

An Introduction to Integrating with SAP

White Paper Prepared by:

DataXstream, LLC

For further information contact:

Tim Yates: tyates@dataxstream.com

757-927-0883

Jim Murrin: jmurrin@dataxstream.com

801-631-7683

DataXstream, LLC
471 McLaws Circle
Williamsburg, VA 23185
t 757.345.3437
f 757.257.0219
www.dataxstream.com

DATA XSTREAM
Systems Integration & Architecture

1. Introduction

Hundreds of solutions claim that they integrate with SAP, and while technically that may be true, few would ever be SAP certified. And even fewer are truly production-worthy. Why? Because the SAP world is exceptionally complex, and every choice precludes part of the market. Consider:

- There are multiple different, SAP supported, interface methods. Each offers its advantages, none of which is all encompassing. Depending upon a customer's SAP version, configured modules, and preferences, only a subset of those will work
- Every SAP installation is unique. What acts as a strength for SAP, its ability to be molded to customer unique preferences, is a weakness for integration, since a particular data call for one customer ends up getting something completely different for another customer.
- SAP runs on a wide variety of databases, operating systems, and hardware. Supporting every configuration is monumental, and probably impractical.
- Because SAP runs a company's core business processes, administrators, IT personnel, and even the CIO are very tentative about anything that touches, and may compromise the process or its content. Security measures designed to protect SAP hinder integration efforts.

Choosing how to integrate with SAP affects the upfront costs to do so, deployment and customer support costs, and then downstream upgrade costs to expand the market or take advantage of future capability (either in your application or SAP).

2. Development Options

IDOC – Intermediate Document

An IDOC is a predefined message format whose structure can vary depending on the parameters required for a given transaction. There are over 600 different IDOC types. Their advantage is that they are well understood, well supported, and generally remain consistent from release to release. Best suited for asynchronous communication.

ABAP – Advanced Business Application Programming

ABAP is SAP's proprietary programming language that drives SAP behavior and is available in readable format at the customer site. ABAP development occurs as part of every customer's implementation, and is the most direct option to integrate into SAP. Conversely, it also invalidates SAP support for the modified code piece, and won't be approved by SAP's standard certification process.

RFC – Remote Function Call

Within ABAP, there are programming hooks where external code can be called. An RFC is a synchronous interface method that calls and executes predefined functions. RFCs are typically not documented or supported by SAP.

BAPI – Business Application Program Interface

A Business Application Programming Interface (BAPI) is an RFC-enabled function that has been developed by SAP to enable integration both across SAP modules and with third party applications. It performs transactions on specific business objects (e.g. a purchase order) located in the

SAP Business Object Repository. BAPIs do not cover all transactions available in SAP, and require an understanding of RFC's and ABAP, but they are supported by SAP.

SAP NetWeaver

SAP released NetWeaver with the move to ECC, as the preferred tool for moving data and triggering functions across functional modules and with third party applications. It makes use of the newest industry-standard programming options including web services and SOA. The current disadvantage to Netweaver is that only a fraction of existing customers run a compatible release.

SAP PI – Process Integration

PI is an optional subcomponent of NetWeaver that supports middleware connection using JAVA and XML. Designed specifically to support integration, there is an additional cost to customers, which has, to date, limited its acceptance.

3. DataXstream's Xstream Connector

In order to lower the cost of developing bespoke integrations that enable only a subset of the SAP marketplace, and are difficult to support over the long term, DataXstream created the Xstream integration platform. It is a tailorable platform providing bi-directional communication and data transfer. The three components to the Xstream connector are the data translation and data transmission functions, and underlying error handling and staging capabilities.

The Xstream connector supports all SAP integration methods, leaving the transmission choice based upon the third party application's interfaces, performance requirements, and customer/application configuration preferences involving hardware and deployment.

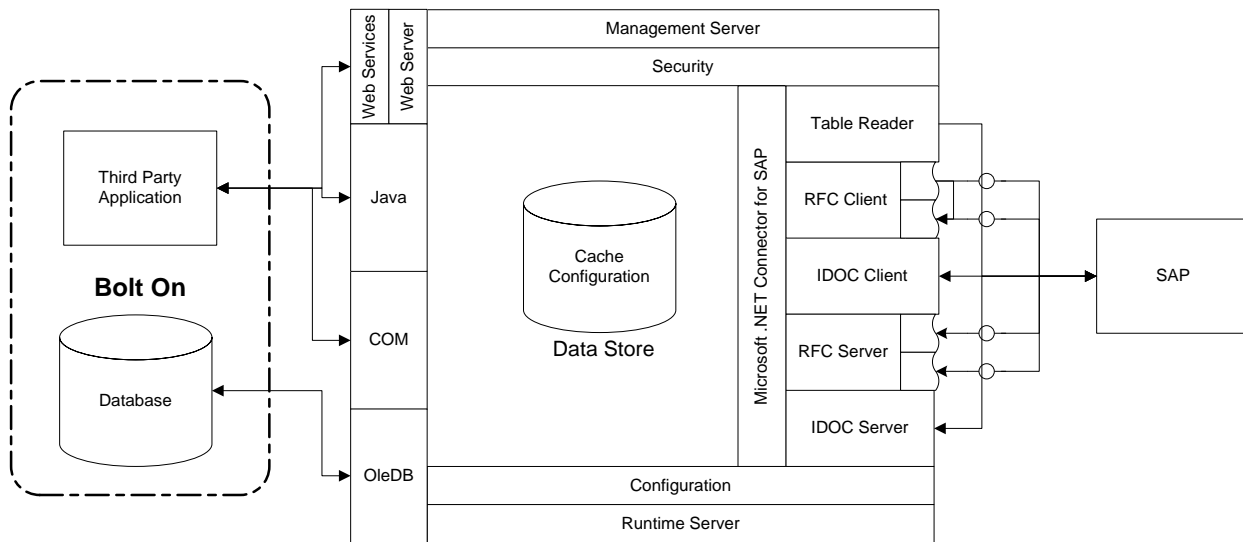


Figure 1: Xstream Connector

As a platform, there is still customization to incorporate specific integration requirements. Because of the large variability finding, calling, and manipulating target data and then triggering some action back to SAP, there is great uncertainty predicting the size, shape, and cost of the final product. DataXstream employs its project-proven integration tools and methodology, along with customer business decisions to derive the level of pre-built connector functionality, relative to specific customer professional service engagements. Many of these choices are resolved during the detailed design phase, when DataXstream works with your team to conclude the optimal translation location as well as the specific data fields and business logic to tailor the connector.

Built-in capabilities support the transmission and translation components to insure reliability, scalability, flexibility, and manageability. It includes error handling and data recovery, thereby protecting the successful operation between the two applications.

Once the business objectives are translated into a core design, DataXstream creates an application specific integration based upon the Xstream Connector platform.

The advantages of this approach include:

- The Xstream Connector is already certified by SAP
- The Connector and final application specific integration is developed using SAP recommended best practices and integration techniques.
- The final solution is packaged leveraging SAP's Add-on Assembly Kit.
- Content is implemented, versioned and maintained within the SAP application, using the standard SAINT transaction, just like SAP delivered software.
- The resultant application is designed and architected to allow maximum implementation flexibility. This allows each deployment to adapt to a customer-specific integration infrastructure.
- The Xstream Connector supports versions SAP R/3 4.6C, SAP 4.7 Enterprise, SAP ECC 5.0, and SAP ECC 6.0.

Choosing to leverage the Xstream Connector depends upon platform requirements, short term goals, and application specific programming interfaces. DataXstream can work with your team to decide the best approach to integrating with SAP.