

# Vista Control Systems

## Vsystem

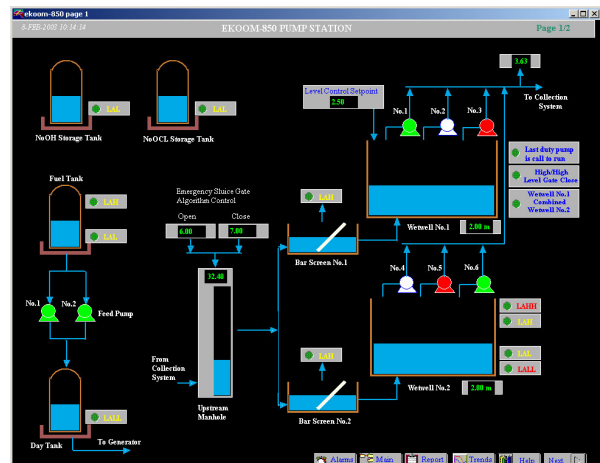
More than the average HMI: Vsystem is an integrated set of tools

### What is Vsystem?

Vsystem is a general-purpose SCADA/HMI toolbox, easily tailored for process automation and SCADA systems. Some of the major benefits of using Vsystem are listed below.

### Vsystem Benefits

- Choose the computer platform(s) best suited to the job.
- Mix operating systems as you wish. Use trusted systems for mission-critical requirements, popular systems for operator stations, and deterministic systems for any hard real-time functions.
- Monitor, store and control all data, no matter what the frequency or type, including operator interactions, if you prefer.
- Design the control and monitoring visuals you need, easily and flexibly.
- Diagnose and correct problems and improve process and product by collecting and storing data that records the entire process and state of the production equipment. You can completely monitor your process and be in full control.
- Monitor the state of mechanical equipment at high data input rates, if required, in order to optimize operations and avoid mechanical failures.
- Add in video frames from the local and remote sites. Display and record pictures with all the other data, correlated all together.
- Reduce development and maintenance costs. Vsystem gives you an integrated set of applications for historian, real-time, and HMI—no complications of interfaces between different products.
- Improve productivity and quality, replay recorded data for operator training and/or human factors study. The Vsystem architecture makes data replay a very simple function to implement “out of the box.”
- Easily implement a training system by adding a computer model of the process to a copy of the live system.
- Extend the system with new versions of Vsystem without updating older versions. In multi-computer systems, update Vsystem one computer at a time. All versions since V2.6 (shipped in 1995) inter-communicate on the network.
- Easily adapt the system to meet your specific needs now and in the future. Vsystem’s ease of use and flexibility gives users all the documented software interfaces needed to incorporate application-specific algorithms and code.
- Protect your application development through required changes in computer platforms forced by technology changes.
- Extend the system as needed with simple, transparent, “out of the box” TCP/IP communications.
- Get help when you need it. Vista Control Systems prides itself on the quality and rapid response of its support team. Talk to the experts to get your problems resolved quickly.
- Use the high performance of Vsystem to greatly improve troubleshooting and build models using historical data techniques that represent the actual process, and thus far better control the process. This is possible because data is read and processed at process frequencies.



## Vsystem Description

Vsystem runs on and is the same product on eight computer platforms, including Windows NT/2000/XP, Solaris, Tru-64 UNIX, OpenVMS (VAX, Alpha and Itanium), Linux, and Concurrent PowerUX and RedHawk. The following points are just highlights of Vsystem:

## Vsystem components include

**Vaccess®** A networked, user-extendable, real-time database/data-bus and library of access routines. Its unique, event-driven architecture results in superior performance, speed, scalability, manageability, and security. Vaccess is similar in structure to an electronic crate—like a VME crate—into which a variety of independent modules plug. A Java server, ODBC and OPC are available.

**Vdraw®** A graphical user interface.

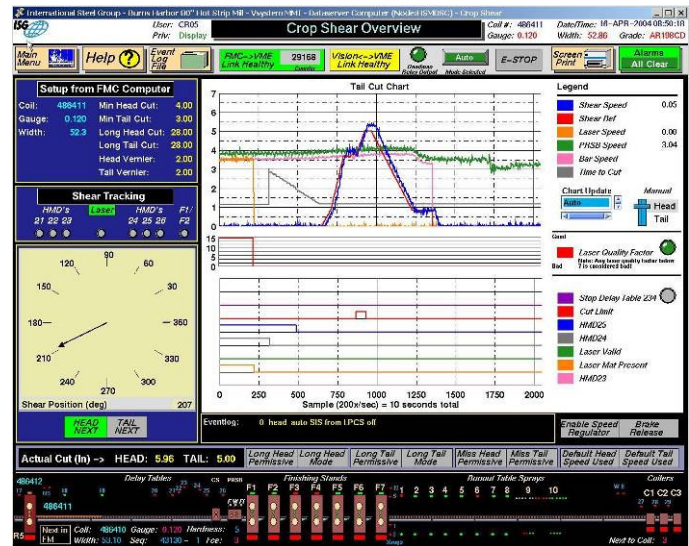
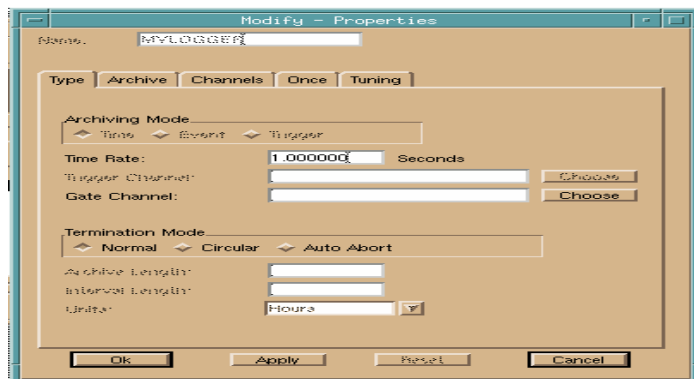
Our graphics tool kit, Vdraw, enables our users to quickly create simple or sophisticated data acquisition and control screens. Vdraw includes many high-performance interactive objects, like strip charts, meters, text, and bars and graphs for connecting to Vaccess with just a few clicks. Vdraw can manage many windows simultaneously in a mixture of drawing and live modes. The user interface is based on native graphics (X Windows and Motif or Microsoft Windows), with a web version now available. There is extensive external control of Vdraw screens.

**Valarm™** An interactive alarm tool.

While alarm checking is done in Vaccess, Valarm monitors channels (similar to points or tags) in your system, logging, printing, and signaling warnings and alarms. The kit also includes an historical alarm viewer.

**Vlogger™** A data-recording tool.

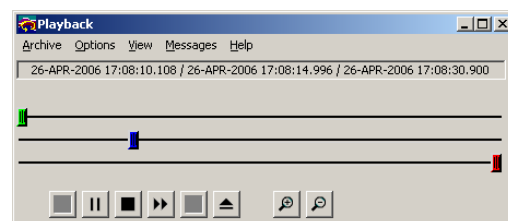
Vlogger records data to disk from your Vsystem database: at specific time intervals, when channel values change, or when activated by a trigger event. All three types of loggers can be gated. Circular logs can be defined so that data are kept for only a defined time or disk space. With Vlogger you can log data at better-than-millisecond rates and log any field of any channel. Users can access (read from) logs while they are being written to, and data can be time stamped either at the source or by Vlogger. You can run multiple loggers at different rates, each with its own selection of data to log. Data are stored in compressed binary files and easily converted to ASCII format. Tools are provided to merge, extract, and copy data and log files. Data in log files can be accessed using Vlog/SQL, Vlog/Table, and Db\_view.



Date	Time	Channel Name	State	Priority	Val.	Limit	A.
10-SEP-20	16:22:07.734	ALARMDemo_HS_S3_GAP_...	stand 3 gap_readback not correct - th...	Critical	0.5	0.5	X
10-SEP-20	16:22:10.839	ALARMDemo_CS_S1_GAP_...	stand 1 gap_readback not correct - th...	Critical	0.3	0.3	X
10-SEP-20	16:22:18.863	ALARMDemo_HS_S4_TEMP	stand 4 temp critical - LOW	Warn	0	360	X
10-SEP-20	16:23:10.640	ALARMDemo_CS_S1_TEMP	stand 3 temp HIGH	Warn	181	400	X
10-SEP-20	16:26:22.889	ALARMDemo_CS_S3_TEMP	stand 3 temp critical - HIGH	Warn	419	400	X
10-SEP-20	16:26:57.182	ALARMDemo_CS_S4_GAP_...	stand 4 gap_readback critical - too thin	Critical	0.0	0.0	X
10-SEP-20	16:26:59.877	ALARMDemo_CS_S3_GAP_...	stand 3 gap_readback critical - too thin	Critical	0.0	0.0	X
10-SEP-20	16:27:02.132	ALARMDemo_CS_S2_GAP_...	stand 2 gap_readback critical - too thin	Critical	0.2	0.2	X

**Playback** A tool that replays previously recorded data.

You can play back a log file into a real-time database to determine problems, train operators, or perform useful analyses of “what if” scenarios. Playback can also be used to play pre-recorded scenarios.



**Vtrend™** A history and trending tool for viewing logged data graphically.

Vtrend gives you the tools needed to export the data that you are viewing to a spreadsheet, report writer, or other program. Vtrend can be used for live trending, and Vtrend can be totally controlled from Vaccess. There is no limit to the number of “pens”

**Vscript™** A high-level scripting language that interfaces transparently with Vaccess.

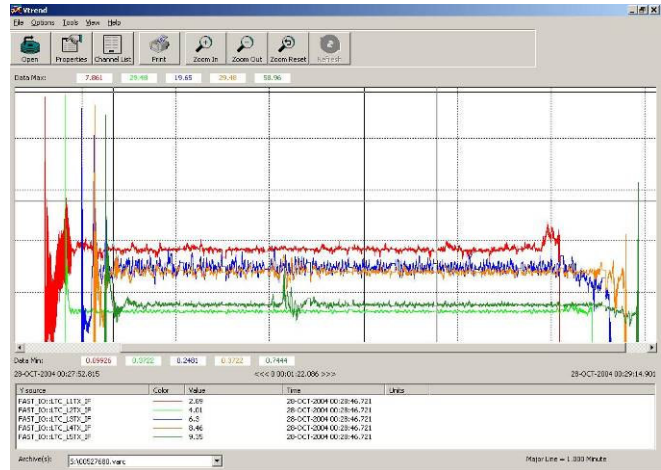
Vscript enables you to connect to any Vscript server on the network, monitor running scripts, or start and debug new scripts remotely. Vscript supports most language capabilities and adds time support and Vaccess support.

**Vscan™** An active connection between Vaccess and I/O hardware, allowing for easy customization.

**Vczar™** An active agent that acts as the Vsystem Network Task Manager.

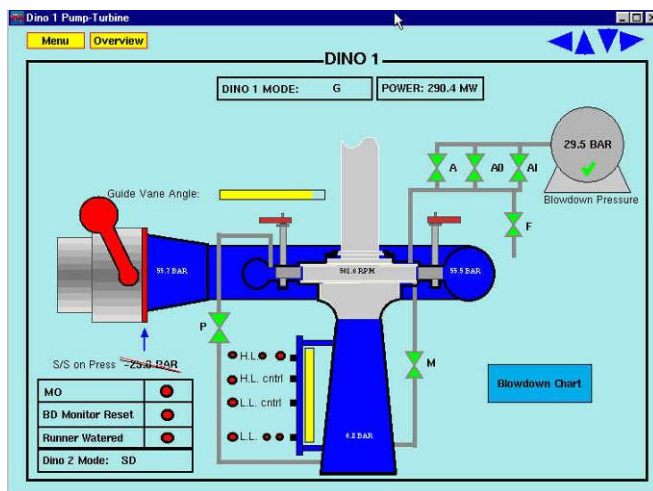
Vczar allows applications and users to perform database control and computer process control in the Vsystem network environment.

**Setup** Many of the above components have a graphical editing tool to simplify the selection of their many options.



## I/O Connections and Openness

We publish the interfaces to Vsystem so that our customers have a choice in developing or extending their system. Presently, we have a Modbus scanner and Siemens S7 that will talk over Ethernet, serial lines, and radio links. In addition there is available a GE MkVI GSM scanner. We have an RTP scanner, a Sixnet scanner and a complete Kingfisher RTU scanner (including integrated video support—video frames are data along with the rest), and an OPC Scanner for NT/2000/XP, along with some interfaces to other I/O. If the I/O has an OPC server available or an API to talk to it, then it is a simple matter to either make the OPC connection or join the two APIs (one for the I/O system and the other for the Vaccess API) with a thread of code.



## Reports

Vlog/SQL and Vreport provides text-based reports while the JDBC interface provides Java reporting tools access to data for more complex formats of reports and graphics. Vopc client and ODBC provide a connection to other third-party reporting tools.

## Black Box Recorders and Historians

### **We had a problem—what happened?**

Too often production has a glitch and the data record in the computer does not help with tracking down the problem. All the data show is the effect—not the cause. As a result, the plant technicians and engineers are left guessing. Of course, this cause could be associated with any aspect of the plant and the materials being fed to the plant. With no data to point to the cause, the chances of avoiding the event happening again are rather small. As costs go up, or productivity falls, the first thing that suffers is profit when you can't correct the cause of the problem because you can't find it.

### **Without all the data, where do I look?**

In order to correlate cause and effect, you need to be able to examine all the possible scenarios. If some things can happen in milliseconds, then they must be monitored in milliseconds or faster in order to record all possible events. If a PLC has a cycle time of a millisecond, and the outputs are not being monitored at least at the same rate, a glitch caused by a PLC program error could be missed, wasting time and productivity. With the glitch captured, the problem can be quickly tracked to the PLC program and fixed.

### **How do we improve our process?**

With full monitoring and control, the production process can be studied and optimized—making better product faster! Sometimes better product “happens,” and with all the data available to examine, this positive event can be understood and repeated—making the product more valuable and helping the bottom line. You can also examine experiments in process changes to help develop more understanding of the process and lead to improvements.

### **What about our equipment? How's it doing?**

This same monitoring can alert the operators and maintenance people to impending problems and thus avoid catastrophic shutdowns and associated costs.

### **Why is Vsystem so good at this?**

Simple—most data historians are designed for process summary data to look at long-term trends. Vsystem is a high-performance historian, which provides the capability to automatically manage potentially large disk files. An engineering historian need only keep the high-definition data available for a pre-set time. If there is something to study, the plant personnel have that time to extract the required data to a separate file for study. Of course, the engineering data can be kept as long as needed. Naturally, an engineering historian can also meet the needs of the summary historian.

### **So, how does Vsystem from Vista Control Systems help?**

Because Vsystem has always been designed and implemented for performance, it can handle the data required, achieving the goal. Total rates of data collection in excess of 6 million values per second are possible with the appropriate computer and I/O hardware. In addition, Vsystem can achieve much higher effective rates by compression techniques. Because one installation of Vsystem can actually be configured with multiple historians (the limit is hundreds), it can be used effectively for many purposes independently, including the summary historian function. As an added bonus, Vsystem includes all the other tools to build the overall system and it fully runs on trusted systems such as OpenVMS, UNIX, and now Linux as well as Windows.

The use of Vsystem does not require any changes to the I/O hardware.

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