

# SCADA/HMI Software

## Table of Contents

Overview .....	1
Applications .....	3
Graphic Design Tools .....	4
Alarms/Events .....	5
Trending .....	6
Recipes and Reports .....	7
Programming .....	8
Database (Tags) .....	9
Redundancy .....	10
Communication Drivers .....	11
Remote Viewers (Thin Clients) .....	12
Security .....	14
Maintenance & Troubleshooting .....	15
Available Products .....	16
Resources .....	18
Data Sheets .....	18
Demo - Evaluation Software .....	18
Videos .....	18

## Overview

SoftPLC Web Studio is a powerful supervisory data acquisition and control software that includes all the building blocks for even the largest systems, yet is priced to be practical for simple operator interface (HMI) applications.

The same development software can be used to create applications for any of our [HMIs](#) or to run on your own Windows-based systems, including mobile, Windows Embedded, or Windows Server systems.

- Flexible – View your process from your desk or using a standard browser
- Cost Effective – Develop once and deploy on any Microsoft supported platform including Windows Mobile, Embedded, and Server editions
- Multi-Vendor – More than 250 drivers for whatever PLC/PAC, network or instruments you use
- Fix Problems Fast – Receive alarms quickly - on-screen, via e-mail, mobile phones or web browsers
- Enterprise Integration – Easily tie into management/accounting systems using built-in relational database connectivity, collect/report information for Key Performance Indicators (KPI) and

## Overall Equipment Effectiveness (OEE)

- Reduce Downtime – Use open technologies (ActiveX, .NET) to visualize documentation, videos or audio messages

A simple drag-and-drop, point-and-click development environment lets you create applications to monitor and control industrial automation, instrumentation, and embedded systems via real-time dynamic and animated graphic screens, trends, alarms, reports, recipes, and more.

SoftPLC Web Studio runs on systems using the Windows, Windows IoT (Embedded), and Windows IoT Mobile operating systems. It incorporates many open industry standards (eg: TCP/IP, .NET, ActiveX, OPC, SMTP, SNMP, SOAP, ADO/ODBC, COM/DCOM, OLE, DDE, XML, HTML, MQTT).

Web Studio is scalable - you can develop an application once, and then deploy it to run anywhere including user-provided PC's, SoftPLC [HMI's](#), embedded computers, or mobile devices such as tablets and smart phones.

SoftPLC Web Studio fully integrates Web technologies to take advantage of Internet/Intranet environments for distributed and mobile applications, including browser-based clients. You can send email messages containing real-time process information/alarms, share application information with other software using integrated databases, etc.

SoftPLC Web Studio is a complete solution. All functions and communication drivers are included in every license, there are no modular add-ons. Licenses are based on tag levels, providing affordable options for applications ranging from small to enterprise-wide solutions. Full-featured runtime versions are available for standard and embedded Windows operating system deployments, as well as a robust embedded Linux runtime.

### Key Features

- Powerful, yet easy and intuitive, graphic development environment
- Alarms, Trends, Events, Recipes and Report functions
- Run applications from anywhere using 3 different types of remote view clients
- Programming and advanced functions via powerful scripting languages
- Flexible tags database with support for redundancy and interfaces to SQL relational databases
- Distributed, multi-level application security
- Comprehensive diagnostic and troubleshooting aids
- Download tools for fast development/test cycles and project updates
- Over 250 built-in direct communication drivers, plus OPC server and client support
- Add/customize functions using ActiveX, .NET and programming toolkits
- Internationalization via Unicode fonts and one-click online language translation at runtime

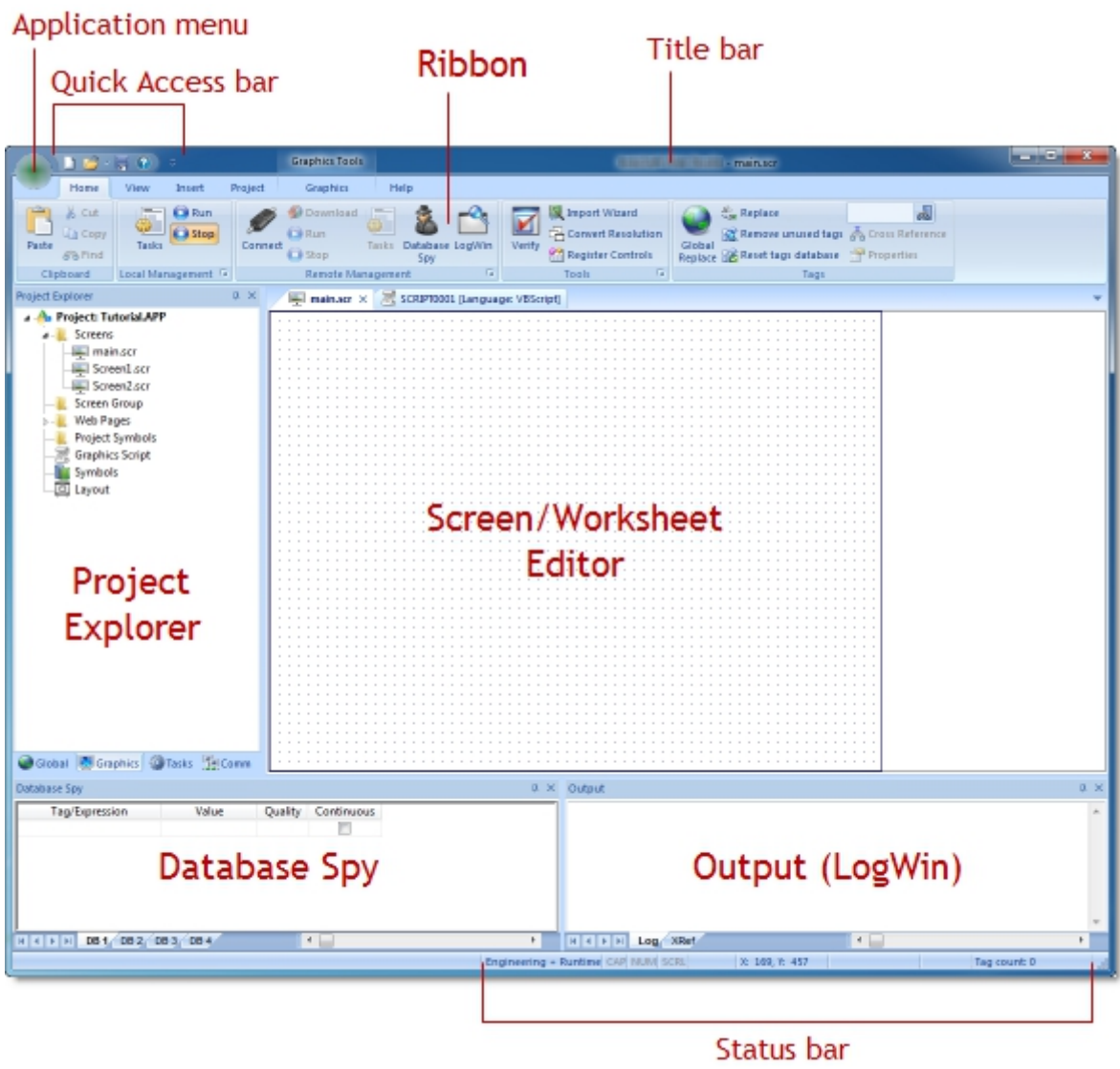
# Applications

SoftPLC Web Studio is a powerful, integrated, web-aware collection of tools that can be used to develop a wide range of applications for:

- SCADA (*Supervisory Control and Data Acquisition*)
- HMI (*Human Machine Interfaces/Operator Interfaces*)
- Mobile HMI
- OEE (*Overall Equipment Effectiveness/Dashboard*)
- MES (*Manufacturing Execution Systems*)
- Embedded Instrumentation Solutions

# Graphic Design Tools

- Create sophisticated interfaces with point-and-click, drag-and-drop ease
- Object-oriented environment for simple application development and screen and object re-usability
- Full-featured screen objects and dynamics with customizable properties, such as bar graphs, color, resizing, blinking, animation, scale, fill, positioning, rotation, commands, hyper-links, combo-boxes, and text input/output
- Intuitive user interface features logical tool/object grouping, ability to open multiple documents simultaneously, and other features to minimize development time
- Extensive symbol library
- Import graphics from more than 15 different formats



# Alarms/Events

## Alarms

- Sophisticated, comprehensive Alarms Management System
- Send alarms to screen, e-mail, Web browser or smart phones in multiple file formats including PDF
- Archive alarms to a file, printer, or to a database
- Store user entered notes after acknowledgement of alarm(s)
- Free format alarm messages, secondary search keys, and access through groups or tags
- Filter, sort, or color-sort alarms for easier visual interpretation
- Filter alarms by categories at runtime
- Log alarm data in binary format or to any database locally and/or remotely
- Play .wav files for alarm annunciation or any desired event



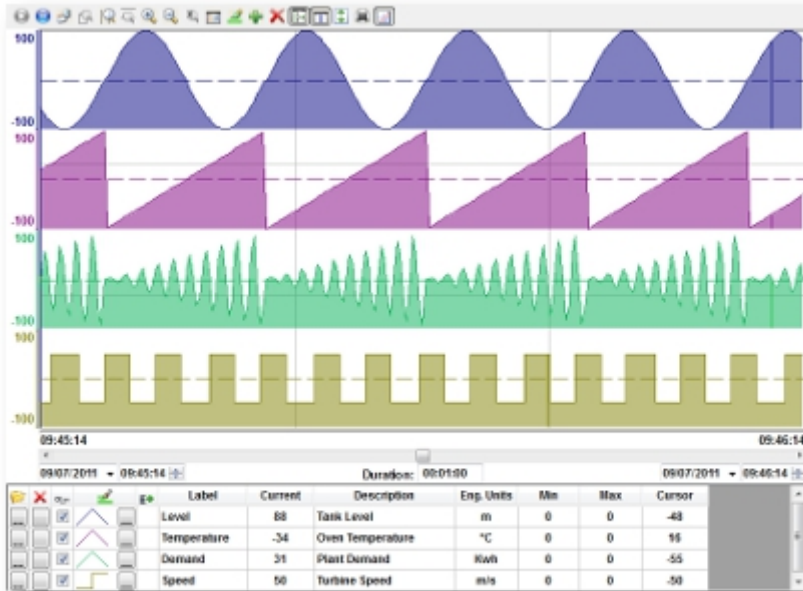
## Events

Keep track of events that occur with this easy-to-use feature!

- Provide traceability for operator initiated actions or internal system activities
- User defined events can be tag value/state changes, generation of a report/recipe, open/close a screen, security system log-on/log-off, and more
- All events are saved to a log file, and are accessible to the application through the Alarm/Event control object

# Trending

- Track process behavior real-time or through historical trending
- Distribute information across a network for monitoring on application screens or Web browsers
- Log data in compact binary format, or to any database locally and/or remotely
- Color or fill trends with graphic elements to enhance data clarity



# Recipes and Reports

- Create and dynamically maintain flexible, user-defined recipe groups
- Import/export recipes, reports, and real-time data in text, RTF, XML, PDF, HTML, or CSV and/or integrate seamlessly with Windows desktop applications (*eg: Microsoft Word and Excel*)
- Dynamically save screen shots to 5 different image formats for use in reports, documentation, email attachments, or historical status

# Programming

## Scripting

Although Web Studio's built-in features are flexible and powerful, many times users want to implement customized functions, perform advanced data manipulations, etc. Through scripting, the possibilities are virtually endless!

- Advanced programming via two scripting languages - Web Studio built-in scripting functions or VBScript
- Advanced math library has more than 100 standard functions
- Schedule custom tag changes on date/time, frequency or any trigger

## ActiveX and .NET

Web Studio supports the use of ActiveX and .NET controls. By using open, reusable technologies, the functionality of Web Studio can be expanded beyond the built-in functionality. Add controls such as graphing, meters, gauges, reporting, browsers and even media players.

*NET Components are designed according to the Microsoft .NET Framework, which is a standard for modular programming technologies. Because Web Studio is an .NET container, you can configure and run .NET Components in application screens. The actual functions of a .NET Component are contained within a .NET Control object, which provides the configuration dialogs in Web Studio.*



# Database (Tags)

SoftPLC Web Studio has a powerful and flexible tag database with Boolean, Real, String, and Array tags, classes, indirect pointers, and includes system tags for specialty functions (*eg: time/date, other internal values*). The database interface is supported in the following Web Studio tasks:

- **Alarms:** The application can save and/or retrieve the alarm history messages in a relational database.
- **Events:** The application can save and/or retrieve the event messages in a relational database.
- **Trends:** The application can save and/or retrieve the Trend history values in a relational database.
- **Viewer:** Database information can be displayed both in table format (Alarm/Event Control and Grid objects) or in a graphical format (Trend Control object).
- **Web:** You can deploy an application that stores/saves data in a relational database and have it operate over the Web.

Using its embedded database interface, Web Studio can easily provide data from the plant floor to third-party systems (e.g. ERP, MES) or get data from them. Web Studio can interface with any relational database supported by a valid ADO.NET Provider, OLE DB provider or ODBC driver. Web Studio easily communicates with SQL databases, including SQL Server.

# Redundancy

For critical processes, SoftPLC Web Studio provides support to ensure applications run in the event of hardware failures, such as disk drive or communications loss.

- Redundant web servers support screen graphics published to multiple systems
- Redundant data servers support multiple database instances

Redundant database connections are provided in 2 modes - Redundant and Store-and-Forward.

- **Redundant** - Data always saved to primary and secondary, with automatic synchronization if one becomes unavailable temporarily
- **Store-and-Forward** - Data saved to primary only, secondary used only until primary becomes available again, with automatic move of data when primary becomes available

# Communication Drivers

Web Studio includes over 250 communication drivers to PLC's, industrial networks, and I/O. All drivers are included with every installation of SoftPLC Web Studio. Drivers supporting major PLC manufacturers such as SoftPLC, Allen-Bradley, Siemens, Schneider, Mitsubishi, Omron, GE-Fanuc, as well as standard protocols such as Ethernet/IP, ModbusTCP, Modbus RTU/ASCII, DeviceNet, and Profibus are all included.

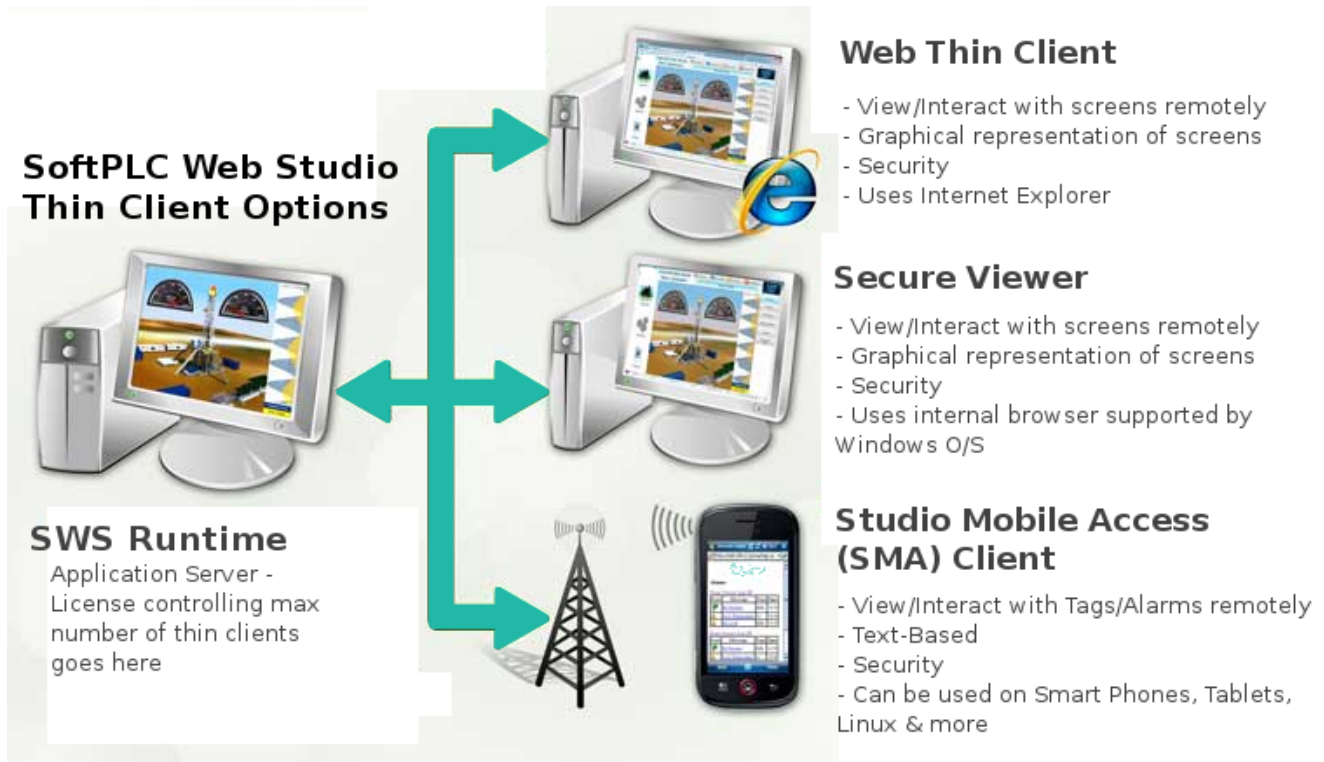
While OPC communication is supported, it is **not** necessary for communications between Web Studio and most PLCs/controllers. Web Studio is both an OPC DA Server, and/or an OPC and OPC UA Client. For more information about OPC technologies, please see the [OPC Foundation](#) web site.

New drivers can be added through the use of a toolkit, or ask us to quote on development of a new driver for your needs.

[Current Driver/Protocol List](#)

# Remote Viewers (Thin Clients)

When multiple users need to run the same Web Studio application, remote viewers make it easy and cost-effective! Not only can you save development time, you reduce cost in license fees and maintenance, and possibly hardware costs.



- Browser-based access to Web Studio applications over Intranets/Internet
- Create stand-alone and Web applications from the same development environment
- Allows data exchange between wireless and mobile devices and includes ActiveX support
- Up to 128 simultaneous clients of each type are supported per runtime

Web Studio provides 3 types of remote application viewers (thin clients) - Web Thin Clients, Secure Viewer Clients and Studio Mobile Access (SMA) Clients. Runtime licenses include support for one Thin Client. Up to 1000 Thin Client licenses can be added to runtimes, however the number of clients may be limited by network bandwidth, and the runtime computer's processing power and memory.

- Web Thin Client - Microsoft Internet Explorer ActiveX plug-in that enables full access to any authorized IP address or application. Typically used for remote users who need to access information from the application, trigger commands, and/or modify set-points from systems running Windows, such as PC's or tablets. *The Web Thin Client may be used with Microsoft Edge, by configuring Microsoft Edge for Internet Explorer (IE) mode. However, if your IT policies block the use of Internet Explorer, this method may not work in your environment.*
- Secure Viewer Client - Secure access over wired/wireless connections via a dedicated viewer where navigation is restricted to specific applications. The Secure Viewer uses ActiveX technology and includes SSL encryption support. Typically used in applications where there are multiple stations for operators (eg: control room, distributed systems or large machines), or

when multiple monitors are displaying different screens from the same project.

- SMA Client - Studio Mobile Access Viewer that works with any browser that supports HTML5, including Windows, Android, iOS, and Linux platforms. Typically used by a remote user who needs to access information from the application, trigger commands, and/or modify set-points from systems running any operating system with a browser that supports HTML5. Functions supported are more limited than those supported in the other clients.

# Security

- Provides up to 256 levels of security for applications
- Support for group and user accounts, e-signatures and traceability
- Independently secure capabilities in development and runtime environments, including in thin clients
- Define security on each individual runtime or networked to a central security system
- Full integration with Microsoft Active Directory via LDAP to take advantage of built-in security
- Intellectual property protection on user developed functions via passwords on documents, scripts & more
- Features to configure applications in conformance with the FDA 21 CFR Part 11 regulation

# Maintenance & Troubleshooting

During development, deployment or after installation, SoftPLC Web Studio provides tools to make it easy to monitor and troubleshoot your applications.

## Diagnosics

- Online configuration, debugging, and remote application management capabilities
- Database Spy features include monitor/force application tag values, execute/test scripts, math expressions and other functions
- Output (Log) Window displays debugging messages generated by SoftPLC Web Studio during runtime including communication commands/messages, task messages from trends/reports/recipes/security/etc., database interface messages
- Output (Log) Window displays message timestamps and cross reference information
- Trace() function can be used to generate customized messages from within the application
- Extensive development support tools such as message register, error codes, event codes, Database Spy, and LogWin

## Download Tools

- Built-in tools for managing applications in remote stations using TCP/IP connections, serial port, or Microsoft ActiveSync/Windows Mobile Device Center
- Upload/download files/project, run/stop remote application
- Manage SoftPLC Web Studio licenses on embedded systems

# Available Products

SoftPLC Web Studio products are licensed software by number of tags and operating system. Typically applications require 30-40% more tags than physical field I/O devices.

Any development license can be used to generate applications for any runtime target (Linux, Embedded, Windows). Development systems run on Windows and are provided by default with a USB hard key (dongle), but you can select a softkey as an option.

Runtime licenses are available for different operating systems. Runtime licenses are provided with a soft key as standard, but you can purchase a hard key if desired. All runtime licenses include support for 1 Thin Client. Windows 10 IoT embedded and Linux runtimes are available only for verified hardware and O/S images. [Contact SoftPLC](#) if you want to deploy a runtime license on a user provided system with an embedded O/S.

SoftPLC [HMIs](#) (models SSHx) provide rugged, panel-mount PC-based operator interfaces with a high resolution touchscreen display, with the SoftPLC Web Studio runtime pre-installed, with Windows or embedded O/S options. Also offered are "headless" units for applications not requiring a screen, or when the monitor will be remotely mounted from the runtime PC.

## SoftPLC Web Studio License Options

Description	O/S	No. of Tags
Development/Runtime Software	Windows	1,500
		4K (4,000)
		16K (16,000)
		32K (32,000)
		64K (64,000)
		512K (512,000)
		10M (10,000,000)
Development Only Software	Windows	1,500
		4,000
		16,000
		32,000
		64,000
		512,000
		10M (10,000,000)



Runtime Software	Windows	150	
		300	
		1,500	
		4000	
		16,000	
		32,000	
		64,000	
		512,000	
		10M (10,000,000)	
	Windows Embedded	150	
		300	
		1,500	
		4,000	
	Linux	150	
		300	
		1,500	
		4,000	
	<b>* Add-Ons*</b>	<b>Catalog Number</b>	<b>Description</b>
	Thin Client Licenses	SSR-TCx	Add'l Thin Client License, Windows Runtimes
SSR-TCEx		Add'l Thin Client License, Embedded Runtimes	
HMI Import Wizard	SSD-HIW	PanelView, FactoryTalk, PanelMate Converter	

# Resources

## Data Sheets

### [SoftPLC Web Studio Data Sheet](#)

SoftPLC Web Studio product features/functions.

### [SoftPLC Web Studio HMI Data Sheet](#)

### [Current Driver/Protocol List](#)

List of communication drivers and supported hardware in Web Studio.

## Demo - Evaluation Software

### [SoftPLC Web Studio Software/Demo](#)

This evaluation version is a full working product installation that allows up to 40 hours development, and 1 hour runtime each session. A demo application is also included to show some of the product features. Product documentation and a tutorial is built into the help system, and supplemental documents such as application notes and communication driver manuals are installed as part of the image.

## Videos

### [TagWell Platform Detailed Overview](#)

Includes features, communication optimizations, application examples, Web Studio TagWell Driver and more. This video is an excerpt from a longer webinar. Introductory material, including definitions of cloud computing terms and considerations can be found in the "M2M, IoT Technologies" video.