

Soft Automation News

Issue 1

99.1

With RSSql, Plant Data and Enterprise Software Work as One

By Brandon Ekberg, RSSql Product Manager, Rockwell Software



It's only natural that much of today's information technology discussion focuses on databases. This is not to say that the debates over hardware, networks, and operating systems is over, but when you get right down to it, what good is the computer or the network without a place to store, share, and retrieve data? Most forward-looking manufacturing firms have recognized that the factory floor is a vital producer of data for running the rest of the company. Likewise, the plant floor needs to feed on data that is generated by other parts of the firm in order to be part of an end-to-end integrated enterprise.

In the manufacturing world, whether in process or discrete applications, people want and need a bi-directional link to bridge the gap between the control system and the enterprise database system. Until now, a "brick wall" has separated the plant floor and Information Systems departments. However, a secure, bi-directional link between these two environments now exists, allowing the manipulation of accurate and timely data. RSSql Version 2.0 is that link and provides guaranteed data delivery,

the database. This level of reliability has never before been obtained, and the result is a true control system-to-enterprise link.

With RSSql's bi-directional functionalities, the user can get validation back from the controller that the data is safe in the database.

Today there are many databases, or Enterprise-level transaction managers that are used everyday to link multiple databases together to act as one. They coordinate multiple actions and ensure the reliability of the entire "transaction" between the different databases. RSSql works in much the same way, except instead of linking multiple

database systems, it links the controls systems to the database.

The bi-directional capabilities of RSSql Version 2.0 allow it to send data both up to the relational database and down to the plant floor. Take for example an automotive air-bag inflator manufacturer that needs to maintain complete documentation on every product it makes. RSSql sends the relational database a message telling it an assembly operation was performed. It also sends a message from the database back to the plant floor confirming that the inflator is Ok'd to move onto the next operation. Or in the case of BMW, RSSql is used as a

CONTENTS

Cover Story

- Linking the enterprise with RSSql

Product News

- ControlPak
- RSView32 AOA
- RSLogix 5000

Viewpoint

- Open Software

Applications

- Regional Application Story

Events/Seminars

- See what's happening around the globe



Bringing Together Leading Brands in Industrial Automation

auto bodies based upon the needs of the manufacturing scheduling system.

With RSSql's bi-directional functionalities, the user can get validation back from the controller that the data is safe in the database or to directly query the database for information and write results to the controller.



BMW uses RSSql to store and retrieve cars based on their scheduling system.

Another key strength of RSSql Version 2.0 is its scalable architecture. As your system grows, you still have the ease of use provided by a single intuitive interface into the entire system.

RSSql Version 2.0 is a distributed, scaleable application for use on a single PC or for distribution over an entire enterprise. Centralized configuration and operation help simplify administration even in highly complex system architectures, and additional computing resources can be added as the need for transaction processing power increases. The package has four primary components. The Graphical User Interface provides the means to link your shop floor to your database, while letting you configure and operate the RSSql Version 2.0 system. The real work, however, is done by three NT services.

The Transaction Manager, the brains of the system, executes transactions, while controlling the collection, manipulation and storage of data. The Control Connection is the interface to the process control system. RSSql's connections for RSLinx and RSView32 are tightly integrated with RSSql and RSLogix to provide the level of interoperability you expect. The Control Connection also supports connections to AdvanceDDE servers

and OPC servers. The Enterprise Connection is the interface to the relational database management system. RSSql includes Enterprise Connections for ODBC-compliant databases including Microsoft SQL Server, Sybase, Informix and Oracle. A new native connection to Oracle, called the Oracle Callable Interface (OCI) provides the fastest way to connect to the Oracle engine or its remote client connection, SQL*Net. It stores data and acts as a bi-directional connection to the database. While the Enterprise Connection services run on NT, RSSql can connect to databases on many operating systems including UNIX, OpenVMS and AS-400. The ODBC drivers provided by the database vendors can connect across TCP/IP-based networks to most remote databases.

Whether your solution requires a simple link to support logging of data to a database or a bi-directional super highway to tightly link the world of Control to the world of Data, RSSql's flexible architecture can meet your needs. **EN**

Additional functionality to be included in RSSql soon:

- **Support for OPC using generic OPC servers, RSView32, and RSLinx.**
- **Support for integrated RSWho for navigation of Rockwell Automation networks.**
- **Support for OLE-DB, the native interface for SQL Server 7.0.**
- **A new Verify function, which checks all transactions for validity and reports on possible configuration problems.**
- **A new Report function, which provides a detailed analysis of a RSSql configuration.**
- **A new Configuration checklist helps you get RSSql up and running for the first time.**

Product News

Rockwell Software ControlPak

An Integrated Software Solution for Development of Advanced PC-Based Control Applications



The Rockwell Software ControlPak™ solution is an integrated development and runtime environment that offers customizable tools for building advanced PC-based control systems.

ControlPak is also an important element

within the Rockwell Software SoftAutomation solutions strategy, focused on developing open integrated software solutions for control and integration with the rest of the enterprise.

ControlPak takes the best of Allen-Bradley control and Rockwell Software development tools and combined them with Microsoft technologies to create a complete open systems architecture for PC-based control.

Some of ControlPak's features include:

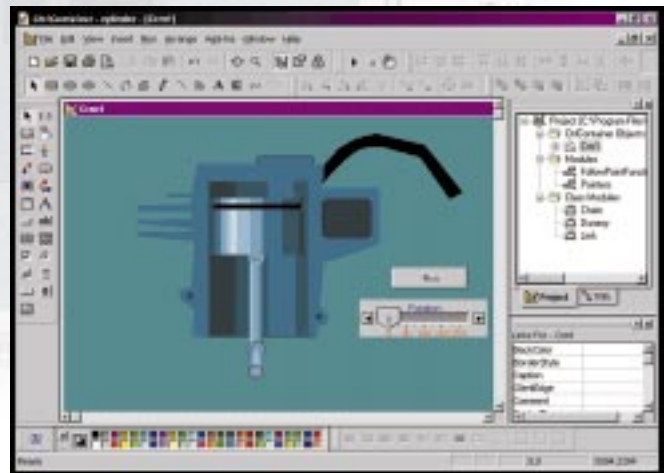
Soft Control Engine: This SoftLogix control engine runs on Windows NT(r), and is upwardly compatible with I/O, networks and application software developed for Allen-Bradley controllers.

Network Support and Open Connectivity Options: Native ControlNet(tm) and DeviceNet(tm) I/O systems support provide users with a greater selection of flexible I/O devices and superior I/O update speed.

Control Language Editors: RSLogix SL5, a new control language editor for the SoftLogix 5, combines in one package: advanced ladder logic, IEC-compatible structured text and sequential function chart (SFC) language editing tools.

Open Systems Technologies and CtrlContainer: ControlPak is built using open system technologies from Microsoft, including COM™, ActiveX controls and Visual Basic for Applications (VBA).

EN



RSLogix 5000 Programming Software

To Improve Programming, Support, and Diagnostic Capabilities of the ControlLogix System

RSLogix 5000 is a Windows NT and Windows 95/98-based programming software package for the Logix5000 processors. The RSLogix 5000 programming package is the next addition to the RSLogix family of 32-bit programming

packages designed for Microsoft's 32-bit operating systems. RSLogix 5000 supports the Allen-Bradley ControlLogix architecture and Logix5550 processor. Based on IEC1131-3 standards, RSLogix 5000 includes advanced controller features



such as custom user-defined structures and symbolic addressing to provide the flexibility needed for complex applications. The software also includes motion tools which provide a highly integrated motion and logic solution.

RSLogix 5000 can also re-use existing PLC-5 and SLC 500 projects.

The primary features included in this release include: program upload merge and application database, forcing of I/O, operand

comment creation, intelligent search and replace, CSV database import/export and programmatic access to the processor clock.

EN



RSView32 Add-On Architecture (AOA)

Expands Functionality and Interoperability



RSView32 has now been enhanced with the introduction of Add-On Architecture (AOA). The AOA features expand the visualization capabilities of RSView32 by embedding TrendX, RecipePro, and statistical process control (SPC) features directly

into the software without altering any core components of the HMI, allowing customers to use these features only when they are required for an application.

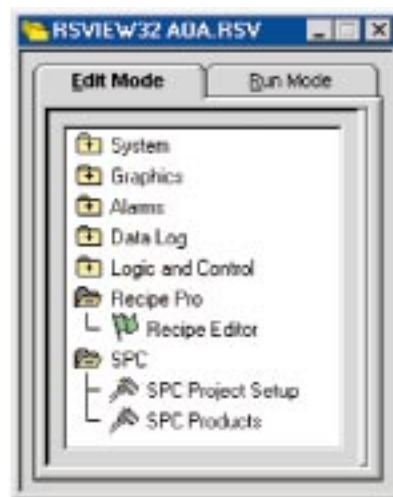
With AOA technology, powerful features, enhancements and extensions can be quickly deployed. Some of these features include:

The RSView32 TrendX add-on, based on AOA architecture, is an ActiveX control for monitoring real-time and historical process data. TrendX also provides a strip chart recorder display as it collects data. With TrendX, users can plot variables against each other (x-y plotting), add or delete pens during runtime and change pen colors, markers, and axis scaling during runtime.

The RSView32 Recipe Pro add-on, also based on the AOA architecture, provides enhanced recipe management features. Users can create multiple recipe project files in each RSView32

project and configure multiple recipe files, each containing sets of RSView32 tags and sets of data.

The Statistical Process Control (SPC) add-on extends the functionality of RSView32 by providing real-time SPC analysis. With RSView32 SPC, users can configure multiple SPC products each with its own characteristics. EN



For more information on these or other RSI products, visit www.software.rockwell.com.

ViewPoints

Open Systems in Software

When we ask software users around the world if open systems are important to them, the answer is always yes, but their definitions of open differ a lot, from “plug and play” to a strict adherence to a standard. Opinions vary within the enterprise as well. A plant supervisor might define it differently compared with the vice president of Marketing.

To really understand openness from a software perspective, you need to take a look at the underlying technology enablers that create the environment for open applications and tools.

A few years ago, Microsoft began developing open products – products that exposed their properties to each other. The company's earliest “open” development began with OLE and ActiveX controls. ActiveX became a standard for integrated technologies that enables software components, written in different languages, to work together in networked environments. ActiveX helped make it easier to integrate a system by using different components from different vendors. Since then, we've seen several additional enablers for open systems. The Component Object Model and the distributed version allow for better sharing of resources in a distributed computing environment.



The OLE for Process Control (OPC) Foundation, a group of the industry's leading manufacturing software suppliers, developed a set of specifications designed to provide seamless, open, enterprise-wide communications between systems and devices, from plant floor to MIS and beyond. The widespread adoption of the OPC specification will reduce the cost and quality hurdles of multiple proprietary servers, drivers and interfaces needed in the past.

Instead of applying software that only allows for connection to proprietary databases, many users are utilizing tools that allow connections to any database. Rockwell Software RSSql, for instance, allows a user to integrate his or her Human Machine Interface (HMI) software with virtually any ODBC-compliant database, allowing for more flexibility and ease of use.



Visual Basic for Applications (VBA), Microsoft's integrated development environment, allows not only for customization of the off-the-shelf application you're using, but also better integration with other software using VBA. Rockwell Software RSVIEW32 was the first industrial Human Machine Interface to integrate VBA, which provided its users with much more flexibility and interoperability. ControlPak also includes a feature which allows a graphical interface to be programmed and customized using VBA providing a sense of “openness” for that user.

Several factors go into choosing the right software for your unique needs: performance, ease of use, life cycle cost, flexibility, reliability, ability to upgrade. All of these would describe “open” in its finest sense, and as the customers demand more, this presents that customer with the ability to extend their reach – and develop customized software solutions. EN

Applications

RSSql helps paint the right picture

Located near Cologne, Germany Eisenwerke Bruhl GmbH (EB) is one of the largest producers of engine blocks in Germany, and many of the country's automobile manufacturers use EB as their supplier. EB uses powder spraying as part of its manufacturing process and wanted an integrated way to visually check this process.

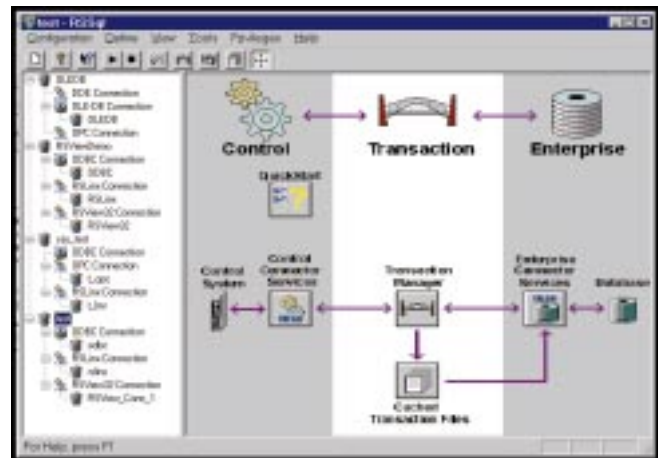
EB gave Rockwell Automation system integrator ATR Industrie-Elektronik GmbH & Co. KG the task of providing a graphic display system that showed the actual state of the powder spraying facility. ATR selected the RSView32 graphic display system, utilising RSSql software, to provide the integrated solution EB needed.

The powder spraying facility is controlled using equipment from another vendor, connected by an Open Fieldbus to the graphic display, with an installed driver from Applicom. The driver reads data from the powder spraying facility controller and makes this data available using RSView32 through a DDE-server.



RSSql provides the communication link between EB's Oracle data bank over Ethernet TCP/IP. This allows RSView32 to generate and display alarms for the burner, powder booth and cooling zone regions of the facility. If an alarm occurs, the operator can change to the alarm overview image for that region of the facility and see the problem in detail. In addition, this overview shows the conditions of other monitors and doors. In a further window, general status and actual value information can be shown.

RSSql is also used to communicate alarm and production data from RSView32 to the Oracle data bank. Each alarm is time and date stamped and written to the Oracle data bank. The time period for the alarm is automatically calculated there and written in a table.



Data from the Oracle data bank generated by Visual Basic ActiveX components embedded in RSView32 can also be displayed on the graphic display. Using a Gantt diagram in the RSView32 software, for example, displays can be produced for production data and alarms that occurred during the last three days.

EB also wanted to have remote access to the graphic display, including evaluation. Remote access, in this case, means that the operation and observation of the powder spraying facility's graphic display occurs from another computer on the EB LAN. ATR chose the RSView32 Active Display System to implement this part of the project. To ensure this access, Rockwell Software's RSView32 Active Client/Server System is used. Active Server is installed on the graphic display computer, while on each remote computer Active Client is installed. **EN**

Bringing the Shop Floor to Management's Door

When South African Breweries Limited (SAB), one of the world's five largest brewers, needed a way to communicate real-time changes in production to both the shop floor and management at its Rosslyn Brewery, it asked Rockwell Automation to provide a solution. A combination of Rockwell Automation hardware and software products was installed.

Allen-Bradley equipment in the form of PLC5s and DH+ networks already existed in the plant's packaging hall. So Rockwell Automation had to find a way to incorporate the existing equipment, combine the various plant networks and make sure plant data was accessible from any level.

SAB, with the help of Rockwell Automation engineers, installed a ControlLogix Gateway that connects the DH+ networks to the Ethernet TCP/IP plant-wide network and onto the Packaging Server. "Previously we had something like six DH+ networks and we had to restructure our whole network so that we could take the information up to the Ethernet. That's why we used the ControlLogix Gateway," said an SAB Rosslyn spokesperson.



South African Breweries Limited uses RSSql to manage data.

The Ethernet module connects to the SAB office network, allowing management to see the information from their offices and, in the future, on the company's Intranet. "The line manager and the packaging manager can go into the new system from the PCs at their desks and see what is happening now," said an SAB Rosslyn spokesperson. "And we have the option of putting information on the 'Beernet' (SAB's term for their Intranet!)."

Also residing on the Ethernet is the Packaging Server, a Windows NT computer featuring a Microsoft SQL (MSSQL) database for data retrieval and storage. Data is passed from the PLC5s on the DH+ networks via the ControlLogix Gateway and onto the Ethernet to the Packaging Server. From here the data is sent to the PolyComp display unit. "The operator now has a physical picture of what has been done in the past eight hours, like V profile, volume and efficiency trends and line comparisons. He can also see the current production, if volume is being increased, and if the plant is meeting its targets," said an SAB Rosslyn spokesperson.

RSLinx presents the data contained in the two PLC5s to the RSSql software via DDE. RSSql then manages the data into the MSSQL. From here a Visual Basic-developed application, from Delta Projects, configures graph displays and sends them to the PolyComp. The Ethernet connection also allows for planning personnel to enter production line target values into the MSSQL data tables. "Communicating from the plant floor right up to the Ethernet is definitely new for us. The concept is 'old,' but everybody would like this type of technology," said an SAB spokesperson.

Rockwell Automation's Global Technical Services provided dedicated support and worked in conjunction with SAB to help with this installation, the first ControlLogix and RSSql system in South Africa. **EN**

To read more application stories, visit:
www.software.rockwell.com/navigation.solutions.

World Events and Seminars

2nd. Annual Soft Automation Awards Contest

Showcase your application and WIN some outstanding prizes. Look for application forms and rules & regulations on the Rockwell Software homepage, or e-mail a request to awards@software.rockwell.com

What's Happening in...

Latin America:

Software Blitzes: These are one-day seminars for anyone in the industry and include product presentations, lunch with a Microsoft guest speaker, and hands-on-lab sessions. These seminars are free of charge. For more information contact your local Rockwell Automation / Allen Bradley Distributor or Henry Petersen at (787) 834-0161 or henry.petersen@software.rockwell.com

Upcoming Schedule for Software Blitzes:

Apr.	6 - 9	Chile (Tentative)
Apr.	19 - 23	Mexico
May	17 - 18	Ecuador
May	20 - 21	Peru

North America:

IMS EXPO 1999: International Manufacturing Software EXPO Orlando, Florida. April 26-29. For more information visit www.isa.org/imsexpo/index.html

Europe:

Portugal: Endiel Trade Show- This Bi-annual trade show focuses on the electric, electronic, and automation industries. Date: May 26-30.

Spain: In the months of April or May, offices throughout Spain will be hosting presentations for RSView32 and RSView32 Active Display System focusing on the new features of this product.

European DNA/RNA Events

Rockwell Automation is teaming with Microsoft to stage events that showcase DNA/RNA for manufacturing. The events being held across Europe will include a Microsoft presentation called "The Digital Nervous System for the Industry." Rockwell Software will highlight its RNA for manufacturing and provide a presentation on SAP connectivity with a customer on hand to provide a real-life case of a DNA application.

Please direct comments or contributions regarding Soft Automation Newsletter to: softautomation@software.rockwell.com

For more information about any of these events contact your local Allen-Bradley/Rockwell Automation office.

Publication Manager: Patricia Kaufman/Denise McGovern
Editor: Nigel el Hitchings
Circulation Manager: Andy Aschenbrener

Graphic Design: Harold E Hansen
Web Site Version: Danielle Pokorny

Reach us now at www.rockwellautomation.com

Americas Headquarters, 1201 South Second Street, Milwaukee, WI 53204, USA, Tel: (1) 414 382-2000, Fax: (1) 414 382-4444
European Headquarters SA/NV, avenue Herrmann Debroux, 46, 1160 Brussels, Belgium, Tel: (32) 2 663 06 00, Fax: (32) 2 663 06 40
Asia Pacific Headquarters, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846



**Rockwell
Automation**