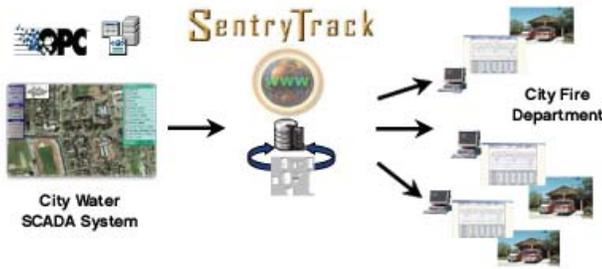


The Sage Advisor

SCADA, SECURITY & AUTOMATION NEWSLETTER

Volume 16, Issue 1 • Spring/Summer 2006

A Publication of Sage Designs, Inc.



SentryTrack Helps City Water Department Share Valuable SCADA Data with City Fire Department

As with so many city departments, valuable and critical information is captured but not readily available throughout the entire organization. In the case of the City of Davis, City water officials needed a cost-effective approach to share and allow secure access to their water SCADA system data with City fire officials. With the implementation of the SentryTrack ASP solution, fire officials now have real-time access via the Internet to the City's water system data from the existing water SCADA system. The SentryTrack system also notifies fire officials and other key City officials of operating parameters in the system, allowing for adjustments in operations procedure.

After the evaluation period, both City fire and water officials came away very pleased with the SentryTrack system. As the system is accepted for long-term service, City officials will benefit from the shared water system information, not only from an operations standpoint, but also with the ability to make the data available to other entities.

The conventional approach would have been to install a licensed web application from the SCADA software vendor which would

have cost nearly five times the SentryTrack solution, and would have taken weeks to implement. By choosing the SentryTrack hosted application, which is provided as a monthly subscription, the City saved thousands of dollars in up-front costs and total ownership costs, plus the system was up and running in a matter of hours, not weeks.

With the SentryTrack approach, organizations such as the City of Davis can easily organize information and capture intelligence from large pools of data, such as the City's water SCADA application. In this case, fire officials only needed access to a small percentage of the information contained in the water SCADA system. One of the inherent values of SentryTrack is its ability to leverage existing SCADA applications by sorting and managing information within those systems, and allowing secure access to specific personnel across an organization or entity. As illustrated by the City of Davis, SentryTrack offers a more cost-effective approach than licensed solutions in the summation, access, and management of existing SCADA information.

THE FUTURE IS HERE CONTROL MICROSYSTEMS

The remote monitoring and data acquisition industry, widely known as SCADA, has evolved and shed its skin a number of times over the past 40 years. From a simple tone telemetry in the 60's and 70's, to PC based platforms in the last 80's, it is now evolving to Web centric solutions. Industry experts and pundits have even come up with a new broader word for it, Object-to-Object or Machine-to-Machine (M2M). So, what's next? Adaptive SCADA.

Like adaptive cruise control, a system that automatically adjusts a car's speed to maintain a safe following distance especially in busy highways, adaptive SCADA is a system that will adjust itself to suit ever changing demands in data collection and remote monitoring. The system is comprised of smart field controllers that, when configured, can automatically decide if the data is worth sending immediately to report a critical alarm or process upset, or if it should be queued, delayed or augmented until later. The smart controller will be able to detect loss in a communication link with the main server, and immediately log and time stamp data in its non-volatile memory or in a mass-storage Flash drive. It will utilize the communication network efficiently to minimize cost and increase throughput. It may even decide to report critical data to other multiple servers, or even mobile operators, while still maintaining communication with its main server. And because security is a major concern, the field controller will encrypt data before it is transmitted over the communication link, will reject messages from unidentified sources that are not on its white-list, and will monitor its environment for intrusion.

The latest products from Control Microsystems bring the concept of Adaptive SCADA to life. The SCADAPack ES has an embedded historian allowing time stamped event logging for extended periods of time. Events can be logged in the



unit's internal memory or in a 1GB Compact Flash utility card that is easily accessible to the user. With multiple serial and Ethernet ports on-board, the SCADAPack ES is well suited for concurrent communications with multiple field devices. It can simultaneously report to several master servers based on the user's preference. It can share information with other peer units in the field reducing network traffic to the main server, while increasing the system's overall reliability. Control algorithms are developed using IEC 61131 compliant package and downloaded to the field controller remotely over any communication link.

The SCADAPack 2 provides similar functionality to the SCADAPack ES, but in a small form factor. This competitively priced unit offers three serial ports, one 100 BaseT Ethernet port and two USB ports; a peripheral port for PC connectivity and a host USB port to attach mass storage devices (USB memory stick). Like the SCADAPack ES, the SCADAPack 2 has an embedded data historian for data and event logging with time

continues on page 2

Inside This Issue

- Free SCADA Seminars
- SCADAPack and Ladder Logic Training Schedule
- Advanced Command-and-Control Surveillance
- Narrow Band Radio Surveillance



Wireless Video Surveillance without Line of Sight

Facility operators have recognized video surveillance as the best method for improving security and reducing vulnerability. Additionally, the disruptions and costs associated with false alarms and vandalism can be greatly reduced when alarms can be verified and first responders alerted. These problems are of particular concern with remote facilities typical of water supply, refining and utility operations. The major barrier when seeking to provide operators with visual information from remote sites is the cost of installation. CCTV systems require the installation of new and separate communications networks. Running cable across broad expanses of area can be cost prohibitive.

The Longwatch Video Surveillance System was specifically designed to solve this problem for SCADA system operators. The Longwatch system uses existing SCADA low-bandwidth communication networks which are able to work in hilly or wooded terrain to transmit video. System operators can now manage both system alarms and security alarms on the same system, computer, and monitor. Longwatch is designed for ease of installation and use. Alarms are automatically sent with a video clip for reviewing, storing, or forwarding to a designated party via a cell phone or over the internet.

Ask us about a trial system for your agency.

THE FUTURE IS HERE *continued from page 1*

stamp. The unit can communicate with and report to multiple devices using a variety of communication protocols. Furthermore, SCADAPack 2 has a configurable power management feature that makes it ideal for solar applications.

To bring the concept of Adaptive SCADA to reality, Control Microsystems leveraged the knowledge and experience of industry veterans around the world and engaged them in a collaborative effort to innovate. The result is ClearSCADA, one of the most advanced SCADA Management Software packages available in the market today. ClearSCADA was designed from the ground up to manage small and large Wide Area SCADA systems and addresses critical issues such as unreliable communication links, security, data

integrity and ease of deployment.

ClearSCADA is optimized for low-bandwidth communications over public networks, such as dial-up land lines, SMS, GSM and 1x cellular networks. It is also well suited for private radio networks. Extensive diagnostics features are available for monitoring the performance of the communication network.

ClearSCADA supports main and standby communication links to remote devices for uninterrupted monitoring and control. It maintains data integrity across the system as a result of its inherent ability to synchronize historical events in its database after a communication loss with intelligent field controllers, such as SCADAPack 2 and SCADAPack ES. Eliminating gaps in data helps

continues on page 7

PureActiv™ Provides Advanced Command-and-Control Surveillance Systems

PureTech Systems Inc. is a leading manufacturer of wide-area surveillance solutions for Fortune 1000 firms, airports, utilities, seaports, schools, prisons and federal, state and local governments. Using sophisticated technology, the company provides customers with perimeter intrusion detection and proactive alert notification systems that enable them to efficiently and effectively monitor and control multiple remote sites from a single location—designed to safeguard lives, facilities, and other high-value assets.

PureTech System's premier security solution is PureActiv™, an automated outdoor surveillance system incorporating innovative geographic map presentations, advanced object detection and tracking, fence intrusion detection, automated camera steering, scalable video distribution, and automated security policy response. Together, this technology provides world-class situational awareness and proactive management to address critical security threats.

PureActiv arms utilities with a powerful 'command and control' system for detecting, identifying and tracking security breaches within and among these expansive, complex facilities. Integrating satellite imagery of the water utilities, internal and external cameras, fence detection systems and other security variables, PureActiv monitors internal and external locations, including perimeters, reservoirs, treatment plants, lift stations, and much more.

Using PureActiv's interactive interface, operators can program PureActiv to account for certain control parameters, such as speed, size and shape, and tag specific areas of concern, such as an unauthorized area or an unused

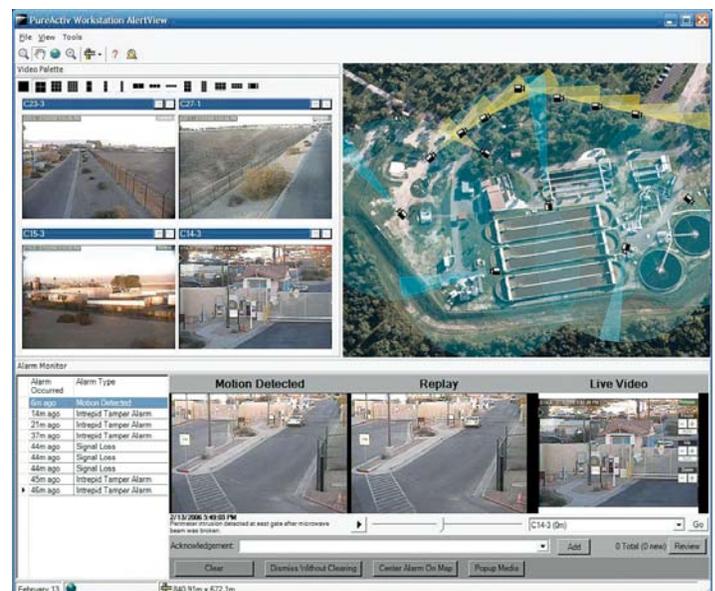


security door. The PureActiv system identifies when designated security parameters have been violated, notifies security personnel with an alarm, tracks and records the intrusion and provides operators with the information they need to orchestrate an appropriate emergency response.

Recently, it became easier for PureTech Systems to provide customers with innovative surveillance and security systems. The company's PureActiv technology was awarded a highly coveted Federal Supply Schedule contract from the General Services Administration (GSA). This agreement, which began Nov. 1, 2005 and extends through Oct. 31, 2010, positions PureTech Systems as a pre-approved vendor, allowing the company to provide its PureActiv technology directly to GSA contractors around the world—leaders whose facilities will benefit from this state-of-the-art surveillance solution.

GSA establishes long-term contractual relationships with thousands of commercial firms, providing GSA contractors with access to more than 10 million pre-screened supplies and services. PureTech's contract with GSA will enable government agencies to purchase PureActiv directly from the company, simplifying procurement procedures, eliminating the need for RFPs, reducing lead times and lowering administrative costs.

With headquarters in Phoenix, Arizona, PureTech Systems serves national and international markets. PureTech is a wholly owned subsidiary of Pure Technologies Ltd (TSX-V: PUR).



Reliable SCADA Starts Here

Industry-renowned SCADAPack Controllers
Field-proven Modbus Transmitters
State-of-the-art SCADA Management Software

SCADAPack Controllers

**For Remote Monitoring and Control Applications in Oil and Gas,
Water/Wastewater, Electrical Utilities and More**

- Powerful, compact controllers with PLC and RTU functionality
- cULus Class 1, Div 2 Hazardous Area Rating
- Remotely programmable as master or slave
- Relay Ladder Logic, IEC 61131-3 and multitasking C/C++ languages
- Native protocols - Modbus RTU, Modbus ASCII, DNP3
- Wireless and Ethernet options
- Optional Gas Flow Computer with RealFLO6 Custody Transfer Software
- Three year warranty

Operator Interface Terminals, Expansion and Communication Modules

- SCADAPack Vision programmable Operator Interface Terminals
- Wide range of digital and analog I/O expansion modules
- Spread spectrum radio transceivers
- Dial-up and leased line modems
- Ethernet gateway and switch



Modbus Transmitters

For Gas Flow Measurement, Control and Custody Transfer

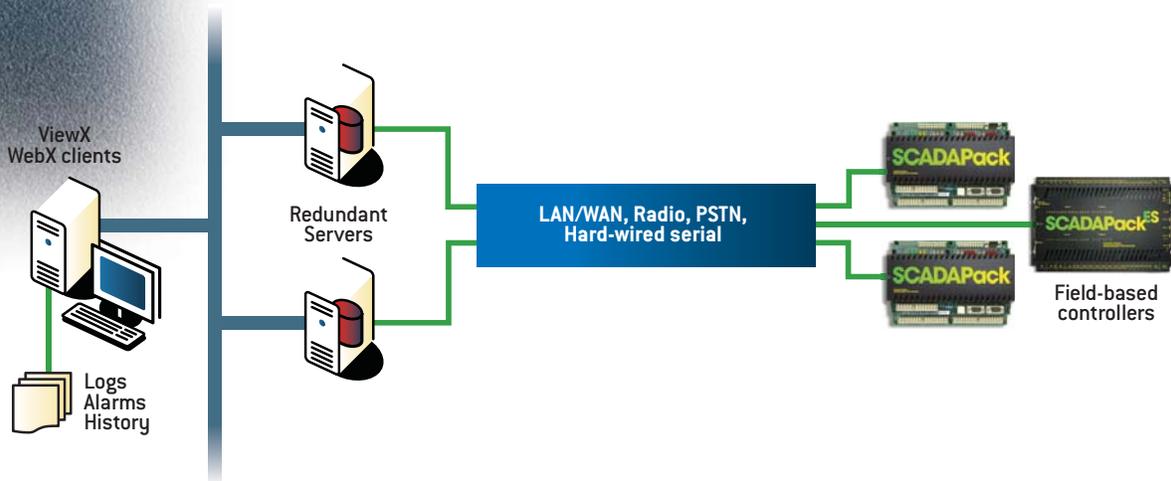
- Multivariable and single variable transmitters
- For use with RealFLO6 Custody Transfer Software
- cULus Class 1, Div 1 Hazardous Area Rating
- Modbus over serial or Ethernet
- Optional analog I/O-based PID controller
- Available with integrated PLC Gas Flow Computer (RealFLO 4202GFC)
- Optional LCD display
- Two year warranty



ClearSCADA SCADA Management Software

Time Saving Object-Oriented Management Platform Optimized for SCADA

- Efficient client/server architecture
- Built-in support for event-based protocols such as DNP3 and OPC
- Integrated reporting and historian with automated data backfilling
- Zero-configuration web server with full system control through web clients
- Advanced redundancy options
- Automated alarm redirection



**CONTROL
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Free SCADA Seminars

May 23, 2006

Holiday Inn Concord
1050 Burnett Avenue
Concord, CA
8:00 AM – Noon

May 24, 2006

Best Western Ontario Airport
3400 Shelby St.
Ontario, CA
8:00 AM – Noon

AGENDA

These seminars are designed to educate utility managers and staff who are planning new, upgraded, or replacement SCADA or Security Systems. While highlighting the products offered by Sage Designs, much of the information is intended to be generic and of use in the selection of equipment from many sources. These educational seminars have been attended by hundreds of SCADA and security users over the past ten years.

Hany Fouda, Industry Director of Water and Wastewater for Control Microsystems Inc., will present their newest hardware offering, including the SCADAPack 2, the SCADAPack ES and the SCADAPack ER.

Larry Bowe, Jr., President of PureTech Systems Inc., will discuss how intelligent surveillance systems can reduce false alarms without sacrificing sensitivity.

Tony Sannella, President of Sage Designs, will demonstrate DNP configuration in a SCADAPack32 and show how DNP can store time-stamped data for reporting to the ClearSCADA master on a periodic or event-based basis. He will also configure a ClearSCADA system to accept the data and back-fill trends with logged data.

Michael Dunn, Vice President of SentryTrack Systems, will discuss enhancing the value of SCADA and RTU data by propagating and managing information across the internet. He will also describe applications utilizing the SCADAPack RTU and Airlink Cellular modems with the SentryTrack system specific to water and wastewater data management.

Pre-registration Required

Registration Form

Complete and fax to 1-888-FAX-SAGE or 415-331-8969.

- I would like to attend:**
- Concord Seminar on Tuesday, May 23, 2006, 8:00-Noon
 - Ontario Seminar on Wednesday, May 24, 2006, 8:00-Noon

Name: _____ **Title:** _____

Company: _____

Address: _____

Phone: _____ **Fax:** _____

Email: _____

*There is no charge for this event, but we would appreciate a call if you need to cancel your reservation.
Seating is limited.*



SCADAPack & Ladder Logic Training Class

May 17-19, 2006 Lancaster, CA



Sage Designs is hosting a 3-day training course for Control Microsystems' SCADAPack Controllers and TelePACE Ladder Logic programming. An optional SCADAPack or SCADAPack32 is available at a special price* with the course — an excellent way to get started using Control Microsystems' Controllers.

Day 1	8:00-4:00 PM	SCADAPack controller operation, Series 5000 I/O, TelePACE introduction.
Day 2	8:00-4:00 PM	TelePACE advanced programming techniques and advanced functions.
Day 3	8:00-2:00 PM	Controller communications, Modbus Master/Slave protocol, Diagnostics, Modems

Instructor: Tony Sannella, Sage Designs, a Control Microsystems' Factory-certified Instructor.

Location: Antelope Valley College, 3041 West Avenue K, Building TE7, Room TE7 123, Lancaster, CA. (See our website Events Page for Maps.)

Who should attend? Individuals interested in participating in a highly technical, in-depth course on Ladder Logic and how it applies to Control Microsystems' products. Prior Ladders experience is highly recommended.

What should I bring? It is a requirement of the course to bring a Laptop Computer with a minimum of Win98 with 15mb free disk space, CD ROM and RS232 serial port. You also need to have software permissions/passwords to install course software on your PC.

What is provided? Lunch and coffee, soft drinks and snacks each day.

To Register: Call 1-888-ASK-SAGE to confirm that the class is still open. Then complete the information below and fax to us at 1-888-FAX-SAGE (888-329-7243), and arrange for payment.

Name (please print):	Title:
Company:	Phone:
Address:	Fax:
	Email:
City/State/Zip:	

22 Contact Hours

PLEASE CHECK ONE OF THE FOLLOWING.

- Course only @ \$1,075 (not taxable)
- Course with optional SPT Training Kit* @ \$2,045 + Sales Tax on \$970 @ your CA sales tax rate
- Course with optional SPT32 Training Kit* @ \$2,135 + Sales Tax on \$1,060 @ your CA sales tax rate

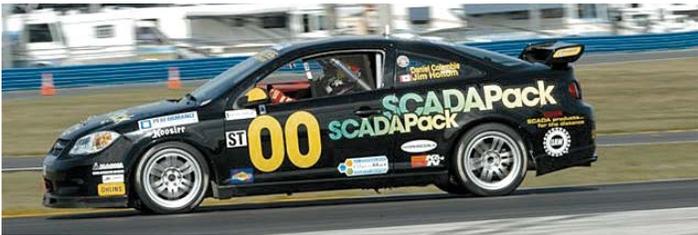
* **Limit one per organization.** Training Kits will be shipped N/C to training facility, provided your registration is received approximately 3 weeks before the first day of the course. **SPT Training Kit**, a \$3,748 value, consists of a SCADAPack Controller (#P1-132-01-0-1), TelePACE Ladders, Hardware Manual (on CD-ROM), 5699 I/O Simulator board, AC/2 Transformer, & programming cable. **SPT32 Training Kit**, a \$4,567 value, consists of a SCADAPack32 Controller (P4-102-01-0-1), TelePACE Ladders, Hardware Manual (on CD-ROM), 5699 I/O Simulator board, AC/2 Transformer, & programming cable.

METHOD OF PAYMENT: Course fees are payable by the first day of class.

- A check is being mailed with a copy of this form. Please include applicable sales taxes, as indicated above.
- Bill my company on attached PO # _____ . PO must cover total cost of both course and optional demo, including applicable sales taxes.
- Charge to my credit card. Amount charged will include applicable sales taxes, as indicated above.
 - Visa Mastercard Card #: _____ Exp. Date (MO/YR): ____/____
 - Cardholder Name (please print): _____
 - Cardholder Authorization Signature: _____

***** Registration Deadline: May 5, 2006 — Seating is limited. *****

All registrations are subject to cancellation fees. A confirmation notice will be sent to all registrants on or before the deadline date.



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EXtreme Support ...

One of our integrator customers installed a SCADA system using a combination of Control Microsystems' SCADAPack models utilizing DNP3 protocol, as it answered a number of issues with the customer's needs for complex communications capabilities such as unsolicited messaging.

Unfortunately, there seemed to be a problem with some of the units which baffled the integrator as well as Control Microsystems' support group. Numerous attempts were made at tracking down and resolving the problem, which remained elusive.

Dean Goldsmith, Control Microsystems' Technical Support Group Leader, went to the extreme measure of assembling a system at the factory which was virtually identical to the one in the field, loaded all of the integrator's code into controllers of the same make and model, and ran the system under circumstances as close as possible to the actual application in the field. Running the system for hours finally revealed that a combination of some of the settings selected for the DNP protocol, combined with the fact that the controller was using the power saving sleep mode, revealed an unforeseen combination of effects that had not been anticipated or previously tested. The problem was identified and resolved with a firmware change in the controller.

While it is impossible for a manufacturer to test for every possible combination of programming and configuration that might exist, it is only rare that you will find a manufacturer willing to go to such lengths to solve such an issue, rather than insist that the integrator use a work-around to solve such a problem.

Control Microsystems is a market leader in the development and manufacturing of SCADA hardware and software. The company's SCADAPack™ controllers are installed in over 100,000 installations around the world and are known for their high value and reliability. The SCADAPack controller product line combines standard PLC and RTU features with ladder logic programming, flexible I/O, and data logging capabilities. All Control Microsystems products are marketed around the world through a comprehensive network of product representatives, resellers and distributors. As part of its industry-leading customer support program, Control Microsystems offers direct technical and sales support through dedicated factory teams. For more information visit www.controlmicrosystems.com.

**SCADA products...
for the distance**

THE FUTURE IS HERE *continued from page 2*

users to comply with regulatory requirements, provide accurate reporting and maintain high level of data availability.

Multiple security models are available in ClearSCADA. Security is configured to the object level where a wide range of permissions is applied to discrete system points. Depending on the permission policies, one group of users may see details on a screen that are not available to another group accessing the same screen. This level of intelligence and flexibility allow a user to offer access to a much larger group of internal and external stakeholders without compromising system security and integrity.

Furthermore, to reduce time-to-deployment and ongoing maintenance, ClearSCADA offers a zero-configuration Web client that is ideal for monitoring and control the SCADA system through a standard web browser. All features, including full mimic display support, control and trending capabilities, alarms and reporting, are made accessible through a secure SSL connection that is managed by security login privileges.

ClearSCADA, when combined with the SCADAPack ES and SCADAPack 2 field controllers, offers a comprehensive, scalable and highly agile SCADA system that fits current and future needs.

Victor Valley Completes SCADA System with Demo Disk

With the booming growth of the High Desert, Victor Valley Water District is continually expanding and improving their existing SCADA system, which services 54 square miles of the area. The District was planning to upgrade to another product and had gone as far as paying for training on that product when Jeff Zizzi, VVWD's Network Administrator and in-house SCADA resource, heard about the ClearSCADA HMI from Control Microsystems. As a good customer of Control Microsystems' SCADAPack PLCs, Jeff was familiar with their commitment to quality products and customer support, so it was easy for him to agree to a demonstration of the new product.

Since Ian Metcalfe, the ClearSCADA resource for the Western US, was in the area for other presentations, we were able to get him in for the presentation at the water district. The presentation surfaced many questions from the group at Victor Valley, and further peaked interest in the capabilities of the software. The District wanted a truly open platform with industry standard open architecture formats and protocols. Seamless redundant and expandable client/server architecture was also important for a growing SCADA System. Also of interest to the staff was the inclusion of IEC 6-1131 Logic engine supporting Structured Text, Sequential Function Charts, Ladder Logic, and Function Block Diagrams integrated in the Clear SCADA to manipulate data. "We were most impressed with the Zero Data Loss, using of the DNP-3 protocol."

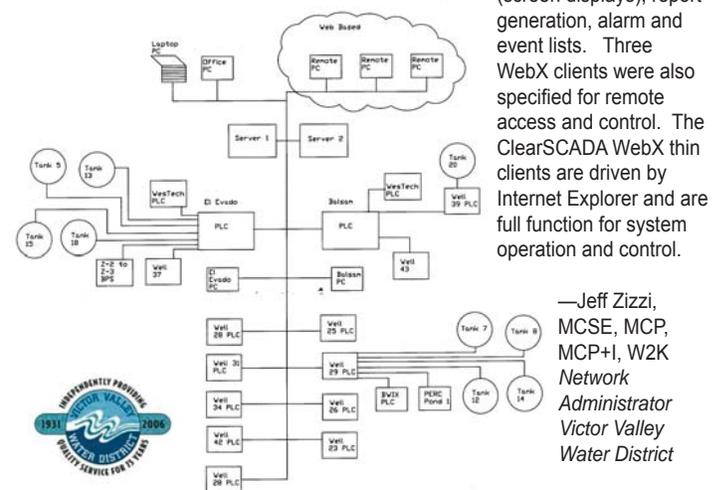
Of major interest to the Water District staff, were ways to save time in development of the new HMI Software. Ian Metcalfe suggested ClearSCADA's

support of OLE, DDE SQL and other open architecture standards, would allow an Excel spreadsheet with the existing SCADA system's tag names, SCADAPack registers, descriptions, set points, and values to be imported by ClearSCADA, thereby populating the database and saving an enormous amount of time inputting the data. The powerful online object-based architecture allowed development of reusable objects, templates, and even entire sub-systems templates, alleviating the tedious task of replicating typical site screen development, such as well sites, reservoir sites and pump stations. Modifications to a source template are automatically distributed throughout the multiple instances of the template within the system.

Upon completion of the ClearSCADA presentation, Jeff Zizzi requested a demo disk be loaded on his computer, allowing him 2 hours of development time before the program needs to be restarted. Using this full-function demo, Jeff was able to develop the majority of the database and screens for his SCADA system while awaiting the order process to work its way through the system. The Screens are currently being developed by the VVWD Production Supervisor Steve Ashton.

The District determined that to be cost-effective and yet have remote access to the system, they would require Redundant Servers. The ClearSCADA redundant servers provide a seamless redundancy with all the data being simultaneously saved on each server. There are a total of two (redundant) Database Servers, four ViewX Clients Engineering Stations, one on each server plus two more for development of information, mimics (screen displays), report generation, alarm and event lists. Three WebX clients were also specified for remote access and control. The ClearSCADA WebX thin clients are driven by Internet Explorer and are full function for system operation and control.

—Jeff Zizzi,
MCSE, MCP,
MCP+I, W2K
Network
Administrator
Victor Valley
Water District



VVWD System Diagram

The Sage Advisor

SCADA, SECURITY & AUTOMATION NEWSLETTER

Calendar of Events

- April 4-7, 2006 CWEA 2006 Annual Conference, Sacramento Convention Center, Sacramento, CA
- April 24-28, 2006 CA-NV-AWWA 2006 Spring Conference, Hyatt Regency SFO, Burlingame, CA
- May 3, 2006 California Rural Water Association 2006 Education and Exhibitor Expo, Embassy Suites, South Lake Tahoe, CA
- May 9-12, 2006 ACWA, 2006 Spring Conference, Portola Plaza & Marriott Hotels, Monterey, CA
- May 17-19, 2006 SCADAPack & Ladder Logic Training Class, Lancaster, CA*
- May 23, 2006 Free SCADA Seminar, Concord, CA*
- May 24, 2006 Free SCADA Seminar, Ontario, CA*
- June 6-8, 2006 SCADAPack & Ladder Logic Training Class, Lake Tahoe, CA*
- June 11-14, 2006 AWWA - ACE 2006 Annual Conference, San Antonio, TX
- June 21, 2006 Wine Country Water Works, Annual Show, Healdsburg, CA
- Sept. 24-27, 2006 National Rural Water Association (NRWA), Dallas, TX, Sept. 24-27, 2006
- Oct. 2-6, 2006 CA-NV-AWWA 2006 Fall Conference, Hyatt Regency, Long Beach, CA
- Nov. 9-10, 2006 Remote Monitoring & Networking 2006 & On-site Power 2006, The Westin Long Beach, Long Beach, CA.
- Dec. 5-8, 2006 ACWA, 2006 Fall Conference, Disneyland Hotel, Anaheim, CA

* Download the [registration form](#) from our website or call for more information.

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Longwatch Low Bandwidth Video Surveillance
PureTech Systems PureActiv™ Infrastructure Surveillance Technology
ProSoft RadioLINX SCADA Radios
Sentry Track Web-based Info Management
Teledesign Systems SCADA Radios
WIN-911® Alarm Notification Software

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