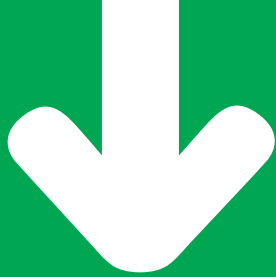


Remote Management of Critical Infrastructure

ClearSCADA

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





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 waste water, 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 optimise operations while minimising cost and risk along the asset lifecycle.

Increased costs throughout the project life-cycle

SCADA industries have embraced cost-saving programs such as production optimisation, standardisation of system components and maximising 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.

Managing data in challenging environments

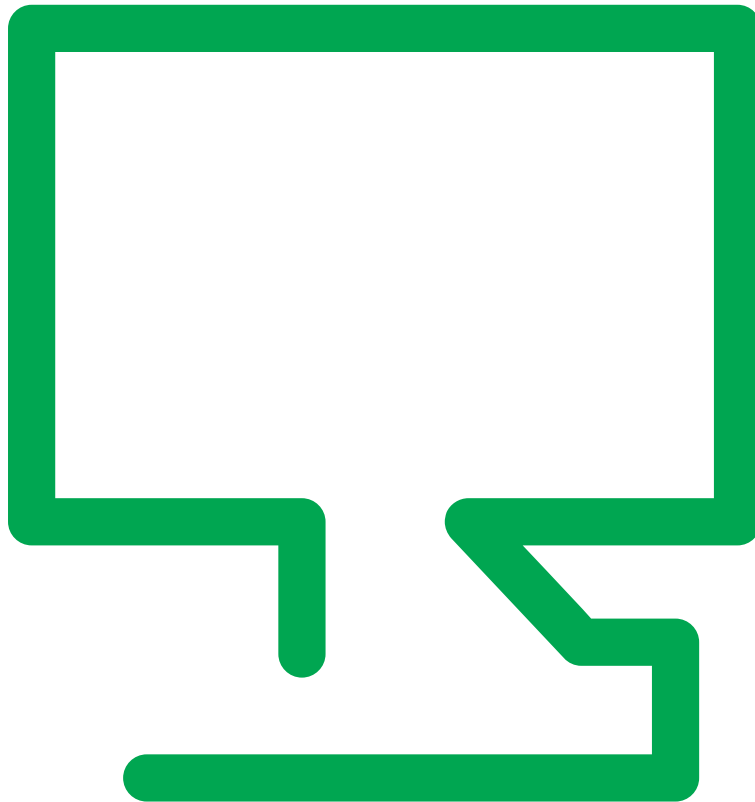
To effectively gather process data from disparate sources such as remote field sensors, instrumentation and RTUs, a SCADA host must accommodate various communication media and be prepared to provide alternatives if interruptions in communications occur. On the serving side, this gathered data must be readily available to 3rd-party data-handling platforms through support of open data handling standards.

Higher risk to security system-wide

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



ClearSCADA is an open software platform that provides powerful features for remote management of critical infrastructure; scalable for large enterprise environments and effective for small systems. Historical data is collected by single or redundant servers over dedicated long-distance communication infrastructure and made available to local and remote users via integrated clients or third-party data management applications.

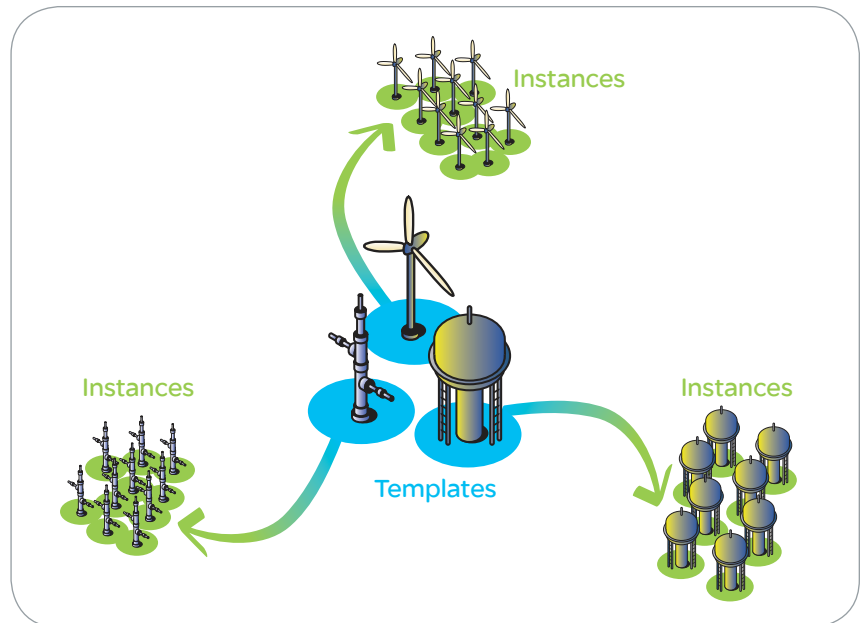


> Reduce total cost of ownership

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 critical. ClearSCADA helps to reduce costs across the entire SCADA system with a comprehensive feature set.

Rapid deployment

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.

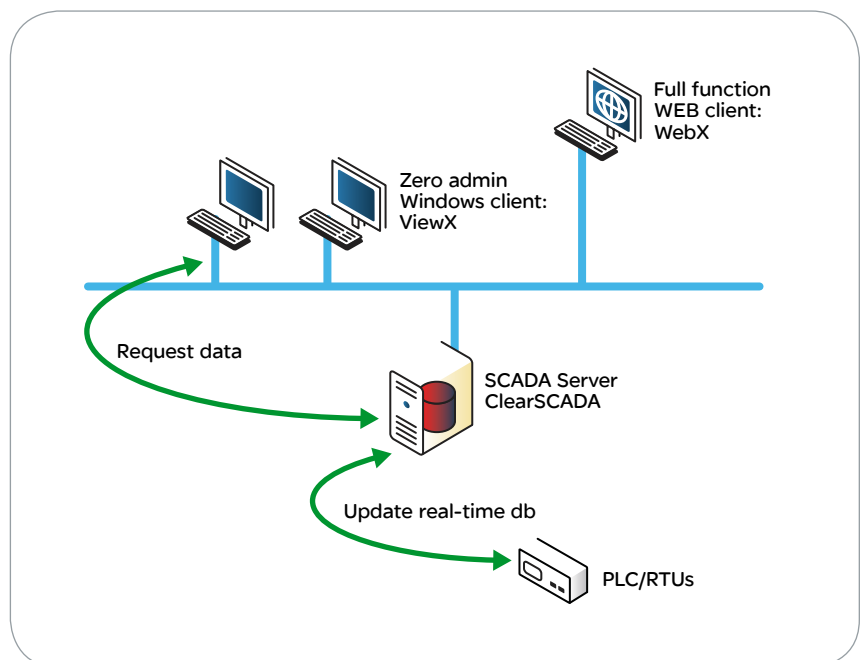


- Easy-to-replicate templates save time and money

Integrated SCADA software

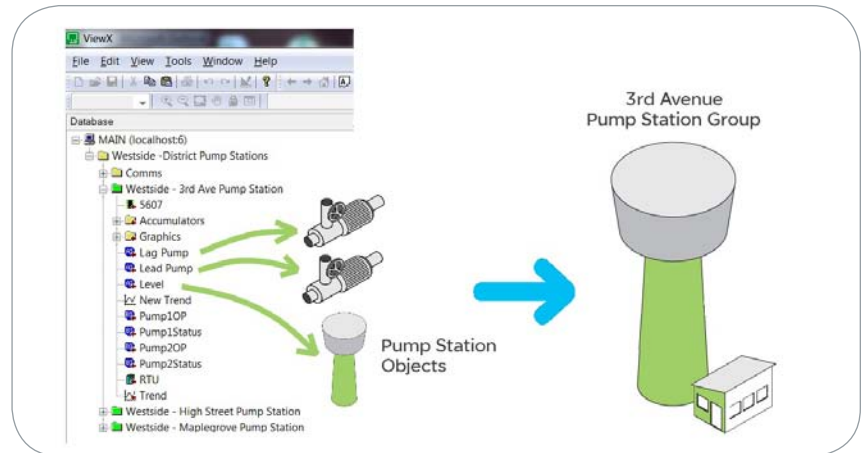
ClearSCADA provides a cost-effective solution for system designers looking to optimise SCADA functionality, while minimising development, installation and operational costs.

As an all-in-one software package, 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/e-mail. Additional features include a built-in scripting engine to expand operational logic beyond basic functionality; Open standard DNP3 and IEC60870, event-driven protocols that optimise precious bandwidth resources; and the capability to simultaneously accommodate disparate communication media such as DSL, dial-up, GPRS and Ethernet.



- Optimised SCADA functionality

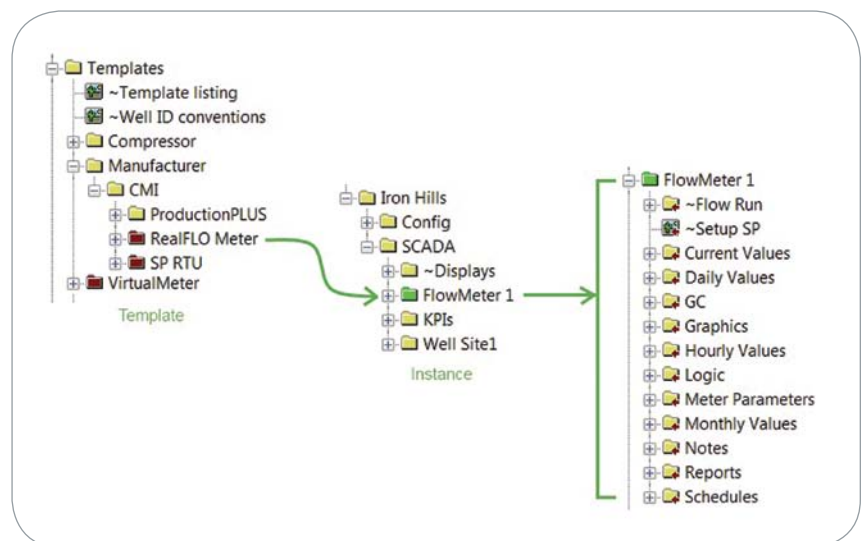
ClearSCADA's object-oriented architecture allows for objects to consist of graphics, tags, trends and many more types of information, allowing for complete representation of assets and information to exist and become reusable, and to decrease engineering efforts.



- Real world point groups

The object-based architecture allows reusable object templates to be developed. At a low level these objects 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 the objects 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 ClearSCADA database can be made online, and do not result in operational stoppages.

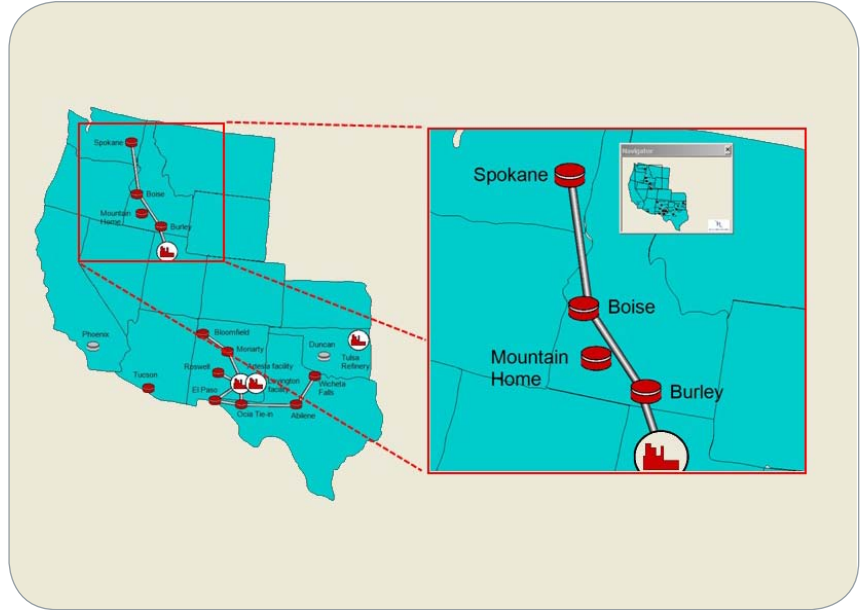


- Templates can contain complex control components

75 to 90%

Engineering effort saved with configuration templates and instances

ClearSCADA mimics support dynamic pan/zoom operation and Scalable Vector Graphics (SVG) objects that do not lose resolution as zoom level is increased.



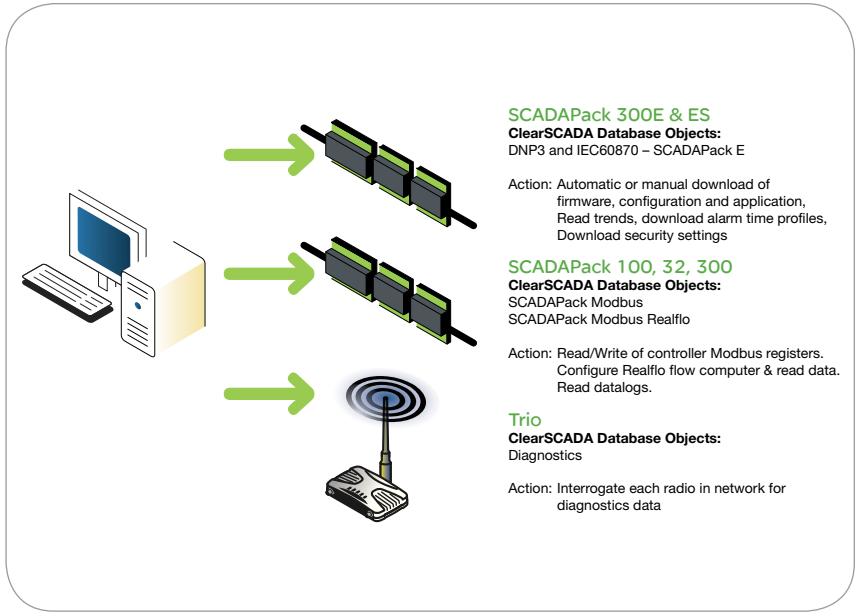
- No resolution loss with Scalable Vector Graphics objects.



Enhanced maintenance and operation

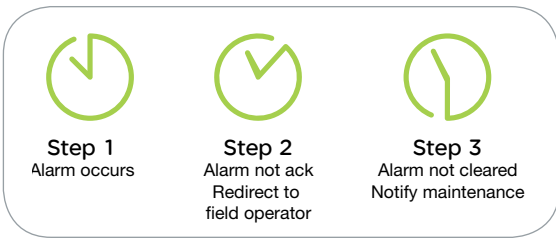
Tight integration with SCADAPack smart RTUs and Trio data radios reduces site visits via centralised configuration and network diagnostic features.

Fully integrated Realflo EFM objects provide configuration and data collection directly from flow computer without Realflo GUI.



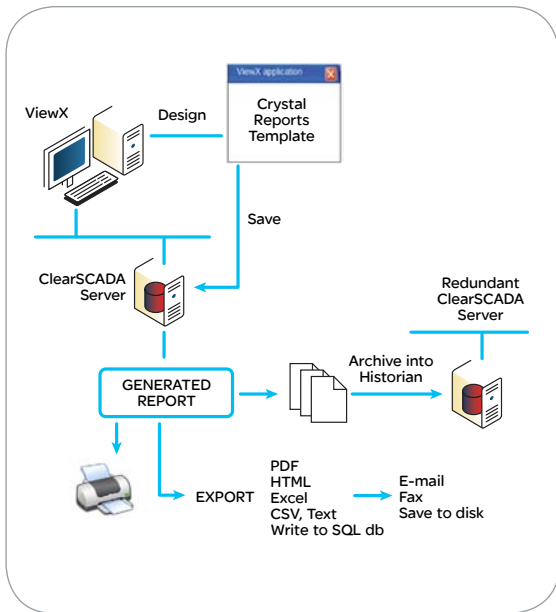
- Configure field devices from central location

Critical alarms may be configured to be redirected to off site personnel who can respond and acknowledge alarms using text messages and e-mail, allowing for prompt notification and response.



- Alarm redirection process

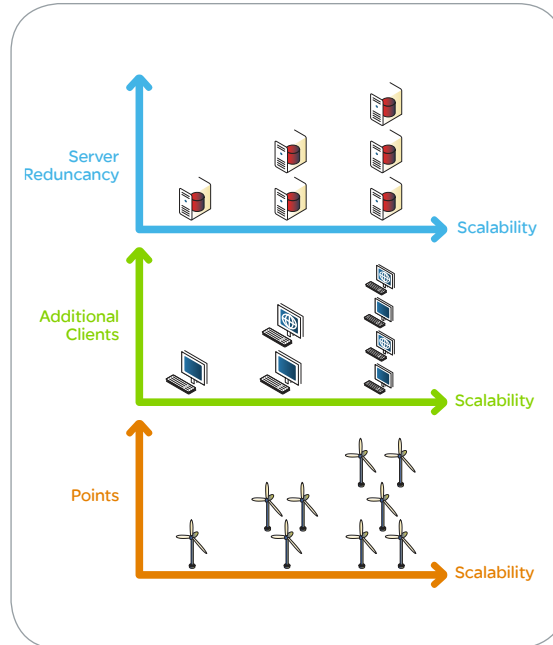
SAP Crystal Reports run-time engine and scheduler allows for the creation and distribution of reports with preconfigured templates. Open industry standard interfaces such as OPC, ODBC, .NET enable integration with business systems.



- Integrated run-time engine for Crystal Reports

Protect your investment as SCADA system expands

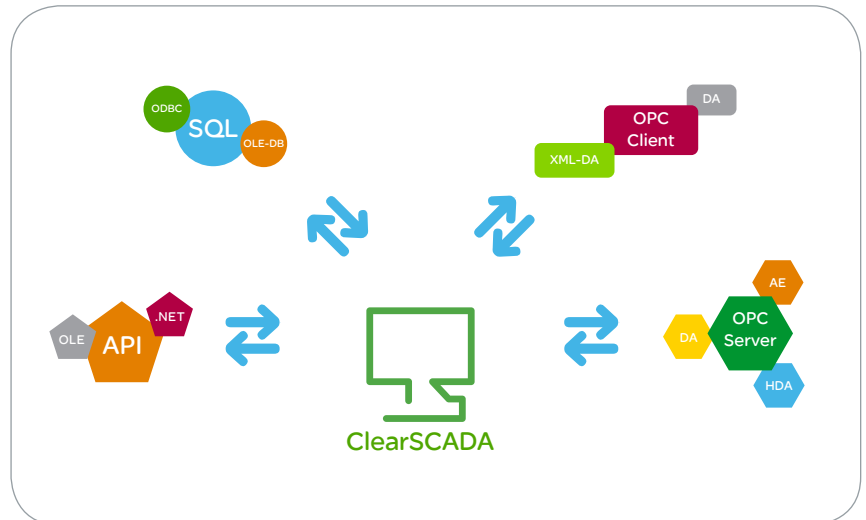
Providing scalability means that future expansion plans must be effectively accommodated with minimum disruption to ongoing operations. ClearSCADA addresses the many different aspects of SCADA system scalability with standard features that include native support for 32-bit or 64-bit Windows desktop and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



- Accommodate Future Expansion Plans

Open for easy integration to Business and IT systems

ClearSCADA's 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 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 ClearSCADA's extensive OPC interfaces. ClearSCADA client and server API facilities provide ultimate flexibility Using the latest in OLE and .NET software technologies. All ClearSCADA facilities can securely interoperate with business and IT systems to turn asset and infrastructure SCADA data into valuable business information.



- Connect to standard Automation Interfaces

> Operate a reliable and secure system

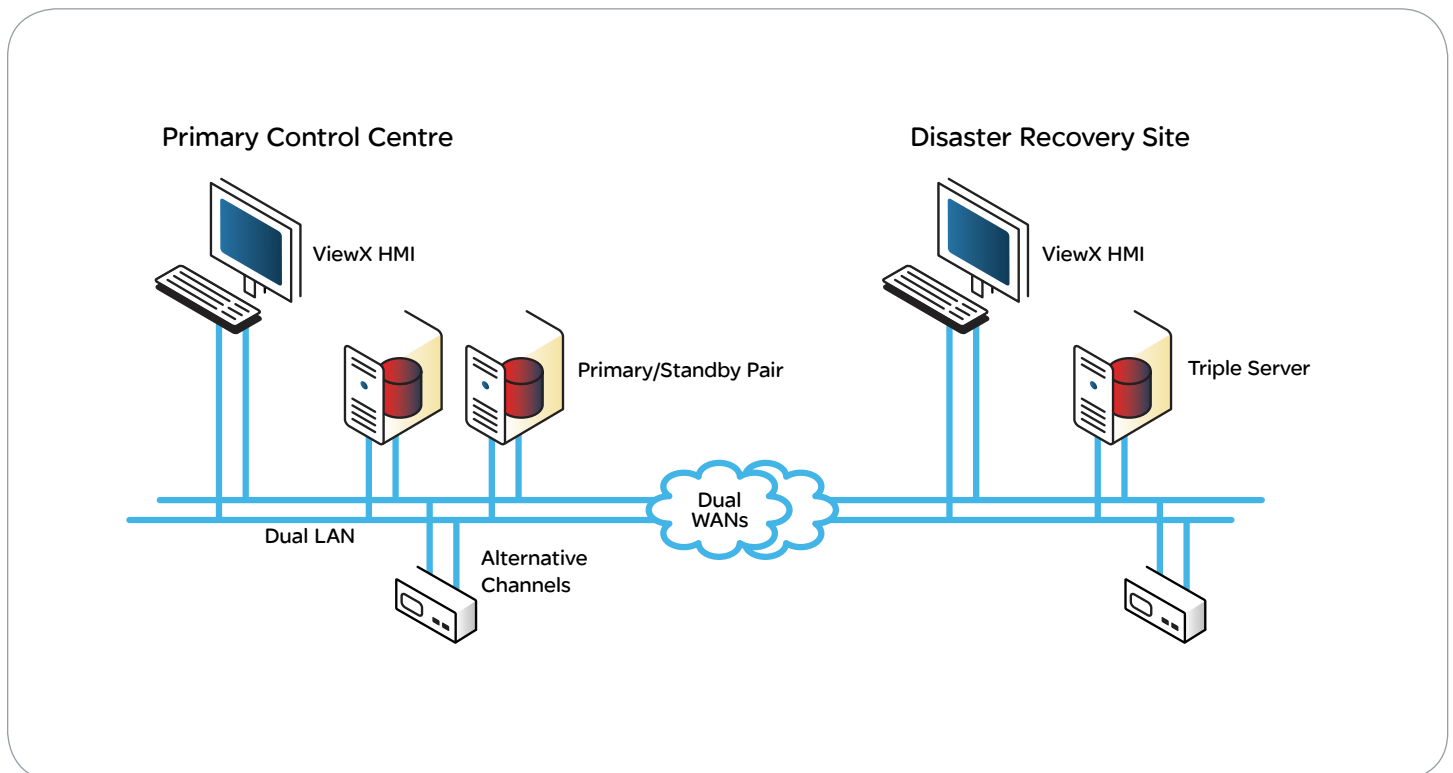
SCADA system viability is based on providing reliable and secure data across reliable infrastructure. If data isn't trustworthy or dependably delivered across the communication network, then it is worthless to the business and can even be a liability. ClearSCADA specifically addresses challenges relating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

Trusted operation for critical infrastructure

Minimising 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 providing multiple communication paths are two techniques that can be used to ensure business continuity.

ClearSCADA contributes to overall system reliability with:

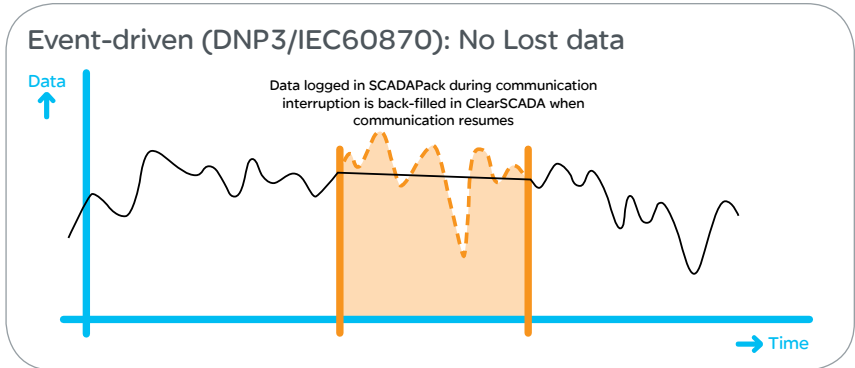
- Built-in support for up to 3, self-managed redundant servers for field communications and polling.
- Standby Server that can be located at a remote location, providing service during a disaster recovery scenario. Traffic on WAN link is Report-by-Exception which reduces the quantity of messages sent during times of increased network traffic and reduced performance.
- Client workstations that connect to any/all servers in the redundancy set and automatically switch under server failure
- Support for dual LAN and WAN connections between servers



- Reliability with redundancy and dual LAN/WAN support

Ensure operations in event of failure

ClearSCADA provides tools to ensure continuous operations and data flow in the event of infrastructure failure 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. Strong security policy management includes integrated enterprise user authentication and a built-in event log that provides a complete audit trail of security activity.



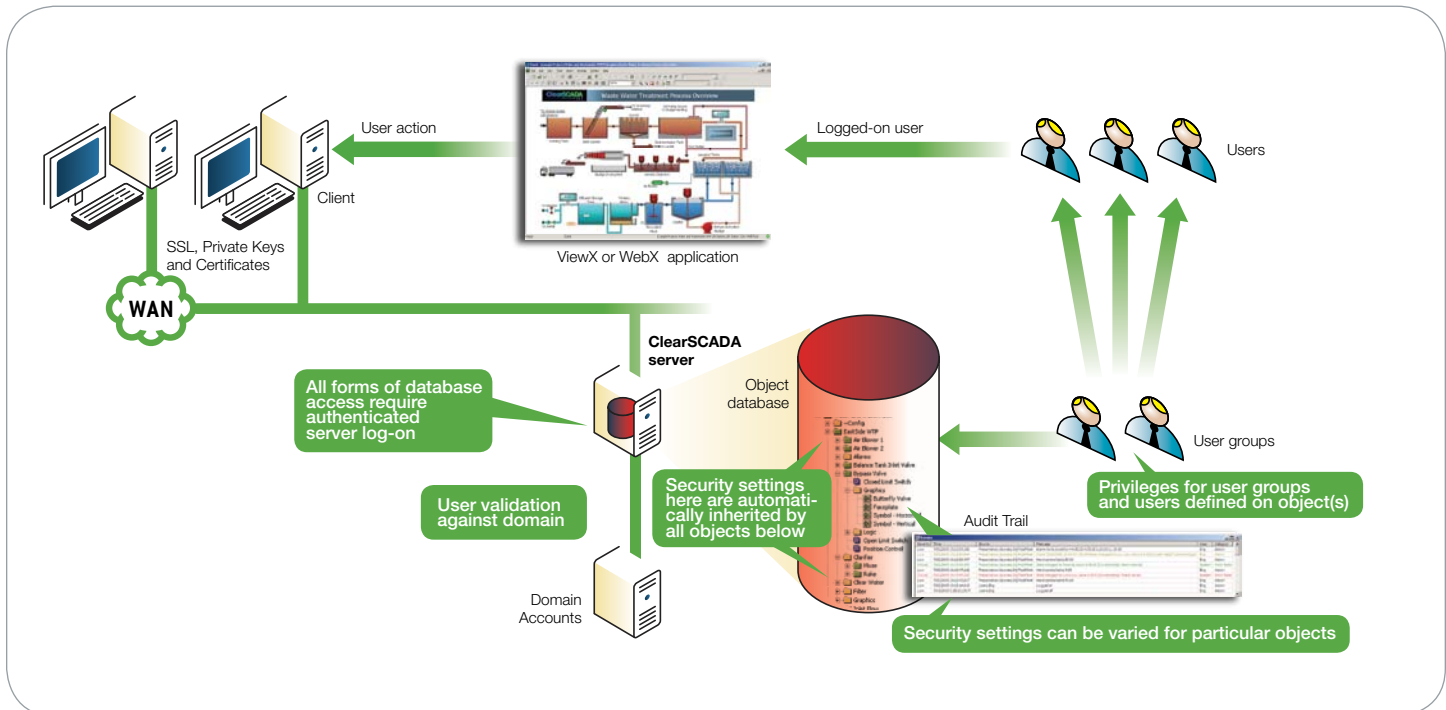
- Reliable data during communication interruptions

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.



ClearSCADA provides a video surveillance solution that monitors remote sites over Ethernet-based wide area networks.



- System-wide security

> Contributing 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 and alarm logs, incident and maintenance reports, and process data records. ClearSCADA gives accountability through the use of integrated tools that ensure the reliability of data records, even in the event of interrupted communications between the field and the host.

- Event and alarm logs for process-monitoring
- Logging of all configuration changes and operational actions for detailed audit trail
- Automatic data-backfilling with select controllers ensuring that no data is lost during communication interruptions
- Flexible data presentation via, trends, tables, reports and delivery to 3rd-party data systems



Integrated Solutions for Oil & Gas ...



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



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.

ClearSCADA is tightly integrated with:

- SCADAPack gas flow computers – employ full EFM and custody transfer capabilities
- 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
- ASP-ready, including alarms and ad-hoc trends



...and Water & Wastewater



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 do not need to use 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 optimised 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.



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

ClearSCADA offers enhanced component integration to maximise system functionality.

- Accutech instruments – monitor tank and reservoir levels with rapid deploy and configure wireless instrumentation
- SCADAPack controllers – achieve remote configuration and application download, synchronised clocks and time-stamped data with DNP3 and IEC60870 protocol support
- 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

- Regulatory compliance through data integrity and audit trail
- Lower total cost of ownership
- Flexible integration through industry standard protocols
- Uncompromised system security





ClearSCADA Specifications

Server	<p>Available point sizes: 250, 500, 1500, 5000, 25k & 50k (for >50k, contact Sales Support). 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 must be 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), DF1, OPC Client (DA and XML-DA), SNMP Manager, NTP Monitor, ODBC/SQL, .Net API, Kingfisher, SDI-12, Trio data radio diagnostics, AutoSol Enterprise Server • Event-based data Historian • Alarm and event subsystem • An integrated client (for use on Server) • Pager/email redirector system
Server Options	<ul style="list-style-type: none"> • OPC Server for 3rd-party OPC client connectivity (OPC DA, OPC AE, OPC HDA) • Drivers: RealFLO EFM, Siemens S7 (For latest available drivers contact Sales Support)
Clients	<ul style="list-style-type: none"> • ViewX: The ClearSCADA full-feature client. Based on security, ViewX is capable of configuring and modifying server configuration. • WebX: The ClearSCADA “thin” client. Driven 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"> • SCADACare Annual Support Program • Gain the most 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.



Make the most of your energy

Schneider Electric


Telemetry & Remote SCADA Solutions

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Increasing process efficiency through real-time information

Operating and Monitoring solutions for industry

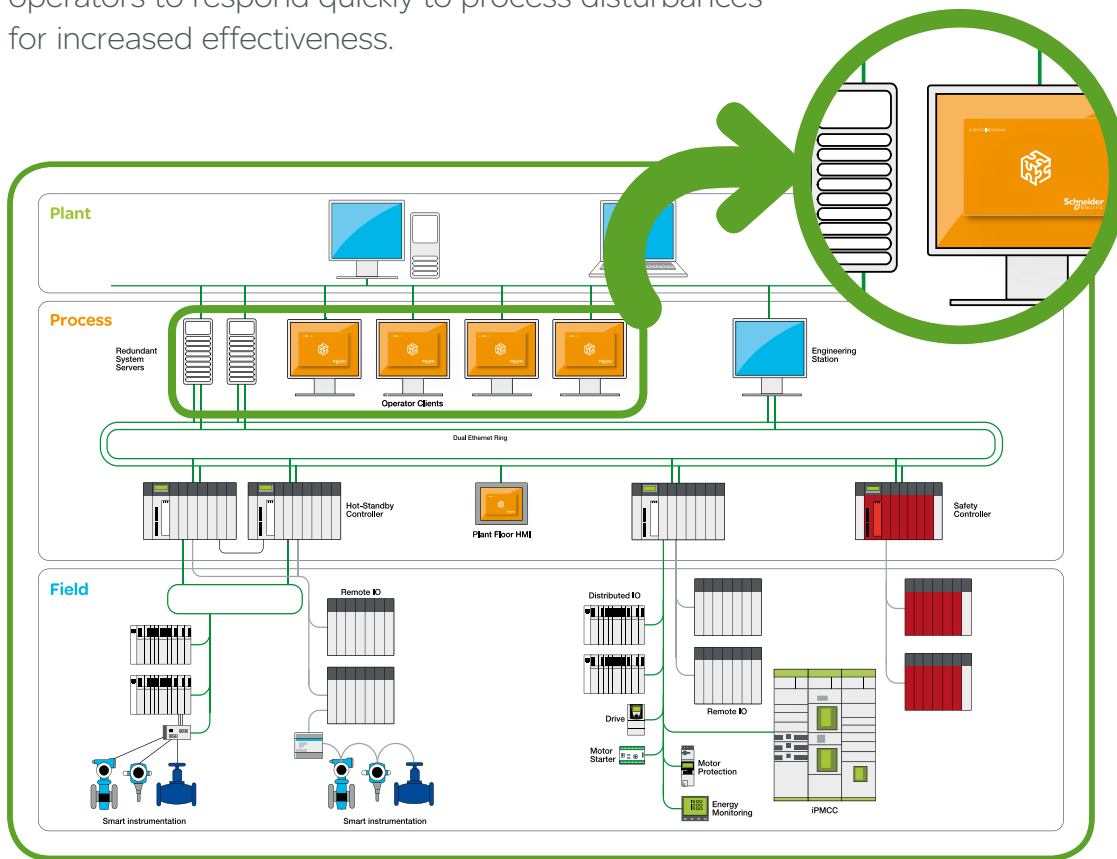


Schneider
Electric

PlantStruxure™

PlantStruxure™ is a collaborative system that allows industrial and infrastructure companies meet their automation needs and at the same time deliver on growing energy management requirements. In a single environment, measured energy and process data can be analysed and used to yield a holistically optimised plant.

Vijeo Citect, a SoCollaborative software, is the operating and monitoring component of PlantStruxure. With its powerful visualisation capabilities and operational features, it delivers actionable insight faster, enabling operators to respond quickly to process disturbances for increased effectiveness.



> Scalable for changing times

From tens of I/O to hundreds of thousands, it means that you can start out small and grow as your requirements change.

> Flexible because your process is unique

It supports the architectures that you need for your application. Single site, multiple sites, distributed control, local control, discrete, process, safety, batch all within the one system.

> Integrated to reduce risk

From devices to MES all of the system components are designed to work together with each other and with our chosen technology partners.

> Collaborative to increase efficiency

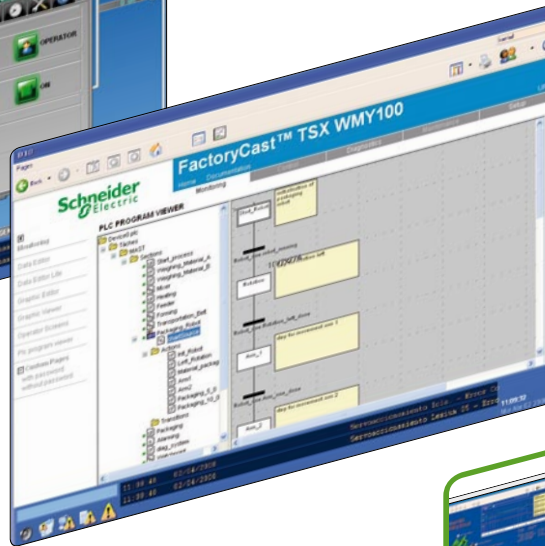
It is open to exchange information with other plant and business software, and fosters an environment of collaboration by delivering the process information you need in the way that you like to see it.

> You need powerful graphics for comprehensive plant visualisation, an easy-to-navigate operator interface for greater efficiency, real-time operation and analysis tools for smarter decision making, true remote monitoring and diagnostics for operator freedom and productivity, the latest technology support and features for a secure investment.

> PlantStruxure enables you to prioritise, act and operate processes more efficiently. The increased efficiency in your production system that is gained through the monitoring and control features of PlantStruxure means higher productivity, lower costs and increased profitability for your business.



Plantstruxure helps operators to visualise the state of the entire plant from any location. This visibility helps them to prioritise actions from the available information and act in real time in response to the process for more effectiveness.

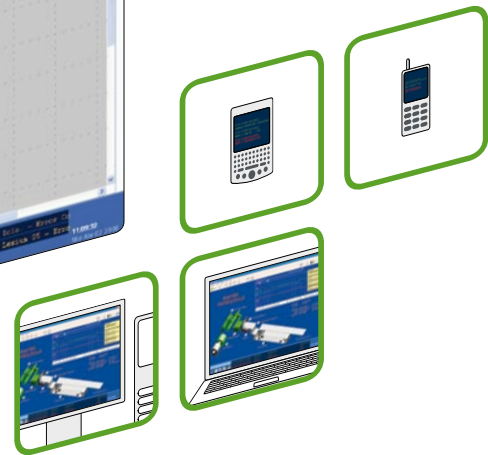


> Make smarter decisions

PlantStruxure provides a consistent control and operating interface including Process Analyst to combine alarm and trend data.

> Optimise production

PlantStruxure allows you to view the program inside the controller from any operator station across the plant to reduce maintenance and downtime costs.



> Adapt to new business requirements

Take your control system anywhere you go by choosing the right mobility solution.



I need a comprehensive view of my plant to make smarter decisions

& from anywhere...

PlantStruxure provides a consistent control and operational interface with a real-time view of the process to increase operator efficiency and reduce training needs.

Simple system navigation

> Simplifying system navigation is key to providing operators with the right information at the right time. The layout of the PlantStruxure operational interface is intuitive in order to facilitate

fast access to any graphics page within the system. So whether it is alarm, trend, graphics or system diagnostics information – it is only a few mouse clicks away.

Unauthorised Access

The runtime security of PlantStruxure is user based, meaning that each system user has a unique username and password. This username can be managed in the system's native security model or integrated with corporate domain-based security such as Windows Integrated Security. It creates a single location for the management of all user accounts. Dual signature functionality provides a second level of security for actions.

Screen Navigation, access to trends, system status, alarm windows and more

Context sensitive system object



Camera integration

Integrating Pelco cameras into the PlantStruxure architecture allows live video to be viewed within system. Users are able to control cameras, thereby enhancing their real-time process visibility or integrating remote security monitoring.



Device faceplate pop-up

Alarm Banner showing most recent alarms & events



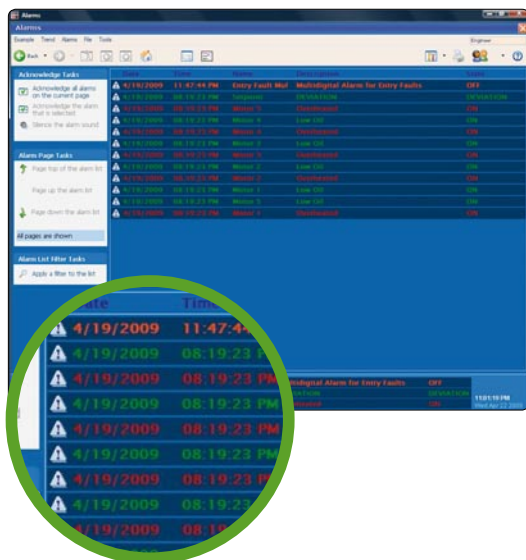
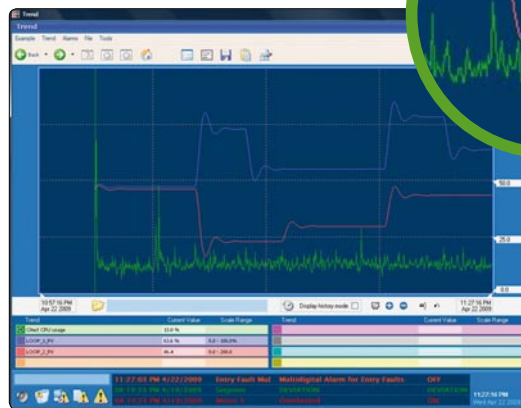
Analyse the cause of process upsets quickly and easily

- > Process Analyst features, within Vijeo Citect, allows users to combine alarm and trend data in one integrated display for faster analysis.
- > When analysing the cause of process disturbances or when trying to improve productivity in the process, the comparison of alarm and trend data is essential. While sophisticated analysis tools are available in data historians, Process Analyst is unique because it is an intuitive process analysis tool that sits directly in the system itself. It delivers actionable insight to the users and gives them the ability to immediately modify process conditions to achieve the desired results.
- > PlantStruxure allows users to save preconfigured views and "favourite views" within Process Analyst in order to make it easy for them to access the information they need, this helps to improve their efficiency and productivity.

Operate your process more intelligently

Trending

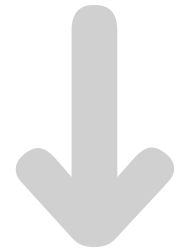
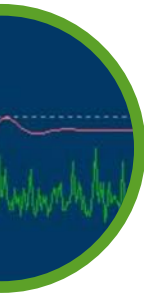
> Trends are a seamless combination of real-time and historical data. When users display a trend page, they can monitor the current activity as it happens, and simply scroll back through time to view the trend history. The distributed trending system handles large numbers of variables without compromising performance or data integrity. Operators can choose from a selection of pre-configured trend pages that provide clear data representation with customisable views for quick and simple trend analysis.



Alarms and events

> An efficient alarm system allows users to quickly isolate and identify faults within the system or process, thereby reducing plant downtime. The PlantStruxure alarm system is fast and reliable, providing them with detailed information about the status of the plant.

> Alarms are displayed on dedicated alarm pages, with the most recent alarms visible at all times in the alarm banner on every page. Working in conjunction with the controller or RTU, alarms are time-stamped with precision to one millisecond where available. This accuracy can be essential when differentiating between alarms that occur in rapid succession.



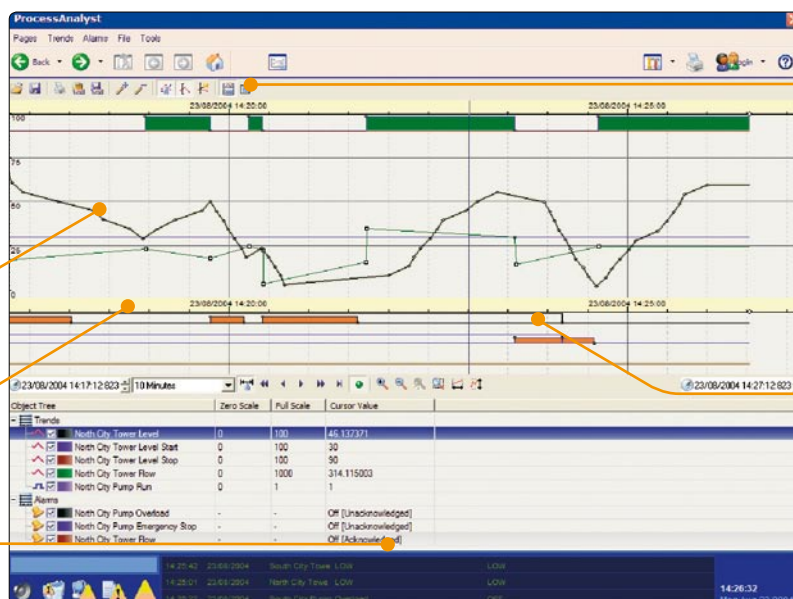
Paul Donald

Telemetry Officer
Central Highlands Water
"Process Analyst is a vast improvement on existing SCADA systems, and enables processes to be optimised by making it easier for operators to analyse disturbances."

Unlock pens to allow values to be compared over different time periods

Overlay analogue and stacked digital pens on the same pane

The value of all pens are displayed at the current cursor location



Save a snapshot or a favourite in run-time

Alarms display on-time, off-time, acknowledge time and operator comments

View your controller program from anywhere in your plant

> By installing a FactoryCast HMI module in your Modicon controller, you can take advantage of its features to help reduce maintenance and downtime costs.

> With this module, PlantStruxure provides direct read-only access to the program inside the controller, allowing users to view all of the code from any operator or maintenance station across the plant.

> It can also be used in conjunction with Process Analyst to help users quickly locate the reasons behind a process disturbance or plant stoppage.



Modicon Quantum and Modicon Premium



Extend your control room to the plant floor

> The ability to extend your plant operations from the control room to the plant floor is important and that is why PlantStruxure supports dedicated plant floor HMIs built to withstand the rigours of industrial environments. The ruggedised features and flexible options of the Magelis range make them perfect for use in plant floor cabinets and other specialised applications.



Magelis iPC range



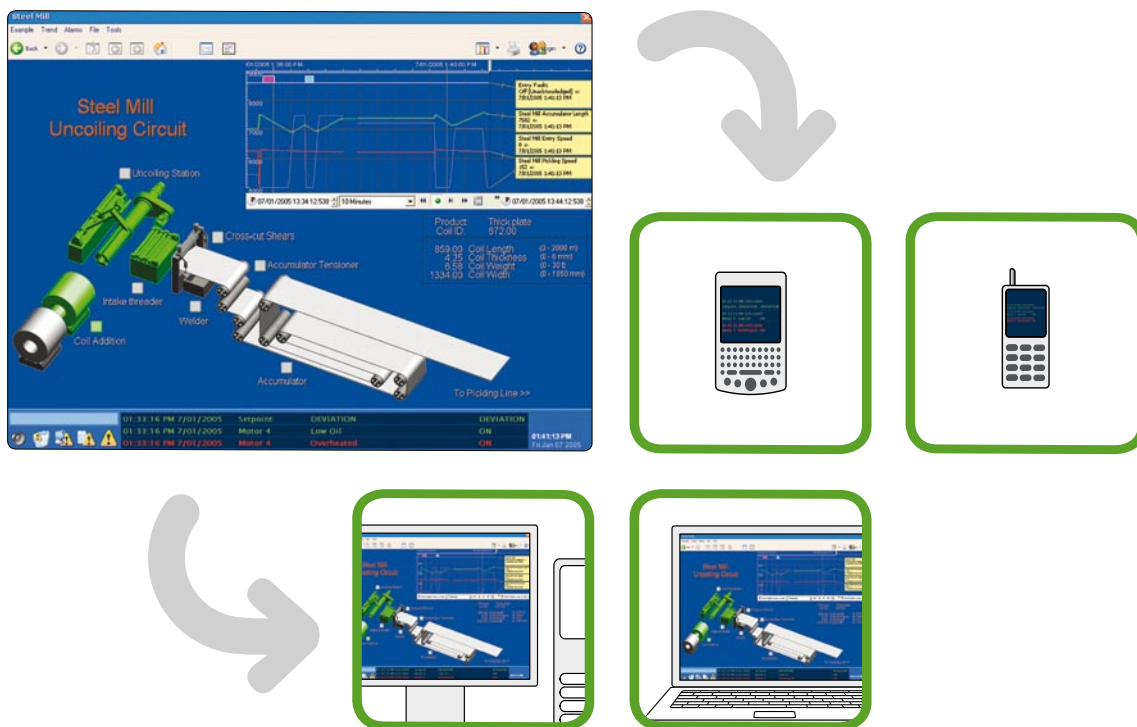
WebGate function

The WebGate feature allows users to access pages from the Magelis range of HMIs that have been configured using Vijeo Designer directly using Vijeo Citect. For users that have a Magelis panel or display that has been installed as part of a turnkey OEM solution, then WebGate will allow them to view all of the graphics from the panel directly in the control system without the need for extensive engineering.

Take your control system anywhere you go...

- > Our mobility solutions give users the freedom to observe operations firsthand wherever they are. By providing easy access to the process from dedicated Web Clients or smart mobile devices such as PDAs or mobile phones, the system provides greater flexibility, decreased downtime, increased plant productivity and a lower total cost of ownership.
- > The increased visibility into real-time processes helps users make more effective decisions, thereby increasing plant productivity.

... by choosing the right mobility solution



Full system functionality with zero maintenance

The Web Clients allow all users throughout an enterprise to take advantage of real-time information by providing easy access to the system from outside the control room via a standard web browser.

- > Impressive runtime performance
- > Simple installation
- > No emulation
- > Zero-maintenance
- > No rebuilding of graphics
- > Totally secure



Make the most of your energy

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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.

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