Spectrum™ Technology Platform

Version 9.0

Siebel Module User Guide

Pitney Bowes Software

Contents

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Introduction to the Siebel Module

In this section:

What is the Siebel Module?

The Spectrum™ Technology Platform Siebel Module identifies and manages duplicate records, standardizes and validates addresses, standardizes and validates names, and auto-populates missing fields. Records in your Siebel system are checked against known, up-to-date reference data from sources such as regulatory bodies (for example, the United States Postal Service), third-party data providers (for example, Dun & Bradstreet) or your company's internal reference sources (for example, accounting data).

Architecture

The Spectrum™ Technology Platform's Siebel Module is implemented in two different ways: SDQ and Non-SDQ. SDQ stands for Siebel Data Quality and is an out-of-the-box feature of the Siebel application. SDQ has a component called "Universal Connector," and this is utilized to connect to the Spectrum™ Technology Platform for data quality operations. The Non-SDQ implementation utilizes a custom connector when connecting to the Spectrum™ Technology Platform. The following table illustrates the differences between SDQ and Non-SDQ implementation.

Table 1: Supported Web Clients

	SDQ	Non-SDQ
Web Client	Y	Y
Dedicated Web Client	Y	Y
Mobile Web Client	N	Y

Table 2: Supported Services

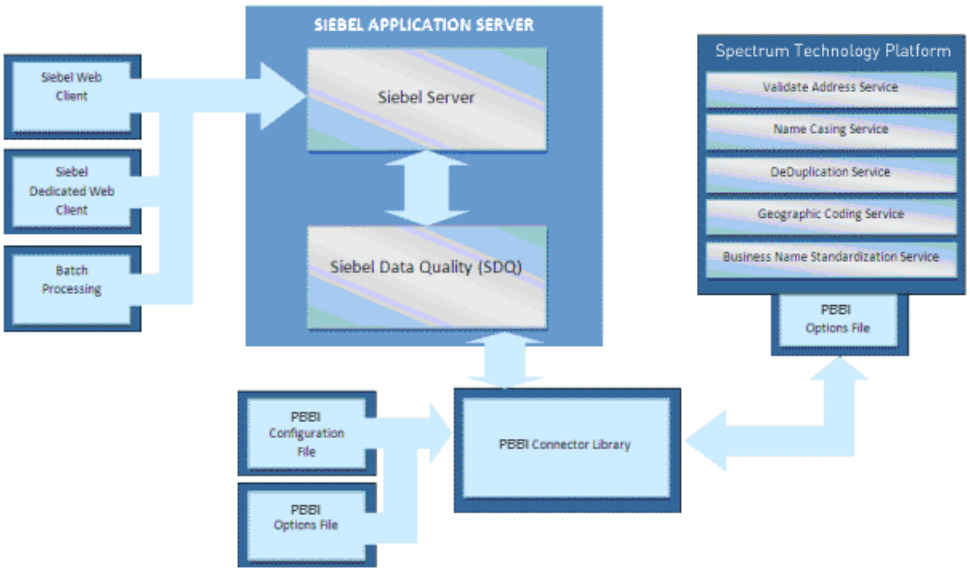
	SDQ	Non-SDQ
Siebel Business Name Standardization	Y	Y
Siebel Generate Match Key	N	Y
Siebel Generate Match Score	Y	Y
Siebel Generate Search Key	N	Y
Siebel Standardize Name	Y	Y
Siebel Validate Address With Candidates	N	Y
Siebel Validate Address With No Candidates	Y	Y

Data cleansing may be enabled for business addresses, personal addresses, and prospect addresses. De-duplication may be enabled for accounts, contacts, business addresses, personal addresses[1], and prospects. Settings are global for interactive mode and can be unique for each batch job. Settings for

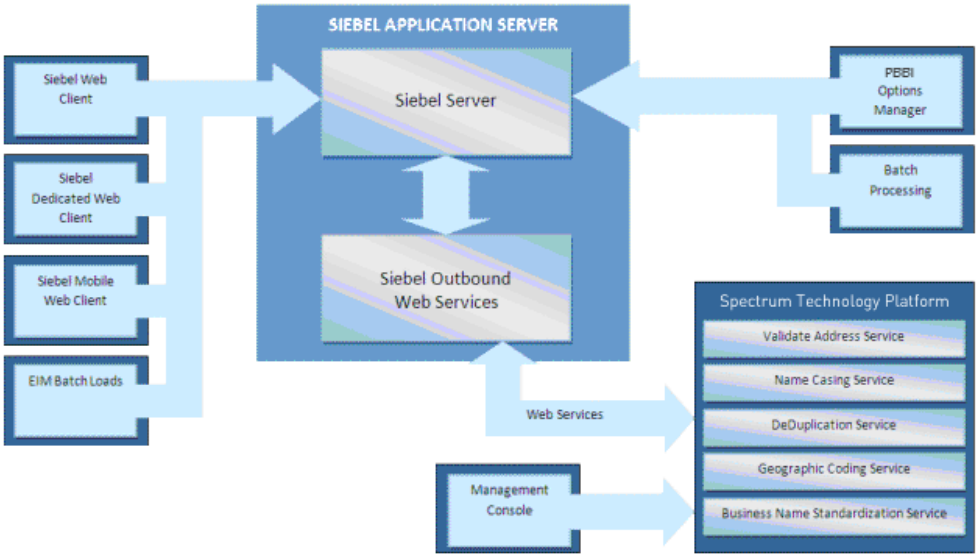
[1] Personal Address is supported only for Siebel Industry Applications

the Siebel Module are managed using options and configuration files for SDQ. For Non-SDQ, Siebel's Options Manager and the Spectrum™ Technology Platform Management Console are used to set options and configuration.

SDQ Architecture



Non-SDQ Architecture



Siebel Module Services

The Siebel Module consists of the following services.

- **Siebel Business Name Standardization**—Standardizes terms against a previously validated form of that term and applies the standard version. This evaluation is done by searching a table for the term to be standardized. If the term is found, the term is either replaced with the standard version or it is extracted from the field. Standardization can include changing full words to abbreviations, changing abbreviations to full words, changing nick names to full names or misspellings to corrected spellings.
- **Siebel Generate Match Key**—Generates a match key. The match key is generated using a substring or consonant algorithm.
- **Siebel Generate Match Score**—Compares candidate records and generate a score that reflects its similarity. The higher the score, the closer the match.
- **Siebel Generate Search Key**—Used for duplicate detection and error-tolerant searching.
- **Siebel Standardize Name**—Formats input data with either mixed case or upper case.
- **Siebel Validate Address With Candidates**—Validates addresses. If you have licensed the Enterprise Geocoding Module, it also returns the latitude and longitude. If the address is not found, it returns a list of possible matches (candidates).
- **Siebel Validate Address With No Candidates**—Validates addresses. If you have licensed the Enterprise Geocoding Module, it also returns latitude and longitude. If the address is not found, no candidates are returned.

Siebel Module Databases

The Siebel Module relies on other Spectrum™ Technology Platform modules to provide various capabilities such as address standardization and geocoding. Depending on the features you have licensed you may have one or more of the following modules. Each module requires certain reference data (databases) to be installed on the Spectrum™ Technology Platform server.

Note: For instructions on installing these databases, see the *Spectrum™ Technology Platform Installation Guide*.

Address Now Module Database

The Address Now database contains postal data from all supported countries. You can install the entire database or the data for specific countries only. The database is installed on the server. This database is available by subscription from Pitney Bowes Software and is updated monthly.

Enterprise Geocoding Module Databases

Table 3: Enterprise Geocoding Module Databases

Database Name & Description	Required or Optional	Supplier
U.S. Geocoding Databases These databases contain the spatial data necessary to perform address standardization and geocoding. You must install at least one of these databases. You set the database that you want to match against with the processing options. Enterprise Geocoding tries to match to the database you indicate. To verify you are matching to the database you want, you can review the value returned in the StreetDataType output field.	Required for U.S. geocoding	Pitney Bowes Software monthly subscription

Database Name & Description	Required or Optional	Supplier
These databases use proprietary files called GSD files. For ZIP Code centroid matching, the file us.Z9 contains all the centroid info for all states and normally has a z9 extension. • **Centrus Enhanced Geocoding**—This database consists of TIGER data provided by the U.S. Geological Survey and address data provided by the U.S. Postal Service. • **TomTom Geocoding**—This database provides more up-to-date data than the Centrus Enhanced Geocoding database. It requires an additional license. This data is provided by TomTom, a third-party provider of spatial data, and postal data from the U.S. Postal Service. • **NAVTEQ Geocoding**—This database provides more up-to-date data than the Centrus Enhanced Geocoding database. It requires an additional license. NAVTEQ data is provided by NAVTEQ, a third-party provider of spatial data. For more information about these databases, contact your sales representative. • **ZIP + 4 Centroid**—This database provides only address standardization and ZIP + 4 centroid matching. It does not provide street-level matching. Each geocoding database has an optional Statewide Intersections Index. The Statewide Intersection Index is designed to enable fast intersection identification on a statewide basis. For example, the Statewide Intersection Index will allow the database search for "1st and Main St, CO" and return a list of possible matches in Colorado more quickly than searching the entire geocoding database for each instance of the intersection.		
U.S. Points Databases Points databases contain data for locating the center of a parcel. These databases provides enhanced geocoding accuracy for internet mapping, property and casualty insurance, telecommunications, utilities, and others. • **Centrus Points**—This database contains the data necessary to locate the center of a parcel or building. It does not contain assessor's parcel number (APN) or elevation data. • **Centrus Elevation**—This database contains the same data as Centrus Points, plus elevation data. • **Centrus Enhanced Points**—This database contains the same data as Centrus Points, plus APN data. • **Centrus Premium Points**—This database contains the same data as Centrus Points, plus both APN and elevation data. • **Centrus TomTom Points Database**—The data in this database is provided by TomTom, a third-party provider of spatial data.	Optional, but Reverse APN Lookup requires Centrus Enhanced Points or Centrus Premium Points. Additional license required.	Pitney Bowes Software monthly subscription
Auxiliary Files	Optional	User-defined

Database Name & Description	Required or Optional	Supplier
Auxiliary files contain user-defined records. You can use auxiliary files to provide custom data to use in address matching and geocode matching.		
DPV® Database (U.S. Only) The Delivery Point Validation database allows you to check the validity of any individual mailing address in the U.S. The DPV database is distributed as an optional feature and can be installed to enhance the geocoding database's ability to validate mailing addresses. Each time an edition of the geocoding database is released, a corresponding edition of the optional DPV database is released. The date of the DPV database must match the date of the geocoding database for DPV processing to function. DPV lookups may not be performed after the expiration date of the DPV database. **Note:** CASS processing requires the DPV option. The DPV option is also required to determine ZIP + 4 and ZIP + 4 related output (DPBC, USPS record type, etc.). Postal Service licensing prohibits using DPV for the generation of addresses or address lists, and also prohibits the DPV database being exported outside the United States.	Optional, but required for CASS Certified™ processing. Additional license required.	Pitney Bowes Software monthly subscription
EWS Database (U.S. Only) The Early Warning System (EWS) database contains data that prevents address records from miscoding due to a delay in postal data reaching the U.S. Postal database. The USPS® refreshes the EWS file on a weekly basis. Unlike the DPV and LACS^{Link} databases, the EWS database does not need to have the same date as the geocoding database. You can download the EWS file from the CASS section of the USPS® RIBBS website at: **https://ribbs.usps.gov/** When you download the EWS database, you will receive a file named OUT. You must rename the OUT file to EWS.txt before using it.	Optional	Download for free from USPS® website
LACS ^{Link} Database (U.S. Only) The LACS^{Link} database allows you to correct addresses that have changed as a result of a rural route address converting to street-style address, a PO Box renumbering, or a street-style address changing. The date of the LACS^{Link} database must match the date of the geocoding database for LACS^{Link} processing to function. **Note:** The Enterprise Geocoding Module requires the LACS^{Link} option in CASS mode to receive ZIP + 4 and ZIP + 4 related output (delivery point barcode, USPS record type, etc.).	Optional, but required for CASS Certified™ processing	Pitney Bowes Software monthly subscription

Database Name & Description	Required or Optional	Supplier
USPS licensing prohibits using LACS^{Link} for the generation of addresses or address lists, and also prohibits the LACS^{Link} database being exported outside the United States.		

Universal Addressing Module Databases

Table 4: Universal Addressing Module Databases

Database Name & Description	Required or Optional	Supplier
U.S. Postal Database The U.S. Postal Database is in a Pitney Bowes proprietary format. It contains every house number range in the United States and is updated on a monthly basis. The database files contain the following information: • ZIP + 4® Code • Standardized address elements • City and state information The U.S. Postal Database also contains the data needed to perform Enhanced Street Matching (ESM) and All Street Matching (ASM). ESM and ASM apply extra matching logic to any input address that is not matched through the regular address validation process.	Required for U.S. address processing	Pitney Bowes Software monthly subscription
Canadian Postal Database The Canadian Postal database is in Pitney Bowes Software proprietary format. The database files contain the following information: • Postal code • Standardized address elements • Municipality and province information	Required for Canadian address processing	Pitney Bowes Software monthly subscription
International Postal Database The International Postal Database is a collection of postal address data from around the world. Data from each country is categorized according to the level of data available. The categories are: • **Category A**—Enables the validation and correction of an address's postal code, city name, state/county name, street address elements, and country name. • **Category B**—Enables the validation and correction of an address's postal code, city name, state/county name, and country name. It does not support the validation or correction of street address elements.	Required for International address processing	Pitney Bowes Software quarterly subscription

Database Name & Description	Required or Optional	Supplier
• **Category C**—Enables the validation and correction of the country name, and the validation of the format of the postal code.		
DPV® Database The Delivery Point Validation database allows you to check the validity of an individual mailing address in the U.S. The DPV database enhances the U.S. Postal database's ability to validate mailing addresses. **Note:** The DPV database also contains the data required for Commercial Mail Receiving Agency (CMRA) processing. Each time an edition of the U.S. Postal database is released, a corresponding edition of the DPV database is released. Although USPS licensing allows the use of the U.S. Postal database beyond the expiration date (with certain restrictions), DPV lookups may not be performed after the expiration date of the DPV database. USPS licensing prohibits using DPV data for the generation of addresses or address lists. To prevent the generation of address lists, the DPV database contains "false positive records." False positive records are artificially manufactured addresses. For each negative response that occurs in a DPV query, a query is made to the False/Positive table in the DPV database. A match to this table will stop DPV processing. USPS licensing also prohibits exporting the DPV data outside the United States.	Optional, but required for CASS Certified™ processing; U.S. addresses only	Pitney Bowes Software monthly subscription
eLOT® Database The Enhanced Line of Travel (eLOT) database is a U.S. address database that ensures that Enhanced Carrier Route mailings are sorted as close as possible to the actual delivery sequence. the eLOT database is required for certain types of postal discounts. You will receive monthly updates to your eLOT database on the same media as the U.S. Postal database. You must install the U.S. Postal database and eLOT database from the same month (i.e., September eLOT data must be processed with a September U.S. Postal database). If the U.S. Postal database and the eLOT database are not from the same month, there may be ZIP + 4® Codes for which eLOT numbers cannot be assigned. The ZIP Code™, ZIP + 4 Code, carrier route code, and the delivery point of an address must be provided to assign a eLOT code.	Optional; U.S. addresses only	Pitney Bowes Software monthly subscription
EWS Database The Early Warning System (EWS) database prevents address validation errors that can result due to a delay in postal data reaching the U.S. Postal database.	Optional; U.S. addresses only	Download for free from USPS® website

Database Name & Description	Required or Optional	Supplier
The EWS database consists of partial address information limited to the ZIP Code™, street name, pre- and post-directionals, and a suffix. For an address record to be EWS-eligible, it must be an address not present on the most recent monthly production U.S. Postal database. The USPS® refreshes the EWS file on a weekly basis (Thursdays). You can download the EWS file from the USPS® website at **ribbs.usps.gov**.		
LACS^{Link}® Database The LACS^{Link} database allows you to correct addresses that have changed as a result of a rural route address converting to street-style address, a PO Box renumbering, or a street-style address changing. USPS licensing prohibits using LACS^{Link} for the generation of addresses or address lists. To prevent the generation of address lists, the LACS^{Link} database contains "false positive records." False positive records are artificially manufactured addresses. For each negative response that occurs in a LACS^{Link} query, a query is made to the False/Positive table in the LACS^{Link} database. A match to this table will stop LACS^{Link} processing. USPS licensing also prohibits exporting the LACS^{Link} database outside the United States	Optional, but required for CASS Certified™ processing; U.S. addresses only	Pitney Bowes Software monthly subscription
RDI™ Database The Residential Delivery Indicator (RDI™) database contains data that can help you determine the best cost for shipping your packages. RDI is similar to DPV in that the RDI data is supplied as hash tables. However, RDI is a much simpler process than DPV in that the standard hash algorithm is only determined for the 9-digit and 11-digit ZIP Code™ rather than the entire address.	Optional; U.S. addresses only	License directly from USPS®
Suite^{Link}™ Database Suite^{Link}™ corrects secondary address information for U.S. business addresses whose secondary address information could not be validated. If Suite^{Link} processing is enabled, Validate Address attempts to match the value in the FirmName field to a database of known firm names. Validate Address then supplies the correct secondary address information.	Optional; U.S. addresses only	Pitney Bowes Software monthly subscription

2

Using the Siebel Module with Siebel SDQ

In this section:

Siebel Module OPT File Options

The Pitney Bowes Software Spectrum™ Technology Platform Connector for Siebel SDQ contains an OPT file that allows you enable or disable certain processing components in the Management Console.

The Siebel Module OPT file can be found at:

```
<install directory>\Siebel\<version>\web client\BIN\ENU.
```

All options in each section can be set to a value of either Y or N.

Table 5: OPT File Options

Option	Description
AccountBusinessNameStandardization	Specifies whether the account name will be standardized using the standard form of the business name. **Y** (Default) Yes, standardize business names. **N** No, do not standardize business names.
AccountNameCasing	Specifies whether to standardize the casing of the account name. If enabled, Spectrum™ Technology Platform applies the casing options selected in the Management Console for the Siebel Standardize Name service. **Y** (Default) Yes, standardize the casing of account names. **N** No, do not standardize casing of account names.
ContactNameCasing	Specifies whether to standardize the casing of the contact person's name. If enabled, Spectrum™ Technology Platform applies the casing options selected in the Management Console for the Siebel Standardize Name service. **Y** (Default) Yes, standardize the casing of contact names. **N** No, do not standardize casing of contact names.
ProspectNameCasing	Specifies whether to standardize the casing of a prospect's name. If enabled, Spectrum™ Technology Platform applies the casing options selected in the Management Console for the Siebel Standardize Name service. **Y** (Default) Yes, standardize the casing of prospect names. **N** No, do not standardize casing of prospect names.
BusinessAddressCleansing	(Siebel Business only) Specifies whether to validate and standardize business addresses. **Note:** Check the **Disable Cleansing** column of the business address applet to deactivate the data cleansing for each business address. **Y** (Default) Yes, validate and standardize business addresses.

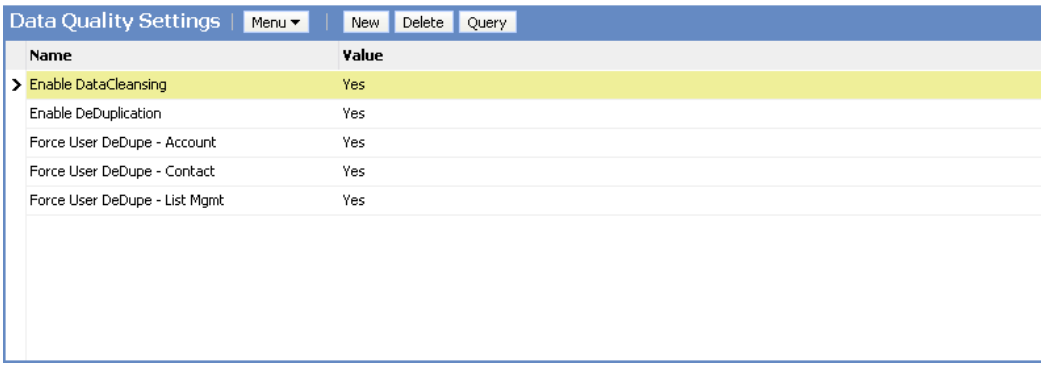
Option	Description
	N No, do not standardize business addresses.
BusinessAndPersonalAddressCleansing	(Siebel Industry only) Specifies whether to validate and standardize business and personal addresses. **Note:** Check the **Disable Cleansing** column of the business address applet to deactivate the data cleansing for each business address. **Y** (Default) Yes, validate and standardize business and personal addresses. **N** No, do not standardize business and personal addresses.
ProspectAddressCleansing	Specifies whether to validate and standardize prospects' addresses. **Note:** Check the **Disable Cleansing** column of the business address applet to deactivate the data cleansing for each business address. **Y** (Default) Yes, validate and standardize prospect addresses. **N** No, do not standardize business and prospect addresses.
BusinessAddressGeocoding	(Siebel Business only) Specifies whether to determine the latitude/longitude coordinates of business addresses. **Y** (Default) Yes, determine the latitude/longitude coordinates of business addresses. **N** No, do not determine the latitude/longitude coordinates of business addresses.
BusinessAddressAndPersonalAddressGeoCoding	(Siebel Industry only) Specifies whether to determine the latitude/longitude coordinates of business and personal addresses. **Y** (Default) Yes, determine the latitude/longitude coordinates of business and personal addresses. **N** No, do not determine the latitude/longitude coordinates of business and personal addresses.
ProspectAddressGeocoding	Specifies whether to determine the latitude/longitude coordinates of prospects' addresses. **Y** (Default) Yes, determine the latitude/longitude coordinates of prospect addresses. **N** No, do not determine the latitude/longitude coordinates of prospect addresses.
PerformDPV	Specifies whether to perform Delivery Point Validation (DPV) on U.S. addresses. DPV is a United States Postal Service (USPS) technology that validates the accuracy of address information down to the physical delivery point.

Option	Description
	Y (Default) Yes, perform DPV on U.S. addresses. **N** No, do not perform DPV on U.S. addresses.
PerformESM	Specifies whether to perform Enhanced Street Matching (ESM) on U.S. addresses. Enhanced Street Matching (ESM) applies additional matching logic to correct misspelled or complex street names. **Y** (Default) Yes, perform ESM on U.S. addresses. **N** No, do not perform ESM on U.S. addresses.
PerformRDI	Specifies whether to perform Residential Delivery Indicator (RDI) processing on U.S. addresses. RDI processing checks if an address is a residential address (not a business address). **Y** (Default) Yes, perform RDI processing on U.S. addresses. **N** No, do not perform RDI processing on U.S. addresses.
Threshold	Specifies the minimum match score needed for a record to be considered a duplicate of another record. For example, if the threshold is 70, only records with a score of 70 or above are considered duplicates. Specify a value between 50 and 100. The default is 50.

Specifying Data Quality Settings

1. From the Siebel Application window, click **Navigate** > **Site Map**.
2. Click **Administration - Data Quality**.
3. Click **Data Quality Settings**.

   The Data Quality Settings screen displays.



4. Configure the data quality settings as needed. The following table describes the settings.

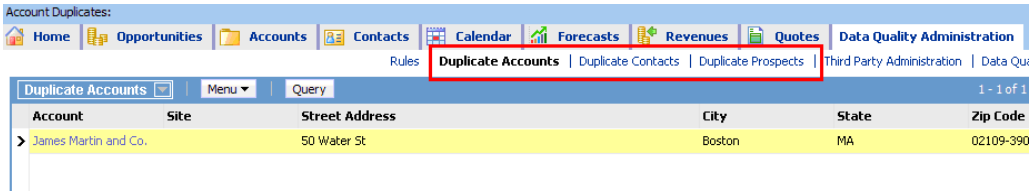
Parameter	Description
Enable DataCleansing	Determines whether real-time data cleansing is enabled for the Siebel Server the administrator is currently logged into.
Enable DeDuplication	Determines whether real-time data matching is enabled for the Siebel Server the administrator is currently logged into.
Force User Dedupe -Account	Determines whether duplicate records are displayed in a pop-up window when a user saves a new account record. The user can then merge duplicates. If the value is set to No, duplicates are not displayed in a pop-up window, but the user can merge duplicates in the Duplicate Accounts view.
Force User Dedupe -Contact	Determines whether duplicate records are displayed in a pop-up window when a user saves a new contact record. The user can then merge duplicates. If the value is set to No, duplicates are not displayed in a pop-up window, but the user can merge duplicates in the Duplicate Contacts view.
Force User Dedupe -List Mgmt	Determines whether duplicate records are displayed in a pop-up window when a user saves a new prospect record. The user can then merge duplicates. If the value is set to No, duplicates are not displayed in a pop-up window, but the user can merge duplicates in the Duplicate Prospects view.

Merging Duplicate Records

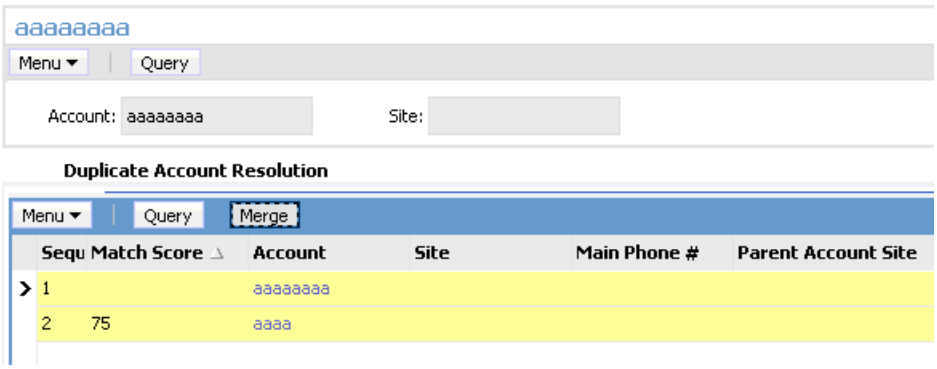
In the **Administration - Data Quality** screen you can choose which record will survive and which records you want to merge with the surviving record. You can merge duplicate records in two ways.

- Merge Button

  Go to **Site Map** > **Administration - Data Quality** and select the appropriate duplicate resolution view.

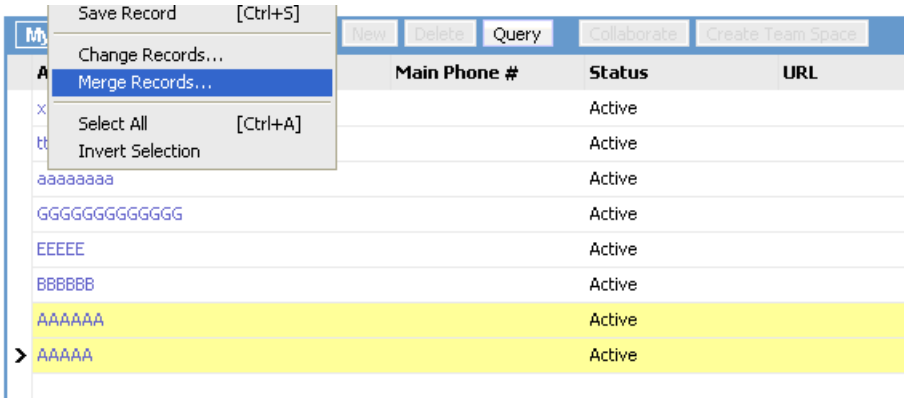


Select the records you want to merge and assign sequence number to the record. The record with the lowest sequence number will survive.



- Merge Records

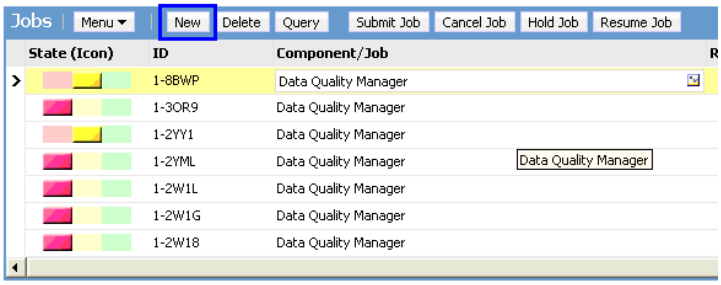
  This action performs standard merging functionality in Siebel. Select the record you want to merge. The surviving record associates all child records from the non surviving record before deleting the non surviving record.



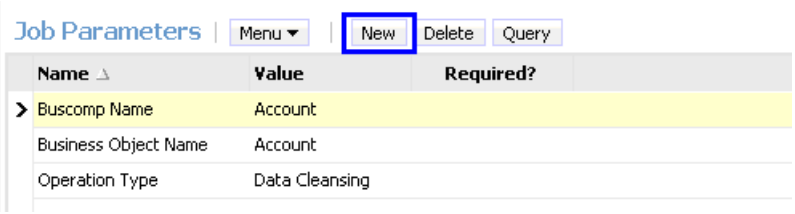
Running a Batch Job

This procedure describes how to run batch processes for business name standardization, data cleansing, data deduplication, geocoding and name casing.

1. From the Siebel Application window, click **Navigate** > **Site Map**.
2. A screen appears with numerous links in alphabetical order. Select **Administration - Server Administration** > **Jobs**.
3. Click the **New** button and enter `Data Quality Manager` in the **Component/Job** field.



4. On the same screen, set the job parameters by clicking **New** and providing the necessary details.



The following tables show the required and optional job parameters.

Table 6: Required Job Parameters

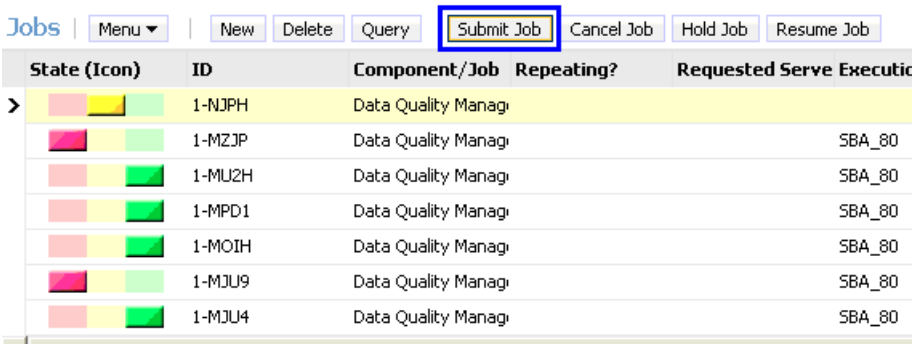
Job Parameter	Description
Buscomp name	The name of the business component: • Account • Contact • List Mgmt Prospective Contact • Business Address
Business Object Name	The name of the business object: • Account • Contact • List Mgmt Prospective Contact • Business Address(Data Cleansing Only)
Operation Type	Type of operation used: • Data Cleansing: Does one or more of the following depending on the features you have licensed: standardizes casing and business names, validates addresses, and geocodes addresses. • Key Generate: Generates hash keys for all records in the business component. • Key Refresh: Refreshes hash keys for all records in the business component. • DeDuplication: performs data matching to identify duplicate records

Table 7: Optional Job Parameters

Job Parameter	Description
Object Sorting Clause	A clause that specifies how candidate records are sorted for optimal processing by the data matching software. The default value is: `Dedup Token` **Note:** This parameter applies to Data Matching operations only.
Object Where Clause	A clause that limits the number of records processed by a data quality task. For example: `[DUNS Number] is NULL` **Note:** You should specify an object where clause when performing DeDuplication on Prospects (use with value "[DUNS Number] is NULL").

Job Parameter	Description
Rule Name	Specifies the name of a Business rule that you want to use while performing batch cleansing or deduplication. Use the rule names defined in the **Administration - Data Quality** > **Rules** view.

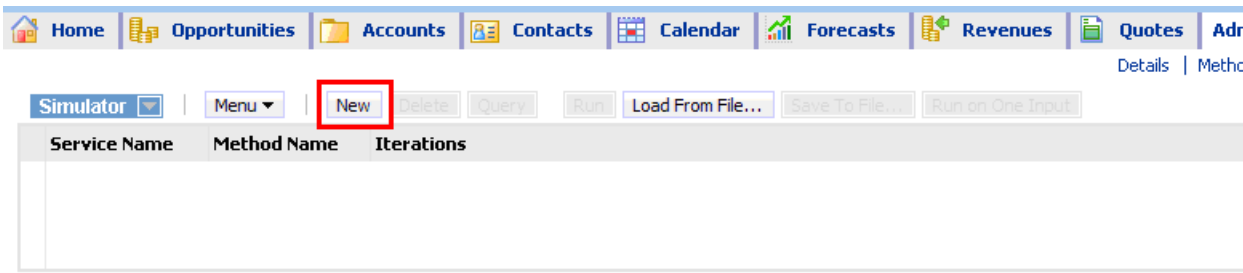
5. Click **Submit Job**.



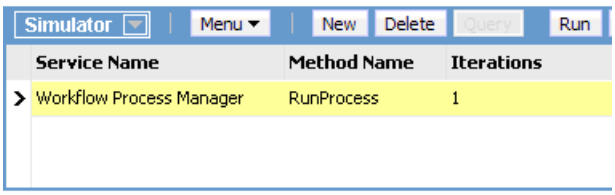
Testing EAI

Enterprise Application Integration (EAI) is a means of cleansing data in Siebel as it is updated from an external system. EAI testing simulates this process.

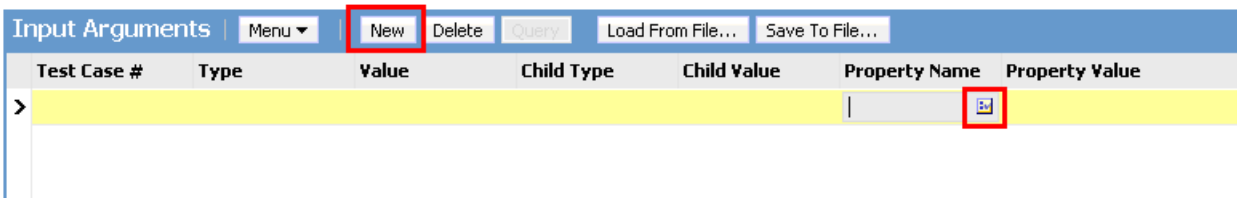
1. Navigate to **Site Map** > **Administration - Business Service** > **Simulator**.
2. Click on the button shown below or select **New Record** from the menu button.



3. Enter the following information:
   - **Service Name**: Workflow Process Manager
   - **Method Name**: Run Process

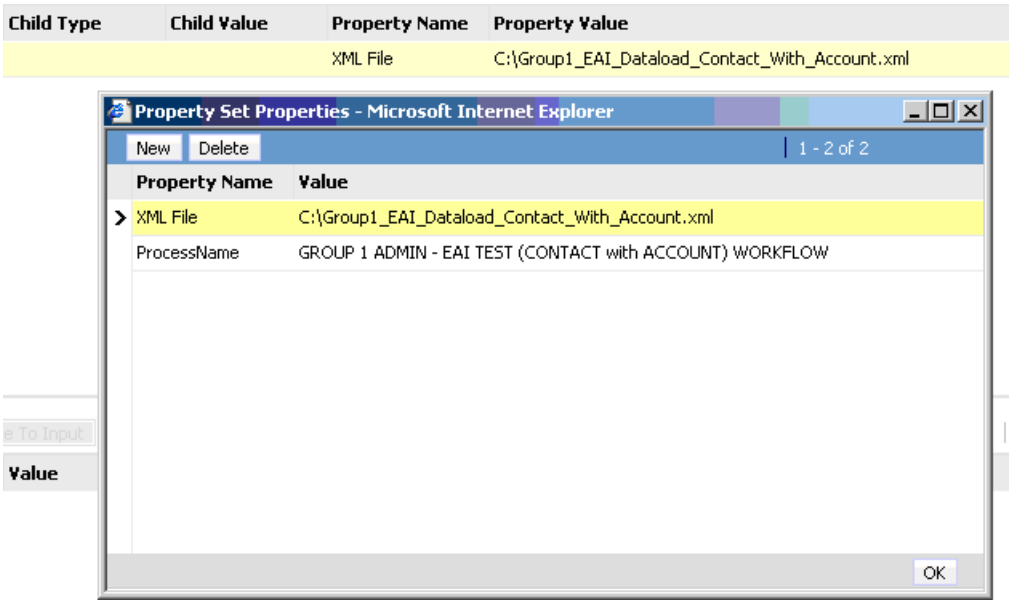


4. In the Input Arguments applet, click **New**.

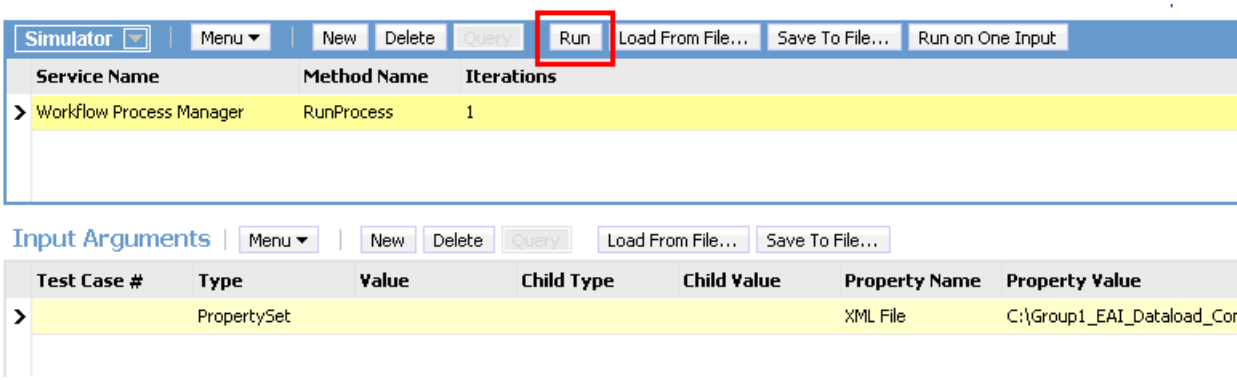


5. Click the icon under **Property Name** and add the following records.

Property Name	Value
ProcessName	The name of the workflow to run: • GROUP 1 ADMIN - EAI TEST (CONTACT with ACCOUNT) WORKFLOW • GROUP 1 ADMIN - EAI TEST (CONTACT with ACCOUNT/PERSONAL ADDRESS) WORKFLOW • GROUP 1 ADMIN - EAI TEST (CONTACT with PERSONAL ADDRESS) WORKFLOW • GROUP 1 ADMIN - EAI TEST (PROSPECT) WORKFLOW • GROUP 1 EAI ACCOUNT TEST WORKFLOW
XML File	The location of the XML file that contains the input data you want to use to test EAI.



6. Click the **Run** button shown below.


Simulator
Menu
New
Delete
Query
Run
Load From File...
Save To File...
Run on One Input
Service Name
Method Name
Iterations
Workflow Process Manager
RunProcess
1

Input Arguments
Menu
New
Delete
Query
Load From File...
Save To File...
Test Case #
Type
Value
Child Type
Child Value
Property Name
Property Value
PropertySet
XML File
C:\Group1_EAI_Dataload_Cor

3

Using the Siebel Module with Siebel Non-SDQ

In this section:

Configuring Siebel non-SDQ

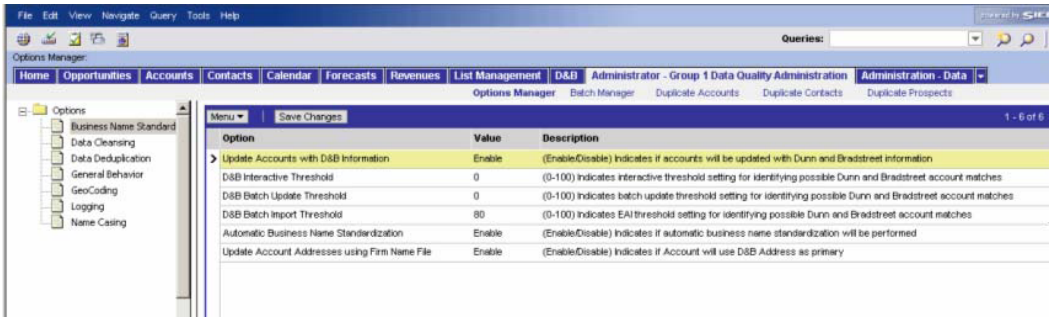
The Spectrum™ Technology Platform Siebel Module contains an Options Manager which allows you to enable or disable certain processing components in the Management Console. The Options Manager provides the following options:

- Business Name Standardization options
- Data Cleansing options
- Data Deduplication options
- General Behavior options
- GeoCoding options
- Logging options
- Name Casing options

Changes made via the Options Manager take effect immediately. After selecting the options, be sure to click **Save Changes** to activate the changes. Use Clear Cache to reset the values of attributes used.

Accessing the Options Manager

1. From the Siebel window, click **Navigate** > **Site Map**.
2. A screen will appear with numerous links in alphabetical order. Select **Administration** > **PBBI Group 1 Data Quality Administration**.
3. Another screen will appear. Under the **PBBI Group 1 Data Quality Administration** heading at the top of the page. Select **Options Manager**. The **Options Manager** screen will appear.



Business Name Standardization Options

The Business Name Standardization option includes parameters for Dunn & Bradstreet (D&B) Information and Automatic Business Name Standardization. These options are displayed below.

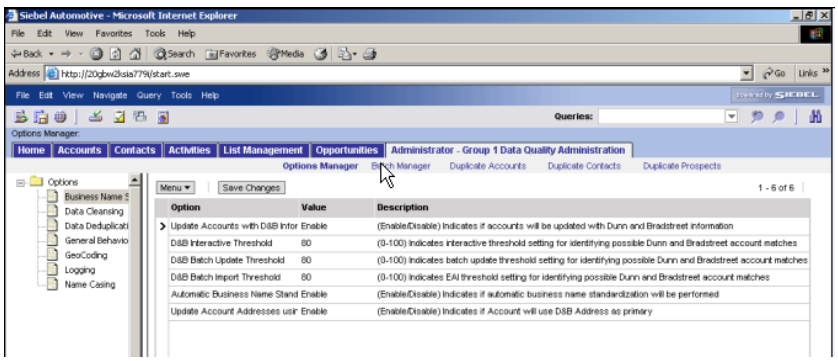


Table 8: Business Name Standardization Options

Option	Values	Description
Update Accounts with D&B Information	Enable, Disable	Indicates if accounts will be updated with Dunn & Bradstreet information. If enabled, created accounts will be updated with matching D&B information.
D&B Interactive Threshold	50 - 100	Specifies the minimum match score needed to identify a possible Dunn & Bradstreet account match during interactive processing. The higher the value, the closer the match must be. The default is 50. If the score produced by the comparison of the account and D&B records is greater than the entered value (must be between 50 and 100), then the record will be identified as duplicate and a pop-up window will be displayed to the user, allowing the user to choose the action to take. The lower the match threshold, the more match candidates will be displayed.
D&B Batch Update Threshold	0 - 100	Specifies the minimum match score needed to identify a possible Dunn & Bradstreet account match during batch processing. The higher the value, the closer the match must be. The default is 50. If the score produced by the comparison of the account and D&B records is greater than the entered Value (must be between 0 and 100), then the D&B records are made D&B candidates of the account record. The account record is updated with the D&B record with the greatest score.
D&B Batch Import Threshold	0 - 100	Specifies the minimum match score needed to identify a possible Dunn & Bradstreet account match during EAI processing. If the score produced by the comparison of the account and D&B records is greater than the entered Value (must be between 0 and 100), then the D&B records are made D&B candidates of the account record. The account record is updated with the D&B record with the greatest score.
Automatic Business Name Standardization	Enable, Disable	Indicates if automatic business name standardization will be performed. If enabled, the account name will be replaced by the matching business name from DQC.
Update Account Addresses using Firm Name File	Enable, Disable	Indicates if Account will use D&B Address as primary. If enabled, the primary address of the account record will be replaced by the physical address of

Option	Values	Description
		the chosen D&B record (as the picked D&B account's primary address).

Data Cleansing Options

The **Data Cleansing** section enables and disables data cleansing of addresses. As a feature of Spectrum™ Technology Platform, options for Delivery Point Validation (DPV), Residential Delivery Indicator (RDI), and Enhanced Street Matching (ESM) can be enabled in this section. **Data cleansing** involves matching and standardizing a U.S., Canadian, or International address against the Pitney Bowes Software address databases.

Note: The **Cleansing Status Flag** (Succeeded ✓, Failed ✗, Not Yet Cleansed) are shown only in views where addresses can be added or modified.

The following are the options and possible values for **Data Cleansing**:

Table 9: Data Cleansing Options

Option	Values	Description
Business Address Cleansing	Enable, Disable	Specifies whether cleansing is enabled for business address. A business address is one used for business purposes It is associated with a contact's account. If enabled, the selected options in the Management Console for ValidateAddress will be activated for processing for business addresses. **Note:** Check the Disable Cleansing column of the business address applet to deactivate the data cleansing for each business address.
Personal Address Cleansing	Enable, Disable	Specifies whether cleansing is enabled for personal address. A personal address is associated with a contact. If enabled, the selected options in the Management Console for ValidateAddress will be activated for processing for personal addresses. **Note:** Check the Disable Cleansing column of the personal address applet to deactivate the data cleansing for each personal address.
Prospect Address Cleansing	Enable, Disable	Specifies whether cleansing is enabled for prospect address.A prospect address is the personal address of a prospect. If enabled, the selected options in the Management Console for ValidateAddress will be activated during processing for prospect addresses.
DPV	Enable, Disable	Specifies whether Delivery Point Validation will be performed. Delivery Point Validation (DPV®) validates that a specific address exists, as opposed to validating

Option	Values	Description
		that a specific address is within a range of valid addresses. **Note:** This option is only available if the Delivery Point Validation option is enabled in the Management Console and if the DPV® database is installed.
RDI	Enable, Disable	Specifies whether Residential Delivery Indicator process will be performed. Residential Delivery Indicator (RDI™) processing checks if an address is a residential address (not a business address). To perform RDI™ processing, you must have the RDI™ database installed. **Note:** This option is only available if the RDI™ option is enabled in the Management Console and if the RDI™ database is installed. The result of RDI™ processing is shown in a field added in Address Information that contains one of the following: • **Residential** - This value is returned by the Universal Coder in case the address entered by the user is a Residential Address • **Business** - This value is returned by the Universal Coder in case the address entered by the user is a Business Address • **Mixed** - This value is returned by the Universal Coder in case the address entered by the user is both a Residential and Business Address.
ESM	Enable, Disable	Specifies whether Enhanced Street Matching process will be performed. Enhanced Street Matching (ESM) applies additional matching logic to correct misspelled or complex street names and obtain a match. ESM produces more validated addresses but reduces performance. **Note:** This option is only available if the ESM option is enabled in the Management Console.

Data Deduplication Options

Data deduplication involves scoring a candidate set of records against a master record to identify possible duplicates and then resolving the duplicates into a single record.

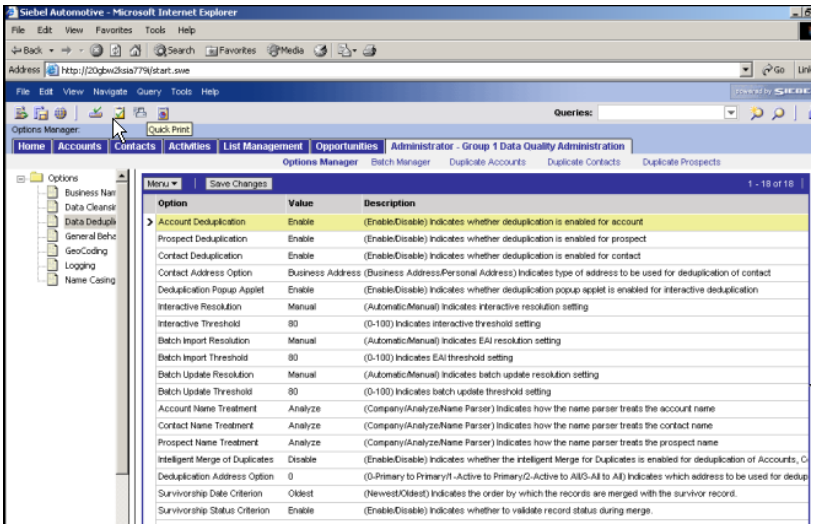


Table 10: Data Deduplication Options

Option	Description
Account Deduplication	Specifies whether to identify duplicate account records. If enabled, the Deduplication applet displays when a user attempts to save a record. It shows the potential duplicates and allows the user to merge or delete records.
Prospect Deduplication	Specifies whether deduplication is enabled for prospect records. If enabled, the Deduplication applet displays when a user attempts to save a record. It shows the potential duplicates and allows the user to merge or delete records.
Contact Deduplication	Specifies whether deduplication is enabled for contact records. If enabled, the Deduplication applet displays when a user attempts to save a record. It shows the potential duplicates and allows the user to merge or delete records.
Contact Address Option	Indicates which type of address to use when deduplicating your contact information. You can choose Business Address or Personal Address. A business address is one used for business purposes It is associated with a contact's account. A personal address is associated with a contact.
Deduplication Popup Applet	Indicates whether the Deduplication applet is enabled for interactive deduplication. The Deduplication applet displays the potential duplicates and allows the user to merge or delete records.
Interactive Resolution	Allows you to select how you wish to interact with Siebel to resolve duplicates. You can choose: **Automatic** When you select this option, Spectrum™ Technology Platform automatically merges a master record with a candidate duplicate record containing the highest score (probability) of being a duplicate without any interaction. **Manual** When you select this option, you will see a list of possible duplicate records. Then you will have the choice to merge the duplicate record with the current record or to merge it with the other listed duplicates.

Option	Description
	Note: To avoid encountering any error during automatic merging, the user must press **<CTRL-S>** to save the record before navigating to another record.
Interactive Threshold	Specifies the minimum match score needed to identify a possible duplicate during interactive processing. The higher the value, the closer the match must be. The default is 50. If the score produced by the match attempt is greater than the entered value (must be between 0 and 100), then the record will be identified as duplicate and a pop-up window will be displayed to the user, allowing the user to choose the action to take. The lower the match threshold, the more match candidates will be displayed.
Batch Import Resolution	Specifies how you want to interact with Siebel to resolve duplicates. **Automatic** When you select this option, Spectrum™ Technology Platform automatically merges a master record with a candidate duplicate record containing the highest score (probability) of being a duplicate without any interaction. **Manual** When you select this option, you will see a list of possible duplicate records. Then you will have the choice to merge the duplicate record with the current record or to merge it with the other listed duplicates. If you are using Batch Import Resolution or Batch Update Resolution, see **Running a Batch Job** on page 40 for information.
Batch Update Resolution	Specifies how you want to interact with Siebel to resolve duplicates. **Automatic** When you select this option, Spectrum™ Technology Platform automatically merges a master record with a candidate duplicate record containing the highest score (probability) of being a duplicate without any interaction. **Manual** When you select this option, you will see a list of possible duplicate records. Then you will have the choice to merge the duplicate record with the current record or to merge it with the other listed duplicates.
Batch Import Threshold	Specifies the minimum match score needed to identify a possible duplicate record during EAI processing. If the score produced by the match attempt is greater than the value you specify (must be between 0 and 100), then the record is considered a match candidate. The record is updated with the candidate record that has the greatest score.
Batch Update Threshold	Specifies the minimum match score needed to identify a duplicate record during batch processing. The higher the value, the closer the match must be. The default is 50. If the score produced by the comparison of the records is greater than the value you entered (must be between 0 and 100), then the records are considered duplicates.
Account Name Treatment	Determines how the name parser should treat the account name. One of the following:

Option	Description	
	Company	Assumes that all names are companies.
	Analyze	Assumes that all names are persons.
	Name Parser	Analyzes the data to determine if it is the name of a company or a person.
Contact Name Treatment	Determines how the name parser should treat the contact name. One of the following:	
	Company	Assumes that all names are companies
	Analyze	Assumes that all names are persons
	Name Parser	Analyzes the data to determine if it is the name of a company or a person.
Prospect Name Treatment	Determines how the name parser should treat the prospect name. One of the following:	
	Company	Assumes that all names are companies.
	Analyze	Assumes that all names are persons.
	Name Parser	Analyzes the data to determine if it is the name of a company or a person.
Intelligent Merge of Duplicates	Specifies whether to allow empty fields to be replaced with non-empty fields when merging two potential duplicate records. Without Intelligent Merge enabled, you may risk losing phone numbers and e-mail information during merging of records. For Account Business Component, the following fields are copied to the surviving record: • Main Phone Number • Main Fax Number • Type • URL • Account Status For Contact Business Component, the following fields are copied to the surviving record: • Fax Phone # • Work Phone # • Home Phone # • Alternate Phone # • Assistant Phone # • Cellular Phone # • Email Address • Comment For Prospect, the following fields are copied to the surviving record: • Fax Phone # • Work Phone # • Home Phone # • Job Title	

Option	Description
	• Email Address • Time Zone • Comment • Preferred Contact Method
Deduplication Address Option	Indicates which addresses to use for deduplication. One of the following: **Primary to Primary** Compare the records using the primary address of the master and candidate records. **Active to Primary** Compare the records using the active address of the master record and the primary address of the candidate records. **Active to All** Compare the records using the active address of the master record and all the addresses of the candidate records. **All to All** Compare the records using all the addresses of the master record and all the addresses of the candidate records.
Survivorship Date Criterion	Indicates the order by which the records are merged with the survivor record. **Newest** The newest duplicate record is merged first. **Oldest** The oldest duplicate record is merged first.
Survivorship Status Criterion	If enabled, merging an Active record to an Inactive record is not allowed. Only the following merging scenarios are allowed: • Active to Active • Inactive to Inactive • Inactive to Active
Generate Match and Search Key Option	Specifies which characters to use to generate the match key and search key. **Substring** Use the first few characters of the record to generate the match key and search key. **Consonant** Use just the consonants to generate the match key and search key.

General Behavior Options

Under the General Behavior section of the Options Manager, you can activate pop-up applets, set up your log directories, and conduct other logging tasks. These three options are shown below:

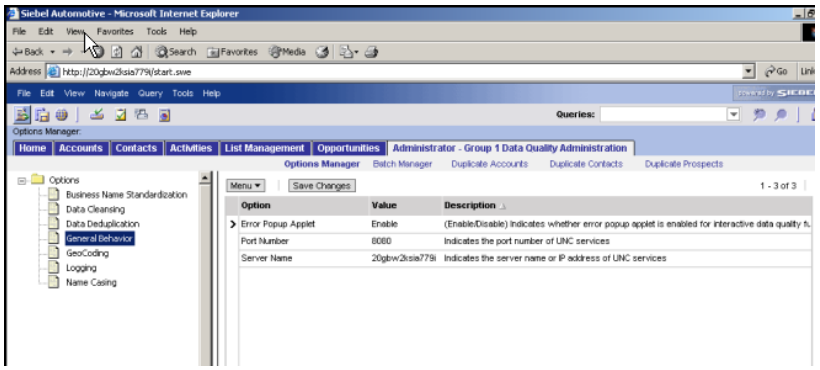


Table 11: General Behavior Options

Option	Description
Error Popup Applet	Specifies whether to display an error dialog when errors occur when performing interactive data quality functions. If enabled, errors from the Siebel Module will be displayed. Also, an error will appear if there is a connectivity problem between Spectrum™ Technology Platform and Siebel.
Server Name	Indicates the server name or IP address of the Spectrum™ Technology Platform server.
Port Number	Indicates the port number of the Spectrum™ Technology Platform server.

Geocoding Options

Geocoding is the process of assigning a latitude/longitude coordinate to an address. Once a latitude/longitude coordinate is assigned, the address can be displayed on a map or used in a spatial search. The screen below displays the geocoding options.

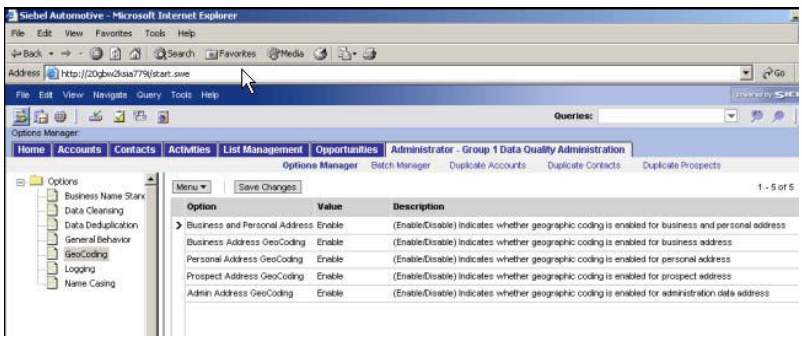


Table 12: Geocoding Options

Option	Description
Business Address GeoCoding	Specifies whether to determine the latitude/longitude coordinates of business address.

Option	Description
Personal Address GeoCoding	Specifies whether to determine the latitude/longitude coordinates of personal addresses.
Prospect Address GeoCoding	Specifies whether to determine the latitude/longitude coordinates of prospect addresses.

Logging Options

The Pitney Bowes Software Data Quality Connector for Siebel provides a logging service to monitor its events. The screen below displays the Data Quality Connector for Siebel logging options.

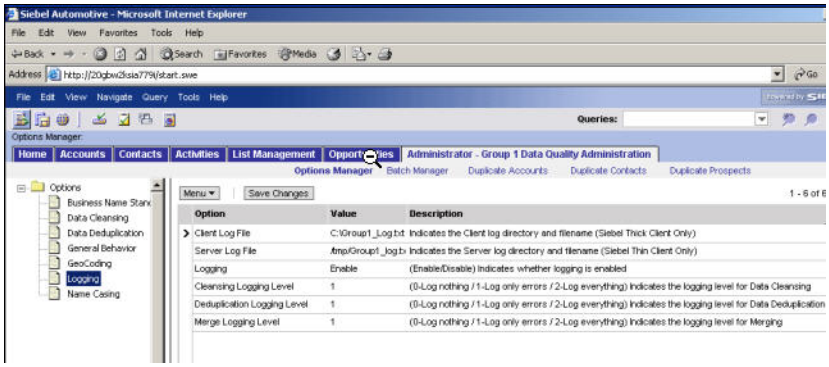


Table 13: Logging Options

Option	Description
Client Log File	Specifies the Siebel client machine destination log directory and filename when using Siebel Thick Client. This log file contains error messages, return code messages, cleansing and deduplication information about each transaction, your original input information, and the information once it has been processed through the Data Quality Connector for Siebel. All of the information found in this log file pertains to the client side of the Data Quality Connector for Siebel. **Note:** This option is ignored when accessing the Siebel application through Siebel Thin Client
Server Log File	Specifies the Siebel Server machine destination log directory and filename when using Siebel Thin Client. This log file contains error messages, return code messages, cleansing and deduplication information about each transaction, your original input information, and the information once it has been processed through the Data Quality Connector for Siebel. All of the information found in this log file pertains to the server side of the Data Quality Connector for Siebel. **Note:** This option is ignored when accessing the Siebel application through Siebel Thick Client.

Option	Description
Logging	Specifies whether logging is enabled. You can choose to enable or disable this option.
Cleansing Logging Level	Specifies how data cleansing results are logged. One of the following: **0** Log nothing. **1** Log errors when cleansing address function fails. **2** Log cleansing input and output as well as errors when cleansing function fails.
Deduplication Logging Level	Specifies how data deduplication results are logged. One of the following: **0** Log nothing. **1** Log errors when data deduplication fails. **2** Log data deduplication input and output as well as errors when data deduplication function fails.
Merge Logging Level	Specifies the logging level for merging. One of the following: **0** Log nothing. **1** Log errors when data merging fails. **2** Log data merging input and output as well as errors when data merging function fails.

Name Casing Options

Under the Name Casing section of the Options Manager, you can turn on or turn off the casing processing you specified in the Management Console.

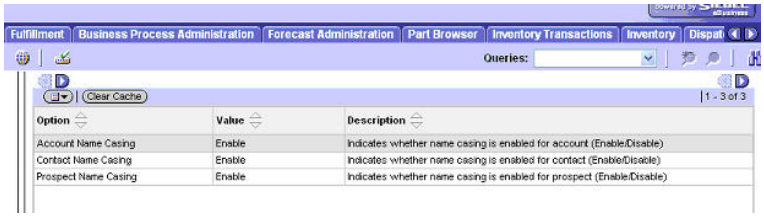
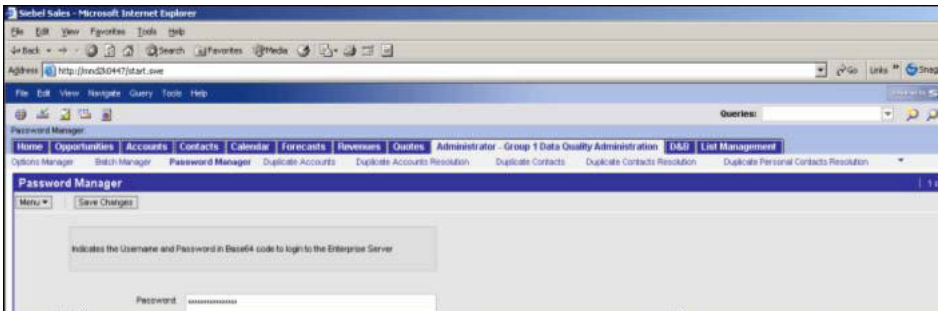


Table 14: Name Casing Options

Option	Description
Account Name Casing	Specifies whether to standardize the casing of account names.
Contact Name Casing	Specifies whether to standardize the casing of contact names.
Prospect Name Casing	Specifies whether to standardize the casing of prospect names.

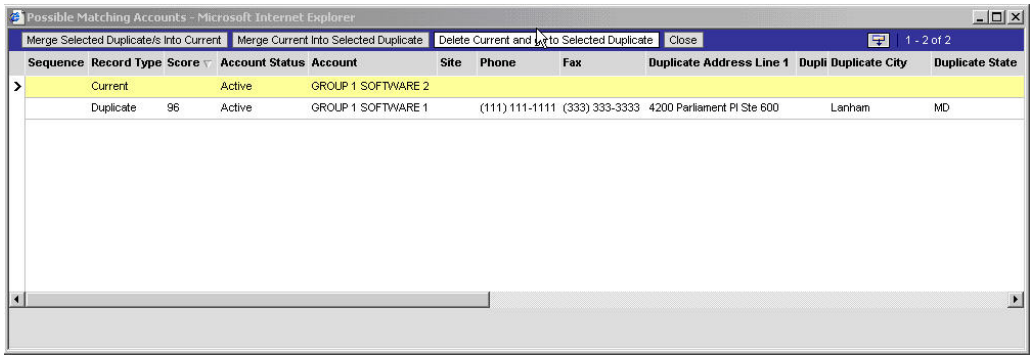
Accessing the Password Manager

The Password Manager screen allows you to enter the password to login to the Spectrum™ Technology Platform Server. The password must be encrypted in Base64 code.



Merging Duplicate Records

If you have selected the **Intelligent Merge of Duplicates** option, you can also determine how existing data will be merged. As shown on the screen below, merging can be initiated by pressing specific options/buttons in the Deduplication Applet (Popup or Embedded).



Note: To close the Deduplication popup applet, click on the **Close** button located in the upper left of the applet. Do not close the applet using the **X** button in the upper right corner of the applet because it will not reset the values of profile attributes used in processing the record.

For data merging you have the following configuration options:

Table 15: Data Merging Options

Option	Description
Merge Selected Duplicate into Current	This option merges the duplicate records with the current record shown in the Deduplication applet. When using this option, you must select the duplicate records in the Deduplication applet.

Option	Description
	The Sequence field can be used to determine the order of which the selected duplicates will be merged. If there is no sequence number, the order will be determined by the survivorship date criterion in the Options Manager. If Survivorship Status Criterion is set to Enable, the status of the duplicate records will be checked against the surviving record. For more information, see **Data Deduplication Options** on page 29. The current record will be the surviving record after a successful merge.
Merge Current into Selected Duplicate	This option merges the current record with the duplicate record shown in the Deduplication applet. When using this option, you must select the duplicate record in the Deduplication Applet. If Survivorship Status Criterion is set to Enable, the status of the duplicate records will be checked against the surviving record. For more information, see **Data Deduplication Options** on page 29. The duplicate record will be the surviving record after a successful Merge.
Delete Current Record and go to Selected Duplicate	This option deletes the current record as shown in the Deduplication applet. When using this option, you must select the duplicate record in the Deduplication applet. The duplicate record will be the surviving record after a successful deletion.

Adding D&B Information to a Record

If the **Update Accounts with D&B Information** option is enabled, the account record will be matched to a D&B record. There are two ways in which the account record can be matched to a D&B record.

Match the First Three Letters of the Business Name

The first three letters of the account name will be used to match the D&B record if the DUNS Number is not provided or the DUNS Number provided is not matched to any D&B record. The D&B popup applet will list all possible matches that are greater than the threshold set in D&B Interactive Threshold of the Group 1 Options Manager. For more information about the D&B Interactive Threshold, please refer to **Business Name Standardization Options** on page 26.

The **Pick D&B** option of the applet picks the D&B record as the match for the account record. The following D&B fields will be copied to their equivalent account fields:

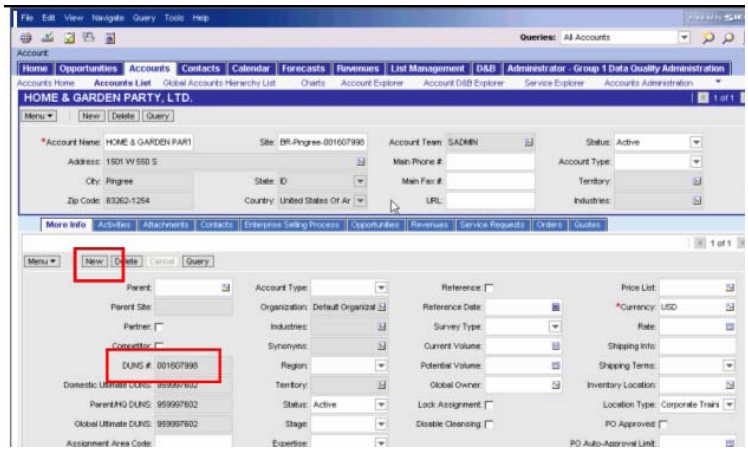
D&B Field	Account Field
Business Name	Name
DUNS Number	DUNS Number
Domestic Ultimate DUNS	Domestic Ultimate DUNS
Global Ultimate DUNS	Global Ultimate DUNS
Parent HQ DUNS	Parent HQ DUNS
Location Type + Physical City + DUNS Number	Location

If the **Update Account Addresses using Firm Name File** option is enabled, the physical address of the D&B record will be used as the primary business address of the account record.

Note: To close the D&B Popup Applet, click on the **[Cancel]** button located in the upper left of the applet. Do not close the applet using the "**X**" button in the upper right corner of the applet because it will not reset the values of profile attributes used in processing the record.

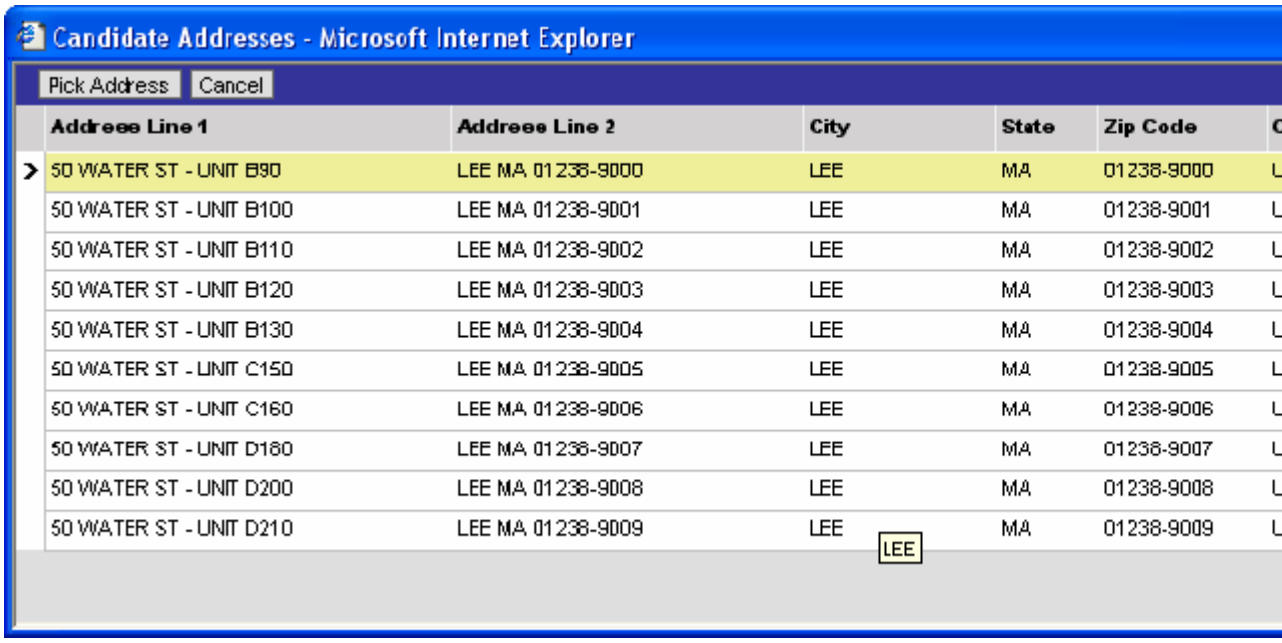
Match the DUNS Number

A D&B® D-U-N-S® number is a unique nine-digit sequence recognized as the universal standard for identifying and keeping track of over 80 million businesses worldwide. The user will provide the DUNS # in the Account Entry Applet - Child - Admin Applet of the Account Administration View. This DUNS number will be matched to a D&B record.



Selecting an Address from Multiple Candidates

Once validation has been triggered and the address entered by the user produces multiple results, the Candidate Address popup applet is displayed.



This applet is automatically launched once address validation is triggered and produces multiple addresses based on the address entered by the user. There will be no settings needed in order to trigger this applet.

Pick Address	This option retrieves the selected address from the list of candidate addresses and transfers it to the Account Address applet as a CLEANSED address record. **Note:** Double-clicking the address record would also mean retrieving the record.

Note: To close the Candidate Address Popup Applet, click on the **Cancel** button located in the upper left of the applet. Do not close the applet using the "X" button in the upper right corner of the applet because it will not reset the values of profile attributes used in processing the record.

Running a Batch Job

The Batch Manager is used to select the job to run batch processes for business name standardization, data cleansing, data deduplication, geocoding and name casing.

1. From the Siebel Application window, click on **Navigate** > **Site Map**.
2. Select **Administration - PBBI Group 1 Data Quality Administration**.
3. Click **Batch Manager**.
4. Click on the button shown below and select New Record.
5. Click the Batch Job MVG to select the Batch Job.
6. Enter a **Search Specification** to limit the records to be processed. Follow the Search Specifications used to configure Siebel Objects in Siebel Tools.
7. Click the **Start** or **Submit Job** button to start the Pitney Bowes Software batch process.
8. Check the status of the job and verify that it reaches the Completed status. Navigate to the Account, Contact or Prospect view to check the result of the job (for example, Cleansing or Deduplication).

4

Services Reference

In this section:

Siebel Business Name Standardization

Siebel Business Name Standardization standardizes terms against a previously validated form of that term and applies the standard version. This evaluation is done by searching a table for the term to be standardized. If the term is found, the Standardization feature either replaces the term with the corresponding standard version or it extracts the term from the field. Standardization can include changing full words to abbreviations, changing abbreviations to full words, changing nick names to full names or misspellings to corrected spellings.

Siebel Generate Match Key

Siebel Generate Match Key creates a non-unique key to identify potentially duplicate records. Match keys facilitate the matching process by only comparing records that contain the same match key. A match key is comprised of input fields. Each input field specified has an algorithm performed on it. The result of each field is then concatenated to create a single match key field.

For example, this input:

First Name - Fred
Last Name - Mertz
Postal Code - 21114-1687
Gender Code - M

Might produce this match key:

211141687MertzFredM

Siebel Generate Match Score

Siebel Generate Match Score compares candidate records and generates a score that reflects their similarity. The higher the score means the closer the match.

Siebel Generate Search Key

Siebel Generate Search Key is used for duplicate detection and error-tolerant searching. This service generates keys that are used to when identifying duplicate records. When duplicate records are found, the user is presented with the records and can choose to merge, delete, or ignore the duplicate.

Siebel Standardize Name

Siebel Standardize Name formats business and personal names by applying consistent casing and, optionally, adding the title of respect (Mr., Ms., and so on) and punctuation. Siebel Standardize Name can also determine the gender of a name.

Siebel Validate Address With Candidates

Siebel Validate Address With Candidates validates and standardizes addresses. It returns the validated address. If you have licensed the Enterprise Geocoding Module, it also returns the latitude and longitude coordinates of the address. If the address cannot be validated, it returns candidate addresses.

Siebel Validate Address With No Candidates

Siebel Validate Address With No Candidates validates addresses. It returns the validated address and, if you have licensed the Enterprise Geocoding Module, also determines the latitude and longitude coordinates.

A

Validate Address Confidence Algorithm

In this section:

Introduction to the Validate Address Confidence Algorithm

ValidateAddress computes a confidence score for each validated address. This score describes how likely it is that the validated address is correct. Confidence code values range from 0 to 100, with a zero confidence level indicating no confidence and 100 indicating a very high level of confidence that the match results are correct. Confidence codes are calculated based on an algorithm that takes into account the match results for individual output fields. The output fields involved in this calculation include:

- Country
- City
- State
- PostalCode
- StreetName
- HouseNumber
- LeadingDirectional
- TrailingDirectional
- StreetSuffix
- ApartmentNumber

Each field has its own Weight in the algorithm. Additionally, for each field the match result could be labeled as Success, Failure, or Changed. ("Changed" refers to cases where the contents of the field have been corrected in order to get a match.) The match result—Success, Failure, or Changed—determines what the Factor is for that field. Thus, the calculation for the confidence code is a product of Weight by Factor as follows:

```
Confidence = (Weight * Factor) for City
  + (Weight * Factor) for Country
  + (Weight * Factor) for State
  + (Weight * Factor) for PostalCode
  + (Weight * Factor) for StreetName
  + (Weight * Factor) for HouseNumber
  + (Weight * Factor) for Directionals
  + (Weight * Factor) for Street Suffix
  + (Weight * Factor) for ApartmentNumber
```

Confidence Algorithm for U.S. and Canadian Addresses

The following table details the scoring and logic behind the ValidateAddress confidence algorithm for U.S. and Canadian addresses.

Table 16: Confidence Algorithm for U.S. and Canadian Addresses

Field	Weight/Match Score	Factor if Changed[2]	Factor If Filled[3]
Country	10	100%	0%
City	10	50%	75%

Field	Weight/Match Score	Factor if Changed[2]	Factor If Filled[3]
State	15	50%	75%
PostalCode	15	25%	25%
StreetName	15	50%	75%
HouseNumber	15	50%	75%
Directionals	10	50%	75%
StreetSuffix	5	50%	75%
ApartmentNumber	5	50%	75%

Confidence Algorithm for International Addresses

There are two confidence algorithms for addresses outside the U.S. and Canada, one for addresses in countries that use postal codes and one for addresses in countries that do not use postal codes.

The following table details the confidence algorithm for non-U.S. and non-Canadian addresses from countries that use postal codes.

Table 17: Confidence Algorithm for Countries With Postal Codes

Field	Weight/Match Score	Factor if Changed[4]	Factor If Filled[5]	Factor if Postal Data Unavailable
Country	11.1111111111111	100%	0%	0%
City	11.1111111111111	50%	75%[6]	0%
State	16.6666666666667	100%	100	80%
PostalCode	16.6666666666667	100%	100%	80%
StreetName	16.6666666666667	50%	75%	50%
HouseNumber	16.6666666666667	50%	75%	50%

[6] If the country is a Category C country, this value is 50%. Countries fall into one of these categories:

- **Category A**—Enables the validation and correction of an address's postal code, city name, state/county name, street address elements, and country name.
- **Category B**—Enables the validation and correction of an address's postal code, city name, state/county name, and country name. It does not support the validation or correction of street address elements.
- **Category C**—Enables the validation and correction of the country name, and the validation of the format of the postal code.

Field	Weight/Match Score	Factor if Changed[4]	Factor If Filled[5]	Factor if Postal Data Unavailable
Directionals	0	50%	75%	0%
StreetSuffix	5.55555555555556	50%	75%	50%
ApartmentNumber	5.55555555555556	50%	75%	50%

The following table details confidence algorithm for countries that do not use postal codes.

Table 18: Confidence Algorithm for Countries Without Postal Codes

Field	Weight/Match Score	Factor if Changed[7]	Factor If Filled[8]	Factor if Postal Data Unavailable
Country	13.3333333333333	100%	0%	0%
City	13.3333333333333	50%	75%[9]	0%
State	20	100%	100	80%
StreetName	20	50%	75%	50%
HouseNumber	20	50%	75%	50%
Directionals	0	50%	75%	0%
StreetSuffix	6.66666666666667	50%	75%	50%
ApartmentNumber	6.66666666666667	50%	75%	50%

The following table lists countries without postal codes.

Table 19: Countries Without Postal Codes

Afghanistan	Albania	Angola
Anguilla	Bahamas	Barbados
Belize	Benin	Bhutan

[9] If the country is a Category C country, this value is 50%. Countries fall into one of these categories:

- **Category A**—Enables the validation and correction of an address's postal code, city name, state/county name, street address elements, and country name.
- **Category B**—Enables the validation and correction of an address's postal code, city name, state/county name, and country name. It does not support the validation or correction of street address elements.
- **Category C**—Enables the validation and correction of the country name, and the validation of the format of the postal code.

Botswana	Burkina Faso	Burundi
Cameroon	Cayman Islands	Central African Rep.
Chad	Cocos Islands	Columbia
Comoros	Congo (Dem. Rep.)	Congo (Rep.)
Cote d'Ivoire	Korea (North)	Djibouti
Dominica	Equatorial Guinea	Eritrea
Fiji	Gabon	Gambia
Ghana	Grenada	Guyana
Ireland	Jamaica	Kiribati
Libya	Malawi	Mali
Mauritania	Namibia	Nauru
Palaos	Panama	Peru
Qatar	Rwanda	Saint Lucia
Saint Vincent & Grenadines	Samoa	Sao Tome & Principe
Seychelles	Sierra Leone	Suriname
Tanzania	Timor	Togo
Tonga	Trinidad & Tobago	Tuvalu
Uganda	United Arab Emirates	Vanuatu
Yemen	Zimbabwe	

B

Location and Match Codes for U.S. Geocoding

In this section:

Address Location Codes

Location codes that begin with an "A" are address location codes. Address location codes indicate a geocode made directly to a street network segment (or two segments, in the case of an intersection).

An address location code has the following characters.

1st character	Always an A indicating an address location.	
2nd character	May be one of the following	
	C	Interpolated address point location
	G	Auxiliary file data location
	I	Application infers the correct segment from the candidate records
	P	Point-level data location
	R	Location represents a ranged address
	S	Location on a street range
	X	Location on an intersection of two streets
3rd and 4th character	Digit indicating other qualities about the location.	

Table 20: Address Location Codes

Code		Description
AGn		Indicates an auxiliary file for a geocode match where n is one of the following values:
	n = 0	The geocode represents the center of a parcel or building.
	n = 1	The geocode is an interpolated address along a segment.
	n = 2	The geocode is an interpolated address along a segment, and the side of the street cannot be determined from the data provided in the auxiliary file record.
	n = 3	The geocode is the midpoint of the street segment.
APnn		Indicates a point-level geocode match representing the center of

Code	Description
	a parcel or building, where nn is one of the following values:
nn = 02	Parcel centroid Indicates the center of an accessor's parcel (tract or lot) polygon. When the center of an irregularly shaped parcel falls outside of its polygon, the centroid is manually repositioned to fall inside the polygon as closely as possible to the actual center.
nn = 04	Address points Represents field-collected GPS points with field-collected address data.
nn = 05	Structure centroid Indicates the center of a building footprint polygon, where the building receives mail or has telephone service. Usually a residential address consists of a single building. For houses with outbuildings (detached garages, shed, barns, etc.), only the residences have a structure point. Condominiums and duplexes have multiple points for each building. Larger buildings, such as apartment complexes, typically receive mail at one address for each building and therefore individual apartments are not represented as discrete structure points. Shopping malls, industrial complexes, and academic or medical center campuses where one building accepts mail for the entire complex are represented as one point. When addresses are assigned to multiple buildings within one complex, each addressed structure is represented by a point. If the center of a structure falls outside of its polygon, the center is manually repositioned to fall inside the polygon.

Code	Description
nn = 07	Manually placed Address points are manually placed to coincide with the midpoint of a parcel's street frontage at a distance from the center line.
nn = 08	Front door point Represents the designated primary entrance to a building. If a building has multiple entrances and there is no designated primary entrance or the primary entrance cannot readily be determined, the primary entrance is chosen based on proximity to the main access street and availability of parking.
nn = 09	Driveway offset point Represents a point located on the primary access road (most commonly a driveway) at a perpendicular distance of between 33-98 feet (10-30 meters) from the main roadway.
nn = 10	Street access point Represents the primary point of access from the street network. This address point type is located where the driveway or other access road intersects the main roadway.
nn=21	Base parcel point When unable to match to an input unit number, or when the unit number is missing from an address location with multiple units, the "base" parcel information is returned, the address is not standardized to a unit number, and additional information, such as an Assessor's Parcel Number, is not returned.
AIn	The correct segment is inferred from the candidate records at match time.

Code	Description
ASn	House range address geocode. This is the most accurate geocode available.
AIn and ASn share the same qualities for n as follows:	
n = 0	Best location.
n = 1	Street side is unknown. The Census FIPS Block ID is assigned from the left side; however, there is no assigned offset and the point is placed directly on the street.
n = 2	Indicates one or both of the following: • The address is interpolated onto a TIGER segment that did not initially contain address ranges. • The original segment name changed to match the USPS spelling. This specifically refers to street type, predirectional, and postdirectional. **Note:** Only the second case is valid for non-TIGER data because segment range interpolation is only completed for TIGER data.
n = 3	Both 1 and 2.
n = 7	Placeholder. Used when starting and ending points of segments contain the same value and shape data is not available.
ACnh	
The ACnn 4th digit characteristics are as follows:	
n = 0	Represents the interpolation between two points, both coming from User Dictionaries.
n = 1	Represents the interpolation between two points. The low boundary came from a User Dictionary and the high boundary, from a non-User Dictionary.

Code	Description
n = 2	Represents the interpolation between one point and one street segment end point, both coming from User Dictionaries.
n = 3	Represents the interpolation between one point (low boundary) and one street segment end point (high boundary). The low boundary came from a User Dictionary and the high boundary from a non-User Dictionary.
n = 4	Represents the interpolation between two points. The low boundary came from a non-User Dictionary and the high boundary from a User Dictionary.
n = 5	Represents the interpolation between two points, both coming from non-User Dictionaries.
n = 6	Represents the interpolation between one point (low boundary) and one street segment end point (high boundary). The low boundary came from a non-User Dictionary and the high boundary from a User Dictionary.
n = 7	Represents the interpolation between one point and one street segment end point and both came from non-User Dictionaries.
n = 8	Represents the interpolation between one street segment end point andone point, both coming from User Dictionaries.
n = 9	Represents the interpolation between one street segment end point (low boundary) andone point (high boundary). The low boundary came from a User Dictionary and the high boundary from a non-User Dictionary.
n = A	Represents the interpolation between two street segment end points, both coming from User Dictionaries.
n = B	Represents the interpolation between two street segment end points. The low boundary came

Code		Description
		from a User Dictionary and the high boundary from a non-User Dictionary.
	n = C	Represents the interpolation between one street segment end point (low boundary) and one point (high boundary). The low boundary came from a non-User Dictionary and the high boundary from a User Dictionary.
	n = D	Represents the interpolation between one street segment end point and one point, both coming from non-User Dictionary.
	n = E	Represents the interpolation between two street segment end points. The low boundary came from a non-User Dictionary and the high boundary from a User Dictionary.
	n = F	Represents the interpolation between two street segment end points, both coming from non-User Dictionaries.
ARn		Ranged address geocode, where n is one of the following:
	n = 1	The geocode is placed along a single street segment, midway between the interpolated location of the first and second input house numbers in the range.
	n = 2	The geocode is placed along a single street segment, midway between the interpolated location of the first and second input house numbers in the range, and the side of the street is unknown. The Census FIPS Block ID is assigned from the left side; however, there is no assigned offset and the point is placed directly on the street.
	n = 4	The input range spans multiple USPS segments. The geocode is placed on the endpoint of the segment which corresponds to the first input house number,

Code		Description
		closest to the end nearest the second input house number.
	n = 7	Placeholder. Used when the starting and ending points of the matched segment contain the same value and shape data is not available.
AXn		Intersection geocode, where n is one of the following:
	n = 3	Standard single-point intersection computed from the center lines of street segments.
	n = 8	Interpolated (divided-road) intersection geocode. Attempts to return a centroid for the intersection.

Street Centroid Location Codes

Location codes that begin with "C" are street centroid location codes. Street centroid location codes indicate the Census ID accuracy and the position of the geocode on the returned street segment. Street centroids may be returned if the street centroid fallback option is enabled and an address-level geocode could not be determined.

A street centroid location code has the following characters.

1st character	Always C indicating a location derived from a street segment.
2nd character	Census ID accuracy based on the search area used to obtain matching Street Segment.
3rd character	Location of geocode on the returned street segment.

The following table contains the values and descriptions for the location codes.

Character position	Code	Description
2nd Character		
	B	Block Group accuracy (most accurate). Based on input ZIP Code.
	T	Census Tract accuracy. Based on input ZIP Code.

Character position	Code	Description
	C	Unclassified Census accuracy. Normally accurate to at least the County level. Based on input ZIP Code.
	F	Unknown Census accuracy. Based on Finance area.
	P	Unknown Census accuracy. Based on input City.
3rd Character		
	C	Segment Centroid.
	L	Segment low-range end point.
	H	Segment high-range end point.

ZIP + 4 Centroid Location Codes

Location codes that begin with a "Z" are ZIP + 4 centroid location codes. ZIP + 4 centroids indicate a geocode could not be determined for the address, so the location of the center of the address's ZIP + 4 was returned instead. ZIP + 4 centroid location codes indicate the quality of two location attributes: Census ID accuracy and positional accuracy.

A ZIP + 4 centroid location code has the following characters.

1st character	Always Z indicating a location derived from a ZIP centroid.
2nd character	Census ID accuracy.
3rd character	Location type.
4th character	How the location and Census ID was defined. Provided for completeness, but may not be useful for most applications.

Table 21: ZIP + 4 Centroid Location Codes

Character Position	Code	Description
2nd Character		
	B	Block Group accuracy (most accurate).
	T	Census Tract accuracy.
	C	Unclassified Census accuracy. Normally accurate to at least the County level.

Character Position	Code	Description
3rd Character		
	5	Location of the Post Office that delivers mail to the address, a 5-digit ZIP Code centroid, or a location based upon locale (city). See the 4th character for a precise indication of locational accuracy.
	7	Location based upon a ZIP + 2 centroid. These locations can represent a multiple block area in urban locations, or a slightly larger area in rural settings.
	9	Location based upon a ZIP + 4 centroid. These are the most accurate centroids and normally place the location on the correct block face. For a small number of records, the location may be the middle of the entire street on which the ZIP + 4 falls. See the 4th character for a precise indication of locational accuracy.
4th Character		
	A	Address matched to a single segment. Location assigned in the middle of the matched street segment, offset to the proper side of the street.
	a	Address matched to a single segment, but the correct side of the street is unknown. Location assigned in the middle of the matched street segment, offset to the left side of the street, as address ranges increase.
	B	Address matched to multiple segments, all segments have the same Block Group. Location assigned to the middle of the matched street segment with the most house number ranges within this ZIP + 4. Location offset to the proper side of the street.
	b	Same as methodology B except the correct side of the street is unknown. Location assigned in the middle of the matched street

Character Position	Code	Description
		segment, offset to the left side of the street, as address ranges increase.
	C	Address matched to multiple segments, with all segments having the same Census Tract. Returns the Block Group representing the most households in this ZIP + 4. Location assigned to t he middle of the matched street segment with the most house number ranges within this ZIP + 4. Location offset to the proper side of the street.
	c	Same as methodology C except the correct side of the street is unknown. Location assigned in the middle of the matched street segment, offset to the left side of the street, as address ranges increase.
	D	Address matched to multiple segments, with all segments having the same County. Returns the Block Group representing the most households in this ZIP + 4. Location assigned to the middle of the matched street segment with the most house number ranges within this ZIP + 4. Location offset to the proper side of the street.
	d	Same as methodology D except the correct side of the street is unknown. Location assigned in the middle of the matched street segment, offset to the left side of the street, as address ranges increase.
	E	Street name matched; no house ranges available. All matched segments have the same Block Group. Location placed on the segment closest to the center of the matched segments. In most cases, this is on the mid-point of the entire street.
	F	Street name matched; no house ranges available. All matched segments have the same Census

Character Position	Code	Description
		Tract. Location placed on the segment closest to the center of the matched segments. In most cases, this is on the mid-point of the entire street.
	G	Street name matched (no house ranges available). All matched segments have the same County. Location placed on the segment closest to the center of the matched segments. In most cases, this is on the mid-point of the entire street.
	H	Same as methodology G, but some segments are not in the same County. Used for less than .05% of the centroids.
	I	Created ZIP + 2 cluster centroid as defined by methodologies A, a, B, and b. All centroids in this ZIP + 2 cluster have the same Block Group. Location assigned to the ZIP + 2 centroid.
	J	Created ZIP + 2 cluster centroid as defined by methodologies A, a, B, b, C, and c. All centroids in this ZIP + 2 cluster have the same Census Tract. Location assigned to the ZIP + 2 centroid.
	K	Created ZIP + 2 cluster centroid as defined by methodologies A, a, B, b, C, c, D, and d. Location assigned to the ZIP + 2 centroid.
	L	Created ZIP + 2 cluster centroid as defined by methodology E. All centroids in this ZIP + 2 cluster have the same Block Group. Location assigned to the ZIP + 2 centroid.
	M	Created ZIP+2 cluster centroid as defined by methodology E and F. All centroids in this ZIP + 2 cluster have the same Census Tract. Location assigned to the ZIP + 2 centroid.
	N	Created ZIP + 2 cluster centroid as defined by methodology E, F,

Character Position	Code	Description
		G, and H. Location assigned to the ZIP + 2 centroid.
	V	Over 95% of addresses in this ZIP Code are in a single Census Tract. Location assigned to the ZIP Code centroid.
	W	Over 80% of addresses in this ZIP Code are in a single Census Tract. Reasonable Census Tract accuracy. Location assigned to the ZIP Code centroid.
	X	Less than 80% of addresses in this ZIP Code are in a single Census Tract. Census ID is uncertain. Location assigned to the ZIP Code centroid.
	Y	Rural or sparsely populated area. Census code is uncertain. Location based upon the USGS places file.
	Z	P.O. Box or General Delivery addresses. Census code is uncertain. Location based upon the Post Office location that delivers the mail to that address.

Geographic Centroid Location Codes

Location codes that begin with "G" are geographic centroid location codes. Geographic centroids may be returned if the street centroid fallback option is enabled and an address-level geocode could not be determined. Geographic centroid location codes indicate the quality a city, county, or state centroid.

A geographic centroid location code has the following characters.

1st character	Always G indicating a location derived from a geographic centroid.
2nd character	Geographic area type. One of the following: **M** Municipality (for example, a city) **C** County **S** State

Address Unavailable

Location codes that begin with "E" indicate that neither an address location nor a ZIP + 4 centroid could be determined. This usually occurs when you have requested ZIP Code centroids of a high quality, and one is not available for that match.

An unavailable address code has the following characters.

Table 22: Match Codes for No Match

Code	Description
Ennn	Indicates an error, or no match. This can occur when the address entered does not exist in the database, or the address is badly formed and cannot be parsed correctly. The last three digits of an error code indicate which parts of an address the application could not match to the database.
nnn = 000	No match made.
nnn = 001	Low level error.
nnn = 002	Could not find data file.
nnn = 003	Incorrect GSD file signature or version ID.
nnn = 004	GSD file out of date. Only occurs in CASS mode.
nnn = 010	No city and state or ZIP Code found.
nnn = 011	Input ZIP not in the directory.
nnn = 012	Input city not in the directory.
nnn = 013	Input city not unique in the directory.
nnn = 014	Out of licensed area. Only occurs if using Pitney Bowes Software licensing technology.
nnn = 015	Record count is depleted and license has expired.
nnn = 020	No matching streets found in directory.
nnn = 021	No matching cross streets for an intersection match.
nnn = 022	No matching segments.

Code	Description
nnn = 023	Unresolved match.
nnn = 024	No matching segments. (Same as 022.)
nnn = 025	Too many possible cross streets for intersection matching.
nnn = 026	No address found when attempting a multiline match.
nnn = 027	Invalid directional attempted.
nnn = 028	Record also matched EWS data, therefore the application denied the match.
nnn = 029	No matching range, single street segment found.
nnn = 030	No matching range, multiple street segments found.

Geocoding Match Codes

Geocoding components return match codes indicating the address portions that matched or did not match to the database. If the geocoder cannot make a match, the match code begins with E and the remaining digits indicate why the address did not match. The digits do not specifically refer to which address elements did not match, but rather why the address did not match.

Table 23: Match Codes

Code	Description
Ahh	Same as Shh, but indicates match to an alias name record or an alternate record.
Chh	The street address did not match, but the geocoder located a street segment based on the input ZIP Code or city .
D00	Matched to a small town with P.O. Box or General Delivery only.
Gxx	Matched to an auxiliary file.
Hhh	The house number was changed.
Jhh	Matched to a user-defined dictionary.
Nxx	Matched to the nearest address. Used with reverse geocoding. The following are the only values for N:

Code	Description
	NSO Nearest street center match (nearest street segment interpolated) **NS1** Nearest unranged street segment **NP0** Nearest point address **NX0** Nearest intersection
P	Successful reverse APN lookup.
Qhh	Matched to USPS range records with unique ZIP Codes. CASS rules prohibit altering an input ZIP if it matches a unique ZIP Code value.
Rhh	Matched to a ranged address.
Shh	Matched to USPS data. This is considered the best address match, because it matched directly against the USPS list of addresses. S is returned for a small number of addresses when the matched address has a blank ZIP + 4.
Thh	Matched to a street segment record. Street segment records do not contain ZIP Code information. If you enter a ZIP Code, the application returns the ZIP Code you entered. If the input city and state has only one ZIP Code, the application returns that ZIP Code.
Uhh	Matched to USPS data but cannot resolve the ZIP + 4 code without the firm name or other information. CASS mode returns an E023 (multiple match) error code.
Xhhh	Matched to an intersection of two streets, for example, "Clay St & Michigan Ave." The first hex digit refers to the last line information, the second hex digit refers to the first street in the intersection, and the third hex digit refers to the second street in the intersection. **Note:** The USPS does not allow intersections as a valid deliverable address.
Yhhh	Same as Xhhh, but an alias name record was used for one or both streets.
Z	No address given, but verified the provided ZIP Code .

The following table contains the description of the hex digits for the match code values.

Table 24: Description of Hex Digits

Code	In first hex position means:	In second and third hex position means:
0	No change in last line.	No change in address line.
1	ZIP Code changed.	Street type changed.
2	City changed.	Predirectional changed.
3	City and ZIP Code changed.	Street type and predirectional changed.
4	State changed.	Postdirectional changed.
5	State and ZIP Code changed.	Street type and postdirectional changed.
6	State and City changed.	Predirectional and postdirectional changed.
7	State, City, and ZIP Code changed.	Street type, predirectional, and postdirectional changed.
8	ZIP + 4 changed.	Street name changed.
9	ZIP and ZIP + 4 changed.	Street name and street type changed.
A	City and ZIP + 4 changed.	Street name and predirectional changed.
B	City, ZIP, and ZIP + 4 changed.	Street name, street type, and predirectional changed.
C	State and ZIP + 4 changed.	Street name and postdirectional changed.
D	State, ZIP, and ZIP + 4 changed.	Street name, street type, and postdirectional changed.
E	State, City, and ZIP + 4 changed.	Street name, predirectional, and postdirectional changed.
F	State, City, ZIP, and ZIP + 4 changed.	Street name, street type, predirectional, and postdirectional changed.

If neither an address location nor a ZIP + 4 centroid can be determined, the location code will start with "E". This occurs infrequently when the component does not have a 5-digit centroid location. Enterprise Geocoding Module components can also return an E location code type when it cannot standardize an input address and there is no input ZIP Code. In this case, do not assume the ZIP Code returned with the non-standardized address is the correct ZIP Code because the component did not standardize the address; therefore, the component does not return geocoding or Census Block information.

Table 25: Match Codes for No Match

Code	Description
Ennn	Indicates an error, or no match. This can occur when the address entered does not exist in the database, or the address is badly formed and cannot be parsed correctly. The last three digits of an error code indicate which parts of an address the application could not match to the database.
nnn = 000	No match made.
nnn = 001	Low level error.
nnn = 002	Could not find data file.
nnn = 003	Incorrect GSD file signature or version ID.
nnn = 004	GSD file out of date. Only occurs in CASS mode.
nnn = 010	No city and state or ZIP Code found.
nnn = 011	Input ZIP not in the directory.
nnn = 012	Input city not in the directory.
nnn = 013	Input city not unique in the directory.
nnn = 014	Out of licensed area. Only occurs if using Pitney Bowes Software licensing technology.
nnn = 015	Record count is depleted and license has expired.
nnn = 020	No matching streets found in directory.
nnn = 021	No matching cross streets for an intersection match.
nnn = 022	No matching segments.
nnn = 023	Unresolved match.
nnn = 024	No matching segments. (Same as 022.)
nnn = 025	Too many possible cross streets for intersection matching.
nnn = 026	No address found when attempting a multiline match.

Code	Description
nnn = 027	Invalid directional attempted.
nnn = 028	Record also matched EWS data, therefore the application denied the match.
nnn = 029	No matching range, single street segment found.
nnn = 030	No matching range, multiple street segments found.

C

Encountering False Positives

In this section:

What is a False-Positive?

To prevent the generation of address lists, the DPV and LACS^{Link} databases include false-positive records. False-positive records are artificially manufactured addresses that reside in a false-positive table. For each negative response that occurs in a DPV or LACS^{Link} query, a query is made to the false-positive table. A match to this table (called a false-positive match) disables your DPV or LACS^{Link} key. In batch processing the job that contains the violation will complete successfully but you will not be able to run any subsequent jobs that use DPV or LACS^{Link} until you report the violation and obtain a key to reactivate DPV or LACS^{Link}.

Note: The term "seed record violation" is also used to refer to encountering false positive records. The two terms mean the same thing.

Reporting DPV False-Positive Violations

Spectrum™ Technology Platform indicates a false-positive match via messages in the server log.

During batch processing, if you encounter a false positive record the job will continue. After the job completes you will not be able to run any other jobs using DPV because your DPV key is disabled. When a DPV false positive record violation occurs, the following text is displayed in the Execution History:

```
DPV Seed Record Violation. Seed Code S<ZIP, ZIP+4, Address, Unit>
```

You can report the violation and obtain a restart key by following these steps.

1. In your browser, go to http://<yourserver>:<port>/<product code>/dpv.jsp. For example, http://localhost:8080/unc/dpv.jsp for the Universal Addressing Module and http://localhost:8080/geostan/dpv.jsp for the Enterprise Geocoding Module.
2. Enter the mailer's information into each field. The number in parentheses after each field name indicates the maximum length of the field.
3. Click **Submit** when you're done. A **File Download** dialog will appear.
4. Click **Save** to save the file to your computer. A **Save As** dialog will appear.
5. Specify a file name and location on your local hard drive (for example `c:\DPVSeedFile.txt`) and click **Save**.
6. Go to **www.g1.com/support** and log in.
7. Click **DPV & LACS^{Link} False Positive**.
8. Follow the on-screen instructions to attach your seed file and obtain a restart key.

DPV False Positive Header File Layout

The USPS® has determined the required layout of the DPV false-positive header file, which is currently defined as a fixed-length file containing two or more 180-byte records. The first record must always be the header record, whose layout is shown below.

Table 26: DPV False-Positive Header Record Layout

Position	Length	Description	Format
1-40	40	Mailer's company name	Alphanumeric
41-98	58	Mailer's address line	Alphanumeric

Position	Length	Description	Format
99-126	28	Mailer's city name	Alphanumeric
127-128	2	Mailer's state abbreviation	Alphabetic
129-137	9	Mailer's 9-digit ZIP Code	Numeric
138-146	9	Total Records Processed	Numeric
147-155	9	Total Records DPV Matched	Numeric
156-164	9	Percent Match Rate to DSF	Numeric
165-173	9	Percent Match Rate to ZIP + 4®	Numeric
174-178	5	Number of ZIP Codes on file	Numeric
179-180	2	Number of False-Positives	Numeric

The trailer record contains information regarding the DPV false-positive match. There must be one trailer record added to the false-positive file for every DPV false-positive match. The layout is shown below.

Table 27: DPV False-Positive Trailer Record Layout

Position	Length	Description	Format
1-2	2	Street predirectional	Alphanumeric
3-30	28	Street name	Alphanumeric
31-34	4	Street suffix abbreviation	Alphanumeric
35-36	2	Street postdirectional	Alphanumeric
37-46	10	Address primary number	Alphanumeric
47-50	4	Address secondary abbreviation	Alphanumeric
51-58	8	Address secondary number	Numeric
59-63	5	Matched ZIP Code	Numeric
64-67	4	Matched ZIP + 4®	Numeric
68-180	113	Filler	Spaces

Reporting LACS/Link False-Positive Violations

Spectrum™ Technology Platform indicates a false-positive match via messages in the server log. Batch jobs will fail if a false-positive match occurs and client/server calls will throw an exception.

Note: The term "seed record violation" is also used to refer to encountering false positive records. The two terms mean the same thing.

When a false positive record is encountered, the server log will say:

```
2005-05-19 09:40:10,758 WARN [com.g1.dcg.component.Log] Seed record
violation for RR 1            R74039  2924
2005-05-19 09:40:10,774 ERROR [com.g1.dcg.component.Log] Feature Disabled:
 LLB: LACS Seed Record Violation. Seed Code: R74039  2924
2005-05-19 09:40:10,867 ERROR [com.g1.dcg.job.server.stages.JobRunnerStages]
 Error executing job
com.g1.dcg.stage.StageException: com.g1.dcg.component.ComponentException:
 Feature Disabled: LLB
```

1. In your browser, go to http://<ServerName>:<port>/<product code>/lacslink.jsp. For example, http://localhost:8080/unc/lacslink.jsp for the Universal Addressing Module and http://localhost:8080/geostan/lacslink.jsp for the Enterprise Geocoding Module.
2. Enter the mailer's information into each field. The number in parentheses after the field name indicates the maximum length of the field. Click **Submit** when you're done. A **File Download** dialog will appear.
3. Click **Save** to save the file to your computer. A **Save As** dialog will appear.
4. Specify a file name and location on your local hard drive (for example `c:\lacslink.txt`) and click **Save**.
5. Go to **www.g1.com/support** and log in.
6. Click **DPV & LACS^{Link} False Positive**.
7. Follow the on-screen instructions to attach your seed file and obtain a restart key.

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