

Microsoft Dynamics®

Connector for Microsoft Dynamics Configuration Guide for Microsoft Dynamics® AX

June 2014

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Introduction

Use Connector for Microsoft Dynamics to integrate Microsoft Dynamics CRM and Microsoft Dynamics AX data. For example, you can integrate Microsoft Dynamics AX customers with Microsoft Dynamics CRM accounts, giving you access to up-to-date customer/account 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 AX 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 AX as an item, but an item that is entered into Microsoft Dynamics AX can be integrated with Microsoft Dynamics CRM as a product.

After installation, you can integrate the following entities in Microsoft Dynamics AX and Microsoft Dynamics CRM. Additional integration functions can be added later.

Microsoft Dynamics AX entity	Integration direction	Microsoft Dynamics CRM entity
Enumerated values	→	Picklist
Customer (including addresses)	↔	Account
Contact (including addresses)	↔	Contact
Item	→	Product
Sales invoice	→	Invoice
Sales order	↔	Order
Currency	→	Currency
Employee	→	ERP system user
Unit schedule (including units)	→	Unit group

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 AX customer record, a product, or a Microsoft Dynamics CRM order are all examples 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 AX 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 AX 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 AX 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 AX 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 AX when the integration is run.</p>

System requirements

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

- 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
- For Microsoft Dynamics CRM 2011 online only – At least two different Windows Live IDs and passwords
- Microsoft Dynamics AX and Microsoft Dynamics CRM must use the same base install language
- Microsoft Dynamics AX and Microsoft Dynamics CRM must use the same base or functional currency
- Be located in the same time zone as the Microsoft Dynamics AX database

If you are using Microsoft Dynamics AX 2009:

- Microsoft Dynamics AX 2009 SP1
- Microsoft Dynamics Application Integration Framework (AIF) web services
- Microsoft Dynamics AIF web services extension

If you are using Microsoft Dynamics AX 2012:

The computer where Connector for Microsoft Dynamics is installed must have the following components installed:

- Microsoft Dynamics AX 2012 .NET Business Connector
- Cumulative Update 1 for Microsoft Dynamics AX 2012
([https://mbs2.microsoft.com/Knowledgebase/KBDisplay.aspx?scid=kb\\$en-us\\$2579565](https://mbs2.microsoft.com/Knowledgebase/KBDisplay.aspx?scid=kb$en-us$2579565))

Upgrading Connector for Microsoft Dynamics

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

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

Upgrade 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 V3 release of Connector for Microsoft Dynamics, 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.

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 to the Microsoft Dynamics CRM 2011 adapter

The current release of Connector for Microsoft Dynamics contains an updated adapter to connect to Microsoft Dynamics CRM 2011. This new adapter supports all deployments of Microsoft Dynamics CRM 2011, including Microsoft Dynamics CRM online. If you are connecting to a new instance of Microsoft Dynamics CRM 2011, or you are connecting to a new organization in an existing instance of Microsoft Dynamics CRM 2011, we recommend that you use the Microsoft Dynamics CRM 2011 adapter.

Note: If you have an existing integration between Microsoft Dynamics CRM 4.0 or Microsoft Dynamics CRM 2011 that is using a previous version of Connector for Microsoft Dynamics, you are not required to upgrade the integration.

To upgrade to the Microsoft Dynamics CRM 2011 adapter, complete the following steps.

1. Open Connector for Microsoft Dynamics. Record the following information for all existing maps:
 - The **Check for data modified after** date
 - The map run schedule
 - Any customizations that were made to existing maps
2. If you have any custom integration maps, use the **Exported** tab to save the mapped fields to a spreadsheet in Microsoft Excel.
3. Close Connector for Microsoft Dynamics.
4. Upgrade to the latest version of Connector for Microsoft Dynamics.
5. Configure the Microsoft Dynamics CRM 2011 adapter and Microsoft Dynamics CRM organizations. For procedures, see the [Connector for Microsoft Dynamics installation guide](#).
6. Create a new integration. For procedures, see [Create an integration](#).
7. For each map in the new integration, use the same **Check for data modified after** date as the corresponding map in the previous integration. If there was no corresponding map, use the current date.

8. For each map in the new integration, use the same map run schedule as the corresponding map in the previous integration. If there was no corresponding map, use the default setting.
9. Re-create any map customizations or customized maps that you noted in steps 1 and 2.
10. Start the Connector for Microsoft Dynamics service, and then activate the maps.

Note: When the new integration is performing as expected, you can delete the previous integration.

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 6 (version 1.6.731.4) or earlier, you must upgrade Connector for Microsoft Dynamics and manually reconfigure Connector for your ERP system. Alternatively, you could use the Microsoft Dynamics CRM 2011 adapter, as explained in [Upgrading to the Microsoft Dynamics CRM 2011 adapter](#).

1. Open Connector for Microsoft Dynamics. Inactivate all maps for the integrations.
2. Upgrade Microsoft Dynamics CRM 4.0 to Microsoft Dynamics CRM 2011.
3. Upgrade the Connector for Microsoft Dynamics.
4. To continue using the Microsoft Dynamics CRM adapter settings, you must manually import ERP solutions. For more information, see the [Connector for Microsoft Dynamics installation guide](#).
5. Open Connector for Microsoft Dynamics. Click **Adapter Settings**, select your Microsoft Dynamics CRM adapter, and then run the Microsoft Dynamics CRM Adapter Configuration utility. For more information, see the [Connector for Microsoft Dynamics installation guide](#).
6. When the Configuration utility has finished running, activate maps for the integrations again and continue integrating data.

Upgrade Microsoft Dynamics AX

When you perform maintenance on Microsoft Dynamics AX, we recommend that you inactivate all maps in Connector for Microsoft Dynamics. After maintenance is complete, start the Connector for Microsoft Dynamics service again and activate your maps. This ensures that Connector for Microsoft Dynamics is not running queries on the ERP system during maintenance.

Integrate existing Microsoft Dynamics data

Connector for Microsoft Dynamics is designed to integrate data between Microsoft Dynamics AX and Microsoft Dynamics CRM in the following scenarios:

- New Microsoft Dynamics AX and Microsoft Dynamics CRM application installations
- Existing Microsoft Dynamics AX installation and new Microsoft Dynamics CRM installation or existing Microsoft Dynamics CRM installation and new Microsoft Dynamics AX installation
- Both Microsoft Dynamics AX and Microsoft Dynamics CRM existing installations

Data can exist in one or both applications. If you are using Connector for Microsoft Dynamics with existing installations of the applications, this affects some of the maps that you will use during the initial data synchronization process.

Note: If you have existing installations of the applications, we recommend that you set up duplicate detection in Microsoft Dynamics CRM before you synchronize the data. For more information about duplicate detection, see [Connector for Microsoft Dynamics installation guide](#).

Installation

Before installing Connector for Microsoft Dynamics, your system must meet the system requirements as listed in [System requirements](#).

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

Install hotfix 2414338 for Microsoft Dynamics AX 2009

If you are running Microsoft Dynamics AX 2009 and do not have Rollup 6 or Rollup 7 installed, install the hotfix listed in Knowledge Base article 2414338 on PartnerSource and CustomerSource ([https://mbs2.microsoft.com/Knowledgebase/KBDisplay.aspx?scid=kb\\$en-us\\$2414338](https://mbs2.microsoft.com/Knowledgebase/KBDisplay.aspx?scid=kb$en-us$2414338)). This hotfix makes the necessary changes to AIF for integration with Microsoft Dynamics CRM.

Note: Microsoft Dynamics AX 2009 SP1 must be installed prior to installing the hotfix.

For more information, see "Applying hotfixes" on TechNet (<http://technet.microsoft.com/en-us/library/dd309682.aspx>).

Note: If you have already installed Rollup 6 or Update Rollup 7, this hotfix is included in those updates and you do not need to install this hotfix.

Configure IIS 7 to host WCF Services for Microsoft Dynamics AX 2009

If you are running Microsoft Dynamics AX 2009 and are installing AIF on Windows Server 2008, you must configure IIS 7 to host the WCF. To configure the server, see "How to: Call an AIF Web Service from C#" on MSDN (<http://msdn.microsoft.com/en-us/library/cc652581.aspx>).

Track child entities in Microsoft Dynamics AX 2012

Updates to child entities of integrated entities in Microsoft Dynamics AX 2012 are not integrated into Microsoft Dynamics CRM by default. To integrate child entities, you must select the **Change Tracking** option in Microsoft Dynamics AX 2012. For more information, see "Enable and Disable Change Tracking (SQL Server)" on MSDN (<http://msdn.microsoft.com/en-us/library/bb964713.aspx>).

If **Change Tracking** is enabled after the **DynamicsConnector.xpo** or **DynamicsConnectorR2.xpo** file is imported into Microsoft Dynamics AX 2012, you must activate the tracking option. Open Microsoft Dynamics AX 2012, and then press Ctrl+D to open the Application Object Tree (**AOT**). Expand the **Classes** node, and then expand the **DynamicsConnector** class. Right-click the **Main** method, select **View Code**, and then click the **Go** button.

Import ConnectorForMicrosoftDynamics.xpo files

To support the integration to Microsoft Dynamics CRM, you must import additional changes for Microsoft Dynamics AX 2009 and Microsoft Dynamics AX 2012. For more information about importing .xpo files, see "How to: Import Integration Objects into Microsoft Dynamics AX" on MSDN (<http://msdn.microsoft.com/en-us/library/bb986835.aspx>).

Note: The **DynamicsConnector.xpo** and **DynamicsConnectorR2.xpo** files modify several tables in Microsoft Dynamics AX. If you have modified tables in Microsoft Dynamics AX, you must merge your modifications with the changes that are made by the .xpo file. For example, the .xpo file adds the **DAXIntegrationId** column to the bi-directional entity tables. This GUID column allows the Microsoft Dynamics CRM key for a specific record to be stored in the corresponding Microsoft Dynamics AX record. This value is also mapped to the integration or key field for a corresponding Microsoft Dynamics CRM entity when the records are integrated.

Import .xpo files in Microsoft Dynamics AX 2009

1. Download the **ConnectorForMicrosoftDynamics.xpo** file from PartnerSource or from your Microsoft Partner.
2. Open the Microsoft Dynamics AX 2009 client. (Go to **Start**, select **All Programs**, and then select **Microsoft Dynamics AX 2009**)
3. On the toolbar, click **Application Object Tree** or press Ctrl+D.
4. In the **AOT** window, click **Import**.
5. Click **Browse** and select the **ConnectorForMicrosoftDynamics.xpo** file from step 1. Click **Open**.
6. In the **Import** area, select **Only application objects**.
7. Click **OK** to import the .xpo file.
8. Select the **Show details** check box, and then compare the application objects in the .xpo file to your current environment. Click **Compare** to merge any modifications.

Note: The **ConnectorForMicrosoftDynamics.xpo** file modifies several tables. If you have modified tables in Microsoft Dynamics AX, you must use the **Compare** tool to merge your modification with the changes that are made by the .xpo file. For more information, see "Compare tool" on MSDN (<http://msdn.microsoft.com/en-us/library/aa849010.aspx>).

9. After the .xpo file is successfully imported, add a web site for AIF to use and validate the web site. For more information, see "Configure Web sites for document exchange" on TechNet (<http://technet.microsoft.com/en-us/library/aa570093.aspx>).
10. Open Microsoft Dynamics AX. Go to **Application Object Tree (AOT)**, select **Classes**, and then select **ConnectorForMicrosoftDynamicsSetup**. Select the "main" method.
11. Click **Go** on the toolbar or press F5.
12. Repeat steps 10 and 11 for all companies that need to be integrated. To change companies for integration, follow one of the procedures below:
 - In the address bar of Microsoft Dynamics AX, click the drop-down arrow and select the next company.
 - Click the company ID in the status bar at the bottom of the window. Select the next company and click **OK**.

13. Update the web.config file to configure the services to use all wsHttpBinding, as shown in this example:

```
<system.serviceModel>
  <bindings>
    <basicHttpBinding>
      <binding name="basicHttpBindingWindowsAuth">
        <security mode="TransportCredentialOnly">
          <transport clientCredentialType="Windows" />
        </security>
      </binding>
    </basicHttpBinding>
    <wsHttpBinding>
      <binding name = "wsHttpWindowsAuthAif" />
    </wsHttpBinding>
  </bindings>

  <services>
    <service behaviorConfiguration="serviceBehaviorConfiguration"
      name="Microsoft.Dynamics.IntegrationFramework.Service.CustomerService">
      <endpoint address="" binding="wsHttpBinding" bindingConfiguration="wsHttpWindowsAuthAif"
        bindingNamespace="http://schemas.microsoft.com/dynamics/2008/01/services"
        contract="Microsoft.Dynamics.IntegrationFramework.Service.CustomerService" />
    </service>
  </services>
```

14. Update the web.config file to remove or comment out the httpModules for the services, as shown in this example:

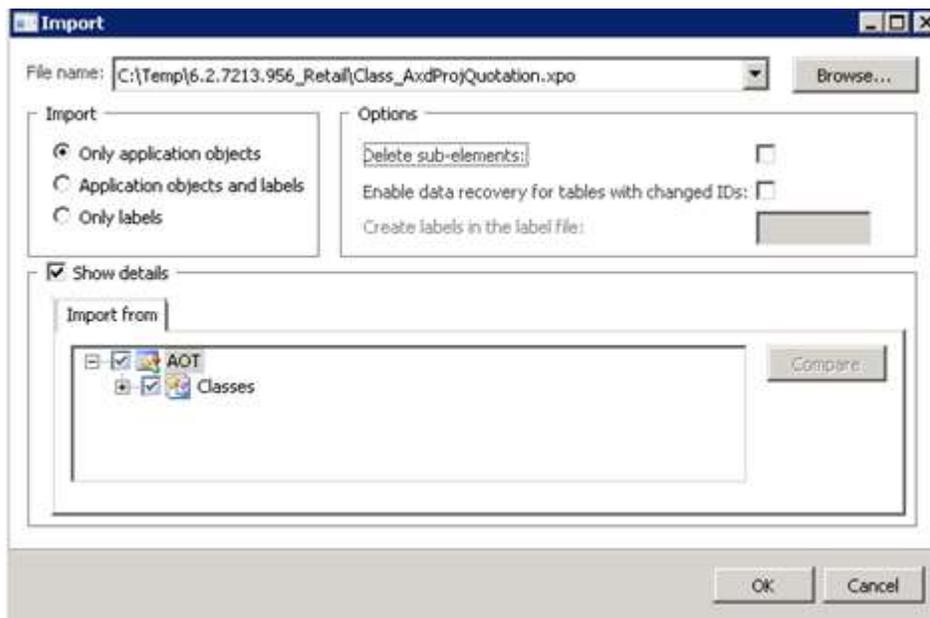
```
<httpModules>
  <add name="WindowsAuthentication"
    type="System.Web.Security.WindowsAuthenticationModule" />
  <add name="UrlAuthorization"
    type="System.Web.Security.UrlAuthorizationModule" />
  <add name="FileAuthorization"
    type="System.Web.Security.FileAuthorizationModule" />
</httpModules>
```

Important: Every time services are generated in Microsoft Dynamics AX under **Basic > Setup > Application Integration Framework > Services**, the web.config file is overwritten and the changes made to the bindings are lost. We recommend that you make the changes to the web.config file and back up the file. When you generate the services again, and if you have not added or changed services, replace the web.config file with the backup copy. If you have added new services, modify but DO NOT replace the web.config file.

Import .xpo files in Microsoft Dynamics AX 2012

1. Download one of the following files from PartnerSource or from your Microsoft Partner:
 - For Microsoft Dynamics AX, download the **DynamicsConnector.xpo** file.
 - For Microsoft Dynamics AX R2, download the **DynamicsConnectorR2.xpo** file.

Note: If you have Microsoft Dynamics AX 2012 R2 with Cumulative Update 6, skip this step and continue to step 10 below.
2. Open the Microsoft Dynamics AX 2012 client. (Click **Start**, select **All Programs**, and then select **Microsoft Dynamics AX 2012**)
3. On the toolbar, click the **New Development Workspace** icon or press Shift+Ctrl+W.
4. In the **AOT** window, click **Import**.
5. Click **Browse** and select the .xpo file that you downloaded in step 1. Click **Open**.
6. In the **Import** area, select **Only application objects**.



7. Under the **Options** group, clear the **Delete sub-elements** check box.
8. Select the **Show details** check box and compare the application objects in the .xpo file to your current environment. Click **Compare** to merge any modifications.

Note: The **DynamicsConnector.xpo** and **DynamicsConnectorR2.xpo** files modify several tables. If you have modified tables in Microsoft Dynamics AX, you must use the **Compare** tool to merge your modifications with the changes made by the .xpo file. For more information, see "Compare tool" on MSDN (<http://msdn.microsoft.com/en-us/library/aa849010.aspx>).

9. Click **OK** to import the .xpo file.

10. In Microsoft Dynamics AX 2012, open the **Classes** node in the **AOT** and locate the **DynamicsConnector** class (or **ConnectorHelper** class if you have Microsoft Dynamics AX 2012 R2 with Cumulative Update 6).
11. Expand the **DynamicsConnector** class or **ConnectorHelper** class (for Cumulative Update 6) and locate the main method. Right-click the **Main** method and select **View Code**. Click the **Go** button to pre-populate the required data and deploy the **DynamicsConnectorDefaultServices** port.

Create the ERP Integration account

Connector for Microsoft Dynamics uses several different accounts during installation, including the ERP Integration account. This account is used to connect to Microsoft Dynamics AX. You must create this account and set up security permissions in Microsoft Dynamics AX before you set up Connector for Microsoft Dynamics.

System	Requirements
Microsoft Dynamics AX 2009	<p>This user account must:</p> <ul style="list-style-type: none"> • Be a valid user in Microsoft Dynamics AX 2009. • Be assigned to the System Administrator role or have assigned privileges. <p>For more information, see Create the ERP Integration account in Microsoft Dynamics AX 2009.</p>
Microsoft Dynamics AX 2012	<p>This user account must:</p> <ul style="list-style-type: none"> • Be a valid user in Microsoft Dynamics AX 2012. • Be assigned to the System Administrator role. <p>For more information, see Create the ERP Integration account in Microsoft Dynamics AX 2012.</p>

For more information about other user accounts and Connector for Microsoft Dynamics, see the [Connector for Microsoft Dynamics installation guide](#).

Create the ERP Integration account in Microsoft Dynamics AX 2009

This procedure creates an account with the least number of privileges in the Microsoft Dynamics AX 2009 database.

Note: You may also use a system administrator account for the integration account. If you do so, then skip these procedures.

1. In Microsoft Dynamics AX 2009, click **Administration**, select **Setup**, and then select **User groups**.
2. On the **Groups** tab, create a user group named **Connector**.
3. Click the **Users** tab, and add the ERP Integration account or users to the **Connector** user group. Press Ctrl+S to save changes.
4. Click **Basic**, select **AIF**, and then select **End points**. Add the **Connector** group to the **DAXIntegration** end point.
5. Click **Administration**, select **User groups**, select **Connector**, select **Permission**, and then click the **Permission** tab.

6. Set up the following permissions for the **Connector** user group.

Security key	Permissions
Accounts Receivable	<ul style="list-style-type: none"> Grant Full permission to Tables and Services All other items should have No Access
Basic	<ul style="list-style-type: none"> Grant Full permission to Dimension, Tables and Services All other items should have No Access
General Ledger	<ul style="list-style-type: none"> Grant Full permission to Tables and Services All other items should have No Access
Inventory management	<ul style="list-style-type: none"> Grant Full permission to Tables and Services All other items should have No Access

Create the ERP Integration account in Microsoft Dynamics AX 2012

For Microsoft Dynamics AX 2012, the ERP Integration account must be a valid user account in Microsoft Dynamics AX 2012 and must be assigned to the System Administrator role. For more information about creating user accounts, see "Create new users" on TechNet (<http://technet.microsoft.com/en-us/library/aa548139.aspx>).

Note: The Microsoft Dynamics AX 2012 Configuration utility uses Windows Authentication to log on to Microsoft Dynamics AX 2012. This account must have adequate permissions in Microsoft Dynamics AX 2012, or the Configuration utility displays the following message: "An error has occurred and the application must close."

For Microsoft Dynamics AX 2012 R2, the ERP Integration account must have an administrative role for each partition to integrate companies from that partition. If the ERP Integration account is a System Administrator in two partitions, then only companies from those two partitions are displayed during configuration and can be integrated by the ERP Integration account.

Install Connector for Microsoft Dynamics

Connector for Microsoft Dynamics must be installed before you can configure it for Microsoft Dynamics AX.

Note: If you are integrating with Microsoft Dynamics AX 2012 R2 with Cumulative Update 7, you can install Connector for Microsoft Dynamics using the Microsoft Dynamics AX installer and skip this procedure. For more information, see the installation procedures on TechNet (<http://go.microsoft.com/fwlink/?LinkId=325386>).

1. Install Connector for Microsoft Dynamics.
2. Double-click **Connector for Microsoft Dynamics AX.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.
Note: The MSDI database does not need to be on the same physical server as Connector for Microsoft Dynamics.
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 the [Connector for Microsoft Dynamics installation guide](#).
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.
10. Continue to [Configuration](#).

Tips:

- Connector for Microsoft Dynamics does not need to be installed on the same computer as Microsoft Dynamics CRM or Microsoft Dynamics AX. However, it does require a network connection that allows it to communicate with the web services exposed by these systems and to the SQL Server instance where the MSDI database is located.
- Connector for Microsoft Dynamics should be installed on a computer that is located in the same time zone as the Microsoft Dynamics AX database.

Configuration

Before you can integrate data between Microsoft Dynamics CRM and Microsoft Dynamics AX, you must configure adapter settings and create integrations. The following sections explain how to configure Connector for Microsoft Dynamics for use with Microsoft Dynamics AX.

Note: You must complete these procedures in order, or Connector for Microsoft Dynamics will not operate correctly and data will not be synchronized between Microsoft Dynamics CRM and Microsoft Dynamics AX.

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

1. Configure adapter settings and organizations for Microsoft Dynamics CRM.
2. Configure adapter settings for Microsoft Dynamics AX.
3. Create an integration.
4. Set up duplicate detection (optional).
5. Prepare the data for synchronization.
6. Run initial data synchronization

Configure adapter settings and organizations for Microsoft Dynamics CRM

Before you can integrate data between Microsoft Dynamics CRM and Microsoft Dynamics AX, you must provide settings for the adapters and organizations that the integration process will use. For configuration procedures for the Microsoft Dynamics CRM adapter, see the [Connector for Microsoft Dynamics installation guide](#).

Configure adapter settings for Microsoft Dynamics AX

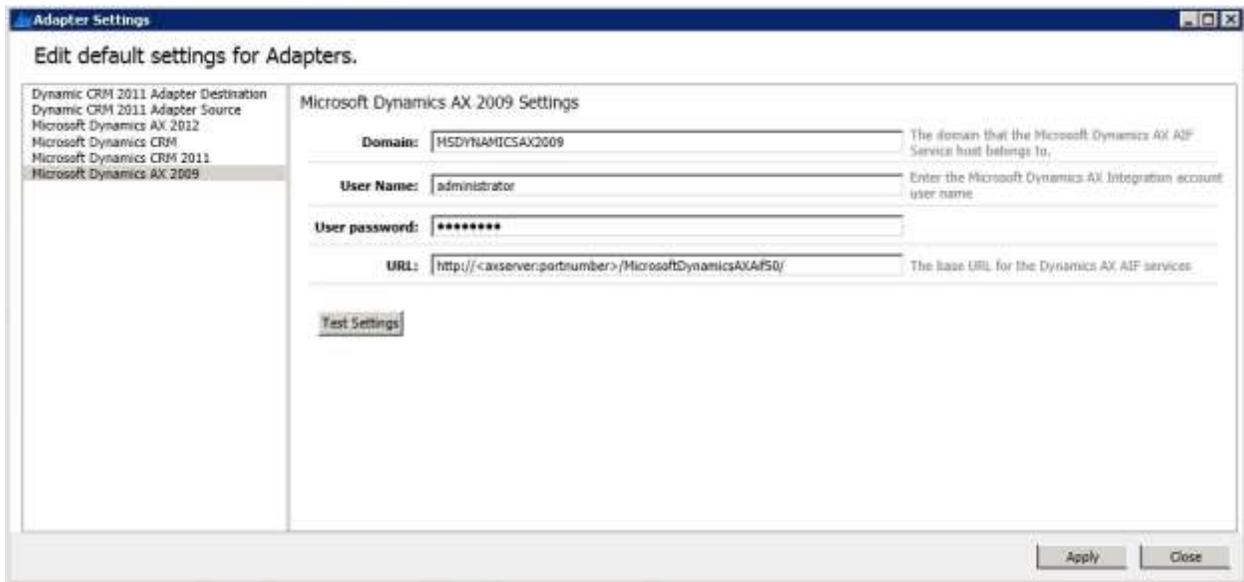
Before you can run an integration, you must provide settings for the adapters that the integration process will use. The first time that you start the client application after installation or upgrade, the **Adapter Settings** window is displayed so that you can enter settings for the adapters that were installed.

Configure the Microsoft Dynamics AX 2009 adapter

Note: Before configuring these settings and registering Connector for Microsoft Dynamics, verify that the Microsoft Dynamics AX Object Server 5.0\$01-DynamicsAX1 service is started. If the service is not started, the settings configuration will not complete.

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 AX 2009**.



4. Enter the domain name and the port that the Microsoft Dynamics AX 2009 server belongs to.
5. Enter the user name and password for the ERP Integration account. For more information about this account, see [Create the ERP Integration account](#).
6. Update the base URL for the Microsoft Dynamics AIF web services to use the correct host name and virtual directory.
7. Click **Test Settings** to connect to the Microsoft Dynamics AIF web service using the information that you entered.
8. Click **Apply**.
9. Continue to [Create an integration](#).

Configure the Microsoft Dynamics AX 2012 adapter

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 AX 2012**.

The screenshot shows the 'Adapter Settings' window with the 'Microsoft Dynamics AX 2012 Settings' tab selected. The window title is 'Adapter Settings' and the subtitle is 'Edit default settings for Adapters.' The left pane lists several adapter options, with 'Microsoft Dynamics AX 2012' selected. The main area contains the following fields and descriptions:

Field	Description
AOS Server Name: HSDynamicsAX	The AOS Server name.
Document Port: 8101	The Document Port that is assigned to the AOS Server's document services.
Services Port: 8201	The Services Port that is assigned to the AOS Server's system services.
Domain: HSDynamicsAX	The domain that the AOS server and Integration account belong to.
User Name: administrator	Enter the Microsoft Dynamics AX Integration account user name without the domain.
Password: [Redacted]	

Below the fields, there is a link for 'AX 2012 Configuration Utility: [Configure Microsoft Dynamics AX 2012](#)' and a 'Test Settings' button. At the bottom right, there are 'Apply' and 'Close' buttons.

4. Enter the information in the following fields:
 - a. The domain name that the Microsoft Dynamics AX 2012 server belongs to, and the port number and services port number of the Application Object Server (AOS) server.
 - b. The user name and password for the ERP Integration account. Do not include the domain name with the user name. For more information about this account, see [Create the ERP Integration account](#).

Note: If you installed Connector using the installer for Microsoft Dynamics AX 2012 with Cumulative Update 7, information is entered in these fields automatically.

5. Click **Test Settings** to connect to the AOS server using the information that you entered. If the connection does not succeed, adjust the adapter settings.

6. Click **Configure Microsoft Dynamics AX 2012** to open the Microsoft Dynamics AX 2012 Adapter Configuration window.

This utility will assist you in configuring your Microsoft Dynamics AX 2012 installation to work with Connector for Microsoft Dynamics. Fill in the following information and click 'Refresh services'. You must be a valid user in Microsoft Dynamics AX 2012 in order to retrieve a list of available document services.

AOS Server Name:

Document Service Port:

System Service Port:

The following is a list of available document services. Select the services that you want to expose for integration and click 'Configure'. Services without checkboxes are automatically configured.

Available Document Services:

DynamicsConnectorDefaultServices

- ... ConnCustomerOrgService: (ReadWrite) (Create Read Update Delete GetChangedKeys FindKeys)
- ... ConnEmployeesService: (ReadOnly) (Read GetChangedKeys FindKeys)
- ... ConnExchRateService: (ReadOnly) (Read GetChangedKeys FindKeys)
- ... ConnInvoiceService: (ReadOnly) (Read GetChangedKeys FindKeys)
- ... ConnItemSvcService: (ReadOnly) (Read GetChangedKeys FindKeys)
- ... ContactPersonsService: (ReadWrite) (Create Read Update Delete GetChangedKeys FindKeys)
- ... SalesOrderService: (ReadWrite) (Create Read Update Delete GetChangedKeys FindKeys)
- ... UnitOfMeasureUnitConversionService: (ReadOnly) (Read GetChangedKeys FindKeys)
- ... UnitOfMeasureUnitService: (ReadOnly) (Read GetChangedKeys FindKeys)

7. Enter the name, document port number, and service port number of an instance of AOS to connect to. If you entered this data in the **Adapter configuration** window, this information is automatically populated.

Note: The Configuration utility uses the credentials of the user who is currently logged on to the system.

8. Click **Refresh services** to display the document services that are available. The Configuration utility displays whether a service is read-only or read-write.
9. Select the services to integrate, and click **Configure**.

Note: Document services under **DynamicsConnectorDefaultServices** are selected by default and cannot be cleared. These services are required for the default map templates to integrate correctly.

10. When the "Configuration complete" message is displayed, click **OK** and then close the Configuration utility.

11. Click **Apply** to save the adapter settings.

12. Continue to [Create an integration](#).

Tips for configuring Microsoft Dynamics AX 2012

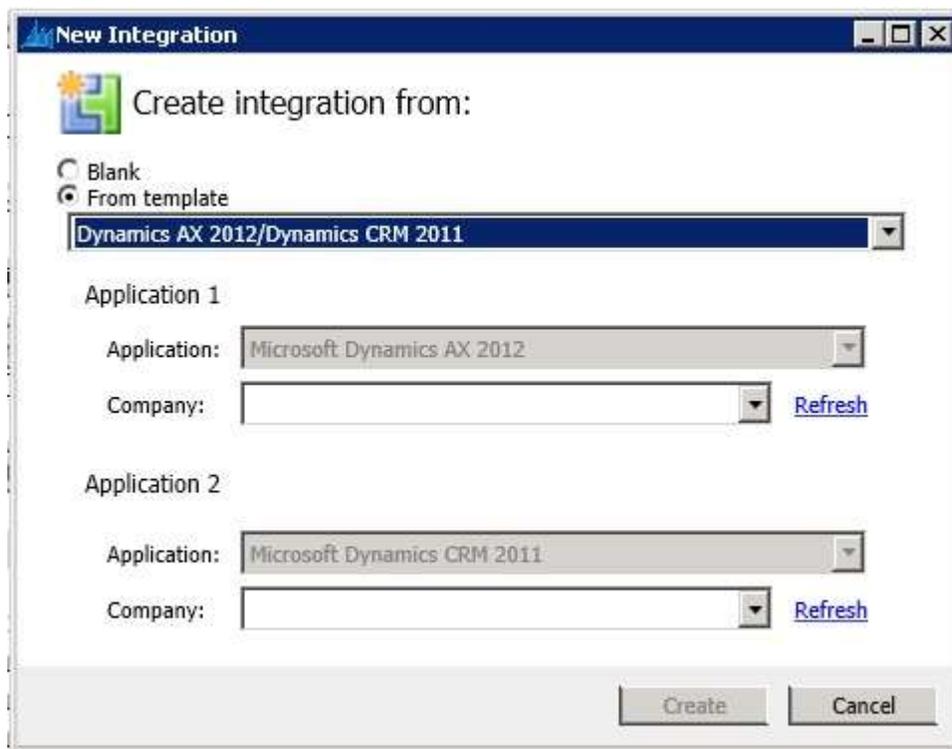
- The Microsoft Dynamics AX 2012 Configuration utility uses Windows Authentication to log on to Microsoft Dynamics AX 2012. The user account that you use for this configuration must have adequate permissions in Microsoft Dynamics AX 2012, or the Configuration utility displays the following message: "An error has occurred and the application must close." For more information, see [Create the ERP Integration account](#).
- The Microsoft Dynamics AX .xpo files must be imported before the Configuration utility can function properly. If you click **Refresh services** and no services are returned, verify that the .xpo files have been imported. For more information, see [Import .xpo files in Microsoft Dynamics AX 2012](#).
- For Microsoft Dynamics AX 2012 R2, the ERP Integration account must have an administrative role for each partition to integrate companies from that partition. If the ERP Integration account is a System Administrator in two partitions, then only companies from those two partitions are displayed during configuration and can be integrated by the ERP Integration account.
- Only Document Services are available in the Microsoft Dynamics AX 2012 Configuration utility. To verify that a service is a Document Service, open the **AOT** by pressing Ctrl+D, open the **Classes** node, and locate the **Service** class. The **classDeclaration** code should extend from **AifDocumentService**.
- Any existing services that are configured are merged with older versions of the object definitions, and data from the existing object definition is updated with new data from the service. Currently only the following data is retained: The display name, the **IsReadOnly** and **IsRequired** attributes on every field definition, and the ID custom attribute on the root definition.

When a new integration is created after services are configured, any Read-Only services are listed as sources, and Read-Write services are displayed as sources and destinations.

Create an integration

An integration is a collection of active or inactive maps for one source/destination system combination. You must create an integration and activate maps before you can synchronize data between two Microsoft Dynamics applications. For more information about activating maps, see "Configuring map settings" in the [Connector for Microsoft Dynamics installation guide](#).

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 **New Integration** window is not open, click **New Integration**.
3. Select one of the following options:
 - **Blank** – Create a blank integration where you must create maps manually. Skip to step 5.
 - **From template** – Create a new integration from an integration template.



4. Select the template option for your version of Microsoft Dynamics AX.
5. Select the Microsoft Dynamics AX company to integrate. If the company list is empty, verify that you entered your Microsoft Dynamics AX adapter settings correctly and click **Refresh** to attempt to retrieve the list of companies again. For more information, see [Configure adapter settings for Microsoft Dynamics AX](#).

6. Select the Microsoft Dynamics CRM company to integrate. If the company list is empty, verify that you entered your Connector for Microsoft Dynamics settings correctly and you have completed the Microsoft Dynamics CRM Adapter Configuration utility for each organization to integrate. Click **Refresh** to attempt to retrieve the list of companies again. For more information, see [Configure adapter settings for Microsoft Dynamics AX](#).

7. Click **Create**.

Note: When you create a new integration from a template, the date in the **Check for data modified after** field is set to the current date for the following maps:

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

If you have previously integrated sales orders or invoices using another integration solution, setting the **Check for data modified after** date to the current date will help to ensure that older sales orders and invoices are not integrated again and that duplicates are not created. 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 about how to change the data modification date, see the [Connector for Microsoft Dynamics installation guide](#).

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

8. Continue to [Data preparation](#).

Data preparation

To help ensure a smooth integration, some system settings and data values must be reviewed before data can be synchronized between Microsoft Dynamics AX and Microsoft Dynamics CRM. Follow the procedures below to prepare your system for initial data synchronization.

Note: The procedures listed in this document assume that installation is complete and that you have set up an integration for a Microsoft Dynamics AX company and Microsoft Dynamics CRM organization. If you have not yet completed the installation process, see the [Connector for Microsoft Dynamics installation guide](#).

Verify customizations for Microsoft Dynamics CRM 4.0

If you are integrating with Microsoft Dynamics CRM 4.0, or if you are using the Microsoft Dynamics CRM 4.0 adapter, certain customizations were applied during the installation process. You must make sure that the customizations for Microsoft Dynamics CRM 4.0 have been deployed as explained in [Upgrading Connector for Microsoft Dynamics](#). If you did not install these customizations during installation or have not manually applied the customizations, you must do so before initial data synchronization, or certain features in Connector for Microsoft Dynamics will not operate correctly.

If you have existing Microsoft Dynamics CRM 4.0 customizations, you must apply the customizations manually. To do so, download the **Microsoft.Dynamics.Tools.MergeCustomizations.zip** file from the Connector for Microsoft Dynamics download page on PartnerSource or from your Partner. See the Readme.doc in the .zip file for more information.

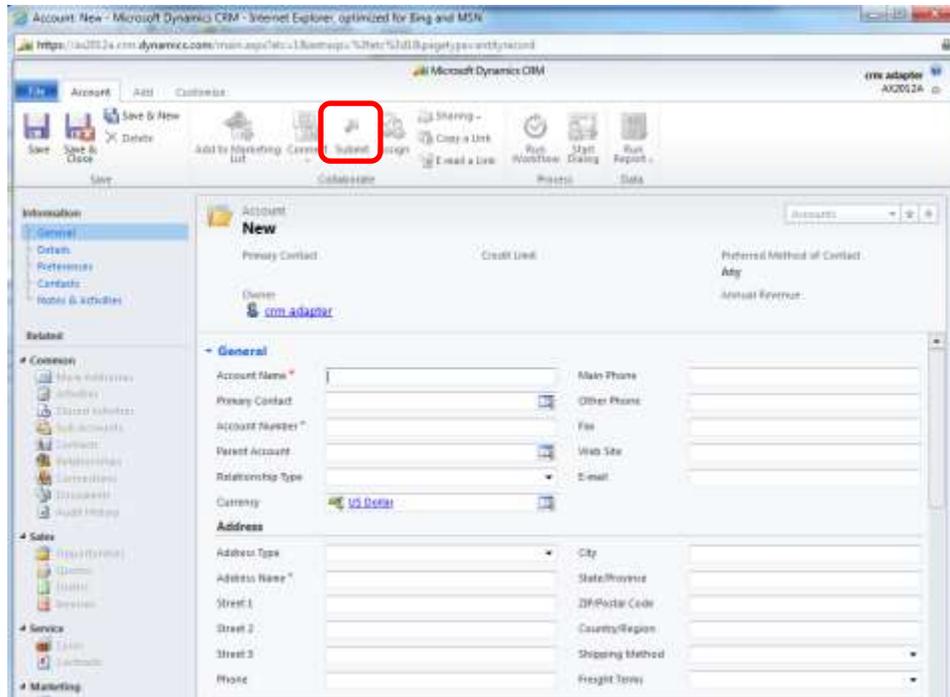
If you do not have existing Microsoft Dynamics CRM 4.0 customizations, you can import the necessary customizations by running the Microsoft Dynamics CRM Adapter Configuration utility. For more information about this Configuration utility, see the [Connector for Microsoft Dynamics installation guide](#).

Note: If you are integrating with Microsoft Dynamics CRM 2011, these customizations were imported and merged during the Microsoft Dynamics CRM 2011 Configuration utility, and you can skip this procedure.

Verify that the Connector for Microsoft Dynamics customizations for Microsoft Dynamics CRM have been properly installed.

1. Open Microsoft Dynamics CRM for the organization that you are integrating with.
2. In the navigation pane, under the **Sales** node, select **Accounts**. Click **New**.
3. Make sure that the **Submit** option is visible in the top command bar. If you do not see this option, then the Connector for Microsoft Dynamics customizations are not properly installed.

Note: The **Submit** button is not active until after the record has been saved.



Verify map modifications

Before initial data synchronization, you must make sure that the integration maps are set up for your business needs. The map templates are set up to work without customizations and will integrate all data that is common in both applications (Microsoft Dynamics CRM and Microsoft Dynamics AX).

If there is any data mapped that you do not want to integrate, or if there is data that is not mapped that you do want to integrate, we recommend that you make these modifications now, or these modifications are not included in the initial data synchronization process.

Translate enumerated values

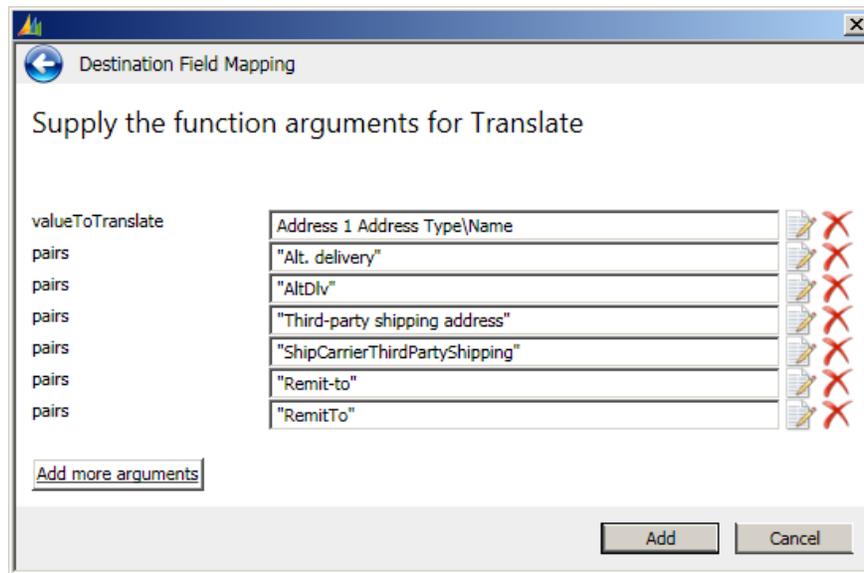
If you have installed language packs for Microsoft Dynamics CRM, and you want to use these language packs for integration with Microsoft Dynamics AX, you can use the **Translate** function to localize the enumerated value sets.

Note: Microsoft Dynamics CRM and Microsoft Dynamics AX must have the same base language. The **Translate** function changes the displayed values only.

To change these enumerated values and picklist values, follow the procedures below.

1. In Microsoft Dynamics CRM, manually change the picklist value **Label** field to match the **Enumerated Value Label** field in Microsoft Dynamics AX.
2. Open Connector for Microsoft Dynamics and select the affected map. Update the mapping functions for each affected field with the **Translate** function.
 - a. For maps that integrate data from Microsoft Dynamics CRM to Microsoft Dynamics AX, pair the modified picklist value **Label** from step 1 with the **AXEnumName** value.

For example, pair the Microsoft Dynamics CRM Address\Address Type label **Alt. delivery** with the Microsoft Dynamics AX AddressType Enum **AltDiv**.



- b. For maps that integrate data from Microsoft Dynamics AX to Microsoft Dynamics CRM, pair the **AXEnumName** with the modified picklist value **Label** from step 1.

For example, pair the Microsoft Dynamics AX AddressType Enum **AltDiv** with the Microsoft Dynamics CRM Address\Address Type label **Alt. delivery**.

3. Click **Add** to add the function to the map.

Data synchronization

Before you can integrate data between Microsoft Dynamics CRM and Microsoft Dynamics AX, you must synchronize the data in both systems. After initial data synchronization, you can run integrations on a regular schedule.

The recommended map run order is listed below, and the synchronization procedures provide additional information about each map.

Note: If there are deleted entries in Microsoft Dynamics AX, information for those entries will not be available for integration. Only current entries in Microsoft Dynamics AX are available for data synchronization and integration.

Recommended map run order

The initial data synchronization process uses several individual maps to integrate data between Microsoft Dynamics AX and Microsoft Dynamics CRM. We recommend that you run integrations in the following order to minimize data dependencies during synchronization.

1. Map enumerated values.
2. Map employees and ERP system users.

Note: After this map runs successfully, you must associate Microsoft Dynamics CRM users with ERP system users before you run the next maps.

3. Map unit schedules and unit groups.
4. Map currency information.
5. Map items and products.
6. Map customers and accounts.
7. Map contact information.
8. Map sales orders.
9. Map sales invoices.

Note: During the initial data synchronization process, exceptions might appear. This might occur due to data that has not been integrated yet. The recommended map run order is designed to minimize exceptions and keep the log file as clean as possible.

If exception messages for missing data are displayed during initial data synchronization, complete the procedures for the recommended map run order. The system will automatically retry exceptions that are due to missing data.

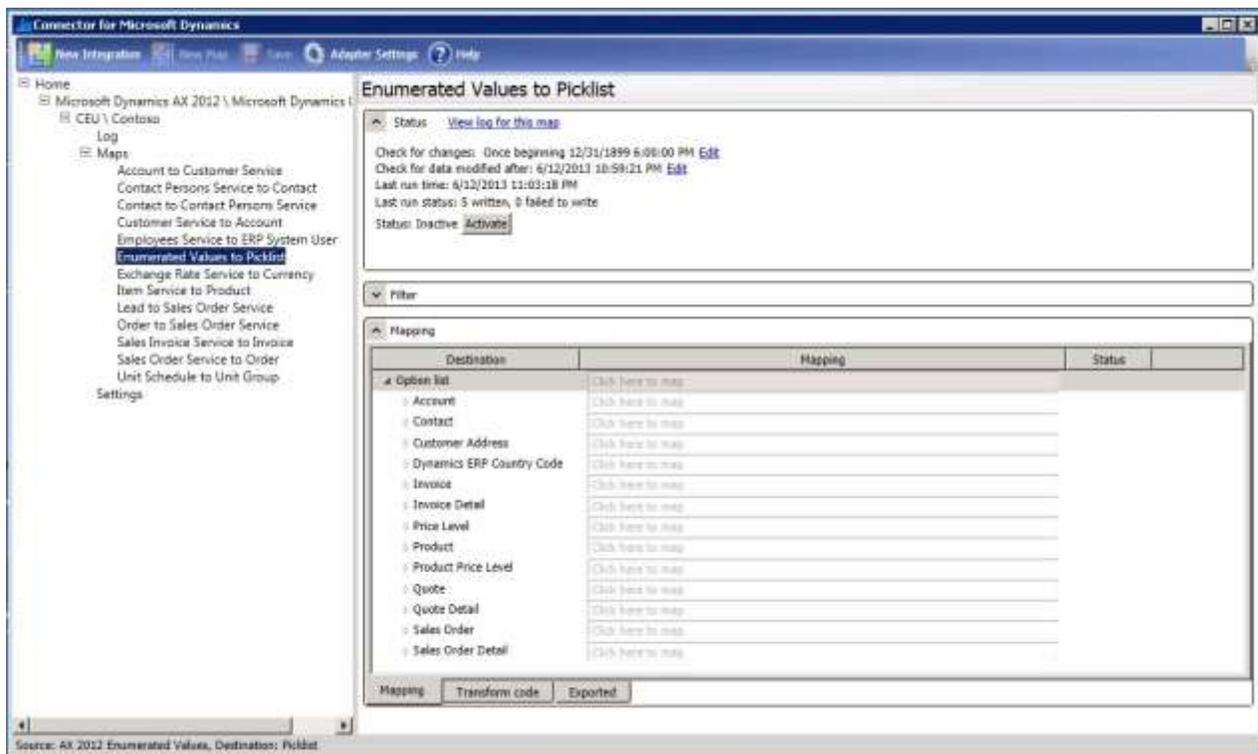
Map enumerated values

With Connector for Microsoft Dynamics, data found in Microsoft Dynamics AX is compared to data found in Microsoft Dynamics CRM, but there is a subset of data that must be synchronized between the two applications before the balance of the data can be successfully integrated. These data values must be identical in both end point applications. The **AX Enumerated Values to Picklist** and **Enumerated Values to Picklist** maps synchronize these necessary data points before other, more detailed, maps are run.

Note: This should be the first map that you run after you have created a new integration and configured your Microsoft Dynamics CRM organizations in Connector for Microsoft Dynamics, and before you begin activating other maps..

1. Verify that you have entered all your enumerated values in Microsoft Dynamics AX or Microsoft Dynamics CRM. For a list of the enumerated values to be synchronized, see [Picklist synchronized data](#).
2. Open Connector for Microsoft Dynamics.
3. Go to the integration to work with, and then click the **Maps** node in the left pane.
4. Select the **AX Enumerated Values to Picklist** or **Enumerated Values to Picklist** map.

If you do not want to change any of the default settings for the map, go to step 5. To customize map settings, see the [Connector for Microsoft Dynamics installation guide](#).



5. In the **Status** area, click **Activate**.
6. Click the **Edit** link next to the **Check for changes** area to open the **Map Run Schedule** window. Change the map run schedule to run once. Make sure that the **Start Date** field value is before the date that you first entered data into Microsoft Dynamics AX. Click **OK** to close the **Map Run Schedule** window.

Note: This map needs to be run only once, or as needed. For example, when a new shipping method is added in Microsoft Dynamics AX, this map should be run in order to integrate that new data. If the map run schedule for this map is set to too short an interval, the map may not complete a full run before the interval refreshes. Exception messages will appear and the integration will not be completed.

7. Click **Save** on the top command bar.

In the **Status** section of the **Map** page, the **Last run** status is displayed. While the integration is running, the **Last run** status is displayed as **Currently running** and displays the numbers of changes found, changes written, deletions found, records deleted, and failures. Wait until the **Currently running** status is no longer displayed and the **Last run** status is displayed to allow the integration to run and move the Microsoft Dynamics AX enumerated values over to Microsoft Dynamics CRM, and the Microsoft Dynamics CRM picklist values to Microsoft Dynamics AX.
8. Verify that all the picklist and enumerated values have been fully integrated.
9. Click the **View log for this map** link at the top of the **Status** section. Review any events that are displayed and fix any issues before proceeding. For more information about reviewing the log file, see the [Connector for Microsoft Dynamics installation guide](#).
10. After this map has run successfully, we recommend that you inactivate it. In the **Status** area, click the **Deactivate** button.

Map employees and ERP system users

This map is required only if you use employees in Microsoft Dynamics AX and want to track employee ownership of sales orders and invoices during integration. This map installs the "ERP system users" custom entity, which is added to Microsoft Dynamics CRM during installation of Connector for Microsoft Dynamics, with Microsoft Dynamics AX employees. After the employee records are integrated, an association must be set up in Microsoft Dynamics CRM that indicates which Microsoft Dynamics AX employee maps to which Microsoft Dynamics CRM user. Microsoft Dynamics AX employee records must first be integrated to Microsoft Dynamics CRM ERP system users.

Note: If you will not be using employees in Microsoft Dynamics AX, you can skip this procedure.

1. Verify that you have entered information for all your employees that are salespeople in Microsoft Dynamics AX.
2. Open Connector for Microsoft Dynamics.
3. Go to the integration to work with, and then click the **Maps** node in the left pane.
4. Select the **Employee to ERP System User** or **Employee Service to ERP System User** map.

If you do not want to change any of the default map settings, go to step 5. To customize map settings, see the [Connector for Microsoft Dynamics installation guide](#).
5. Click the **Edit** link next to the **Check for changes** area to open the **Map Run Schedule** window. Change the schedule to run every 45 seconds. Make sure that the **Start Date** field value is before the date that you first entered data into Microsoft Dynamics AX. Click **OK** to close the **Map Run Schedule** window.

If your business needs require a longer run time, you can set the map run schedule to any duration.

6. Verify that the date listed in the **Check for data modified after** area is before the date that you entered your Microsoft Dynamics AX employee records. To change this date, click the **Edit** link next to the **Check for data modified after** area to open the **Check for data modified after** window. Enter the new value and click **OK**. Start the Connector for Microsoft Dynamics service again.
7. In the **Status** area, click **Activate**.
8. Click **Save** on the top command bar.

In the **Status** section of the **Map** page, the **Last run** status is displayed. While the integration is running, the **Last run** status is displayed as **Currently running** and displays the numbers of changes found, changes written, deletions found, records deleted, and failures. Wait until the **Currently running** status is no longer displayed and the **Last run** status is displayed to allow the integration to run and move the Microsoft Dynamics AX employee records over to Microsoft Dynamics CRM.

9. Open Microsoft Dynamics CRM and go to **Settings**, and select **Users**. Either click **New** and select **User**, or double-click any existing Microsoft Dynamics CRM user to open the **User** window. The **ERP SystemUser ID** property is displayed in the **Organization Information** section of the **User** window. Click the **Lookup** icon beside the field to open the **Look Up Records** window. If no records are displayed, click the **Lookup** icon in the upper-right corner. The Microsoft Dynamics AX employees should be displayed. Verify that all of your Microsoft Dynamics AX employee records have been integrated to Microsoft Dynamics CRM ERP system users.
10. Click the **View log for this map** link at the top of the **Status** section. Review any events that are displayed and fix any issues before proceeding. For more information about reviewing the log file, see the [Connector for Microsoft Dynamics installation guide](#).
11. If you are running this map for the first time or are adding new users, see [Associate Microsoft Dynamics CRM users with ERP system users](#).
12. To change the map run schedule for ongoing integration, repeat step 6 and change the map run schedule to the appropriate settings for this map.

Associate Microsoft Dynamics CRM users with ERP system users

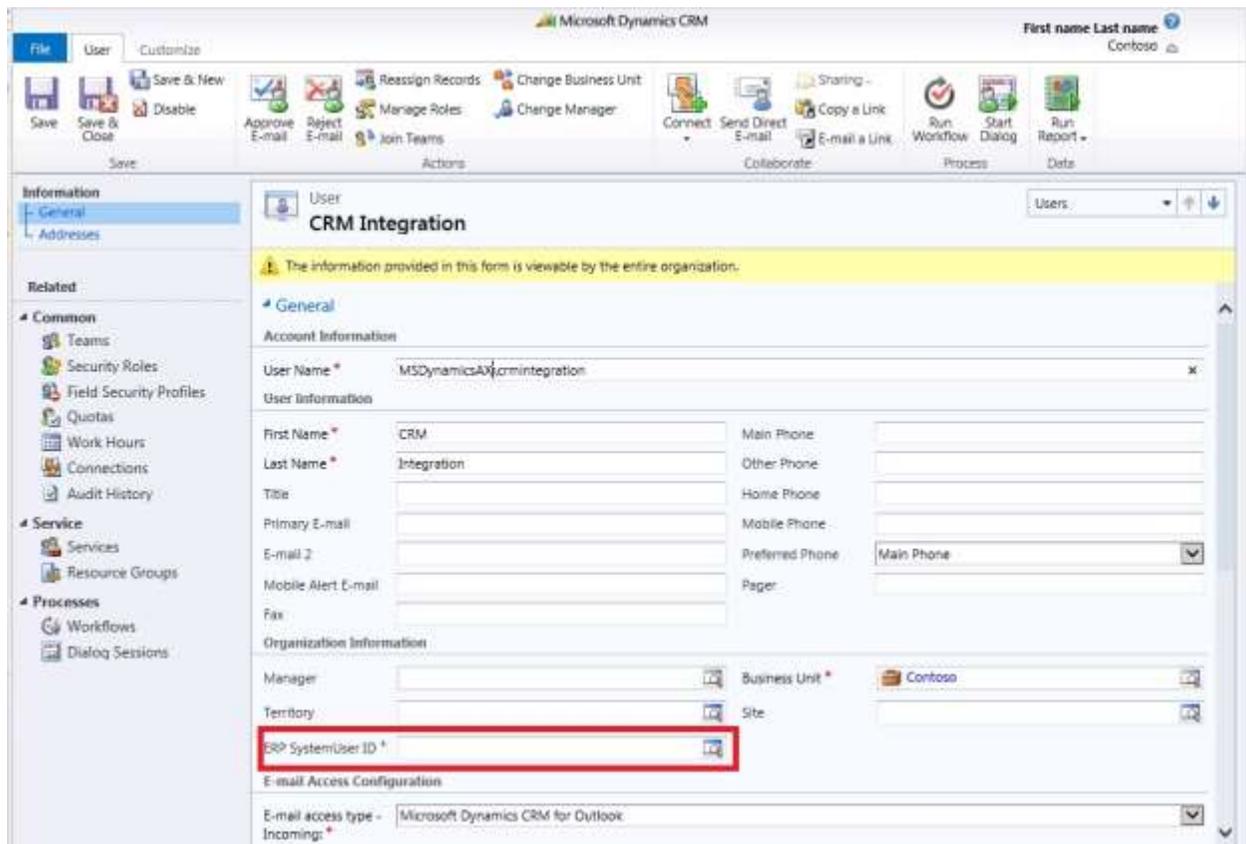
After you activate the **AX Employee to ERP System User** or **Employees Service to ERP System User** map and the map successfully integrates the Microsoft Dynamics AX employee entity with the ERP system user entity in Microsoft Dynamics CRM, you can associate Microsoft Dynamics CRM users with the integrated ERP system user entity within Microsoft Dynamics CRM.

If you do not associate ERP system users with Microsoft Dynamics CRM users before you integrate customer accounts, sales orders, and sales invoices, the owner on all entities that are integrated from Microsoft Dynamics AX are set up as the CRM Integration account user that was specified in the Microsoft Dynamics CRM adapter settings. For more information about the CRM Integration account, see the [Connector for Microsoft Dynamics installation guide](#).

Note: Repeat the following procedure for each Microsoft Dynamics CRM user who is mapped to an ERP system user.

1. Start your web browser and go to your Microsoft Dynamics CRM Workplace.
2. Open the **Users** page. (Click **Settings**, select **Administration**, and then select **Users**)

3. Double-click a user record to open the **User** window.



4. On the **General** tab, locate the **ERP SystemUser ID** field under **Organization Information**. Click the **Lookup** button to search for and select an ERP system user to associate to the user record.
Note: Verify that each ERP SystemUser ID is associated with only one Microsoft Dynamics CRM user.
5. Click **Save** or **Save and Close**.
6. Repeat steps 1 through 5 for each Microsoft Dynamics CRM user.

Map unit schedules and unit groups

Unit schedules do not exist in Microsoft Dynamics AX. Unit groups in Microsoft Dynamics CRM are created from the unit conversion data from Microsoft Dynamics AX, by using the form units to set up the **Schedule Base Unit** in Microsoft Dynamics CRM.

Microsoft Dynamics AX does not contain a **Unit of Measure Schedule** entity like Microsoft Dynamics CRM does. To integrate units of measure between the two systems, the Microsoft Dynamics AX adapter uses the unit conversion and unit services in Microsoft Dynamics AX to create unit of measure schedules to integrate into Microsoft Dynamics CRM.

Note: Connector for Microsoft Dynamics does not support any entries in the **Additional Quantity** column in the **Unit conversion** form in Microsoft Dynamics AX. If you have any existing additional quantities in the **Unit conversion** form, the integration of data into Microsoft Dynamics CRM will not succeed.

1. Verify that you have entered all of your unit schedules in Microsoft Dynamics AX.
2. Open Connector for Microsoft Dynamics.
3. Go to the integration to work with, and then click the **Maps** node in the left pane.
4. Select the **Unit Schedule to Unit Group** map.

If you do not want to change any of the default map settings, go to step 5. To customize map settings, see the [Connector for Microsoft Dynamics installation guide](#).

5. In the **Status** area, click **Activate**.
6. Click the **Edit** link next to the **Check for changes area** to open the **Map Run Schedule** window. Change the map run schedule to run every 45 seconds. Make sure that the **Start Date** field value is before the date that you first entered data into Microsoft Dynamics AX. Click **OK** to close the **Map Run Schedule** window.

If your business needs require a longer run time, you can set the map run schedule to any duration.

7. Verify that the date listed in the **Check for data modified after** area is before the date that you entered your Microsoft Dynamics AX unit schedules. To change this date, click the **Edit** link next to the **Check for data modified after** area to open the **Check for data modified after** window. Enter the new value and click **OK**. Start the Connector for Microsoft Dynamics service again.
8. Click **Save** on the top command bar.

In the **Status** section of the **Map** page, the **Last run** status is displayed. While the integration is running, the **Last run** status is displayed as **Currently running** and displays the numbers of changes found, changes written, deletions found, records deleted, and failures. Wait until the **Currently running** status is no longer displayed and the **Last run** status is displayed to allow the integration to run and move the Microsoft Dynamics AX unit schedules to Microsoft Dynamics CRM.

9. Open Microsoft Dynamics CRM. Go to **Settings**, select **Product Catalog**, and then select **Unit Groups**. All the unit groups that were integrated are displayed. Double-click any existing unit group to open the **Unit Group** window. Click **Units** in the left pane to see all the unit names that integrated for this unit group.
10. Verify that all the unit schedules and unit groups have been fully integrated.
11. Click the **View log for this map** link at the top of the **Status** section. Review any events that are displayed and fix any issues before proceeding. For more information, see "Reviewing the log file" in the [Connector for Microsoft Dynamics installation guide](#).
12. To change the map run schedule for ongoing integration, repeat step 6 and change the map run schedule to the appropriate settings for this map.

Map currency information

When Connector for Microsoft Dynamics is installed, the Microsoft Dynamics AX data takes precedence over all other currency and exchange rate information. Exchange rates are maintained in Microsoft Dynamics AX and integrated into currency information in Microsoft Dynamics CRM. Therefore, you must verify your exchange rates in Microsoft Dynamics AX before you integrate them with Microsoft Dynamics CRM currencies.

Currencies in Microsoft Dynamics CRM use the Microsoft .NET regional settings foundation classes to specify the default values for ISO code, name, and symbol properties. In Microsoft Dynamics CRM, you can change the name and symbol for currencies to your own values after they have been enabled. This causes additional map changes to support the nonstandard values for these attributes. In this map, the **GetCurrencySymbol()** function is used to retrieve the Microsoft .NET regional settings for the ISO code for a currency that is provided by Microsoft Dynamics AX. These functions use the appropriate values to integrate with Microsoft Dynamics CRM. If you have customized these values for any currencies in Microsoft Dynamics CRM, you must add the **Translate()** function to the attributes for the mapped entities to convert the .NET regional setting value in Microsoft Dynamics CRM to your custom value.

Retrieving exchange rates in Microsoft Dynamics AX

Only exchange rates for the default currency for the company are integrated. For Microsoft Dynamics AX 2009, the **GetCurrencyExchangeRate()** function is used in the map to retrieve the current exchange rate for the collection of exchange rates. This function assumes that the most recent exchange rate for a given set of currencies is the exchange rate without a start date. If all of your exchange rates have start dates, you must create a function to retrieve the correct value.

In Microsoft Dynamics AX 2012, the **GetPropertyFromInstant()** function is set up to return the most first exchange rate in the collection of exchange rates for a given set of currencies. If this is not the most current exchange rate, or if you want to integrate a different exchange rate, the second parameter for this function can be modified to reference the index of the exchange rate in the zero-based collection that you want to integrate.

Mapping currency information

1. Verify that you have entered all of your currency data in Microsoft Dynamics AX.
2. Open Connector for Microsoft Dynamics.
3. Go to the integration to work with, and then click the **Maps** node in the left pane.
4. Select the **Currency to Currency** or **Exchange Rate Service to Currency** map.

If you do not want to change any of the default map settings, go to step 5. To customize map settings, see the [Connector for Microsoft Dynamics installation guide](#).

5. In the **Status** area, click **Activate**.
6. Click the **Edit** link next to the **Check for changes area** to open the **Map Run Schedule** window. Change the map run schedule to run every 45 seconds. Make sure that the **Start Date** field value is before the date that you first entered data into Microsoft Dynamics AX. Click **OK** to close the **Map Run Schedule** window.

If your business needs require a longer run time, you can set the map run schedule to any duration.

7. Verify that the date listed in the **Check for data modified after** area is before the date that you entered your Microsoft Dynamics AX currencies. To change this date, click the **Edit** link next to the **Check for data modified after** area to open the **Check for data modified after** window. Enter the new value and click **OK**. Start the Connector for Microsoft Dynamics service again.

8. Click **Save** on the top command bar.

In the **Status** section of the **Map** page, the **Last run** status is displayed. While the integration is running, the **Last run** status is displayed as **Currently running** and displays the numbers of changes found, changes written, deletions found, records deleted, and failures. Wait until the **Currently running** status is no longer displayed and the **Last run** status is displayed to allow the integration to run and move the Microsoft Dynamics AX currency information to Microsoft Dynamics CRM.

9. Open Microsoft Dynamics CRM. Go to **Settings**, select **Business Management**, and then select **Currencies**. All of the currencies that have been integrated are displayed.
10. Verify that all the currencies have been fully integrated.
11. Click the **View log for this map** link at the top of the **Status** section. Review any events that are displayed and fix any issues before proceeding. For more information, see "Reviewing the log file" in the [Connector for Microsoft Dynamics installation guide](#).

Map items and products

When Connector for Microsoft Dynamics is installed, Microsoft Dynamics AX takes precedence over all product information. Therefore, you must verify your inventory items in Microsoft Dynamics AX before you integrate them with Microsoft Dynamics CRM products.

The initial integration of products uses a synchronous plug-in that creates price list entries in Microsoft Dynamics CRM for every price level in every currency. This initial integration can require extra time, depending on the number of currencies used, the number of products used, and the Microsoft Dynamics CRM server load at the time of integration. For example, if you have 100,000 products and five currencies, then five price level entries are created in Microsoft Dynamics CRM for each product, in addition to the product entries. When those Microsoft Dynamics AX items are initially synchronized into Microsoft Dynamics CRM products, the 100,000 products are created, plus 500,000 price level entries, resulting in 600,000 total entries created in Microsoft Dynamics CRM.

Microsoft Dynamics AX does not use a price list system that is directly compatible with Microsoft Dynamics CRM, so the price lists in Microsoft Dynamics CRM cannot display complex pricing information from Microsoft Dynamics AX, such as customer specific pricing, item specific pricing, or discounts. Price levels in Microsoft Dynamics CRM are created by the Microsoft Dynamics CRM adapter and the plugin step from the following fields in Microsoft Dynamics AX:

- Base purchase price
- Base cost price
- Base sales price

Note: Microsoft Dynamics CRM requires default price lists for all items, or items cannot be added to sales orders. Information must be entered in the above price fields in Microsoft Dynamics AX in order for Microsoft Dynamics CRM to generate default prices.

1. Verify that you have entered all your items in Microsoft Dynamics AX.
2. Open Connector for Microsoft Dynamics.
3. Go to the integration to work with, and then click the **Maps** node in the left pane.
4. Select the **AX Item to Product** or **Item Service to Product** map.

If you do not want to change any of the default map settings, go to step 5. To customize map settings, see the [Connector for Microsoft Dynamics installation guide](#).

5. In the **Status** area, click **Activate**.

6. Click the **Edit** link next to the **Check for changes** area to open the **Map Run Schedule** window. Change the map run schedule to run every 45 seconds. Make sure that the **Start Date** field value is before the date that you first entered data into Microsoft Dynamics AX. Click **OK** to close the **Map Run Schedule** window.

If your business needs require a longer run time, you can set the map run schedule to any duration.

7. Verify that the date listed in the **Check for data modified after area** is before the date that you entered your Microsoft Dynamics AX items. To change this date, click the **Edit link** next to the **Check for data modified after** area to open the **Check for data modified after** window. Enter the new value and click **OK**. Start the Connector for Microsoft Dynamics service again.
8. Click **Save** on the top command bar.

In the **Status** section of the **Map** page, the **Last run** status is displayed. While the integration is running, the **Last run** status is displayed as **Currently running** and displays the numbers of changes found, changes written, deletions found, records deleted, and failures. Wait until the **Currently running** status is no longer displayed and the **Last run** status is displayed to allow the integration to run and move the Microsoft Dynamics AX items to Microsoft Dynamics CRM products.

Note: The amount of time required to integrate your Microsoft Dynamics AX items with your Microsoft Dynamics CRM products depends on the number of items in your Microsoft Dynamics AX data set.

9. Open Microsoft Dynamics CRM. Go to **Settings**, select **Product Catalog**, and then select **Products**. All the products that have been integrated are displayed.
10. Verify that all the Microsoft Dynamics AX items have been fully integrated with Microsoft Dynamics CRM products.
11. Click the **View log for this map** link at the top of the **Status** section. Review any events that are displayed and fix any issues before proceeding. For more information about reviewing the log file, see the [Connector for Microsoft Dynamics installation guide](#).
12. To change the map run schedule for ongoing integration, repeat step 6 and change the map run schedule to the appropriate settings for this map.

Map customers and accounts

To integrate Microsoft Dynamics AX customer accounts with Microsoft Dynamics CRM accounts, you must decide which application you will use to enter your initial customer data. You must enter initial customer data in one application or the other, but not both. Connector for Microsoft Dynamics will create the customer data in the other application after the appropriate map is activated. After you have completed the initial data synchronization, you can enter customer data in both Microsoft Dynamics AX and Microsoft Dynamics CRM, and Connector for Microsoft Dynamics will keep the data synchronized.

If you use Microsoft Dynamics CRM to enter your initial customer data, you must click the **Submit** button for each Microsoft Dynamics CRM account to integrate to Microsoft Dynamics AX. Alternatively, you can run the **Bulk Submit Account** workflow on these entities. The submission process allows you to keep Microsoft Dynamics CRM account records in Microsoft Dynamics CRM and not integrate them to Microsoft Dynamics AX until they are needed in Microsoft Dynamics AX.

Note: When integrating an account that was created in Microsoft Dynamics CRM, the account category on the **Details** tab of the **Account** form must be set to a customer group in Microsoft Dynamics AX. The **Customer Group** field is a required field in Microsoft Dynamics AX, and you must verify that the value for the source mapping field from the source system is a valid customer group in Microsoft Dynamics AX. Microsoft Dynamics CRM administrators can make these required fields to prevent the accidental submission of accounts without these values.

In Microsoft Dynamics AX 2012, only customer records that are listed as organizations in the DirParty tables are integrated into Microsoft Dynamics CRM account. This is by default. To integrate Microsoft Dynamics AX 2012 customers that are listed as persons in the DirParty tables, you must create a new service to make the records available. Then, you must use the Microsoft Dynamics AX 2012 Configuration utility to make the service available to map in the Connector client.

Mapping customers and accounts

If you have existing installations of both Microsoft Dynamics AX and Microsoft Dynamics CRM, the Microsoft Dynamics AX customer records take priority and must be integrated before the Microsoft Dynamics CRM records.

If you have data that currently exists in both systems, use the duplicate detection rules in Microsoft Dynamics CRM to prevent duplicate records from being created during integration. For more information about duplicate detection, see the [Connector for Microsoft Dynamics installation guide](#).

1. Verify that you have entered all your customers in either Microsoft Dynamics AX or Microsoft Dynamics CRM accounts.

Note: You must choose to integrate either Microsoft Dynamics CRM accounts into Microsoft Dynamics AX customer accounts, or Microsoft Dynamics AX customer accounts into Microsoft Dynamics CRM accounts. The **Account to AX Customer** and **AX Customer to Account** maps (or **Account to Customer Service** and **Customer Service to Account** maps if you are running Microsoft Dynamics AX 2012) cannot run simultaneously during initial data synchronization. For more information, see [Account to AX Customer and Account to Customer Service](#) and [AX Customer to Account and Customer Service to Account](#) in the appendix. After initial synchronization, these maps can be run simultaneously.

2. Open Connector for Microsoft Dynamics.
3. Go to the integration to work with, and then click the **Maps** node in the left pane.
4. Select the correct map depending on where you entered your initial customer data:
 - If you entered your initial customer data in Microsoft Dynamics AX, select **AX Customer to Account** or **Customer Service to Account**.
 - If you entered your initial customer data in Microsoft Dynamics CRM, select **Account to AX Customer** or **Account to Customer Service**.

Note: The **Customer Group** field is a required field in Microsoft Dynamics AX. When integrating an account from Microsoft Dynamics CRM, you need to verify that the value for the source mapping field from the source system is a valid customer group Microsoft Dynamics AX.

If you do not want to change any of the default map settings, go to step 5. To customize map settings, see the [Connector for Microsoft Dynamics installation guide](#).

5. In the **Status** area, click **Activate**.
6. Click the **Edit** link next to the **Check for changes** area to open the **Map Run Schedule** window. Change the map run schedule to run every 45 seconds. Make sure that the **Start Date** field value is before the date that you first entered data into Microsoft Dynamics AX or Microsoft Dynamics CRM. Click **OK** to close the **Map Run Schedule** window.

If your business needs require a longer run time, you can set the map run schedule to any duration.

7. Verify that the date listed in the **Check for data modified after** area is before the date that you entered your Microsoft Dynamics AX customers or Microsoft Dynamics CRM accounts. To change this date, click the **Edit** link next to the **Check for data modified after** area to open the **Check for data modified after** window. Enter the new value and click **OK**. Start the Connector for Microsoft Dynamics service again.

8. Click **Save** on the top command bar.

In the **Status** section of the **Map** page, the **Last run** status is displayed. While the integration is running, the **Last run** status is displayed as **Currently running** and displays the number of changes found, the number of changes written, the number of deletions found, the number of records deleted, and the number of failures. Wait until the **Currently running** status is no longer displayed and the **Last run** status is displayed to allow the integration to run and move the Microsoft Dynamics AX customers to Microsoft Dynamics CRM accounts.

Note: The amount of time required to integrate your Microsoft Dynamics AX customers with your Microsoft Dynamics CRM accounts depends on the number of customers in your Microsoft Dynamics AX and/or Microsoft Dynamic CRM data set.

9. Open Microsoft Dynamics CRM. Go to **Marketing**, and select **Accounts**, or go to **Sales**, and select **Accounts**. All of the customers that have been integrated are displayed.
10. Verify that all the customers or accounts have been fully integrated.
11. Click the **View log for this map** link at the top of the **Status** section. Review any events that are displayed and fix any issues before proceeding. For more information, see "Reviewing the log file" in the [Connector for Microsoft Dynamics installation guide](#).
12. To change the map run schedule for ongoing integration, repeat step 6 and change the map run schedule to the appropriate settings for this map.

Map contact information

Contact information can be integrated between Microsoft Dynamics AX and Microsoft Dynamics CRM, but only if contact information is associated with active customer accounts. Only contacts that are associated with customers or accounts in Microsoft Dynamics AX will be integrated.

If you use Microsoft Dynamics CRM to enter your initial contact data, you must click the **Submit** button for each Microsoft Dynamics CRM contact to integrate to Microsoft Dynamics AX. Alternatively, you can run the **Bulk Submit Contact** workflow on these entities. The submission process allows you to keep Microsoft Dynamics CRM contact records in Microsoft Dynamics CRM and not integrate them to Microsoft Dynamics AX until they are needed in Microsoft Dynamics AX.

Mapping contact persons and contacts

If you have existing installations of both Microsoft Dynamics AX and Microsoft Dynamics CRM, the Microsoft Dynamics AX contact records take priority and must be integrated before the Microsoft Dynamics CRM records.

If you have data that currently exists in both systems, use the duplicate detection rules in Microsoft Dynamics CRM to prevent duplicate records from being created during integration. For more information about duplicate detection, see the [Connector for Microsoft Dynamics installation guide](#).

1. Verify that you have entered all your contacts in either Microsoft Dynamics AX or Microsoft Dynamics CRM.

Note: You must choose to integrate either Microsoft Dynamics CRM contacts into Microsoft Dynamics AX contacts, or Microsoft Dynamics AX contacts into Microsoft Dynamics CRM contacts. The **Contact to AX Contact** and **AX Contact to Contact** maps (or **Contact to Contact Persons Service** and **Contact Persons Service to Contact** maps if you are running Microsoft Dynamics AX 2012) cannot run simultaneously during initial data synchronization. For more information, see [Contact to AX Contact and Contact to Contact Persons Service](#) and [AX Contact to Contact and Contact Service to Contact](#) in the appendix. After initial data synchronization, these maps can be run simultaneously.

2. Open Connector for Microsoft Dynamics. Go to the integration to work with, and then click the **Maps** node in the left pane.
3. Select the correct map depending on where you entered your initial customer data:
 - If you entered your initial customer data in Microsoft Dynamics AX, select **AX Contact to Contact** or **Contact Persons Service to Contact**.
 - If you entered your initial customer data in Microsoft Dynamics CRM, select **Contact to AX Contact** or **Contact to Contact Persons Service**.

If you do not want to change any of the default map settings, go to step 5. To customize map settings, see the [Connector for Microsoft Dynamics installation guide](#).

4. In the **Status** area, click **Activate**.
5. Click the **Edit** link next to the **Check for changes** area to open the **Map Run Schedule** window. Change the map run schedule to run every 45 seconds. Make sure that the **Start Date** field value is before the date that you first entered data into Microsoft Dynamics AX or Microsoft Dynamics CRM. Click **OK** to close the **Map Run Schedule** window.

If your business needs require a longer run time, you can set the map run schedule to any duration.

6. Verify that the date listed in the **Check for data modified after** area is before the date that you entered your Microsoft Dynamics AX contacts or Microsoft Dynamics CRM contacts. To change this date, click the **Edit** link next to the **Check for data modified after** area to open the **Check for data modified after** window. Enter the new value and click **OK**. Start the Connector for Microsoft Dynamics service again.
7. Click **Save** on the top command bar.

In the **Status** section of the **Map** page, the **Last run** status is displayed. While the integration is running, the **Last run** status is displayed as **Currently running** and displays the numbers of changes found, changes written, deletions found, records deleted, and failures. Wait until the **Currently running** status is no longer displayed and the **Last run** status is displayed to allow the integration to run and move the Microsoft Dynamics AX contacts to Microsoft Dynamics CRM contacts.

Note: The amount of time required to integrate your Microsoft Dynamics AX contacts with your Microsoft Dynamics CRM contacts depends on the number of contacts in your Microsoft Dynamics AX and/or Microsoft Dynamic CRM data set.

8. Open Microsoft Dynamics CRM. Go to **Marketing** and select **Contacts**, or go to **Sales** and select **Contacts**. All the contacts that integrated are displayed.
9. Verify that all the contacts have been fully integrated.
10. Click the **View log for this map** link at the top of the **Status** section. Review any events that are displayed and fix any issues before proceeding. For more information, see "Reviewing the log file" in the [Connector for Microsoft Dynamics installation guide](#).
11. To change the map run schedule for ongoing integration, repeat step 6 and change the map run schedule to the appropriate settings for this map.

Map orders and invoices

When Connector for Microsoft Dynamics is installed, Microsoft Dynamics AX data takes precedence over all order and invoice information. You can integrate existing Microsoft Dynamics CRM orders, but not existing Microsoft Dynamics CRM invoices. However, you can integrate existing and new or modified Microsoft Dynamics AX sales orders and invoices to Microsoft Dynamics CRM.

Because Microsoft Dynamics ERP products support more complicated pricing operations than Microsoft Dynamics CRM does, orders that are initially created in Microsoft Dynamics CRM might not be priced as accurately as they will be after they have been integrated into the Microsoft Dynamics ERP. Sales order maps must run in both directions so that the Microsoft Dynamics ERP can calculate the correct prices and integrate the information back into Microsoft Dynamics CRM.

Installation of Connector for Microsoft Dynamics inactivates the invoice creation in Microsoft Dynamics CRM. After installation, the following functionality is affected:

- Invoices can be viewed only in Microsoft Dynamics CRM.
- You cannot create invoices in Microsoft Dynamics CRM.
- You can create and modify orders in Microsoft Dynamics CRM, but only until the order is submitted.

If there are orders in Microsoft Dynamics CRM to move to Microsoft Dynamics AX, open the Microsoft Dynamics CRM **Orders list**. For each order that you will integrate, open the order form and click **Submit Order** at the top of the form. Only orders that have been submitted are integrated to Microsoft Dynamics AX. Do not submit Microsoft Dynamics CRM orders that have already been re-created in Microsoft Dynamics AX.

Note: Products in Microsoft Dynamics CRM require default price lists. When integrating a sales item from Microsoft Dynamics AX that has no base purchase price, base cost price or base sales price, Microsoft Dynamics CRM displays a message to indicate that a default price list has not been set. Orders cannot be created with a product that does not have a default price list.

You can indicate how many historical Microsoft Dynamics AX orders and invoices to move to Microsoft Dynamics CRM. Microsoft Dynamics AX orders and invoices are integrated based on the date when they were last modified. You can indicate the oldest date for orders and invoices to include in the integration.

- **Microsoft Dynamics AX sales orders to Microsoft Dynamics CRM orders**

Microsoft Dynamics CRM orders must have an entry in the **Owner** field. If a sales order is created in Microsoft Dynamics AX with no employee, or an employee who is not associated with a Microsoft Dynamics CRM user, the Microsoft Dynamics AX sales order is integrated to Microsoft Dynamics CRM with an **Integration** owner.

- **Microsoft Dynamics CRM orders to Microsoft Dynamics AX sales orders**

Microsoft Dynamics CRM orders must have an entry in the **Owner** field. If an order is created in Microsoft Dynamics CRM with an owner who is not a user associated with a Microsoft Dynamics CRM user, the Microsoft Dynamics CRM sales order is integrated to Microsoft Dynamics AX with a blank value for the employee.

Mapping orders and invoices

When both Microsoft Dynamics AX and Microsoft Dynamics CRM are new installations, there is no order or invoice data in either application. You do not need to do any initial data synchronization for these entities. To integrate orders and invoices, you must activate the appropriate maps for integration before you begin to enter order and invoice transactions in Microsoft Dynamics AX or Microsoft Dynamics CRM.

Note: Only orders that have been submitted will be integrated to Microsoft Dynamics AX. Do not submit Microsoft Dynamics CRM orders that have already been recreated in Microsoft Dynamics AX.

1. Verify that you have entered all your sales orders in Microsoft Dynamics AX or Microsoft Dynamics CRM.
2. Open Connector for Microsoft Dynamics.
3. Go to the integration to work with, and then click the **Maps** node in the left pane.
4. If there are Microsoft Dynamics AX sales orders that you want to integrate, select the **AX Sales Order to Order** or **Sales Order Service to Order** map.

If you do not want to change any of the default map settings, go to step 5. To customize map settings, see the [Connector for Microsoft Dynamics installation guide](#).

5. In the **Status** area, click **Activate**.
6. Click the **Edit** link next to the **Check for changes** area to open the **Map Run Schedule** window. Change the map run schedule to run every 45 seconds. Make sure that the **Start Date** field value is before the date that you first entered data into Microsoft Dynamics AX. Click **OK** to close the **Map Run Schedule** window.

If your business needs require a longer run time, you can set the map run schedule to any duration.

7. Verify that the date listed in the **Check for data modified after** area is before the date that you entered your Microsoft Dynamics AX sales orders or Microsoft Dynamics CRM orders. To change this date, click the **Edit** link next to the **Check for data modified after** area to open the **Check for data modified after** window. Enter the new value and click **OK**. Start the Connector for Microsoft Dynamics service again.
8. If there are Microsoft Dynamics CRM orders to integrate, select the **Order to Sales Order** or **Order to Sales Order Service** map and click **Activate**.
9. Repeat steps 6 and 7 for this map.
10. Click **Save** on the top command bar.

In the **Status** section of the **Map** page, the **Last run** status is displayed. While the integration is running, the **Last run** status is displayed as **Currently running** and displays the numbers of changes found, changes written, deletions found, records deleted, and failures. Wait until the **Currently running** status is no longer displayed and the **Last run** status is displayed to allow the integration to run and move the Microsoft Dynamics AX sales orders over to Microsoft Dynamics CRM, and the Microsoft Dynamics CRM orders to Microsoft Dynamics AX.

11. Open Microsoft Dynamics CRM and go to **Sales**, and then select **Orders**. All the sales orders that integrated are displayed.
12. Verify that all the sales orders have been fully integrated.

-
- Repeat steps 1 through 12 for the **AX Sales Invoice to Invoice** or **Sales Invoice Service to Invoice** map.

Note: Invoices can only be integrated from Microsoft Dynamics AX to Microsoft Dynamics CRM.

- Click the **View log for this map** link at the top of the **Status** section. Review any events that are displayed and fix any issues before proceeding. For more information, see “Reviewing the log file” in the [Connector for Microsoft Dynamics installation guide](#).
- To change the map run schedules for ongoing integration, repeat step 6 and change the map run schedule to the appropriate settings for this map.

Customization

The following sections contain information about how to configure Connector for Microsoft Dynamics. For more information, see the [Connector for Microsoft Dynamics installation guide](#).

Customize map settings

After you have created an integration, you must add maps, which are collections of associations between the fields for an entity in one Microsoft Dynamics system with the fields for an entity in another Microsoft Dynamics system. For example, to integrate the Microsoft Dynamics CRM account entity with the Microsoft Dynamics AX customer entity, you must add and activate the **Account to AX Customer** map and the **AX Customer to Account** map.

If you created an integration from a template, maps have already been created for you. For more information about how to configure map settings, see the [Connector for Microsoft Dynamics installation guide](#).

Add fields to supported entities in Microsoft Dynamics AX

If you add fields to a table that is a query data source on which a service is based, you need to ensure that your service and the data object classes are up-to-date. The following sections describe how to add fields for Microsoft Dynamics AX.

Add fields in Microsoft Dynamics AX 2009

1. After a field is added in Microsoft Dynamics AX, you need to restore the service query to Connector for Microsoft Dynamics. For information about these procedures, see "How to: Update a Service After Adding a Table Field" on MSDN (<http://msdn.microsoft.com/en-us/library/ff628056.aspx>).
2. In Microsoft Dynamics AX 2009, click **Basic**, select **Setup**, select **Application Integration Framework**, and then select **Services**. Click **Refresh** to refresh the services, and click **Generate** to regenerate the list.
3. Update the AIF web.config files as mentioned in step 13 of the [Import .xpo files in Microsoft Dynamics AX 2009](#) procedures.
4. Click **Basic**, select **Setup**, select **Application Integration Framework**, and then select **Endpoints**. Select **DAXIntegration**, and click **Action Policies**.
5. Select each ActionID that was affected. For example, if you added a field to the **Currency** table, select **CurrenciesService.findKeys** and **CurrenciesService.read**.
6. Activate all the endpoint action data policies to pick the new field.
7. Open the appropriate .config file. For example, if you added a field to the **Currency** table, open the **CurrencyObjectProvider.config** file.
8. Add the new field name or data type under the affected table.

For example, to add an entry for a new **String** type field to the **Currency** service, you must add the following entry in the **Fields** collection under the **AxdEntity Currency** ComplexType element:

```
<Field Name="CurrencyCode" TypeName="System.String" DisplayName="Currency" IsRequired="false" />
```

9. Open Connector for Microsoft Dynamics. Map the new field in Microsoft Dynamics AX 2009 to a field in Microsoft Dynamics CRM, and save changes.

Note: The Microsoft Dynamics AX 2009 adapter uses the **Full update** method to update the Microsoft Dynamics AX 2009 service. If there fields that are used in the target service that are not in the object provider configuration file for that service, the fields display blank values when a record of this type is integrated. Be sure that all of the fields that are displayed in your services are also present in the object provider configuration file for that service, or do not make those services available in the AIF service.

Add fields in Microsoft Dynamics AX 2012

1. Select where to add the new fields:
 - a. To add fields to existing services, you must update the service that you need the fields exposed on. For more information, see "How to: Update a Service After Adding a Query Data Source" on MSDN (<http://msdn.microsoft.com/en-us/library/qg840400.aspx>).
 - b. To create new fields in new services, see "Creating New Services" on MSDN (<http://msdn.microsoft.com/en-us/library/aa856656.aspx>).
2. Run the Microsoft Dynamics AX 2012 Configuration utility to update the object provider configuration files. For more information, see [Configure the Microsoft Dynamics AX 2012 adapter](#).
3. For each custom service, open the object provider configuration file. Make sure that the **QueryName** attribute on the **RootDefinition** element is identical to the class name of the custom service in the AOT of Microsoft Dynamics AX 2012. By default, the class name uses the prefix "Axd" and the name of the backing query.
4. To integrate data between custom services in Microsoft Dynamics AX 2012 and Microsoft Dynamics CRM, complete the following procedure:
 - a. In Microsoft Dynamics AX 2012, open the root data source table for each custom service. Add a guid column named **DAXIntegrationId**.
 - b. Right-click the **Insert** method of the source table, and then add an event handler that calls the **SetDAXIntegrationId** method from the **DynamicsConnector** class.

Note: The **DynamicsConnector** class is installed when the .xpo file is imported (or is included in Cumulative Update 6 for Microsoft Dynamics AX 2012 R2. For more information, see [Import .xpo files in Microsoft Dynamics AX 2012](#).

Tips:

- Connector for Microsoft Dynamics does not support polymorphic class types at this time. If a custom service contains a query that accesses a polymorphic class type in Microsoft Dynamics AX 2012, you must restrict the query to return a single instance of the base type. For example, the DirParty class type in Microsoft Dynamics AX 2012 is polymorphic, because it can be a person or an organization. When the ConnCustOrgService is created by the DynamicsConnector.xpo file, queries for DirParty types are restricted to return only organizations.
- The **QueryName** attribute in the object provider configuration file must be identical to the **Document object class** name for the custom service. If you modified the **Document object class** name of the custom service when you created the custom service, then you must modify the **QueryName** attribute in the object provider configuration file for the custom service to match the new **Document object class** name of the service.

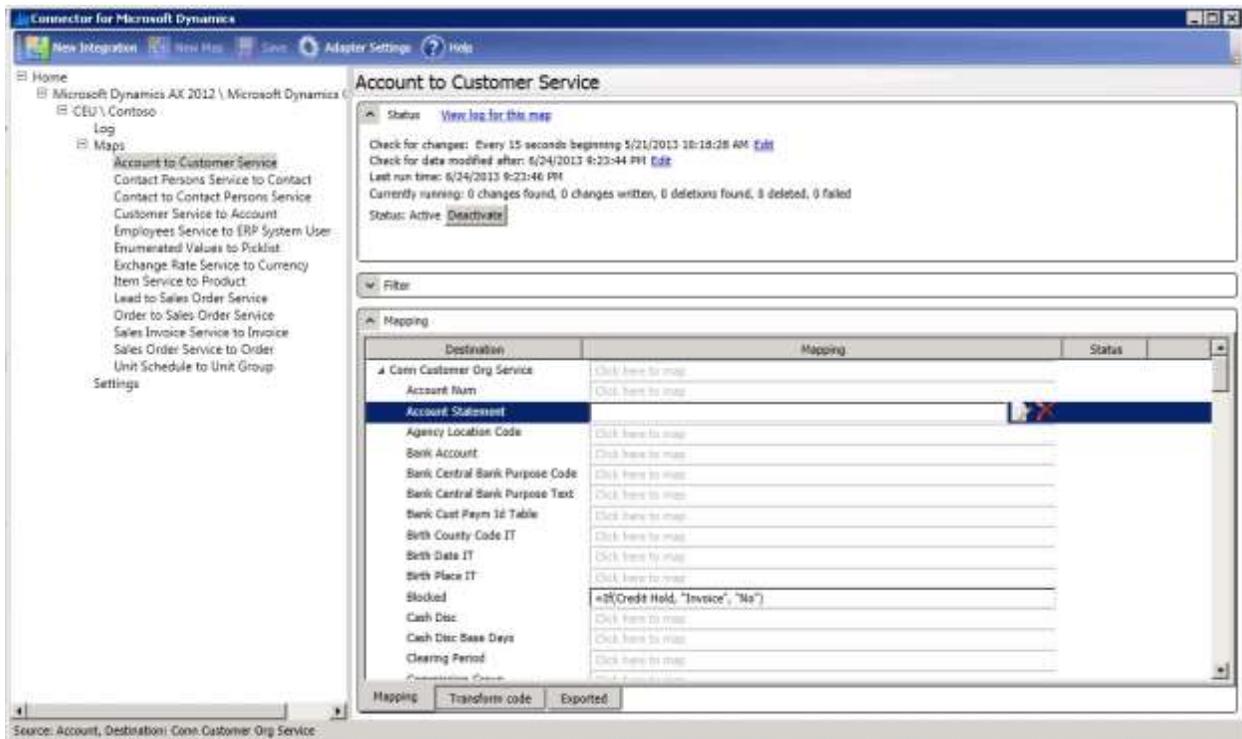
Edit field associations in maps

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. Open Connector for Microsoft Dynamics. In the left pane, select the map to edit field associations for.
2. In the **Mapping** area, place your cursor in the **Mapping** column on the row for the destination field to edit.

Note: Fields that are required to have a field associated are displayed in bold type in the **Mapping** area.



3. Delete any existing associations for the field and click the **Map** button.
4. Follow the directions in the **Destination Field Mapping** window to edit the field association.
5. Click **Add** to exit the window and add the association to the destination field.

Tips:

- The map templates 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>).

Remove a mapped field

If you delete a field in Microsoft Dynamics AX, you must update any document service data objects that contain that field and ensure that your service and data object classes are up-to-date. For information about these procedures, see "How to: Update a Service After Deleting a Table Field" on MSDN (<http://msdn.microsoft.com/en-us/library/ee330229.aspx>).

For Microsoft Dynamics AX 2012 integrations, you must run the Microsoft Dynamics AX 2012 Configuration utility after the fields are deleted to update the object provider configuration files. For more information, see [Configure the Microsoft Dynamics AX 2012 adapter](#).

Maintenance

Connector for Microsoft Dynamics has several options for maintaining your integrations. For more information, see the [Connector for Microsoft Dynamics installation guide](#).

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/>).

Appendix

The following sections are provided for your reference:

- [Integration exceptions](#)
- [Map dependencies](#)
- [Microsoft Dynamics CRM to Microsoft Dynamics AX maps](#)
- [Microsoft Dynamics AX to Microsoft Dynamics CRM maps](#)

Integration exceptions

If the integration encounters an exception that is considered a possible retry, such as attempting to create an order in Microsoft Dynamics AX that would cause the customer balance to exceed the credit limit, that particular integration instance is placed in a retry queue.

Retry occurrences are based on a progressively time-delayed algorithm that allows up to seven retries per instance. The default retry wait setting is five tries.

The following table indicates the actual time between each retry attempt based on the configurable retry wait setting.

Retry Wait Setting	Retry Attempt																
	1	2	3		4		5			6				7			
	Secs	Secs	Mins	Secs	Mins	Secs	Hrs	Mins	Secs	Days	Hrs	Mins	Secs	Days	Hrs	Mins	Secs
7	7	49	5	43	40	1	4	40	7	1	8	40	49	9	12	45	43
6	6	36	3	36	21	36	2	9	36	0	12	57	36	3	5	45	36
5	5	25	2	5	10	25	0	52	5	0	4	20	25	0	21	42	5
4	4	16	1	4	4	16	0	17	4	0	1	8	16	0	4	33	4
3	3	9	0	27	1	21	0	4	3	0	0	12	9	0	0	36	27
2	2	4	0	8	0	16	0	0	32	0	0	1	4	0	0	2	8
1	1	1	0	1	0	1	0	0	1	0	0	0	1	0	0	0	1

Map dependencies

Some maps in Connector for Microsoft Dynamics are dependent on values in other maps. Maps with a high number of dependencies will not successfully run until dependent values in other maps are integrated first. Map dependencies are listed below.

Microsoft Dynamics AX 2009 to Microsoft Dynamics CRM

The following table lists the dependencies that occur when mapping entities from Microsoft Dynamics AX 2009 to Microsoft Dynamics CRM.

Map	Dependencies
AX Enumerated Values to Picklist	<ul style="list-style-type: none">No dependency
AX Employee to ERP System User	<ul style="list-style-type: none">No dependency
AX Unit Schedule to Unit Group	<ul style="list-style-type: none">No dependency
AX Currency to Currency	<ul style="list-style-type: none">No dependency
AX Item to Product	<ul style="list-style-type: none">AX Enumerated Values to PicklistAX Unit Schedule to Unit groupAX Currency to Currency
AX Customer to Account	<ul style="list-style-type: none">AX Enumerated Values to PicklistAX Currency to CurrencyAX Employee to ERP System UserFor a customer that has a parent customer dependency, AX Customer to Account might be dependent on the parent customer integrating first
AX Contact to Contact	<ul style="list-style-type: none">AX Enumerated Values to PicklistAX Currency to CurrencyAX Employee to ERP System UserAX Customer to AccountFor a customer that has a parent customer dependency, AX Customer to Account might be dependent on the parent customer integrating first
AX Sales order to Order	<ul style="list-style-type: none">AX Enumerated Values to PicklistAX Employee to ERP System UserAX Currency to CurrencyAX Unit Schedule to Unit GroupAX Item to ProductAX Customer to AccountAX Contact to Contact
AX Sales Invoice to Invoice	<ul style="list-style-type: none">AX Enumerated Values to PicklistAX Employee to ERP System UserAX Unit Schedule to Unit GroupAX Item to ProductAX Customer to AccountAX Contact to ContactAX Sales Order to Order

Microsoft Dynamics AX 2012 to Microsoft Dynamics CRM

The following table lists the dependencies that occur when mapping entities from Microsoft Dynamics AX 2012 to Microsoft Dynamics CRM.

Map	Dependencies
Enumerated Values to Picklist	<ul style="list-style-type: none"> No dependency
Employee Service to ERP System User	<ul style="list-style-type: none"> No dependency
AX Unit Schedule to Unit Group	<ul style="list-style-type: none"> No dependency
Exchange Rate Service to Currency	<ul style="list-style-type: none"> No dependency
Item Service to Product	<ul style="list-style-type: none"> Enumerated Values to Picklist AX Unit Schedule to Unit Group Exchange Rate Service to Currency
Customer Service to Account	<ul style="list-style-type: none"> Enumerated Values to Picklist Exchange Rate Service to Currency Employee Service to ERP System User For a customer that has a parent customer dependency, Customer Service to Account might be dependent on the parent customer integrating first
Contact Persons Service to Contact	<ul style="list-style-type: none"> Enumerated Values to Picklist Exchange Rate Service to Currency Employee Service to ERP System User Customer Service to Account For a customer that has a parent customer dependency, Customer Service to Account might be dependent on the parent customer integrating first
Sales Order Service to Order	<ul style="list-style-type: none"> Enumerated Values to Picklist AX Employee to ERP System User Exchange Rate Service to Currency AX Unit Schedule to Unit Group Item Service to Product Customer Service to Account Contact Persons Service to Contact
Sales Invoice Service to Invoice	<ul style="list-style-type: none"> Enumerated Values to Picklist Employee Service to ERP System User AX Unit Schedule to Unit Group Item Service to Product Customer Service to Account Contact Persons Service to Contact Sales Order Service to Order

Microsoft Dynamics CRM to Microsoft Dynamics AX

The following dependencies exist when mapping entities from Microsoft Dynamics CRM to Microsoft Dynamics AX.

Maps	Dependency
<ul style="list-style-type: none">• Account to AX Customer• Account to Customer Service• Contact to AX Contact• Contact to Contact Service	Existing Microsoft Dynamics CRM accounts or contacts will not be integrated to Microsoft Dynamics AX unless they are submitted
<ul style="list-style-type: none">• Order to AX Sales Order• Order to Sales Order Service	Existing Microsoft Dynamics CRM orders will not be integrated to Microsoft Dynamics AX unless they are submitted

Microsoft Dynamics CRM to Microsoft Dynamics AX maps

The following sections provide additional information about how data is mapped from Microsoft Dynamics CRM to Microsoft Dynamics AX. Detailed information about each map is listed.

Account to AX Customer and Account to Customer Service

In the **Account to AX Customer** and **Account to Customer Service** maps, the Microsoft Dynamics CRM account entity is the source entity and the Microsoft Dynamics AX customer entity is the destination entity. This map provides the field associations that are necessary to read data from an account record and write that data to the correct fields in the customer record.

- This map should not be scheduled to run at the same time that the **AX Customer to Account** and **Customer Service to Account** maps run during initial data synchronization. For more information about the order in which maps should be run, see [Recommended map run order](#).
- New accounts will not be integrated until you click **Submit** on the **Account** form in Microsoft Dynamics CRM. Primary contacts for new accounts must be submitted before the corresponding account is submitted, or integration errors will occur and updates will fail.
- If you associate a Microsoft Dynamics CRM contact to a Microsoft Dynamics CRM account using the **Primary Contact** field on the **Account** form, the account will fail to integrate, and a log entry similar to "contact with id <Guid> does not have a valid value for its dynamics_integrationkey" will be created.

To allow the integration of Microsoft Dynamics CRM accounts that have an associated primary contact, you will need to open the **Contact** form in Microsoft Dynamics CRM for each contact that is associated to an account, and then click **Submit**.

- The requirement level of the **Account Number** field on the **Account** form is noted as **Business Recommended**. When integrating Microsoft Dynamics CRM accounts to Microsoft Dynamics AX customer accounts, you must enter an account number in order to avoid inconsistent generation of the ERP key used for integration.
- The **Address type** and **Country code** fields are mandatory fields in Microsoft Dynamics AX 2012, but are not displayed by default on the **Account** form in Microsoft Dynamics CRM. When creating an account in Microsoft Dynamics CRM, you must customize the **Account** form to display the **Address 2** field and fill in the appropriate information.
- Before you merge accounts in Microsoft Dynamics CRM, you must remove any current and historical sales transactions for the associated Microsoft Dynamics AX customer account. If you do not do this, the Microsoft Dynamics AX customer account will remain active and during the next integration, the Microsoft Dynamics CRM account or contact will be reactivated.
- When creating a customer account in Microsoft Dynamics CRM, the **Account Number** field must have a value for proper integration. If you have automatic or continuous number sequences in Microsoft Dynamics AX, you may enter a temporary value (i.e. **TEMP**) in this field and then run the **AX Customer to Account** map. The temporary **Account Number** value will be overwritten with a value from Microsoft Dynamics AX.

If you use manual numbering sequences in Microsoft Dynamics AX, the **Account to AX Customer** or **Account to Customer Service** map must be modified so that the destination field **Customer Account** maps with the source field **Account Number**. You will also need to enter a valid value in the **Account Number** field in Microsoft Dynamics CRM.

- Updates to Microsoft Dynamics CRM customer address fields except **Address 1** and **Address 2** will not integrate with Microsoft Dynamics AX unless the account record associated with these addresses is updated.

- When you map accounts or update accounts with this map, the primary address on the account will be made public in Microsoft Dynamics AX. Other addresses on the account will be created in Microsoft Dynamics AX as private addresses, and existing addresses will not be changed as a result of an update.
- For Microsoft Dynamics AX 2012 integrations, **ContactInfo** objects can be created from data in Microsoft Dynamics CRM during synchronization, but updates to existing **ContactInfo** objects in Microsoft Dynamics AX 2012 during synchronization is not supported. For example, in Microsoft Dynamics AX 2012, you can add a phone number to an account in Microsoft Dynamics CRM, but if that phone number is updated in Microsoft Dynamics CRM, the phone number in Microsoft Dynamics AX 2012 is not updated. This occurs because the **ContactInfo** instances in Microsoft Dynamics AX 2012 must include the actual value of the contact information.
- Addresses with four or more lines in Microsoft Dynamics AX will lose data after records are integrated back from Microsoft Dynamics CRM. To preserve data, follow these procedures:
 1. Create additional address line fields in Microsoft Dynamics CRM accounts.
 2. Expose these additional lines in the Microsoft Dynamics CRM object .config files.
 3. Update the following maps to use the additional fields:
 - **Account to AX Customer** or **Account to Customer Service**
 - **AX Customer to Account** or **Customer Service to Account**

Contact to AX Contact and Contact to Contact Persons Service

In the **Contact to AX Contact** and **Contact to Contact Persons Service** maps, the Microsoft Dynamics CRM contact entity is the source entity and the Microsoft Dynamics AX contact entity is the destination entity. This map provides the field associations that are necessary to read data from a contact record and write that data to the correct fields in the customer record.

- This map should not be scheduled to run at the same time that the **AX Contact to Contact** and **Contact Persons Service to Contact** maps run during initial data synchronization. For more information about the order in which maps should be run, see [Recommended map run order](#).
- New contacts will not be integrated until you click **Submit** on the **Contact** form in Microsoft Dynamics CRM. Contacts must also be associated with a parent customer or account. Primary contacts for accounts must be submitted before the corresponding account information is submitted.
- Before you merge contacts in Microsoft Dynamics CRM, you must remove any current and historical sales transactions for the associated Microsoft Dynamics AX contact record. If you do not do this, the Microsoft Dynamics AX contact record will remain active, and during the next integration the Microsoft Dynamics CRM contact will be reactivated.
- Updates to Microsoft Dynamics CRM contact **Address 1** fields will integrate with Microsoft Dynamics AX.
- If you create a Microsoft Dynamics CRM contact with a **First Name** field value and click **Submit** before saving, the ERP key is created by combining the first four characters of the contact's **First Name** field value and the first five characters of the contact's **Last Name** field value, plus a random number.

If you create a Microsoft Dynamics CRM contact without a **First Name** field value and save before clicking **Submit**, the ERP key is created by combining the first five characters of the contact's **Last Name** field value, plus a random number. The first four characters of the contact's **First Name** field value are not used.

- For Microsoft Dynamics AX 2012 integrations, **ContactInfo** objects can be created from data in Microsoft Dynamics CRM during synchronization, but updates to existing **ContactInfo** objects in Microsoft Dynamics AX 2012 during synchronization is not supported. For example, in Microsoft Dynamics AX 2012, you can add a phone number to a contact in Microsoft Dynamics CRM, but if that phone number is updated in Microsoft Dynamics CRM, the phone number in the contact record in Microsoft Dynamics AX 2012 is not updated. This occurs because the **ContactInfo** instances in Microsoft Dynamics AX 2012 must include the actual value of the contact information.

Order to AX Sales Order and Order to Sales Order Service

In the **Order to AX Sales Order** and **Order to Sales Order Service** maps, the Microsoft Dynamics CRM order entity is the source entity and the Microsoft Dynamics AX sales order entity is the destination entity. This map provides the field associations that are necessary to read data from an order record and write that data to the correct fields in the sales order record.

- Microsoft Dynamics CRM orders can be integrated into Microsoft Dynamics AX only by clicking the **Submit Order** button on the Microsoft Dynamics CRM **Order** form.
- After a new Microsoft Dynamics CRM order is submitted to Microsoft Dynamics AX, it cannot be modified or deleted in Microsoft Dynamics CRM. However, it can be canceled in Microsoft Dynamics CRM.
- When a submitted Microsoft Dynamics CRM order is deleted in Microsoft Dynamics AX, the corresponding Microsoft Dynamics CRM order will be canceled.
- If you cancel a submitted order in Microsoft Dynamics CRM, the associated order in Microsoft Dynamics AX will not be voided or deleted. If you want the associated Microsoft Dynamics AX order to be voided or deleted, you must manually void or delete the order from the Microsoft Dynamics AX application.
- Tax fields in Microsoft Dynamics CRM orders are not mapped to sales orders in Microsoft Dynamics AX. Taxes are calculated in Microsoft Dynamics AX after integration.
- Line discounts are calculated differently in Microsoft Dynamics CRM and Microsoft Dynamics AX. Microsoft Dynamics CRM applies the discount after the extended price is calculated, e.g. $\text{Extended price} = (\text{Unit price} * \text{Line quantity}) - \text{Line discount}$. Microsoft Dynamics AX applies the discount to the unit price, e.g. $\text{Extended price} = (\text{Unit price} - \text{Markdown amount}) * \text{Line quantity}$. The **Order to AX Sales Order** and **Order to Sales Order Service** template maps include a formula to handle this integration appropriately, but you must be aware of this difference in calculations if you choose to make any map changes in this area.

To calculate line discounts for the Microsoft Dynamics CRM order, the following equation is used in the **AX Sales Order to Order** and **AX Sales Invoice to Invoice** maps: $(\text{Line discount} * \text{Quantity}) + (((\text{Unit price} - \text{Line discount}) * (\text{Disc. pct} / 100)) * \text{Quantity})$

Note: If you make map changes in this area, make sure to set the rounding to match your Microsoft Dynamics AX functional currency decimal precision.

- By default, the **Order to AX Sales Order** and **Order to Sales Order Service** maps calculate line discounts based on the option selected in Microsoft Dynamics AX (go to **Accounts Receivable**, select **Setup**, select **Accounts Receivable Parameters**, select **Prices**, and then select **Discount**). If your line discount option is different, then you need to modify the map to match the **Discount**).
- By default, this map supports the "Line" discount option as listed in Microsoft Dynamics AX (go to **Accounts Receivable**, select **Setup**, select **Accounts Receivable Parameters**, select **Prices**, and then select **Discount**). If an option other than "Line" is selected, then the map calculation must be modified.

Possible options for this setting in Microsoft Dynamics AX include the following: Line, Multiline, MAX(Line,Multiline), Min(Line,Multiline), Line+Multiline, and Line*Multiline.

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- Third-party delivery terms on sales orders require custom field maps in order to integrate correctly. Microsoft Dynamics AX requires a carrier ID that is not provided by the template map. To customize this map, follow these steps:
 1. Add a customized field in the Microsoft Dynamics CRM order for the **Third Party Carrier ID** field.
 2. In Connector for Microsoft Dynamics, add a mapping function for the **Carrier ID** field in the **Order to AX Sales Order** or **Order to Sales Order Service** map.

Address2 in Microsoft Dynamics CRM

Accounts in Microsoft Dynamics CRM require both a primary and a secondary address (address1 and address2). Address2 is generated automatically when the account is submitted for integration with Microsoft Dynamics AX. When an account is integrated with Microsoft Dynamics AX, removing the secondary address from the ship to addresses collection in Microsoft Dynamics AX will not remove address2 from the corresponding account in Microsoft Dynamics CRM. The deleted address is re-created in Microsoft Dynamics AX when the account is updated in Microsoft Dynamics CRM.

Microsoft Dynamics AX to Microsoft Dynamics CRM maps

The following sections provide additional information about how data is mapped from Microsoft Dynamics AX to Microsoft Dynamics CRM. Detailed information about each map is listed.

AX Enumerated Values to Picklist and Enumerated Values to Picklist

Microsoft Dynamics AX data takes precedence over any other data that is synchronized. The data found in Microsoft Dynamics AX is compared to the data found in Microsoft Dynamics CRM and is synchronized as follows:

1. The data found in Microsoft Dynamics AX is added to Microsoft Dynamics CRM if it does not already exist in Microsoft Dynamics CRM.
2. If a value is found in Microsoft Dynamics CRM that does not exist in Microsoft Dynamics AX, the following processing occurs:
 - a. The text of the value is surrounded with an asterisk (*). The asterisk is added because:
 - Existing Microsoft Dynamics CRM records may contain the picklist value and data integrity must be maintained.
 - As users add new records in Microsoft Dynamics CRM, they will see that these values are not valid in the ERP system and the text is intended to prevent these values from being selected.

Note: If a Microsoft Dynamics CRM picklist value that contains the text "(Not in ERP)" or starting and ending with an asterisk is associated with a record that is intended to integrate to the ERP, the record will NOT integrate because there is no corresponding value in the ERP.
 - b. If appending and prepending an asterisk causes the value to exceed the allowed length, an exception is raised.
 - c. If the **Picklist** map is rerun, the asterisk is not appended or prepended again.
 - d. If the **Picklist** map is rerun and a Microsoft Dynamics CRM value that already contains leading and trailing asterisks is now found to exist in Microsoft Dynamics AX (it was added to Microsoft Dynamics AX after the initial run of the **Picklist** integration map), the asterisks are removed from the Microsoft Dynamics CRM value.
3. If a matching value is found in Microsoft Dynamics CRM, that value will be renamed to match the Microsoft Dynamics AX value. For example, Microsoft Dynamics CRM has a shipping method value of Ex and Microsoft Dynamics AX has a shipping method value of EX. The existing Microsoft Dynamics CRM shipping method value will be renamed to EX.

Note: Run this map after you have created a new integration and configured your Microsoft Dynamics CRM organizations in the Connector for Microsoft Dynamics client and before you begin activating other maps.

The map can also be used later if data needs to be synchronized again. The values that are updated in Microsoft Dynamics CRM are all of type Picklist and some of these values cannot be updated manually in Microsoft Dynamics CRM.

Picklist synchronized data

The following is a list of the data values that are updated in Microsoft Dynamics CRM from the enumerated values found in Microsoft Dynamics AX.

Microsoft Dynamics CRM entity	From (in Microsoft Dynamics AX)	To (in Microsoft Dynamics CRM)
Account	Customer Group ID	Account Category Options
	Address Type Names	Address1 Address Types Address2 Address Types
	Delivery Terms ID	Address1 Freight Terms Options Address2 Freight Terms Options
	Mode of Delivery ID	Address1 Shipping Method Options Address2 Shipping Method Options
	Payment Term ID	Payment Terms Options
Contact	Address Type Names	Address1 Address Types Address2 Address Types
	Delivery Terms ID	Address1 Freight Terms Options Address2 Freight Terms Options
	Mode of Delivery ID	Address1 Shipping Method Options Address2 Shipping Method Options
	Contact Gender	Contact Gender
	Contact Marital Status	Contact Marital Status
	Payment Term ID	Payment Terms Options
	Mode of Delivery ID	Shipping Methods Options
Customer Address	Address Type Names	Address1 Address Types Address2 Address Types
	Address Type	Address Type
	Delivery Terms ID	Freight Terms Options
	Mode of Delivery ID	Shipping Method Options
Invoice and Invoice Detail	Payment Term ID	Payment Terms Options
	Delivery Terms ID	Ship To Freight Terms Options
	Mode of Delivery ID	Shipping Method Options
Price Level	Delivery Terms ID	Ship To Freight Terms Options
	Payment Term ID	Payment Method Options
	Mode of Delivery ID	Shipping Method Options
Sales Order and Sales Order Detail	Delivery Terms ID	Freight Terms Options
	Payment Terms Code Names	Payment Terms Codes
	Delivery Terms ID	Ship To Freight Terms Options
	Mode of Delivery ID	Shipping Method Options

Microsoft Dynamics CRM entity	From (in Microsoft Dynamics AX)	To (in Microsoft Dynamics CRM)
Product	Item Type	Product Type
Price List	Pricing Methods	Pricing Methods
	Rounding Policy Names	Rounding Policy Names
	Rounding Option Names	Rounding Option Names

Notes:

- The list of enumerated values that are retrieved from Microsoft Dynamics AX is customizable, but a utility for this customization is not provided. To customize the enumerated values, new entries for the customized enumerated values must be added to the **EnumeratedValuesObjectProvider.config** file, and the entries must follow the schema in the file.
- In Microsoft Dynamics CRM, the **Shipping method** entity exists on the **Other Address** form, as well as in the **Address1** and **Address2** fields and on the account and contact headers.
- In Microsoft Dynamics CRM, the **Address Type** field exists on the **Account** and **Contact information** forms, as well as on the **More Addresses** form. The address-type fields represent two entirely different CRM picklists, and they may or may not be identical.
- The **Default Value** value in the address2_shippingmethodcode picklist on the account entity is renamed to **CRM Default**.

AX Employee to ERP System User and Employee Service to ERP System User

In the **AX Employee to ERP System User** and **Employee Service to ERP System User** maps, the Microsoft Dynamics AX worker entity is the source entity and the Microsoft Dynamics CRM ERP system user entity is the destination entity. This map provides the field associations that are necessary to read data from a worker record and write that data to the correct fields in the ERP system user record.

After running this map, you must add the ERP system user ID to each Microsoft Dynamics CRM user. See [Associate Microsoft Dynamics CRM users with ERP system users](#).

AX Item to Product and Item Service to Product

In the **AX Item to Product** and **Item Service to Product** maps, the Microsoft Dynamics AX sales item entity is the source entity and the Microsoft Dynamics CRM product entity is the destination entity. This map provides the field associations that are necessary to read data from a sales item record and write that data to the correct fields in the product record.

- The **AX Item to Product** and **Item Service to Product** maps may need to be run multiple times before they are successful because sales item substitutes must be integrated first before the parent sales item can be integrated. The retry mechanism normally resolves these types of errors.

AX Customer to Account and Customer Service to Account

In the **AX Customer to Account** and **Customer Service to Account** maps, the Microsoft Dynamics AX customer entity is the source entity and the Microsoft Dynamics CRM account entity is the destination entity. This map provides the field associations that are necessary to read data from a customer record and write that data to the correct fields in the account record.

- This map should not run at the same time that the **Account to AX Customer** and **Customer Service to Account** maps run during initial data synchronization. For more information about the order in which maps should be run, see [Recommended map run order](#).
- You must activate the **AX Employee to ERP System User** or **Employee Service to ERP System User** map and associate Microsoft Dynamics CRM users to the integrated ERP system user records to maintain ownership in Microsoft Dynamics CRM.
- For customer records that have parent customer dependencies, the **AX Customer to Account** and **Customer Service to Account** maps might be dependent on whether the parent customer record has been integrated. If exceptions occur, they are normally fixed by the retry mechanism.
- When creating a customer account in Microsoft Dynamics CRM, the **Account Number** field must have a value for proper integration. If you have automatic or continuous number sequences in Microsoft Dynamics AX, you may enter a temporary value (i.e. **TEMP**) in this field and then run the **AX Customer to Account** and **Customer Service to Account** maps. The temporary **Account Number** value will be overwritten with a value from Microsoft Dynamics AX.

If you use manual numbering sequences in Microsoft Dynamics AX, the **Account to AX Customer** and **Customer Service to Account** maps must be modified so that the destination field **Customer Account** maps with the source field **Account Number**. You will also need to enter a valid value in the **Account Number** field in Microsoft Dynamics CRM.

- When integrating addresses from Microsoft Dynamics AX to Microsoft Dynamics CRM, the system will fail with an exception if the text coming into Microsoft Dynamics CRM from Microsoft Dynamics AX is longer than the maximum number of characters allowed in Microsoft Dynamics CRM. In order to prevent this exception from occurring, you can adjust the maximum number of characters for the Microsoft Dynamics CRM address lines to be 60 characters or less, or you can limit the length of the address string that is sent to Microsoft Dynamics CRM by modifying the map and using the **Mid** function. The **Mid** function allows the transform to find a string in a certain location for a specified number of characters. For example, you could modify the mapping of the Microsoft Dynamics AX ship-to address to the Microsoft Dynamics CRM ship-to address by utilizing the **Use a function** option in the **Destination Field Mapping** window. Select the **Mid** function from the function list. Map the **text** to the Microsoft Dynamics AX **Ship-to Address** source field, set the **start** value to 1, and set the **length** value to 50. This will truncate any characters beyond 50 characters.
- If more than one address type is listed in the **Roles** field in Microsoft Dynamics AX, only the first address type is integrated into Microsoft Dynamics CRM. Microsoft Dynamics CRM does not support a list of multiple address types in the **Address type** field.
- Addresses with four or more lines in Microsoft Dynamics AX will lose data after records are integrated back from Microsoft Dynamics CRM. To preserve data, follow these steps:
 1. Create additional address line fields in Microsoft Dynamics CRM accounts.
 2. Expose these additional lines in the Microsoft Dynamics CRM object .config files.
 3. Update the following maps to use the additional fields:
 - **Account to AX Customer** or **Account to Customer Service**
 - **AX Customer to Account** or **Customer Service to Account**

AX Contact to Contact and Contact Service to Contact

In the **AX Contact to Contact** and **Contact Service to Contact** maps, the Microsoft Dynamics AX contact entity is the source entity and the Microsoft Dynamics CRM contact entity is the destination entity. This map provides the field associations that are necessary to read data from a contact record in Microsoft Dynamics AX and write that data to the correct fields in the contact record in Microsoft Dynamics CRM.

- This map should not be scheduled to run at the same time that the **Contact to AX Contact** and **Contact to Contact Service** maps run during initial synchronization. For more information about the order in which maps should be run, see [Recommended map run order](#).
- You must activate the **AX Employee to ERP System User** or **Employee Service to ERP System User** map and associate Microsoft Dynamics CRM users to the integrated ERP system user records if you want to maintain ownership in Microsoft Dynamics CRM.
- For customer records that have parent customer dependencies, the **AX Contact to Contact** and **Contact Service to Contact** maps might be dependent on whether the parent customer record has been integrated. If exceptions occur, they are normally corrected by the retry mechanism.
- When integrating addresses from Microsoft Dynamics AX to Microsoft Dynamics CRM, the system will fail with an exception if the text coming into Microsoft Dynamics CRM from Microsoft Dynamics AX is longer than the maximum number of characters allowed in Microsoft Dynamics CRM. In order to prevent this, adjust the maximum number of characters for the Microsoft Dynamics CRM address lines to be 60 characters or less, or you can limit the length of the address string that is sent to Microsoft Dynamics CRM by modifying the map and using the **Mid** function. The **Mid** function allows the transform to find a string in a certain location for a specified number of characters. For example, you could modify the mapping of the Microsoft Dynamics AX ship-to address to the Microsoft Dynamics ship-to address by utilizing the **Use a function** option in the **Destination Field Mapping** window. Select the **Mid** function from the function list. Map the **text** to the Microsoft Dynamics AX **Ship-to Address** source field, set the **start** value to 1, and set the **length** value to 50. This will truncate any characters beyond 50 characters.

AX Sales Order to Order and Sales Order Service to Order

In the **AX Sales Order to Order** and **Sales Order Service to Order** maps, the Microsoft Dynamics AX sales order entity is the source entity and the Microsoft Dynamics CRM order entity is the destination entity. This map provides the field associations that are necessary to read data from a sales order record and write that data to the correct fields in the order record.

- When a Microsoft Dynamics CRM sales order fails to integrate with Microsoft Dynamics AX, you can cancel the sales order in Microsoft Dynamics CRM even after it has been submitted to Microsoft Dynamics AX for integration.
- Microsoft Dynamics AX allows new sales orders to have an ID that already exists in the history. However, duplicated sales order IDs, historic or new, are not supported for integration. You will receive an error if a duplicate is encountered.
- Microsoft Dynamics AX supports negative numbers and amounts on the sales order detail quantity, tax amount, discount amount, etc. Microsoft Dynamics CRM does not support negative numbers on the related fields, which means that the integration will fail.
- For billing information, the bill-to name will be mapped to the customer account listed on the sales order record in Microsoft Dynamics AX.
- To map date fields, use the **GetUtcTime** function to ensure that the information is mapped properly.
- Tax fields in Microsoft Dynamics AX are not exposed on the sales order lines. Taxes are mapped from Microsoft Dynamics AX to Microsoft Dynamics CRM on the sales order header but not in the sales order lines.

- Line discounts are calculated differently in Microsoft Dynamics CRM and Microsoft Dynamics AX. Microsoft Dynamics CRM applies the discount after the extended price is calculated, e.g. $\text{Extended price} = (\text{Unit price} * \text{Line quantity}) - \text{Line discount}$. Microsoft Dynamics AX applies the discount to the unit price, e.g. $\text{Extended price} = (\text{Unit price} - \text{Markdown amount}) * \text{Line quantity}$. The **AX Sales Order to Order** and **Sales Order Service to Order** template maps include a formula to handle this integration appropriately, but you must be aware of this difference in calculations if you choose to make any map changes in this area.

To calculate line discounts for the Microsoft Dynamics CRM order, the following equation is used in the **AX Sales Order to Order** and **AX Sales Invoice to Invoice** maps: $(\text{Line discount} * \text{Quantity}) + (((\text{Unit price} - \text{Line discount}) * (\text{Disc. pct} / 100)) * \text{Quantity})$

Note: If you make map changes in this area, make sure to set the rounding to match your Microsoft Dynamics AX functional currency decimal precision.

- The **Freight Amount** field in Microsoft Dynamics CRM is mapped from the sum of all miscellaneous charges on the Microsoft Dynamics AX sales order, including freight amount values.

AX Sales Invoice to Invoice and Sales Invoice Service to Invoice

In the **AX Sales Invoice to Invoice** and **Sales Invoice Service to Invoice** maps, the Microsoft Dynamics AX sales invoice entity is the source entity and the Microsoft Dynamics CRM invoice entity is the destination entity. This map provides the field associations that are necessary to read data from a sales invoice record and write that data to the correct fields in the invoice record.

- Line discounts are calculated differently in Microsoft Dynamics CRM and Microsoft Dynamics AX. Microsoft Dynamics CRM applies the discount after the extended price is calculated, e.g. $\text{Extended price} = (\text{Unit price} * \text{Line quantity}) - \text{Line discount}$. Microsoft Dynamics AX applies the discount to the unit price, e.g. $\text{Extended price} = (\text{Unit price} - \text{Markdown amount}) * \text{Line quantity}$. The **AX Sales Order to Order** and **Sales Order Service to Order** template maps include a formula to handle this integration appropriately, but you must be aware of this difference in calculations if you choose to make any map changes in this area.

To calculate line discounts for the Microsoft Dynamics CRM order, the following equation is used in the **AX Sales Order to Order** and **AX Sales Invoice to Invoice** maps: $(\text{Line discount} * \text{Quantity}) + (((\text{Unit price} - \text{Line discount}) * (\text{Disc. pct} / 100)) * \text{Quantity})$

Note: If you make map changes in this area, make sure to set the rounding to match your Microsoft Dynamics AX functional currency decimal precision.

- The **Freight Amount** field in Microsoft Dynamics CRM is mapped from the sum of all miscellaneous charges on the Microsoft Dynamics AX sales invoice, including freight amount values.
- Free text invoices and invoices that have line items of type "Service" in Microsoft Dynamics AX 2012 are not supported for integration into Microsoft Dynamics CRM. Only invoices that contain line items of type "Sales item" are available for integration.

Ship-to addresses in Microsoft Dynamics AX

After an account is integrated between Microsoft Dynamics AX and Microsoft Dynamics CRM, a secondary address is created for the account in the "Ship-to address" collection. This secondary field is created because Microsoft Dynamics CRM requires both a primary and secondary address (which corresponds to address2) for accounts. These values will always be created in the Microsoft Dynamics ERP record, and they should not be deleted.