

Alliance XML for IBM i Solution Brief



XML and Web Services for the IBM i

Alliance XML provides an affordable and complete XML and Web Services solution for your IBM i platform. You can deploy XML web services without changes to your current applications and without the need for external servers, expensive hardware upgrades, or third party software. Alliance XML handles the difficult tasks for you – there is no need for complex API or Java programming.

Microsoft SharePoint Server Support

Alliance XML is the only IBM i solution that supports the Microsoft SharePoint server WebDAV communications protocol. You can securely and automatically exchange files with vendors and customers who deploy SharePoint servers for file transfer.



Reduces Complexity

Automatically convert XML to and from IBM i DB2 without programming

Speeds Deployment

You spend less time on development and more time on increasing business

Improves Security

Supports encrypted transfer of sensitive data to HTTPS web servers and Microsoft SharePoint

Meets Compliance Regulations

Encrypts data to meet PCI, HIPAA, and Privacy Notification regulations

Reduces IT Costs

Spend less on your solution and less time on development

www.townsendsecurity.com

Introduction

Alliance XML is a complete and affordable solution for implementing XML web services on your IBM i. Without disrupting your existing applications and database you can easily implement web services without complicated API programming or the deployment of external servers. Alliance XML includes all of the communications, XML parsing, data translation, and application integration components that you need. You can create XML documents from your existing database files and securely send them to remote web servers, and you can receive XML documents directly on your IBM i and process the data into your applications. Alliance XML gives you an efficient way to fully integrate your IBM i applications with web-based services.

Architecture

Alliance XML is a native IBM I application that runs entirely in i5/OS. This means that Alliance XML has no dependency on external servers or hardware appliances, and fully supports native IBM i security. You can manage the Alliance XML application in the same way that you manage all of your IBM i applications. Alliance XML will fit naturally into your high availability strategy and is compatible with HA mirroring products.

Alliance XML includes HTTP and secure HTTPS clients and servers that do not rely on Websphere or the Apache web server. This means that communications are more secure, more efficient, and easier to deploy. Alliance XML servers can only process XML web service requests and do not expose security loopholes common with web servers.

To make the process of mapping XML data to IBM i database formats, Alliance XML includes a mapping facility that lets you associate XML data and attributes to database fields. By using the Alliance XML mapping facility you can avoid complex API programming, and you can achieve a level of independence from changes in the XML document. This makes XML translation more robust and easier to accomplish.

Once XML data is received it has to be processed into your applications. Alliance XML provides a rich set of interfaces to make this integrate easy to accomplish. Alliance XML can translate XML to database files, data queues, and to IFS files. User exit programs are supported at every phase of XML processing. You can easily integrate your RPG or Cobol applications with Alliance XML for fully automated processing.

Standards

Alliance XML supports all of the major XML and web service standards. XML standards support includes the W3C standard for XML and SOAP. In addition, Alliance XML has implemented support for SOAP Action headers which are commonly used by Microsoft IIS and .NET server applications. Alliance XML can process any XML document based on the Internet standards for XML.

The Alliance XML HTTP and HTTPS client and server applications implement support for HTTP versions 1.0 and 1.1. In addition, Alliance XML HTTP and HTTPS client applications support the CERN standard for proxy negotiation, and work with Microsoft ISA proxy servers.

XML Parsing

XML parsing is the process of converting information in native web formats to a usable format for applications. The Alliance XML parser implements the Xerces version 2 application which supports both DOM and SAX parsing technologies. Alliance XML parsing handles all of the XML data formats including UTF-8 and UTF-16 as well as other data formats. This means your applications do not need to handle these complex data transformations. The Alliance XML parser converts XML data to standard IBM i data in the EBCDIC character set.

The Xerces parser is the most common parser in use across all computing platforms, and is faithful to the XML standard. It is supported by a wide set of vendors including IBM. Alliance XML uses the most current version of the Xerces parser for XML parsing requirements.

XML Data Translation

Alliance XML provides a complete XML translation facility for converting data to and from the XML format. Using the rules you establish in an XML translation map, Alliance XML converts data to the appropriate IBM i or XML format. Native IBM i numeric data is converted to XML numeric formats, and native IBM i character data is converted to XML string format. For inbound translation Alliance XML will convert XML numeric strings to IBM i numeric fields. Your applications do not need to implement complex logic to handle Packed and Zoned IBM i numeric fields – Alliance XML will make all of the conversions for you.

Alliance XML translation implements a wide set of functions that are difficult to accomplish in normal RPG and Cobol applications. The Alliance XML translator can:

- Encode and decode data using Base64 encoding
- Translate embedded files to IFS or Windows Networking folders
- Hash fields using the SHA-1 hashing method
- Encrypt received data to protect sensitive data
- Extract complex data types from XML CDATA sections
- Default fields to user-specified values

The Alliance XML translator automatically performs complex tasks without requiring any user programming. This speeds project implementation times and avoids the need for expensive outside consultants.

HTTP and Secure HTTPS Clients and Servers

The most common way to transport XML documents is by using HTTP and HTTPS web communications. Alliance XML implements a complete set of web client and server applications. These applications provide all of the web communications support you need to send and receive XML documents.

The Alliance XML HTTP and HTTPS web servers are designed to efficiently handle incoming XML documents and process them into your IBM i applications. The web servers will receive an XML document, perform XML parsing, translate XML to IBM i data format, write the received data to a IBM i database or data queue, and optionally return a response to the requestor. The Alliance XML HTTP and HTTPS servers can only be used for XML document processing and do not create security exposures common with normal web servers.

The Alliance XML HTTP and HTTPS client applications provide support for sending XML documents to a remote web server, or retrieving XML documents from a remote web server. The Alliance XML client applications fully support proxy server negotiation and HTTP authentication. You can send XML data from an IFS directory, database file, or data queue.

Alliance XML supports secure HTTPS communications using the native IBM i SSL support. Certificates are managed by the no-charge IBM Digital Certificate Manager and SSL support is implemented using IBM i SSL interfaces. This means that you can take advantage of the IBM 4764 cryptographic accelerator card to speed up SSL communications. There is no need to make changes to

your applications to take advantage of SSL acceleration – Alliance XML will automatically use hardware acceleration if it is installed on your IBM i system.

Microsoft SharePoint and WebDAV Integration

The Microsoft SharePoint and Windows 2003/2007/2008 servers provide file transfer services through the Web Distributed Authoring and Versioning (WebDAV) interface, which is configured as a Network Place. Windows PC client access these services through Web Folders or Web Clients. Many companies use Microsoft servers as a convenient way to transfer files. The Web Folder interface is based on the HTTP protocol, but has significant differences from normal web services.

Alliance XML implements the client interface for WebDAV and is compatible with Microsoft SharePoint servers. You can upload, download, delete, list, and perform other WebDAV protocol actions related to sending and receiving files on your IBM i.

XML Mapping

Alliance XML uses XML translation maps to store the rules you want to implement when translating IBM i data to and from XML format. The translation maps associate XML data and attributes to fields in a database file. You can also apply processing rules related to translation such as default values for fields, the use of encryption for sensitive data, and options for storing translated data in a field or in an IFS file. An XML translation map creates a level of separation between your application environment and a specific XML document making the application more resilient.

XML maps provide the mechanism for specifying special handling during translation. You can specify that sensitive data be encrypted before writing to a database file, that outbound data be hashed with SHA-1, or that data be Base64 encoded or decoded. These functions are common in XML web services documents and difficult to implement in normal RPG applications. When you create an Alliance XML map you can enable this type of processing.

Automated Processing

Alliance XML provides several methods to make the sending and receiving of XML documents automatic. The Alliance XML library scan facility can find a file in a library,

convert it to XML format using a translation map, and send the XML document to a remote web server. User applications only need to write the data to the library to initiate the process.

Alliance XML IFS directory scan can automatically detect an XML file in an IFS directory, a QDLS folder, or a Windows Network folder and translate it using an Alliance XML map. IFS files processed in this way are automatically archived to a local directory.

Alliance XML Websphere MQ support can automatically de-queue an MQ message, use an Alliance XML translation map to translate the data, and return a response using an MQ transmit queue. Alliance XML MQ support can scale to handle many simultaneous transaction requests.

Alliance XML FTP support enables the automatic sending and receiving of XML documents use FTP. You can pull XML documents to a local IFS directory where Alliance XML directory scan will translate the XML documents using an Alliance XML translation map.

Application Integration

Alliance XML makes it easy to integrate XML and web services processing into your existing applications. After receiving an XML document Alliance XML will call your RPG, Cobol, or CL application to process the data. You can optionally return an XML response to the requestor. For outbound XML processing you have the ability to define any pre-processing of the data before converting to the XML format.

For Alliance XML customers who want more control over the XML translation process there are a set of commands that can be used to perform translation and communication tasks directly from your applications. The result is the ability to completely control the XML and web services environment from your applications.

Websphere MQ Integration

Many IBM I customers make extensive use of Websphere MQ (MQSeries) to exchange data with other platforms. Alliance XML provides full integration with MQ so that you can automatically send and receive XML documents. Alliance XML can receive MQ messages from multiple queue managers and receive queues, translate the XML

documents to your IBM i database, and return responses via MQ transmit queues. Alliance XML supports MQ correlation IDs, message formats, and other message characteristics.

Alliance XML is being used for integration with Starwood Hotels, Microsoft BizTalk, and a variety of applications in the publishing and pharmaceutical industries. Our MQ experts can advise you on your Websphere project and help you easily implement an MQ web services solution.

FTP Send and Receive

Many XML documents are exchanged using the Internet File Transfer Protocol (FTP). Alliance XML implements support for FTP exchange of XML documents and you can fully automate sending and receiving files with FTP. XML documents are received directly to an IFS directory on your IBM i platform in the native XML format, and automatically processed by the Alliance XML Directory Scan application. The documents are parsed and translated, and your applications are called to process the data. For outbound XML documents FTP is invoked from the Directory Scan application to transmit the data to a remote FTP server.

Security

Alliance XML provides security at every level of processing. When sending or receiving XML documents Alliance XML can use the Secure Sockets Layer (SSL) protocol for strong encryption of the transfer session. The Alliance XML SSL support is based on the IBM Digital Certificate Manager and related IBM APIs for SSL sessions. This gives you an implementation that is compatible with native IBM i security. As an additional layer of security the Alliance XML HTTP servers provide IP address controls so that only known clients can use the servers.

When receiving XML documents with sensitive data you can enable field level encryption to protect the data. For example, if you receive a document with a credit card number or social security number, you can use strong encryption of the data to protect it before it is written to your database table. User APIs provide a means of decrypting the data so that it can be used in your RPG and Cobol applications.

Performance

For high transaction volume environments Alliance XML provides a high speed interface based on Shared Memory and data queues. Called "Memory Resident

Translation” this facility provides XML parsing, translation, and user application interface functions completely in IBM i memory without any disk I/O. User applications can receive translated data and return responses with minimal processing overhead. You can pre-start multiple instances of the memory resident translation facility so that your processing can scale up as volume increases.

For applications that require the use of secure HTTPS processing, Alliance XML will automatically detect the presence of the IBM 4764 cryptographic hardware feature and use it for SSL acceleration. SSL acceleration can provide better performance in high transaction volume applications.

Development Services

If you need assistance with your XML and web services project, Townsend Security can provide contract assistance through our professional services group. We can tailor our services to your specific needs. From complete turn-key solutions to tailored services involving project management, programming, and test and QA - our services group can help you get your project up and running quickly.

Support and Training

The Alliance XML product is easy to use and most IBM i customers can start using the product after an initial telephone training session. For customers with larger IT departments or more complex projects, you can arrange additional training at our location in Olympia or at your own site. Your account representative can provide additional information about tailored training services.

Standard software support provides business hours technical support, routine updates to resolve known problems, and enhancements to the base product. An optional 24/7/365 support agreement is available.

Townsend Security

Townsend Security provides data encryption & tokenization, key management, secure communications, and compliance logging solutions to Enterprise customers on a variety of server platforms including IBM i, IBM z, Windows, Linux, and UNIX. The company can be reached on the web at www.townsendsecurity.com, or (800) 357-1019.