



FRAMEWORX

**The Affordable Platform with Limitless Possibilities
for Enabling Industrial Applications**



Complete



Powerful



Cost-Effective

Experience



- ✓ 25+ Years Experience
- ✓ 4th Gen Software
- ✓ HQ: Houston, TX
- ✓ US, Brazil, UK, EU, India

Technology



- ✓ Robust Platform
- ✓ Real-time Data
- ✓ Actionable Applications
- ✓ Windows, Linux, Web

Product



- ✓ Framework enables SCADA, IIoT & more
- ✓ New Release v9.1 Coming Fall 2020

Solutions



- ✓ High Performance HMI
- ✓ Manufacturing Intelligence
- ✓ Asset Monitoring
- ✓ Embedded Analytics/Cloud

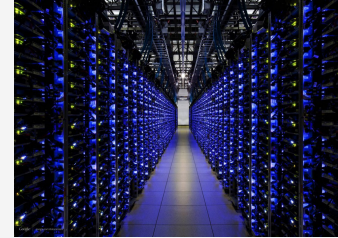
Create **Actionable Solutions** Delivered Anywhere



Building Automation



Chemical



Data Centers



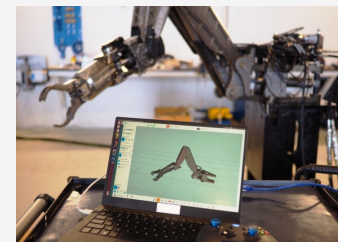
Energy & Renewables



Food & Bev



Life Sciences



Machine Builders



Materials



OEMs



Oil & Gas



Transportation



Water/Wastewater

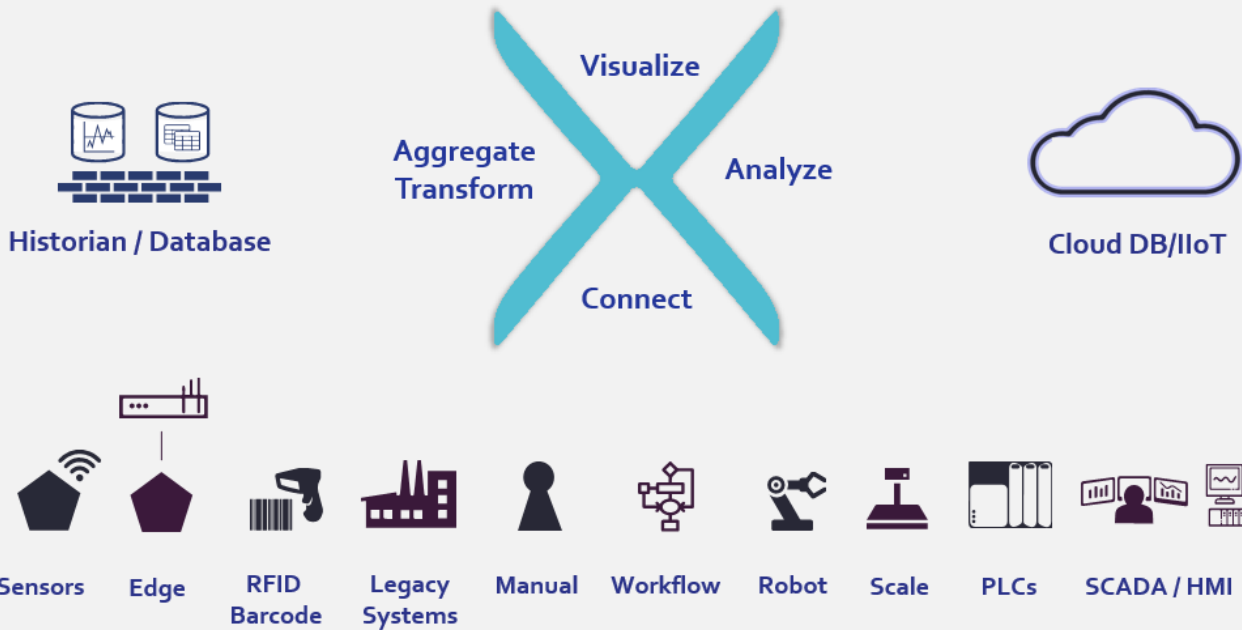
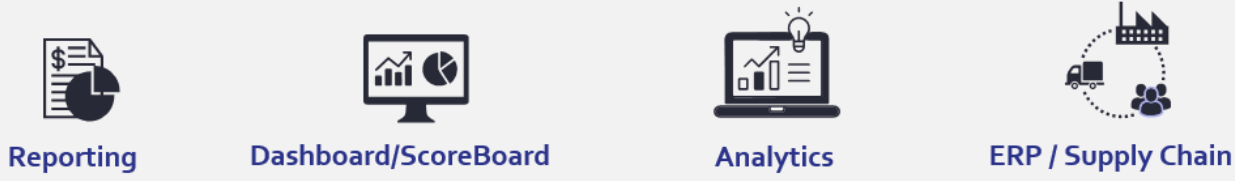
Framework To Build Applications For *Any* Industry

**BOMBARDIER***Johnson & Johnson*

We Help Enable The Best
To Do Their Best

**NALCO** Water
An Ecolab Company**NEC****USIMINAS** U

Delivering **Applications & Solutions** Worldwide



Connect – Aggregate/Transform Visualize - Analyze (Data Is Key)

Built with Industrial DNA

- Real-time connectivity with native drivers to PLCs, OPC, MQTT
- Read and write to any device, SQL database, Process Historian or IT system
- Open and Layered to fit and connect to your current Plant Floor systems

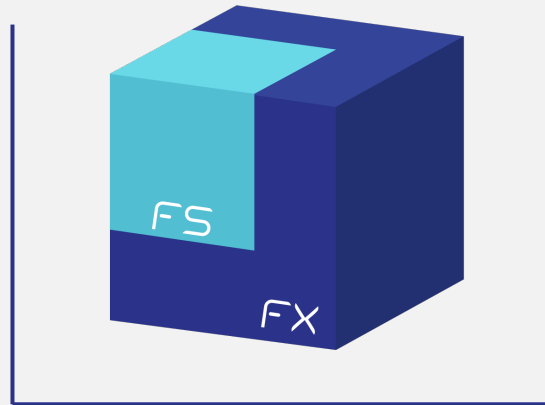
Connect | **Aggregate Transform** | Visualize | Analyze



INTEGRATE TO ANY SYSTEM

      **DEVICE**

   **CONTROLLER**



ERP   

CLOUD   

HISTORIAN





 **OSIsoft.**

 **Wonderware Historian**



SIEMENS

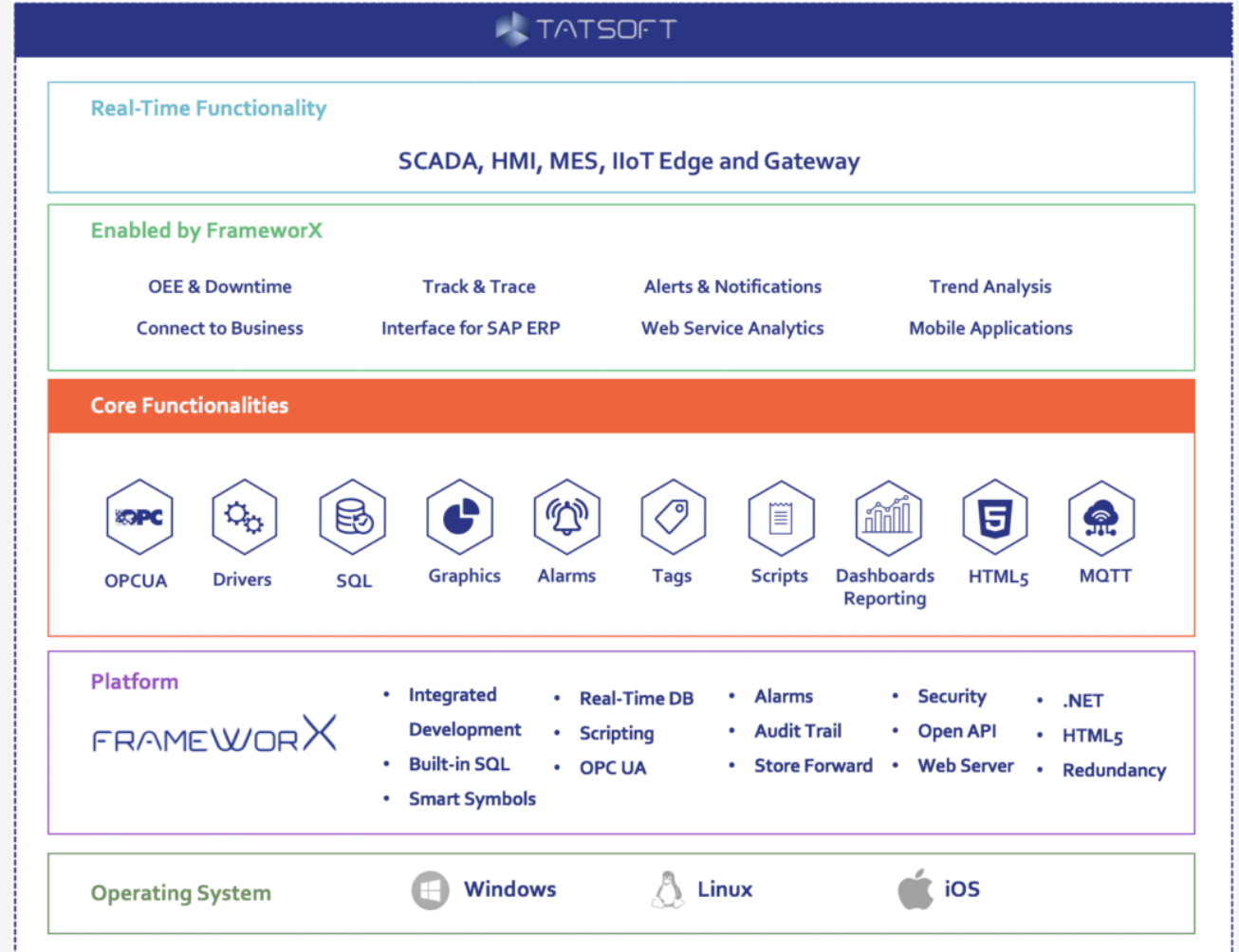
Fit To Your **Automation Landscape** OT/IT



Powerful Development and Design

Complete tools for you to create what you need

- Easily create rich user interfaces for thin, web or mobile clients
- Flexible Scripting and Data Binding to build real-time applications
- Fast, Secure and Robust designed in to the FrameworkX Platform
- FactoryStudio: Scalable by I/O and Clients, simple to advanced SCADA / HMI, IIoT Edge and Gateway and built on Tatsoft's FrameworkX



Delivers A **Complete Toolset** Out Of The Box



Securely Enable IIoT

Create Applications – Edge to Enterprise

- Edge and IIoT-Gateway were created from ground-up with secure technologies
- Open and layered platform including MQTT with SparkplugB support
- Full range of PLC and device connectivity
- Run with or without HMI
- Enable real-time analytics and data acquisition at the edge

Make IIoT Possible

Rules Engine FactoryStudio Dashboards
Devices Assets Analytics
Alerts Digital Twin Integration



The Framework **Enabling IIoT** Applications

FrameworkX Platform	FrameworkX	FactoryStudio	Edge HMI	Edge Gateway
Price Range	\$9,200 to \$11,500	\$864 to \$7,800	\$480 to \$1,800	\$240 to \$1,270
With Redundancy Price Range	\$13,800 to \$17,250	\$1,800 to \$11,700	N/A	N/A
Annual Subscription starting at: \$6,440				
Any Client - .NET Smart Client, Web, HTML5, iOS	Unlimited	✓	✓	⊗
Dashboard Display Builder	Unlimited	✓	✓	⊗
I/O Points	Unlimited	✓	✓	✓
Any Standard Driver	Unlimited	✓	✓	✓
OPC UA Client / Server	Unlimited	✓	✓	✓
SQL Database	Unlimited	✓	✓	✓
SQL, NoSQL, Historian Connections	Unlimited	✓	✓	✓
100s of Symbols	Unlimited	✓	✓	⊗
MQTT Client / Broker	Unlimited	✓	✓	✓
SQL Data Hub	✓	✓	✓	✓
Report Designer	✓	✓	✓	⊗

FrameworkX Platform	FrameworkX	FactoryStudio	Edge HMI	Edge Gateway
Dashboard Designer	✓	✓	✓	⊗
C#, VB.NET, Python	✓	✓	Optional	Optional
HTML5 and Javascript	✓	✓	✓	⊗
Alarms and Alerts	✓	✓	✓	✓
Trending	✓	✓	✓	✓
Plugins and Components	✓	✓	Optional	Optional
SMS & Alarm Notification	✓	✓	✓	✓
SDK Extensions/ Toolkits	✓	✓	Optional	Optional
Device Redundancy	✓	✓	Optional	✓
Server Redundancy	✓	✓	Optional	Optional
Modular Deployment	✓	✓	Optional	Optional
Audit Trail	✓	✓	Optional	Optional
Integrate External Controls	✓	✓	Optional	Optional
Store and Forward	✓	✓	✓	✓

Complete | Powerful | Cost-Effective



- AB Rockwell - ControlLogix/CompactLogix devices
- AB Rockwell - MicroLogix devices
- AB Rockwell - PLC5/SLC Devices
- AB Rockwell - Serial Micrologix
- ASCII - Generic ASCII Master Protocol
- Automation Direction, KOYO, using ECOM protocol
- Barcode Reader ASCII protocol - RS232 and TCP/IP
- Beckhoff - TwinCAT PLC/IO devices
- Bosch Rexroth - IndraControl devices using EtherNet/IP Adapter
- Cincinnati Test Systems - Sentinel I28 devices
- CTC Binary 5300 model - TCP/IP
- Desoutter - CVIC II devices
- DNP3.0 L3 Master Standard protocol
- Emerson - WirelessHart devices HartIP protocol
- FactoryStudio - TRemoteClient Protocol Driver Client
- Fatek FBs PLCs - Facon protocol - TCP/IP and RS232
- GEFanuc - Ethernet using SRTP protocol Mitsubishi - Series Q
- Mitsubishi Melsec-FX (MelsecQ 1E Frame)
- Modbus - TCP/IP & RS-232, RTU & ASC, modbus master protocol
- Modbus Slave - TCP/IP & RS-232, RTU & ASC, Modbus slave protocol
- MQTT – Broker & Clients (Original & Sparkplug B)
- National Instruments Data Sockets - Labview
- National Instruments Data Sockets Read-Only - Labview
- Omron Master using FINS Commands
- OPC HDA Client - OPC client access to local or remote servers
- OPC UA Client
- OPCXmlDA - OPC Xml/DA Client
- Ping
- Raspberry PI GPIO
- Schneider Electric - UnityPro - PLC's Quantum, Momentum M340 & M580
- Siemens S7 devices
- Siemens/TL505 - Siemens Simatic/TL505 devices
- SNMP
- System Monitor
- Transverter for Raspberry PI
- TTagReceiver Protocol Driver
- TTagSender Protocol Driver

Do More With **Built-In** Protocols



NEW & IMPROVED IN 9.1

MAJOR FEATURE THEMES FOR THIS RELEASE: **CONNECTIVITY, EASE OF USE, MOBILE & HTML5**

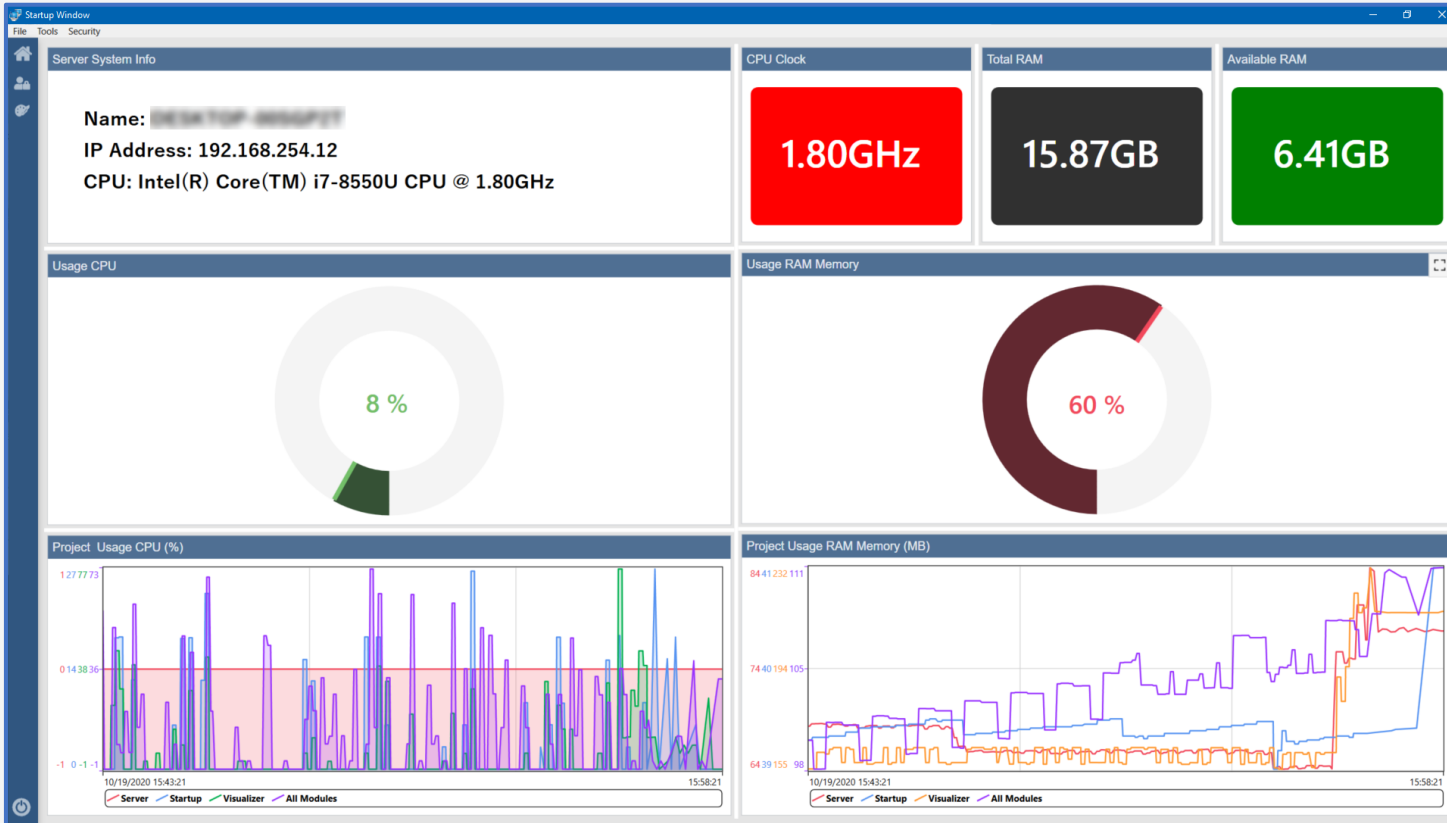
- Dashboards (Responsive/.NET)
- Themes
- Visual SQL Query Builder
- Python Integration
- Project Templates
- MQTT Broker / Clients / SpB

- Enhanced HTML5 Support
- Symbols and Symbol Library
- Smart Flow Connectors
- Industrial Icons Font
- Multi-Screen Engineering

- Multi-Monitor Support
- Driver Highlights
- Simulator Driver
- Remote & Multi-User Engineering
- Remote Device Startup
- Linux Runtime Improvements

- Secure Multi-Port Gateway
- Sparkline in DataGrid
- Dynamic Color Cell in Reports
- Copy/Paste Tag Array To Multiple Symbols
- Tags – Finding / Easy Renaming
- Removing Unused Tags, Devices, & More

What's **New & Improved** In This Release



Responsive Dashboards

Easier-to-use tools to create what you need

- Responsive layouts based on viewing device
- Easy drag & drop functionality
- Add any Symbol Library object
- Create dashboards for BOTH - .NET & HTML5
- Supports Project Themes for quick styling

Create with **Flexibility** For More Possibilities



Multi-Color Themes

Engineering Environment & Project

- Multiple themes to choose from
- Use Dark Mode to suit your viewing environment
- Multi-theme across multiple projects
- Easily build your own theme
- De-select a theme - just for an item or entire screen

The image shows a 'Theme Colors' configuration window with a table of theme items and a grid of color swatches. Below it are several application windows demonstrating the themes in use.

ItemName	Dark	Light	Blue	Green	Yellow	Brown	Orange	Red	Pink	Purple	None	Description
HPDisableStroke	Black	Grey	Blue	Green	Yellow	Brown	Orange	Red	Pink	Purple	Grey	
HPOffStroke	Black	Grey	Blue	Green	Yellow	Brown	Orange	Red	Pink	Purple	Grey	
HPOnStroke	Black	Grey	Blue	Green	Yellow	Brown	Orange	Red	Pink	Purple	Grey	
HPDisableFill	Black	Grey	Blue	Green	Yellow	Brown	Orange	Red	Pink	Purple	Grey	
HPOffFill	Black	Grey	Blue	Green	Yellow	Brown	Orange	Red	Pink	Purple	Grey	
HPOnFill	Black	Grey	Blue	Green	Yellow	Brown	Orange	Red	Pink	Purple	Grey	
ObjectDarkColor	Black	Grey	Blue	Green	Yellow	Brown	Orange	Red	Pink	Purple	Grey	
ObjectLightColor	Black	Grey	Blue	Green	Yellow	Brown	Orange	Red	Pink	Purple	Grey	
Watermark	Black	Grey	Blue	Green	Yellow	Brown	Orange	Red	Pink	Purple	Grey	

The application windows show the following themes:

- Light Theme:** Standard Windows-style interface with white background and blue accents.
- Dark Theme:** Dark grey/black background with light grey and blue accents.
- Multi-Color Theme:** A vibrant theme with orange, green, and blue accents on a dark background.

Customize Faster With Multi-Color Themes



The screenshot shows the Visual SQL Query Builder interface. It features a main workspace with two table selection windows (Table1 and Table2) and a Properties panel on the right. Below the workspace is a table with columns: Visible, Expression, Column Name, Sort Type, Sort Order, Aggregate, Grouping, Criteria, Or, and Or. The bottom of the interface displays the generated SQL query.

Visible	Expression	Column Name	Sort Type	Sort Order	Aggregate	Grouping	Criteria	Or	Or
<input checked="" type="checkbox"/>	Table1.UTCTimestamp_Ticks	TimeStamp1	Descending	1		<input type="checkbox"/>	= Table2.UTCTimestamp_Ticks		
<input checked="" type="checkbox"/>	Table2.UTCTimestamp_Ticks	TimeStamp2				<input type="checkbox"/>			
<input checked="" type="checkbox"/>	Table1.Integer1	ColA				<input type="checkbox"/>			
<input checked="" type="checkbox"/>	Table1.Double1	ColB				<input type="checkbox"/>			
<input checked="" type="checkbox"/>	Table2.Integer2	ColC				<input type="checkbox"/>			
<input checked="" type="checkbox"/>	Table2.Double2	ColD				<input type="checkbox"/>			

```
select Table1.UTCTimestamp_Ticks As TimeStamp1,
Table2.UTCTimestamp_Ticks As TimeStamp2,
Table1.Integer1 As ColA,
Table1.Double1 As ColB,
Table2.Integer2 As ColC,
Table2.Double2 As ColD
from Table1,
Table2
where Table1.UTCTimestamp_Ticks = Table2.UTCTimestamp_Ticks
Order by TimeStamp1 Desc
Limit 0, 100
```



Visual SQL Query Builder

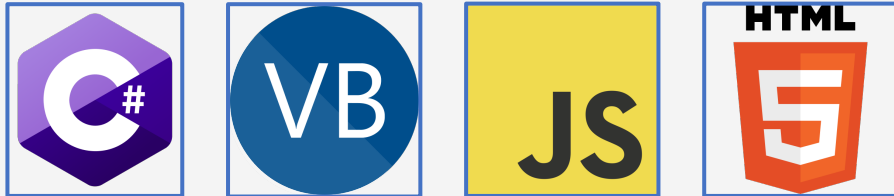
Rapidly Connect, Build, & Test Visually

- Visually select databases, tables, and columns
- Create relationships visually between entities
- Every visual item and action builds SQL query in real-time
- Test query in the builder before using in your project

Do More **Visually** With SQL Query Builder



Already Supporting...



Python Integration

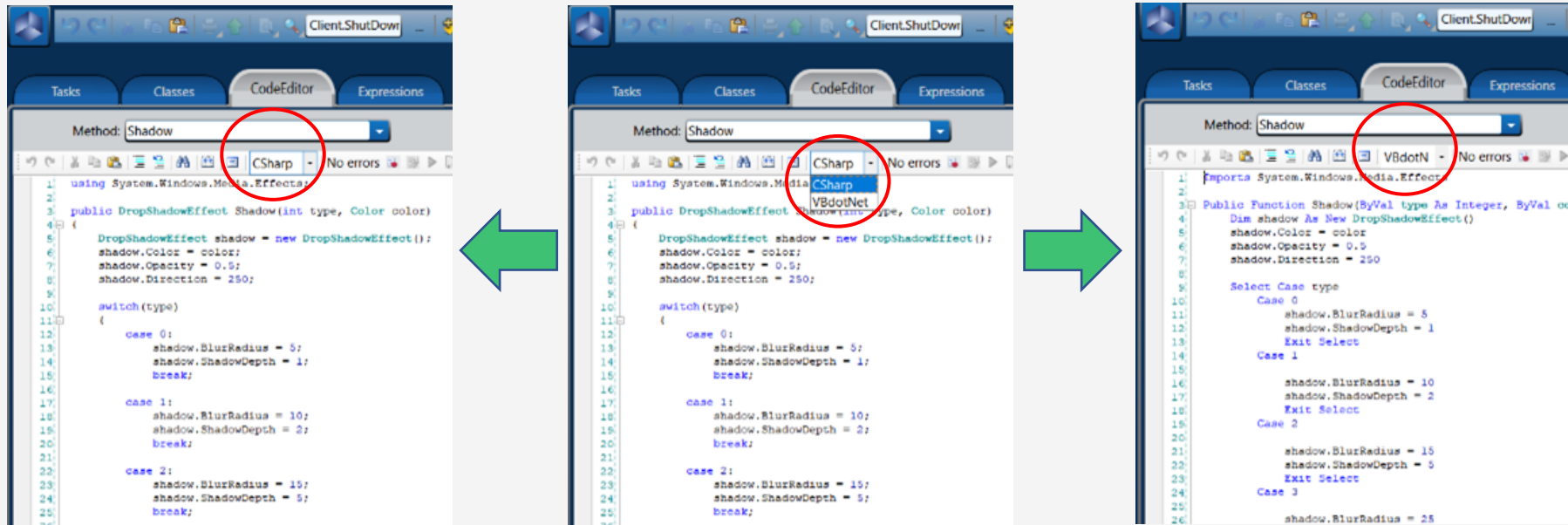
Extend Your Projects with Python Code

- Supports ANY version of Python (3.x & 2.x)
- Access Python namespace from Scripts, Tasks, & Codebehind
- Create Python code to interact with your FactoryStudio project
- Create a task that executes your external Python code and passes parameters both ways

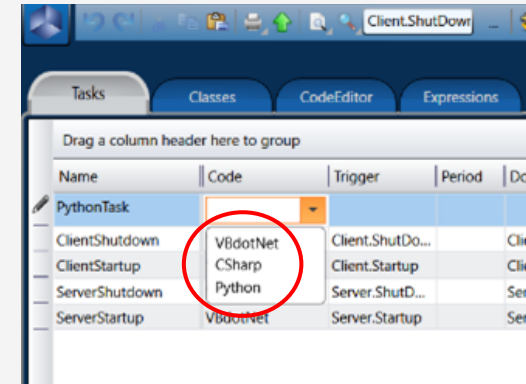
Machine Learning & AI Integration Possibilities



Code, Switch, and Translate With Ease Between C# and VB.Net



Python Integration



Coding Flexibility For Better Productivity



Project Templates

Build The Solutions You Need Faster

- **Multiple themes to choose from**
- **Use Dark Mode to suit your viewing environment**
- **Multi-theme across multiple projects**
- **Easily build your own theme**
- **De-select a theme - just for an item or entire screen**

1. Blank Project

- Logon Dialog
- Several Themes
- Header page navigation using Industrial Icons
- Empty Main Page
- Layout with Header and Main Page

2. Default Project

- Contains all in the **Blank** Project – Includes:
- Server Information page using the Dashboard Page
 - System Information Template and Scripts
 - System Information Data Historian configuration

3. TrendChart Project

- Contains all in the **Default** Project – Includes:
- UI data Template
 - TrendChart Page
 - TrendChart Data Templates

4. TrendChart and Alarm Project

- Contains all in the **TrendChart** Project – Includes:
- Alarm Online and Alarm Historical Page
 - Alarm Data Template

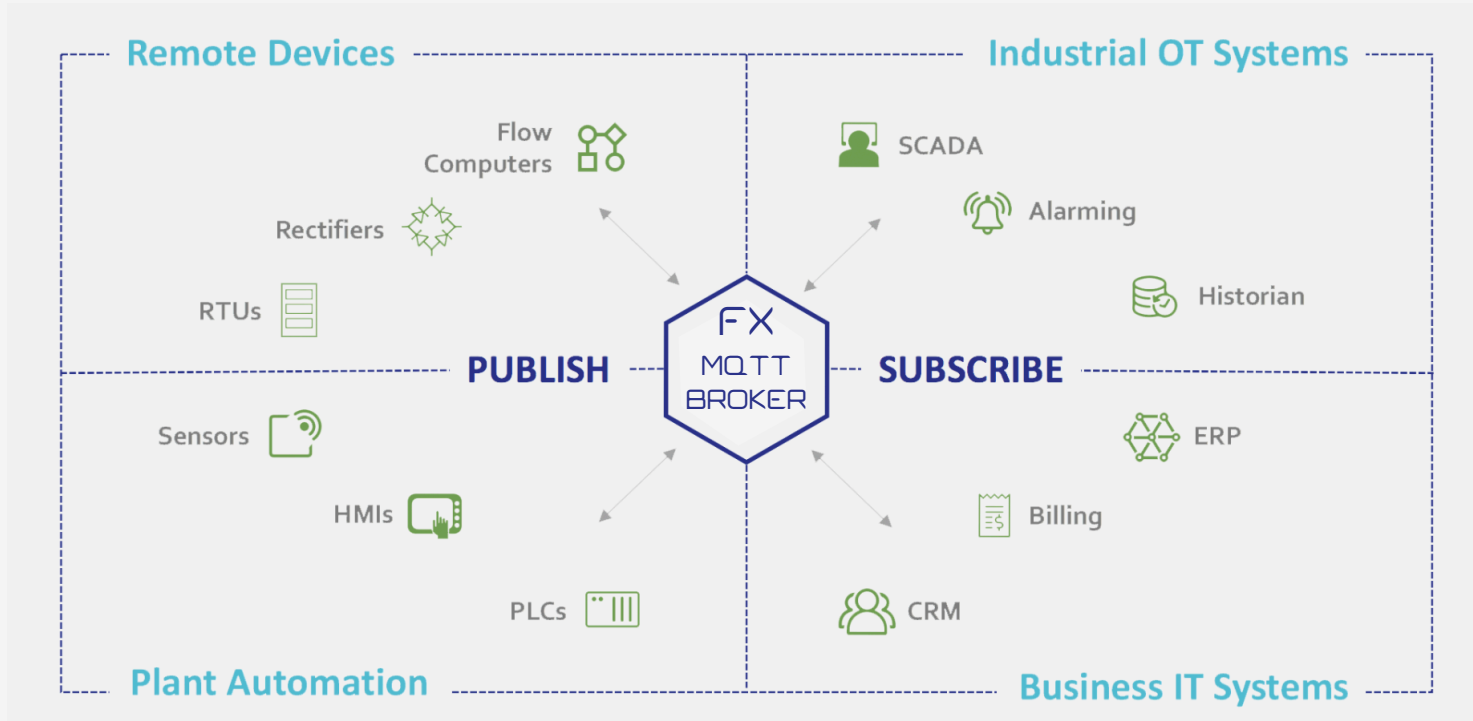
5. TrendChart and Alarm Footer Project

- Contains all in the **TrendChart and Alarm** Project – Includes:
- Alarm Footer Page

6. Redundancy Project

- Contains all in the **TrendChart and Alarm** Project – Includes:
- Redundancy Information Page

Pre-Built For **Faster Workflow** & Increased Efficiency



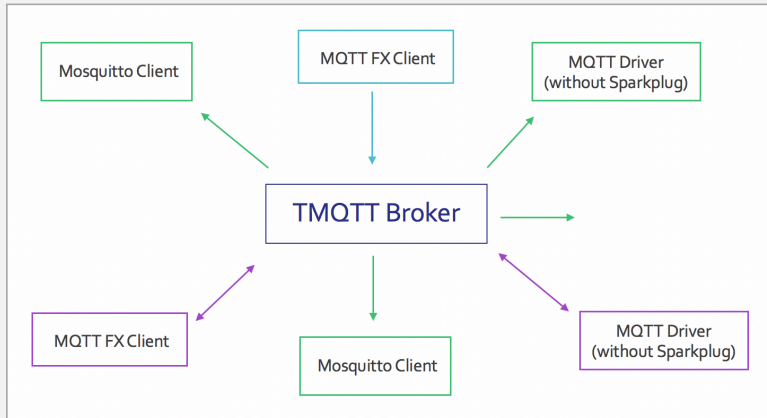
Open, Scalable and Secure IIoT: Edge, On-Premise, Cloud

A complete set of tools for creating IIoT applications and much more.

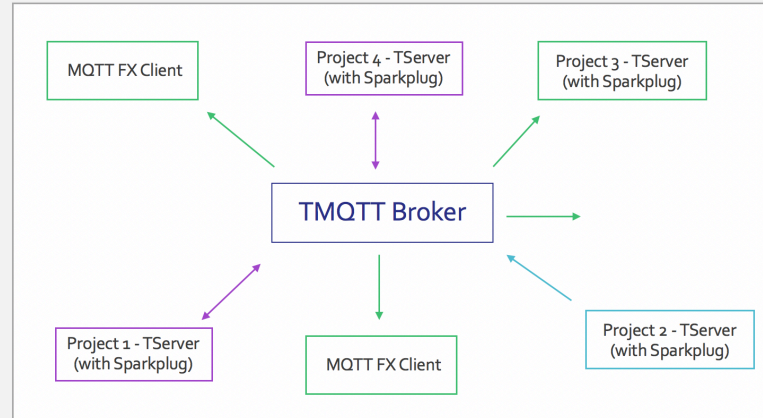
- Affordable Edge and Gateway versions
- Fully functional SCADA includes alarms, alerts, and scripting
 - Connect to any device, database, or Cloud
- Use any or all of the integrated development tools

The Framework For **Creating IIoT** Possibilities

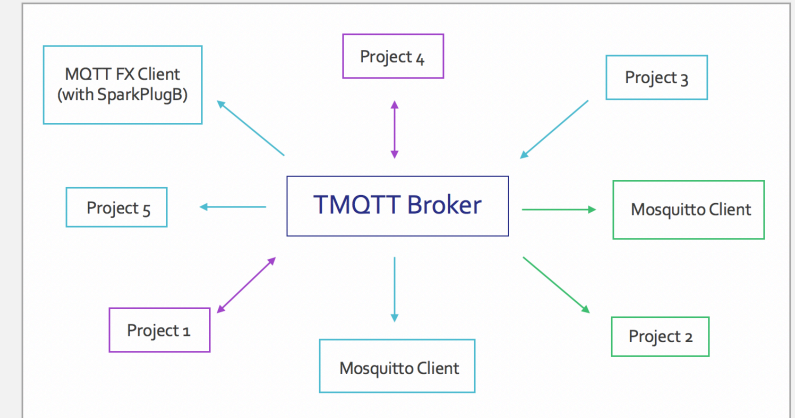
Publish and Subscribe
 Subscribe Only
 Publish Only



SIMPLE GATEWAY



CONNECTED TO RUNTIME PROJECT



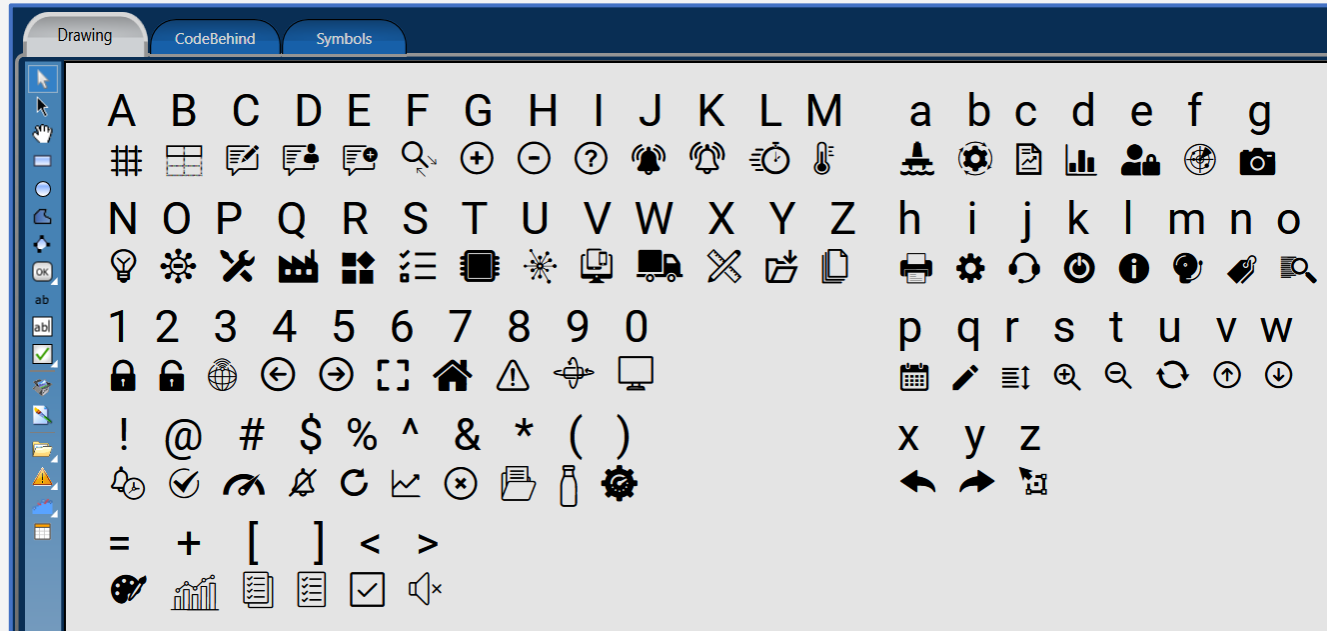
GATEWAY & CONNECTED TO RUNTIME PROJECT

Communication From **Edge to Enterprise** Made Easier

Example of icons used in the default Header



Entire list - Industrial Icons font

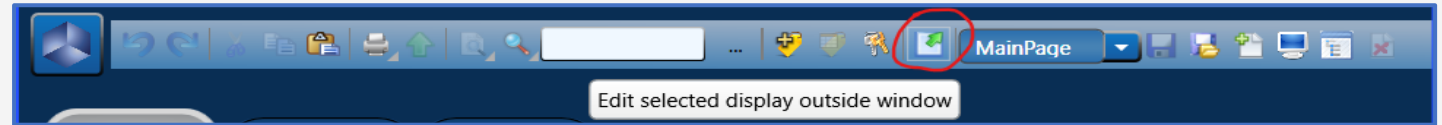


Industrial Icons Font

Easily Add Icons To Your Projects

- Create consistent and modern layouts
- Easily resize and modify coloration of your icon
- Save time with an icon font instead of jpg/png
- Common icons included are Home, Alarms, Warnings, Chart, Gauge, Settings, Search, and more

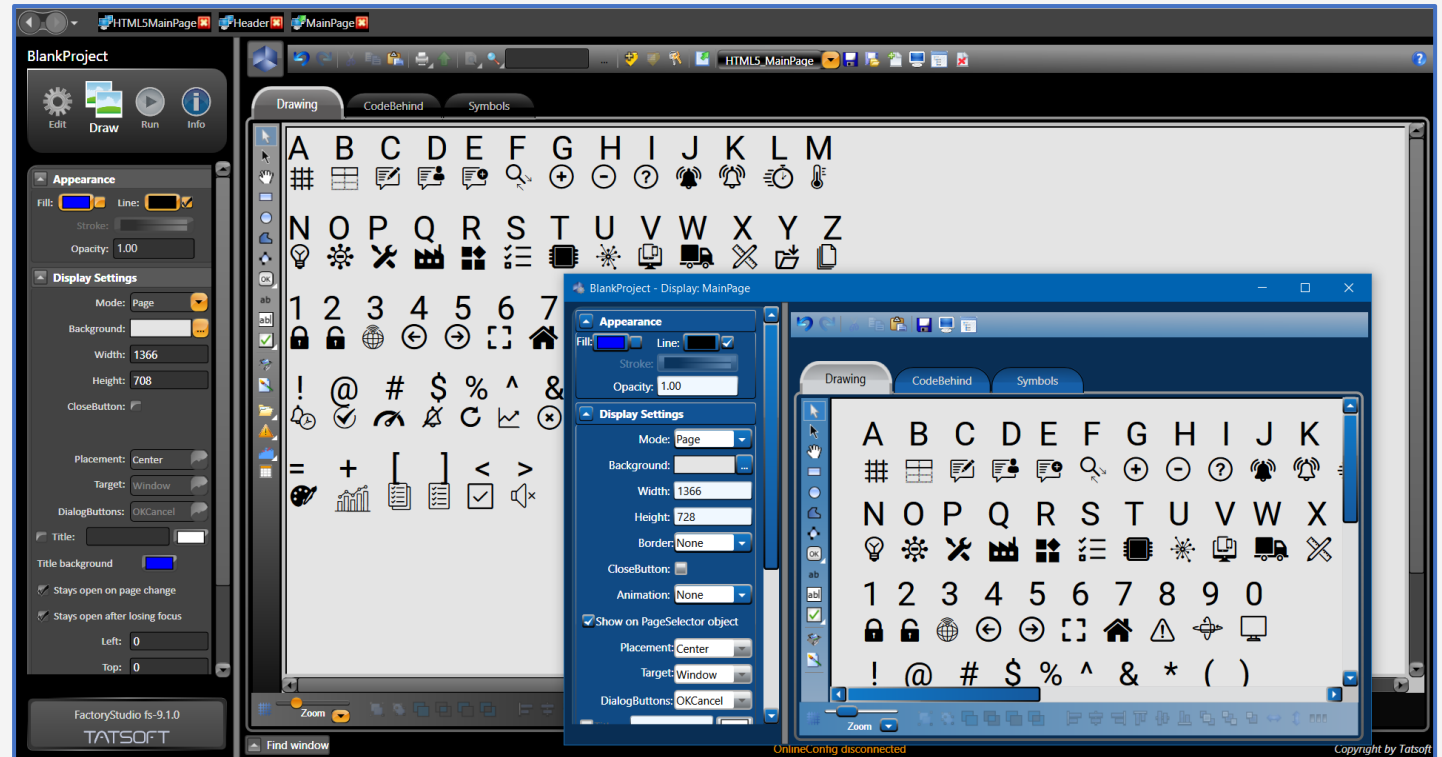
The Font For **Flexible Control** Of Industrial Icons



Multi-Screen Engineering

Achieve More With Multiple Displays

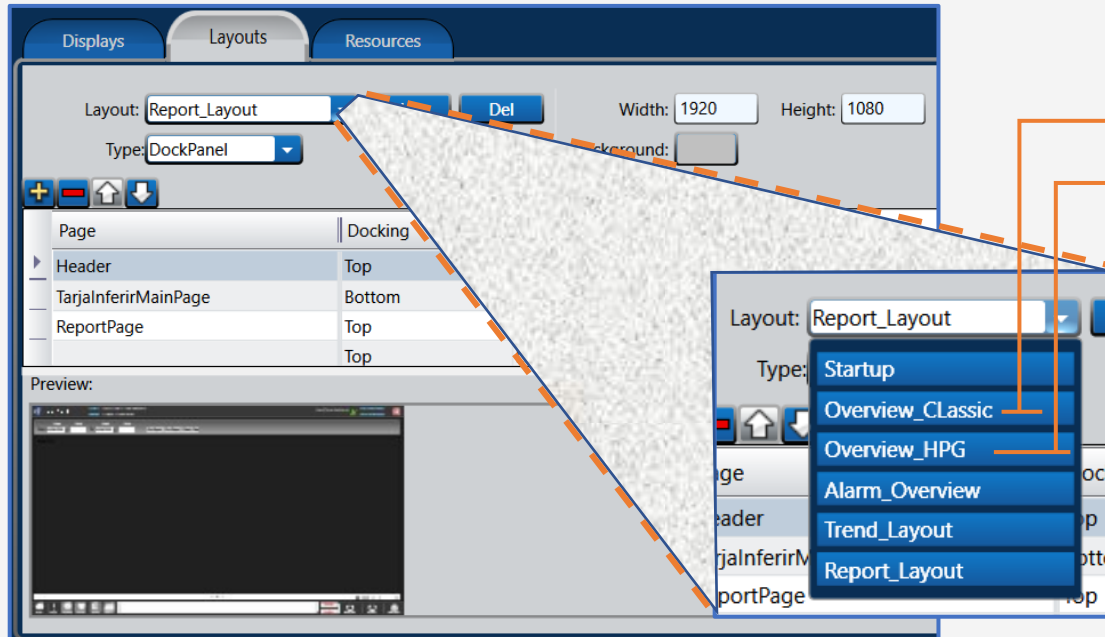
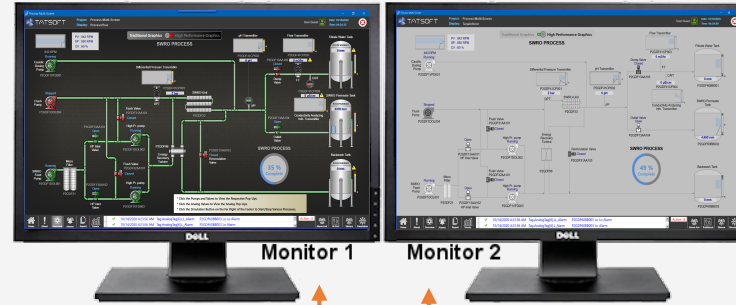
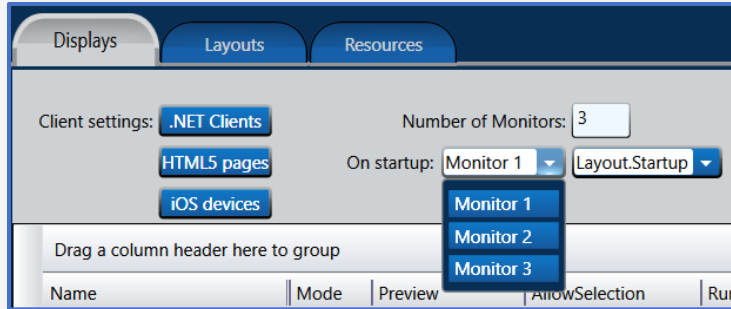
- Open multiple displays and scripts simultaneously
- Copy/Paste between .NET and HTML5 Displays (as shown)
- Change themes between separate windows
- Makes code and display comparison easier and faster



Improve Your Development Capabilities



CREATE MULTI-MONITOR PROJECTS



Multi-Monitor Support

Create Projects To Support Multiple Monitors

- Perfect for enterprise NOC or other Operations Control Room Layouts
- Easily design different layouts for each screen
- Quickly specify which layout you want designated for each screen

Enhanced **Project Design** Made Faster



DEMO SCREENS

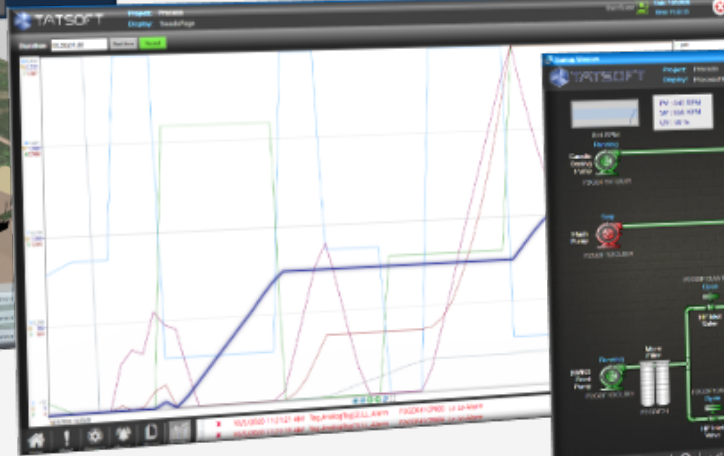
TATSOFT Project: OEE_v01
Display: BottingLine

93.75% 85.00%

Design Cycle Time: 418 Sec
Lead Cycle Time: 572 Sec

TATSOFT Project: AssetMonitoring
Display: Monitoring0

Tank B Tank A



TATSOFT Project: [Project Name]
Display: [Display Name]

32% Complete

TATSOFT Project: AndonProject
Display: A_ProcessDisplay

OEE: 60% Availability: 65% Performance: 100% Quality: 93%

Set Speed: 5 JPM Actual Speed: 5 JPM

TATSOFT Project: [Project Name]
Display: Availability

Availability: 93%

Availability - Operating time (424 min) / Planned Shift Operating Time (460 min)

Down Time Losses

- Breakdowns
 - Tooling Failures
 - Unplanned Maintenance
 - General Breakdowns
 - Equipment Failure
- Setup and Adjustments
 - Setup/Changeover
 - Material Shortages
 - Operator Shortages
 - Major Adjustments
 - Warm-Up Time

TATSOFT Project: AndonProject
Display: D_AndonDisplay

LINE	TARGET	ACTUAL	DELTA	RUN TIME (MIN)	TARGET RR	ACTUAL RR	RUNNING STATUS
HTL40	2400	56	2344	21	5		
SHIFT A							
Station #	OEE	Avail	Perf	Qty	OEE	Availability	
Station 10	71	76	100	94			
Station 20	78	85	100	92			
Station 30	68	71	100	96			
Station 40	77	85	100	91			
Station #	Station 10	Station 20	Station 30	Station 40			
Event	Count	Count	Count	Count			
Breakdown	2	3	0	2	1	1	0
Material Call	3	2	0	1	2	2	0
Quality Call	3	2	0	1	4	2	0
Total	5	5			3	3	

TATSOFT Project: AssetMonitoring
Display: AssetPlantOverview

PLANT OVERVIEW - INFORMATION AT A GLANCE

One PH
One Density: 1500 mg/m³
Moisture Content: 40 %
Production Rate: 140 kg/h
Water Recycling: High

Classification
Motor Speed: 1700 rpm
Motor Vibration: 9 mm/s²
Motor Temp: 35 °C
Power Cons: 101 kW/h
Power Factor: 0.95

Flotation
Dry Air Flow: 100 m³/h
Feed Rate: 270 kg/h
One Temp: 10 °C
Pulphead Size: 150 mm
Pulphead Weight: 100 kg
Water Recycling: High

Grinding
Air Flow: 140 m³/h
Bearing Temp: 45 °C
Motor Speed: 1100 rpm
Power Cons: 130 kW/h
Water Recycling: High



CASE STUDY: *Automation for Electric Utilities*

Spin uses FactoryStudio as their software platform for delivering a purpose-built set of solutions to their market

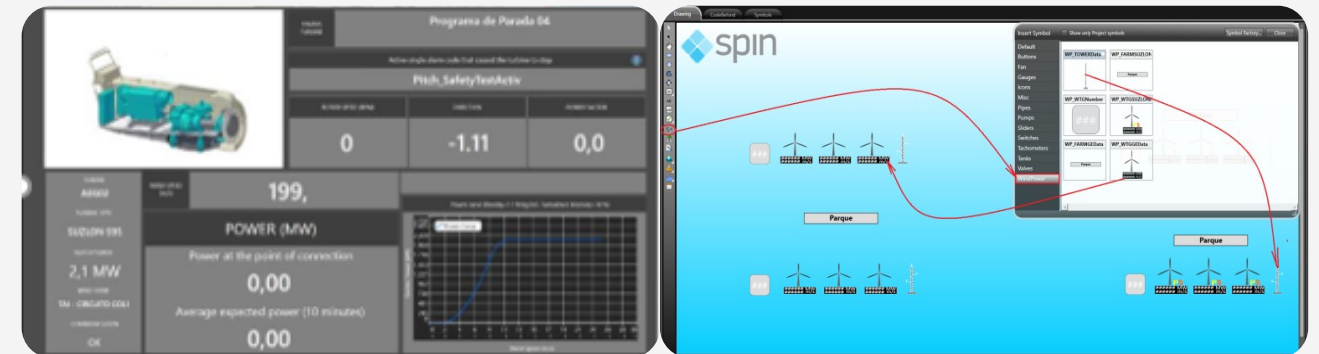
SPIN



Industry: Energy

Location: Worldwide

- ✓ Has deployed over 400 SCADA systems in Power Plants, Substations, Wind, and more
- ✓ Created "Lean Automation" using FS to automate and componentize rapid solutions
- ✓ Makes use of the 50+ FS drivers and worked together with Tatsoft to develop built-in com drivers for DNP 3.0, IEC60870-5
- ✓ Solution includes Asset Monitoring Components using FS HTML5 and Store-and-Forward capability
- ✓ Great example of companies embedding FactoryStudio into their own solutions as their own brand labeled product





CASE STUDY: RigDAP Analytics for Drilling Rigs

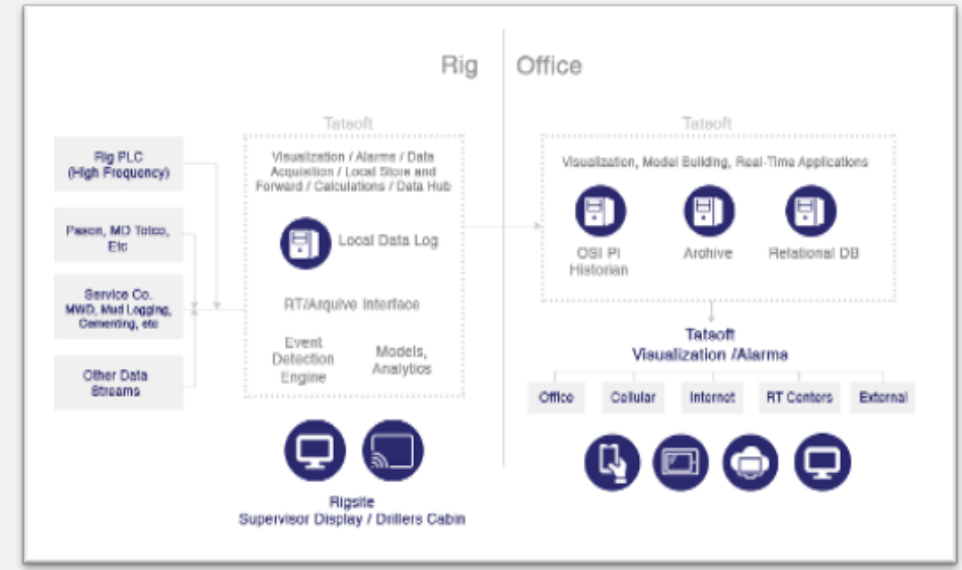
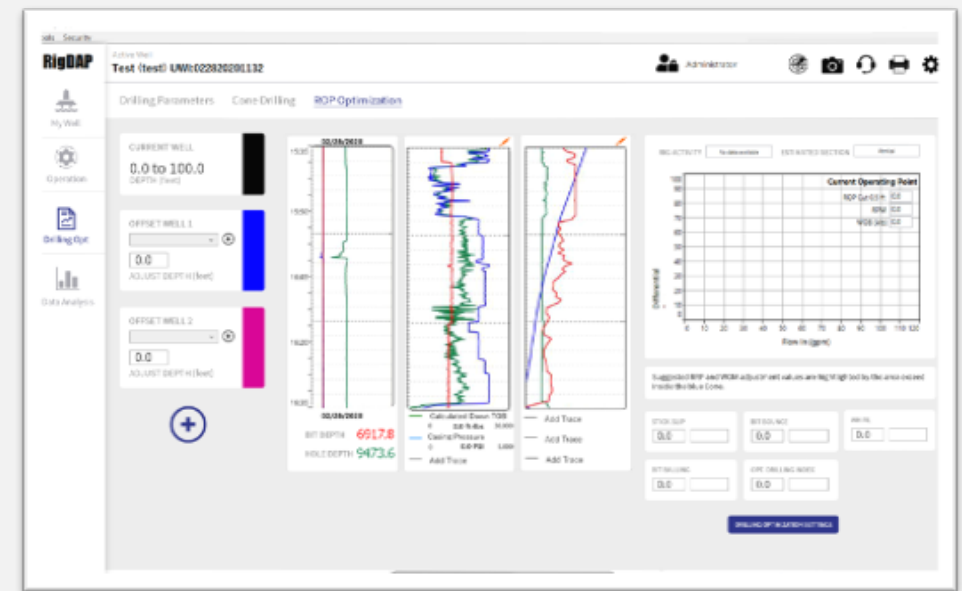
Intellicess RigDAP uses FS as their real-time data collection and visualization framework to host their drilling analytics.

INTELLICESS



Industry: Oil & Gas
Location: Worldwide

- ✓ The RigDAP solution has been deployed on over 100 wells, onshore and offshore
- ✓ Tatsoft worked with Intellicess to create reusable visuals specific to their analytics
- ✓ We developed built-in communication protocol drivers for WITS and WITSML
- ✓ FS provides a reliable and easy to deploy platform to do the data acquisition, data flow from Rigs to central office to archives, security model for users and data, time-stamp and data quality aligning, and API Intellicess **SentinelRT™** drilling analytics





CASE STUDY: *Process Control, Boilers, Cooling Towers*

TATSOFT
Advancing Elements for Industry™

ECOLAB NALCO

NALCO Water
An Ecolab Company

Industry: Water

Location: USA

- ✓ Networking Security model (following NSA recommendations)
- ✓ .NET Platform, independent from Windows versions or Java VM versions
- ✓ True Process Control Client (not web only, which can't fully protect the station)
- ✓ Replaced 16 Wonderware Intouch plants
- ✓ Latest project: Dulles Airport





CASE STUDY: *Transportation*

Easily connected with multiple distinct data sources, security and network tools, integration with their custom APIs.

BOMBARDIER

BOMBARDIER

Industry: Transportation

Location: USA

- ✓ In order to select the new SCADA platform, Bombardier engineering in CANADA tested software products for 18 months.
- ✓ **FactoryStudio** was the technical selection for standard platform for new projects





CASE STUDY: *Advanced Batch Visualization*

Two-line text saying what we did for the company

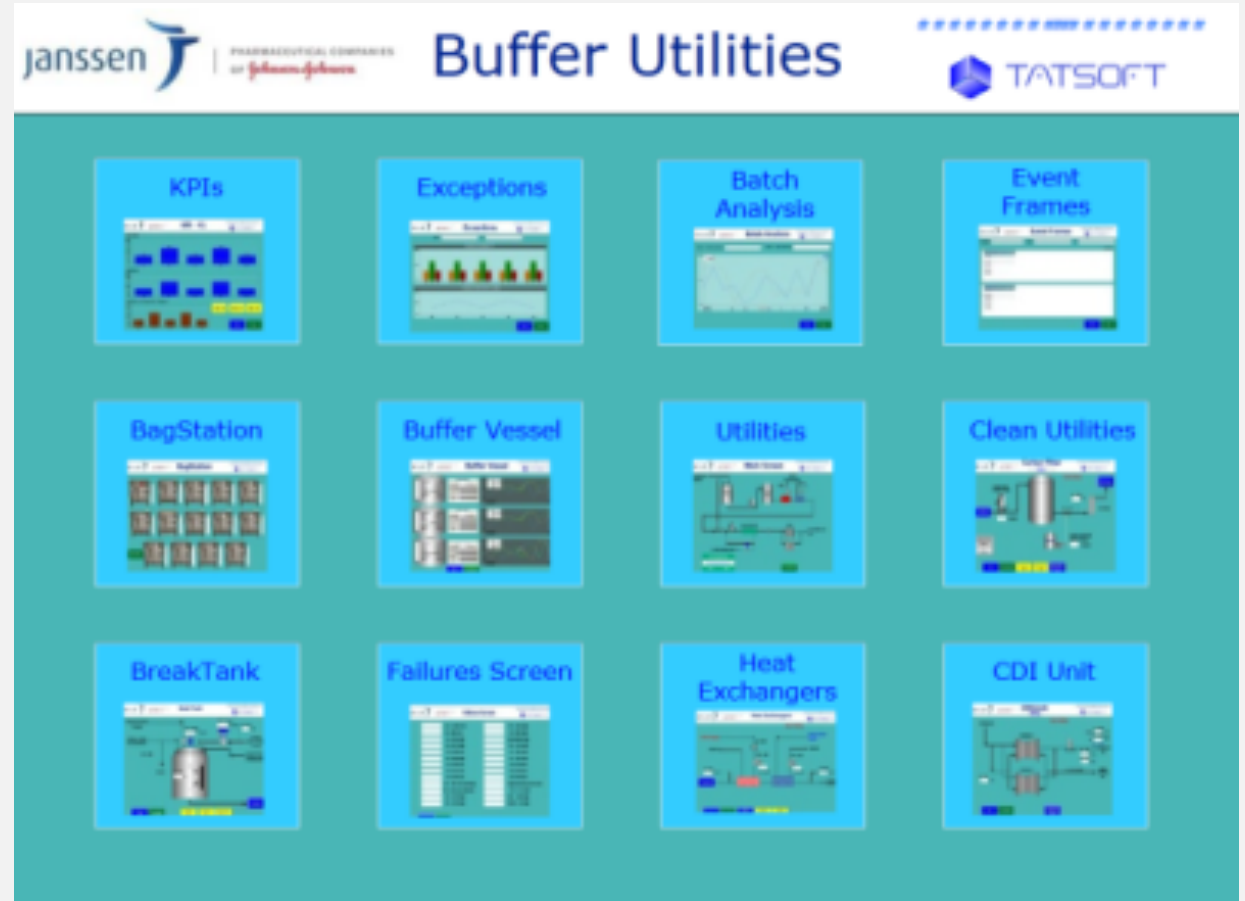
JANSSEN



Industry: Pharmaceutical

Location: Worldwide

- ✓ Native iPad clients
- ✓ Oracle, Microsoft SQL and OSIsoft PI data sources
- ✓ Business/Automation network security gateway





CASE STUDY: *Plant-Wide Upgrade*

Key points for this plant: multiple native protocols included, advanced graphics, area and role security model, distributed architecture, OS version independence, easy configuration, local and efficient technical support.

BUNGE



Industry: Food & Bev

Location: Worldwide

- ✓ In order to select the platform for the upgrade of Decatur plant, IN, four leading software tools from US market were reviewed.
- ✓ FactoryStudio was the technical winner and Tatsoft company was approved by the corporate vetting process.





CASE STUDY: *World Cup Arenas*

Tatsoft was applied by NEC in five of the new arenas for the 2014 World Cup

NEC



Industry: Technology

Location: Brazil

✓ Details.





CASE STUDY: *Power Generation*

Two-line text saying what we did for the company

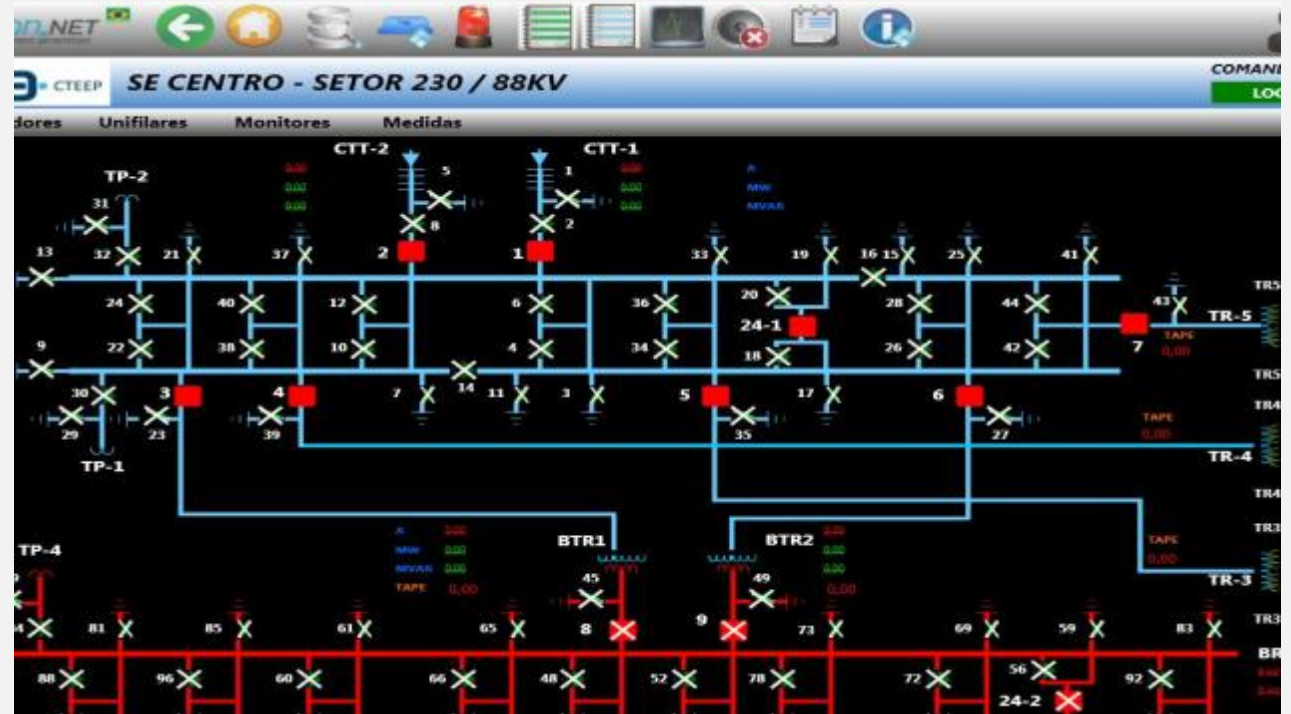
CTEEP

CTEEP

Industry: ?

Location: ?

- ✓ Employees hesitated against change. Used old screen as wallpaper and built on top
- ✓ Adaptability without rip/replace/onboarding





AFFORDABLE PLATFORM, LIMITLESS POSSIBILITIES

COMPLETE

- ✓ All Modules Included
- ✓ Fit to your Application
- ✓ Built in SQL
- ✓ Connectivity
- ✓ Alarms & Events
- ✓ Scalable Commercially & Technically



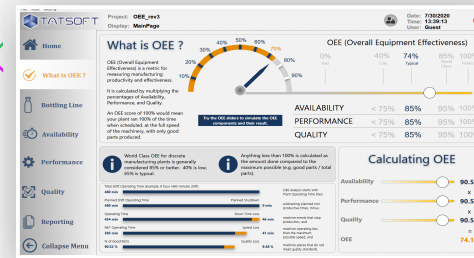
POWERFUL

- ✓ .NET to the Core
- ✓ Rich Graphics
- ✓ Web/Mobile/Thick
- ✓ Convert Data Into Business Value
- ✓ Plant & Enterprise Modeling



FLEXIBLE

- ✓ Multi-platform
- ✓ Highly Customizable
- ✓ Small to UNLIMITED
- ✓ IIoT, Analytics, AI, ML
- ✓ On Prem or Cloud
- ✓ Microsoft, Linux, iOS, Virtual



SECURE

- ✓ Intrinsically Safe
- ✓ Cyber-Secure
- ✓ Fully Redundant & Hot Standby
- ✓ Audit Trail
- ✓ FERC, NERC
- ✓ Transport Layer Security



We Are The **Framework** For Digital Transformation



- ✓ Meeting with Key Stakeholders



- ✓ Demo
- ✓ Working Session



- ✓ Product Discovery
- ✓ Architecture Review
- ✓ Solutions Development

Training, Support, and Custom Development Available

How We Define The **Next Steps** For Your Journey