



SGX SyncAX

Synchronization of Microsoft Dynamics AX 4.0 with Microsoft Dynamics CRM 3.0

White Paper

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CONTENTS

Overview	3
Synopsis	4
Challenge	5
High Customer Demand.....	5
Obstacles to Success.....	5
Business Needs	6
Extensibility	6
Customize for Specific Markets	6
Improve Business Productivity.....	6
Reduce Total Cost of Ownership	6
Solution	7
Microsoft Technologies At Work.....	7
Overview of the Solution.....	7
Product Specifications	8
Data Mapping	8
Installation	9
SGX SyncAX Settings.....	10
Data Synchronization	10
Real-time Integration.....	11
Error Handling.....	12
Benefits	13
About	14

Overview

Headline	Solugenix develops SGX SyncAX to integrate Microsoft Dynamics AX 4.0 and Microsoft Dynamics CRM 3.0 for high scalability needed by businesses today.
Partner	Solugenix
Partner Web Site	www.solugenix.com
Customer Profile	Microsoft Dynamics CRM customers
Software and Services	
Products	Microsoft Dynamics AX 4.0 (MDAX) Microsoft Dynamics CRM 3.0 (MDCRM) Microsoft SQL Server 2005
Services	Solugenix
Technologies	Microsoft .NET Framework 3.0 Microsoft ASP.NET 2.0 Microsoft Dynamics AX Applications Integration Framework (AIF) File System Adapter

Synopsis

Solugenix developed a new product called SGX SyncAX that supports Microsoft's goal of enabling hundreds of regional and vertical CRM businesses to develop rapidly around the world. The software application delivers an out-of-box prepackaged real-time connector between MS Dynamics AX 4.0 and MS Dynamics CRM 3.0.

The application enables high scalability, flexible deployment and customization options, and requires minimal setup time. Solugenix will offer SGX SyncAX to all existing Microsoft Dynamics AX customers that use Microsoft Dynamics CRM. SGX SyncAX is released in a phased manner to cover all possible areas based on Enterprise Resource Planning (ERP) market demand.



Challenge



In 2006 Microsoft announced that the Microsoft Dynamics CRM team would be introducing a new program designed to give customers more choice and flexibility in the deployment of CRM technology across their enterprise. The program was to be delivered through Microsoft global network of hosting and solution delivery partners. Solugenix accepted the challenge.

High Customer Demand

In August 2007, Solugenix performed a discovery exercise designed to measure market demand and assess business requirements for a Microsoft Dynamics AX (MDAX) and Microsoft Dynamics CRM (MDCRM) integration tool. Microsoft Dynamics CRM 3.0 had been tested and proven in the Enterprise Resource Planning (ERP) market. Customer feedback was positive and demand was high largely because of its integration capabilities with other Microsoft Office applications such as Microsoft Office Outlook, Word, and PowerPoint, as well as third-party applications such as those from Advanced Planning and Scheduling (APS) suites and other products such as Data Collection (e.g. rfSmart) and EDI (e.g. Covast) applications. However, medium and large businesses report difficulty integrating various applications while starting from scratch. Most of these integrations projects become part of ERP implementation thus making the implementation more complex. Keeping all this in mind, Solugenix decided to take initiative to develop this integration between these two widely used products.

Obstacles to Success

While customer feedback on the MDCRM product is primarily positive, the program faces resistance especially in the medium- and large-scale sectors. Customers report difficulty handling business growth and increased volume. Scalability of the MDCRM module is not high in comparison with competing Customer Relationship Management (CRM) software applications on the market. Reconfiguring their implementation to optimize performance is expensive and requires customization. IT staff complain of lengthy deployment-time, overly-complex customization features, and the need for extensive user training and knowledge transfer.

MDCRM customers need a cost-effective solution that increases scalability, and is easy to install, use and maintain. Solugenix' SGX SyncAX solution solves these problems.



Business Needs

After conducting in-depth market research on the business needs of existing MDCRM customers for a MDAX-to-MDCRM integration tool, Solugenix elicited the following specific requirements:



Extensibility

In order to compete in an increasingly competitive global market, businesses need a MDCRM solution that increases scalability, and will enable them to take advantage of new opportunities for growth and expansion into new markets.

Customize for Specific Markets

Businesses need the ability to easily configure and customize solutions for different geographical regions, vertical industries, and company size, in order to compete globally.

Improve Business Productivity

Businesses need the ability to share critical customer information with users throughout various departments and levels of the organization. These users need to be alerted to critical events, and have the necessary information to take action and make fast, accurate, and personal customer service decisions.

Reduce Total Cost of Ownership

Businesses need to reduce the number of hours required to implement and maintain their solution. They need an integration tool that will simplify and streamline all processes, is easy to install, use and maintain.

Solution

MS Dynamics AX 4.0 and MS Dynamics CRM 3.0. Out-of-box prepackaged real-time integration tool, product name SGX SyncAX, enables high scalability, automates deployment, integration and maintenance processes between MDAX and MDCRM, and simplifies customization.

Microsoft Technologies at Work

SGX SyncAX uses the following Microsoft products and technologies to implement the solution. Data integration and asynchronous messaging is achieved using Microsoft's Integration Framework (AIF) and File System Adapter.

Microsoft SQL Server 2005 serves as the integration database. The solution uses the .NET Framework 3.0 to implement events and the User Interface is configured using ASP.NET.



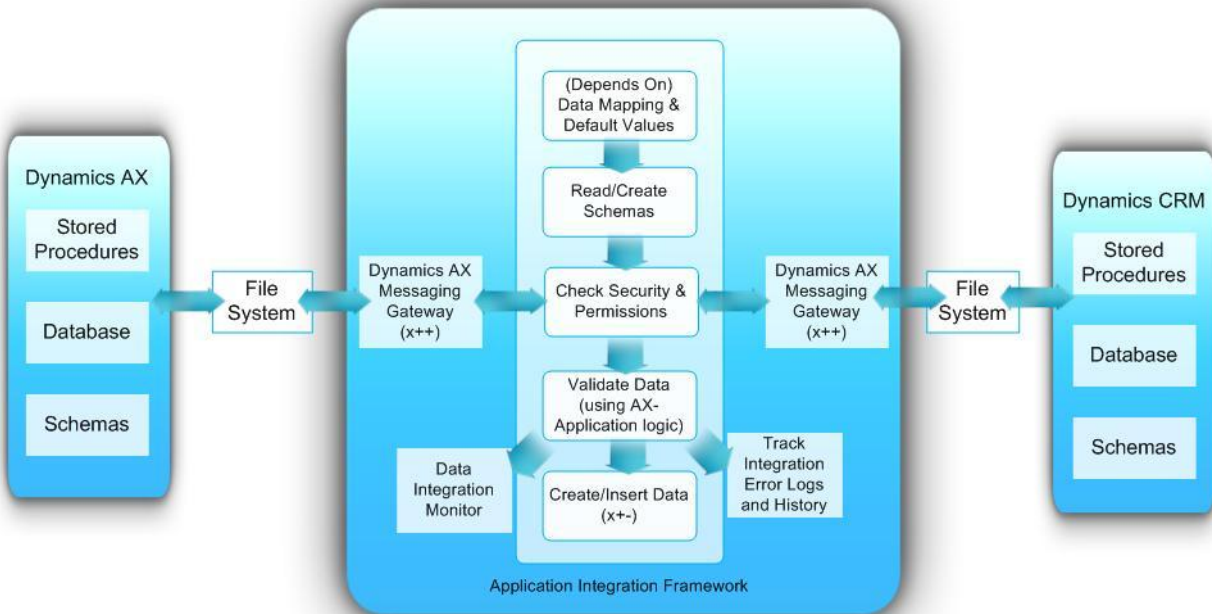
Overview of the Solution

On a high level, the solution works as follows. When a user saves a record in MDAX, the MDAX Outbound Adapter publishes a customer-created message to a queue where it waits for asynchronous processing by a Microsoft Dynamics AX batch job. File system adapter transports and converts the message into the proper format for exchange, routing the message through the MDAX Messaging Gateway and into the AIF for processing.

The AIF validates the data, checking it against the destination data mappings, default values, and database schema. It checks security and permissions, creates insertion-ready data, and sends the message back through MDAX Messaging Gateway which submits a Receive request to MDCRM using the AIF Send Adapter.

MDCRM receives the message using the CRM Inbound Adapter which removes the routing information and inserts the core XML data into the Microsoft CRM 3.0 database for future use. When a customer enters a record in CRM, the process is the same except in reverse. The illustration below illustrates the integration process workflow.

Integration between MS Dynamics AX 4.0 and MS Dynamics CRM 3.0



Product Specifications

The following section provides technical and functional specifications of the SGX SyncAX application.

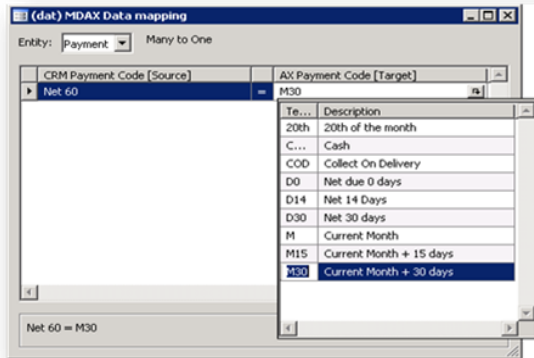
Data Mapping

SGX SyncAX master data and transactional data are mapped according to class of data object. Classes are governed by user-defined business rules configured during installation. Data integration points, the design and development of the integration points and the dependencies needed for a successful integration, are defined in detail in the functional specification. For practical reasons, the application is developed to accommodate a single company only.

Master data consists of Company Accounts, Users, Customers, Contact Persons, Customer Addresses, Units of Measure, Products, and Price Lists. Transactional data consists of Sales Orders and Sales Invoices.

Entity-wise data mapping for MDAX and MDCRM

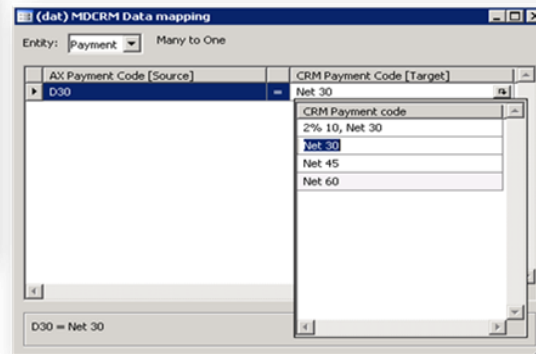
MDAX Data mapping form



The screenshot shows the MDAX Data mapping form. The entity is set to 'Payment' with a 'Many to One' relationship. The source field is 'CRM Payment Code [Source]' and the target field is 'AX Payment Code [Target]'. The source value is 'Net 60'. A dropdown menu is open, showing various payment terms with their descriptions. The selected option is 'M30' with the description 'Current Month + 30 days'. The bottom of the form displays 'Net 60 = M30'.

Te...	Description
20th	20th of the month
C...	Cash
COO	Collect On Delivery
D0	Net due 0 days
D14	Net 14 Days
D30	Net 30 days
M	Current Month
M15	Current Month + 15 days
M30	Current Month + 30 days

MDCRM Data mapping form



The screenshot shows the MDCRM Data mapping form. The entity is set to 'Payment' with a 'Many to One' relationship. The source field is 'AX Payment Code [Source]' and the target field is 'CRM Payment Code [Target]'. The source value is 'D30'. The target value is 'Net 30'. A dropdown menu is open, showing various CRM payment codes. The selected option is 'Net 30'. The bottom of the form displays 'D30 = Net 30'.

CRM Payment code
2% 10, Net 30
Net 30
Net 45
Net 60

Installation

The SGX SyncAX installation process includes the importation all relevant AX objects for this integration. During installation, the application creates and integration database and appropriate tables that will house AX to CRM data mappings, default settings from AX and CRM that will be used in the data synchronization process, and error handling information.

During installation, the application creates a user interface in ASP.NET that provides the means to enter data mapping information, and required setup and parameters for a successful integration.

The application does not automate all processes. During installation, the database administrator will need to configure the following SGX SyncAX setup components manually:

- MDAX and MDCRM Database details
- Integration Database details
- MDAX Company and Default value details
- Entities to be published
- Data Mapping between MDAX and MDCRM
- Constraints to limit what data can and cannot be sent and accepted at MDAX and MDCRM endpoints

SGX SyncAX

Preliminary Data Synchronization Process

Synchronization of AX to CRM:

- Customers
- Customer Groups
- Contact Persons
- Addresses
- Alternate addresses

Synchronization of CRM to AX:

- Accounts
- Contacts
- Customer addresses



SGX SyncAX Settings

SGX SyncAX includes a 'New Settings' user interface that enables users to define data entities to be integrated, and to specify when and how the data transactions should occur in MDAX and MDCRM. These settings represent organizational policies that do not change very often. Hence, these are typically a "one time" configuration for the purpose of the integration.

The New Settings interface is used to:

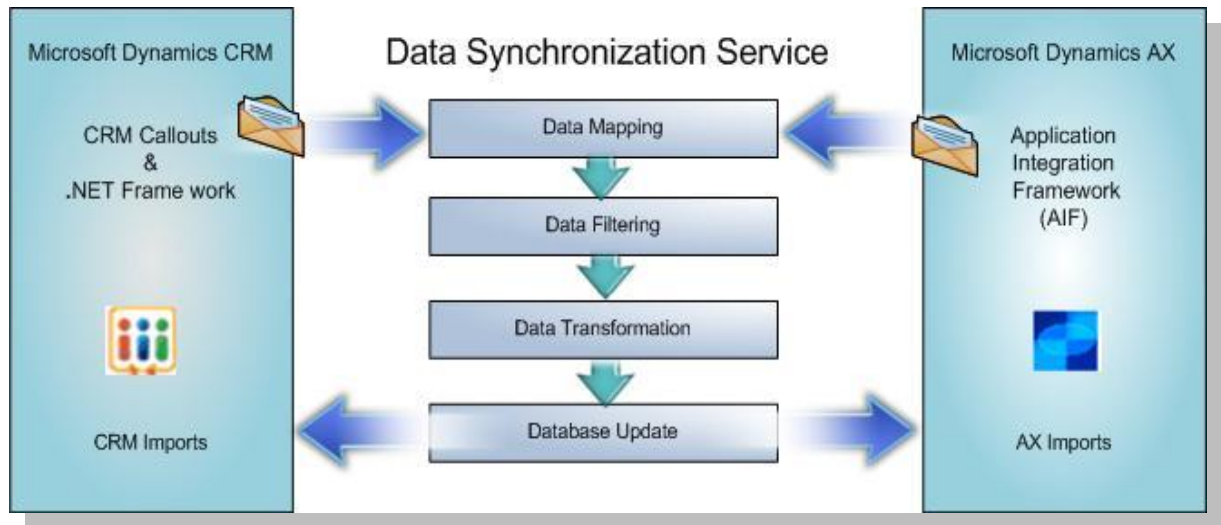
- Select the Entity records to integrate between MDCRM and MDAX
- Select the Default values for MDCRM 3.0
- Select the Default values for MDAX 4.0
- Select how MDAX order and invoice records are published to MDCRM
- Data mapping for active entities (customers, units, items, etc.)

The New Settings interface is automatically installed during SGX SyncAX installation.

Data Synchronization

Data synchronization is an essential component of initial deployment that ensures that data integration between the two applications is correctly handled. SGX SyncAX connects by utilizing a generic live two-way synchronization between MDAX and MDCRM. This data synchronization feature is developed using MDAX application logic for synchronizing the databases of MDAX and MDCRM. The illustration below

shows how the data synchronization process works.



Data synchronization is implemented using a wizard. During the initial data synchronization process, the user may choose a base application using one of the following options: “MDAX to MDCRM,” “MDCRM to MDAX,” or “Synchronize data that exists in both MDCRM and MDAX.”

Depending upon which synchronization option the user chooses, a new field group is provided that offers a selection list of all the all the entities that can be synchronized between MDCRM and MDAX. The options are Customers/Accounts, Customer Addresses, Units of Measure, Price Lists, Items/Products, Sales Orders, and Sales Invoices. Options are active depending upon the data flow of the application.

In case the third option “Synchronize data that exists in both MDCRM and MDAX” is marked within the settings form, all the above listed entities are available for the user to choose for synchronization. All the data synchronization settings are picked up from the Integration database tables store the data synchronization parameter requirements.

Real-time Integration

SGX SyncAX provides real-time data transformation, validation, and integration.

Transformations

Data transformation provides the foundation of A2A (application-to-application) integration processes. SGX SyncAX provides the capability to transform data for integration between systems across the

enterprise. Such systems may use differing database table and field naming conventions, regional and international units of measure, and have external facing systems in differing native languages but identical products, as is common with regional warehouses of global businesses.

The AIF framework within MDAX handles the above data transformations.

Data Integration

MDAX classes triggered during the creation of data control data validation.

Classes, either standard or customized, transform the data according to the business rules governing the adapter selected. These classes validate the data, check for security and permissions, and generate the database schemas required for integration. The system validates data between applications using the AIF Framework. SGX SyncAX provides built-in security that prevents unauthorized users from sending or receiving master or transactional data.



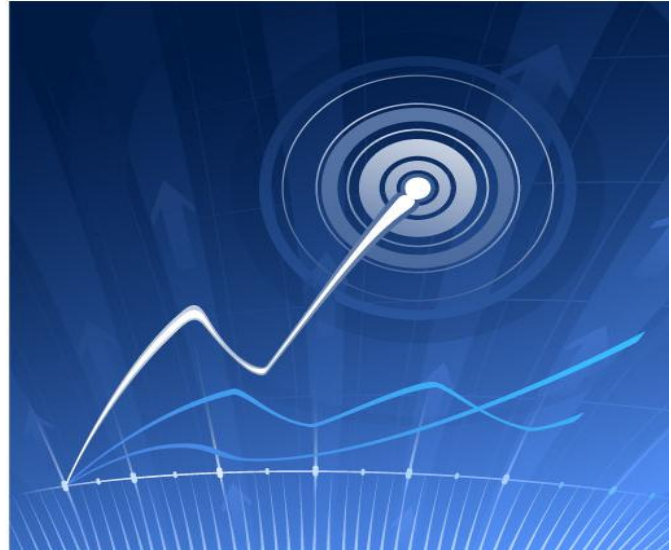
Error Handling

SGX SyncAX provides an error handling system that stores all error messages that occur during the integration process in an Activity Log table in the integration database. Every data integration validation event is recorded as a separate activity in the log.

The error handling system requires that a database administrator manually check error logs and message queues periodically to monitor traffic, validate integration processes, and update records. The system provides customized Alerts that send email to notify system administrators of changes in performance based on error log descriptions.

Benefits

SGX SyncAX benefits customers by offering flexibility and choice in the deployment of MDCRM across their enterprise. By enabling highly flexible, customizable and scalable options, the application offers medium and large businesses the ability to expand more rapidly and easily. Organizations can now add large numbers of customers and other contacts without the need for reconfiguration of the IT environment. With its wide range of customization options, businesses can modify their installation to benefit from specific geographical, regional, and industry advantages.



SGX SyncAX also benefits customers by reducing the costs of their MDCRM implementation. The application reduces setup time, improves performance, simplifies customization, reduces maintenance costs, improves data security, reduces user training, and speeds workflows and processes throughout the enterprise. The result is improved sales performance, better customer service, improved compliance, higher organizational productivity, and increased ability to compete in the global market.

About

Founded in 1969, Solugenix is an award-winning Microsoft Gold Partner with proven expertise providing Enterprise Resource Planning (ERP) solutions that automate and streamline financial, customer relationship and supply chain processes. With a history of innovation, Solugenix has helped companies drive business success by providing strategic solutions and services -- including a Web-based mapping and routing system for Yahoo Maps and MapQuest, a structured technology support system for the Fast Food industry, and the first cell phone billing system.

Solugenix continues its spirit of innovation today by helping businesses meet the challenge of rapidly changing regulations and legislative requirements such as Sarbanes-Oxley (SOX) and the Health Insurance Portability and Accountability Act (HIPAA).

We invite you to contact our Sales Team at (866)749-7658 to find out more about Solugenix. You may also send us an email at info@solugenix.com or visit our Web site at www.solugenix.com.

The Microsoft Dynamics logo, featuring the word "Microsoft Dynamics" in blue and green, with a colorful bar chart icon to the left.

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