

# ClearSCADA Integrated Enterprise Software

## Features:

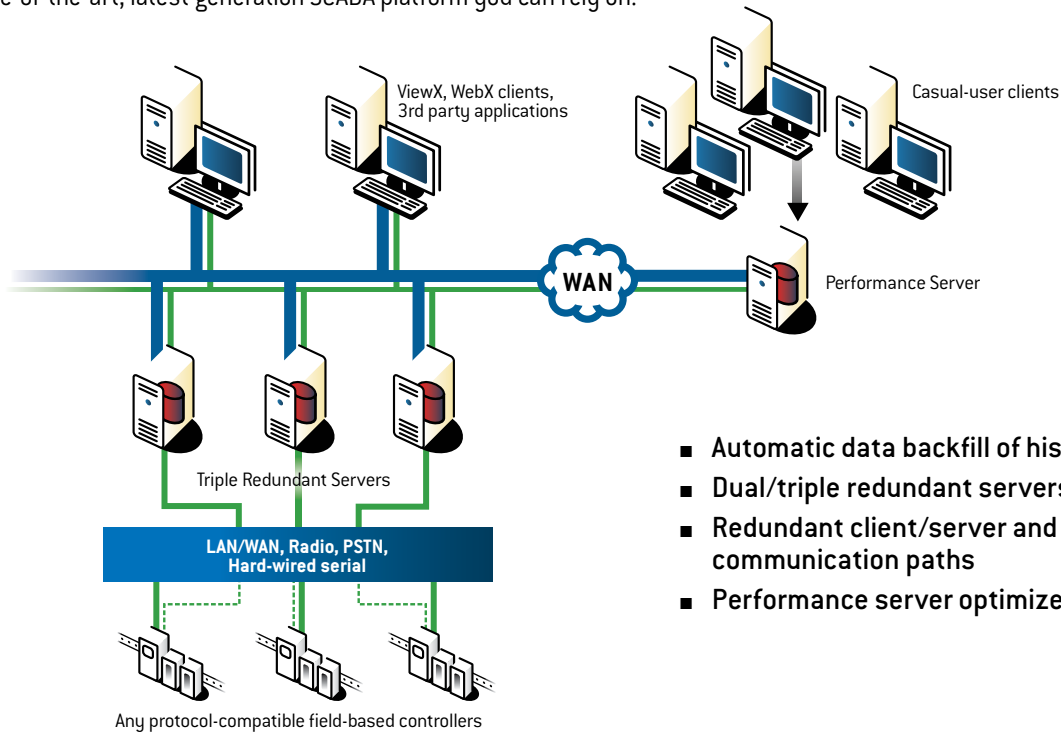
- Object-oriented database reduces maintenance and development costs
- Scalable client/server architecture optimized for wide area networks
- Integrated, zero-configuration web server
- Thin and web client architecture
- Seamless real-time and historical data gathering from third party gas flow computers
- Includes native device drivers for third party PLCs and RTUs
- Robust integrated SCADA security configured to the object level
- Database configuration audit trail to meet ever demanding regulatory requirements
- Supports Microsoft® Windows authentication for centralized password management



- Ease of integration with external databases allows consolidation of real-time and historical data from various sources
- Enhanced database query and reporting to optimize information sharing

From the company known for SCADA reliability, ClearSCADA is the SCADA host software package built for the global SCADA industry. Featuring an SQL-compliant object database and development environment, it gives you the kind of data control and archiving functionality needed to operate your business.

ClearSCADA has proven to be the software of choice in a wide range of industrial applications as well as data-rich, regulatory-driven, utility environments. Its hallmark is efficiency and ease-of-use, not just during the initial development, but throughout the entire SCADA system life cycle. Whether you are designing, building, operating or maintaining SCADA infrastructure, ClearSCADA is the true, state-of-the-art, latest generation SCADA platform you can rely on.



- Automatic data backfill of historian
- Dual/triple redundant servers
- Redundant client/server and RTU/server communication paths
- Performance server optimizes system bandwidth

## Open, Expandable, and Reliable:

ClearSCADA is truly an open platform. With the product's use of industry-standard formats such as OPC, OLE Automation, ODBC, HTTP/XML and .Net API, the dedicated Client/Server architecture efficiently interfaces with third-part query and data mining software to provide seamless data exchange across these various platforms. In employing open and reliable communication protocols, including Modbus RTU/ASCII, DNP3, IEC60870-5-101 and 104 (master and slave), DF1, as well as integrated Kepware OPC drivers, ClearSCADA can leverage the power of third-party field-based PLC/RTUs and SCADAPack controllers alike, in legacy system-upgrade projects or new projects. As SCADA systems expand to accommodate increasing demands in production, the inherently flexible nature of the Object Database ensures that future growth is implemented in a cost-effective manner. Objects, groups, even entire control sites are easily and rapidly replicated. Clients are added to the system without changes to the Server, and require only the appropriate license to operate. Data reliability, a critical factor to consider when selecting any SCADA management system, is assured through the use of redundant servers, clients, LAN/WANs and various communication media. These powerful features provide all the flexibility needed by the modern, complex SCADA system and require no additional code to function automatically. All RTU data, including data value, data quality and time-stamp are logged to the database and made available to the user through a number of clients. ClearSCADA also addresses the problem of missing data due to loss of network communication; seamless backfilling of automatically-buffered RTU data ensures that there are no gaps in archived data.

## Full Feature Clients

Packed with intuitive features and powerful development, viewing and

reporting tools, ClearSCADA offers two client applications to meet the needs of customers.

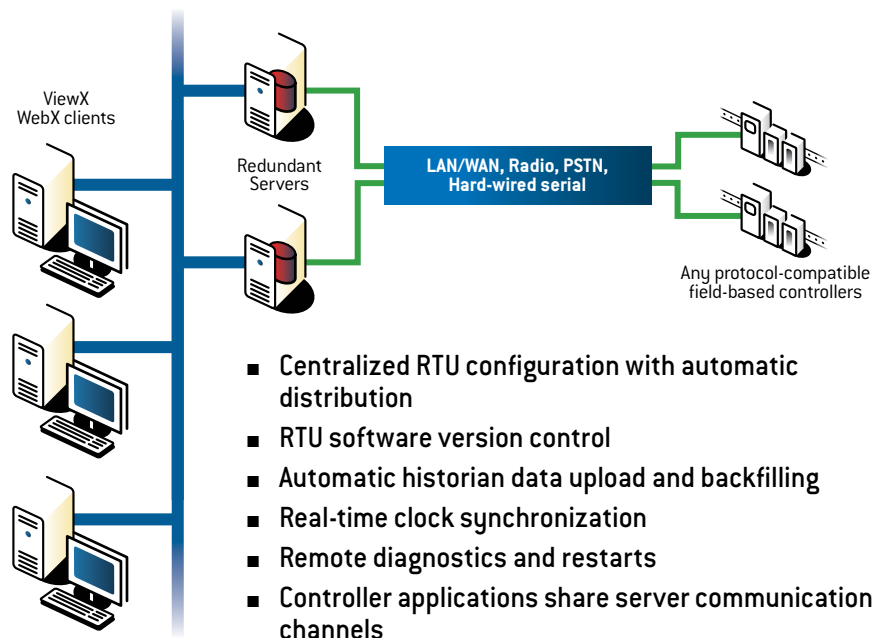
The full-function ViewX client is the workhorse of the ClearSCADA client team. To the system operator, it provides user-friendly operator interface controls, information-rich mimics (screen displays), and alarm and event lists. To the administrator, ViewX offers multi-document display, report generation, trends, and database and OPC navigators. Systems integrators and engineers benefit from the Integrated Development Environment, (IDE) which allows multiple engineers to work simultaneously on the same project, even while the system is in operation.

For the casual SCADA system user, such as administrative personnel and corporate CEOs, the zero-configuration WebX client is the ideal way to monitor and even control the SCADA system through a standard web browser. All features, including transparent access to database changes, full mimic display support, control capabilities, reports and trending, are made accessible through a secure SSL connection and are managed by security login privileges.

## Hardware Integration

One feature that decisively places ClearSCADA head and shoulders above the competition is the depth in which its software components are integrated with Control Microsystems Hardware, within the SCADA system itself. Through ClearSCADA, SCADAPack controllers can be configured and controlled remotely, effectively reducing the need for supplemental software applications. Configuration files are maintained in the database and can be easily re-used with other like-configured RTUs, ensuring that valuable development time and resources are utilized as efficiently as possible. In addition, ClearSCADA provides support for other popular Control Microsystems applications. SCADAPack Hardware integration features include:

- RTU configuration created and stored within the database
- Upload and downloads of configuration and logic program files
- Automatic distribution of configuration changes across the system
- Version control of software within RTUs
- Support for extended SCADAPack Modbus commands



- Local and remote channel connection sharing, allowing TelePACE, Firmware Loader and ISaGRAF applications to operate through ClearSCADA
- DLOG data uploaded, parsed and backfilled into historic database
- RealFLO EFM driver with CFX export
- Clock synchronization
- Remote diagnostics
- Remote RTU restart

## Application Development

To expedite SCADA system development and commissioning, ClearSCADA incorporates a unique design feature called the Integrated Development Environment (IDE). As a multi-developer environment, the IDE promotes efficient, coordinated development across all disciplines by allowing personnel to work simultaneously on the same project. Potential operational conflicts are mitigated through the use of “Exclusive Control” that a user can enable down to the object level.

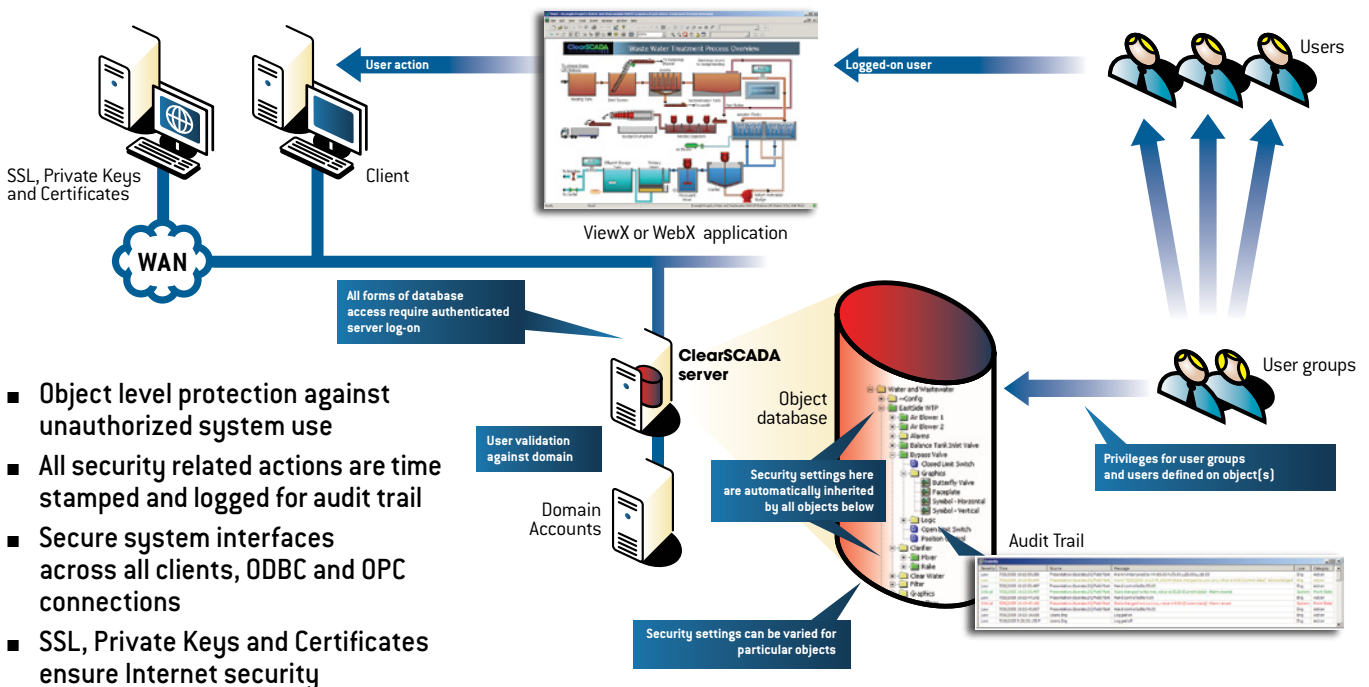
ClearSCADA employs object-based architecture to develop reusable object templates. At a low level these objects represent single devices, such as pumps and switches, and contain all associated tags, alarms and events, as well as security and communication parameters.

At a high level the objects can represent entire sub-systems, such as wastewater lift stations or electrical utility substations, and are typically comprised of groups of devices. Libraries of industry-specific templates can easily be built and replicated throughout the system and modifications made to the source template are automatically distributed throughout the multiple instances of the template within the system.

## Security

Today’s security-conscious climate demands that the modern SCADA system be able to prevent system compromise in order to provide safe and reliable services to the public. Malicious tampering from external sources and illicit activity by internal users must be controlled and audited. ClearSCADA is designed with exactly this level of security in mind. Unauthorized system infiltration is prevented while allowing password-based access for legitimate users. Engineers, for example, can be given full development and control capabilities while process operators have limited access based on their responsibilities. Security is configured to the object level during development, where a wide range

of permissions is applied to discrete system points. 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. The system uses password encryption, aging, dictionary, and inactivity logout. 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. Security permissions can be inherited through the database hierarchical structure. In order to furnish the complete security picture to system administrators, ClearSCADA provides comprehensive audit trail capabilities, including event journals of time-stamped actions, controls, alarms, and any changes to security settings. Each journal record contains Category, Alarm State, Client Address, Client Name, Comment, Deleted, ID, Message, Receipt Time, Record Time, Sequence Number, Severity, as well as Source Time and User fields for full audit trail logging.



- Object level protection against unauthorized system use
- All security related actions are time stamped and logged for audit trail
- Secure system interfaces across all clients, ODBC and OPC connections
- SSL, Private Keys and Certificates ensure Internet security

ClearSCADA applies security across all available interfaces including, ViewX, WebX, OLE Automation, ODBC and third-party OPC connections. For links using Internet networks, Secure Sockets Layers (SSL), Private Keys and Certificates are used to lock the system down.

## ClearSCADA Components

### Server

- Available point sizes: 500, 1500, 5000, 25k & 50k (for >50k, contact Control Microsystems)
- ClearSCADA Server comes standard with the following:
  - Redundancy for standby and performance firewall servers (redundant and performance firewall servers must be purchased separately)
  - Drivers: SCADAPack Modbus, DNP 3, IEC60870-5-101 and -104 (master and slave), Modbus, DF1, OPC Client, SNMP, NTP, ODBC/SQL, .Net API, Kingfisher
  - Event-based data Historian
  - Alarm and event subsystem
  - An Integral ViewX client (can only be used on Server)
  - Pager/email redirector system

### Server Options

- OPC Server for 3rd-party OPC client connectivity
- Drivers: RealFLO EFM, Kepware, Siemens S7 (For latest available drivers contact Control Microsystems)

### Clients

- ViewX: The ClearSCADA full-feature client. One license included with the purchase of ClearSCADA server.
- WebX: The ClearSCADA "thin" client. Driven by Internet Explorer. ClearSCADA web server activation is required for each server that shall provide web access.

## Licensing

- 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

- 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.

### ClearSCADA Fact Highlights:

- System sizes ranging from tens to hundreds of thousands of data points
- Built-in tools for seamless expansion of databases, servers, clients and users
- Supports 64-bit and 32-bit operating systems
- Dual and Triple server redundancy on single/dual LAN and WAN (minimum 128kbps, depending on database and system size)
- Performance firewall server for large systems
- Powerful data Historian, alarming and trending systems
- Localization for languages: English, Spanish, Russian, Finnish, Dutch and Norwegian
- EFM configuration and data-reading support for gas flow computer-equipped SCADAPacks
- Support for third-party software and hardware through the use of open architecture standards and communication protocols: OPC (DA, HDA, A&E, XML), OLE Automation, ODBC/SQL, HTTP, XML, DNP3, IEC60870-5-101 and -104 (master and slave), SCADAPack Modbus, Modbus, DF1, .Net Driver Development Kit (DDK)
- Multiple communication links supported, including serial, LAN/WAN, radio and PSTN
- RTU communications redundancy support over different media. i.e. Wireless with PSTN backup
- Component-object architecture allows for the development of reusable application objects
- System security, configured to the object level and based on user-access levels and object permissions
- Full function ViewX display client for mimics, trends, reports, control, alarms and events
- Each ViewX client can connect simultaneously up to 64 systems giving 'clustered' system capabilities. Each system can have independent point size and configuration and can include any of the redundancy options available
- Zero maintenance WebX client for full system operation including control through industry standard Internet Explorer; Remote management of the ClearSCADA Server or multiple servers in redundancy or clustered systems; Reports viewing; Trends: unlimited traces, zoom/pan/de-clutter, multiple smart axes, ruler, cut & paste, annotations and statistical analysis (Ave, Min, Max, Std dev, Variance).

