

Microsoft Dynamics®

Connector for Microsoft Dynamics® Installation Guide

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Introduction

Use Connector for Microsoft Dynamics to integrate Microsoft Dynamics CRM and Microsoft Dynamics ERP data. For example, you can integrate Microsoft Dynamics ERP customers with Microsoft Dynamics CRM contacts and have access to up-to-date customer and contact information in both systems.

Connector for Microsoft Dynamics is intended to be used in an implementation where Microsoft Dynamics CRM is used to manage business contacts, track leads, enter sales orders, and perform other sales and marketing activities, and where Microsoft Dynamics ERP is used to perform accounting functions, manage your company's chart of accounts, and maintain customer, vendor, item, employee, and other records.

Within Connector for Microsoft Dynamics, separate adapters are used to identify a source system (where data is read from) and a destination system (where data is written to). The source adapter reads data from the source system. The destination adapter writes the data to the destination system.

Record types that are integrated are referred to as "entities." Some entity information can be integrated only one way between the two systems. For example, a product that is entered into Microsoft Dynamics CRM cannot be integrated with Microsoft Dynamics ERP as a sales item, but a sales item that is entered into Microsoft Dynamics ERP can be integrated with Microsoft Dynamics CRM as a product.

For a detailed list of how Microsoft Dynamics ERP entities are mapped to Microsoft Dynamics CRM entities, see the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.

Common terminology

The following terms are used in this document.

Term	Definition
Adapter	A software component that enables data exchange through a specific transport. Connector for Microsoft Dynamics uses adapters to read data from and write data to Microsoft Dynamics systems.
Entity	A type of record in a Microsoft Dynamics system. Orders, invoices, accounts, customers, products, or items are all examples of an entity.
Entity record	A specific occurrence of an entity. A Microsoft Dynamics ERP customer record, a product, or a Microsoft Dynamics CRM order are each an example of an entity record.
Exception	An abnormal condition or error that occurs during the integration between a source entity and a destination entity.
Integration	The process of synchronizing data that was entered in one Microsoft Dynamics application with another Microsoft Dynamics application. Within Connector for Microsoft Dynamics, an integration consists of a set of maps that can be run to integrate some Microsoft Dynamics CRM entities with some Microsoft Dynamics ERP entities.
Integrated record	A record that has been linked between the two systems and then synchronized. For example, if a customer record in Microsoft Dynamics ERP has a corresponding account record in Microsoft Dynamics CRM and these records have been linked, it is an integrated record.
Map	A collection of associations between fields in one Microsoft Dynamics CRM entity with fields in another Microsoft Dynamics ERP entity. Maps also determine in which direction data flows from a given entity, and defines which adapter is the source and which adapter is the destination.
Microsoft Dynamics Integration (MSDI) database	The database created for Connector for Microsoft Dynamics during the installation process.
Runtime	The process of reading entity information from the source system, transforming that information into data that the destination system can recognize, and then writing the transformed data to the destination system.
Source/Destination entity	<p>The source entity provides the data that will be used to create new entities in the destination system.</p> <p>The destination entity is created or modified after you run an integration. If the Microsoft Dynamics ERP Customer record is the destination entity and the Microsoft Dynamics CRM Contact record is the source entity, then Microsoft Dynamics CRM Contacts will be created as Customers within Microsoft Dynamics ERP when the integration is run.</p>

Architecture

Components of Connector for Microsoft Dynamics are described below.

Connector for Microsoft Dynamics service

The Connector service is the core engine that drives the runtime process. This Connector service is a WCF service and is responsible for controlling, monitoring, and reporting on all activated integrations.

The client

The client provides the user interface that you use to create integrations, customize and activate maps, enter adapter settings, set up exception notifications, stop and restart records that are in the retry queue, and view logging information.

MSDI database

The Microsoft Dynamics Integration (MSDI) database stores all configured integrations and their status and also acts as a security boundary between the Connector for Microsoft Dynamics service and the Connector for Microsoft Dynamics client.

Adapters

Adapters are used to connect the runtime and the client to the Microsoft Dynamics CRM and Microsoft Dynamics ERP web services. This connection is used for reading and writing data from one application to another application.

The following adapters are available:

- **Microsoft Dynamics CRM adapter** – Connects with Microsoft Dynamics CRM 4.0 on-premises only. This adapter is also compatible with Microsoft Dynamics CRM 2011 organizations that were upgraded from Microsoft Dynamics CRM 4.0 and were previously integrated using Connector for Microsoft Dynamics.
- **Microsoft Dynamics CRM 2011 adapter** – Connects with Microsoft Dynamics CRM 2011 only. Use this adapter if you are integrating with Microsoft Dynamics CRM 2011 for the first time.
- **Microsoft Dynamics ERP adapter** – Connects with the Microsoft Dynamics ERP database. Depending on your ERP system, Connector for Microsoft Dynamics might have more than one version of this adapter. For more information, see the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.

Transformation engine

Connector for Microsoft Dynamics moves data from one system in one format to another system, in a different format. The adapters provide the data from the source and destination systems, and the transformation engine changes the data from one format to another. The change that is made by the transformation engine is determined by the map that is associated with the type of data that is being moved. For example, to move a Microsoft Dynamics ERP customer record to a Microsoft Dynamics CRM account record, the transformation engine creates a Microsoft Dynamics CRM Account object based on the transformation that is defined in the **Customer to Account** map for the Microsoft Dynamics ERP customer entity, and sends it to the Microsoft Dynamics CRM system using Connector for Microsoft Dynamics.

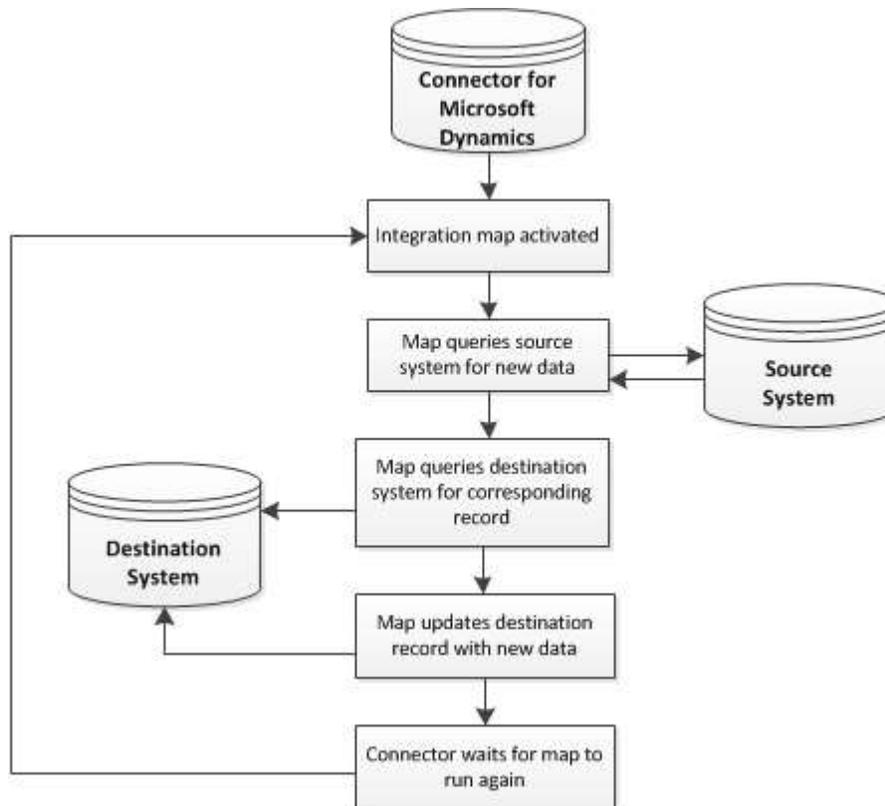
Map templates

Connector for Microsoft Dynamics includes a series of map templates that provide default field mapping between source and destination entities. You can create and modify new maps from the templates. You may need to do this to meet specific business needs or to ensure that any customizations that you have made to your source or destination systems are implemented. Map template files are stored at the installation location in the **Templates** folder and have a .map file extension. Any maps that you create in the client are stored in the MSDI databases. Maps can also be exported to .map files for backup purposes.

Information flow

After installation, setup, and initial data synchronization, some entities that you create in Microsoft Dynamics ERP are written into Microsoft Dynamics CRM and some entities that you create in Microsoft Dynamics CRM are written into Microsoft Dynamics ERP. The maps that you have activated determine which entities are integrated between the two applications.

The following illustration demonstrates the information flow between Connector for Microsoft Dynamics, the source system, and destination system during integration.



For an example, the following scenario describes the information flow of integration between the customer entity in Microsoft Dynamics ERP and the account entity in Microsoft Dynamics CRM.

1. As part of the mapping process, a new integration is created, source and destination adapters are selected, companies are selected to integrate and a map for the customer entity is created and activated. The map is scheduled to run at a specific time interval.
2. The Connector for Microsoft Dynamics client sends the integration service a control message that instructs the Connector service to load the integration settings and maps from the MSDI database.
3. When the next run time for the map is reached, the Connector service queries the source system with a timestamp from the MSDI database that indicates when the map was last successfully run.
4. The source adapter returns a collection of customer numbers that have been added or changed since the date on the timestamp. It also returns another collection of customer numbers that have been removed since the date on the timestamp.
5. Connector for Microsoft Dynamics sends each customer number, one by one, into the source adapter, which uses the customer number to retrieve the entire customer record from the source system.

6. The entities are transformed as defined in the map.
7. The resulting transformed account is sent to the destination adapter, which, in this example, is the Microsoft Dynamics CRM adapter.
8. The Microsoft Dynamics CRM adapter calls the Microsoft Dynamics CRM organization web service to create or update the new entity.
9. The Connector for Microsoft Dynamics service updates the timestamp for the **Customer to Account** map in the MSDI database to reflect the time that the integration finished successfully.

Microsoft Dynamics CRM Configuration utility

The Microsoft Dynamics CRM Configuration utility is used to prepare your Microsoft Dynamics CRM organizations for integration. For more information, see [Configure Microsoft Dynamics CRM organizations](#).

Microsoft Dynamics ERP Configuration utility

Some Microsoft Dynamics ERP systems have an additional configuration utility. For more information, see the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.

System requirements

Before installing Connector for Microsoft Dynamics, your system must meet the following requirements.

Note: Depending on your Microsoft Dynamics ERP, Connector for Microsoft Dynamics might be available with the installation application for the ERP. For more information, see the [configuration guide](#) for your Microsoft Dynamics ERP.

- Microsoft Windows Server 2008 SP2, Windows Server 2008 R2 SP1, or Windows Server 2012
- Microsoft .NET Framework 3.5 and Windows .NET Framework 4.5.1
- A valid connection to a computer with Microsoft SQL Server 2005 SP4, SQL Server 2008 SP2, SQL server 2008 R2, SQL Server 2012, or SQL Server 2014 installed
- One of the following connections to Microsoft Dynamics CRM:
 - Microsoft Dynamics CRM version 4.0 with the most recent Update Rollup applied
 - Microsoft Dynamics CRM 2011 on-premises with the most recent rollup applied
 - A valid subscription to Microsoft Dynamics CRM online
 - A valid subscription to a hosted deployment of Microsoft Dynamics CRM 2011

Note: If you are using Microsoft Dynamics CRM online, or if the Microsoft Dynamics CRM server has Update Rollup 12 or later installed, use Connector for Microsoft Dynamics version 2.1.29.1 or later (with Connector for Microsoft Dynamics CRM solution version 1.0.1603.3 or later).

- For Microsoft Dynamics CRM 2011 adapter only – Windows Identity Foundation installed on the computer that runs Connector for Microsoft Dynamics (<http://www.microsoft.com/en-us/download/details.aspx?id=17331>)
- For Microsoft Dynamics CRM online only – At least two different Windows Live IDs and passwords
- Microsoft Dynamics CRM and the Microsoft Dynamics ERP system must have the same base install language, and base or functional currency
- Additional system requirements for the Microsoft Dynamics ERP system that you are integrating with. For more information, see the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.

Upgrading Connector for Microsoft Dynamics

You are not required to manually uninstall a previous version of Connector for Microsoft Dynamics if you are upgrading to the current version. That process is completed automatically.

Note: If you are upgrading from previous deployments, we recommend that you update role-based security for the Microsoft Dynamics CRM Configuration utility.

For information about your specific upgrade scenario, see the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.

Note: If you are using Microsoft Dynamics CRM online, or if the Microsoft Dynamics CRM server has Update Rollup 12 or later installed, use Connector for Microsoft Dynamics version 2.1.29.1 or later (with Connector for Microsoft Dynamics CRM solution version 1.0.1603.3 or later).

Upgrading to Connector V3 from previous versions

Note: Before you begin the upgrade process, create backups of your Microsoft Dynamics ERP database, your Microsoft Dynamics CRM database, and your MSDI database.

When you upgrade to the current release of Connector for Microsoft Dynamics, the following modifications are made:

- Obsolete tables are removed from the MSDI database and user settings are cleared. The first time that you start the client application after upgrade, the **Adapter Settings** window is displayed so that you can enter settings for the adapters that were installed. You must enter passwords and user information for both the ERP adapter and the Microsoft Dynamics CRM adapter in Connector for Microsoft Dynamics.
- Some configuration options for the Connector service, such as the maximum number of retries and retry wait settings, are no longer available in the **Configuration** table of the MSDI database. To change the retry settings, modify the appropriate fields in the **ConnectorServiceHost.exe.config** file, and then start the Connector for Microsoft Dynamics service again.
- To view version information about Connector for Microsoft Dynamics, click the **About** button on the toolbar.

Note: After the upgrade process is completed, run the Configuration Utility for Microsoft Dynamics CRM and the Microsoft Dynamics ERP to update the adapter settings. Adapters cannot create new integrations until the adapter settings are updated.

Upgrade from Microsoft Dynamics CRM 4.0 to Microsoft Dynamics CRM 2011

If you have upgraded from Microsoft Dynamics CRM 4.0 to Microsoft Dynamics CRM 2011 and are currently integrated with Connector for Microsoft Dynamics Feature Pack 4 (version 1.4.717.1) or earlier, you must upgrade Connector for Microsoft Dynamics and manually reconfigure Connector for your ERP system.

Note: Before you begin the upgrade process, create backups of your Microsoft Dynamics ERP databases, your Microsoft Dynamics CRM databases, and your MSDI database.

1. Open Connector for Microsoft Dynamics. Inactivate all maps for the integrations, and close Connector for Microsoft Dynamics.
2. Upgrade Microsoft Dynamics CRM 4.0 to Microsoft Dynamics CRM 2011.
3. Upgrade Connector for Microsoft Dynamics.

4. To continue using the Microsoft Dynamics CRM adapter settings and map templates, you must manually import ERP solutions. To import these solutions, follow the procedure below.

Note: If you plan to upgrade to the Microsoft Dynamics CRM 2011 adapter, the ERP solution is automatically imported during configuration and you can skip this procedure.

- a. Log on to an organization in Microsoft Dynamics CRM as an administrator.
- b. From the navigation pane, click **Settings**, select **Customization**, and then select **Solutions**. Click **Import**.
- c. Browse to the Connector installation directory. By default, this location is \Program Files (x86)\Microsoft Dynamics\Microsoft Dynamics Adapter.
- d. Select the .zip solution file for your Microsoft Dynamics ERP system. Click **Open**.
- e. Click **Next**. When the **Solution Information** is displayed, a message might be displayed that warns of a version mismatch. Click **Next**.
- f. Select **Overwrite customizations**.

Note: This might overwrite any unmanaged customizations in your system that were made to the entities that are included in the Microsoft Dynamics CRM solution for your Microsoft Dynamics ERP.

- g. Select **Activate any processes and enable any SDK message processing steps included in the solution**.

Note: If you do not select this check box, the plug-in will not be fully activated and the integration process cannot be completed.

- h. Click **Next**. When the solution customizations have been successfully imported, click **Close** to exit.
5. Open Connector for Microsoft Dynamics. Click **Adapter Settings**, select your Microsoft Dynamics CRM adapter, and then run the Microsoft Dynamics CRM Configuration utility. For more information, see [Configure adapter settings for Microsoft Dynamics CRM](#).
 6. When the Configuration utility has finished running, activate maps for the integrations again and continue integrating data.

Previous integrations

Connector for Microsoft Dynamics does not maintain data that was previously integrated and maintained using a tool other than Connector for Microsoft Dynamics. Therefore, you should consider removing data from Microsoft Dynamics CRM that may be duplicated after the Connector for Microsoft Dynamics maps are activated. Data that was integrated using a previous version of Connector for Microsoft Dynamics will be maintained.

Microsoft Dynamics CRM duplicate detection rules allow previously integrated accounts, contacts, and sales orders to be integrated using the **Integration Key** attribute.

Existing data in the following entities will be inactivated and renamed when the Microsoft Dynamics CRM Configuration utility runs:

- Discount types
- Price levels/price lists
- Products

If you have integrated data in your Microsoft Dynamics ERP database for these entities, the Microsoft Dynamics ERP data will be re-created in Microsoft Dynamics CRM after these maps are activated.

Any existing Microsoft Dynamics CRM orders that point to these entities will fail to integrate to Microsoft Dynamics ERP because the entities that are referenced do not exist in the Microsoft Dynamics ERP database. To integrate these orders, you must re-create the line items using the integrated entities.

Integrate existing Microsoft Dynamics data

Connector for Microsoft Dynamics can integrate data between existing installations of Microsoft Dynamics CRM and a Microsoft Dynamics ERP database. If you have data in one or both applications prior to installing Connector for Microsoft Dynamics, this affects some of the maps that you will use during the initial data synchronization process.

Note: Make sure that Connector for Microsoft Dynamics and the Microsoft Dynamics ERP database are located in the same time zone.

1. Create backups of your existing Microsoft Dynamics ERP database and Microsoft Dynamics CRM database.
2. Install Connector for Microsoft Dynamics and configure adapters.
3. If you have existing data in both Microsoft Dynamics CRM and a Microsoft Dynamics ERP system, you should set up duplicate detection for the applicable entities in Microsoft Dynamics CRM. For more information, see [Set up duplicate detection](#).
4. Run initial data synchronization. For more information, the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.

Installation

Before installing Connector for Microsoft Dynamics, your system must meet the minimum requirements as listed in the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system. Additional system prerequisites are listed below.

Note: If you are upgrading from previous versions of Connector for Microsoft Dynamics, you need to create backups of your Microsoft Dynamics ERP databases, your Microsoft Dynamics CRM databases, and your MSDI database.

User account requirements

Several user accounts are used for an installation. These user accounts and required permissions are summarized below, and then each account is explained in detail.

To help simplify the installation process, you can create one or more user accounts that have the necessary combined permissions of several of the accounts listed below.

Note: If you are integrating to Microsoft Dynamics CRM online, then you need at least two Windows Live IDs with separate passwords.

Account	Definition	Permissions required
Installation account	Installs Connector for Microsoft Dynamics	<ul style="list-style-type: none">• Must be at least a domain user and local administrator on the machine where Connector for Microsoft Dynamics is installed• Must be assigned at least the sysadmin permissions on the SQL server where the MSDI database is to be stored
Service account	Runs integrations in Connector for Microsoft Dynamics	<ul style="list-style-type: none">• Requires permission to authenticate and submit notification emails
ERP Integration account	Connects to the Microsoft Dynamics ERP web services	<ul style="list-style-type: none">• Must be assigned to specific roles in your Microsoft Dynamics ERP system
CRM Integration account	Used to connect to Microsoft Dynamics CRM on-premise or the Windows Live ID used to connect to Microsoft Dynamics CRM online	<ul style="list-style-type: none">• Must belong to a Microsoft Dynamics CRM user that has organizational-level read privileges for SystemUser on the CRM organization that you plan to integrate• For Microsoft Dynamics CRM online, this account requires a different Windows Live ID than the system administrator• Be considered a non-interactive account (for Microsoft Dynamics CRM online, the configuration process defines this account as non-interactive and to use a special "integration" CAL)
Configuration account	Runs the Microsoft Dynamics CRM Configuration utility	<ul style="list-style-type: none">• For on-premise deployments of Microsoft Dynamics CRM 4.0, this account must be able to modify the membership of the Microsoft Dynamics CRM PrivUserGroup Security Group in the domain where the Microsoft Dynamics CRM 4.0 servers are joined to• Must also be a Microsoft Dynamics CRM Deployment Administrator

Account	Definition	Permissions required
CRM Deployment Administrator account	Used by the Configuration utility to retrieve a list of Microsoft Dynamics CRM organizations and apply customizations to those organizations	<ul style="list-style-type: none"> For on-premise deployments of Microsoft Dynamics CRM, this account is used to install Microsoft Dynamics CRM For Microsoft Dynamics CRM online, this account must be a system administrator

Installation account

This is the account that the installer is run under. This account must:

- Be at least a domain user and a member of the Local Administrators group on the server where Connector for Microsoft Dynamics is to be installed.
- At a minimum, be assigned to the sysadmin permissions on the SQL server where the MSDI database is to be stored.

For information about how to assign database roles to users, refer to your SQL server documentation.

Service account

This account is used to run integrations and must be created before installation. For information about new user accounts in Windows Server 2008, see "Create a new user account" on TechNet (<http://technet.microsoft.com/en-us/library/cc732336.aspx>).

During installation, Connector for Microsoft Dynamics:

- Assigns the service account to the public SQL server role.
- Creates a SQL server logon for the account if a logon does not exist.
- Assigns the service account to the db_datareader and db_datawriter database roles on the MSDI database.

The service account is also the account used to send notification emails. If the Simple Mail Transfer Protocol (SMTP) server that you use to send notifications requires authentication to submit emails, you must give the service account permission to authenticate and submit emails. For more information about setting up notifications, see [Set up notifications](#).

ERP Integration account

This account is used to connect to the Microsoft Dynamics ERP system. For more information, see the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.

CRM Integration account

This is the domain user account that is used to connect to Microsoft Dynamics CRM or the Windows Live ID used to connect to Microsoft Dynamics CRM online.

Note: The system administrator account that is used to sign up for Microsoft Dynamics CRM online cannot be the same Windows Live ID as the one used for the CRM Integration account. You need two different Windows Live IDs for these two roles.

- This account must be considered a non-interactive user account.
- This account must belong to a Microsoft Dynamics CRM user who has organizational-level read privileges for SystemUser on the Microsoft Dynamics CRM organization that you plan to integrate.

- For Microsoft Dynamics CRM online, this account must be a member of the following Microsoft Dynamics CRM security roles:
 - System Customizer
 - Dynamics Integration

Note: When you run the Microsoft Dynamics CRM Configuration utility, the Dynamics Integration role is created and the specified CRM Integration User is automatically added to these roles. For Microsoft Dynamics CRM online, the CRM Integration User is set to be non-interactive and is assigned the "integration" CAL.
- For Microsoft Dynamics CRM on-premise deployments, this account must meet the following requirements:
 - Belong to a Microsoft Dynamics CRM user that has organizational-level read privileges for SystemUser on the CRM organization that you plan to integrate.
 - Belong to the Microsoft Active Directory PrivUserGroup (for Microsoft Dynamics CRM 4.0 only).
 - Belong to the Sales Manager security role (minimum).

Configuration account

Use the configuration account to run the Microsoft Dynamics CRM Configuration utility. This account should be a Microsoft Dynamics CRM Deployment Administrator. For more information, see "How to assign the minimum permissions to a deployment administrator in Microsoft Dynamics CRM 4.0" on the Microsoft Support site (<http://support.microsoft.com/kb/946686>).

Note: Failure to meet these requirements will result in the following message when you run the Microsoft Dynamics CRM Configuration utility: "*The CRM Integration account could not be added to the PrivUsersGroup on the Domain.*" A domain administrator can perform this operation later, but the CRM Integration account must be added to this group in the Active directory before Connector for Microsoft Dynamics can successfully integrate entities into a Microsoft Dynamics CRM on-premise deployment.

CRM Deployment Administrator account

This is the domain user account that the Microsoft Dynamics CRM Configuration utility uses to retrieve a list of organizations from Microsoft Dynamics CRM and apply customizations to those organizations.

For on-premise deployment, this account is used to install Microsoft Dynamics CRM. For more information about this account, see "How to assign the minimum permissions to a deployment administrator in Microsoft Dynamics CRM 4.0" on the Microsoft Support site (<http://support.microsoft.com/kb/946686>).

For Microsoft Dynamics CRM online, this is a Windows Live ID that is in the System Administrator role in the organization to be integrated.

Install Connector for Microsoft Dynamics

Review the system requirements as listed in the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system before you begin the installation process. Only one instance of Connector for Microsoft Dynamics can be installed on a system at any time.

Note: Depending on your Microsoft Dynamics ERP, Connector for Microsoft Dynamics might be available with the installation application for the ERP. For more information, see the [configuration guide](#) for your Microsoft Dynamics ERP.

1. Install Connector for Microsoft Dynamics.
2. Double-click **Connector for Microsoft Dynamics.msi**. Click **Next**.
3. Read and accept the Microsoft Software License Terms. Click **Next**.
4. Enter the name of the Microsoft SQL server where the MSDI database is to be stored.
5. Click **Next**.
6. Enter the domain, user name, and password for the service account to use when you are running integrations. For more information about this account, see [Service account](#).
7. Click **Next**. If the account that you entered in step 6 is valid, the **Ready to install** page is displayed.
8. Click **Install**.
9. Click **Finish** to complete the installation.

Tips:

- The MSDI database does not need to be on the same physical server as Connector for Microsoft Dynamics.
- Make sure that Connector for Microsoft Dynamics and the Microsoft Dynamics ERP database are located in the same time zone.
- If an error message is displayed that refers to a dpac or SQL server setup issue, see the "Troubleshooting 'The RPC server is unavailable'" article on TechNet (<http://social.technet.microsoft.com/wiki/contents/articles/4494.troubleshooting-the-rpc-server-is-unavailable.aspx>), and the "How IT Works: Troubleshooting RPC Errors" article on the TechNet magazine website (<http://technet.microsoft.com/en-us/magazine/2007.07.howitworks.aspx>).

Configuration

After you have installed or upgraded Connector for Microsoft Dynamics, you must configure the adapter settings for Microsoft Dynamics CRM and for the Microsoft Dynamics ERP system that you are integrating with.

Note: You must complete these procedures in the order that is listed below, or Connector for Microsoft Dynamics will not operate correctly and data will not be synchronized between Microsoft Dynamics CRM and the Microsoft Dynamics ERP.

To configure Connector for Microsoft Dynamics, complete the following procedures:

1. Configure adapter settings for Microsoft Dynamics CRM.
2. Configure organizations for Microsoft Dynamics CRM.
3. Configure adapter settings for your Microsoft Dynamics ERP system. For configuration procedures, see the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.
4. Set up duplicate detection (optional).
5. Run initial data synchronization. For procedures, see the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.

Configure adapter settings for Microsoft Dynamics CRM

Before you can integrate data between Microsoft Dynamics CRM and a Microsoft Dynamics ERP system, you must provide settings for the adapters that the integration process will use. The first time that you start Connector for Microsoft Dynamics, the **Adapter Settings** window is displayed so that you can enter settings for the adapters that were installed.

If you are using Microsoft Dynamics CRM online deployments only, see [Tips for configuring the Microsoft Dynamics CRM adapters](#).

Note: If you created custom entities for Microsoft Dynamics CRM in a previous version of Connector for Microsoft Dynamics, review the .config files for the custom entities after upgrade and before configuration. If a custom entity in Microsoft Dynamics CRM has the same display name as a system entity, delete the .config files for the custom entity and any .config files with the same display name. Any changes to the display name of the custom entity after configuration will not affect the .config files.

Configure settings for Microsoft Dynamics CRM 4.0 adapter

If you are integrating with Microsoft Dynamics 4.0 or are upgrading a current installation of Connector for Microsoft Dynamics and you want to continue using current adapter settings, follow the procedures below.

Note: If you are upgrading from Microsoft Dynamics CRM 4.0 to Microsoft Dynamics CRM 2011, verify that you have installed the ERP solution. For more information, see [Upgrade from Microsoft Dynamics CRM 4.0 to Microsoft Dynamics CRM 2011](#).

1. Open Connector for Microsoft Dynamics.
(Click **Start**, select **All Programs**, select **Microsoft Dynamics**, select **Microsoft Dynamics Adapter**, and then select **Connector for Microsoft Dynamics**.)
2. If the **Adapter Settings** window did not open automatically, click **Adapter Settings**.
3. In the left pane of the **Adapter Settings** window, select **Microsoft Dynamics CRM**.
4. Enter the name of the domain that the Microsoft Dynamics CRM server belongs to.

5. Enter the user name and password for the CRM Integration account. For more information about this account, see [CRM Integration account](#).
6. Enter the port number that the Microsoft Dynamics CRM Discovery web service uses. If you are connecting to Microsoft Dynamics CRM online, this value should be left blank.
7. Enter the name of the server that hosts Microsoft Dynamics CRM. If you are connecting to Microsoft Dynamics CRM online, this value should be **dev.crm.dynamics.com**.
8. If you are connecting to Microsoft Dynamics CRM online, select the check box for **Microsoft Dynamics CRM online**.
9. Click **Apply**.
10. Click **Test Settings** to connect to the Microsoft Dynamics CRM Discovery web service using the information that you entered. If the information that you entered in the steps above is incorrect, this test will fail and you must enter the correct information before you can register the Microsoft Dynamics CRM adapter.
11. Continue to [Configure Microsoft Dynamics CRM organizations](#).

Configure settings for Microsoft Dynamics CRM 2011 adapter

If you are installing Connector for Microsoft Dynamics for the first time, or if you are upgrading from a previous version of Connector for Microsoft Dynamics, follow the procedures below.

Note: Before you configure this adapter, download the Windows Identity Foundation (<http://www.microsoft.com/download/en/details.aspx?id=17331>).

1. Open Connector for Microsoft Dynamics.
(Click **Start**, select **All Programs**, select **Microsoft Dynamics**, select **Microsoft Dynamics Adapter**, and then select **Connector for Microsoft Dynamics**.)
2. If the **Adapter Settings** window did not open automatically, click **Adapter Settings**.
3. In the left pane of the **Adapter Settings** window, select **Microsoft Dynamics CRM 2011**.
4. Enter the domain, user name and password for the CRM Integration account. For more information about this account, see [CRM Integration account](#).
Note: For an on-premise installation, use the domain\user name format.
5. Enter the URL for the Microsoft Dynamics CRM Discovery Service. To locate this URL in Microsoft Dynamics CRM, click **Settings**, select **Customizations**, select **Developer Resources**, and then enter the host name that is displayed in the **Discovery Service** URL.
Note: The default URL uses the **https** transport. For an on-premise installation, use the appropriate binding for your deployment, for example, **http**.
6. Click **Apply**.
7. Click **Test Settings** to connect to the Microsoft Dynamics CRM Discovery web service using the information that you entered. If the information that you entered in the steps above is incorrect, this test will fail and you must enter the correct information before you can register the Microsoft Dynamics CRM adapter.
8. Continue to [Configure Microsoft Dynamics CRM organizations](#).

Tips for configuring the Microsoft Dynamics CRM adapters

- If the Secure Sockets Layer (SSL) is not set up correctly, an exception occurs in the web service and the following message is logged: "The underlying connection was closed: Could not establish trust relationship for the SSL/TLS secure channel."
- If the CRM Integration account specified for the Microsoft Dynamics CRM adapter settings is a valid Microsoft Dynamics CRM user in multiple Microsoft Dynamics CRM organizations, and not all of the

Microsoft Dynamics CRM organizations have been properly configured, the message “Test settings succeeded with warnings” is displayed when you click **Test Settings**. This means that the **Test Settings** operation was successful in validating some of the Microsoft Dynamics CRM organizations but failed with others.

If you do not see the Microsoft Dynamics CRM organization to integrate listed in the warning message, then the **Test Settings** operation was successful for that Microsoft Dynamics CRM organization.

If a warning message is displayed for the Microsoft Dynamics CRM organization to integrate, then you must configure Microsoft Dynamics CRM for the organization that you want to integrate and try the **Test Settings** link again.

- For Microsoft Dynamics CRM, the CRM Integration account specified for the Microsoft Dynamics CRM adapter settings must be a member of the following security roles:
 - System Customizer
 - Dynamics Integration

When you run the Microsoft Dynamics CRM Configuration utility, the Dynamics Integration role is created and the specified CRM Integration account is automatically added to these roles.

If you click **Test Settings** before the CRM Integration account has been added to the System Customizer role for each Microsoft Dynamics CRM online organization that the user is a member of, the **Test Settings** operation will fail and a message will be displayed.

Messages will continue to be displayed until the CRM Integration account is added to the System Customizer role.

Configure Microsoft Dynamics CRM organizations

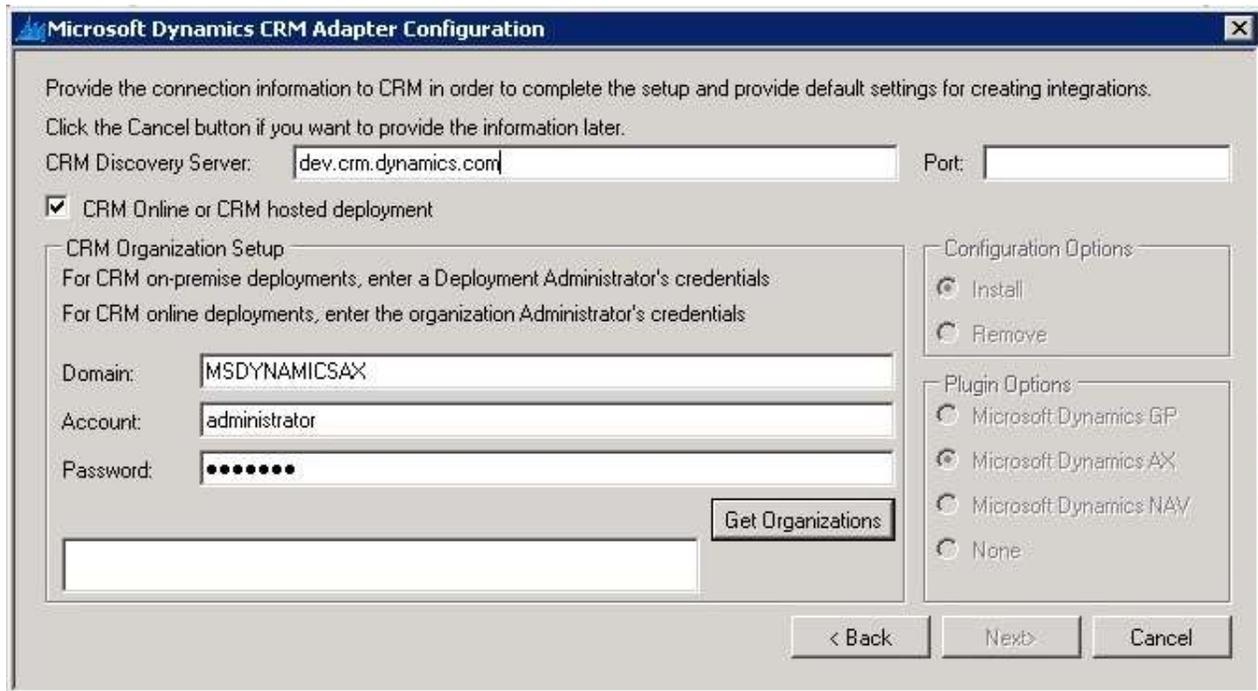
The Microsoft Dynamics Configuration utility customizes Microsoft Dynamics CRM organizations to prepare them for integration. For information about the changes that are made to Microsoft Dynamics CRM organizations after you run this utility, see [Changes made by the Microsoft Dynamics CRM Configuration utility](#).

Note: Some fields in this Configuration utility might already contain values, which were entered based on the information that you provided when you registered the Microsoft Dynamics CRM adapter.

Before you begin configuration, verify that you have configured the Microsoft Dynamics CRM adapter. For more information, see [Configure adapter settings for Microsoft Dynamics CRM](#).

Configure organizations for Microsoft Dynamics CRM 4.0

1. In Connector for Microsoft Dynamics, click **Adapter Settings**. In the left pane, select **Microsoft Dynamics CRM**.
2. Click **Configure Microsoft Dynamics CRM**.
3. In the **Welcome** dialog box, click **Next**.



4. Enter the name of the server where the Microsoft Dynamics CRM Discovery web service role is installed and the port number that the web service uses.
5. Enter the **domain**, **user name**, and **password** for the CRM Deployment Administrator account or the Administrator account for Microsoft Dynamics CRM online. For more information about this account, see [CRM Deployment Administrator account](#).
6. Click **Get Organizations**.
7. Select the organization to configure. The Microsoft Dynamics CRM Configuration utility must be run for each organization to integrate.
8. Verify that **Install** is selected in the **Configuration Options** area.
Note: Select the **Remove** option only if you want to remove customizations to the selected organizations that were made by the Configuration utility when it was last run.
9. Click **Next**.
10. Select the Microsoft Dynamics CRM entities to configure for integration. The preselected entities are those that are required for the standard out-of-the-box integration to run. If you have custom Microsoft Dynamics CRM entities to configure for integration, they are included in the entity list that is displayed. To view the available entities, click the plus sign (+) next to the organization name. Select the check box next to each entity to configure. To add more entities later, run the utility again.
11. If this is *not* the first time that you are running the adapter configuration, and if you are adding a new entity or are making other changes to the adapter configuration, select the **Skip complete configuration and only generate entity configurations** check box.
12. Click **Next**.

13. If this is the first time that you are running the adapter configuration, select the **Import and overwrite customizations** check box.
Note: If you do not select the **Import and overwrite customizations** check box, or if you cancel the customizations, you cannot integrate data until these customizations are imported. For information about how to preserve existing customizations in Microsoft Dynamics CRM 4.0, see .
14. When the **Configuration status for organization** page is displayed, click **Configure**. If a message is displayed that indicates that existing customizations will be overwritten, click **OK** to continue.
15. When the "Finished updating organization" message is displayed, click **Finish** to exit the utility.
Note: After configuration is completed, customizations are published for Microsoft Dynamics CRM. If you created customizations using the Microsoft Dynamics CRM Configuration utility, those customizations might be published after configuration is completed.

Configure organizations for Microsoft Dynamics CRM 2011

1. In Connector for Microsoft Dynamics, click **Adapter Settings**. In the left pane, select **Microsoft Dynamics CRM 2011**.
2. Click **Configure Microsoft Dynamics CRM**.
3. In the **Welcome** dialog box, click **Next**.

4. Enter the URL for the Microsoft Dynamics CRM Discovery Service.
5. Enter the **domain**, **user name**, and **password** for the CRM Deployment Administrator account or the Administrator account for Microsoft Dynamics CRM online. For more information about this account, see [CRM Deployment Administrator account](#).
6. Click **Get Organizations**.

7. Select the organization to configure. The Microsoft Dynamics CRM Configuration utility must be run for each organization to integrate.
8. Click **Next**.
9. Select the Microsoft Dynamics CRM entities to configure for integration. The preselected entities are those that are required for the standard out-of-the-box integration to run. If you have custom Microsoft Dynamics CRM entities to configure for integration, they are included in the entity list that is displayed. To view the available entities, click the plus sign (+) next to the organization name. Select the check box next to each entity to configure. To add more entities later, run the utility again.
10. If this is *not* the first time that you are running the adapter configuration, and if you are adding a new entity or are making other changes to the adapter configuration, select the **Skip complete configuration and only generate entity configurations** check box.
11. Click **Next**.
12. When the **Configuration status for organization** page is displayed, click **Configure**. If a message is displayed that indicates that existing customizations will be overwritten, click **OK** to continue.
13. When the "Finished updating organization" message is displayed, click **Finish** to exit the utility.
Note: After configuration is completed, customizations are published for Microsoft Dynamics CRM. If you created customizations using the Microsoft Dynamics CRM Configuration utility, those customizations might be published after configuration is completed.

Tips for configuring Microsoft Dynamics CRM

- You can run the Microsoft Dynamics CRM Configuration utility at any time to configure new organizations in Microsoft Dynamics CRM. To open the Configuration utility, open Connector for Microsoft Dynamics, and then click **Adapter Settings**. In the **Adapter Settings** window, select the version of Microsoft Dynamics CRM that you are integrating with, and then click **Configure Microsoft Dynamics CRM**.
- If you run the Configuration utility after you have registered the Microsoft Dynamics CRM adapter, some fields in the Configuration utility might already contain values. These values are based on the information that you provided when you configured the Microsoft Dynamics CRM adapter.
- If you have a distributed Microsoft Dynamics CRM on-premise deployment, you must restart IIS on all Microsoft Dynamics CRM servers, including application and SDK servers, after completing the utility.
- If you delete an object provider file for a static customizable Microsoft Dynamics CRM entity from the company folder in the ObjectConfig folder, running the Microsoft Dynamics CRM Configuration utility again will not re-create the object provider correctly. This will cause the Microsoft Dynamics CRM Adapter to fail to load.

A copy of each static Microsoft Dynamics CRM object provider file is copied to the ObjectProvider folder. You will need to copy the object provider file for the affected entity from the ObjectConfig folder back into the company folder.

Static customizable Microsoft Dynamics CRM entities are: AccountObjectProvider, ContactObjectProvider, ErpSystemUserObjectProvider, InvoiceObjectProvider, OrderObjectProvider, and ProductObjectProvider.

- Microsoft Dynamics CRM 4.0 might cache information that causes the **Test Settings** option to return incorrect results.

If you click **Test Settings** before the CRM Integration User has been added to the PrivUserGroup for the Microsoft Dynamics CRM 4.0 organization that you want to integrate on the domain that the Microsoft Dynamics CRM server is joined to, the **Test Settings** operation will fail until the client is closed and re-opened.

If the user running the Configuration utility is not a domain administrator for the domain that the CRM Integration User and Microsoft Dynamics CRM server are members of, a warning will be displayed. Until this CRM Integration user is added to the PrivUserGroup, the **Test Settings** operation will always fail and the integration will not work. Adding the CRM Integration user to the PrivUserGroup may be completed by a domain administrator prior to running the Configuration utility or after it has been run. If you add the CRM Integration user to the PrivUserGroup after you run the utility, you must close and restart the client before the **Test Settings** operation will return valid results.

This issue occurs because Microsoft Dynamics CRM uses the WindowsPrincipal.IsInRole method to check if the user attempting to access Microsoft Dynamics CRM is in the PrivUserGroup in the current Domain. The WindowsPrincipal.IsInRole method caches the last result for a given user until the user and caller both log off and log back on to the domain. For more information, see "WindowsPrincipal.IsInRole Method (String)" on MSDN (<http://msdn.microsoft.com/en-us/library/fs485fwh.aspx>).

- If you are integrating with Microsoft Dynamics CRM 4.0, you must set up duplicate detection for the address entity in Microsoft Dynamics CRM 4.0. For more information, see [Set up duplicate detection](#).

Note: Duplicate detection for addresses in Microsoft Dynamics CRM 2011 is actually enabled during installation.

- If you select to install the customization provided with the Microsoft Dynamics CRM adapter, you will overwrite any existing form customizations which have been created for account, contact, product and any of the other Microsoft Dynamics CRM 4.0 entities which are updated to enable the integration.

For new installations with no existing customizations, this should not be an issue and the option to import the customization should be selected.

For existing Microsoft Dynamics CRM 4.0 installations where customizations have been applied, registration for Connector for Microsoft Dynamics can continue without importing the Microsoft Dynamics CRM customizations. However, the existing customizations and required new customizations will need to be merged before they are imported into Microsoft Dynamics CRM. This merge process can be accomplished by using the tool and related readme which are available from the download site for Connector for Microsoft Dynamics.

When the merge process is complete, you must import customizations. Data cannot be successfully integrated until these customizations are integrated into Microsoft Dynamics CRM 4.0. In Microsoft Dynamics CRM 4.0, click **Settings**, click **Customizations**, and then select **Import Customizations**.

Note: If you are using the Microsoft Dynamics CRM 2011 adapter, these customizations are automatically installed during configuration and merged with your existing customizations in Microsoft Dynamics CRM 2011. No further action is necessary.

Changes made by the Microsoft Dynamics CRM Configuration utility

If you run the Microsoft Dynamics CRM Configuration utility, the following changes are made to each Microsoft Dynamics CRM organization that you selected for configuration.

Note: Before the Microsoft Dynamics CRM adapter Configuration utility makes any changes to Microsoft Dynamics CRM, it saves your existing customizations to C:\ProgramData\Microsoft Dynamics\Connector for Microsoft Dynamics. You can remove these customizations and revert to your previous customizations if you uninstall the product. If you remove the customizations, any of the custom entities that contain data will not be removed.

- A **Submit Order** button is added to the **Order** form. This button appears only for users who are in roles that have the ISVExtensions privilege enabled for the organization.
- All prices and price lists are set to read-only.

- All entities in the **Product Catalog** are set to read-only.
- All unit groups and units are set to read-only.
- Any existing products, discount types, price levels in the **Product Catalog** are deactivated and renamed.
- The invoice functionality is limited to read-only within Microsoft Dynamics CRM.
- The default decimal precision is set to four decimal places.

Note: You can change this setting if you want your Microsoft Dynamics CRM pricing decimal precision to be less than four. The Microsoft Dynamics CRM pricing decimal precision should match your Microsoft Dynamics ERP currency decimal precision to prevent rounding issues. Microsoft Dynamics ERP currency decimal precision can be set up to five while Microsoft Dynamics CRM can be set up to four.

- Integration key attributes are added to the entities selected on the **Select the entities to configure for integration** window. The following entities are pre-selected by default:

- Account
- Contact
- Invoice
- Order
- Product
- ERP system user

Note: Certain system entities are not available for customization and will not have an **Integration Key** attribute added to them. For these entities, the name attribute is mapped internally to the **Integration Key** attribute from the ERP source system.

- The following custom entities are added:
 - **ERP System User** – For tracking salespersons in the ERP system
 - ***Account*** – For tracking accounts that have been integrated and then deleted from Microsoft Dynamics CRM
 - ***Contact*** – For tracking contacts that have been integrated and then deleted from Microsoft Dynamics CRM
- The **isSOPIntegrated** attribute is set to true for each organization to be integrated.
- A **Ready for Integration** check box is added to the **Administration** tab on the **Account** form.
- An **Integration Key** attribute is added to the **Administration** tab on the **Account** form.
- A **Submit** button is added to the **Account** form.
- A **Ready for Integration** check box is added to the **Administration** tab on the **Contact** form.
- A read-only **Integration Key** field is added to the **Administration** tab on the **Contact** form.
- A **Submit** button is added to the **Contact** form.
- A control is added to the **User** form that allows users to map an integrated ERP system user to an existing Microsoft Dynamics CRM user.

- An **Order** entity is validated to ensure that a customer is ready for integration or that the customer is able to be integrated, if it is not already integrated when the order is submitted.
- A plug-in is registered in Microsoft Dynamics CRM.
- The Microsoft Dynamics Integration security role is created.
- The following privileges are removed from all security roles that they are associated with:
 - AppendInvoice
 - AssignInvoice
 - CreateInvoice
 - CreateProduct
 - DeleteInvoice
 - DeleteProduct
 - OverridePriceEngineInvoice
 - ShareInvoice
 - WriteInvoice
 - WriteProduct
- When using a Microsoft Dynamics CRM online deployment, the user specified as the CRM Integration account will be set to have an access mode of **Non-interactive** and will be flagged as an integration user.
- A **Bulk Submit Accounts** on-demand workflow is added, which allows you to select multiple accounts, and then submit them to the ERP system.
- A **Bulk Submit Contracts** on-demand workflow is added, which allows you to select multiple contracts, and then submit them to the ERP system.
- If a primary contact has been associated with an account in Microsoft Dynamics CRM, and that contact has not been submitted to the ERP system, a message is displayed when you submit the account that indicates that the primary contact must be submitted before the account. If a nonsubmitted contact is added as the primary contact of a submitted account in Microsoft Dynamics CRM, the account cannot be updated in the ERP system by Connector, and the update will fail.
- If a parent account has been associated with a contact, and the parent account has not been submitted to the ERP, a message is displayed when you submit the contact that indicates that the parent account must be submitted before the contact. If a nonsubmitted account is added as the parent account to a submitted contact in Microsoft Dynamics CRM, the account record cannot be updated in the ERP system by Connector, and the update will fail.

Set up duplicate detection

Note: If you do not have existing installations of both Microsoft Dynamics CRM and a Microsoft Dynamics ERP system, then you may skip this procedure.

When you integrate data between existing installations of Microsoft Dynamics CRM and a Microsoft Dynamics ERP system, you might have duplicate records between the two applications. For example, if you have entered Bob Kelly as a contact in Microsoft Dynamics CRM and also as a customer in the Microsoft Dynamics ERP database, then you have duplicate records.

Microsoft Dynamics CRM allows users to enter duplicate records, with duplicate keys, for Microsoft Dynamics CRM accounts and contacts. This can cause problems when the integration service tries to integrate the records.

If duplicated records are not identified before you integrate Microsoft Dynamics CRM contacts or accounts with your Microsoft Dynamics ERP customers, you will end with four records for the same person between the two applications.

When you use duplicate detection rules, and a duplicate record is identified during an integration, the Microsoft Dynamics CRM adapter updates the entity in Microsoft Dynamics CRM instead of creating multiple entities. The record in the ERP database is not affected.

To prevent duplicate record records from entering the system during initial data synchronization, use one of the following options.

- **Set up duplicate detection rules in Microsoft Dynamics CRM**

In Microsoft Dynamics CRM, set up or modify duplicate detection rules for the entities to integrate. Go to **Settings**, select **Data Management**, and then click **Duplicate Detection Rules**. The default duplicate detection rules are listed. Use the duplicate detection rules for accounts or contacts using attributes and criteria that make sense for your business rules. Duplicate detection rules in Microsoft Dynamics CRM are based on contact email addresses by default, and Connector for Microsoft Dynamics maps email addresses based on accounts or customers.

- **Set up duplicate detection jobs in Microsoft Dynamics CRM**

In Microsoft Dynamics CRM, set up duplicate detection jobs for the entities to integrate. Go to **Settings**, select **Data Management**, and then click **Duplicate Detection Jobs**. Add a job to catch duplicates and notify someone in your organization for each entity to integrate.

For more information about duplicate detection rules, see your Microsoft Dynamics CRM documentation.

Tips for duplicate detection

- Use one duplicate detection rule for all of your duplicate detection. Multiple duplicate detection rules are not supported.
- Duplicate detection is supported for the **Account**, **Contact**, **Address**, and **Order** entities only. Custom entities are not supported.
- If you are integrating with Microsoft Dynamics CRM 4.0, then you must manually set up duplicate detection for the address entity, using the customizations for Microsoft Dynamics CRM 4.0.

Note: For Microsoft Dynamics CRM 2011, duplicate detection for addresses is enabled automatically during installation.

- Duplicate detection rules for child entities might appear as if the duplicate occurred on the parent entity. For example, if a child Address entity contains information that matches another child Address entity, a message might be displayed that indicates that multiple records meet the duplicate detection rules for the parent entity. Be sure to review child entities for duplicate records.

Data synchronization

After Connector for Microsoft Dynamics is installed and the adapters are configured, data must be synchronized between Microsoft Dynamics CRM and your Microsoft Dynamics ERP system before you can run integrations on a regular schedule.

Initial data synchronization procedures are specific to your Microsoft Dynamics ERP system. For more information about initial data synchronization and integration procedures, see the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.

Customization

Connector for Microsoft Dynamics uses maps to integrate data between applications. A map is a collection of associations between one entity's fields in one Microsoft Dynamics system with another entity's fields in another Microsoft Dynamics system. For example, to integrate the Microsoft Dynamics CRM Account entity with the Microsoft Dynamics ERP Customer entity, you must add and activate the **Account to Customer** map and the **Customer to Account** map.

If you created an integration from a template, maps have already been created for you. To modify map settings, see [Edit field associations in maps](#).

Note: For initial data synchronization, use the maps that are provided in the integration templates.

Make custom entities available in Microsoft Dynamics CRM

If you have custom entities in Microsoft Dynamics CRM, you must make these entities available before you can integrate them to the ERP database.

1. Complete steps 1 through 11 in [Configure Microsoft Dynamics CRM organizations](#).
2. Select the **Skip complete configuration and only generate entity configurations** check box.
This adds the **Dynamics Integration Key** attribute to the entities in Microsoft Dynamics CRM that you selected in step 11 of [Configure Microsoft Dynamics CRM organizations](#). An object provider configuration file is also created on the local file system for the configured entity.
3. Close the Connector for Microsoft Dynamics client, and then open the client again. This refreshes all of the metadata in Connector for Microsoft Dynamics.
4. To map the newly exposed entity, see [Create a new map](#).

Note: Custom OptionSets or Picklists are not supported for integration with Connector for Microsoft Dynamics. We recommend that you manually synchronize custom OptionSet values.

Create a new map

1. Open Connector for Microsoft Dynamics.
(Click **Start**, select **All Programs**, select **Microsoft Dynamics**, select **Microsoft Dynamics Adapter**, and then select **Connector for Microsoft Dynamics**.)
2. In the left pane, select the integration to add a map to.
3. Click **New Map**.
4. Select a source entity.
5. Select a destination entity.
6. Click **Create**. The map is now listed in your tree view under the **Maps** node.
7. In the **Status** area, click the **Edit** link in the "Check for changes" section. The default value for the **Run Frequency** in all new maps is 300 seconds.
8. Enter or select the date and time to start using this map in integrations.
9. In the **Recurrence Pattern** field, select one of the following options:
 - **Once** – Only run this map once.
 - **Recurring** – Run this map at a time interval that you specify. The minimum recurring interval is every one second.
 - **Weekly** – Run this map once every week.

10. In the **Status** area, click the **Edit** link in the **Check for data modified after** area. Enter or select the date and time after which you want the system to check for modified data.
11. In the **Status** area, click **Activate**.
12. Click **Save** on the top command bar.
13. In the **Destination Field Mapping window**, select how to map the fields. You can map to a source field, use a constant, or use a function. For more information about mapping fields, see [Edit field associations in maps](#).

Create a new map from file

1. Open Connector for Microsoft Dynamics.
(Click **Start**, select **All Programs**, select **Microsoft Dynamics**, select **Microsoft Dynamics Adapter**, and then select **Connector for Microsoft Dynamics**.)
2. In the left pane, select the integration to add a map to.
3. Right-click and select **Create New Map from File**.
4. Navigate to the **Maps** subdirectory where Connector for Microsoft Dynamics was installed, or where your custom maps were saved to.
5. Double-click or select a map from the list and click **Open**.
6. The map is now listed in your tree view under the **Maps** node.

Note: When you create a new map from file, the date set to **Check for data modified after** is set to the current date for the following maps:

- **Sales Order to Order**
- **Sales Invoice to Invoice**
- **Order to Sales Order**

To integrate orders or invoices that are older than the current date, change the **Check for data modified after** date for these maps. For more information, see [Change the data modification date](#).

The **Check for data modified after** date is set to the default of 12/31/1899 12:00 AM UTC (displayed as the local time zone) for all other maps.

Map accounts and contacts to owners and teams

In Microsoft Dynamics CRM, an owner can be a user or a team, and some entities, such as accounts and contacts, support both types of owners. Connector for Microsoft Dynamics V3 now supports the integration of both types of owners from records in the ERP database.

To integrate owner information for accounts and contacts in Microsoft Dynamics CRM, complete the following procedure.

1. Open the object configuration file for the entity to integrate owner information for. For the **Owninguser** field, update the **LookupType="systemuser"** attribute to **LookupType="systemuser,team"**, and then add the **LookupField="dynamics_integrationkey,name"** attribute.
Note: The Microsoft Dynamics CRM adapter searches for these attributes on fields with **TypeName="EntityReference"**.
2. Configure the ERP source to provide the Owing User ID and the Owing Team name for the records.
Note: Both fields are required, but only one of the fields must contain a value.
3. In Connector for Microsoft Dynamics, open the integration map for which the object configuration file was modified in step 1.
4. Map the **Owner User** field to the Owing User integration key from the ERP source, and map the **Owning Team** field to the Owing Team name from the ERP source.

Tips:

- The Owing User ID and the Team Name fields are required to map owners in Microsoft Dynamics CRM, but only one of the fields must contain a value. If both fields contain values, the Microsoft Dynamics CRM adapter uses the value in the Team Name field.
- The ERP Integration user is selected as owner if the Owing User ID and Team Name fields are empty, or if no user or team is found in Microsoft Dynamics CRM that matches the value that is provided in the source field.
- Values that are mapped to the Owing Team and Owing User fields overwrite mappings to the Owner ID field.

Change the data modification date

Each of the integrated entities maintains a last modified date on each record in that entity. The **Check for data modified after** date for each entity map is used to determine if there have been any updates to entity data since the value in the **Check for data modified after date** field. You can change this date for any individual map.

1. In the left pane of Connector for Microsoft Dynamics, select the map to change the **Check for data modified after** date for.
2. In the **Status** area, click the **Edit** link that is next to the **Check for data modified after date** and time. The **Check for data modified after date and time** window opens.
3. Use the calendar control to enter or select a date. Use the lists to change the time.
4. Click **OK** to exit the window and save your changes, or click **Cancel** to exit the window without saving your changes.
5. Start the Connector for Microsoft Dynamics service again.

Edit field associations in maps

If you create a map from scratch, or if you create a map from a template but want to modify the map, you can use the client to edit field associations within the map. When a map is selected, the map page is displayed in the right pane.

The **Map** page contains a **Status** area, where you can view status information for the map, a **Filter** area, where you can filter the data that is integrated, and a **Mapping** area, where you can edit the field associations created for the destination entity.

1. In Connector for Microsoft Dynamics, in the navigation pane, select the integration to modify map settings for. Click a map to modify settings for that map.
2. In the **Mapping** pane, click the destination field to map.
3. In the **Mapping** column, you can modify an existing map field, remove an existing map field, or add a new map field.

- To modify an existing mapping, click the **Edit** icon (), which appears when you click in the text box.
- To remove an existing map field, click in the **Mapping** text box where the map field is displayed. Click the **Delete** icon () to clear the text box.
- To add a new mapping, click in a **Mapping** text box where **Click here to map** is displayed. Then, click the **Map** icon, which appears when you click in the text box.

Note: When a field or function that is not valid is entered in a map field, a validation error will appear to the right side of those fields. Required mapping fields are displayed in bold font.

4. In the **Destination Field Mapping** window, select how to map the field. You can map to a source field, use a constant or use a function. If you are changing the mapping of a destination field, use the **Back** button to select another mapping option.

To map using	Do this:
Map to a source field	<ol style="list-style-type: none">1. The source fields available for the destination you are mapping are listed. Select the field to map to.2. Click Add.
Use a constant	<ol style="list-style-type: none">1. Enter a constant. The window displays examples of the syntax to use.2. Click Add.
Use a function	<ol style="list-style-type: none">1. Select a function category. Limit the functions displayed by selecting a category other than <Any>.2. Select the function to map, and click Next.3. Supply the function argument for the function. Click the Lookup icon to select an existing function.4. Click Add.5. For more information about the built in mapping functions in Connector for Microsoft Dynamics, click the Help button at the bottom of the function selection window.

5. Continue with the above procedures for all the destinations to map.
6. Click **Save** on the top command bar.

Tips for editing maps:

- The map templates that are shipped with the product provide mappings for United States telephone number format. If you use a different telephone number format, you must modify your maps where telephone numbers are integrated to support your telephone number format.
- If you change your regional settings using **Windows Regional and Language Options**, make sure to apply the change to the user your Connector for Microsoft Dynamics Service is running as.
For more information about regional options in Windows Server 2008, see “Apply regional and language settings to reserved accounts” on the Windows site (<http://windows.microsoft.com/en-SG/windows7/Apply-regional-and-language-settings-to-reserved-accounts>).
- If you are integrating with Microsoft Dynamics AX and Microsoft Dynamics NAV, and you map to or from a custom entity reference in Microsoft Dynamics CRM, you must map the **entityId** field. This connects the Microsoft Dynamics CRM entity to the corresponding entity in the ERP source system. You must also create a map for the referenced entity to integrate instances of the referenced entity from the source system into Microsoft Dynamics CRM.
- The **Dynamics Integration Key** attribute on a Microsoft Dynamics CRM entity is used to correlate an ERP source entity key with the integrated Microsoft Dynamics CRM entity. This field must be mapped to an attribute on an ERP source entity that can serve as a logical key to identify an instance of the ERP source entity in the ERP source system.

Filter map data

When you map data from the ERP database into Microsoft Dynamics CRM, you can integrate all records for entities in the map, or you can filter the integration to only use records that meet specific criteria.

Filter settings are defined individually for each map. By default, each map integrates all records for all entities included in the map.

1. Open Connector for Microsoft Dynamics. In the navigation pane, select the map to filter records for.
2. On the **Map** page, expand the **Filter** area.

Contact Persons Service to Contact

^ Status [View log for this map](#)

Check for changes: Every 15 seconds beginning 5/21/2013 10:18:30 AM [Edit](#)
Check for data modified after: 6/24/2013 9:38:34 PM [Edit](#)
Last run time: 6/24/2013 9:38:36 PM
Currently running: 0 changes found, 0 changes written, 0 deletions found, 0 deleted, 0 failed
Status: Active [Deactivate](#)

^ Filter

Only records that meet the following condition will be integrated.

	Source	Operator	Value	Status
And	Company Name	is equal to	Contoso	

[Add New Condition](#)

Filter [Filter code](#)

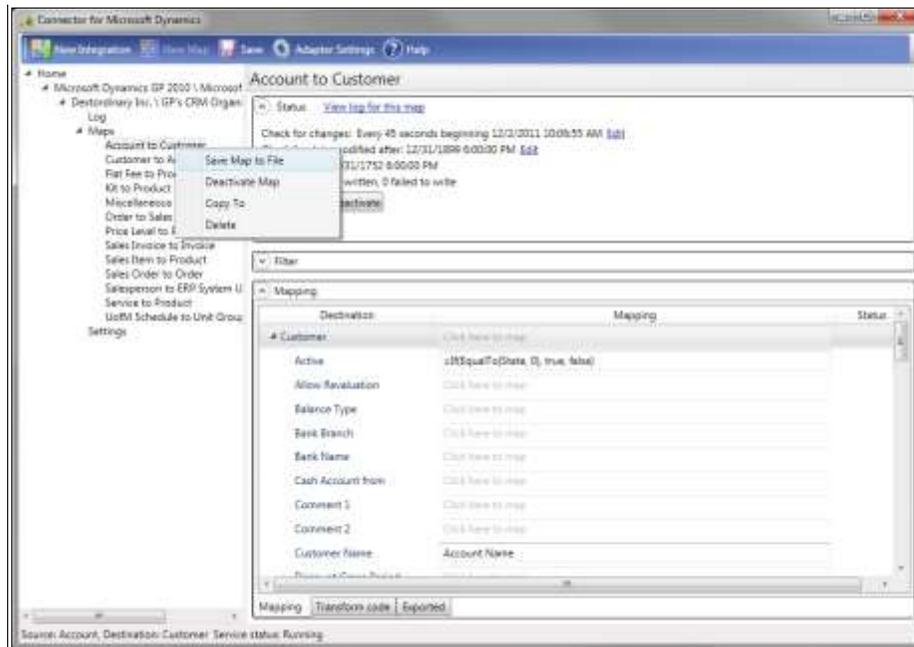
^ Mapping

Mapping [Transform code](#) [Exported](#)

3. Click **Add new condition**.
4. In the **Source** field, select an attribute to sort records by.
Note: Only base level source types are available for the filter.
5. Select an operator function in the **Comparator** field.
6. In the **Value** field, select or enter a value.
7. To add another condition statement, click **Add new condition**, and then select **And** or **Or** to further constrain the condition queries.
8. Repeat steps 5 through 7 for the new condition.
9. Click **Save** to save all of the filter conditions. The next time the map is run, it will use the conditions to filter the records that are integrated.

Save a map to file

1. Open Connector for Microsoft Dynamics. In the navigation pane, go to the integration to work with.
2. Go to the modified map to save to the file. Right-click the map and select **Save Map to File**.



3. Go to or browse to the file directory or folder where you want to save the file.

Note: Do not save modified maps in the same folder as the templates. To save modified maps to the Program Files directory, create a unique folder for the modified maps in the "%ProgramFiles%\Microsoft Dynamics\Microsoft Dynamics Adapter\Templates\Maps" directory (or to your "%ProgramFilesx86%\Microsoft Dynamics\Microsoft Dynamics Adapter\Templates\Maps" directory if you are running on a 64-bit machine).

4. Provide a unique file name for your map. Make sure that you use the .map file extension.
5. Click **Save**. Connector for Microsoft Dynamics now includes your modified map.

Note: Filters are not saved when you save a map to a file. To copy filter settings from the original map, you must modify these settings manually.

Set up notifications

You can set up notifications so that, when an exception occurs, a notification email is sent to you or a user that you specify. You also can specify how often exception notices are sent. Notifications can be set up for the types of exceptions listed below:

- **System-level exception** – An exception that might occur when you have insufficient rights to complete a task that you attempt. Example: “User is not authorized to perform the request operations in AX web services.”
- **Business logic exception** – An exception that might occur when the business logic within a Microsoft Dynamics application prevents Connector for Microsoft Dynamics from completing a task. Example: “The Customer cannot be set to Inactive, because Customer Bob Kelly has posted or unposted transactions.”
- **Unrecognized exception** – An exception that Connector for Microsoft Dynamics for the Microsoft Dynamics ERP does not recognize.

The email addresses that exception notifications are sent to must be SMTP compliant. Validation is not performed on the email addresses that are entered. Be sure to enter email addresses that are SMTP compliant, otherwise email notifications will not be sent.

Note: All email addresses are authenticated. Anonymous send for notifications is not supported. User names and passwords for non-domain accounts are not supported.

Complete the following procedure for each type of exception.

Setting up notifications

1. Open Connector for Microsoft Dynamics. In the navigation pane, click **Settings**.
2. On the **Settings** page, expand the **Exception Notifications** area.
3. Select one of the following options:
 - **Don't send** – Do not send notifications for this exception type. If you select this option, the other options in this procedure are not available.
 - **Send immediately** – Send a notification when each exception occurs.
 - **Send a daily summary** – Send one email a day that lists each exception that occurred during the day.
 - **Send a weekly summary** – Send one email a week that lists each exception that occurred during the week.

Note: Notification emails are sent using the timezone that is specified in the Connector client.

4. In the **SMTP Server** field, enter the SMTP server name or IP address of the host that is used to send the notification emails.
5. In the **Port** field, enter the port number on the SMTP server that is used for SMTP transactions.
6. In the **From** field, enter the email address to send notifications from.
7. In the **To** field, enter the email addresses to send notifications to. Separate multiple email addresses with a comma.

Note: Security email groups are supported in Connector for Microsoft Dynamics. If you use a security email group, the email group must have the db_datareader and db_datawriter security permissions on the MSDI database. Users that are assigned to the security group inherit these permissions.

Maintenance

The following sections explain how to maintain your integrations.

Review the log file

The log displays a list of events that occur during the integration process. Sometimes these events are exceptions that you may need to resolve. By default, the events are sorted in the order that they are received, but can be sorted further by selecting one or more of the headings at the top of the **Log** page and dragging the heading into the space above the headings. You can also change the sort order by clicking on any of the column headings. To filter the information to display, click the right side of any column heading, and then click a check box to select the value. Double-click any message to view message properties and any mediation steps available, or to reset the retry count for the record.

The three types of event severity are:

- **Error** – An event that describes a significant problem, such as the failure of a critical task. Error events may involve loss of data or loss of functionality. An error event is always either a **Retrying** or **Not Retrying** event.
- **Warn** – An event that is not necessarily significant, but may indicate the possible occurrence of a future problem. A warning is always either a **Retrying** or **Not Retrying** event.
- **Info** – An event that that provides information.

The three types of log message **Status** are:

- **Attempting to integrate** - This record is in a retry state and will continue to retry integration until it either integrates successfully or the maximum number of retries (7) is reached. If the maximum number of retries is reached and the record does not successfully integrate, the status will change to **Failed to integrate**. You can double-click the message to view the message details where you can stop retrying, or reset retries.
- **Integrated after initial error** – This record was originally in a retry state and was able to successfully integrate on one of the successive retry attempts.
- **Failed to integrate** – This record was unable to successfully integrate.

Navigating to the log file

- From a notification email – In the notification email, click the name of a map. The log page for the map is displayed in a web browser. To set up notification emails, see [Set up notifications](#).
- From any page in the client – In the left pane, click **Log**. The **Log** page is displayed and lists all events for all maps in the integration.
- From a map page in the client – Click the **View log for this map** link. The **Log** page is displayed and lists only the events for the map that you were viewing.

Tip: If the Secure Sockets Layer (SSL) is not properly set up, the following web services exception occurs. This will be caught by the Service and logged: "The underlying connection was closed: Could not establish trust relationship for the SSL/TLS secure channel."

View the log file in a web browser

In the most recent version of Connector for Microsoft Dynamics, you can view the log file in a web browser. Open the notification email and click on the name of a map to view the log for that map. You can search entries by date, description, severity, and the Dynamics Integration Key of the entity.

Note: To view the log in a web browser, you must have the db_datareader and db_datawriter security permissions in the MSDI database, or be assigned to the security email group that has those permissions. For more information, see [Set up notifications](#).

Turning on the logging diagnostic tool

You can turn on additional logging in Connector for Microsoft Dynamics by setting the **Trace** option in one or more of Connector for Microsoft Dynamics configuration files. The configuration trace option can be used as a diagnostic tool to obtain more integration activity details. To activate **Trace**, open the individual configuration files and set the appropriate trace value.

Security note: Any user who has access to the computer running the integration process will also have access to the log files. To protect the log files, you must make sure that only users whom you trust have access to the computer that runs the integration process.

All configuration files are stored under %ProgramFiles%\Microsoft Dynamics\Microsoft Dynamics Adapter (or under the %ProgramFilesx86%\Microsoft Dynamics\Microsoft Dynamics Adapter directory if you are running on a 64-bit machine). Tracing can be activated on the following configuration files:

- Microsoft.Dynamics.Integration.Client.exe.config
- Microsoft.Dynamics.Integration.Client.ServiceController.exe.config
- ConnectorServiceHost.exe.config

To activate logging, close the Connector for Microsoft Dynamics client. Then, modify the value of the Microsoft.Dynamics.Integration.TraceLog switch. Below is a code sample from one of the config files with the pertinent information.

```
<system.diagnostics>
<switches>
<!-- 0-off, 1-error, 2-warn, 3-info, 4-verbose -->
<add name="Microsoft.Dynamics.Integration.TraceLog" value="0"/>
</switches>
</system.diagnostics>
```

After tracing or logging is turned on, *.log files, which contain diagnostic and debugging information, will be generated. In Windows Server 2008 and Windows Server 2012, these log files are stored in the following location:

%ALLUSERSPROFILE%\Microsoft Dynamics\Microsoft Dynamics Adapter\Logs

Example: C:\ProgramData\Microsoft Dynamics\Microsoft Dynamics Adapter\Logs

The name of the log file is based upon which process has tracing or logging activated.

- If logging is enabled for the client, then you will find a Microsoft.Dynamics.Integration.Client.log file under one of the above directories.
- If logging is enabled for the service, then you will find a Microsoft.Dynamics.Integration.Service.log file under one of the above directories.

Logging is turned off (a value of zero) when Connector for Microsoft Dynamics is installed.

Note: After you are done using **Trace**, turn off the option or the log file will get very large.

Delete integrations and maps

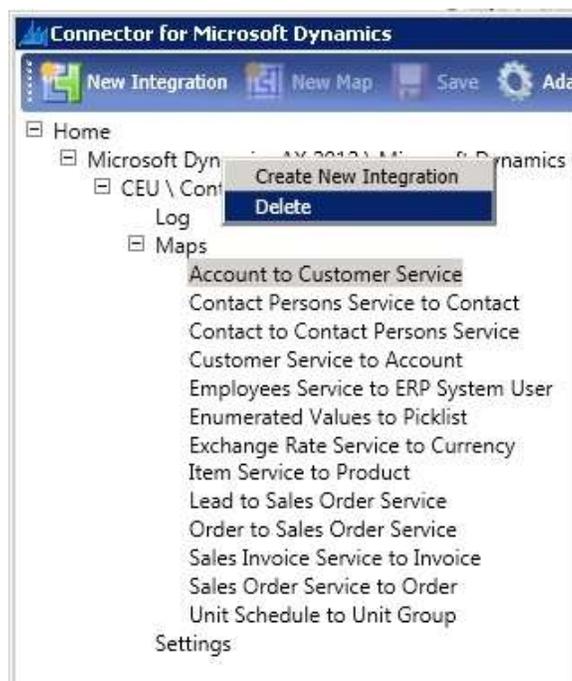
Files related to deleted integrations and maps are stored in the following folder:
%TEMP%\DeletedIntegrations

Deleted integrations and maps are saved with a randomly generated, unique name, followed by an .intx extension for deleted integrations and a .mapx extension for deleted maps. This is done to ensure that older deleted versions are not overwritten. The file is stamped with the current time so that you can sort by the modified date to locate a specific deleted integration or map.

The location of the TEMP file is specified in the **Environment Variables** window on your system. Click **Start > Control Panel > System > Advanced system settings**. On the **Advanced** tab, click the **Environment Variables** button.

Delete all integrations

1. In the left pane of the application window, right-click on the **Microsoft Dynamics <ERP>/Microsoft Dynamics CRM** node and select **Delete**.



2. Click **Yes** to delete the integrations and all of the maps within the integrations.

Delete one integration

1. In the left pane of the application window, right-click on the integration node and select **Delete**.
2. Click **Yes** to delete the integration and all of the maps within the integration.

Delete a map

1. In the left pane of the application window, right-click on the map to delete and select **Delete**.
2. Click **Yes** to delete the map.

Additional information

For more information about using Connector for Microsoft Dynamics ERP, and for troubleshooting tips and customization techniques, see the "Connector – Integrating Dynamics ERP with Dynamics CRM" blog on MSDN (<http://blogs.msdn.com/b/dynamicsconnector/>).

For information about integrating with Microsoft Dynamics ERP systems, see the [Connector for Microsoft Dynamics ERP configuration guide](#) for your ERP system.