

The Sage Advisor

A Publication of Sage Designs, Inc., Mill Valley, CA

Fall/Winter 2000

□ □ □ Industrial Automation & SCADA Specialists serving California & Nevada □ □ □

What's New with Lookout™

National Instruments will begin shipping the latest version of the market's easiest-to-use HMI/SCADA software, Lookout, in November 2000. With Lookout, you can build your industrial automation applications faster. Introduced in 1989, Lookout continues to be the value leader in industrial automation software, combining the power of distributed object-oriented technology, ActiveX controls, and Internet capabilities. Highlights of Lookout Version 4.5 include:

Sonoma County Water Agency

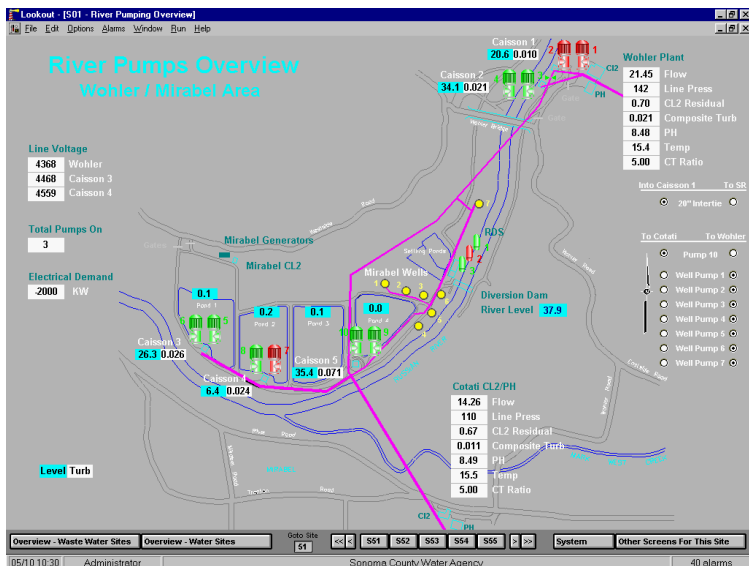
World Class SCADA

The Challenge:

In-house integration of a networked SCADA system to provide reliable control of the water distribution system and monitoring of hydroelectric generating facility and wastewater treatment plants.

The Solution:

Using Lookout to directly control over 60 RTUs over a radio network, and monitor the entire operation through T1 Ethernet lines to remote Lookout Servers.



Lookout Overview of Sonoma County Water Agency's Water System

Introduction:

The Sonoma County Water Agency is a water wholesaler and flood control district that also is responsible for several wastewater treatment facilities in the Sonoma County area. This diverse system provides water to about 600,000 residences in Sonoma and Marin counties, as well as sewage treatment for 15,340 Sonoma County customers.

- **ActiveX Control Object** — Include any ActiveX control in your Lookout processes, including the ten versatile controls from National Instruments included with Lookout 4.5. ActiveX controls are based on component object model (COM) technology, the underlying architecture that forms the foundation of higher-level software services, such as those provided by OPC (OLE for process control), a technology for transferring and sharing information among several applications. With ActiveX capabilities, Lookout is opened to any programming language in the market, such as Visual Basic, Java, C, C++ and Borland Delphi.
- **Aggregate Objects** — Create Lookout processes that can be used and reused like objects, without tedious and repetitive rebuilding of systems and processes you have built before. With this capability, you can accomplish modular project development, so that numerous people can work on large projects and reduce application development effort on repetitive tasks.
- **Enhanced Internet Capabilities** — Build custom HTML reports to be viewed over the Web, export multiple processes and monitor and control your processes from the Web.
- **HTML Reports** — Generate user-friendly HTML reports from Lookout, which contain both data and trend charts. You can obtain real-time information by just refreshing the browser. Historical data can be viewed by using SQL queries.
- **Mailer Object** — Distribute Lookout data or alarms through your E-mail system.
- **Industry-Standard OPC 2.0 Compatibility** — Lookout 4.5 is an OPC 2.0 server, so third-party clients have access to real-time data published in a networked Lookout system. Lookout can connect to a variety of third-party drivers for PLCs and industrial buses.
- **Joystick Object** — Use the joystick object to control moving parts like conveyors and overhead cranes, or simulate production scenarios.
- **Image Navigator** — A new, large library of over 3,200 graphics, from symbols to detailed drawings in categories such as conveyors, electrical, pumps, tanks, ISA symbols and material handling. Graphics can be rotated, and colors can be changed and used within Lookout.

Lookout 4.5 incorporates new enhancements to usability and functionality, including a new color selector with 24-bit color capability, multi-line text entry and display, and new driver object classes. These help you in developing and maintaining applications and training operators so that you can produce a faster return on your investment.

Call Sage Designs, NI's California Lookout distributor, to find out more. Sage Designs offers free training with the first-time purchase of any Lookout development system. Working smart just got easy.

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Do It Yourself SCADA?

What about homegrown SCADA? Can a reasonably competent person integrate one's own system? No one can answer that question for you. The most dangerous words that can come out of a vendor's mouth are "it's easy", and you are likely to hear them on a regular basis as you investigate possible solutions to your application. Unfortunately, "easy" is a relative term.

While it is true that the integration of a SCADA system has been greatly simplified by the introduction of configured software and intuitively programmed hardware in the last few years, there is still a great deal to be learned before you can do your own system. There is no single element of a system that the average person can't master, but there are thousands of things that one must know to successfully complete a project. The reasons for learning all of the things one must know seem obvious — freedom from relying on outside expertise, reducing the cost of your system and developing exactly what you want in your system.

On the other hand, the skills required to integrate a system are much more involved than the skills needed to maintain one. You will need to depend on your maintenance skills for many years to come, while the integration skill set is one that you will have little use for in the future. The question comes down to one of resources. If your available assets includes individuals that have a working knowledge and interest in general computer knowledge and personnel with the time and desire to invest in learning a skill set that you will only use sparingly, you may be able to pull it off. On the other hand, a system integrator has already mastered the skills necessary and a good one will also understand your needs almost as well as you, since they have worked with customers with similar systems many times before. As long as you do not get trapped by a system that only one consultant can truly work with, in other words a closed system, there is little reason to fear losing control of your fate.

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Looking for a Systems Integrator?

Sage Designs' SCADA products are some of the most widely used and supported products available. If you need an integrator to help you implement your SCADA system, look no further than a phone call to us. Virtually every major SCADA systems integrator in Northern California has used our SCADA products on at least one project. If you would like us to recommend someone near you, we'd be happy to refer you. Some of the integrators include: Able Baker Automation, Advanced Control Systems, Analytical & Construction Services, Automated Control & Technical Services, Bat Electric, Calcon Systems, Carollo Engineers, CH2M Hill, Concepts in Controls, Control Manufacturing Company, Control Systems West, CRA-TEK Industrial Controls, DST Controls, Electro Solutions, The Foxboro Company, HSQ Technology, Krug-Bixby-Long Associates, Meyer Control Corporation, Real Enterprise Solutions, Rescue Engineers, Sierra Control Systems, Telstar, Tesco Controls, Transdyn Controls, Turnupseed Electric Service, and Westin Engineering.

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New from Control Microsystems SCADA Server

SCADA Server™ is the newest SCADA communications software from Control Microsystems. SCADA Server is an OPC (OLE for Process Control) server that looks after the details of communication between host computers and a SCADA network. SCADA Server works with dial-up telephones, half-duplex radios or leased line modems, full duplex systems and any other communication system using Modbus and a serial port on the host computer. SCADA Server even supports unsolicited (report-by-exception) messages, and lets SCADAPack programming tools be used **at the same time** as the host computer is polling the SCADA network. SCADA Server makes the communication system flexible and easy to set-up.

SCADA Server can be used with any OPC client supporting custom interface version 1.0. SCADA Server also provides an easy solution for field communication between any Modbus device and custom applications written in Visual Basic™ or Visual C, or even Excel using Visual Basic for Applications.

Features of the SCADA Server:

- Half-Duplex (RTS/CTS flow control) and associated timing.
- Dial-up telephone with facility for initiating or answering calls to and from the field (this feature is not for use with TelePACE, IEC61131, the SCADAPack firmware loader, or RealFLO. Each of these packages has their own dial-up facility included with the package).
- Extended addressing option allowing addressing of up to 65,534 field devices.
- Slave/Master capability allowing for receipt of unsolicited Modbus messages originating from the field.
- Automation interface for use with client programs developed with Visual Basic, including applications such as Excel incorporating Visual Basic for Applications.
- Full multithreaded application.
- Custom interface version 1.0 for use with OPC client programs developed in C/C++ and most HMI/SCADA Host software, including National Instruments' Lookout.
- Browsing of the server address space.
- DCOM support allowing access to SCADA data by multiple clients over the LAN.

Sonoma County Water Agency World Class SCADA

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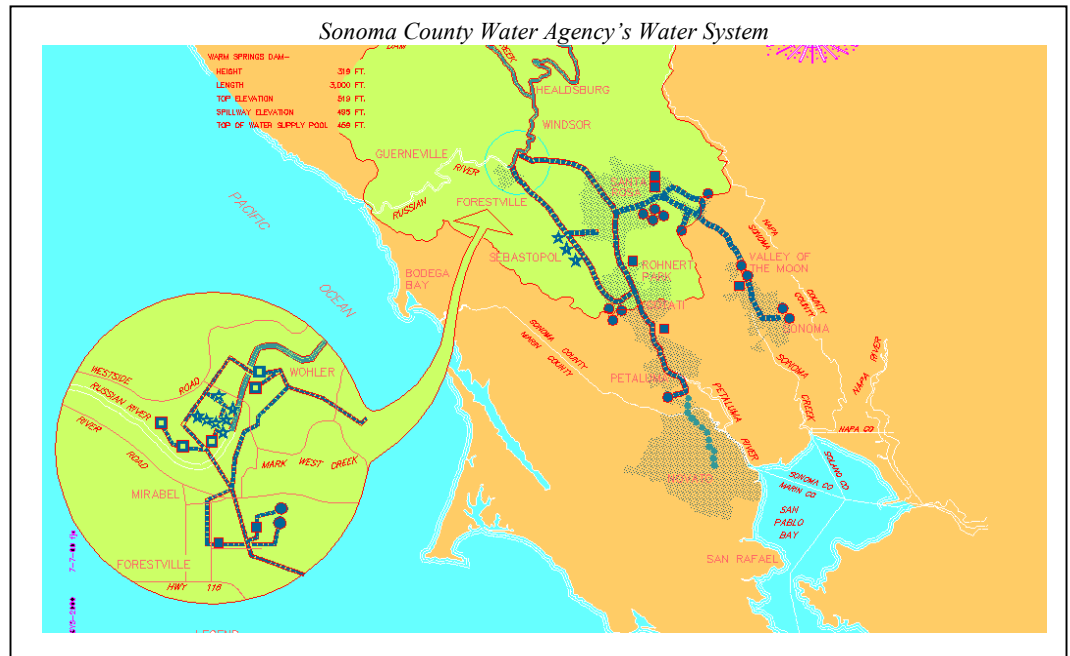
The agency needed to replace an aging telemetry system with one that would allow them to continue their growth as their systems are upgraded and expanded in the Northern California area. Since the Agency has in-house electronic technicians and engineering programming resources, the decision was made to integrate a new system in-house. After an extensive review of most of the other major HMI/SCADA software packages, a “Big Name” package was purchased, rather than Lookout.

Samuel (Sam) Smith Jr., Engineering and Programming Manager said, “We purchased one of the products and got to the point of bringing up sites and discovered that the particular product was lacking in radio communications capability and severely impaired by the quality of customer support.” About then an electronic technician, Don Swanz, brought in an early demo version of Lookout and was able to make the radio interface work in a couple of hours with the help of resident PLC expert, Roger Foote.

Sam recognized a good thing when he saw it. “At that point we started using Lookout and found that Lookout worked really well for our radio communications. Since most of our RTUs interface with radio communications, we went with it and we’re glad we did.”

Currently, the Lookout system at the Operations and Maintenance Center connects with over 60 RTU sites in the SCADA system mostly via analog radio, with a few over analog leased lines. Additionally, it connects with two remote Lookout Servers through T-1 lines at wastewater treatment plants Sonoma Valley CSD and Russian River CSD which about 50 miles away in opposite directions.

Sonoma County Water Agency has created a system which permits



operation of all facilities from the O&M center in Santa Rosa, or remotely from either the Russian River WWTP or the Sonoma Valley WWTP. This allows operators on night or weekend shifts to stay at one of the remote locations in the event of local problems and still attend to their regular duties, without calling in additional operators to monitor at O&M.

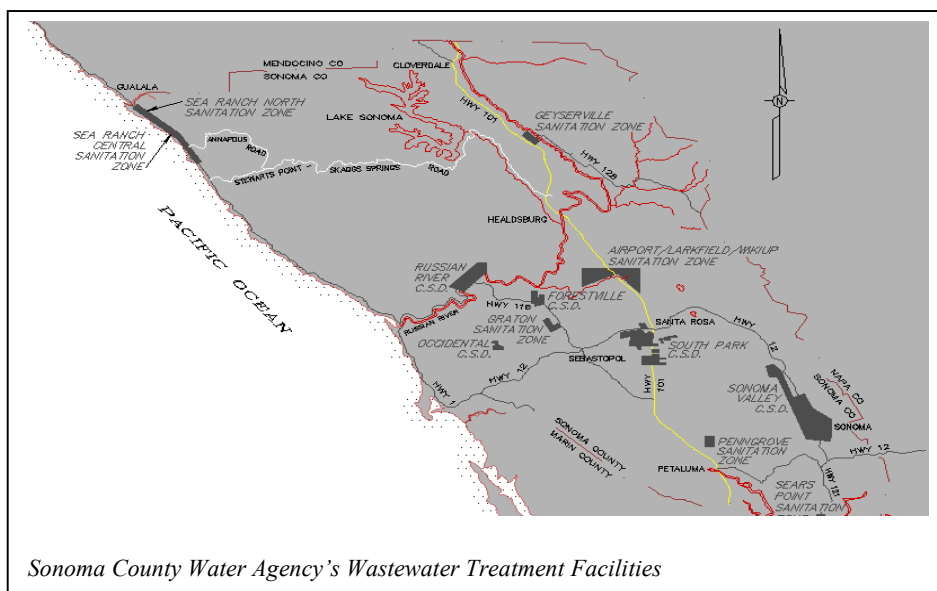
“The in-house integration of the SCADA software into our system was a primary goal of the Agency,” continued Sam Smith. “To make this possible, we attended a 2-day, hands-on, National Instruments’ Lookout Basics Course that was taught by Tony Sannella of Sage Designs. After the 2-day course, we hit the ground running and we had Tony come in for a series of 16 half-day on-site classes to help as we got into the more advanced stuff that needed to be done in our own system. He was helpful in suggesting what the best practices were, and how to make what we wanted from the software come together smoothly.”

At this point SCWA has 8 Lookout licenses, but they are far from finished. One of the licenses is for an unlimited client version that will allow the agency to publish some of their Lookout screens on their web site, if they decide to add some real-time data for public consumption. Whether or not they decide to publish Lookout screens on the web, authorized personnel will be able to log into Lookout from any of the 200+ Intranet browsers on their network and monitor the SCADA system from their desks.

According to Sam Smith, “We wanted a world-class SCADA system, and got one at a bargain price.”

Sam Smith’s phone number is available by calling Tony Sannella at Sage Designs, Inc., 1-888-ASK-SAGE or via e-mail ts@sagedesignsinc.com.

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Sonoma County Water Agency's Wastewater Treatment Facilities