



Customer Information Management

# Spectrum™ Technology Platform

Version 2019.1.0

Microsoft Dynamics CRM Guide



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# 1 - Introduction

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Microsoft Dynamics CRM Module

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# Microsoft Dynamics CRM Module

# 2 - Integrating Microsoft Dynamics CRM with Spectrum

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## Integrating with Microsoft Dynamics CRM

To integrate Spectrum™ Technology Platform with Microsoft Dynamics CRM , you must install the supporting databases and dataflows on the Spectrum™ Technology Platform server, and deploy the Spectrum™ Technology Platform solution on your Microsoft Dynamics CRM. Once you do this, users of Microsoft Dynamics CRM will have access to address validation, geocoding, and duplicate detection functionality from within Microsoft Dynamics CRM.

**Note:** End users who use Internet Explorer must use Internet Explorer 10 or 11. Older versions of Internet Explorer are not supported. All versions of Chrome and Firefox are supported.

Before you begin, confirm that you are using a compatible version of Microsoft Dynamics. These versions are supported:

Microsoft Dynamics CRM 2013  
 Microsoft Dynamics CRM 2013 SP1  
 Microsoft Dynamics 2015

1. If you are using Spectrum™ Technology Platform for address validation or geocoding, install the databases required to perform address validation and geocoding and define database resources for each database.

**Note:** If you are using Spectrum™ Technology Platform for duplicate detection only, you can skip this step.

You must give the database resources these names:

Database	Required Name for Database Resource
Enterprise Geocoding Module - Canada Database	IGEO_CAN
Enterprise Geocoding Module - U.S. Database	EGM_US
Universal Addressing Module - Canada Database	Canada
Universal Addressing Module - Loqate Database	Loqate
Universal Addressing Module - U.S. Database	UAM_US

**Note:** You must install the Delivery Point Validation (DPV) data and the Residential Delivery Indicator (RDI) data in order to perform DPV and RDI processing on U.S. addresses.

2. Import the Microsoft Dynamics CRM Module dataflows into your Spectrum™ Technology Platform server.

- a) On the Spectrum™ Technology Platform server, open this folder:

*SpectrumDirectory\server\modules\dataflows\mscrm*

**Note:** This folder is only available if you have installed the Microsoft Dynamics CRM Module.

- b) As mentioned in the table below, copy the applicable dataflow files to the *import* folder:

*SpectrumDirectory\server\import*

If you have installed this set of Copy these dataflow files to the import folder modules

Advanced Matching Module	<i>GenerateMatchKey.df</i> <i>GenerateMatchScore.df</i> <i>GenerateSearchKey.Consonant.df</i> <i>GenerateSearchKey.df</i> <i>GenerateSearchKey.Metaphone.df</i> <i>GenerateSearchKey.Substring.df</i>
Universal Addressing Module without Loqate	<i>ValidateAddressWithCandidates_UAM.df</i>
Universal Addressing Module without Loqate Enterprise Geocoding Module	<i>ValidateAddressWithCandidates_UAM_EGM.df</i>
Universal Addressing Module with Loqate	<i>ValidateAddressWithCandidates_UAM_Loqate.df</i>
Universal Addressing Module with Loqate Enterprise Geocoding Module	<i>SugarCRMValidateAddressAndGenerateMatchKey.df</i> <i>ValidateAddressWithCandidates_UAM_Loqate_EGM.df</i>

If you have installed this set of modules Copy these dataflow files to the import folder

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Universal Addressing Module, Loqate only	<i>ValidateAddressWithCandidates_Loqate.df</i>
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Universal Addressing Module, Loqate only Enterprise Geocoding Module	<i>ValidateAddressWithCandidates_Loqate_EGM.df</i>
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Enterprise Geocoding Module	<i>GeocodeUSAddressWithCandidates.df</i>
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3. Import the Microsoft Dynamics CRM Module into your Microsoft Dynamics CRM system.
  - a) In the Spectrum™ Technology Platform installation package, browse to this folder:  
`MS CRM Objects\Proxy`
  - b) Copy the file `netProxy.aspx` to this folder on your Microsoft Dynamics CRM server:  
`MicrosoftDynamicsCRMInstallation\CRMWeb`
  - c) Copy the file `netProxy.dll` to this folder on your Microsoft Dynamics CRM server:  
`MicrosoftDynamicsCRMInstallation\CRMWeb\Bin`
  - d) Log in to Microsoft Dynamics CRM as an administrator.
  - e) Click **Microsoft Dynamics CRM** then click **Settings**.
  - f) Click **Solutions**.
  - g) Click **Import**.
  - h) Browse to the Spectrum™ Technology Platform installation package and select the file:  
`MS CRM Objects\mscrm\PBMSDynamicsCRMConnector_4_0_0_managed.zip`
  - i) Click **Next** then **Publish All Customizations**.
  - j) Restart the Microsoft Dynamics CRM server.
4. Define the connection between Microsoft Dynamics CRM and the Spectrum™ Technology Platform server.
  - a) Log in to Microsoft Dynamics CRM as an administrator.
  - b) Click **Microsoft Dynamics CRM > Settings**.
  - c) Click **Settings > Pitney Bowes**. You will have to scroll to the right to find the Pitney Bowes link.
  - d) Click **Administration**.
  - e) Click **New**.



- f) In the **Name** field, enter PB.
- g) In the **Server Name** field, enter the server name or IP address of the Spectrum™ Technology Platform server.
- h) In the **Port** field, enter the port used by the Spectrum™ Technology Platform server for HTTP communication. By default the port is 8080.
- i) In the **Account ID** field, enter the Spectrum™ Technology Platform user name.
- j) In the **Password** field, enter the password for the Spectrum™ Technology Platform user.
- k) Click **Save**

The Microsoft Dynamics CRM system now has access to address validation and, optionally, geocoding services on the Spectrum™ Technology Platform server.

## Changing the Password

Your user ID and password are provided to you when you purchase the Address Validation service. These credentials are used to authorize your usage of the Address Validation service hosted on the Spectrum™ Technology Platform from your Microsoft Dynamics CRM system.

If your Spectrum password is changed by Pitney Bowes, you need to change the password of the Spectrum connection on your system in order to continue to access the Address Validation service.

**Important:** You should only change the password when asked to do so by a Pitney Bowes representative. Changing the password on your own may result in the loss of access to the Address Validation service.

1. Go to **Setting > Extensions > Pitney Bowes**.
2. Click **Administration**.
3. Click the connection to the Pitney Bowes server then click **Edit**.
4. Click **Change Password**.
5. Enter the new password given to you by Pitney Bowes.
6. Click **Save**.
7. Click **Test Connection** to verify that the new password works.
8. Click **Save & Close**.

# 3 - Address Validation and Geocoding

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## Validating Addresses in Multiple Records

You can validate addresses in multiple records by using the batch address validation feature. This feature is useful if you have records in your system that have never been validated. For example, if you add Spectrum™ Technology Platform to a Microsoft Dynamics system that already has records in it, you may want to run batch address validation to validate the addresses in your existing records.

1. Sign in to Microsoft Dynamics CRM.
2. To go **Settings > Pitney Bowes**.
3. Click **Batch Jobs**.
4. Click **New**.
5. In the **Batch Job Name** field, enter a name for this job. You can give the job any name you like.
6. In the **Entity Name** field, select the type of records you want to validate.
7. In the **Saved View** field, select the view containing the records you want to validate.

**Note:** Batch processing only works for system views.

8. In the **Option** field, choose either **Address Validation** (to just validate addresses) or **Address Validation & Match Key Generation** if you also want to generate match keys. Generating match keys makes it possible to include the record in deduplication.
9. In the **Batch Size** field, specify the number of records to include in a single batch when generating match keys for existing records. The default is 1,000.

The batch size controls how many records are sent to the Spectrum™ Technology Platform at a time. For example, if are generating match keys for 50,000 records and you set the batch size to 1,000, the records would be divided into 50 batches. Each batch would be sent to Spectrum™ Technology Platform for processing, and when the batch is done the next batch would be sent, and so on. This setting can improve performance by limiting the number of records that Spectrum™ Technology Platform processes at a time.

**Tip:** To see how the **Batch Size** setting affects performance, conduct tests using representative data from your Microsoft Dynamics CRM system.

10. Click **Save** or **Save & Close**. The batch job is submitted for processing.

You can view the status of the job in the **Active PB Batch Job** view.

If a job fails, you can view the error in the Error Description column of the **Active PB Batch Job view**. You can also view errors by going to **Settings > System Jobs**. Look for the system job name PBCRMPlugin.Plugins.PostPBBatchJobCreate and click it. Expand **Details** and the error is displayed.

## Rerunning Failed Jobs

When you validate addresses for existing records, or generate match keys for existing records, the batch job that performs these operations may fail for a variety of reasons. You can rerun the batch job after fixing the underlying cause of the failure by following these steps.

1. Sign in to Microsoft Dynamics CRM.
2. To go **Settings > Pitney Bowes**.
3. Click **Batch Jobs**.
4. Click the failed job that you want to resubmit.
5. Click **Save** or **Save & Close**.

## Validating an Address

The address validation process checks the address against postal data from postal authorities from around the world. You are presented with a validated form of the address that contains any corrections that were necessary. For example, if you did not include a postal code or misspelled a street name, the validation process corrects these errors and presents you with the validated address which you can accept or ignore.

Address validation happens automatically when you enter an address into one of the following entities:

- Accounts
- Contacts
- Leads
- Competitors
- Quotes
- Orders
- Invoices

1. While editing a record or creating a new one, enter the address into the address fields.

To see if an address is already validated, check the value in the **Validation Status** field:

<b>Cleansed</b>	The address has been validated.
<b>Uncleansed</b>	Address validation was attempted but the address could not be validated.
<i>empty</i>	If the field is empty, address validation has not been attempted.

**Note:** Address validation is not available when you create a record using the **Create** shortcut at the top of the Microsoft Dynamics CRM window. To validate the address of a new record, create the record using the **New** button.

2. Click **Done**.

**Important:** You must click the **Done** button in order for address validation to occur. If you click away from the address fields pop-up window the address will not be validated.

The validated version of your address is shown, including any corrections that the address validation service made. If there are multiple addresses that matched the address information you entered, each matching addresses is shown.

3. Double-click the address that you want to add to the record.

If you do not want to accept any of the validated addresses, click **Cancel**.

The validated version of the address is added to the record. For U.S. addresses, the **RDI** and **DPV** fields indicate whether the address is a residential address, and whether the address is able to receive mail.

## Viewing Records with Validated Addresses

You can view a list of all the Account, Contact, and Lead records in your Microsoft Dynamics CRM system that have validated addresses. The listing includes records that have a value of "Cleansed" in the **Validate Status** field.

1. Go to Account, Contact, or Lead.
2. Click the view drop-down menu and select **PB: Cleansed Address**.

For example, if you are in the Contacts view, select **My Active Contacts > PB: Cleansed Address**.

A listing of records with cleansed addresses appears.

## Viewing Address Validation Reports

Address validation reports display charts and tables that provide details about the results of address validation, such as the number of records validated and not validated, the reasons for address validation failures. For addresses in the United States, the report also provides codes that indicate if the address is a residence, business, or both (U.S. Postal Service RDI codes), as well as codes that indicate whether the address is able to have mail delivered to it (U.S. Postal Service DPV codes).

1. In Microsoft Dynamics CRM, go to **Sales > Reports**.

2. In the **Available Reports** view, sort the reports by name.
3. Scroll down to the reports that begin with "PB":
  - PB Address Validation for Account
  - PB Address Validation for Contact
  - PB Address Validation for Lead
4. Click the report you want to view.  
It may take a few seconds for the report to appear.
5. To view additional details such as RDI and DPV codes, click the section of the chart you want to drill into.

## RDI and DPV Codes

When you validate an address, the address is assigned Residential Delivery Indicator (RDI) and Delivery Point Validation (DPV) codes which provide additional information about the address.

### *RDI Codes*

For U.S. addresses only, Residential Delivery Indicator (RDI™) processing can help you determine the best cost for shipping your packages. RDI™ processing identifies whether an address is a business or a residential address. This difference is important because some delivery services charge a higher price for delivery to a residential address than they do to a business address.

The **RDI** field contains one of the following codes for validated addresses:

<b>B</b>	The address is a business address.
<b>R</b>	The address is a residential address.
<b>M</b>	The address is both a residential and a business address.
<b>null</b>	Not checked because the address did not code at a ZIP + 4® level, or RDI™ was not performed.

### *DPV Codes*

Delivery Point Validation (DPV®) is a United States Postal Service® (USPS®) technology that validates the accuracy of address information down to the individual mailing address. By using DPV® to validate addresses, you can reduce undeliverable-as-addressed (UAA) mail, thereby reducing postage costs and other business costs associated with inaccurate address information.

The **DPV** field contains one of the following codes for validated addresses.

<b>Y</b>	DPV confirmed. Mail can be delivered to the address.
<b>N</b>	Mail cannot be delivered to the address.
<b>S</b>	The building number was validated but the unit number could not be confirmed. A building number is the primary address number for a building. A unit number is a number of a

distinct mailing address within a building such as an apartment, suite, floor, and so on. For example, in this address 424 is the building number and 12 is the unit number:

424 Washington Blvd. Apt. 12  
Oak Park IL 60302  
USA

- D** The building number was validated but the unit number was missing from input. A building number is the primary address number for a building. A unit number is a number of a distinct mailing address within a building such as an apartment, suite, floor, and so on. For example, in this address 424 is the building number and 12 is the unit number:

424 Washington Blvd. Apt. 12  
Oak Park IL 60302  
USA

- M** The address matches multiple valid delivery points.
- U** The address could not be confirmed because the address did not code at the ZIP + 4<sup>®</sup> level.
- V** The address caused a false-positive violation.

## Geocoding an Address

*Geocoding* is the process of assigning latitude and longitude coordinates to an address. If your Microsoft Dynamics CRM administrator has configured the optional Spectrum™ Technology Platform geocoding feature, addresses are automatically geocoded as part of the address validation process.

1. While editing a record or creating a new one, enter the address into the address fields.

To see if an address is already validated, check the value in the **Validation Status** field:

<b>Cleansed</b>	The address has been validated.
<b>Uncleansed</b>	Address validation was attempted but the address could not be validated.
<i>empty</i>	If the field is empty, address validation has not been attempted.

**Note:** Address validation is not available when you create a record using the **Create** shortcut at the top of the Microsoft Dynamics CRM window. To validate the address of a new record, create the record using the **New** button.

2. Click **Done**.

**Important:** You must click the **Done** button in order for address validation to occur. If you click away from the address fields pop-up window the address will not be validated.

The validated version of your address is shown, including any corrections that the address validation service made. If there are multiple addresses that matched the address information you entered, each matching addresses is shown.

3. Double-click the address that you want to add to the record.  
If you do not want to accept any of the validated addresses, click **Cancel**.

The **Latitude** and **Longitude** fields contain the coordinates of the address.



# 4 - Duplicate Detection and Merging

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## Introduction to Duplicate Detection and Merging

Spectrum™ Technology Platform duplicate detection logic uses fuzzy matching to identify potential duplicate records. This is a more powerful duplicate detection approach than the default Microsoft Dynamics CRM duplicate detection logic which can only identify duplicate records if the values in the fields are identical matches, such as an identical name or identical address.

Duplicate detection automatically looks for duplicate records in your system when you save one of the following entities:

- Accounts
- Contacts
- Leads

Duplicate detection identifies duplicate records by comparing data in the Name and/or Address fields only. If you do not enter information into the Name and/or Address fields, the system will not attempt to find duplicate records.

## Generating Match Keys for Preexisting Records

A match key is an identifier assigned to each record and used by the Spectrum™ Technology Platform deduplication process to find records that may be duplicates of each other. If you have records in your Microsoft Dynamics CRM system that were created before you began using Spectrum™ Technology Platform for deduplication, you must generate match keys for these existing records in order for them to be found by the deduplication process.

1. Sign in to Microsoft Dynamics CRM.
2. To go **Settings > Pitney Bowes**.
3. Click **Batch Jobs**.
4. Click **New**.
5. In the **Batch Job Name** field, enter a name for this job. You can give the job any name you like.
6. In the **Entity Name** field, select the type of records you want to validate.
7. In the **Saved View** field, select the view containing the records you want to validate.

**Note:** Batch processing only works for system views.

8. In the **Option** field, choose either **Match Key Generation** (to just generate match keys) or **Address Validation & Match Key Generation** if you also want to validate addresses.

- In the **Batch Size** field, specify the number of records to include in a single batch when generating match keys for existing records. The default is 1,000.

The batch size controls how many records are sent to the Spectrum™ Technology Platform at a time. For example, if you are generating match keys for 50,000 records and you set the batch size to 1,000, the records would be divided into 50 batches. Each batch would be sent to Spectrum™ Technology Platform for processing, and when the batch is done the next batch would be sent, and so on. This setting can improve performance by limiting the number of records that Spectrum™ Technology Platform processes at a time.

**Tip:** To see how the **Batch Size** setting affects performance, conduct tests using representative data from your Microsoft Dynamics CRM system.

- Click **Save** or **Save & Close**. The batch job is submitted for processing.

You can view the status of the job in the **Active PB Batch Job** view. When the process is finished, all active and inactive records will have match keys. You can verify that match keys have been assigned by going to the **PB: Records Without Match Key** view.

If a job fails, you can view the error in the Error Description column of the **Active PB Batch Job** view. You can also view errors by going to **Settings > System Jobs**. Look for the system job name PBCRMPlugin.Plugins.PostPBBatchJobCreate and click it. Expand **Details** and the error is displayed.

## Rerunning Failed Jobs

When you validate addresses for existing records, or generate match keys for existing records, the batch job that performs these operations may fail for a variety of reasons. You can rerun the batch job after fixing the underlying cause of the failure by following these steps.

- Sign in to Microsoft Dynamics CRM.
- To go **Settings > Pitney Bowes**.
- Click **Batch Jobs**.
- Click the failed job that you want to resubmit.
- Click **Save** or **Save & Close**.

## Enabling Duplicate Detection

To use Spectrum™ Technology Platform duplicate detection logic, you must disable Microsoft Dynamics CRM duplicate detection and enable Spectrum™ Technology Platform duplicate detection.

- Log in to Microsoft Dynamics CRM as an administrator.
- Disable the default Microsoft Dynamics CRM duplicate detection feature.

**Note:** This step is only necessary if you are using Microsoft Dynamics CRM 2013 SP1. If you are using Microsoft Dynamics CRM 2013, skip this step.

- a) Click **Microsoft Dynamics CRM > Settings**.
  - b) Click **Settings > Data Management**. You may have to scroll to the right to find the Data Management link.
  - c) Click **Duplicate Detection Settings**.
  - d) Clear the check box **Enable duplicate detection**.
  - e) Click **OK**.
3. Enable Spectrum™ Technology Platform duplicate detection.
- a) Click **Settings > Pitney Bowes**. You will have to scroll to the right to find the Pitney Bowes link.
  - b) Click the connection name.
  - c) Check the box **Duplicate Detection**.
  - d) In the **Threshold** field, specify how closely a record must match in order for it to be considered a duplicate, from 0 to 100.

The higher the value, the more closely a record must match in order for it to be considered a duplicate, with a value of 100 meaning that a record must be identical in order for it to be considered a duplicate. A higher number may result in fewer records being presented to the user in the **Duplicate Detection and Merging** window. A lower number may result in more records being presented to the user. If you want to be certain of catching all possible duplicates, set this value to 20 or less; if you want to reduce the number of duplicates to those records that more closely match, set this number above 70.

**Tip:** To see how the **Threshold** setting affects duplicate detection, conduct tests using representative data from your Microsoft Dynamics CRM system.

- e) Click **Save**.

## Merging Duplicate Records

When you save a record, the system looks for duplicate records based on the data you entered in the name and address fields. If the system finds potential duplicate records, you can merge the duplicate records by following this procedure.

1. Create or edit a record.

**Note:** Duplicate detection is only available when you edit an existing record or create a new record using the **New** button. It is not available when you create a record using the **Create** shortcut.

2. Save the record.

**Important:** If you are using Microsoft Dynamics CRM 2013 SP1, you must click **Save** in order for the system to look for duplicate records. If you click **Save & Close**, the system will not check for duplicate records.

The system automatically looks for records that are potential duplicates of the record you are saving. If the system determines that the record you are saving may be a duplicate of another record, the **Duplicate Detection and Merging** window appears, listing the records that may be duplicates. The first record, the one with no value in the **MatchScore** column, is the record you are saving. The other records are duplicates. The **MatchScore** column indicates how similar the duplicate records are to the record you are saving. An identical record has a score of 100. The lower the number, the less closely the record matches the record you are saving.

3. Decide which record you want to be the surviving record. In the **Action** column of that record, choose **Master**. This record will be preserved and will contain the merged data, and the other record will be deactivated.

**Note:** To view deactivated records, go to the list of active accounts, contacts or leads and switch to the list of inactive accounts. For example, to view inactive account records, click **My Active Accounts** then choose **Inactive Accounts**.

4. For each record that contains data you want to merge into the master record:
  - a) Choose **Merge** in the **Action** column.
  - b) Click the fields that you want to merge into the master record. The fields that will be preserved in the master record are highlighted.
5. To delete a duplicate record, choose **Delete** in the **Action** column.
6. Click **Submit**.

The data from the records marked **Merge** is merged into the record marked **Master**. The records marked **Merge** are made inactive in Microsoft Dynamics CRM.

### Example

In the following example, the first record is the master record and will be preserved after the merge. The account name from the second record, Pitney Bowes, will be merged into the master record, replacing Pitney Bowes Software. The second record will be deactivated. The last two records will be deleted.

Duplicate Detection & Merging

Duplicate Records List

Action	Account Name	Street 1	Street 2	City	State/Province	ZIP/Postal Code	Country	MatchScore
Master ▾	Pitney Bowes Software	121 Trinity Woods Dr		Raleigh	NC	27607-4957	US	
Merge ▾	Pitney Bowes	1212 Trinity Rd		Raleigh	NC	27607-4945	US	82
Delete ▾	Pitney Bowes	1210 Trinity Rd		Raleigh	NC	27607-4945	US	82
Delete ▾	Pitney Bowes	5702 Trinity Rd		Raleigh	NC	27607-3800	US	79

## Deleting Duplicate Records

When you save a record, the system looks for duplicate records based on the data you entered in the name and address fields. If the system finds potential duplicate records, you can delete the duplicate records by following this procedure.

**Note:** You cannot delete duplicate records that are associated with an entity. For example, you cannot delete an account record that has a sales record associated with it.

1. Create or edit a record.

**Note:** Duplicate detection is only available when you edit an existing record or create a new record using the **New** button. It is not available when you create a record using the **Create** shortcut.

2. Save the record.

**Important:** If you are using Microsoft Dynamics CRM 2013 SP1, you must click **Save** in order for the system to look for duplicate records. If you click **Save & Close**, the system will not check for duplicate records.

The system automatically looks for records that are potential duplicates of the record you are saving. If the system determines that the record you are saving may be a duplicate of another record, the **Duplicate Detection and Merging** window appears, listing the records that may be duplicates. The first record, the one with no value in the **MatchScore** column, is the record you are saving. The other records are duplicates. The **MatchScore** column indicates how similar the duplicate records are to the record you are saving. An identical record has a score of 100. The lower the number, the less closely the record matches the record you are saving.

3. If the **Duplicate Detection and Merging** window appears and you want to delete a duplicate record, in the **Action** column of that record choose **Delete**.

**Note:** The first record listed, which has no value in the Match Score column, is the new or edited record you saved.

4. Click **Submit**.



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