



In addition to the standard Exsys Applet Runtime program which runs client-side, Exsys provides an optional, alternative way to deliver Exsys Corvid and RuleBook<sup>®</sup> knowledge automation expert systems to end users. The Exsys Corvid Servlet Runtime is a Java servlet, which incorporates the proven Corvid Inference Engine, allowing it to be run on a server with all user interface screens to ask questions or present data generated dynamically in HTML or integrated with Adobe<sup>®</sup> Flash<sup>®</sup>.

The full range of HTML options are made available for the system user interface, providing the opportunity for many design options. All system processing is done on the server, so there is no applet required, and the amount of material that needs to be sent to the client computer is greatly reduced.

Since all system files reside only on the server, system security is enhanced, and it can be easily integrated to other server-side programs. Exsys Corvid systems can be run on anything with a Web browser that supports HTML forms, from PCs to PDAs and some cell phones.

## Highlights

- Based on powerful, scalable Java Servlet technology for large numbers of simultaneous users
- Server-side processing (thin client)
- Templates for consistent look-and-feel
- Full power of HTML and Adobe Flash for screen and interface design
- Dynamically generated pages
- Fully interactive sessions
- Replaceable parameters and conditional inclusion of HTML
- XML interface to Flash SWF files
- Integrate with other server-side programs
- Reports in HTML, RTF or PDF formats
- Automatic email generation
- Compatible with Exsys Corvid Applet Runtime
- Single development environment
- Emulation of servlet screens in Exsys Corvid

## Servlets

Servlets are Java programs that run on the server. Servlets are run using a servlet engine such as Tomcat, though there are many other comparable servlet engines that can be used. The servlet is called with a simple URL just like a Web page, and passed data. The servlet processes the information and sends back an HTML screen to the user. In the case of the Exsys Corvid Servlet Runtime delivering a system, there typically will be a succession of screens asking questions and displaying results. Each screen adds information and continues the session.

There can be many users simultaneously running sessions, and the Servlet Runtime will automatically keep track of each user and their data. Java servlets have built-in capabilities to simplify this task.

The Servlet Runtime program needs to be installed on a server that supports Java servlets, such as Apache or IIS with Jakarta Tomcat, or any other comparable servers that support servlets. Since the servlet is in Java, it does not matter if the server is UNIX, LINUX, MS Windows or OSX.

## User Interface

The screens that the system user sees in their browser are standard HTML pages and forms. There is no applet required when using the Servlet Runtime. The screens are dynamically generated by the Servlet Runtime based on the logic of the system, and underlying Corvid inference engine. The system determines if it needs some item of information, in which case it will ask the user a question, or display some results or recommendations. Since the end user is only sent HTML forms, they can have a thin-client with just a standard browser. Since the screens can be standard HTML, they will work on all browsers on all operating systems, with very minimal client-side requirements.

## Templates

After defining the system logic in Exsys Corvid or RuleBook, systems are easily displayed and run by using HTML designed templates that describe the user interface - the logic of the system remains separate. The system can then be moved to a server and run.

Most templates are designed to be generic with replaceable Corvid parameters, and a single template can apply a standard look to all the questions in a system. Typically a system can be delivered with the Servlet Runtime by just adding 2 templates - a template that is used to ask questions and a template that is used to display results. Many more templates can be added if the user interface design requires it for special formats or image maps.

The template screens are designed using a combination of HTML and simple Corvid commands and parameters to build an HTML form. Sample template designs are provided with various styles of user interface. These can be edited with any HTML editor. The templates can also include JavaScript, XML or any other commands that are supported by the browser.

## Development and Maintenance

The replaceable Corvid parameters in the template allow the system wording and logic to be modified independently from the template. The template defines how the questions will look, but the actual wording and grouping of the questions is controlled from the development tool in Exsys Corvid. If you wish to change the wording of a question, ask additional questions, or even ask them in a different language, edits are handled easily without having to modify the templates.

In the development environment, systems are usually tested using the Applet runtime and its interface screens. However, Exsys Corvid has an option to run in Servlet Emulation Mode, which allows a system to be tested using the servlet screens, even though not actually running using the Servlet Runtime.

## Reports

Exsys Corvid and RuleBook systems compile results and recommendations, which are displayed as dynamically built HTML pages on the user's browser. They can then choose to print or save the report. Another option is to dynamically build reports in RTF or PDF format. These will then be automatically opened in the user's browser using Adobe Acrobat or MS Word.

## Integration

Since the system is run on the server, there can be tight integration with other server-side programs such as databases, helpdesk software or CRM systems. The Servlet Runtime can call any other sever-side program for expanded functionality. This also provides higher security since all processing is done within the server.

## Automatic Email

The Servlet Runtime can automatically build and send emails based on the system logic. This can be used to:

- Send reports to users
- Make product recommendations
- Notify appropriate personnel of special situations that the system finds
- Use Corvid systems as a "smart questionnaires"
- Dynamically build customized Web "brochures" for each individual

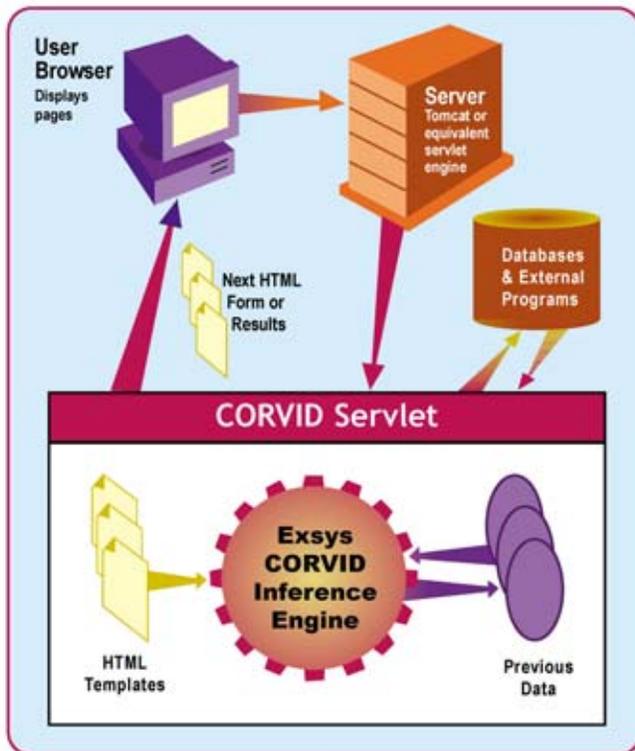
## The Exsys Applet Runtime or Exsys Servlet Runtime

The Exsys Servlet Runtime is an option in addition to the standard Exsys Corvid Applet Runtime, which is used for client side Web delivery, and stand-alone Java applications. The same Corvid system can be run via the applet, or servlet runtime programs or run as a stand-alone application. This provides a wide range of flexibility for Web or non-Web delivery of systems, depending on what is required.

In the Exsys Applet Runtime, screens are designed using the Corvid Screen Commands. While these provide a wide range of options for screen design and layout as an applet window in an overall HTML page, they do not have the extensive range of functions and design of HTML.

The following illustrations show examples of the same system using both the applet and servlet runtime programs, and a complex questionnaire type servlet-run system.

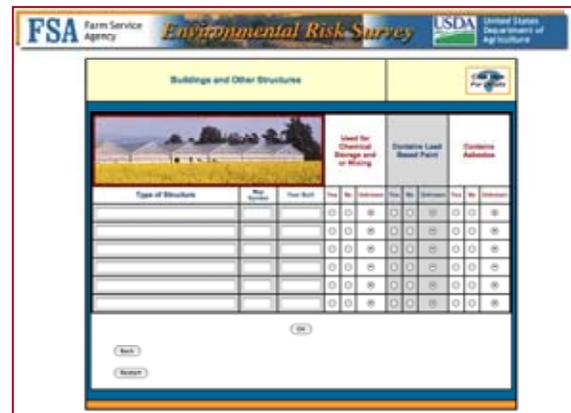
## Interactive Dynamic Sessions



Exsys Applet Runtime



Exsys Servlet Runtime



Exsys Servlet Runtime

**Rich Interactive Applications (RIAs) with Smarts** - Adobe® Flash® has changed the way Web sites look, and now you can greatly enhance those sites to deliver the situation-specific advice and recommendations your Web site visitors' need. Corvid lets you create Web-enabled Knowledge Automation systems that use Flash for the end user interface. The powerful analytical power of Exsys Corvid can be combined with many graphic, animation and video capabilities to produce systems that are not just beautiful, but beautiful and smart. Adobe Flash is widely used to provide the sophisticated graphics, animation and complex user interaction that have become the standard in commercial Web sites. However, trying to implement complex analysis or expert decision-making logic in Flash's underlying programming language, Action Script, is both very difficult to write and requires hard coding the logic into the system – a maintenance nightmare. Exsys Corvid easily describes the logic of complex decision-making tasks. Now the Exsys Corvid Servlet Runtime can be directly integrated with Flash applications putting the full analytical power of Corvid into the RIA interfaces Flash provides.

## Exsys Corvid / Flash Examples

**W.I.N.K.** (What I Need to Know) - Web-site concierge. Exsys has been used for an incredibly wide range of problem types, across many industries. This system asks a potential customer a few questions about their interests and builds a custom HTML page of information tailored to their needs, including case studies probabilistically selected to match their identity and interest area. Flash is used to drive an animated user interface that asks the questions.

<http://www.exsyssoftware.com/FlashDemos/Wink>



**Caribbean Vacation Advisor** – This system asks the end user what activities are most important to them on their vacation, and uses the Corvid Inference Engine to probabilistically select the best Caribbean islands for them to visit. Each island is described with the Pro and Cons based on their particular interests. This system extensively uses Flash's ability to make controls interactive, presenting an attractive, easy-to-use interface for a complex advisory system that can still run in a single window.

<http://www.exsyssoftware.com/FlashDemos/Caribbean/IslandSelector.html>

