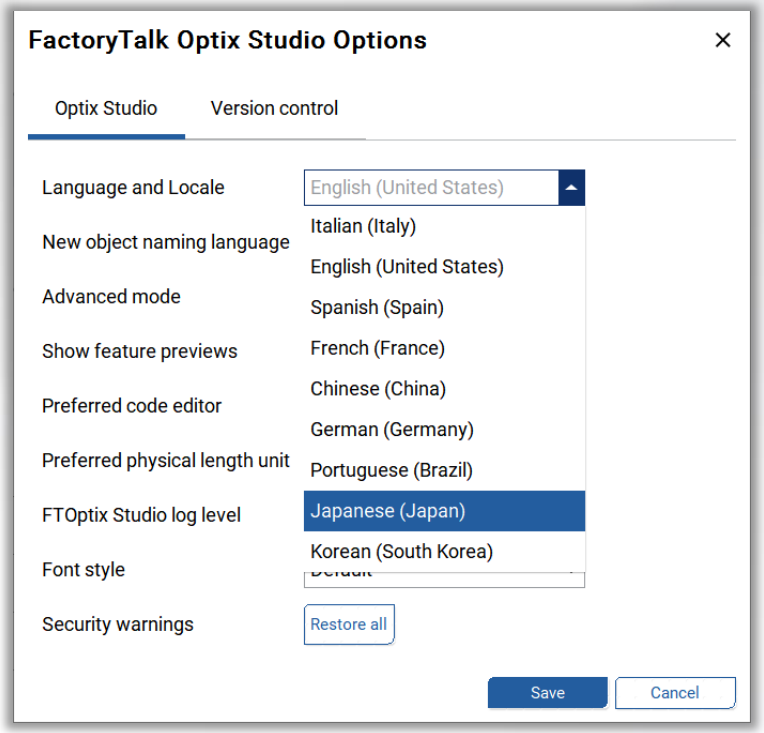
- New context menu option … **Import control styles from**
  - Pick from a list of available StyleSheets
  - New control styles defined in selected StyleSheets will be imported
- Useful when importing template library content that uses different StyleSheets
- Useful when adding new control styles to multiple StyleSheets



IDE improvements – Japanese and Korean languages

Core Capabilities: IDE

Added **Japanese and Korean** languages to IDE

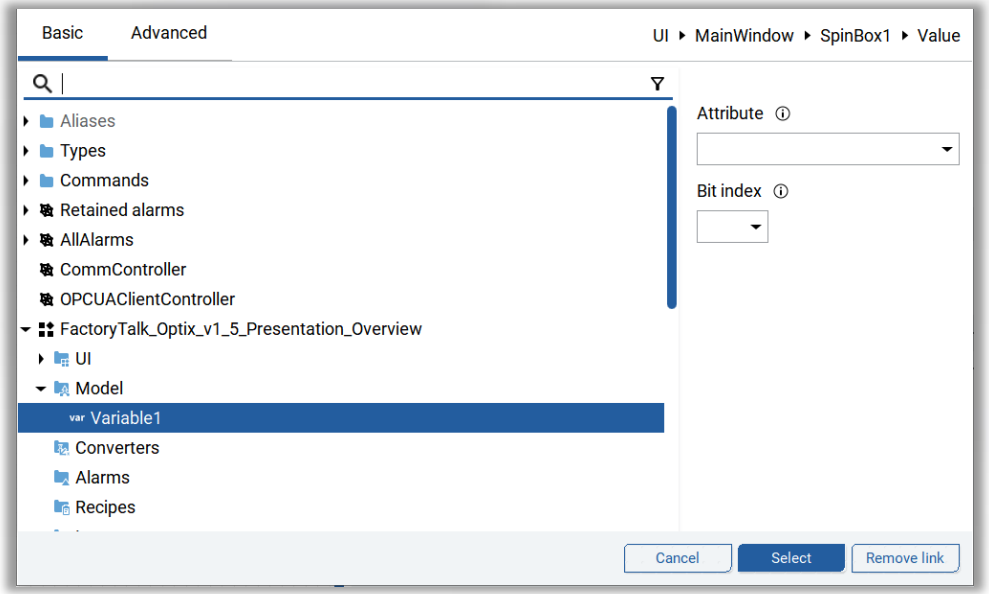


IDE improvements – Dynamic Link popup is now Modal

Core Capabilities: IDE

The **Dynamic Link** popup is now **Modal**

- Now closes only when the user clicks Cancel, and doesn't close when the dialog loses focus

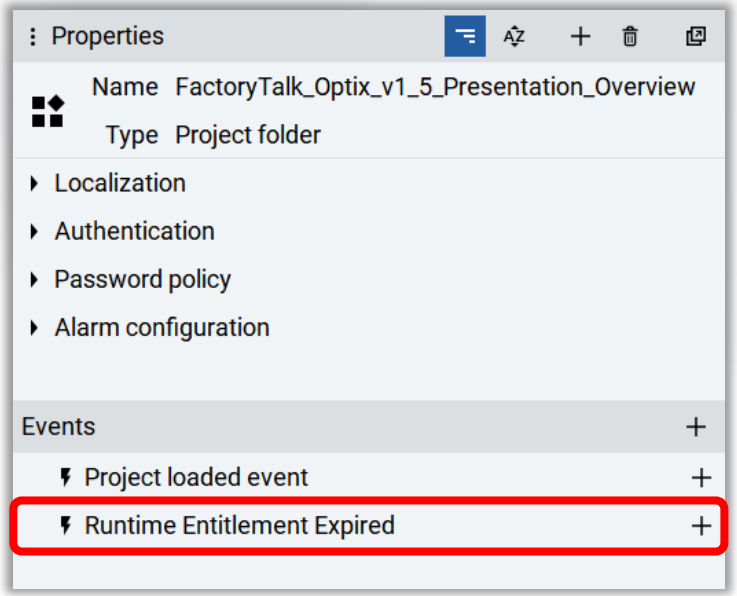


IDE improvements – Runtime Entitlement Expired Event

Core Capabilities: IDE

The Project node exposes the event "**Runtime Entitlement Expired**"

- is triggered when the current entitlement subscription expires and the grace period begins

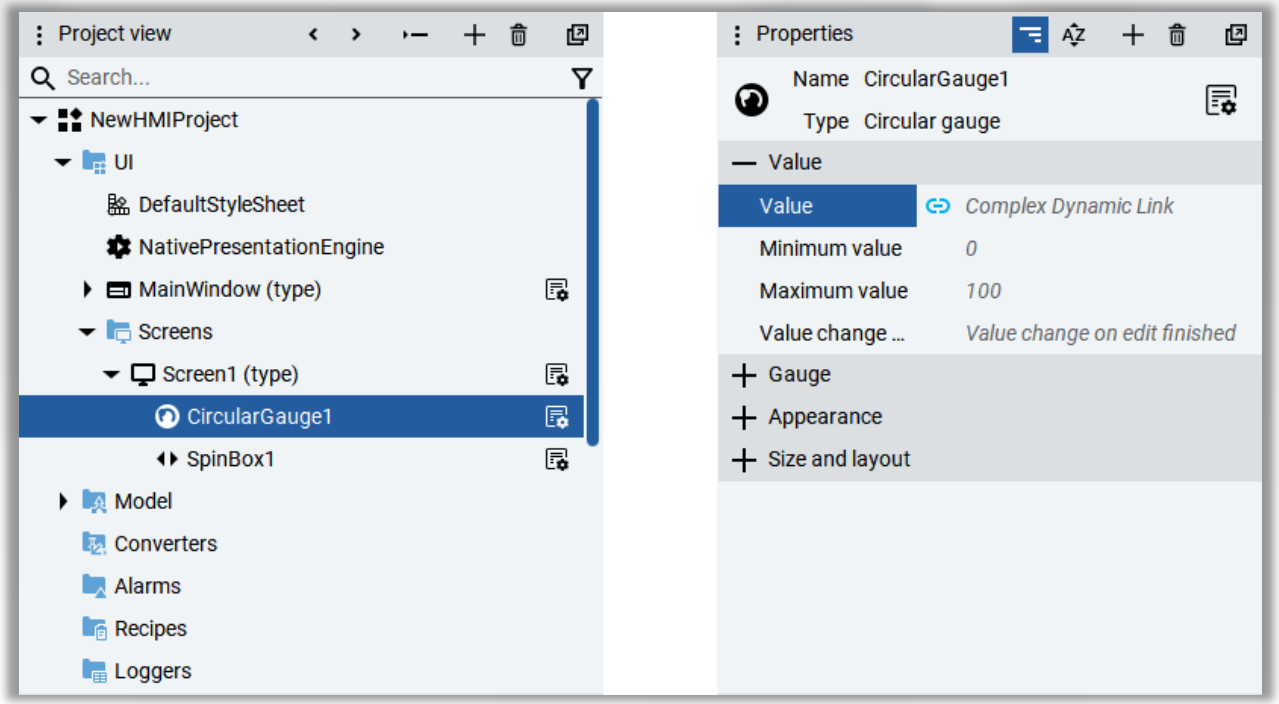


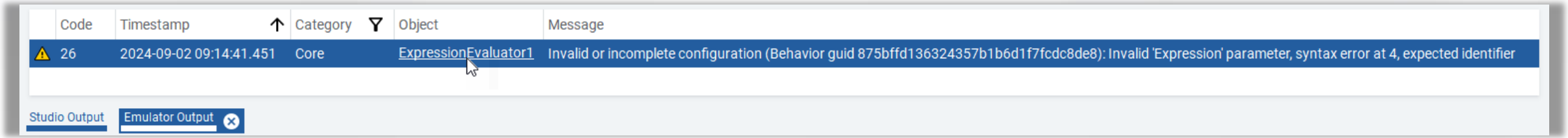
IDE improvements – Enhanced application debugging

Core Capabilities: IDE

Clickable nodes errors

- when Emulating the project or when the Studio is connected to a Runtime
- in case of Dynamic Link error or invalid configuration
- **the logged error** in the Output Window can be clicked and **Optix Studio highlights the object and the property involved**
- to enhance application debugging

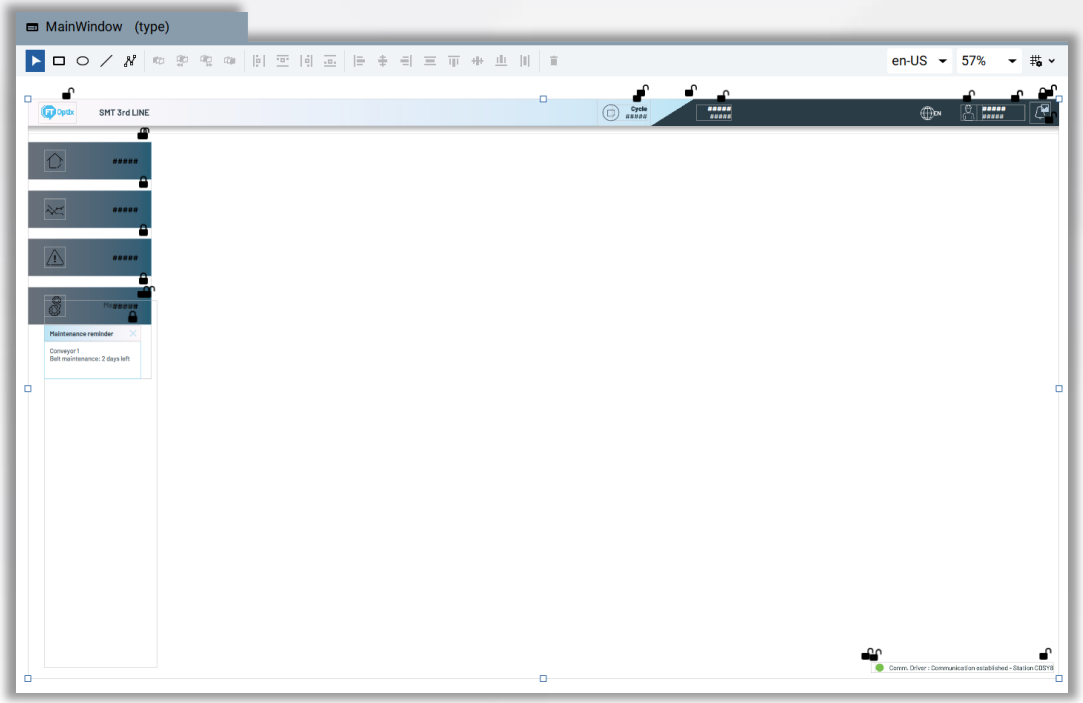




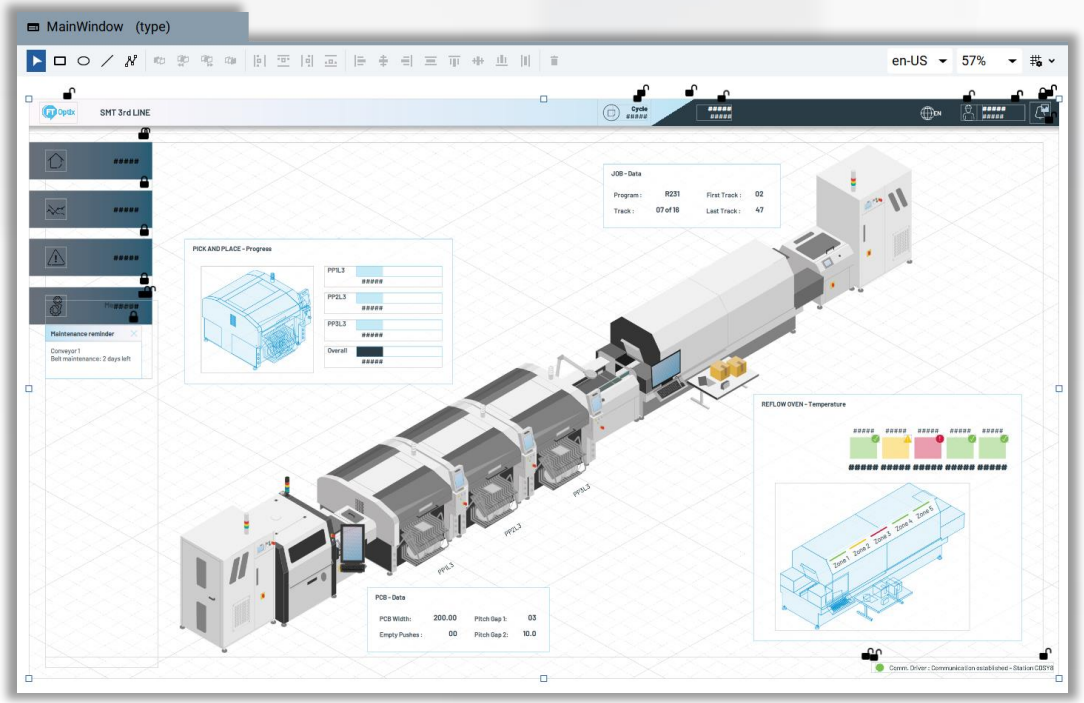
Design-Time preview for Navigation Panel and Panel Loader

Core Capabilities: UI

- Optix Studio now displays a **preview of the first screen** used in Navigation Panel and Panel Loader
  - i.e. if the Main Window containing a Panel Loader now provides a preview of how will look the project at startup



as it was in prior versions



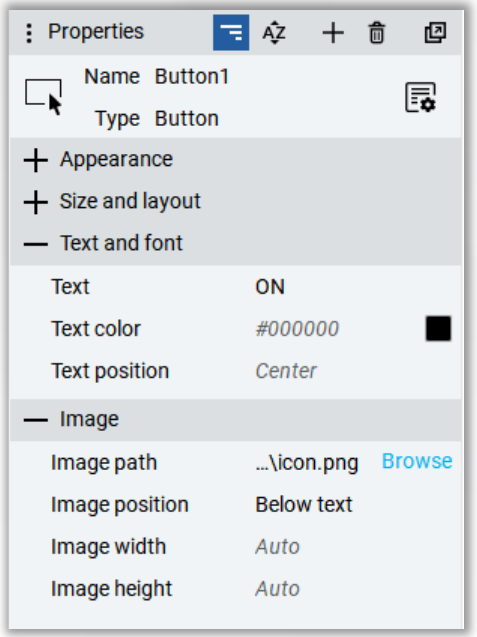
starting from 1.5

UI improvements - Image position

Core Capabilities: UI

A new set of values is available for the **property "Image position"**

- Allow to position the image to the left, right, above or below the text
- Available for Button, Momentary button, Toggle button, Delayed button

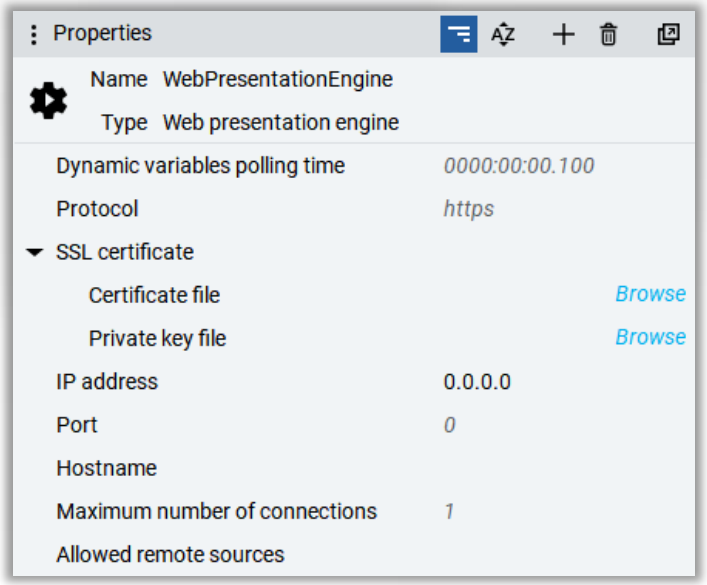


UI improvements - Web Presentation Engine "SSL certificate”

Core Capabilities: UI

The Web Presentation Engine custom "**SSL certificate**“ for HTTPS

- when https protocol is selected a certificate property is shown that allows the user to select the Certificate file (.der) and his Private Key file (.pem)

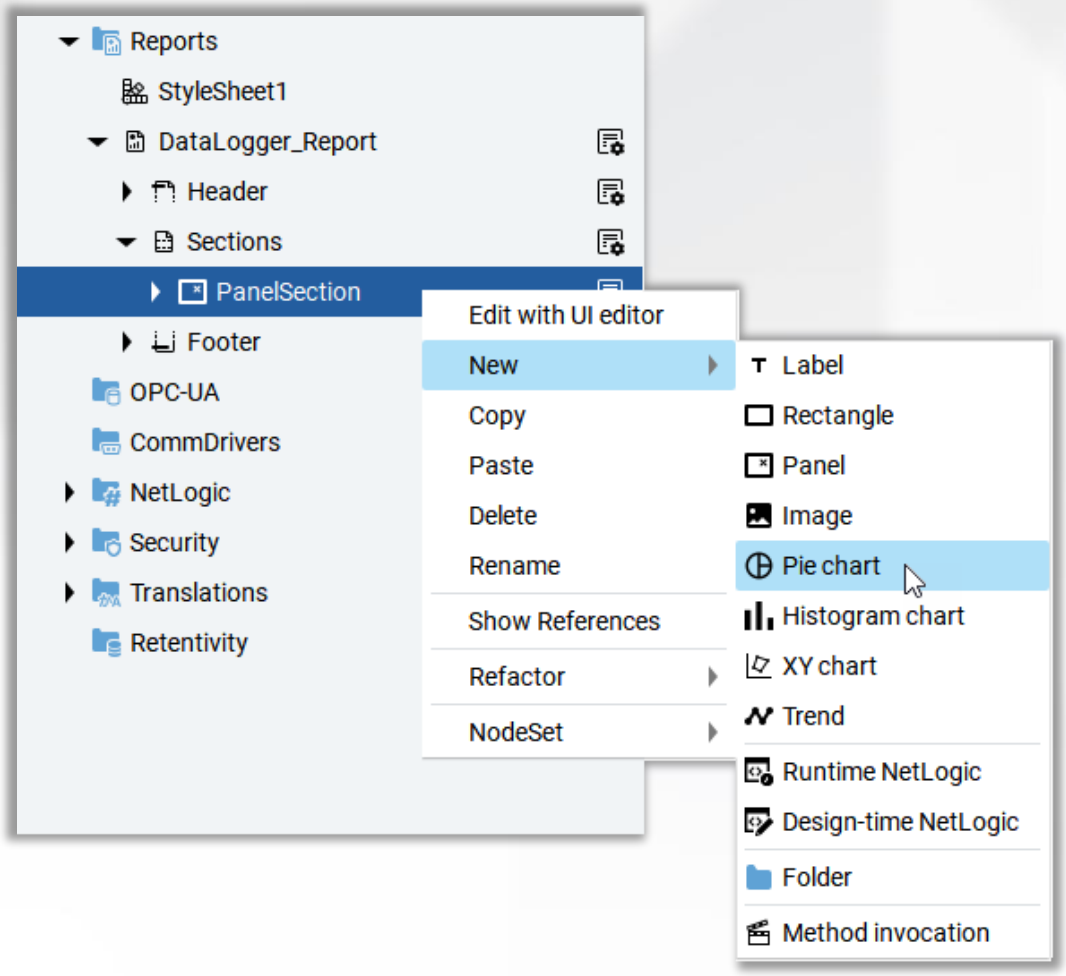


PDF Reports with Trends & Charts

Core Capabilities: UI

- PDF Report now support
  - **Pie Chart,**
  - **Histogram chart,**
  - **XY Chart,**
  - **Trend**

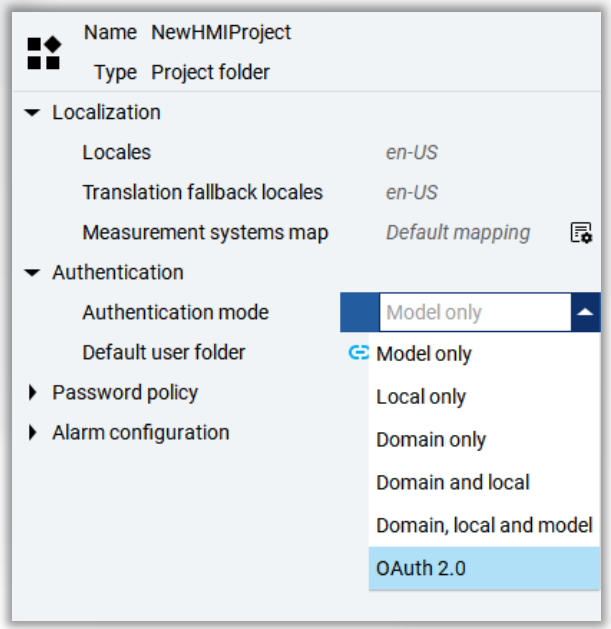
- Charts and Trend can be added
  - by right-clicking to a Report's section and selecting "PanelSection"
  - by right-clicking on a "PanelSection" and selecting "New"

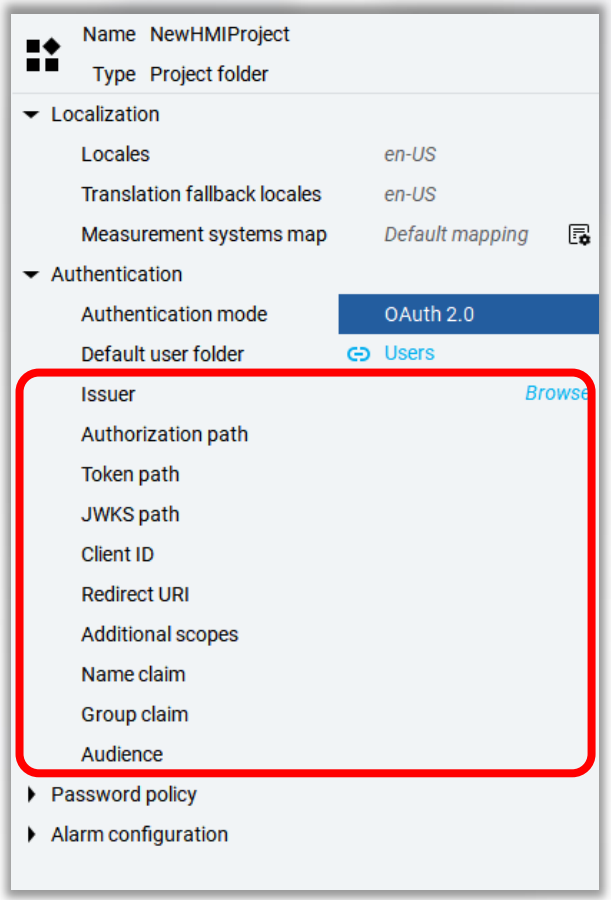


OAuth 2.0 authentication

Core Capabilities: UI

- Allow users to be authenticated at Runtime by an OAuth v2 authentication server
  - Users log in using a web page provided by the authentication server
  - Once the user is logged in, the Optix application will request the ID token to the authentication server, which includes the username and groups
  - As with other external authentication modes, groups must be defined in the project prior to deployment and must have the same names as the groups defined in the authentication source.





Expanded Architectures

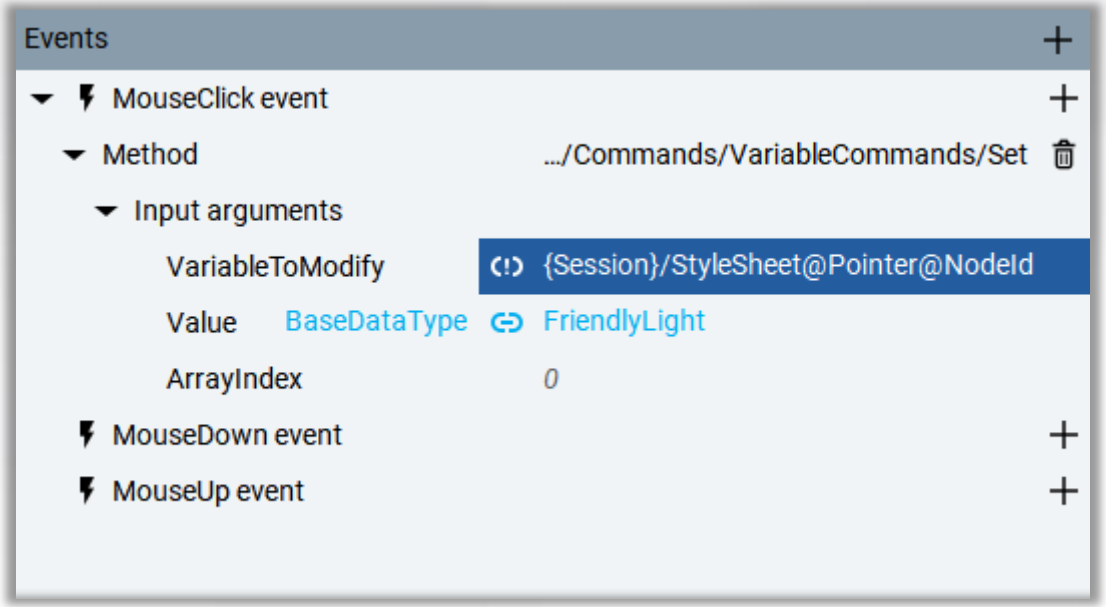
FT Optix

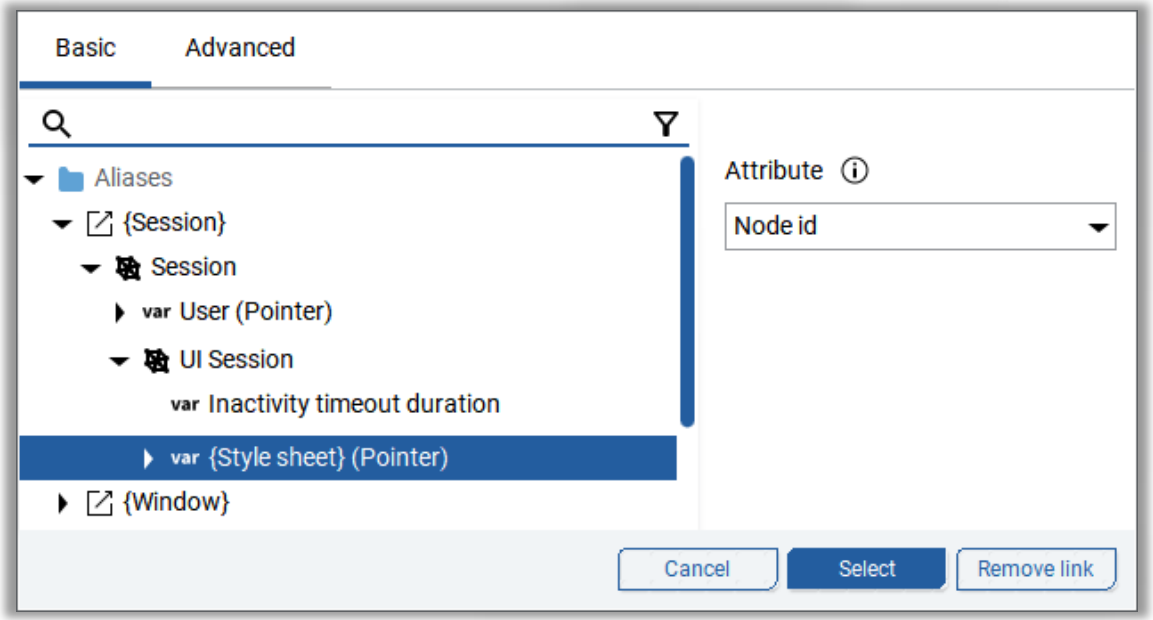
Session Independent StyleSheet

Expanded Architectures

Design your application so **users can change the StyleSheet without affecting other concurrent users**

- NOTE: was already possible to set a different StyleSheet in the Native or Web presentation engine at runtime but all the web sessions were sharing the same stylesheet!



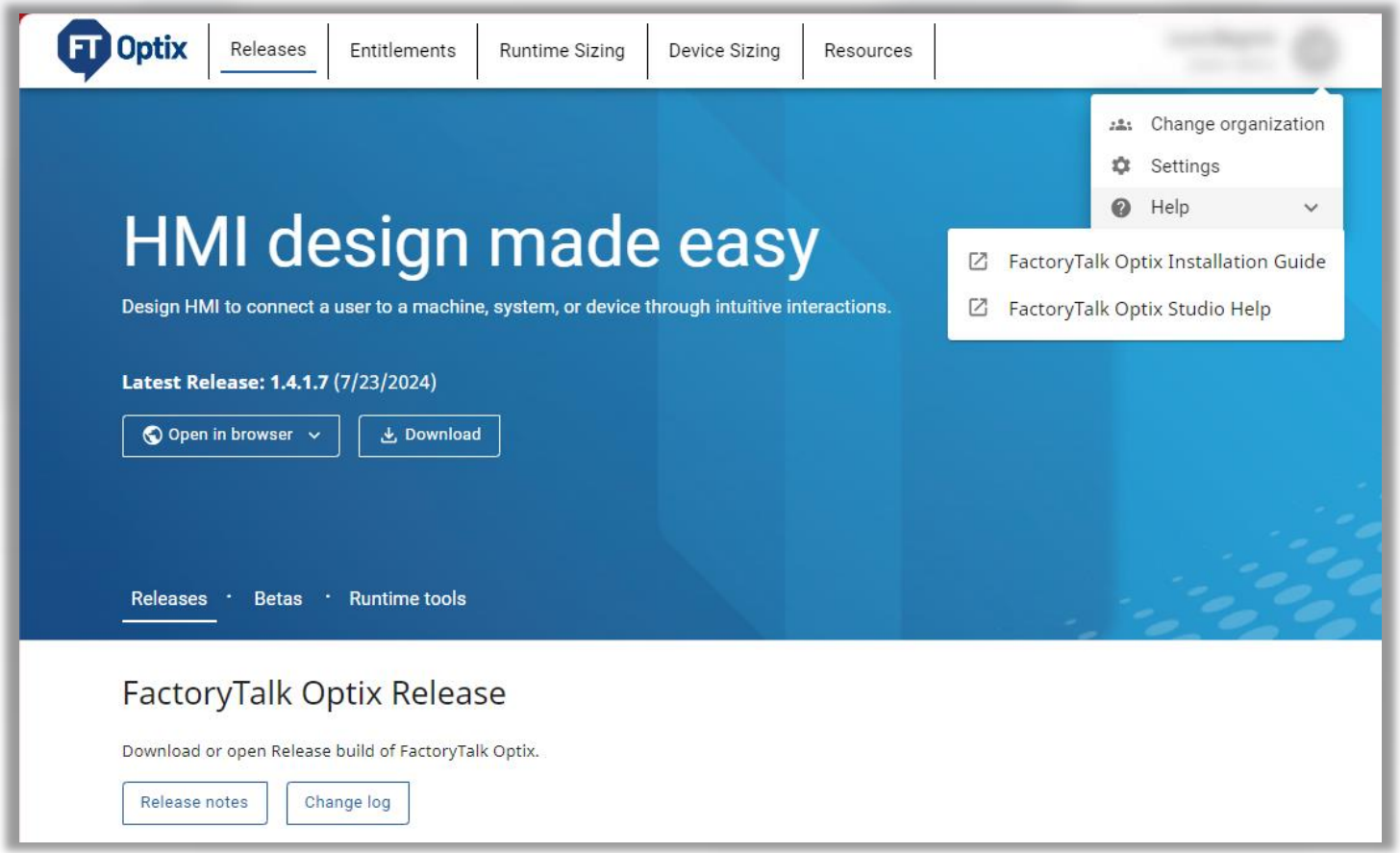


Digital Design Experience

FactoryTalk Hub Enhancements - Help menu

FactoryTalk Hub & Online Portal

- **New "Help" menu**
  - The Account menu now includes a Help section that provides easy access to the FactoryTalk Optix Studio Help and the FactoryTalk Optix Installation Guide

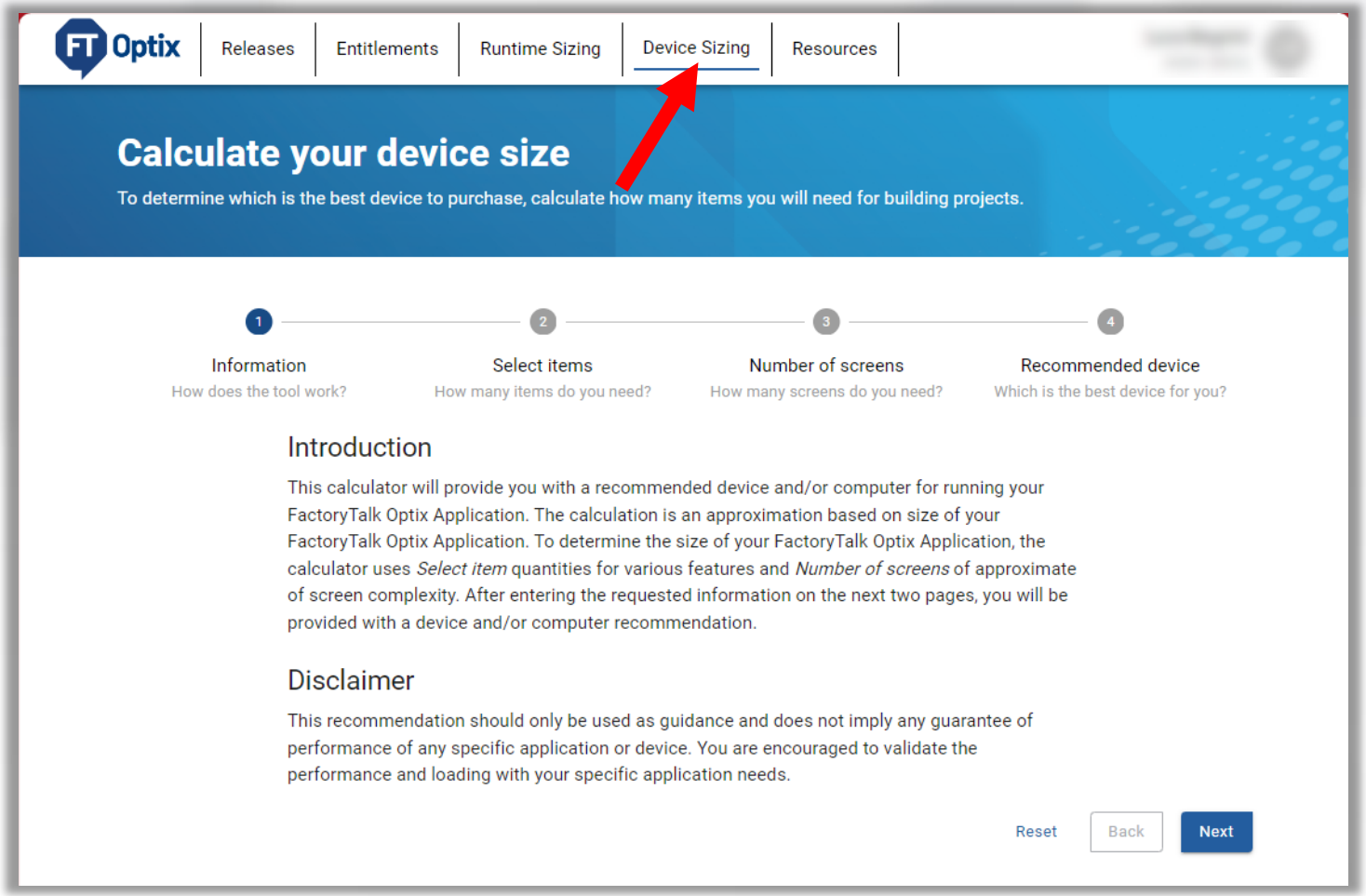


FactoryTalk Hub Enhancements - Device Sizing

FactoryTalk Hub & Online Portal

New "Device Sizing" tool

- This tool helps users to select the best device for their needs based on the number of elements required for their project, such as tags, alarms, screens, etc.

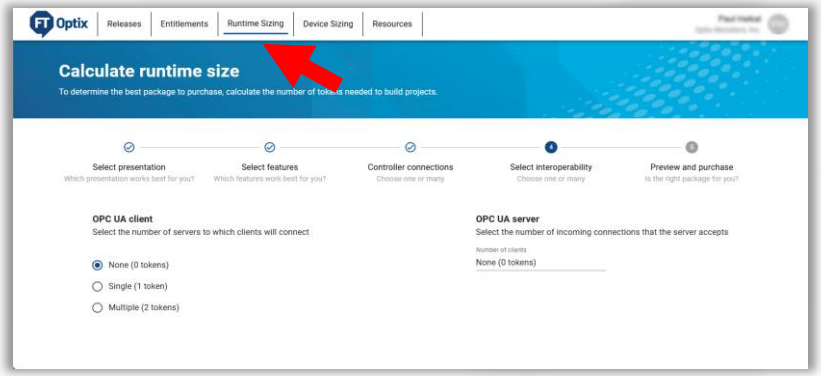


FactoryTalk Hub Enhancements - Updated Runtime Sizing

FactoryTalk Hub & Online Portal

Updated “Runtime Sizing" tool

- This tool helps users to select the best runtime package for their application needs based on the features selected.
- This tool will be updated to incorporate the new built-in MQTT support as well as the external database store and



Component	Configuration	Tokens Required
MQTT Broker Manages and distributes messages between publishers and subscribers.	Up to 25 client connections	**1 - Token**
MQTT Client – Publisher Sends messages to the broker on a specific topic.	Embedded FactoryTalk Optix MQTT Broker	**0 - Token**
	External FactoryTalk Optix or 3rd-party MQTT Broker	**1 – Token** (per Broker)
MQTT Client – Subscriber Receives messages from the broker on a specific topic.	Embedded FactoryTalk Optix MQTT Broker	**0 - Token**
	External FactoryTalk Optix or 3rd-party MQTT Broker	**1 – Token** (per Broker)
Store & Forward for Databases Stores data locally during connection disruption and forwards stored data upon reconnection.	External ODBC or InfluxDB	**1 - Token**

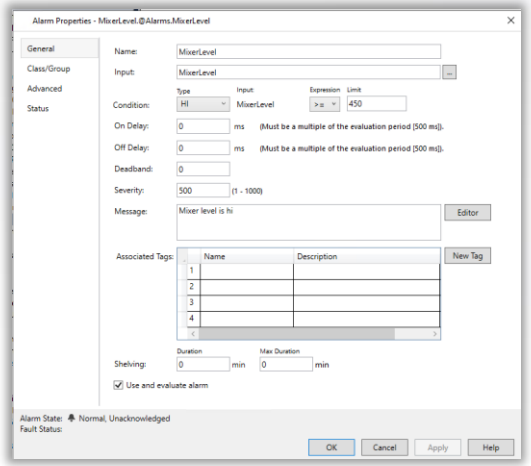
Data Connectivity

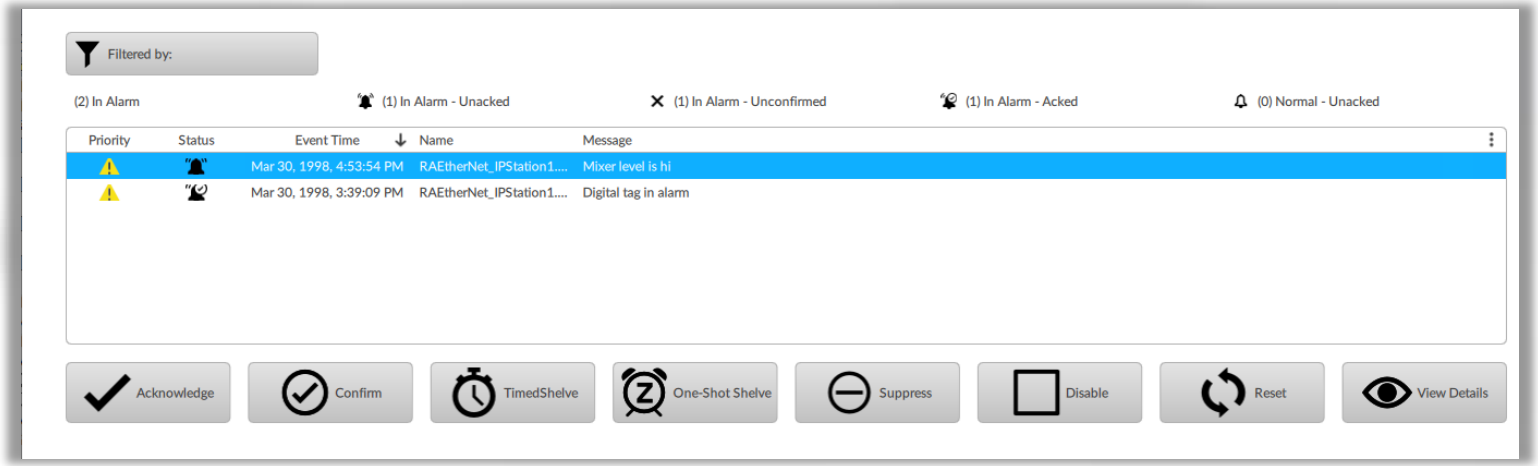
FT Optix

Logix controller alarms

Data Connectivity

- Added support for Logix controller alarms
  - Tag-based alarms
  - Instruction-based alarms
- Provides fast alarm detection and more accurate time-stamping
- Alarm configuration is done in the controller, minimal configuration required in Optix
- Check the “Use Alarms” property in RA Ethernet IP Station to easily enable the alarms in Optix
- View and interact with the alarms at runtime using the Alarm Widgets

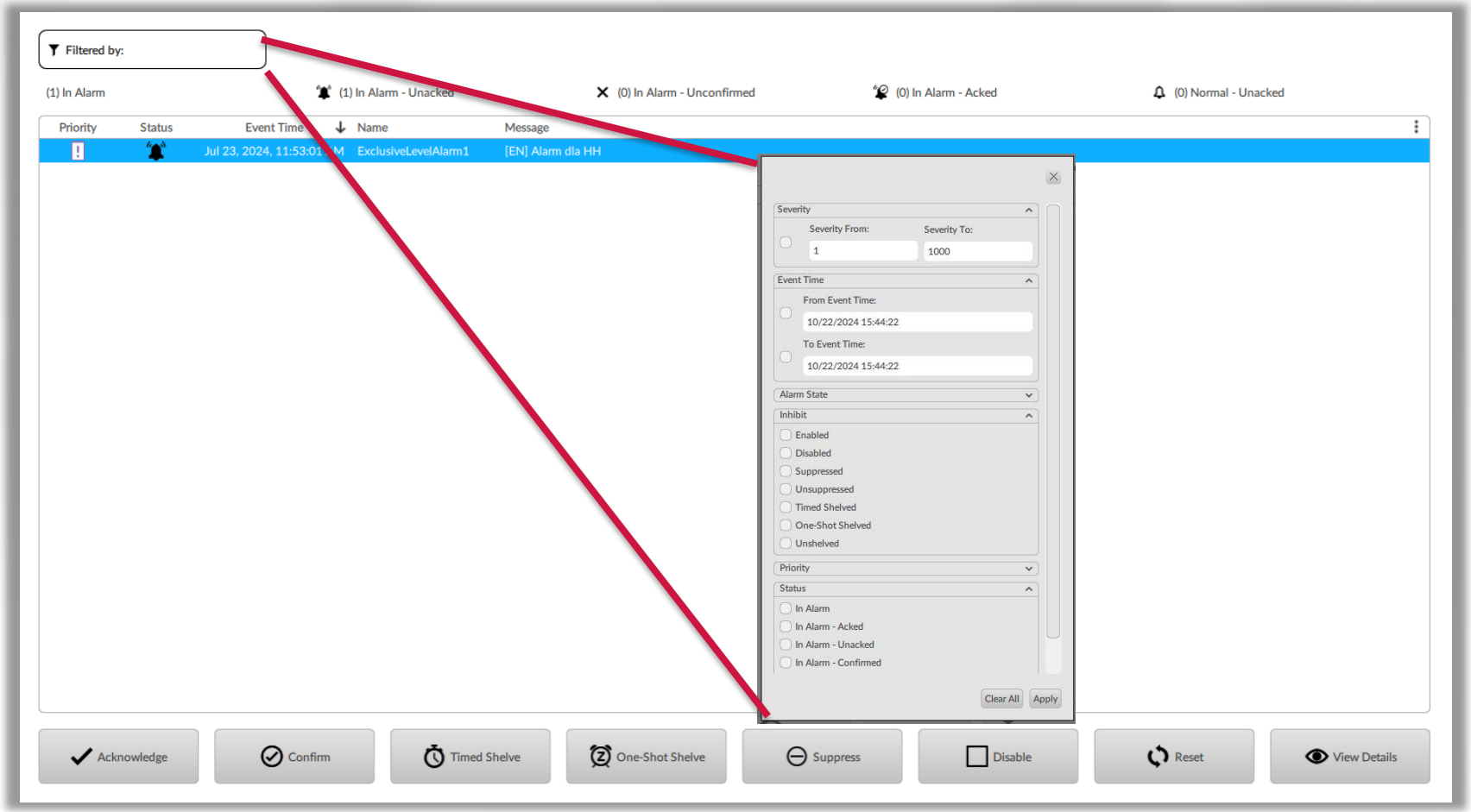




Alarm Summary

Data Connectivity

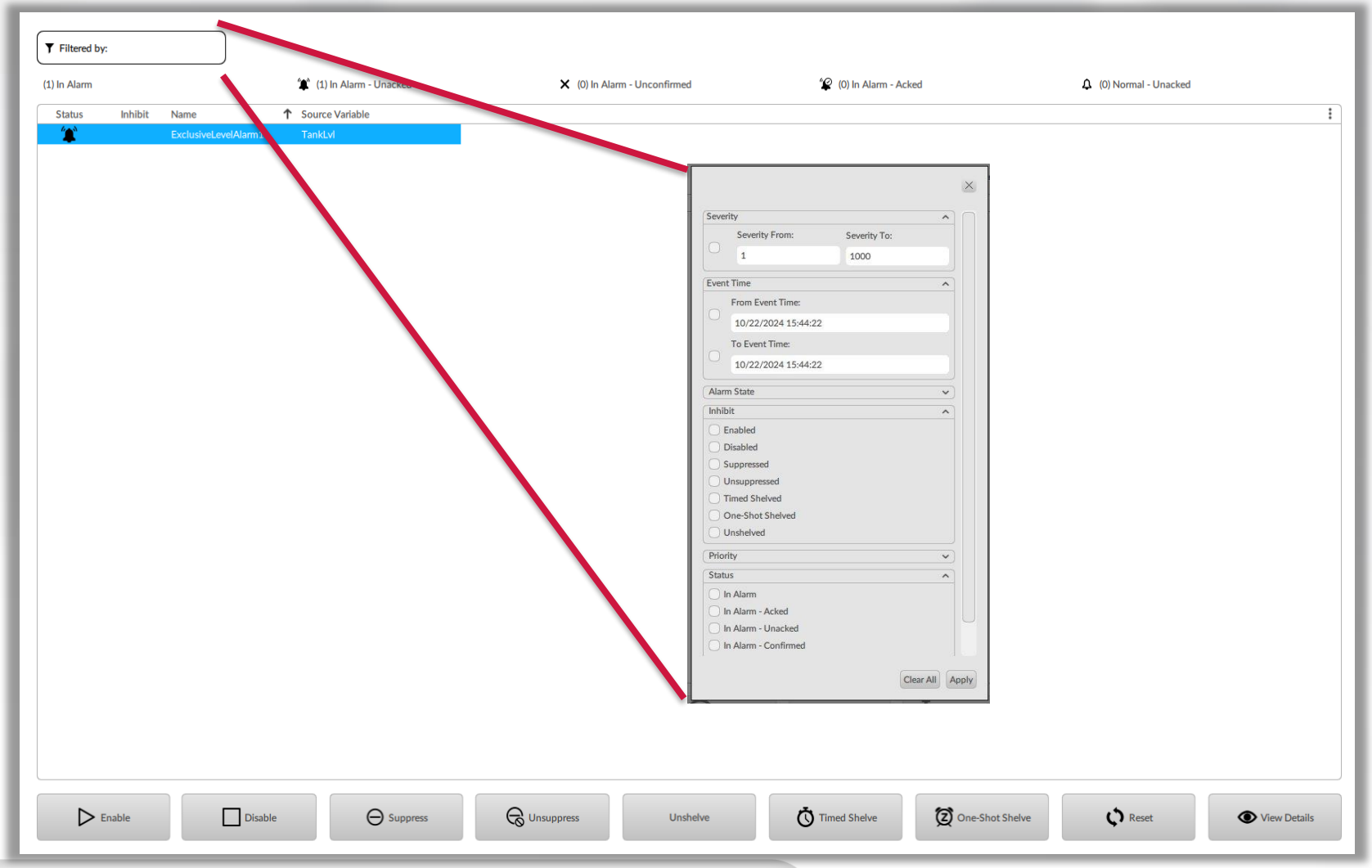
- Displays information about **all active alarms**
  - Logix alarms
  - Optix alarms
- Alarm messages and text information are automatically localized
- Alarms can be Acknowledged, Confirmed or Shelved
- Provides alarm roll-up counts
- Select details to view additional information for each alarm
- Alarms list can be filtered using the Filter dialog
- Configurable column layout



Alarm Manager

Data Connectivity

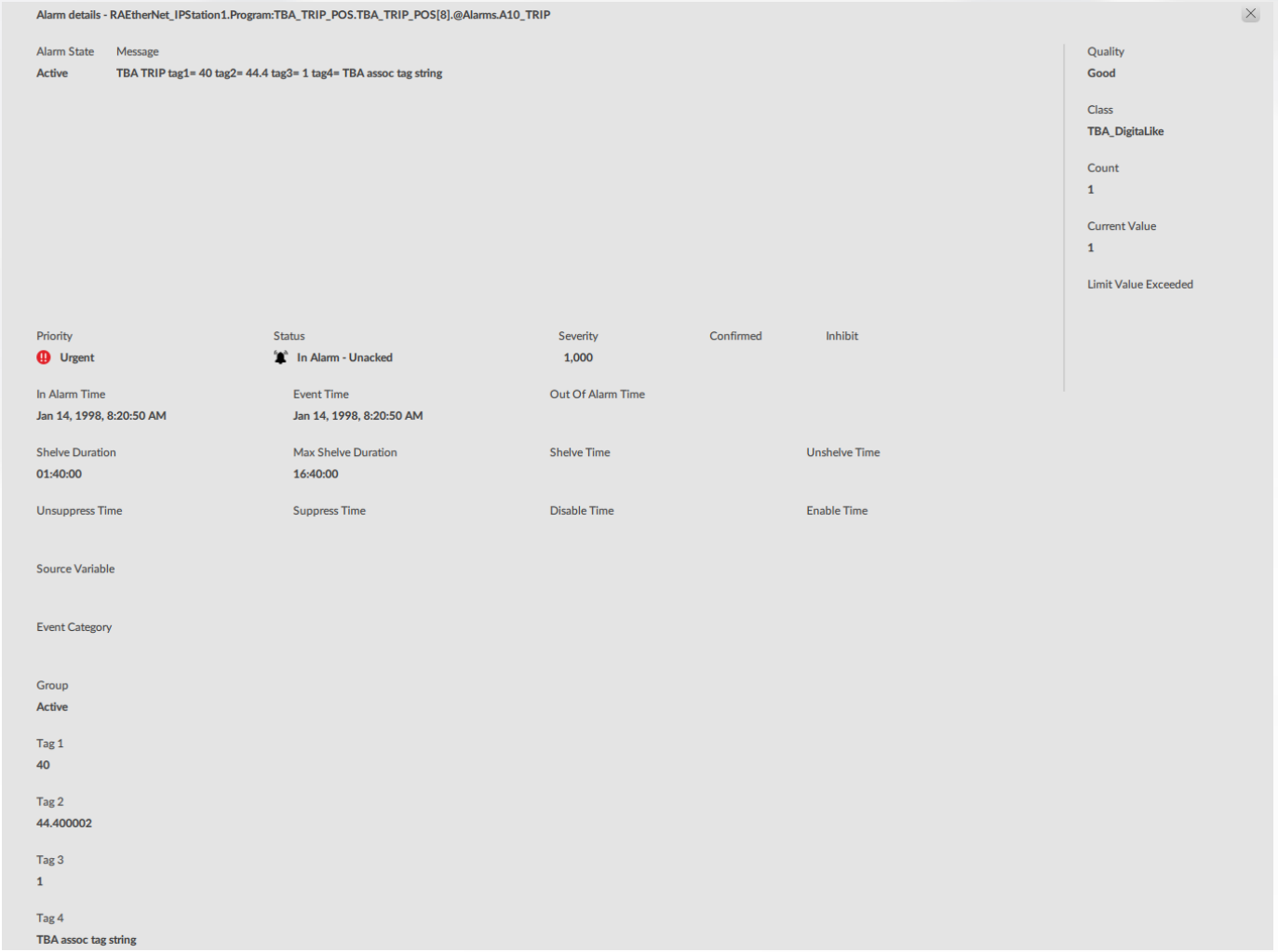
- Displays information about **all alarms in the application**
  - Logix alarms
  - Optix alarms
- Alarm messages and text information are automatically localized
- Alarms can be Shelved or Unshelved
- Provides alarm roll-up counts
- Select details to view additional information for each alarm
- Alarms list can be filtered using the Filter dialog
- Configurable column layout
  - NOTE – Alarm Manager and Alarm Counters will not work properly when Alarm Collection flag is DISABLED



Alarm Details dialog

Data Connectivity

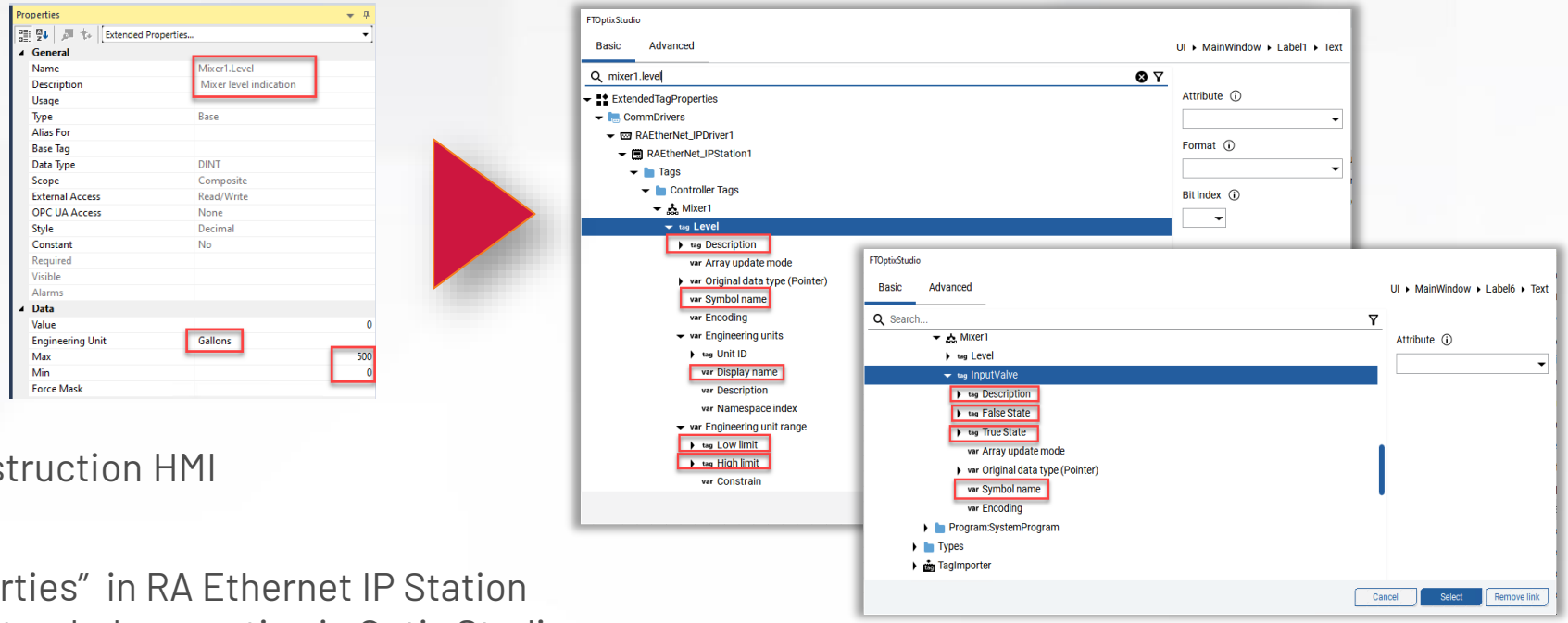
- Alarm Display dialog displays detailed information about specific alarm



Logix tag extended properties

Data Connectivity

- Added support for Logix tag extended properties
  - Speed development by importing and referencing tag extended properties from Logix
  - Display the name, description, engineering units, limits, and state values of controller tags
    - Name
    - Description
    - Engineering Units
    - Minimum
    - Maximum
    - State 0
    - State 1
  - Supports PlantPAx process instruction HMI tag extended properties
  - Check “Enable extended properties” in RA Ethernet IP Station to import and reference the extended properties in Optix Studio



MQTT Broker

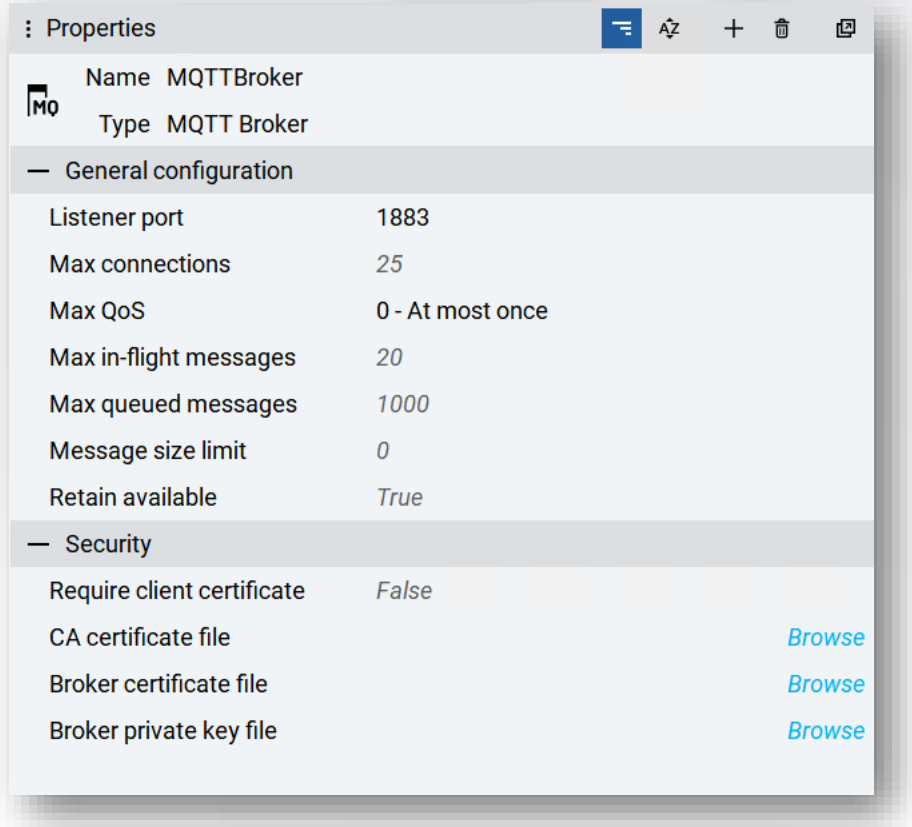
Data Connectivity

Feature

- Embedded native MQTT broker based on the open-source Mosquitto broker.
- It supports multiple Quality of Service (QoS) levels (0,1,2), ensures message retention, and includes security features such as certificate-based authentication.

Benefits

- **Enhanced Integration Flexibility**: Offers embedded support for MQTT, simplifying setup and reducing the need for external broker configuration.
- **Customizable Quality of Service (QoS)**: Supports QoS levels 0, 1, and 2, allowing you to tailor message delivery guarantees based on the criticality of the data.
- **Improved Data Reliability**: Retains message states, ensuring that crucial data is not lost during network disruptions.
- **Security Features**: Provides options for security through client certificates, ensuring that data transmissions are protected from unauthorized access.
- **Efficient Scaling**: Can handle up to 25 clients (both publishers and subscribers) per application, allowing it to scale while maintaining performance.



MQTT Client

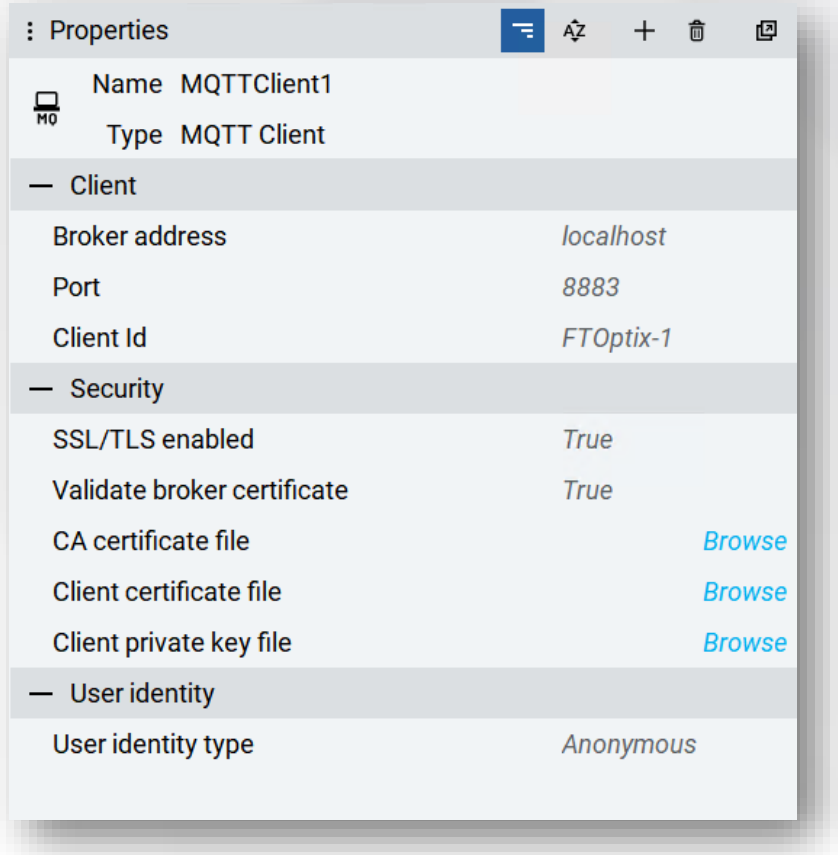
Data Connectivity

Feature

- The MQTT Client enables secure, reliable connection to an MQTT Broker, supporting SSL/TLS encryption, certificate validation and authentication, including customizable user identity settings.

Benefits

- **Enhanced Security with SSL/TLS Encryption**: Ensures data is securely transmitted between the client and the broker, protecting sensitive information.
- **Certificate-Based Authentication**: Validates the broker's identity through certificates, increasing trust in communications and helping prevent unauthorized access.
- **Identity Management**: Supports both anonymous and authenticated connections, catering to security and access requirements within different applications.
- **Increased Reliability**: Offers robust client-broker connectivity by ensuring secure and validated sessions, which are critical for applications that require high data integrity and privacy.

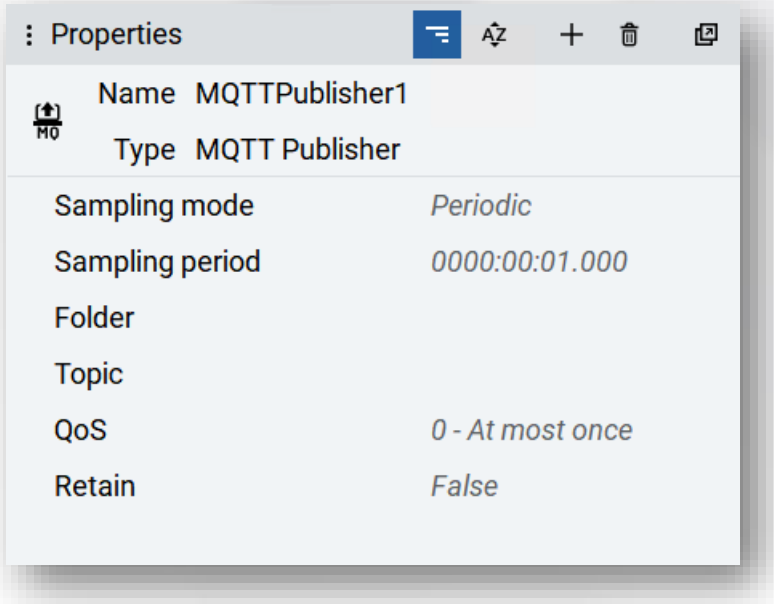


MQTT Client Publisher

Data Connectivity

Feature

- The MQTT Publisher allows for data publishing to an MQTT Broker, with options for sampling mode and sampling period to control the frequency of data publication.
- Adjust Quality of Service (QoS) levels and retain settings to optimize message delivery based on application requirements.



Benefits

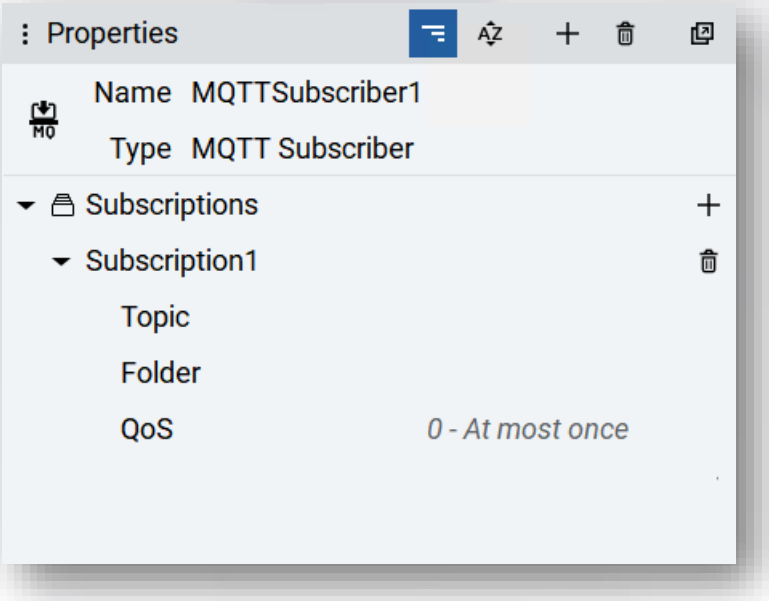
- **Flexible Data Publishing Control**: Configurable sampling mode (e.g., periodic) and sampling period provide control over how frequently data is sent, enabling users to adjust data flow according to their application's requirements.
- **Data Organization & Topic Management**: Relevant variables are sent to the specified topic, ensuring direct data transmission to the appropriate recipients.
- **Customizable Quality of Service (QoS)**: Supports QoS levels 0, 1, and 2, allowing you to tailor message delivery guarantees based on the criticality of the data.
- **Persistent Data Option with Retain Setting**: The retain option can be set to keep the last message published on the topic stored on the broker, allowing new subscribers to immediately access the latest data without waiting for a new update.

MQTT Client Subscriber

Data Connectivity

Feature

- The MQTT Subscriber allows integration with an MQTT Broker by subscribing to a specific topic.
- It supports a configurable Quality of Service (QoS) level for controlling message delivery reliability.
- Users can store incoming data values from the broker for easy access and processing.



Benefits

- **Focused Data Subscription**: Enables users to target a single topic, reducing data clutter and allowing a streamlined approach to monitoring specific information relevant to the application.
- **Customizable Quality of Service (QoS)**: Supports QoS levels 0, 1, and 2, allowing you to tailor message delivery guarantees based on the criticality of the data.
- **Organized Data Storage with Folder Nodes**: The folder node captures values from the subscribed topic, structuring data efficiently for retrieval and processing. This setup is ideal for applications needing consistent updates from a single data source.

MQTT Protocol Support Enhancements

Available Now!
Release 1.5

	Feature	MQTT via NetLogic (Scripting Capability)	Integrated MQTT (Built-in Capability)	Description
BROKER	**Security**	✓	✓	TLS-enabled listener with client certificate for authentication.
	Authentication & Authorization	✓	Planned for 1.6	Authenticated connection with Username & Password.
	Quality of Service (QoS)	✓	✓	Ensures message delivery at different reliability levels.
	Retentivity	✓	✓	Retains the last published message for new subscribers.
CLIENT* Publisher & Subscriber	**Security (TLS/SSL encryption)**	✓	✓	MQTT over TLS and client certificates for authentication.
	Authentication & Authorization	✓	✓	Authenticates client's identity with certificate and private key.
	Quality of Service (QoS)	✓	✓	Ensures message delivery at different reliability levels.
	Datalog Publishing	✓	Planned for 1.7	Publish datalogs over MQTT.
	Custom Payload	✓	Planned for 1.6	Allows for custom data format on a message payload.
	Retentivity (Publisher)	✓	✓	Enables the broker to retain last message on a topic.
	Store & Forward	✓	Planned for 1.7	Messages are stored and forwarded upon reconnection.

*Supports up to 25 clients (publishers and subscribers) per application.

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Store and forward

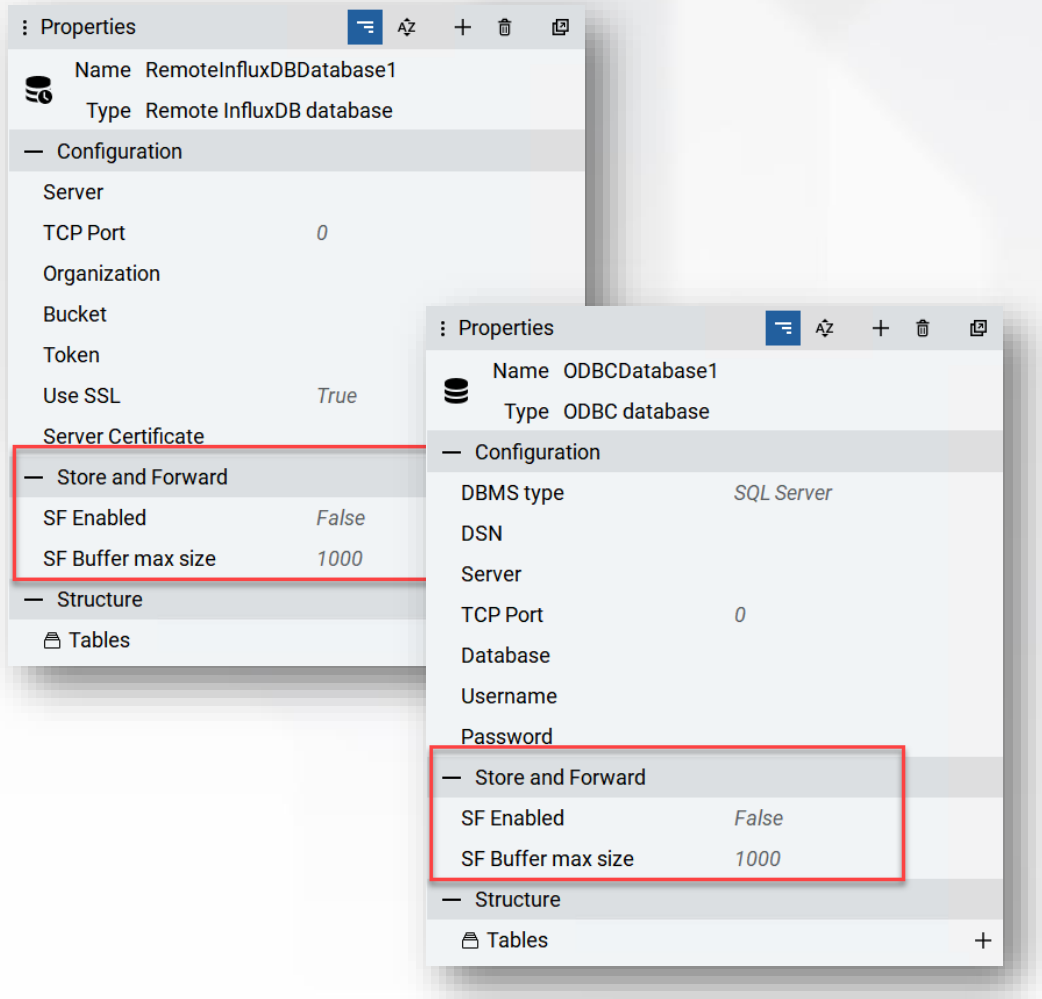
External databases

Feature

- Temporarily stores data locally during connection disruption or when the external storage is unavailable.
- Automatically forward stored data to the external data storage when connectivity is restored.
- Compatible with ODBC and InfluxDB external databases that support Store & Forward (SF).
- Read-only diagnostics for tracking buffer usage and overflow status, enabling proactive data management.

Benefits

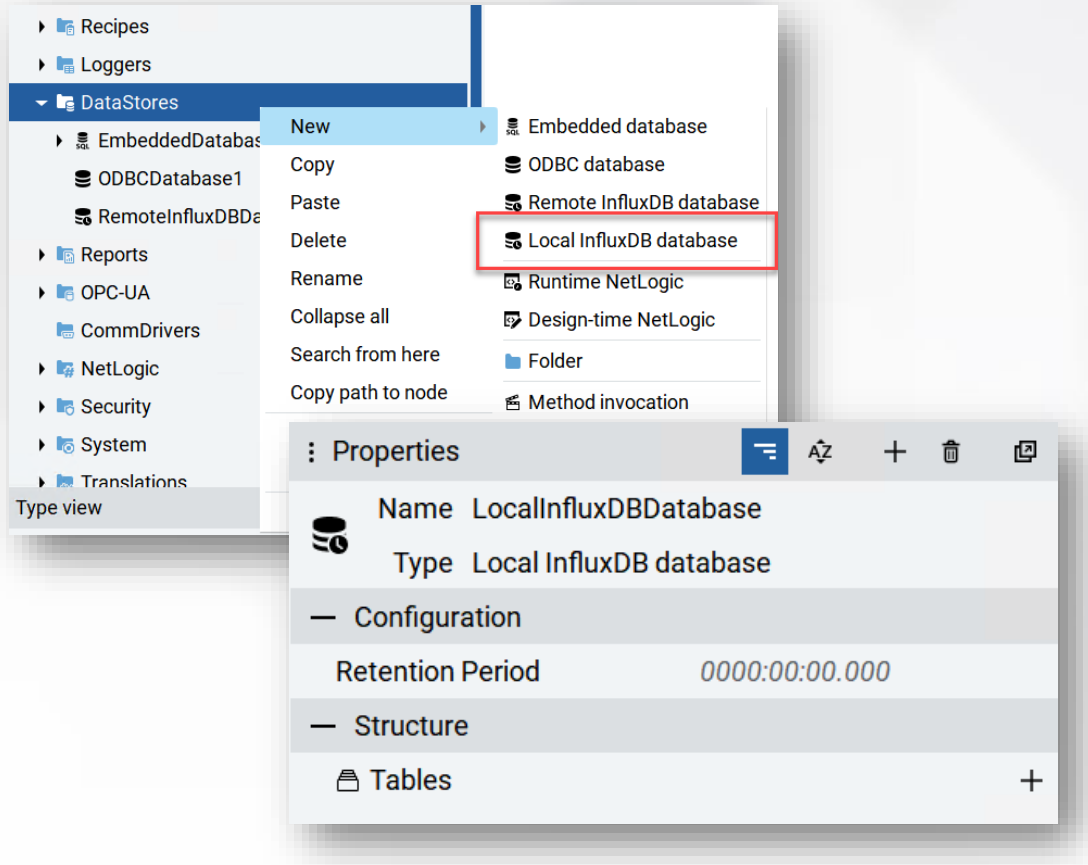
- **Data Integrity**: Ensures no data loss during connectivity issues by temporarily storing data until reconnection, crucial for environments with intermittent connectivity.
- **Reduced Data Gaps**: Automatically forwards stored data to remote storage, minimizing data gaps in historical records.
- **Enhanced Reliability**: Diagnostics provide real-time insights into data flow and buffer status, allowing for prompt actions to avoid overflow and ensure system stability.



Embedded InfluxDB DataStore – Internal

Internal data storage

- Support for InfluxDB as an internal storage solution, enabling time-series data management for IIoT and industrial automation use cases.
- InfluxDB is storage for time-series data, ensuring device data is stored with minimal footprint and maximum retrieval speed.
- Customize data retention periods to match operational needs, keeping recent data readily accessible while managing long-term storage.



Webinars

FT Optix

Visualization webinars

Save the date, register and share!

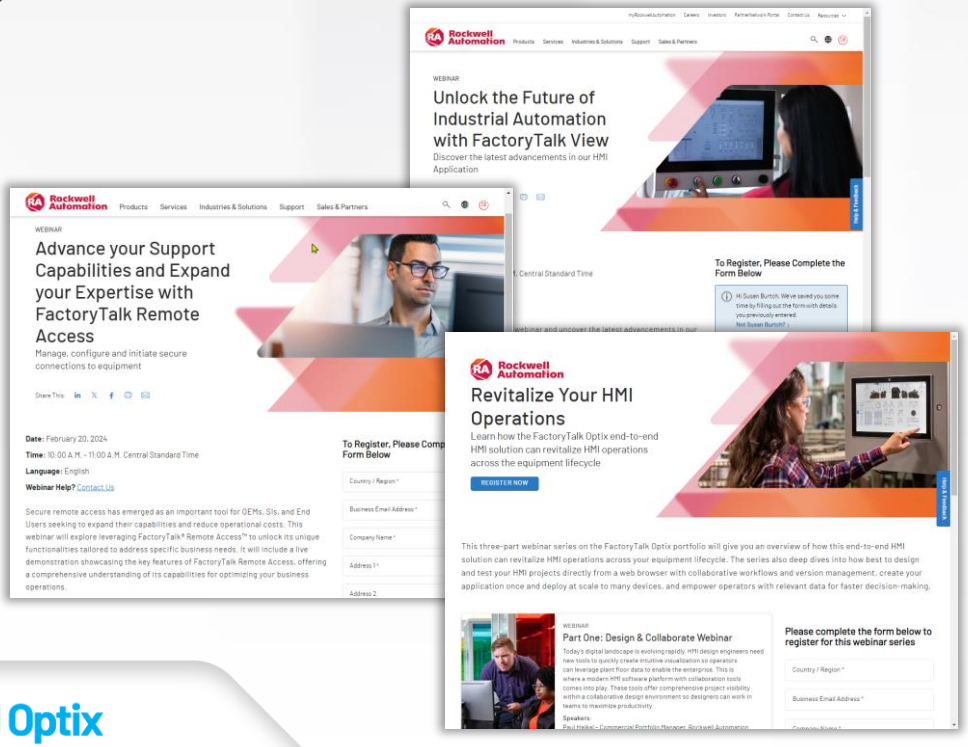
FACTORYTALK OPTIX AND FACTORYTALK REMOTE ACCESS WEBINARS

- **FactoryTalk Optix: Revitalize Your HMI Operations webinar series (3 webinars)**
  - ON DEMAND (February 7, 2024) *Design and & Collaborate* LINK
  - ON DEMAND (May 8, 2024) *Deploy Applications at Scale* LINK
  - ON DEMAND (August 14, 2024) *Operators Empowered* LINK
- **Advance your Support Capabilities and Expand your Expertise with FactoryTalk Remote Access**
  - ON DEMAND (February 20, 2024) LINK

FACTORYTALK VIEW WEBINARS

- **Unlock the Future of Industrial Automation with FactoryTalk View**
- ON DEMAND (January 24, 2024) LINK
- **FactoryTalk View SE V14 Release Features Genius Webinar**
- ON DEMAND (October 26, 2023) LINK

Register for the Optix webinar series now!



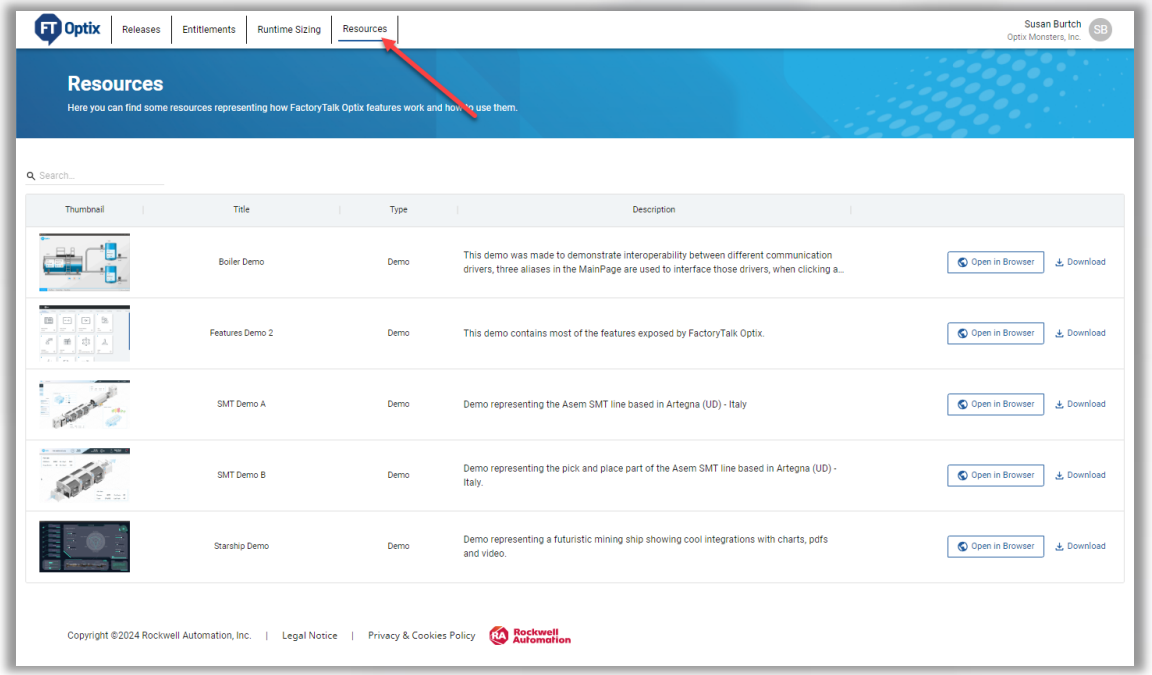
Online Demos

FT Optix

FactoryTalk Optix Instant Online Customer Demos!

Online Demos

- Resources tab provides access to many FactoryTalk Optix demo applications
  - These demo applications can be viewed using your browser
  - A description for each demo is also available
  - Use the Search bar to look for a specific demo
- Available to anyone with a FactoryTalk Hub account, including customers!
- Click **Open in Browser** to run each demo application in your web browser
  - Boiler demo
  - Features demo
  - Demo applications for ASEM factory machines
  - Trade show and event demo applications
  - More coming soon!



Now available: Preview demo application in browser, then download demo application files from GitHub on the Resources tab

PCDC Release Notifications

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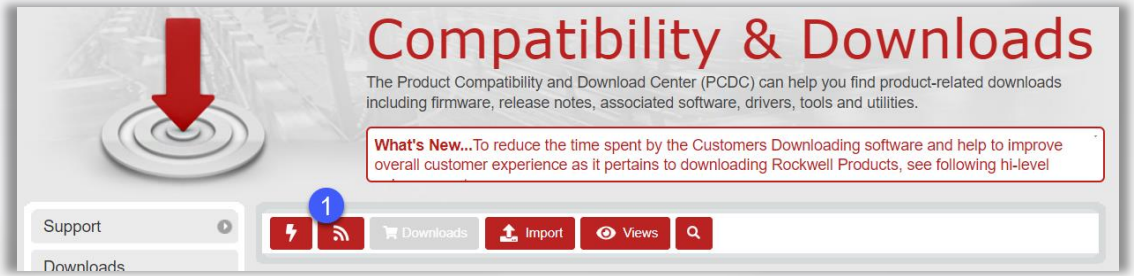
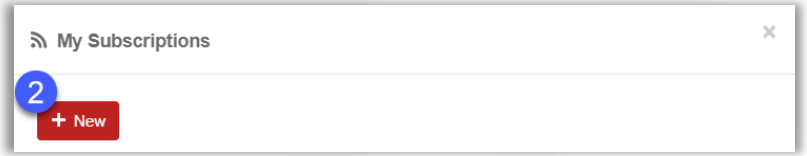
How to get notification of a new release on PCDC

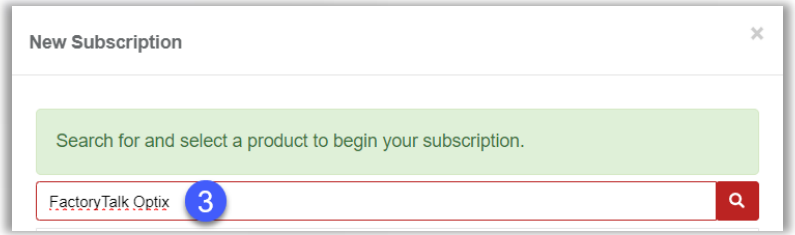
1. Log in to PCDC
   and click the **Subscription button**



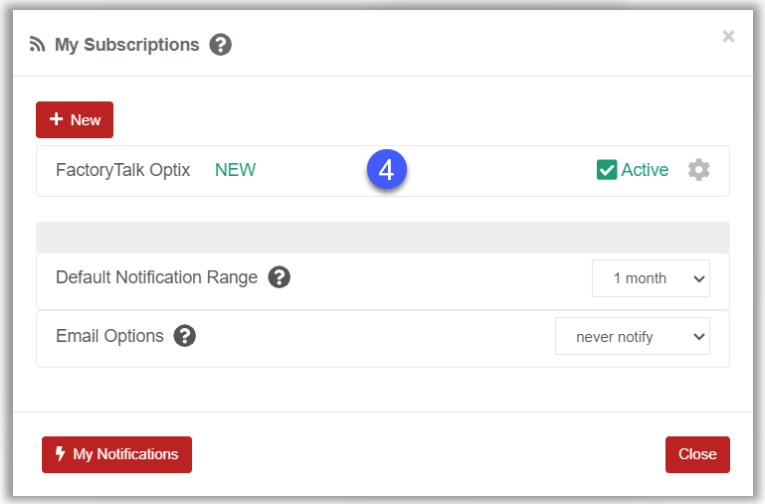
2. Click on **+ New** button



3. Search for "FactoryTalk Optix" and select it



4. FactoryTalk Optix is added to your subscription list



5. With the settings buttor you can select the notification types that interest you, and with the Email Options you can be notified via email when you have new notifications

THANK YOU

FactoryTalk

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