

User guide

Quickbix Integration Suite 2008

Version 4.1

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2 Installation guide

This software is delivered as a windows installer. Be sure that you have administrator privileges on the client where you want to install the software. Run the setup program to install Quickbix Integration Suite 2008. Follow the instructions in the setup program and the software will be installed. The software needs the .NET framework 2.0 or higher.

3 Register license

The first time you run any software included in the Quickbix Integration Suite 2008 you will be asked to enter a valid license key. This key includes information about your top level CRM business unit entered when you downloaded or registered your copy at www.quickbix.com. The key also includes information about any adaptors that you purchased at the same time. If you upgrade your license to include additional adaptors you have to enter the new license key to activate the new adaptors as well as install additional software downloaded for the adaptor. The license key will not be evaluated when you enter it in the registration dialog. The key is then evaluated when you are working with mapping projects in Integration Suite's mapping studio.

4 System analysis

Before you start working with an integration project you need to consider your options for connecting to the systems. Microsoft Dynamics CRM will always be supported and easy to access through the Quickbix Integration Suite. If your external system supports ODBC connections for reading and writing data, then it will be easy to connect to this system as well. But if your external system only allows writing of data through web services or any other technique then you have to consider using one of our adaptors developed for that specific system.

Some systems are accessible via ODBC but don't handle the data transfer as good as a SQL-server. In case of import to Microsoft Dynamics CRM, it can be a good idea to use a SQL database as a data layer in your integration.

An important step in the integration project is to determine what objects to include in the mappings and what objects and attributes to map between the systems. This analysis is done by examine the databases and the interfaces used for the data transfer. In Microsoft Dynamics CRM the interface used to retrieve data is simply SQL queries against the filtered views of the CRM database (YourBusiness_MSCRM). The technique used to write data to Microsoft Dynamics CRM is web services through the CRM SDK.

Any other system can be used as an external data source or target if it accepts ODBC connections or if there is an adaptor developed for that particular system.

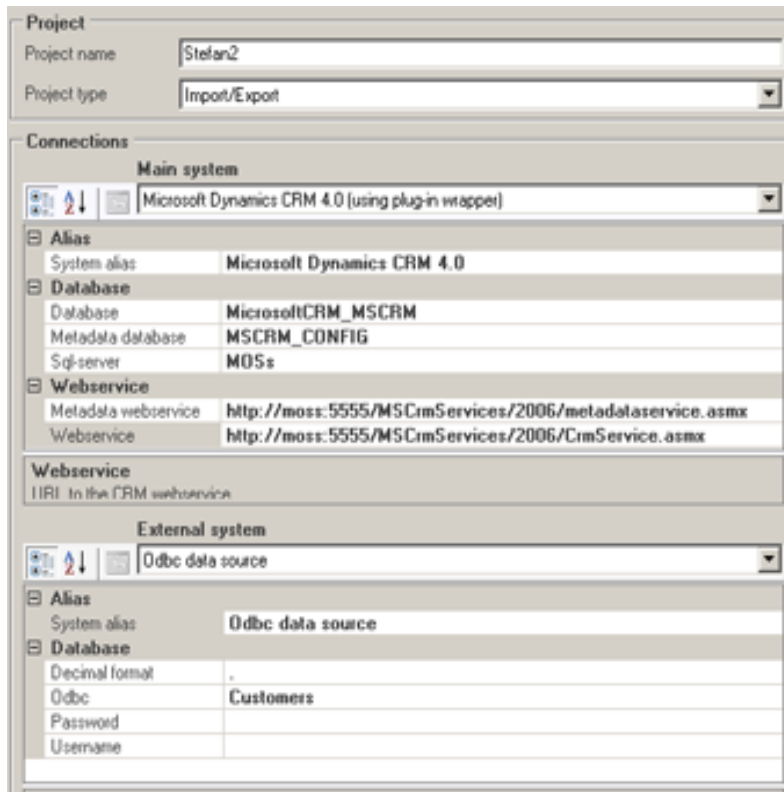
For the database and system connections you will need to setup user accounts that have the needed privileges to retrieve or write data. It's very important that your business security policy is followed and that the user has the right privileges in the Microsoft Dynamics CRM system as a CRM user. You also have to create the DSN's for your ODBC connections.

5 Project setup

At this time you should have your analysis done to be able to fill in the system specific connection parameters for your new integration project.

When you start the Quickbix Integration Studio application, you will get a blank workplace. Open an existing project or start a new one under the "File" menu or in the quick start panel.

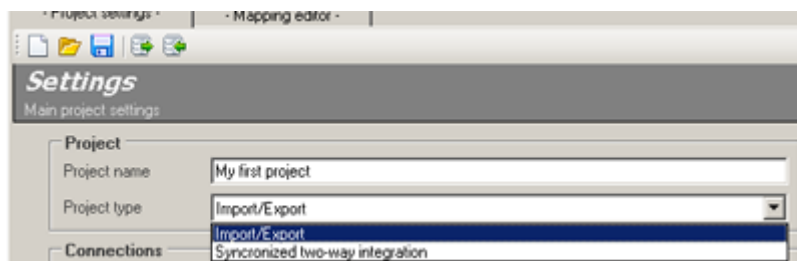
The project settings will give you several options to consider. For any adaptor installed and activated in the suite, the Integration Studio will display different options and parameters. This is described in the documentation delivered with each adaptor. In this user guide we will only describe the main system as Microsoft Dynamics CRM connection parameters and the external system as ODBC source connections parameters.



You will also be able to select one of the project types displayed in the project settings form. The different project types will be used to determine if your project is a synchronisation job between two systems or an import and export bulk load operation. It will also be used to determine if the project is a schedulable job.

NOTE!

The “Test connection” button is only testing the database connectivity to the two systems from the Integration studio location and the current project, not for any deployed integration services or other Quickbix projects.



5.1 Not synchronised import and export project

This is selected if you don't need to synchronize objects between your systems. By this selection any object retrieved from the source data will be transferred to the target system. The system will not consider what object to keep as the newest one. The target object will be overwritten by the source object if update is allowed. This option is used for bulk load operations and scheduled jobs transferring data that is not normally edited in the target system.

5.2 Synchronised integration project

This option is used for any project where any type of object mapped should be synchronized between the two systems. The system will determine what object version, target or source that is the newest one. The oldest object will be overwritten by the latest modified in any of the system. Synchronizations can only be used for scheduled jobs. It's possible to test the synchronised integration projects by running the bulk load wizard. The import and export tasks must be started manually each time. It's also possible to test a integration service after deployment by running the “ServiceTester.exe” from the deploy directory.

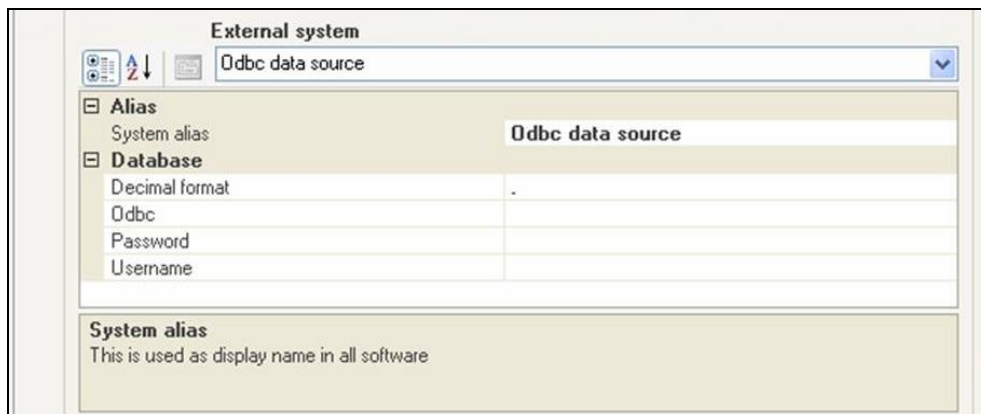
5.3 Main system – Microsoft Dynamics CRM

The main system is always set to Microsoft Dynamics CRM and is connected to via the CRM SDK and the CRM server web services both the Metadata web service and the CRM web service. All information about the CRM entities and the attributes is retrieved through the metadata web service. The retrievable information is then complemented with some information not retrievable through the web service directly from the Metadata database.

All SQL queries against the Microsoft CRM databases is processed through the ADO.NET for best performance and windows integrated security is always used for best security when working with the Microsoft Dynamics CRM system.

5.4 External system – ODBC data source

To be able to support as many systems as possible the Quickbix Integration Suite 2008 is using ODBC as standard database connection technique. This allows you to access almost any system and integrate it with your Microsoft Dynamics CRM system.



The ODBC connection used within the suite supports windows integrated security as well as database based security using username and password. The system uses a variety of predefined internal SQL queries to retrieve information from the ODBC source. All these internal queries are ANSI SQL standard and will support any system supporting the ANSI SQL standard. For retrieving source data from an ODBC source it's possible to use any SQL-standard supported by the specific system within the suite.

5.5 Import vs. export

The Quickbix Integration Suite 2008 uses a terminology based upon the roles of the systems and based on the definition of Microsoft Dynamics CRM as main system. Therefore it's called "import" to insert data into Microsoft CRM and "export" to insert data in any system setup as an external system. The system to insert data into is always referred to as "target" and the other system where the data is retrieved is then referred to as "source".

All objects that is considered equal between the systems and that should be synchronised must be mapped separately both for the import and export job, in the same project. The target object is always the physical object in a system but the source object is only represented by the object returned by the source SQL query, defined by the user who created the mappings.

6 Mapping considerations

For the mapping work there is some considerations to attend. Every mapped object can be transferred to the target system without notice as soon as a bulk load operation is started as well as a windows service job is deployed and initialized.

To prevent any data loss in business critical production systems it's recommended that all mappings, bulk load or scheduled synchronisation jobs will be tested in a test environment representing the same data and configuration as the production system.

It's also very important to test every source SQL query in a SQL query tool to determine what data they return. It's also important to make sure that all the needed conditions to check for an existing object is included in the check existence dialog with the right operators.

Before any data is transferred via any scheduled job or bulk load operation, it's important to examine the used user accounts privileges in the source and target systems to prevent any exclusion of data depending on insufficient rights in any of the systems.

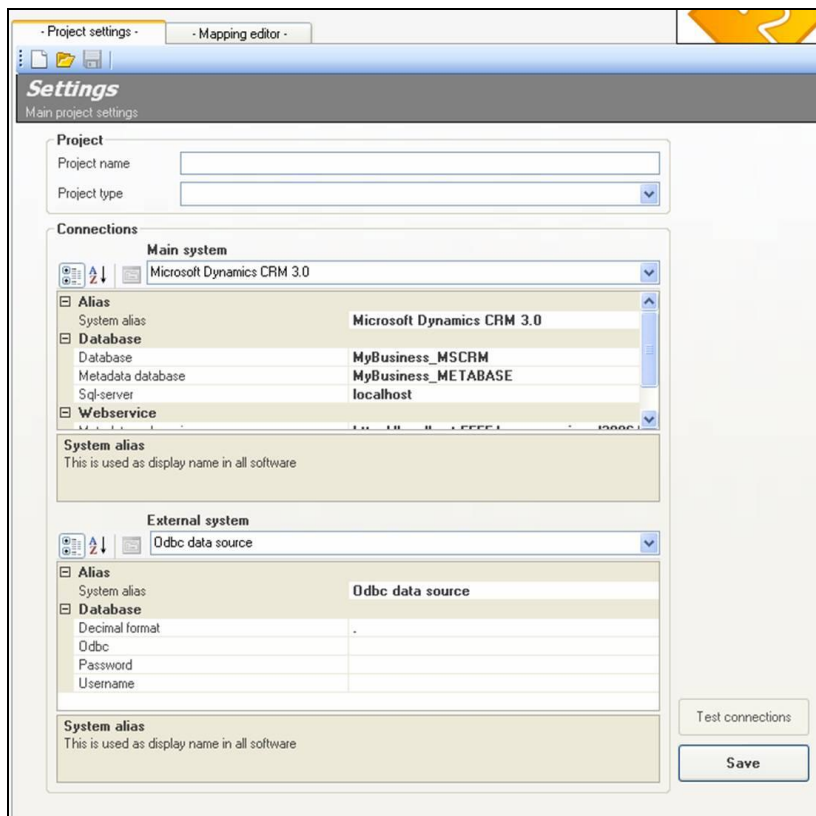
7 The Quickbix Integration Studio, mapping editor

The main tool used for the mapping work is the Quickbix Integration Studio 2008. This tool is shipped and installed with all other standard components in the Quickbix Integration Suite 2008.

The Integration Studio includes the tools for setting up a XML-based mapping set of objects. It also includes tools for bulk load operations and a service deployment wizard to deploy any scheduled synchronized or non synchronised windows services.

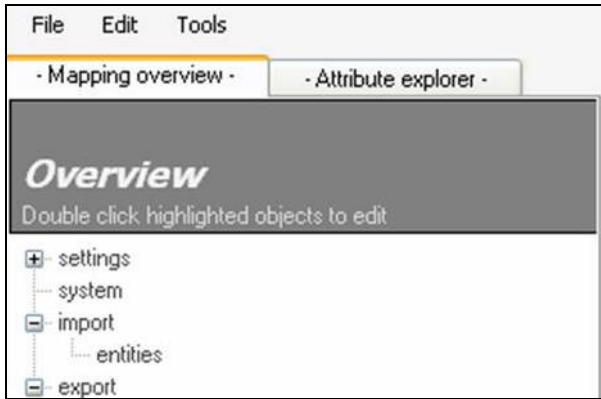
7.1 Project settings

The project settings is where you select a project name, type of project and select main and external systems. It's also where you set all system connection parameters to enable access to database structures, objects and data. The showed system parameters depend on what type of system you select for main system and external system.



7.2 Mapping overview

As soon as you save your new project, you will get a mapping overview containing the root elements for import and export mappings. This overview will function as an object navigation panel and also show additional information as mapped objects attributes etc. You navigate between the objects by double click on highlighted nodes (e.g. objects).



7.3 New mappings

A new mapping of an import or export object is defined by selecting the object, add a source SQL query. The next step is to map the objects attributes and the fields of the source SQL that should be transferred. Then it's time to set up rules for the mapped object and its attributes. It's also possible to set up relationships in The Quickbix Integration Studio, both for CRM side objects as well as the external system objects.

The way to select a new object is a little bit different for import and export. All import target objects is listed from the Microsoft CRM metadata database. This gives you as a user a complete list of objects that is usable for import mapping.

For the export target you have to define the objects manually by typing an object name corresponding to a database table name or equivalent object for adaptors using web services or other techniques.

New import mapping		
Alias	Name	Description
Campaign Activity	campaignactivity	Task performed, or to be performed, by a user for planning ...
Campaign Response	campaignresponse	Response from an existing or a potential new customer for ...
Case Resolution	incidentresolution	Special type of activity that includes such information as th...
Company	account	Person or business to which the salesperson tries to sell a p...
Competitor	competitor	Tracks information about a business competing for the sale...
Contact	contact	Person with whom a business unit has a relationship. For ex...
Contract	contract	An agreement to provide customer service during specified ...
Contract Template	contracttemplate	Template for a contract containing the standard attributes o...

The export mapping gives you the possibility to type an alias as a working name for your object as well as a description.

New export mapping	
Object information	
New export mapping: Fill in the name of the object. This name should be equivalent to the name used in a webservice or the tablename for an ODBC-export connection.	
Name	Alias (working name for the object)
<input type="text"/>	<input type="text"/>
Description	
<input type="text"/>	

7.4 Source vs. target

The Quickbix Integration Studio is designed to separate imports and exports. But it's impossible to separate the terminology in the same way. So when you are working with an import or export mapping you have to face the terms of source and target.

The source is always where your data is retrieved and this is always the source SQL query representing that data. The query is not synonymous with an object in the source system because it can include parts from other objects joined together with the source object corresponding to the target object.

At the target side you are always working with the physical object (e.g. database table or web service object). This objects attributes is mirrored by the fields of the source SQL query.

7.5 Data transfer directions

The Quickbix Integration Suite 2008 allows data transfer in both directions. This makes it possible to import data into Microsoft Dynamics CRM or export data from Microsoft CRM. The directions are always defined with the main system (e.g. Microsoft CRM) as the viewing point. That means by definition that Microsoft Dynamics CRM is always the target for the import and the source for the export.

7.6 Objects and attributes

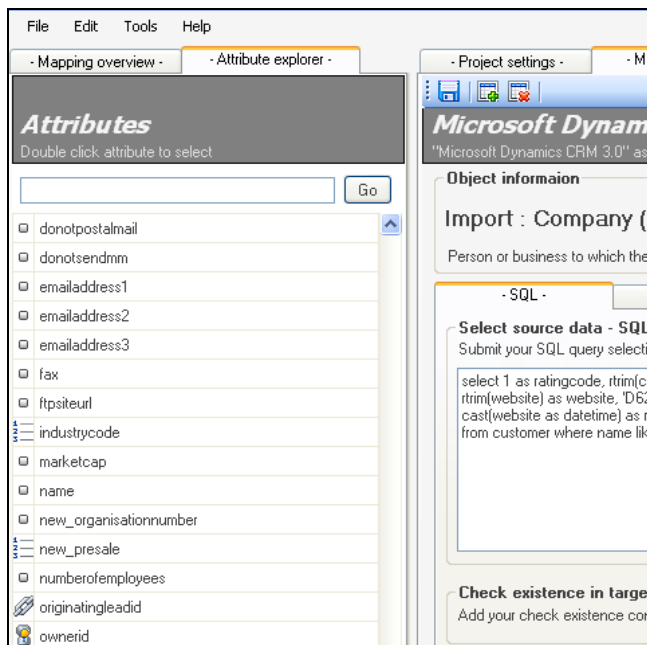
For Microsoft Dynamics CRM all entities are referred to as objects. For an ODBC source database the objects are equivalent to the database tables. The attributes of an object corresponds to the fields of the database table.

In the Quickbix Integration Studio it's possible to define rules both for objects and attributes. The rules at the object level are used to determine what actions to take if the object exist or not exist or if the check existence results in multiple objects.

At the attribute level the rules is used to handle data size overflow, relationship errors, data missing where it's required and default values. The default values part is also useful to translate codes between the two systems or set default values for an attribute dependent of the values of other attributes.

7.7 Attribute explorer

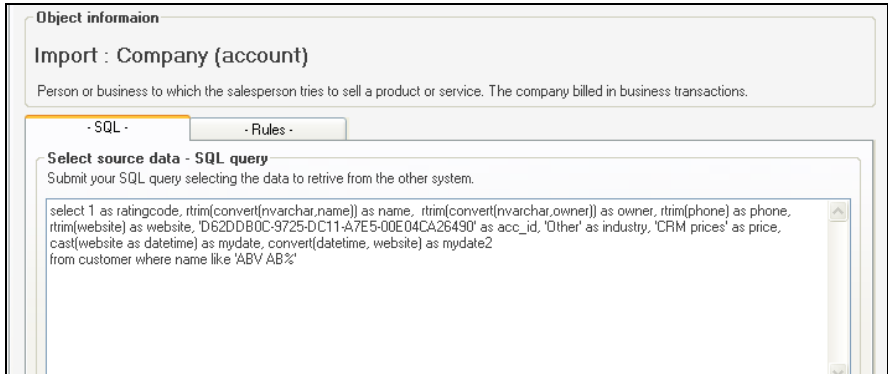
In the Quickbix Integration Studio there are several different areas. One of the areas is the attribute explorer along with the overview tab to the left in the workspace.



The attribute explorer is central for the mapping of the objects attributes. This is where you select the target attributes to map with the fields from your source SQL query. The attribute explorer shows all attributes for the current object that is valid for inserts or updates from the outside of Microsoft CRM when you are working with an import mapping. The explorer shows all database table fields for an export mapping against an ODBC source table.

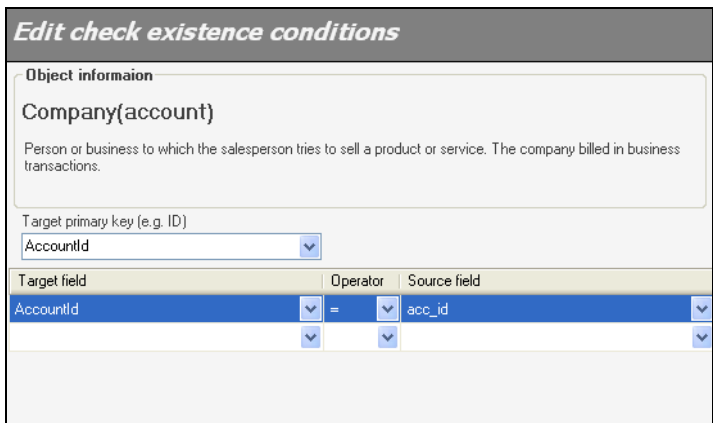
7.8 Source SQL query

The data to be retrieved from the source is represented by the source SQL query. This query is best built inside an external SQL query tool as Microsoft’s SQL query analyzer or Win SQL. The source SQL can be designed in any way that is supported by the used ODBC driver or for queries to the Microsoft CRM system designed after the Transact SQL or ANSI SQL standards.



7.9 Check existence, object identification conditions

The check existence conditions is used for examine if the current object is represented in the target system either as a single unique match or as a multiple match. Check existence returning multiple matches is used for updates of several objects in the same time. To update a unique object the check existence conditions must result in a single match.



7.10 Relationships

The Quickbix Integration Suite 2008 supports relationships both in Microsoft Dynamics CRM as lookups but also in databases as table relationships. This is administrated by using the relationship dialog. Open the dialog by double click the relationship cell for the attribute in the mapped attributes table in the bottom half of the workplace.

If the relation is a lookup of a Microsoft CRM object then the related object name should already be filled. Select “return attribute” corresponding to the mapped attribute and a “lookup attribute” corresponding to the source SQL field mapped to the attribute.

If the mapped object is an export object belonging to an external system, then you have to fill in the related object name for the object you want to create the relationship to. If the added related object name is a correct spelled database table name you should get some database table fields in the related objects attribute lists. Select “return attribute” and “lookup attribute” as described before.

Object relationship

Object information
 Company (account) : ownerid
 Owner: Unique identifier of the user or team that owns the account.
 owner(16), nullable(False)

Import target	Related object	Import source
Target object account Attribute (e.g. ID) ownerid	SystemUser Return attribute (e.g. ID) SystemUserId Lookup attribute FullName	Source object Source SQL-query Attribute owner

Connect source object to a lookup object attribute and connect a related object attribute as a return value to connect it with the target object attribute. The source object attribute originates from your source SQL-query.

Remove relationship OK Cancel

NOTE!

If you remove a relation either a CRM lookup or a database relation, the related object name will be deleted. To add a new relation for the CRM object in this case you have to enter a valid entity name as related object name. For an export mapping the procedure is the same as earlier described in that part of the chapter 7.10.

7.11 Object rules

The object has a small set of rules. The only part in this version is the conflict rules defining what actions are valid for the system to do when the import or export is running. These rules tell if the system is allowed to insert or update objects when the check existence returns none, unique or multiple results from the check existence query. These rules are set to default values by the system if not set by the user. The more advanced rules is placed under each attribute and gives you more flexibility and control of the rules used in your project.

Object informaion

Import : Company (account)
 Person or business to which the salesperson tries to sell a product or service. The company billed in business transactions.

- SQL - - Rules -

Object conflict rules

Does not exist	Insert
Unique matching object	Update
Multiple match	Skip object

7.12 Attribute rules

Double click the "Rules..." for an attribute row to open the attribute rules dialog. This dialog gives you some optional settings at attribute level. The attribute rules are optional and are not necessary to set.

By using these rules you can handle transformation of data such as translations of different code values between the two systems or set a target value depending on what value is returned for other attributes.

The other tab in the dialog gives you the opportunity to set error handling rules at attribute level. You can tell what the system should do if a required value is null or empty. You can set different actions on different relationships when a related object is missing, or set what action to occur when the value of an attribute is too large.

7.13 Default values, data transformations and conversions

The attribute rules is a powerful tool if you have different code values in the two systems such as languages, currency or other codes that is often set to string values. For example; you might want to translate non English language codes to the correct ones in Microsoft CRM by defining rules.

If source field	Operator	Value	Set (defaultpricelevelid)
price	<>	P07	P07
price	=	P06_DISCOUNT	P07_DISCOUNT

The main default value for an attribute is set in the mapped attribute table in the main workplace. This value is used if a rule calls the “Set default” action.

8 The Quickbix Bulk load import and export wizard

The bulk load tool is used for one time replications between two systems. It's possible to run only import parts or export parts of a mapping project. The bulk load tool isn't valid for synchronised replications.

At this time you should have a complete set of mappings and be convinced that you have set the right conditions in the check existence dialog and in you source SQL queries. It's also recommended that you have tested your source SQL queries against the source databases with an external query analyzer tool.

8.1 Import and export considerations

The import will transfer all objects selected by your source SQL queries and insert or update those in Microsoft Dynamics CRM depending on what rules you have set up for the individual objects and attributes. It's highly recommended that you make a complete backup of your Microsoft CRM system before you run any import activities against it. When the import is started the only way to restore the old data is to restore the backup. The Quickbix Integration Suite 2008 does not handle transactions for the entire dataset!

The same considerations apply on the export to external systems. If you export data through an ODBC connection or using one of our adaptors you have to consider making a backup of the target system to be able to restore it in case of errors leading to corrupt or incorrect data in the target system.

Consult your system documentation, system administrator or an expert for more information about making backups and restore backups of systems and databases that can be affected.

It's unwise to terminate the Quickbix Integration Studio or turn off the computer while the bulk load is running. This can result in lost data and corrupt data in the target system.

8.2 Limitations

The Quickbix Bulk load import and export wizard does not handle synchronizations between two systems. However it's possible to test the synchronized projects mappings in the bulk load wizard. Synchronizations can only be performed by a scheduled windows service job. See chapter 9.2.

When you are running a bulk load there will not be any transaction handling for the entire dataset and will therefore not be any way to rollback the entire transfer. In case of errors leading to corrupt or incorrect data there is only one way to restore the target database. See chapter 8.1.

8.3 *Use the bulk load import and export wizard*

The bulk load wizard is simple to use. All the work is done in the mappings of objects and attributes. The wizard only needs the user to interact by start the import or export using the buttons for each direction. The wizard only runs one direction at the time so the user has to start the other direction manually when the first run is completed.

8.4 *Results and logs*

When the bulk load wizard is running an import or export the number of transferred objects is displayed in the “work progress” area of the wizard dialog.

Any errors reported are stored in the applications log file. For more information about this information, please consult our support division at www.quickbix.com.

9 **The Quickbix Integration service deployment wizard**

This tool is used to deploy an installation package for a synchronized or non synchronized scheduled integration service. The integration service is a component running in the background of a windows server machine. The service reads the mapping xml file and schedules it self by reading the interval parameter in the xml file at start up.

The Quickbix integration service is set up as a windows service and needs to be installed by running the installation file in the deployment directory from the physical machine it should be installed on. It's possible to deploy and install several Quickbix integration services running different mapping xml files on the same server.

9.1 *Import and export considerations*

The service will transfer all import objects selected by your source SQL queries and insert or update those in Microsoft Dynamics CRM depending on what rules you have set up for the individual objects and attributes. It's highly recommended that you schedule backups of your Microsoft CRM system before you run any integration services activities against it.

The same considerations apply on the export to external systems. If you export data through an ODBC connection or using one of our adaptors you have to consider making backups of the target system as well to be able to restore it in case of errors leading to corrupt or incorrect data in the target system.

Consult your system documentation, system administrator or an expert for more information about making backups and restore backups of systems and databases that can be affected.

It's unwise to turn off the computer while an Integration service is running. This can result in lost data and corrupt data in the target system. The synchronised integration services will overwrite the oldest version of an object in any of the systems.

9.2 *Synchronizations*

The Quickbix Integration Service makes synchronizations possible when the integration project is setup as a windows service. This makes it easy to synchronize two systems and replicate the newest object from one system to the other.

The synchronization logic in the Quickbix Integration Suite is matching the objects modified timestamps, for Microsoft Dynamics CRM this would be the “*modifiedOn*” attribute. This requires that the timestamp selected by the source SQL query must be converted to the same format as in the target system! It's equally important to correct any offset in time due to different time zones and daylight saving time.

9.3 *Use the service deployment wizard*

Set the interval in minutes to tell the service how often it should run. Select a deployment directory and deploy your service. When this is done you have to logon to the server where you deployed the service and install it.

9.4 *Install service*

Run the "Quickbix_Integration_Service_Install.bat" to install the service on the local machine. If this is done without any errors the installation will be committed, else it will do a rollback automatically. After a successful installation it's time to set the properties for the service in Microsoft Management Console (MMC) for services.

Select the newly installed service named "Quickbix *Your mapping file name*" and show the property dialog for this service. Set the logon account corresponding to a CRM user account with necessary privileges to execute the CRM tasks performed in the service. This user account should also have needed privileges in any external system as well.

Set up any needed ODBC data sources for the project on the server running the Quickbix Integration Service.

9.5 *Start service*

It's possible to set an auto start parameter for the service in the property dialog for the service. If this is not set you are forced to manually start the service, and this must also be done manually every time the server is rebooted.

9.6 *Stop service*

To be able to uninstall the service you have to stop it. This is done manually in the MMC.

9.7 *Uninstall service*

Stop the service in MMC and then run the "Quickbix_Integration_Service_UnInstall.bat" to uninstall the service on the local machine from the deployment directory for the service. When the service is successfully uninstalled it's possible to remove the files for the service in the deployment directory.

9.8 *Update service and mapping file*

If you need to update the service and the mapping xml file you have to uninstall and delete the old files in the deployment directory before the new service are deployed.

9.9 *Results and logs*

The Quickbix Integration Service is running in the background of a Windows server. The service isn't displaying any results when running.

Any errors reported are stored in the applications log file in the same directory as the deployed service. For more information about this information, please consult our support division at www.quickbix.com.