Exsys Corvid® Datasheet

Easy to build and implement knowledge automation systems bring interactive decision-making expertise to Web sites. Here's proven technology that provides customized, specific recommendations to prospects, customers and employees - **answers**, not just data!

OVERVIEW

The Web has become the primary communication channel with customers and employees. Various Web technologies allow delivery of vast quantities of data. However, decision-making requires more than data. It requires expert knowledge on how to use and understand the data to reach a situation-specific conclusion, recommendation or answer.

Exsys Corvid technology provides a powerful environment to develop Knowledge Automation Expert Systems. It allows the logical rules and procedural steps used by an expert to make a decision, to be efficiently stated in a form that is easy to read, understand and maintain. In an interactive session delivered over the Web, the underlying Inference Engine uses the problem-solving logic to emulate the questions, process, and recommendations of domain experts. People interact with the system as if they were talking to the expert. Corvid developed systems produce situation-specific recommendations, and can provide problem-solving advice on a wide range of subjects. Businesses using this technology are increasing productivity, cutting costs and improving customer relations - while creating new profit centers and achieving demonstrable return on investment.

Systems are easily implemented online via Java Applet (client-side) or Servlet (server-side) Runtimes, or as standalone applications. Corvid systems are in use worldwide solving problems by automating technical support, regulatory compliance, product recommendation and configuration, and a wide range of other areas that need rapid and efficient delivery of decision-making knowledge.

HIGHLIGHTS

- **Easy to learn development interface**
- **Rules in English and algebra**
- **Trees and Logic Blocks organize and structure the logic**
- **Object-structured knowledge representation**
- **Backward and forward chaining Inference Engine**
- **Separates procedural control from logical control**
- **Probabilistic, "fuzzy" solutions**
- **Fast, efficient Inference Engine**
- **Special features for Product Selection**
- **Compatible with Exsys RuleBooks**
- **Web-enabled Runtimes**
- **Run via Applet or Servlet, or standalone**
- **Flexible system-user interface with HTML**
- **Multiple language support**
- **Integrates with databases and help desk systems**
- **Automatically generates emails and reports**
- **Power to handle real-world problems**
- **Beyond "business rules" - handles complex logic**

SYSTEM REQUIREMENTS

Hardware
- MS Windows (95, 98, NT, 2000, ME, XP, Vista)
- 128 MB RAM minimum (256 MB recommended)
- Monitor with resolution of 1024x768 or better

Applet Runtime
- Browser supporting Java applets (requires only Java v1.1)

(Optional) Servlet Runtime
- Server with Apache Tomcat or comparable servlet engine
- Java Runtime v1.3 or higher

EXSYS CORVID FEATURES

Easy to Learn Developer Interface

Exsys Inc has over 25 years experience in designing knowledge automation developer interfaces that are proven to be fast to learn and easy to use. Corvid is aimed at developers that have the expert knowledge, but are NOT programmers or IT professionals. A tutorial, which can be run in a few hours, is enough to get started, and a 3-day training class covers all software features. The decision-making logic is stated in If/Then rules, in much the same way as explaining to another person how to make the decision. The rules are written in English and algebra, making them easy to read, understand and maintain. Corvid provides tree structures to organize related rules, and Logic Blocks to organize related trees.

Object Structured

Corvid uses an "object-structure" approach to system design. Rules are defined using various types of variables that have associated methods and properties, providing a wide range of flexibility and power. Many of the advantages of a full object-oriented approach are provided without having to understand complex OO programming, or describing a solution with OO classes. This is similar to the concept used in Visual Basic, which has made it so popular, widely used and accepted. The object-structured nature of Corvid allows it to provide the optimum balance between power and ease of use.

Powerful Inference Engine

The Corvid Inference Engine runs the rules. It supports both backward (goal driven) and forward (data driven) chaining, or combinations of the two approaches. Backward chaining makes it particularly easy to build systems. If a system has a rule relevant to the current goal or variable, it will automatically be found and used by the system. All the developer has to do is add the rule(s) anywhere in the system. Questions will be "focused", only asking what is needed, yet never overlooking anything that might be relevant. Probabilistic logic ("fuzzy logic") is supported with many ways to combine confidence factors, allowing systems to find the "best" solution, and probabilistically rank multiple possible solutions. Collection variables provide a way to dynamically build reports, web pages and emails as the rules in a system fire. Despite this power, the inference engine is small and efficient. Even the applet version is only about 140K, making it fast to download.

Special Features for Product Selection

Product selection problems call for finding the best product to recommend to a potential customer based on their wants and requirements. Often, no single product will meet all requirements. An Exsys Corvid system will find the "best" fit and provide an explanation to the customer on how each product meets their needs. Corvid provides special features for this type of system that allow the selection logic to be separated from product specifications, which are maintained and updated in a simple spreadsheet format. Systems results can be easily linked to additional information or directly to purchasing functions.

Web-Enabled Runtime

The systems built with the Corvid development tool can be delivered over the Web via either the Corvid Applet Runtime (client-side), or Corvid Servlet Runtime (server-side). Both runtime programs are based on Java, providing proven portability and scalability. People interact with the system by answering questions. Based on their input and the system's logic, it will ask more questions - drilling down where necessary and skipping questions that are not needed. A system may only ask a few questions, or many, it all depends on the complexity of the problems. Once the system has fully analyzed the user's input, it will provide its conclusions and recommendations.

Corvid systems can be run from a standard Browser and are easily integrated into existing Web sites. Systems using the Applet Runtime run client-side or standalone, and are very easy to embed in a Web page. Systems using the Servlet Runtime reside on the server, can match the look and feel of existing Web sites, and only send HTML forms to the client machine. Corvid systems can even be run from PDAs, and mini-browsers in some cell phones.

Flexible System User Interface

Corvid provides many ways to make your system look great. In the Applet Runtime, screen commands allow formatting of questions and results. In the Servlet Runtime, the full design and functionality of HTML can be used for interface design. Editable HTML templates make it easy to quickly design a consistent, professional interface. Links within a system can be used to provide help, or more detailed explanations. Corvid even has built-in capabilities allowing a single system to be run in multiple languages.

Integration with Databases and CRM Systems

Corvid has a very open interface. It can be integrated with any ODBC/JDBC complaint database using SQL commands. Data can be automatically obtained from the database, and user input and recommendations sent back to the database. Corvid can also interface with help desk and CRM programs that have an API. This allows the Corvid system to serve as a "smart front-end" to existing IT environments. Corvid can also automatically generate and send emails, and systems can be embedded within emails.

Components

Exsys Corvid provides the infrastructure and tools required for domain experts, business professionals, knowledge engineers and project teams to develop, deploy, manage and maintain knowledge automation expert systems. The components of Exsys Corvid include:

Variables

Variables are the building blocks that are used to develop systems. They resemble the elements needed in a decision-making process. They define the logic, hold data and define how the system runs. Corvid has seven variable types, each with special functionality and capability.

Confidence Factors

Variables can have specified confidence factors. This enables expert systems to make multiple recommendations with differing degrees of confidence to reach a "best fit" in its conclusion. The ability to handle confidence factors provides a much more effective way to build systems that emulate the real world, and give the type of recommendations that human experts would.

Logic Blocks

Exsys Corvid introduces a unique way to define, organize and structure rules into logically related blocks. The Logic Block is made up of one or more tree structured logic diagrams. The rules in the Logic Block usually all relate to one aspect of the decision, and can be referenced in the system by simply calling that block.

Command Blocks

Command Blocks tell the system what actions to take, and in what order to perform actions. They control the procedural flow of the system including setting what variables are the "goals" of the session, how the system chains, the Logic Blocks to be executed, how results will be displayed, and external interfaces.

MetaBlocks for Selection Systems

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Easy, Cross-Platform Java-based Web Deployment

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User Interface Design and Control

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Applet/Servlet Runtimes

One of the breakthroughs in knowledge automation systems is Web delivery, making them available worldwide, whenever needed. Java is the preferred portable approach to run complex programs on the Web and there are 2 main ways to deliver systems - applets and servlets. The applet approach runs the knowledge automation system on the client machine. It is very easy to field, highly scalable and capable of also being run standalone. The servlet approach is run on a company server communicating with the user via dynamically built HTML forms to ask questions and present data. The servlet approach is a little more complicated, but allows the full range of HTML for sophisticated interfaces, tight integration with other server functions and access to other programs. Both delivery modes use the same system produced in the development environment.

Open Architecture and API

User defined functions and capabilities can be added to the Corvid Runtimes by adding new Java classes to the Inference Engine. This allows you to add special interfaces or mathematical techniques not built into Corvid. A built-in API allows your code to access any of the data in the system. Corvid can be integrated into the most specialized environments in ways that you can control.

System Run and Trace during Development

Both Applet and Servlet interfaces can be tested when a Corvid system is run in the development environment. For applets, the Corvid editor dynamically builds an HTML page. This allows the system to be run in the same environment as on the Web, and it enables the developer to test the system as it is being built. The Servlet delivery mode can be emulated even when there is no server to test on. The development tool can build the same HTML screens that the servlet will use, allowing a system to be tested with the templates that will be used to field it on the server. If a system is to be run stand-alone as an application, it can also be tested in that mode.

Corvid allows the addition of the Corvid Trace Applet on the HTML page where all trace information will be displayed. This history of the run can be examined and searched to see how and why the system came to the conclusions it did. It is also a way to see certain error messages. This can be especially helpful when there is more than one person involved in developing the system. The trace applet can be run either in development mode or when the system is fielded on the Web.

Results as Screen Display or HTML report

There are many ways to display the results of a session. The values of the variables, graphics and text can be formatted in many ways. They use the properties associated with the

variables, which enables the output to be exactly as desired. The Servlet Runtime supports special results templates to format output in complex, graphically pleasing ways using HTML.

The Applet Runtime can also build complex reports, using HTML or RTF formats using collection variables that build a report dynamically as the system runs. This approach enables a high degree of control for detailed reports that can be displayed or saved as attractive HTML pages.

Best System Uses:

For the first time, it is practical to deliver complex decision-making knowledge on a Web page – actual **answers and recommendations** that prospects, clients and staff need. Emulating one-on-one consultations with experts, Exsys Corvid systems can:

- **Troubleshooting, Tech Support and Diagnostics** – Diagnose and solve problems the way the experts do, and rank recommendations by probability

- **Regulatory and Policy Compliance** – Answers complex questions about regulations, rights and responsibilities as employees and employers, and how they apply to unique work situations

- **Automates Routine Tasks** – Forms, maintenance, scheduling, training, process control, human resources, etc.

- **Free Your Best People to be Even Better** – Lets them solve problems that require intuition and creativity by automating the answers of common, repeated questions

- **Don't Let Expertise Get Away** – Capture valuable knowledge before retirement, job changes or transfers

- **Reach Consensus and Consistency** – Combines the knowledge of your best staff for fast, one-source problem-solving

- **Look Smart to your Prospects and Customers** – Ask individualized, focused questions and provide customized recommendations

- **Bring Knowledge Assets and Interaction to Your Web Site** – A competitive edge that bring prospects and clients back to your Web site

- **Deliver Time-Saving Situation-Specific Answers** – Not just page after page of data and content that people have to sift through in order to make decisions

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