InfoStrat

Data Migration and Systems Integration for Microsoft Dynamics CRM 2011

Choosing the Right Tools for Project Success

An InfoStrat White Paper

For the latest information, please see http://www.infostrat.com

Contents

Background

Microsoft Dynamics CRM 2011 provides a rapid application development platform for developing solutions with powerful form building, workflow development, and report creation capabilities. However, with all significant systems, some of the thorniest challenges revolve around getting the data from the previously used system migrated successfully into the new system as well as integrating the new system into the corporate landscape of existing systems that are not being replaced, especially financial systems.

This white paper provides general guidance and pointers on how to choose the right tool when you are evaluating your data migration and systems integration requirements for Dynamics CRM 2011.

Executive Summary

Nothing makes software developers groan more than having to approach the tasks of data migration and systems integration. These areas can be fraught with peril, and their scope can be larger than that of developing a solution.

Data migration is the process of transferring data between storage types, formats, or computer systems. Data migration is usually performed programmatically to achieve an automated migration, freeing up human resources from tedious tasks. It is required when organizations or individuals change computer systems or upgrade to new systems, or when systems merge. The biggest challenge oftentimes is that the data quality in the original source system is poor but the current customer is not necessarily even aware of the condition it is in. We have had many projects where we have migrated data and the customer discovered bad data in the new target system and we have had to spend considerable time demonstrating that the bad data was previously existing in the original system. If the data in the source system is inconsistent, missing, or incorrect, it is difficult to provide a streamlined mechanism for data migration without a lot of extensive analysis and both programmatic and manual cleanup.

Systems integration can be straightforward and easy or incredibly complex. If the desire is a simple one way push of a few data fields from one system to another, the technical challenge is modest. If the systems will need to mutually stay in synch as fields are entered and modified in either system, the challenge grows dramatically especially if you also must consider what will occur if one of the systems is down during replication or rollback. Rules may need to be established as to which system is the system of record and takes priority in the event of a conflict. With systems integration, it is critically important that detailed use cases are created with thorough error conditions and system state thought through.

Microsoft Dynamics CRM 2011 Import Data Wizard

The standard approach for doing data imports into CRM is through the Import Data Wizard feature within CRM because it will properly maintain internal CRM integrity in the CRM 2011 data model. This tool allows users to import data from delimited text files created from Excel or other products. The Import Data Wizard maps data elements to the appropriate data fields and allows data transformation, such as mapping choice fields to matching choices in Dynamics CRM. Newly imported records may be viewed separately and import errors are reported to the user.

The import wizard is designed for interactive use by the end user. It is not designed to be run by a timer. Within the wizard, you are allowed to map source fields with destination fields if they are named differently. It also supports lookup fields as shown below.
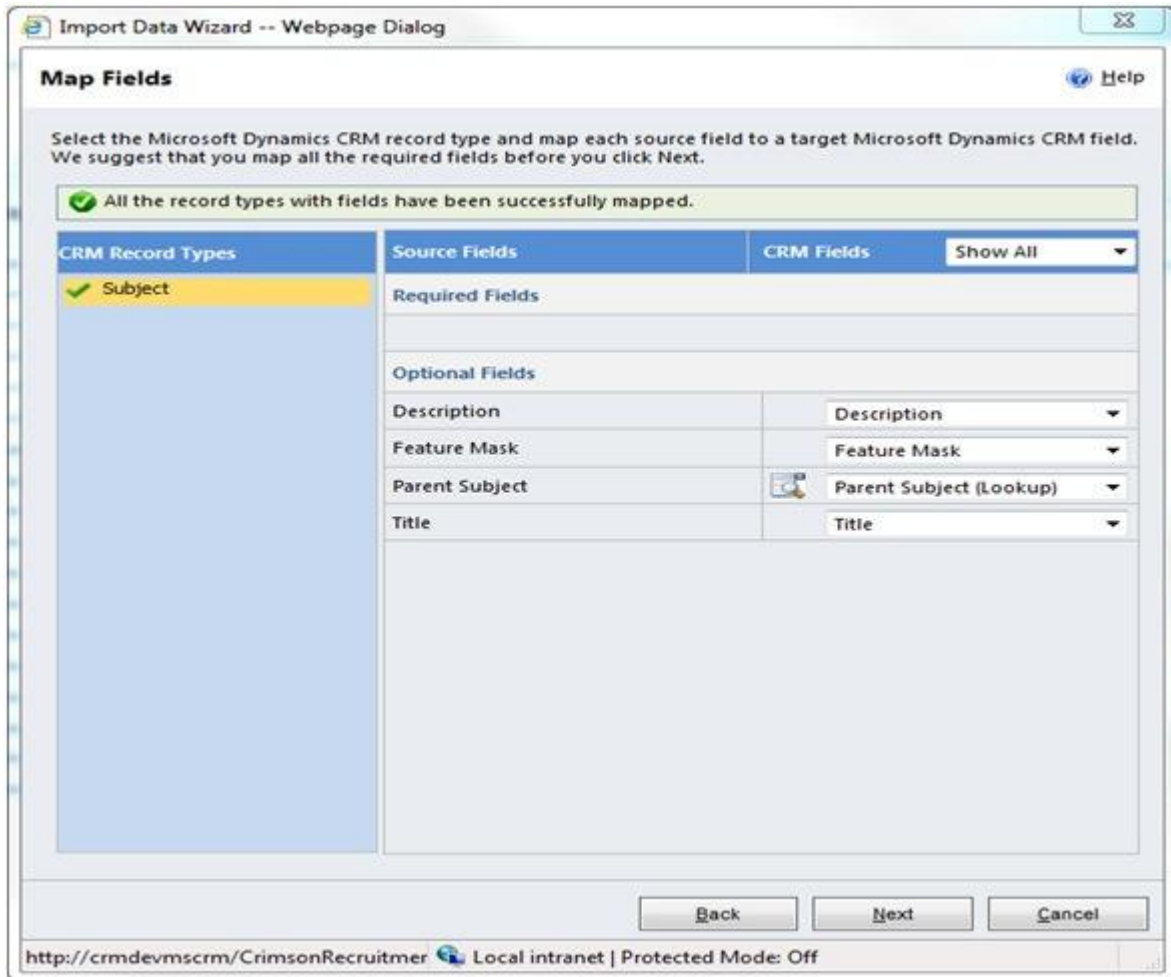
Import Data Wizard

Dynamics CRM can produce an import template in Excel format. When this option is selected, you will see something similar below. The best source format for import is to use the entity template provided by CRM.
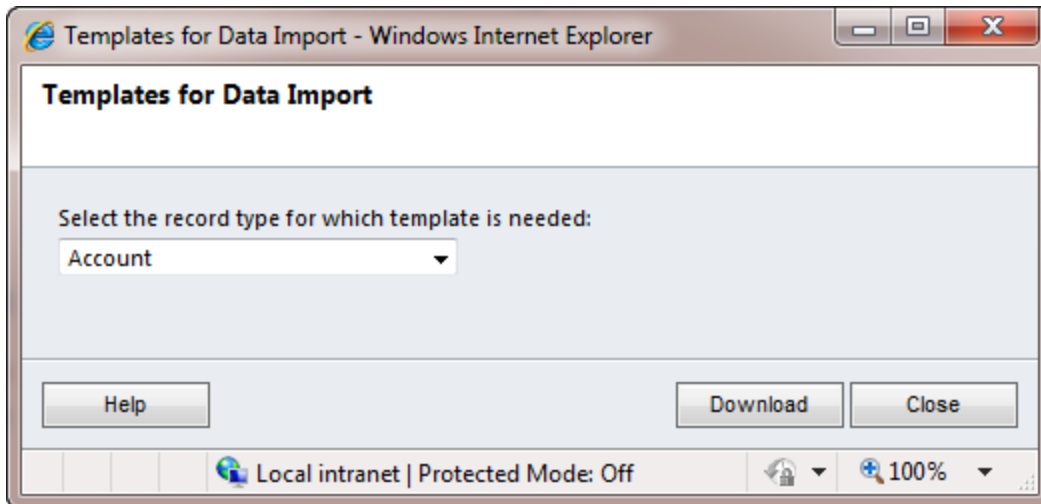
Template for Data Import

Below is the template opened in Excel showing the fields from the CRM entity. Once it's opened, you can copy and paste from other excel file.

Template opened in Excel

Once the Excel template is filled with data, import wizard will be able to read it and import the data into CRM.

BizTalk

Unlike previous versions of Dynamics CRM, the 2011 release does NOT have a BizTalk-specific send adapter. The stated guidance is to use the existing SOAP endpoints through the BizTalk WCF adapter. Additionally BizTalk is typically the tool to use if you are creating a process driven integration that supports holistic business processes that span multiple applications (where Dynamics CRM is just one of several agents within the overall process).

Shown below is a simple data mapping of BizTalk with CRM.
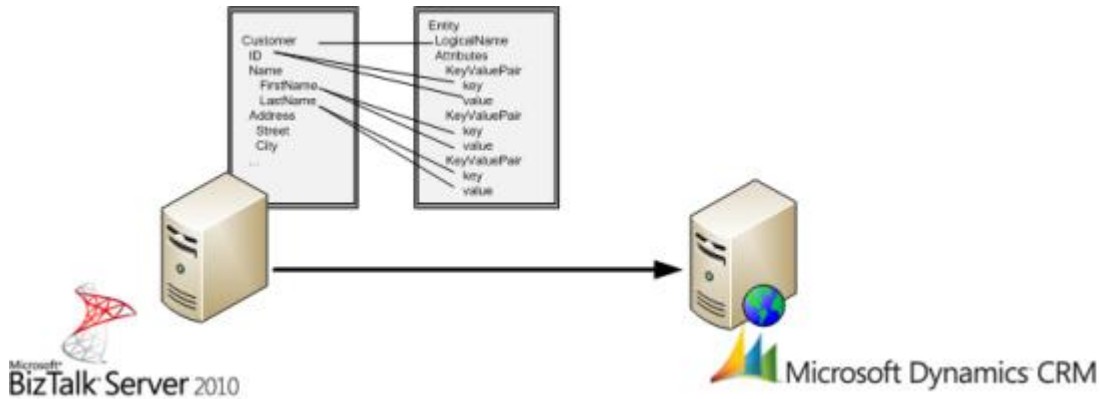
A custom workflow designer in BizTalk is capable of very complex data transformation.
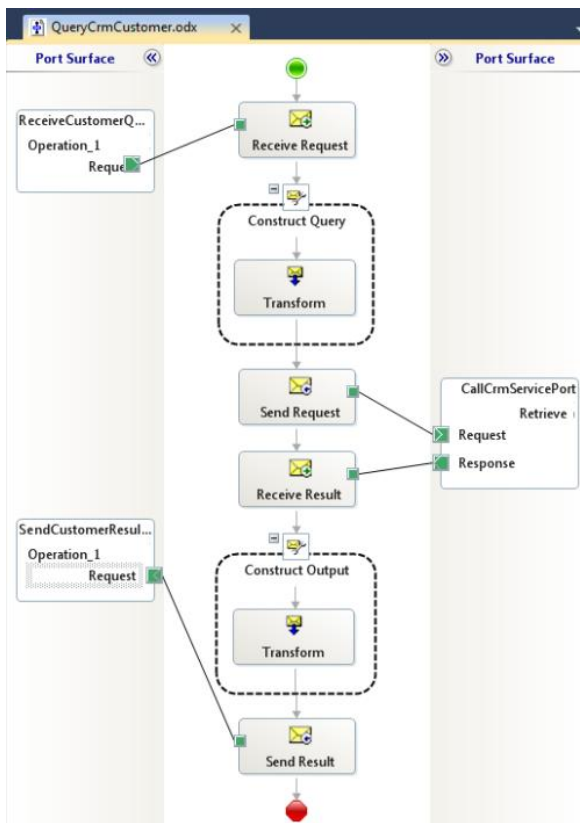
BizTalk is the powerhouse of data migration and transformation. It can be the main hub for any organization for data transfer with complex business rules.

SQL Server Integration Services

This approach uses SQL Server Integration Services (SSIS) and the CRM Software Development Kit (SDK) to send data from multiple data sources to CRM through the CRM web service API.   This approach requires a skilled .Net Development and a SQL Server database administrator.   Because the data is going through the CRM web service API, this option is fully supported, however it is not transactional and custom error reporting will have to be implemented.

 Reference: http://blogs.msdn.com/crm/archive/2008/05/07/integrating-crm-using-sql-integration-services-ssis.aspx

SSIS has a very intuitive workflow designer that can bring multiple end point data together and send it on to the destination data silo such as CRM. Show below is an example of the Data Flow designer.
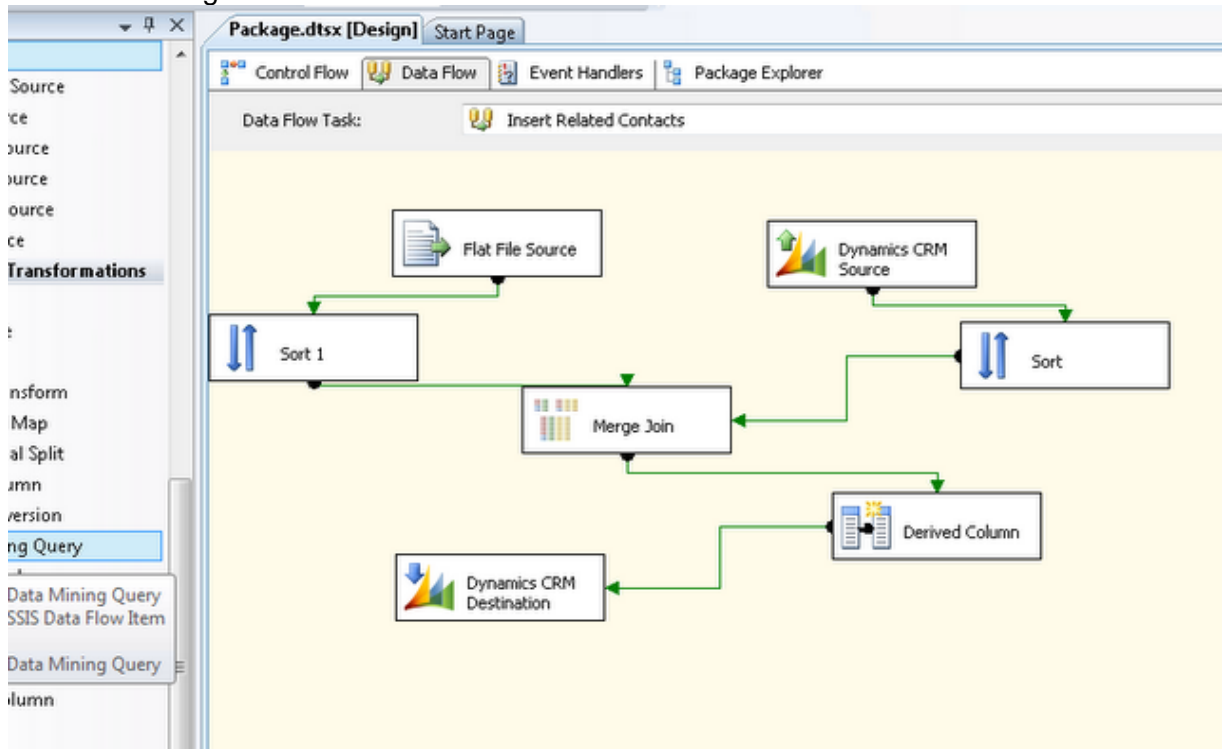
SSIS does not have a plug-in to CRM to provide live data migration. It can however pull data from CRM on a schedule. The pulling of data will consume resources from the CRM server. It is recommended to have a separate CRM server to provide this pulling of data.

Direct CRM Web Services API Access

This approach utilizes custom code to interface with the CRM Web Services API to perform the data import. This approach is helpful when there are complex relationships that exist, there needs to be a lot of data cleansing, or if business logic needs to be applied to the source database. This approach offers the most flexibility. Any coding language that can interface with XML web services can be used with this approach.

Custom Coding using Web Services and Post-callout

Dynamics CRM provides a rich SDK allowing both server and client side programming. Using its server side programming developers can write integration modules. Using its client programming developers can integrate Dynamics CRM with custom web pages. The custom approach provides the most flexibility but it is also the most work since all functionality will be coded from scratch. If there are any changes to business rules during the life of the system, then custom coding changes are required.

http://msdn.microsoft.com/en-us/library/gg334357.aspx

Scribe

Scribe is attractive because it provides a configurable tool for mapping and migrating data and does not require any custom coding. Scribe provides data connectors for both on premise and online versions of Microsoft Dynamics CRM. Because of this added feature, users of Scribe will not need to understand and update the data properties of Dynamics CRM to get data out and in of it. This is a major advantage over other systems that will require custom data integration using the Dynamics CRM's API. In additional to the data connectors provided, Scribe also provide out of the box plugins for Dynamics CRM to trigger when changes in the entities occur. This allows data change alerts to be sent to Scribe for it to process. Because of this capability, it eliminates frequent schedule syncs of data from Dynamics CRM to other systems via Scribe. Within Scribe console, plugs and data migration jobs can be executed simultaneously. Scribe provides existing templates and configurable software via Scribe Insight for both on-demand (SaaS) and on-premise applications, to enable the migration of data for either a one-time data migration or ongoing data migration, without having to write a single line of code.

The following shows the Scribe Workbench connected to the source and destination data connectors provided by Scribe.
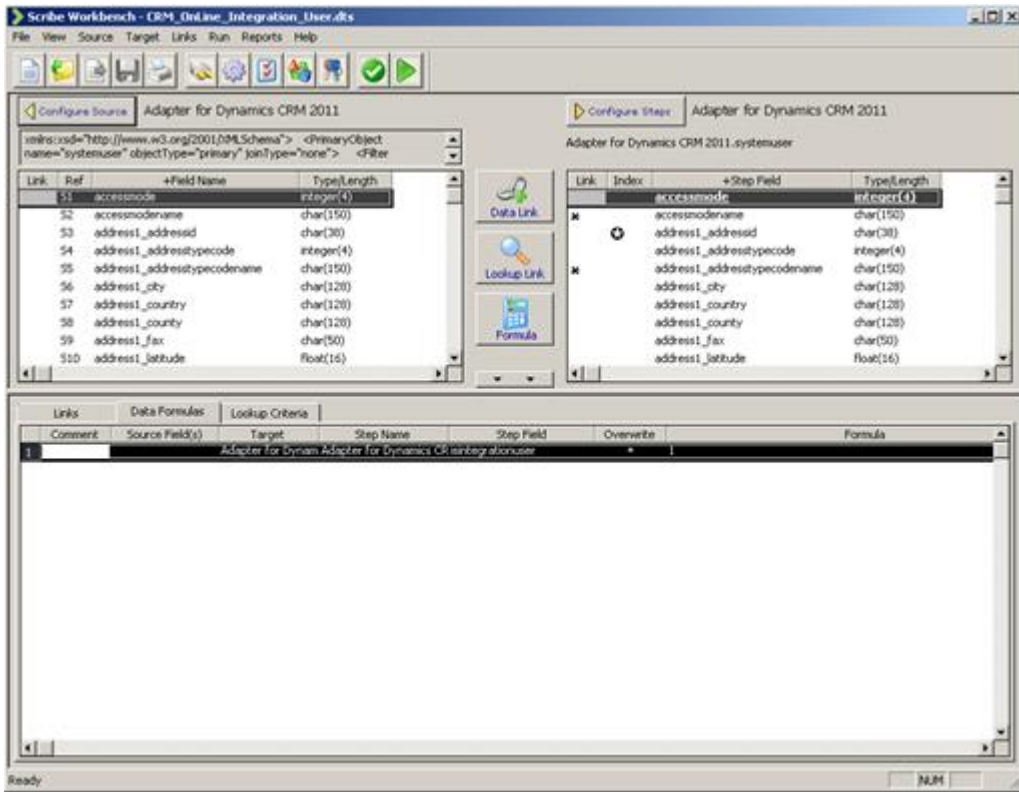
Once the data connectors are connected, configuring the migration steps are next. Shown below is an example of a typical step process of migrating data.

Reference: http://scribesoft.com/State-of-CDI
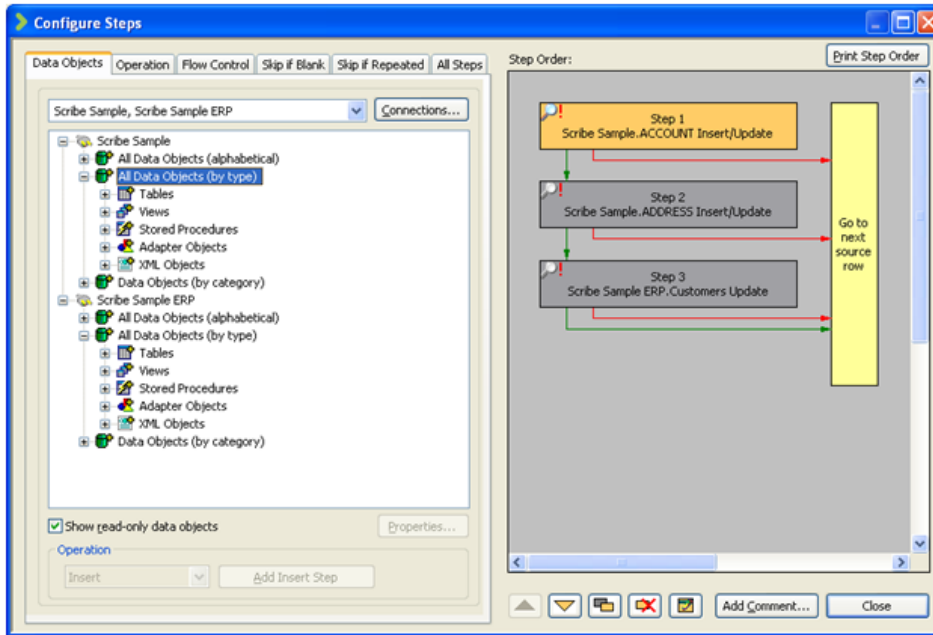
Scribe is optimized to support data driven integration needs while BizTalk is optimized for process driven integration scenarios. In nearly all of our Dynamics CRM 2011 projects, CRM is the main application and simply needs an interface with one or two existing applications (such as an ERP or financials system) and so a data driven approach works best.

The following whitepaper from Scribe compares the two solutions and explains when you should use Scribe and when you should use BizTalk.

http://crmblog.dk/file.axd?file=2010%2F10%2FScribeOrBiztalk.pdf

Simego Data Synchronization Studio

Data Sync Studio is a tool designed for developers who don't want to code the baseline of data migration and wants the capability to modify the transformation by code. This tool is has the data connectors to Dynamics CRM's web services that allows the developer to concentrate on the business rules of the data transformation instead of coding and update the interface to Dynamics CRM's web services. The tool's layout is like Visual Studio so the learning curve for developer is not steep.
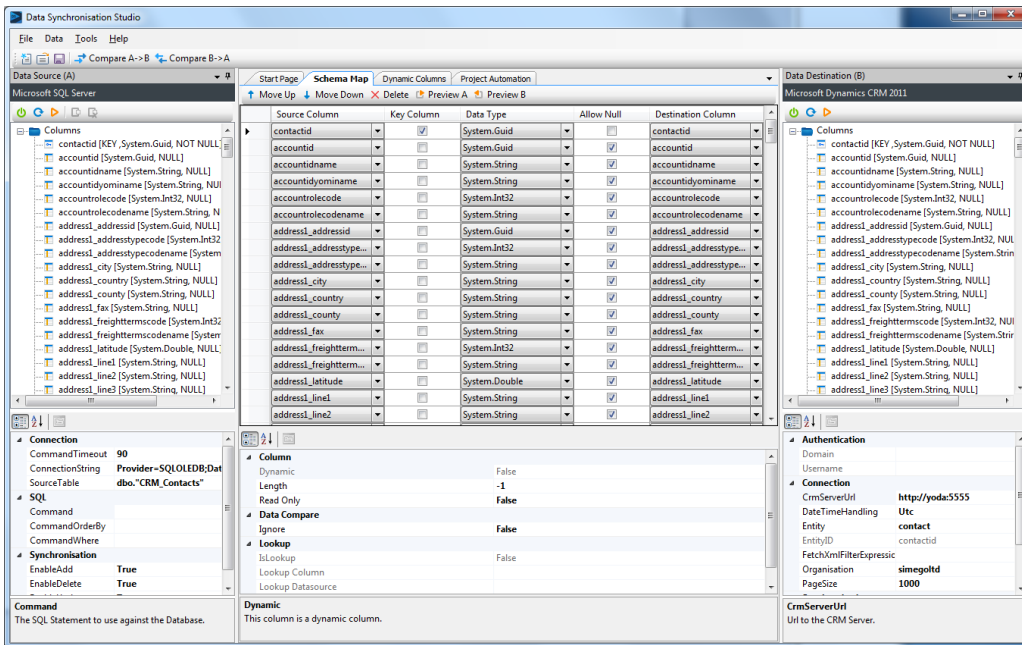
The customization of the data migration by code is also straight forward and easy for developers of Visual Studio to pick up.
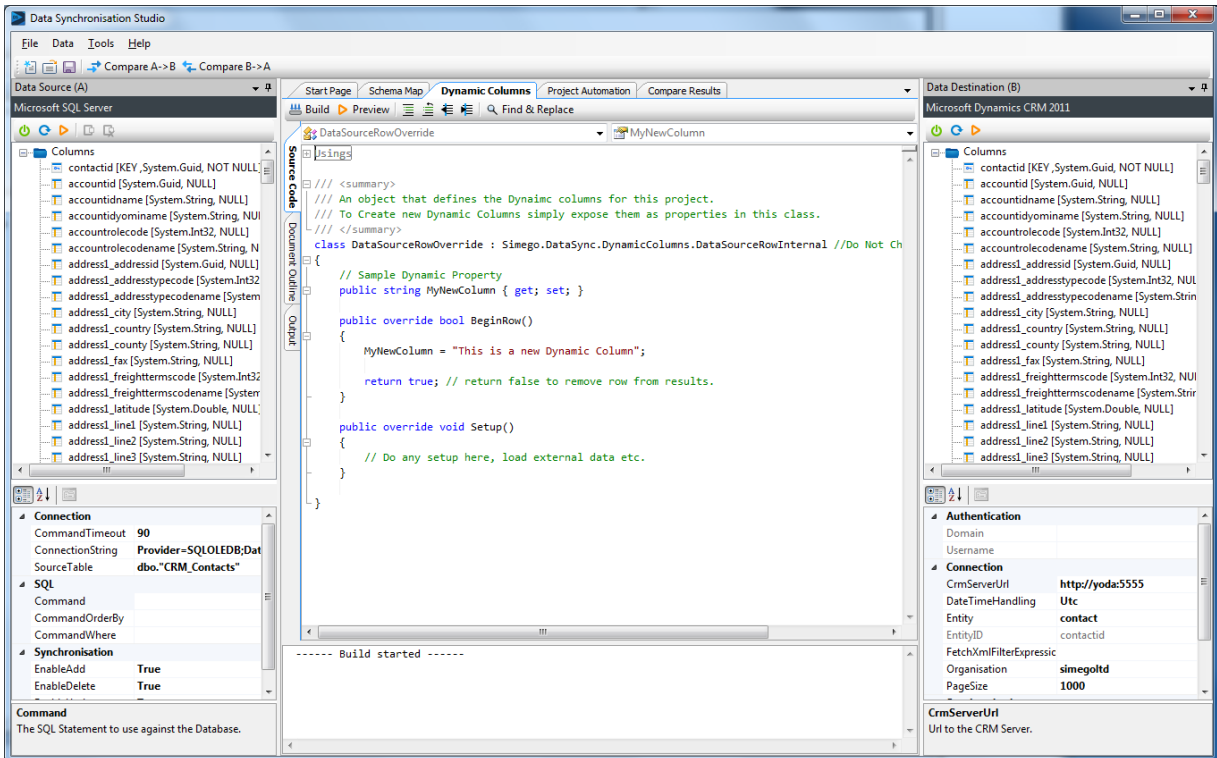
Dynamics CRM is not the only data connector Simego provides. Some of the useful ones are Microsoft SQL Server, Access, Active Directory, Exchange, SharePoint, and Oracle.

Evaluation Matrix

The following table summarizes some of the considerations for data migration and integration tools.

	Import Data Wizard	BizTalk	SSIS	Direct CRM Web Services Access	Scribe	Simego Data Sync Studio
Requires Custom Development	No	Yes	Yes	Yes	No	No
Supports complex mapping	No	Yes	Yes	Yes	Yes	Yes
Supports data transformations	No	Yes	Yes	Yes	Yes	Yes
Supported by Product Vendor	Yes	Yes *	Yes *	Yes*	Yes	Yes
Difficulty	Power User	Expert Developer	Expert DBA	Experienced Developer	Junior Developer	Junior Developer
Licensing Cost	Free	Server only	Free with SQL	Free	Server + CAL	Server Only
CRM Online	Yes				Yes	Yes
Usage Scenario	One time use by end user	High capacity with highly customized data transformation with multiple end points and queuing of data for instantaneous delivery	Medium capacity with simple data transformation to a few end points. Designed for scheduled data delivery	Low entity data integration. It is best when a very limited data needs to be integrated	Live data migration using Scribe provided CRM plug-in.	Scheduled data migration.

* Microsoft supports SSIS and the CRM Web Services API. Any custom developed code required for these approaches is not supported by Microsoft.

About Information Strategies

Since 1987, Information Strategies (InfoStrat) has been delivering IT solutions to government and business customers, focusing on portals, customer relationship management, and custom database applications and integration. We were named Microsoft Federal Partner of the Year in recognition of our work with the U.S. government and are winners of numerous Microsoft Partner Awards. InfoStrat has completed over 1,000 technology projects.

Information Strategies line of business solutions built on Microsoft Dynamics CRM and SharePoint include:

- Grant Management
- Constituent Management
- Field Inspection
- Housing Code Enforcement
- Benefits Case Management
- Association Management

Our offices are located in Washington, D.C.; Los Angeles, CA; Charlottesville, VA; Indianapolis, IN, and Austin, TX.

InfoStrat

4301 Connecticut Avenue, NW
Suite 451
Washington, DC 20008
202.364.8822
www.infostrat.com

Microsoft®
GOLD CERTIFIED
Partner