



Customer Information Management

Spectrum™ Technology Platform

Version 2019.1.0

SugarCRM Guide



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1 - Introduction

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What is Address Validation and Geocoding?

Address Validation

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.

Geocoding

Geocoding is the process of assigning latitude and longitude coordinates to an address.

Spectrum™ SugarCRM Module

The Spectrum™ Technology Platform connector for SugarCRM provides address validation features that help ensure that accurate addresses are entered into your SugarCRM records.

The Spectrum™ Technology Platform connector also determines the latitude and longitude coordinates of an address, which is a process called *geocoding*.

This guide contains instructions for administrators on how to integrate Spectrum™ Technology Platform with SugarCRM. It also contains instructions for users on how to validate and geocode addresses.

Entities Supported

You can validate and geocode the addresses of the entities:

1. Accounts
2. Contacts
3. Leads

Supported SugarCRM Versions

SugarCRM 7.7.1.1

Supported Browsers

- Chrome, all versions
- Firefox, all versions
- Internet Explorer 11

Supported Flavors

- Sugar Enterprise
- Sugar Ultimate

2 - Integrating SugarCRM with Spectrum

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Integrating with SugarCRM

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

Before you begin:

Browse to the folder "Sugar CRM DQ Objects\sugarcrm" in the Spectrum™ Technology Platform installation package and copy the file `PBSugarCRMConnector.zip` to any location on your SugarCRM server.

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 SugarCRM Module dataflows into your Spectrum™ Technology Platform server.
 - a) On the Spectrum™ Technology Platform server, open this folder:

`SpectrumDirectory\server\modules\sugarcrm`

Note: This folder is only available if you have installed the SugarCRM 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>
Universal Addressing Module, Loqate only	<i>ValidateAddressWithCandidates_Loqate.df</i>
Universal Addressing Module, Loqate only Enterprise Geocoding Module	<i>ValidateAddressWithCandidates_Loqate_EGM.df</i>
Enterprise Geocoding Module	<i>GeocodeUSAddressWithCandidates.df</i>

3. Import the Pitney Bowes SugarCRM module into your SugarCRM system.
 - a) Log in to SugarCRM as an administrator.
 - b) In the profile dropdown at the top right corner, click **Admin**.
 - c) In this **Administration** screen, in the **Developer Tools** section, click **Module Loader**. The **Module Loader** screen opens.
 - d) If you are integrating your SugarCRM system with Spectrum™ Technology Platform for the first time, you must upload the SugarCRM Connector module of your SugarCRM system:
 1. Upload the ZIP file `PBSugarCRMConnector.zip` of Spectrum copied earlier to the system, using the file uploader field in the centre of the page.
 2. Click **Upload**.
 3. Click **Confirm**. An entry for the *Pitney Bowes* package now shows in the bottom grid.
 - e) Once the *Pitney Bowes* package is uploaded into the system, or if it has been uploaded previously into your SugarCRM system but is uninstalled:
 1. Click **Install** against the Pitney Bowes package entry in the bottom grid on the **Module Loader** screen.
 2. On the **Licence** screen, select **Accept**, then click **Commit**.
 - f) In the profile dropdown at the top right corner, click **Admin**.
 - g) In this **Administration** screen, in the **System** section, click **Repair**. The **Repair** screen opens.
 - h) Click **Quick Repair and Build**. The existing SugarCRM configurations are rebuilt to incorporate the custom Objects and Object Layouts imported with the SugarCRM Connector module. The logs are displayed.

Spectrum's SugarCRM Connector module is now successfully integrated with your SugarCRM system.

The menu item **Administration > PB Service Configuration** is now available.

Creating a Connection to Spectrum

Once the SugarCRMConnector module of Spectrum™ Technology Platform is uploaded successfully in your SugarCRM, you can create a connection to the Spectrum server.

1. Login to your SugarCRM system as an Administrator.
2. Go to **Administration > PB Service Configuration**.
3. Click **Create**.
4. In the **Name** field, enter the desired name for the connection. For example, `PB_SpectrumConnection`.
5. In the **Server Name** field, enter the server name or IP address of the Spectrum™ Technology Platform server.

6. In the **Port** field, enter the port used by the Spectrum™ Technology Platform server for HTTP communication. By default the port is 8080.
7. In the **User Name** field, enter the Spectrum™ Technology Platform user name.
8. In the **Password** field, enter the password for the Spectrum™ Technology Platform user.
9. If you wish to run the duplicate detection feature provided by the Pitney Bowes Address Validation bundle:

- Check **Duplicate Detection**.
- In the **Threshold** field, enter a value between 0 and 100, both inclusive. If you leave this field blank, the default threshold value of 30 is used. The Pitney Bowes Address Validation service fetches those records as duplicate whose match score is equal to or higher than the *threshold* match score.

For more information, see [Threshold](#) on page 21.

10. Before saving the connection, click **Test Connection** to verify the entered credentials for the Spectrum server.
11. Once the Spectrum connection details are tested successfully, click **Save**.

Note: You can either test a connection before clicking **Save**, or test an existing connection by first opting to **Edit** it.

You can now use this connection to validate and geocode the addresses of records in your SugarCRM system using the Spectrum™ Technology Platform.

Note: Only one connection to the Spectrum™ Technology Platform can exist at a time. To create another connection to Spectrum™ Technology Platform, you can either delete the existing connection and create a new one, or edit the existing connection.

Uninstalling SugarCRMConnector module of Spectrum

1. Log in to SugarCRM as an administrator.
2. In the profile dropdown at the top right corner, click **Admin**.
3. In this **Administration** screen, in the **Developer Tools** section, click **Module Loader**. The **Module Loader** screen opens.
4. To uninstall the SugarCRM Connector module, in the top grid of installed extensions, click **Disable** against the Pitney Bowes package entry. Once Disabled, click **Uninstall** button.
5. On the **Ready To Uninstall** screen, select **Remove Tables**, then click **Commit**.

The Pitney Bowes SugarCRMConnector module is uninstalled from your SugarCRM system.

Note: The uninstalled extension is still available on your SugarCRM system and displays in the bottom grid on the **Module Loader** screen, from where you can install the same extension again if needed, unless you require a fresh version of the module from Spectrum.

To remove the Pitney Bowes Address Validation module completely from your SugarCRM system, click **Delete Package** in the bottom grid on the **Module Loader** screen.

3 - Address Validation and Geocoding

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Validating an Address

Accounts: Validating an Address

1. Go to **Accounts** in the menu bar.
2. To create a new record, click **Create**. Else, to edit an existing record, click the desired record, then click **Edit** in the top right.
3. Fill in or edit the details, billing address, and shipping address for the record.
4. If the billing address is the same as the shipping address, check the **Copy billing address to shipping address** check box.
5. To validate the billing address, click **Validate Billing Address**.
A pop up window opens listing all the matching address found.
If the **Copy billing address to shipping address** check box is checked, then clicking this button validates both the billing and shipping address.
6. To validate the shipping address, click **Validate Shipping Address**.
A pop up window opens listing all the matching address found.
7. In the pop up window, either select the appropriate address, or close the window without selecting any.
If you select any one of the matching addresses, the details of the selected record populates the record fields in the parent window and the **Billing Validation Status** or **Shipping Validation Status** fields are marked as *Cleansed*.

If user close the pop up window the **Billing Validation Status** or **Shipping Validation Status** fields are marked as *Uncleansed*.

Note: If the **Copy billing address to shipping address** check box is checked, and you have clicked **Validate Billing Address**, then on selecting a matching address in the pop up window, the selected address' details are populated in both the shipping address fields and the billing address fields. Also, both the **Billing Validation Status** and the **Shipping Validation Status** fields are marked as *Cleansed*.

8. Click **Save**.

The validated address is added to the entity 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. For more information, see [RDI and DPV Codes](#) on page 15.

Attention: To validate an address, a record must be in the *editable* mode. Either validate the addresses before saving a record, or in case of an existing record click **Edit**.

Note: If the geocoding feature is configured in the Spectrum™ Technology Platform dataflow, then the record is also geocoded. For more information, see [Geocoding an Address](#) on page 16.

Contacts and Leads: Validating an Address

1. Go to **Contacts** or **Leads** in the menu bar, as desired.
2. To create a new record, click **Create**. Else, to edit an existing record, click the desired record, then click **Edit** in the top right.
3. Fill in or edit the details, including the primary address and the alternate address for the record.
4. If the alternate address is the same as the primary address, check the **Copy primary address to alternate address** check box.
5. To validate the primary address, click **Validate Primary Address**.

If the **Copy primary address to alternate address** check box is checked, then clicking this button validates both the primary and alternate address.

A pop up window opens listing all the matching addresses found.

6. To validate the alternate address, click **Validate Alternate Address**.
A pop up window opens listing all the matching addresses found.
7. In the pop up window, either select the appropriate address, or close the window without selecting any.

If you select any one of the matching addresses, the details of the selected record populates the record fields in the parent window and the **Primary Validation Status** or **Alternative Validation Status** fields are marked as *Cleansed*.

If user close the pop up window the **Primary Validation Status** or **Alternative Validation Status** fields are marked as *Uncleansed*.

Note: If the **Copy primary address to alternate address** check box is checked, and you have clicked **Validate Primary Address**, then on selecting a matching address in the pop up window, the selected address's details are populated in both the primary address fields and the alternate address fields. Also, both the **Primary Validation Status** and the **Alternate Validation Status** fields are marked as *Cleansed*.

8. Click **Save**.

The validated address is added to the entity 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. For more information, see [RDI and DPV Codes](#) on page 15.

Attention: To validate an address, a record must be in the *editable* mode. Either validate the addresses before saving a record, or in case of an existing record click **Edit**.

Note: If the geocoding feature is configured in the Spectrum™ Technology Platform dataflow, then the record is also geocoded. For more information, see [Geocoding an Address](#) on page 16.

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** The address is a business address.
- R** The address is a residential address.
- M** The address is both a residential and a business address.
- null** 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.

- Y** DPV confirmed. Mail can be delivered to the address.
- N** Mail cannot be delivered to the address.
- S** 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[®] level.
- V** The address caused a false-positive violation.

Validation Statuses

Status	Description
Cleansed	The address has been verified.
Uncleansed	Indicates any of the two: <ul style="list-style-type: none"> • Address validation was attempted but failed • User did not opt for the cleansed address
blank	If the field is blank, address validation has not been attempted.

Geocoding an Address

About Geocoding an Address

Geocoding is the process of assigning latitude and longitude coordinates to an address. If your SugarCRM administrator has configured the optional Spectrum™ Technology Platform geocoding feature, addresses are automatically geocoded as part of the address validation process. If the geocoding feature has been opted for, the Latitude and Longitude fields are also populated during address validation. These fields contain the coordinates of the selected address.

Validate Address and/or Generate MatchKey for Multiple Records

Table 1: Before your begin

- To handle timeouts for batch jobs, it is recommended to set the value in PHP.ini file to 120 instead of 60 for default_socket_timeout parameter. This timeout value can further be increased if the batch has more records that can be processed in 120 seconds. The PHP.ini file is located in the PHP installation directory on the machine where SugarCRM is installed
- To handle the fatal error (Allowed memory size exhausted), you can increase the default value (128 MB) of memory_limit to 512 MB in php.ini file.

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 SugarCRM that already has records in it, you may want to run batch address validation to validate the addresses in your system.

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 SugarCRM 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.

To create a job, follow these steps:

1. Log in to SugarCRM as an administrator
2. Click the arrowhead at the top right of the screen, then click on **PB Batch Jobs**
The resulting screen lists the existing batch job
3. Notice that the page has only one job listed
If a job already exists, the system does not allow to create another job. At any given time, there can be only one batch job. To edit an existing batch job, select the checkbox against the particular job, then click the *edit* icon at the right end of the job row.
4. To create a new job, click **Create**
The resulting page allows you to configure the batch job
5. In the **Name** field, enter the desired name for the batch job
6. In the **Entity** field, click the type of entity for which you wish to create a bulk address validation job
For example, if you select `Contacts`, the batch job includes only *Contacts* records

7. In the **Operation** field, click the operation you wish to perform on each record in the batch. Different Operation options are:
 - a) **Generate MatchKey:** Generated only Matchkeys for the records to enable them for deduplication
 - b) **Validate Address:** Performs address validation only for the records
 - c) **Validate Address and Generate MatchKeys:** Performs address validation and matchkey generation for records
8. In the **Run Batch On** field, select an address validation status such that the records having this validation status are included in the batch job
 If you select the validation status *New*, the batch job includes those records on which address validation has never been attempted and thus they have no validation status assigned to them. Refer to the table for clearer understanding:

Table 2: Validation Statuses

All	New	Cleansed	Uncleansed
This status includes all records irrespective of corresponding validation status of the records such as Blank or Cleansed or Uncleansed.	This status includes only those records for which corresponding validation status is blank.	This status includes only those records for which corresponding validation status is Cleansed.	This status includes only those records for which corresponding validation status is Uncleansed.

9. In the **Batch Size** field, enter the number of records to be included in the batch job.
 The batch size can range from 1000 to 5000, both values inclusive. The default batch size is 1000.
10. Click **Save** to save the job with desired parameters
 The batch job list page appears

Run The Scheduler Job

1. Click **Admin** drop down from the top-right of the screen
2. Select **Admin** from the drop down list
3. Click **Scheduler** from the **System** section
 The list of existing Scheduler jobs appears on the Schedulers page

Creating or Editing a scheduler job

- a. To create a job scheduler click **Sugar Scheduler** menu and then select **Create Scheduler**
- b. To edit an existing scheduler job, check the job from the list and click **Edit**.

4. Enter or edit the **Job Name**.
5. Click **PB Bulk Job** from the Job drop down
6. Check **Advance Options** to view advanced scheduling options.
7. Select **Interval** as per requirement.
8. Click **Save**

Note:

- In order to see the records processed in the job, user can check logs.
- In order to run the Sugar schedulers, create a batch file to run using Windows Scheduled Tasks. The batch file should include the following commands:

```
cd C:\inetpub\wwwroot\SugarCrm  
php.exe -f cron.php
```

Reporting

Reporting is a standard SugarCRM feature and reports can be generated based on filters for account, contact/lead entities for billing validation status and primary validation status fields respectively.

For more details on SugarCRM Reports, [click here](#).

4 - Duplicate Detection and Merging

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Introduction

Spectrum™ Technology Platform duplicate detection logic uses fuzzy matching to identify potential duplicate records for any SugarCRM record. This is a more powerful duplicate detection approach than the default SugarCRM duplicate detection logic.

The process identifies duplicate records by comparing data in the *Name* and *Address* fields of a record.

The Pitney Bowes Address Validation service automatically looks for duplicate records in your system when you save one of the entities:

- Accounts
- Contacts
- Leads

Threshold

The Pitney Bowes Address Validation service fetches those records as duplicate whose match score is equal to or higher than the *threshold* match score. The default match score threshold for ascertaining duplicacy is 30%. In the **Threshold** field, you must specify how closely a record must match, using values from 0 to 100, in order for it to be considered a duplicate.

Note: For the system to find duplicate records for a particular SugarCRM record, you must enter information in the *Name* field at least.

Detecting Duplicate Records and Merging

The Spectrum service looks for duplicate records based on the data you entered in the **Name** and **Address** fields of the entity record. If potential duplicate records are found and listed, you can merge the duplicate records to create a *Master* record.

Duplicate Detection and Merging is provided only for **Billing Address** in case of Accounts, and the **Primary Address** in case of Contacts and Leads. In case the Billing and Shipping addresses have separate address values, then duplicate detection and merging is run only on the Billing Address. The same holds true for Primary and Alternate addresses, where duplicate detection and merging is run only on the Primary address in a similar case.

If either the **Copy billing address to shipping address** checkbox is checked in case of Accounts or the **Copy primary address to alternate address** checkbox is checked in case of Contacts and Leads meaning both addresses are same, duplicate detection is run on the address and any changes resulting from merging duplicate addresses are copied to both the addresses.

1. Go to **Accounts**, **Contacts**, or **Leads** in the menu bar.

2. To create a new record, click **Create**. Else, to edit an existing record, click on the desired record, then click **Edit** in the top right.
3. Enter the details of the record.

To perform duplicate detection and merging, a combination of the **Name** and **Address** fields is used. Ensure you enter at least the **Name** and preferably the **Address** fields as well. The accuracy and quality of the duplicate detection and the merged record depends on the accuracy of the details provided.

4. Click **Dedupe and Merge**.

The **Duplicate Detection and Merging** window opens, listing all the records that may be potential duplicates for the entity you are saving.

5. In the **Duplicate Detection and Merging** window's, 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. In the **Action** column:

- a) Mark as *Master* that record into which you wish to merge the selected details from the duplicate records. This *Master* record is preserved and will contain the merged data.

The **MatchScore** column of the *Master* record is blank.

Note: By default, the last record in the Dedupe window is marked as the *Master* record, while the remaining are marked as *Option* records.

- b) Out of the *Option* records, mark as *Merge* those records from which you want to select specific field values to create the *Master* record. Click the column values that you want to merge into the master record. These selected values are highlighted and combined to create the master record. These 'merged' records are then deleted and do not show up in any future duplicate detection run.
- c) The remaining *Option* records are left without any changes, and show up in future duplicate detection runs.
- d) Click **Submit**.
The selected values from the various *Merge* records are merged into the *Master* record, and these values now populate the relevant address fields in the parent window.

6. Click **Save** in the parent window to save the entity with the address details from the *Master* record.

The unique match key generated is now saved for the *Master* address record.

Attention: For all future dedup runs matching this particular **Name** and **Address**, this *Master* record as well as the *Option* marked records might be listed based on Threshold value. However, the *Merge* marked records are deleted and do not get listed in any future dedup runs for the same Name and Address combination.



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