

Efficient Management of Remote Assets

Open, flexible, and scalable software for telemetry and remote SCADA solutions

StruxureWare SCADA Expert ClearSCADA



Make the most of your energySM

Schneider
Electric



“The use of intelligent digital technology to optimize the performance of energy management systems offers the single biggest opportunity today to improve energy efficiency and reduce operating costs, while also making a significant cut in overall carbon emissions.”

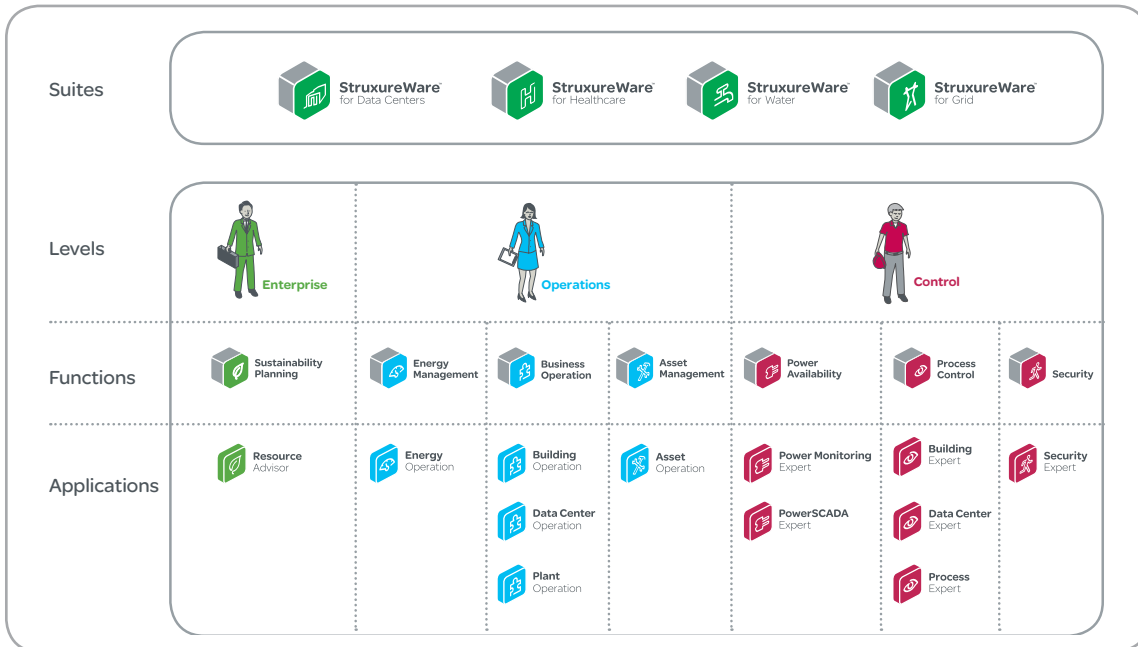
Frost & Sullivan, 2011, “The Key to Cost-Effective and Sustainable Buildings: Intelligent Energy”

Maximize your business performance.

While the importance of sustainability is clear to most CEOs, not many know how to act on it. Many cite complexity of implementation across functions as the most significant barrier to adopting an integrated, company-wide approach for sustainability. We believe that software is the key. StruxureWare™ software applications and suites from Schneider Electric give you the ability to see, measure, and manage an Efficient Enterprise™ across buildings, industrial plants, and data centers, resulting in significant savings on capital and operational expenses — without sacrificing business continuity and performance. StruxureWare software enables you to manage efficiency from shop floor to top floor, across three levels of your business: Enterprise, Operations, and Control. Addressing the primary challenge of each, it delivers the right information to the right person, anywhere, anytime.



See, measure, and manage an Efficient Enterprise across all company levels.



- **Enterprise:** Drive your sustainability strategy efficiently, choosing an optimized scenario that meets your business objective to conserve enterprise-wide resources.
- **Operations:** Optimize operations, energy, and assets through smart analytical tools, often spanning multiple sites.
- **Control:** Monitor and manage process performance and enable business continuity in real time, on site or off site, while tracking energy consumption in a highly ergonomic and secured environment.

StruxureWare SCADA Expert ClearSCADA

StruxureWare SCADA Expert ClearSCADA is a complete real-time monitoring and control software solution for small to large plant and remote telemetry operations. It provides real-time data intelligence through alarming and graphical interface functions.

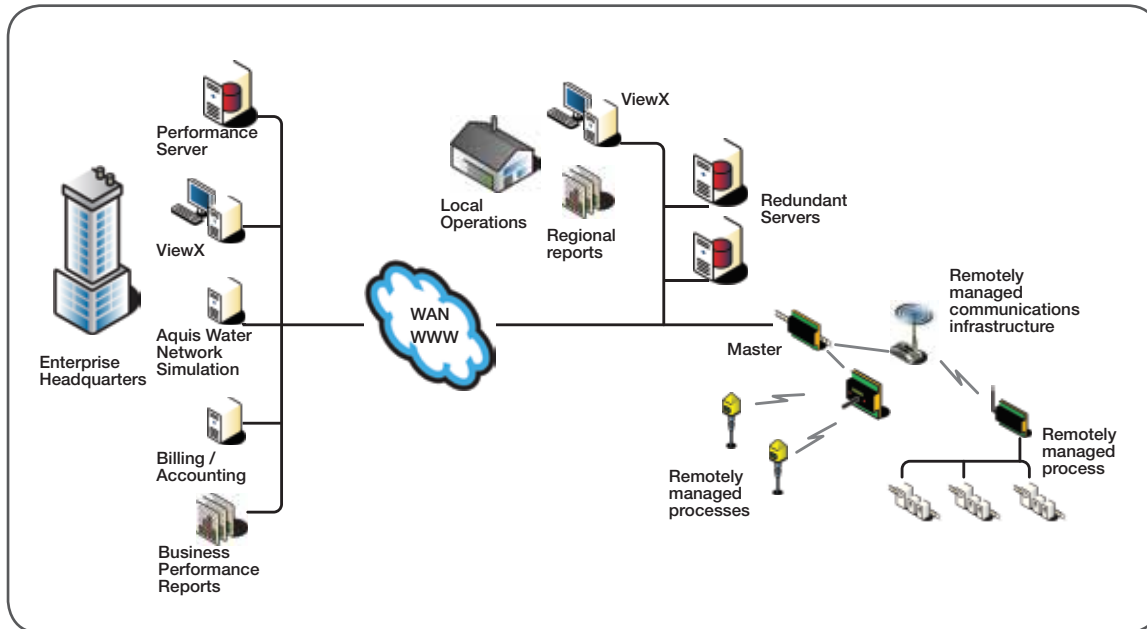


Conserve your enterprise resources.

Dedicated to measuring, controlling, monitoring, and collecting data across geographically dispersed field operations, SCADA systems are undergoing major changes that put increasing pressure on the cost and risk of operating and maintaining these remote assets. Whether it is in critical infrastructure such as oil and gas, water and wastewater, or renewable energy, telemetry and remote SCADA software platforms are challenged to better transform remote field data into business-relevant information that helps improve and optimize operations while minimizing cost and risk along the asset life cycle.



Integration with Aquis, a hydraulic modeling tool, enables smarter decisions to optimize production in the water network.



Balance costs throughout the project life cycle.

SCADA industries have embraced cost-saving programs such as production optimization, standardization of system components, and maximizing system availability during expansion or maintenance periods.

A SCADA system should be flexible enough to accommodate future plans in an efficient and effective manner, with minimal impact on the operational system and the bottom line.

Mitigate risks to security, system wide.

SCADA security concerns the management of system access by authorized and unauthorized personnel, ensuring that process data and control commands are not tampered with. Security affects field technicians, engineers, IT administrators, and corporate employees. The SCADA host should provide a variety of state-of-the-art security features along with easy-to-use facilities for making use of them.

Manage data in challenging environments.

To effectively gather process data from disparate sources such as remote field sensors, instrumentation, and RTUs, a SCADA host must accommodate various communication media and be prepared to provide alternatives if interruptions in communications occur. On the serving side, this gathered data should be readily available to third-party data-handling platforms through support of open data handling standards.

Production Overview

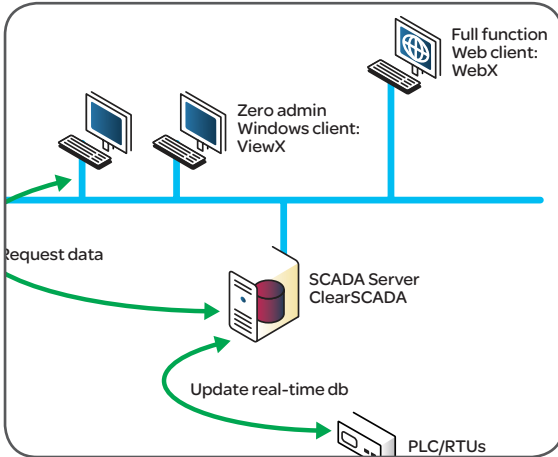
WellName	DailyVolume	Differential	Pressure	Yest
Meter 1	57,614.7 ft3	113.94 psi	2572.54 psi	
Meter 2	57,722.4 ft3	123.99 psi	1708.00 psi	
Meter 3	57,608.8 ft3	135.13 psi	2423.13 psi	
Meter 4	57,613.8 ft3	102.29 psi	2345.11 psi	
Meter 5	57,611.1 ft3	97.66 psi	1987.64 psi	
Meter 6	57,680.1 ft3	142.48 psi	1848.36 psi	
Meter 7	57,580.5 ft3	97.21 psi		
Meter 8	57,752.8 ft3	80.33 psi		
Meter 9	57,693.8 ft3	116.31 psi	2218.74 psi	
Meter 10	57,595.6 ft3	99.41 psi	1672.04 psi	
Meter 11	57,632.4 ft3	147.37 psi	1807.12 psi	
Meter 12	57,654.2 ft3	125.96 psi	2332.6 psi	
Meter 13	57,719.1 ft3	140.84 psi	1805.8 psi	
Meter 14	57,857.0 ft3	59.69 psi	252.8 psi	
Meter 15	57,539.7 ft3	58.82 psi	2569.8 psi	
Meter 16	57,583.4 ft3	106.22 psi	2348.8 psi	
Meter 17	57,642.1 ft3	112.93 psi	1900.8 psi	
Meter 18	57,717.0 ft3	123.17 psi	2499.8 psi	
Meter 19	57,722.9 ft3	116.17 psi	2296.8 psi	
Meter 20	57,871.6 ft3	73.41 psi		

Reduce total cost of ownership.

Total cost of ownership is a critical metric in measuring the value of a SCADA system, being a function of up-front and ongoing costs associated with product configuration, operation, and maintenance. Selecting tools that lower these costs is crucial. SCADA Expert ClearSCADA helps to reduce costs across the entire SCADA system with a dedicated feature set.



ClearSCADA provides a cost-effective solution for system designers looking to optimize SCADA functionality, while minimizing development, installation, and operational costs.



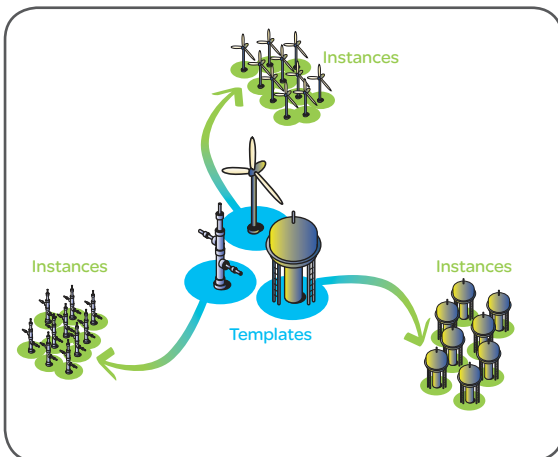
Optimized SCADA functionality

Integrated SCADA software

As a comprehensive software package, SCADA Expert ClearSCADA quickly installs from a single CD and comes standard with many key, integrated SCADA tools, including embedded Web server, data historian, report generation, and alarm redirection to text message and email.

Additional features include:

- Built-in scripting engine to expand operational logic beyond basic functionality
- Open standard DNP3 and IEC60870, event driven protocols that optimize precious bandwidth resources
- The capability to simultaneously accommodate disparate communication media such as DSL, dial-up, GPRS, and Ethernet



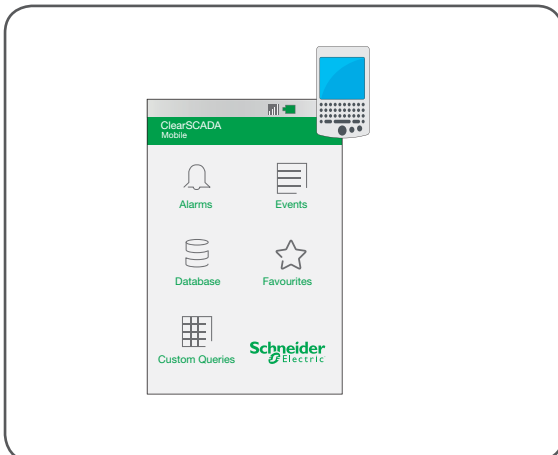
Easy-to-replicate templates that save time and money

Rapid deployment

SCADA Expert ClearSCADA helps you to expand or bring SCADA systems online with less effort, time, and disruption to service. Multi-user configuration and Web-based clients provide ease of use and coordinated system access during the deployment phase.

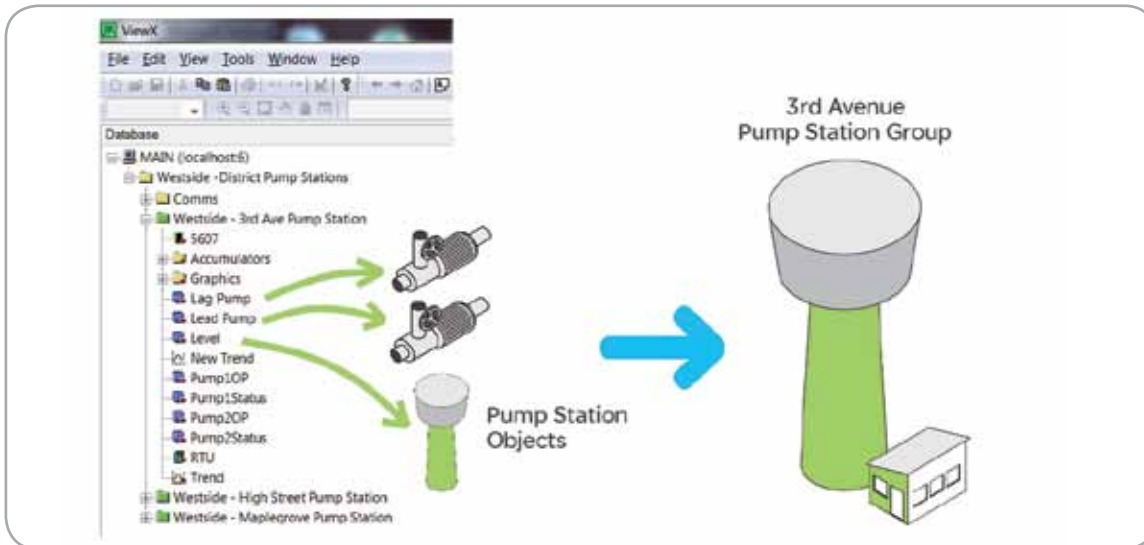
ClearSCADA Mobile

ClearSCADA Mobile provides real-time remote access to critical SCADA data, allowing system users to monitor performance while “on the move.” This allows greater flexibility, decreased downtime, increased productivity, and a lower total cost of ownership. The increased visibility into real-time processes helps to make more effective decisions which can then enhance overall system performance.



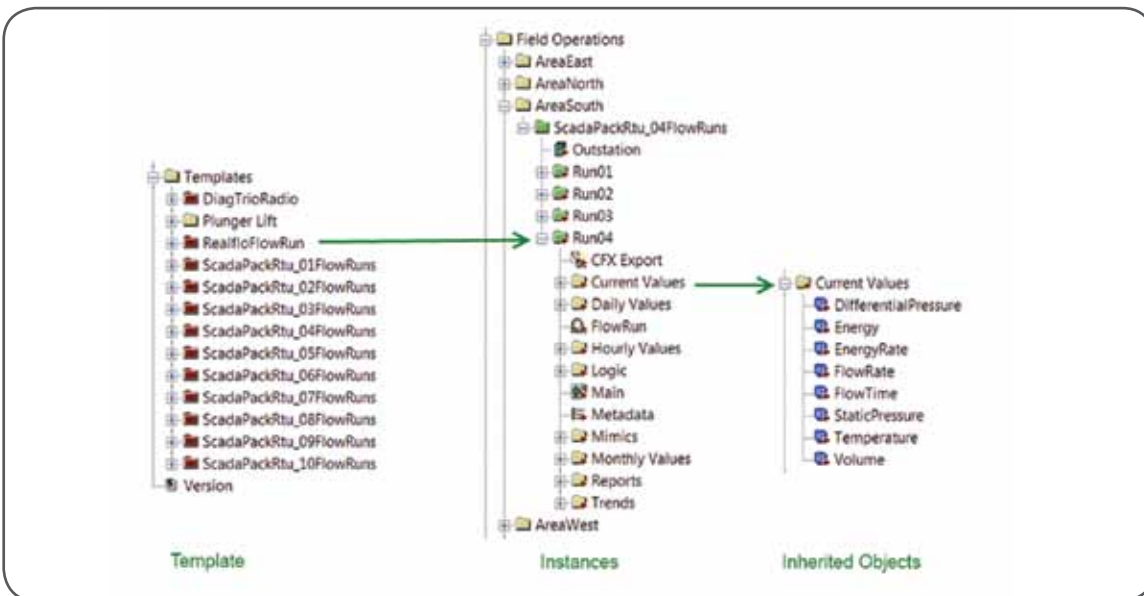
ClearSCADA Mobile

Deploy and manage object-based architectures.



Real world point groups

SCADA Expert ClearSCADA uses object-oriented architecture that enables objects to consist of graphics, tags, trends, and many other types of information. This allows for the creation and reuse of a complete representation of assets and information, and a reduction in engineering efforts.



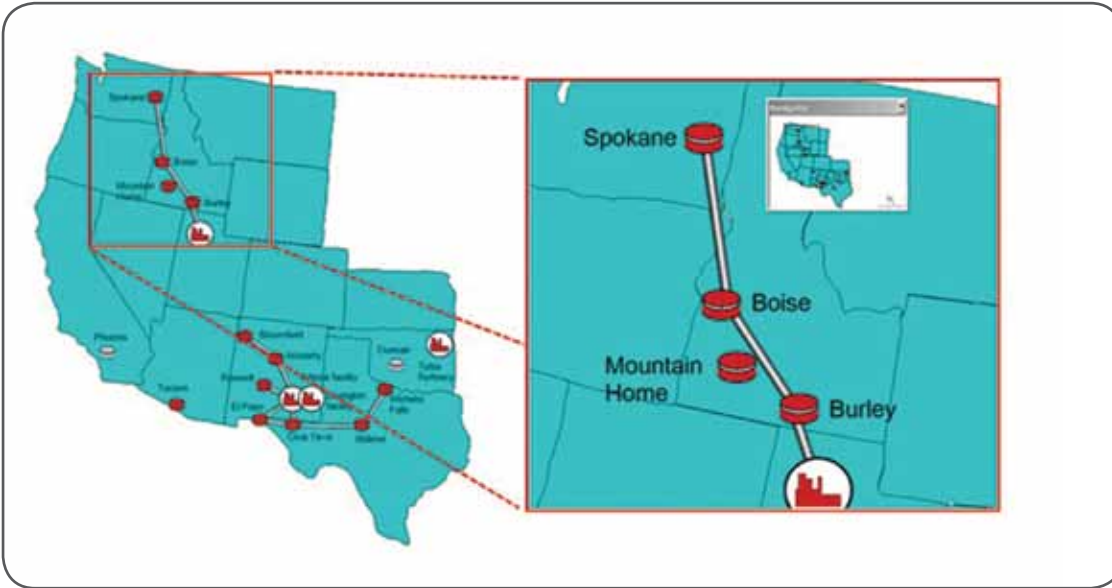
Templates with complex control components

The object-based architecture allows reusable object templates to be developed. At a low level, these objects can represent single devices, such as pumps and switches, and contain all associated tags, alarms, and events, as well as security and communication parameters. At a high level, they can represent entire sub-systems, such as pump stations, and are typically comprised of groups of devices. Modifications made to the source template are automatically distributed throughout the multiple instances of the template within the system. A very powerful result of the object-based architecture is that any changes to the SCADA Expert ClearSCADA database can be made online, thereby minimizing operational stoppages.

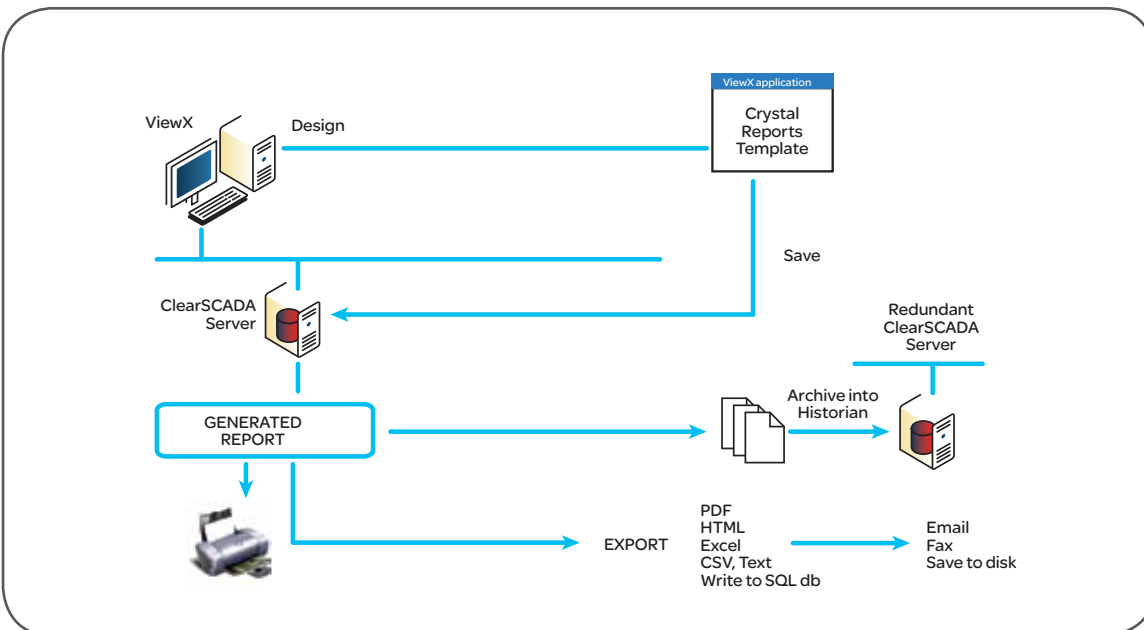
SCADA Expert ClearSCADA mimics support dynamic pan/zoom operation and Scalable Vector Graphics (SVG) objects that retain resolution as zoom level is increased.

75 to 90%

Engineering effort saved with configuration templates and instances



No resolution loss with SVG objects



Integrated run-time engine for Crystal Reports

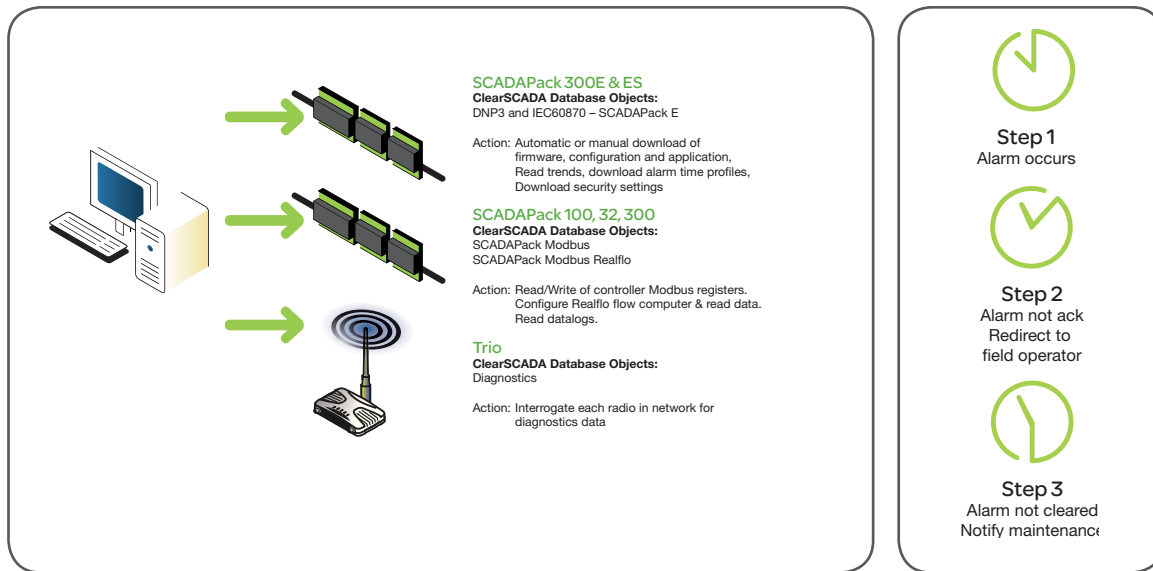
SAP Crystal Reports run-time engine and scheduler allow for the creation and distribution of reports with pre-configured templates. Open industry standard interfaces such as OPC, ODBC, and .NET enable integration with business systems.

Enhance operation and maintenance.

Tight integration with SCADAPack smart RTUs and Trio data radios reduces site visits via centralized configuration and network diagnostic features. Fully integrated Realflo EFM objects provide configuration and data collection directly from flow computer without Realflo GUI. Critical alarms may be configured to be redirected to off-site personnel who can respond and acknowledge alarms using text messages and email, allowing for prompt notification and response. SCADA Expert ClearSCADA OFS (OPC Factory Server) enables communications with all new and legacy Schneider Electric hardware to provide seamless, real-time access to Modicon™ PLCs and other modbus devices.



High-resolution data helps you make better decisions faster.

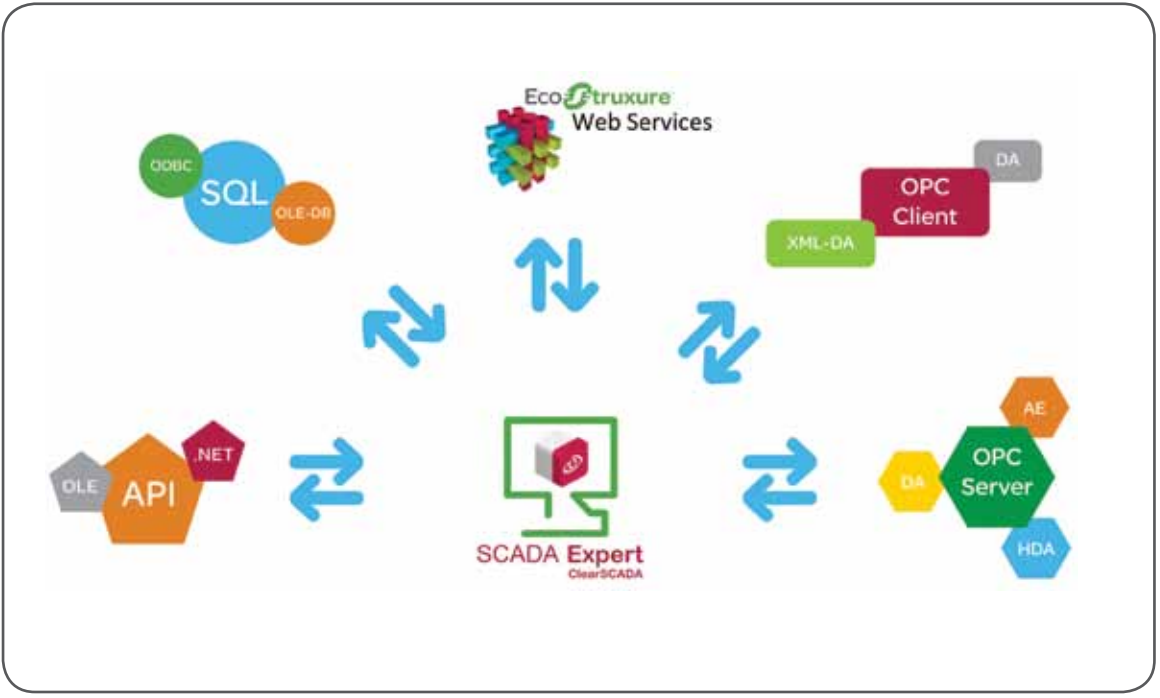


Field devices configurable from central location

Alarm redirection process

Easily integrate into business and IT systems.

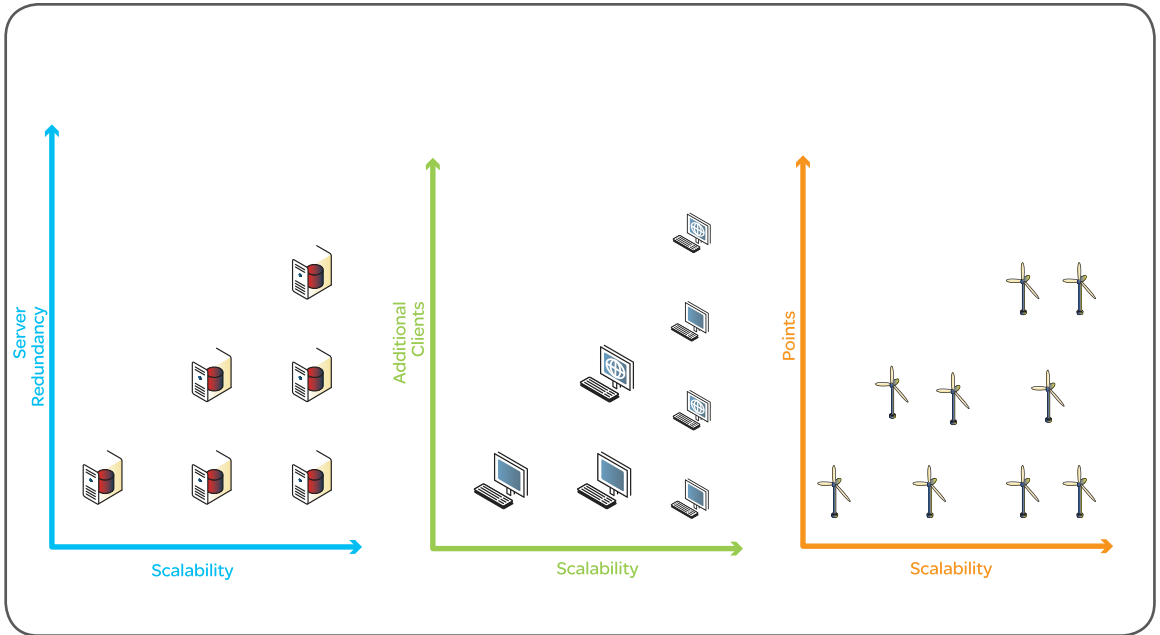
The SCADA Expert ClearSCADA system foundation is built using open standards, naturally providing industry-leading integration with external business and IT systems. Critical infrastructure management business systems, including GIS and ERP, can share data with SCADA Expert ClearSCADA using open SQL ODBC and OLE-DB standards. Interchanging data with a wide range of controllers and PLCs, and other process systems, can be done seamlessly using extensive OPC interfaces. SCADA Expert ClearSCADA client and server API facilities provide ultimate flexibility using the latest in OLE and .NET software technologies. All SCADA Expert ClearSCADA facilities can securely interoperate with business and IT systems to turn asset and infrastructure SCADA data into valuable business information. Additionally, SCADA Expert ClearSCADA is EcoStructure™ Web Services-ready, which has the goal of seamlessly integrating products and systems from the Schneider Electric business segments. This enables quick and easy exchange of information such as real-time data, historical data, and alarms.



Can connect to standard automation interfaces

Help protect your investment as SCADA system expands.

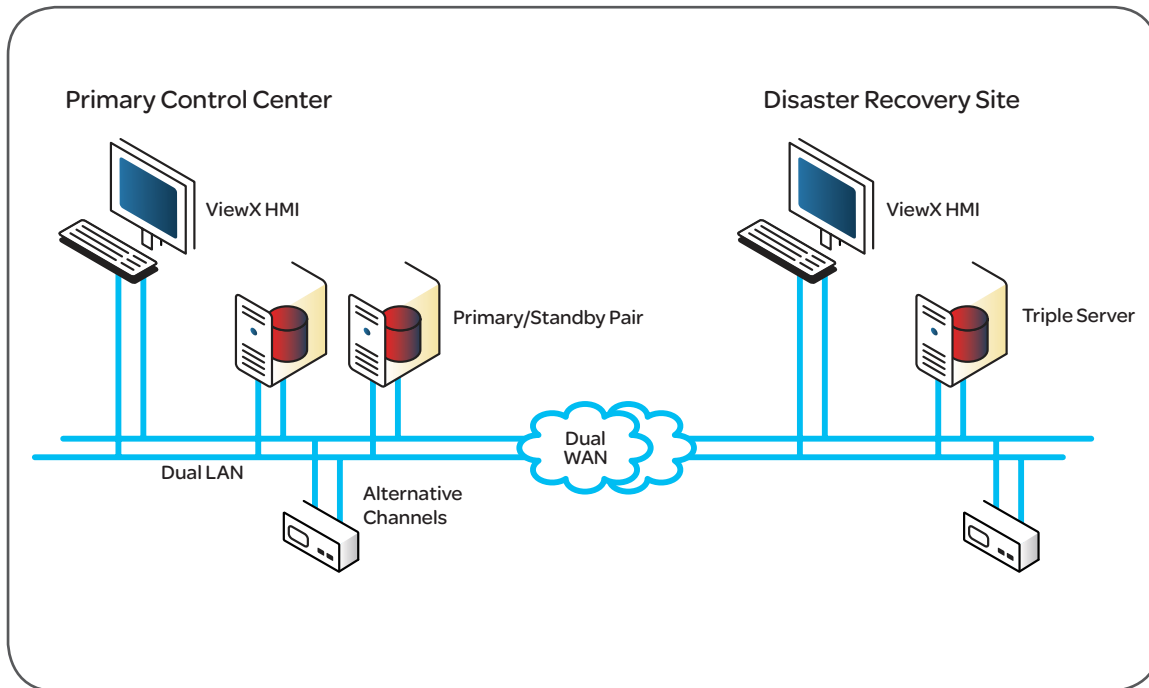
Providing scalability means that future expansion plans should effectively be accommodated with minimum disruption to ongoing operations. SCADA Expert ClearSCADA addresses many different aspects of SCADA system scalability with standard features that include native support for 32-bit or 64-bit Windows® desktop and server operating systems, from 250 to enterprise-wide point licenses up to triple server redundancy, additional ViewX or Web-based WebX clients and performance servers for DMZ installation.



Can accommodate future expansion plans user.

Enhance SCADA system reliability and security.

SCADA system viability is based on providing reliable and secure data across dedicated infrastructure. If data is not trustworthy or dependably delivered across the communication network, then it is worthless to the business and can even be a liability. SCADA Expert ClearSCADA specifically addresses challenges relating to geographically dispersed assets communicating over disparate media.



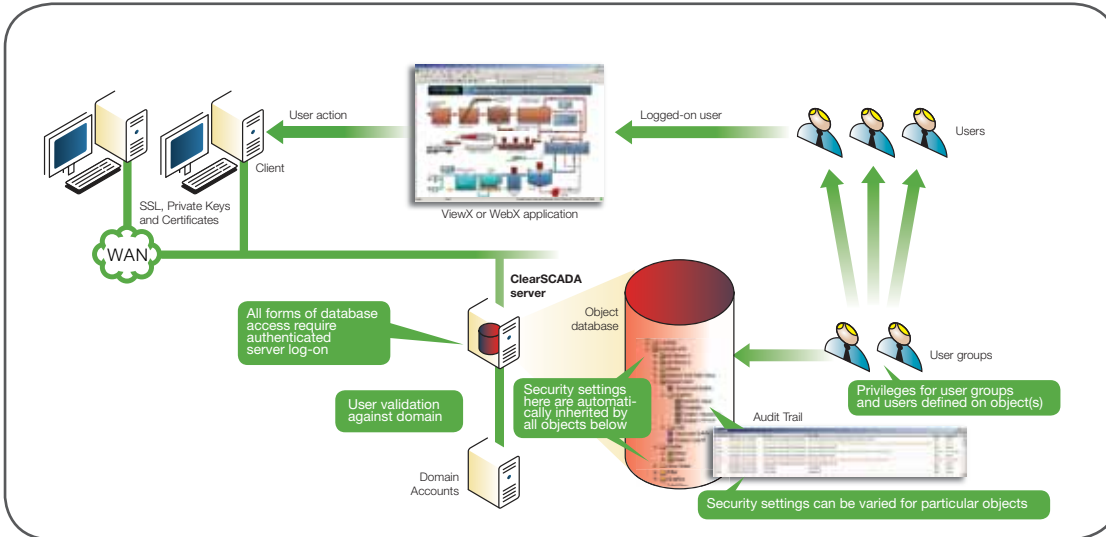
Reliability with redundancy and dual LAN/WAN support

Protect your critical infrastructure.

Minimizing the effects of equipment failure and reduced system performance on critical SCADA infrastructure is an important component in maintaining overall reliability. The geographic dispersal of redundant infrastructure such as servers and workstations, as well as the providing of multiple communication paths, are two techniques that can be used to enable business continuity.

SCADA Expert ClearSCADA contributes to overall system reliability with:

- Built-in support for up to three self-managed redundant servers for field communications and polling
- Standby Server that can be located at a remote location, providing service during a disaster recovery scenario. Traffic on WAN link is Report-by-Exception — reduces the quantity of messages sent during times of increased network traffic and reduced performance
- Client workstations that connect to all servers in the redundancy set and automatically switch under server interruption
- Support for dual LAN and WAN connections between servers



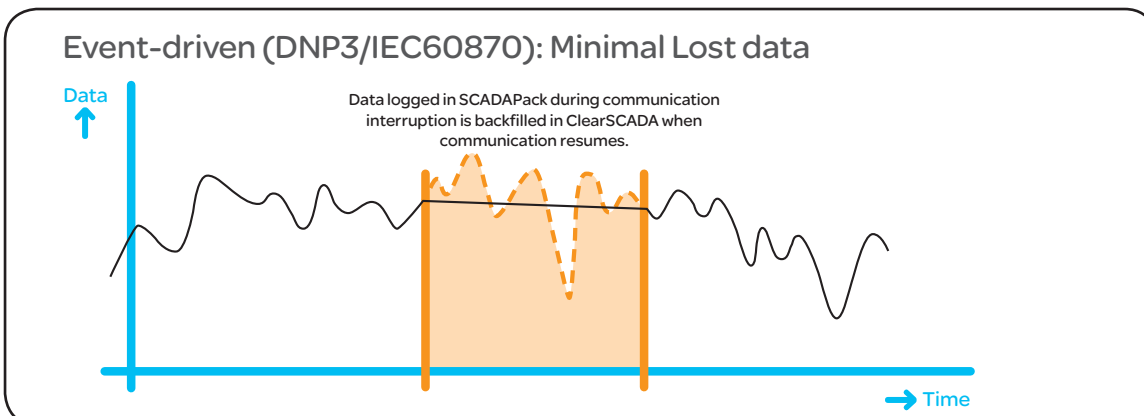
System-wide security

Maintain operations in the event of interruption.

SCADA Expert ClearSCADA provides tools to maintain continuous operations and data flow in the event of operational interruption due to natural or man-made forces. These tools include redundant communication paths, seamless backfilling of buffered RTU data, server redundancy, and communication encryption. System access is monitored and controlled with a multi-user security model, based on individuals, groups, and equipment type. Security policy management includes integrated enterprise user authentication and a built-in event log that provides an audit trail of security-related activity.

Enhance security down to the object level.

Users or user groups are assigned password protected levels of access for specific features, including configuration, operation, alarms, and database navigation. Security levels are configured on an individual basis or grouped together to share common configuration parameters. Object permissions, which include read and write capabilities, alarm and history control, configuration, security, and system administration, are automatically carried over when an object is copied or included in a template instance.



Enhanced data reliability during communication interruptions



Contribute to regulatory compliance.

In recent years, government agencies have instituted stringent environmental and safety regulations with the goal of controlling or maintaining standards in these areas. Non-compliance to these regulations can be both dangerous for users and the environment, and very expensive if fines are levied.

Maintain data accountability system-wide.

A major component in contributing towards governmental compliance is the ability to provide audit trails in regard to operational actions, alarms, events, and system access. These audit trails typically take the form of time-stamped event user, and alarm logs, incident and maintenance reports, and process data records. SCADA Expert ClearSCADA gives accountability through the use of integrated tools that improve the reliability of data records, even in the event of interrupted communications between the field and the host.

Key features:

- Event and alarm logs for process-monitoring
- Logging of configuration changes and operational actions for detailed audit trail
- Automatic data backfilling with select controllers that minimizes data loss during communication interruptions
- Flexible data presentation via trends, tables, reports, and delivery to third-party data systems



SCADA Expert ClearSCADA helps you meet your compliance goals:

- Help protect your staff, process, and assets.
- Improve consistency of data records.
- Build your company reputation.

Integrated solutions for Oil & Gas and Water & Wastewater



SCADA Expert ClearSCADA is integrated with Autosol® Enterprise Server for communication with a wide range of flow meters and devices in their native protocols, over single or multiple telemetry connections.



SCADA Expert ClearSCADA is ideally suited for upstream production and midstream operations where customers have many remote assets such as flow computers and RTUs. SCADA Expert ClearSCADA includes built-in drivers and a polling engine for many major equipment manufacturers and can export flow computer data to external reporting packages, such as Flowcal, PGas, or production accounting systems.

SCADA Expert ClearSCADA is tightly integrated with:

- SCADAPack gas flow computers — employ full EFM and custody transfer capabilities.
- Rod pump controllers — generate torque, surface, and downhole cards.
- Accutech instruments — monitor wellhead and reservoir levels with rapid deploy and configure wireless instrumentation.
- Trio data radios — achieve direct access to diagnostics for individual polling of key operating parameters, such as temperature, received signal strength, and byte count.

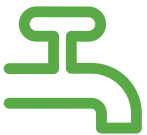
Key solution benefits

AGA-3, 7, 8, V-Cone, and API 21.1-compliant

- Lower total cost of ownership
- Ease-of-use, lower technical skills
- Convenient suite of graphic symbols, including API 1165
- Solution-ready templates for RPC, plunger lift, and tank management



SCADA Expert ClearSCADA supports DNP3 and IEC60870, the ideal protocols to enhance the integrity of field data, which is logged in the controller during communication interruptions and automatically forwarded to the host upon resumption.



SCADA Expert ClearSCADA is designed for telemetry applications commonly found in the water industry such as pump-up and pump-down control, sewage lift station, tank/level measurement and control, and wireless instrumentation monitoring. Its real-time database and integrated polling engine means customers reduce the need for a separate software package such as an OPC Server or a Master RTU as the data collector to communicate with remote devices. The enterprise software is optimized for low and high bandwidth communication links over public infrastructure, such as mobile networks, WiMAX, and dial-up land lines, and is well suited for private serial and Ethernet radio networks.

SCADA Expert ClearSCADA offers enhanced component integration to maximize system functionality.

- Accutech instruments — monitor tank and reservoir levels with rapid-deploy-and-configure wireless instrumentation.
- SCADAPack controllers — achieve remote configuration and application download, synchronized clocks, and time-stamped data with DNP3 and IEC60870 protocol support.
- Trio data radios — achieve direct access to radio diagnostics for individual polling of key operating parameters, such as temperature, received signal strength, and byte count.

Key solution benefits

- Assisting in achieving regulatory compliance through data integrity and audit trail
- Lower total cost of ownership
- Flexible integration through industry standard protocols
- Enhanced system security

SCADA Expert ClearSCADA

Server	<p>Available point sizes: 250, 500, 1,500, 5,000, 25k and 50k 75k, 100k, 150k, 250k, and 500k. ClearSCADA Server comes standard with the following:</p> <ul style="list-style-type: none">• Redundancy for standby and performance firewall servers (redundant and performance firewall servers are purchased separately)• Drivers: SCADAPack Modbus, DNP3 (master and slave), IEC60870-5-101 and -104 (master and slave), modbus RTU (master and slave), modbus/TCP (client and server), CFX, TMX, DF1, OPC Client (DA and XML-DA), SNMP Manager, NTP Monitor, ODBC/SQL, .Net API, Kingfisher, SDI-12, Trio data radio diagnostics, Lufkin SAMS, EcoStruxure Web Services (client)• Event-based data historian• Alarm and event sub-system• An integrated client (for use on server)• EcoStruxure Web Services (server)• OFS Integration• Pager/email redirector system
Server Options	<ul style="list-style-type: none">• OPC Server for third-party OPC client connectivity (OPC DA, OPC AE, OPC HDA).• Drivers: Realflo EFM, Siemens S7
Clients	<ul style="list-style-type: none">• ViewX is the ClearSCADA multi-feature client. Based on a security model, ViewX is capable of configuring and modifying server configuration.• WebX is the ClearSCADA “thin” client. Enabled by Internet Explorer®, ClearSCADA Web server activation is required for each server that shall provide Web access.
Licensing	<ul style="list-style-type: none">• Each ClearSCADA server and ViewX client is licensed via soft key (machine dependent file) or hardware dongle (USB key).• WebX licenses use concurrent licensing model and are held on the Web-enabled server.
Support	<ul style="list-style-type: none">• Each ClearSCADA server features the SCADACare Annual Support Program.• Gain more from your investment with full access to all product updates, access to the technical support team, and other inherent benefits.

Note: Due to possible changes in standards and equipment, the features described in this document in the form of text and images are subject to confirmation by Schneider Electric.



**Now, enjoy the many benefits of
SCADA Expert ClearSCADA.**

- Access data instantly.
- Make informed decisions.
- Operate more efficiently.
- Share information confidently.
- Create actionable reports.

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