

Spectrum™ Technology Platform

Version 12.0 SP2

SAP Module User's Guide



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1 - Introduction

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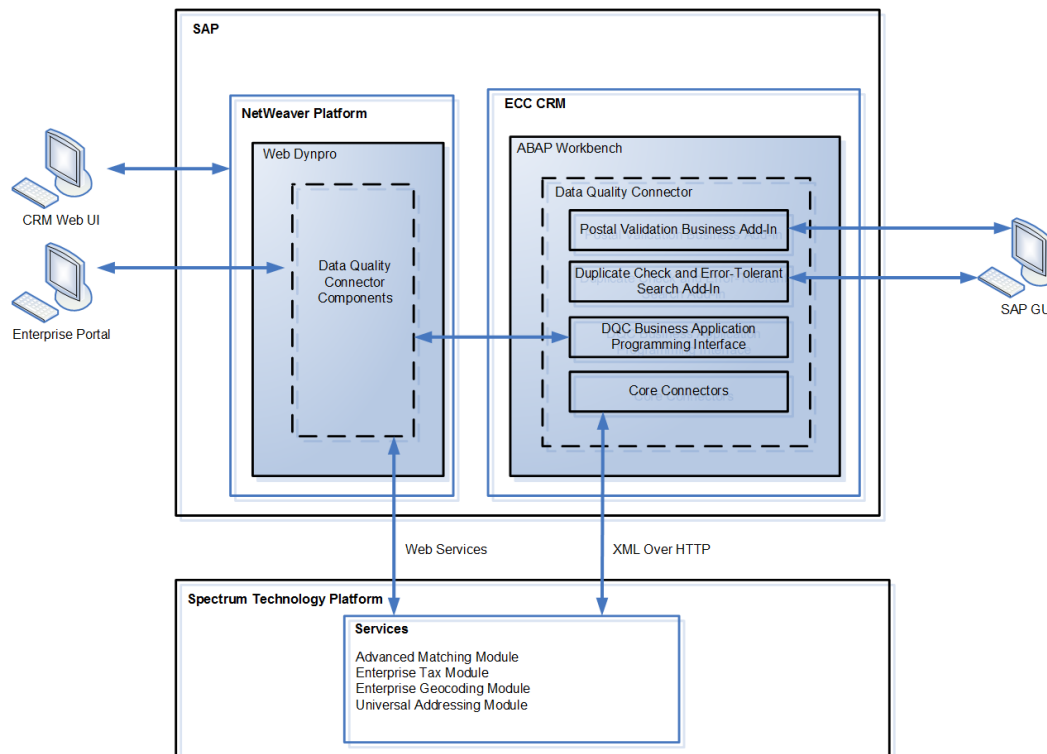
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SAP Module

The Spectrum™ Technology Platform SAP Module optimizes the quality of your customer, vendor and partner records so you can improve operations across the enterprise.

Because SAP is such a far-reaching application, introducing accurate address data provides equally far-reaching benefits. With data quality for over 220 countries, the SAP Module identifies and manages duplicate records, standardizes and validates addresses, auto-populates missing fields, and gives you a single, integrated view of your customers.

The following diagram illustrates how Spectrum™ Technology Platform integrates with SAP.



SAP Module Services

The SAP Module consists of the following services which run on the Spectrum™ Technology Platform server. These services provide address validation, deduplication, tax jurisdiction assignment, and geocoding functions.

- **SAP Batch Assign GeoTax Info**—This service identifies the tax districts that apply to a given address. It also corrects and validates addresses.
- **SAP Batch Validate Address**—This service standardizes and validates address data using batch processing.
- **SAP Generate Match Key**—This service is used in generating a match key. The match key is generated using Substring, Metaphone, and Consonant algorithms.
- **SAP Generate Match Score**—This service is used in comparing candidate records and generating a score that reflects its similarity. The higher the score means the closer the match.
- **SAP Generate Search Key**—This service generates a search key using metaphone, substring, and consonant algorithms.
- **SAP Generate Search Key Consonant**—Used in Search Key Generation for Consonant Algorithm. A Search Key is used for Duplicate Detection and Error-Tolerant Searching.
- **SAP Generate Search Key Metaphone**—Used in Search Key Generation for Metaphone Algorithm. A Search Key is used for Duplicate Detection and Error-Tolerant Searching.
- **SAP Generate Search Key Substring**—Used in Search Key Generation for Substring Algorithm. A Search Key is used for Duplicate Detection and Error-Tolerant Searching.
- **SAP Validate Address and Assign GeoTAX Info**—This service validates the address and determines tax jurisdictions for the location.
- **SAP Validate Address With Candidates**—This service validates the address. If an address matches multiple addresses in the postal data, it returns the candidate addresses.

SAP Module Databases

The SAP 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*.

Universal Addressing Module Databases

Table 1: Universal Addressing Module Databases

Database Name & Description	Required or Optional	Supplier
<p>U.S. Postal Database</p> <p>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:</p> <ul style="list-style-type: none"> • ZIP + 4[®] Code • Standardized address elements • City and state information <p>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.</p>	Required for U.S. address processing	Pitney Bowes monthly subscription
<p>Canadian Postal Database</p> <p>The Canadian Postal database is in Pitney Bowes proprietary format. The database files contain the following information:</p> <ul style="list-style-type: none"> • Postal code • Standardized address elements • Municipality and province information 	Required for Canadian address processing	Pitney Bowes monthly subscription
<p>Australia Post Postal Address File Database</p> <p>The Postal Address File is part of Australia Post's Address Matching Approval System (AMAS) program. The database file contains the following information:</p> <ul style="list-style-type: none"> • Postal code • Standardized address elements 	Required for Australian address processing	Pitney Bowes monthly subscription

Database Name & Description	Required or Optional	Supplier
<p>International Postal Database</p> <p>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:</p> <ul style="list-style-type: none"> • 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. 	Required for International address processing	Pitney Bowes quarterly subscription
<p>DPV® Database</p> <p>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.</p> <p>Note: The DPV database also contains the data required for Commercial Mail Receiving Agency (CMRA) processing.</p> <p>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.</p> <p>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.</p> <p>USPS licensing also prohibits exporting the DPV data outside the United States.</p>	Optional, but required for CASS Certified™ processing; U.S. addresses only	Pitney Bowes monthly subscription

Database Name & Description	Required or Optional	Supplier
<p>eLOT® Database</p> <p>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.</p> <p>You will receive monthly updates to your eLOT database on the same media as the U.S. Postal database.</p> <p>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.</p>	Optional; U.S. addresses only	Pitney Bowes monthly subscription
<p>EWS Database</p> <p>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.</p> <p>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.</p> <p>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.</p>	Optional; U.S. addresses only	Download for free from USPS® website
<p>LACSLink® Database</p> <p>The LACSLink 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.</p> <p>USPS licensing prohibits using LACSLink for the generation of addresses or address lists. To prevent the generation of address lists, the LACSLink database contains "false positive records." False positive records are artificially manufactured addresses. For each negative response that occurs in a LACSLink query, a query is made to the False/Positive table in the LACSLink database. A match to this table will stop LACSLink processing.</p> <p>USPS licensing also prohibits exporting the LACSLink database outside the United States</p>	Optional, but required for CASS Certified™ processing; U.S. addresses only	Pitney Bowes monthly subscription

Database Name & Description	Required or Optional	Supplier
<p>RDI™ Database</p> <p>The Residential Delivery Indicator (RDI™) file processing determines whether an address is a residential, business, or mixed (residential and/or business) address.</p> <p>RDI is similar to DPV. In RDI, data is supplied as hash tables. However, RDI is a much simpler process than DPV. In DPV, the standard hash algorithm is determined only for the 9-digit and 11-digit ZIP Code™ rather than the entire address.</p>	Optional; U.S. addresses only	Pitney Bowes monthly subscription
<p>Suite^{Link™} Database</p> <p>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.</p>	Optional; U.S. addresses only	Pitney Bowes monthly subscription

2 - Integrating SAP with Spectrum

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Integrating with SAP

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Integrating with SAP

To integrate Spectrum™ Technology Platform with SAP, you need to install supporting databases and dataflows on the Spectrum™ Technology Platform server, and then configure your SAP system to communicate with Spectrum™ Technology Platform. Once you do this, users of SAP will have access to address validation and geocoding functionality from within SAP.

1. On the Spectrum™ Technology Platform server, install the databases required to perform address validation, geocoding, and tax jurisdiction assignment and define database resources for each database.

You must give the database resources the following names.

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

2. When you install the SAP Module, several dataflow files are automatically installed. Other dataflow files must be manually copied into Spectrum™ Technology Platform.
 - a) If you are adding the Address Now Module, Enterprise Tax Module, or Universal Addressing Module to an existing installation, open Spectrum™ Technology Platform Enterprise Designer, select **View > Server Explorer**, and delete this dataflow:
SAPValidateAddressWithCandidates.
 - b) Go to: `SpectrumFolder\server\modules\dataflows\sap`.
 - c) Review the following table then copy the applicable dataflow files to:

`SpectrumFolder\server\app\import`

If you are installing this set of modules Copy these dataflow files to the import folder

Universal Addressing Module	SAPValidateAddressWithCandidates.df SAPValidateAddressWithCandidates.UAM.df
Enterprise Geocoding Module	SAPValidateAddressWithCandidates.EGM.df
Enterprise Geocoding Module Universal Addressing Module	SAPValidateAddressWithCandidates.UAM_EGM.df
Enterprise Tax Module Universal Addressing Module	SAPAssignGeoTAXInfo.df SAPBatchAssignGeoTAXInfo.df SAPValidateAddressAndAssignGeoTAXInfo.df SAPValidateAddressWithCandidates.UAM_ETM.df
Enterprise Geocoding Module Enterprise Tax Module Universal Addressing Module	SAPValidateAddressWithCandidates.UAM_ETM_EGM.df
Universal Addressing Module without Loqate	SAPValidateAddressWithCandidate_UAM.df
Universal Addressing Module without Loqate Enterprise Tax Module	SAPAssignGeoTAXInfo.df SAPBatchAssignGeoTAXInfo.df SAPValidateAddressAndAssignGeoTAXInfo.df SAPValidateAddressWithCandidates.UAM_ETM.df
Universal Addressing Module with Loqate	ValidateAddressWithCandidates_UAM_Loqate.df
Universal Addressing Module with Loqate Enterprise Geocoding Module	ValidateAddressWithCandidates_UAM_Loqate_EGM.df

If you are installing this set of modules Copy these dataflow files to the import folder

Universal Addressing Module with Loqate Enterprise Tax Module	ValidateAddressWithCandidates_UAM_Loqate_ETM.df
Universal Addressing Module with Loqate Enterprise Geocoding Module Enterprise Tax Module	ValidateAddressWithCandidates_UAM_Loqate_EGM_ETM.df
Universal Addressing Module, Loqate only	ValidateAddressWithCandidates_Loqate.df
Universal Addressing Module, Loqate only Enterprise Geocoding Module	ValidateAddressWithCandidates_Loqate_EGM.df
Enterprise Geocoding Module	GeocodeUSAddressWithCandidates.df ValidateAddressWithCandidates_EGM.df
Enterprise Tax Module	ValidateAssignGeoTAXInfo.df ValidateAddressWithCandidates_ETM.df SAPBatchAssignGeoTAXInfo.df

Note: If errors occur in Management Console or Enterprise Designer, delete the contents of <WindowsTemporaryDirectory>\glAssemblies, where <WindowsTemporaryDirectory> is one of these: %TMP%, %TEMP%, %USERPROFILE%, or the *Windows directory*. Typically, C:\Documents and Settings\

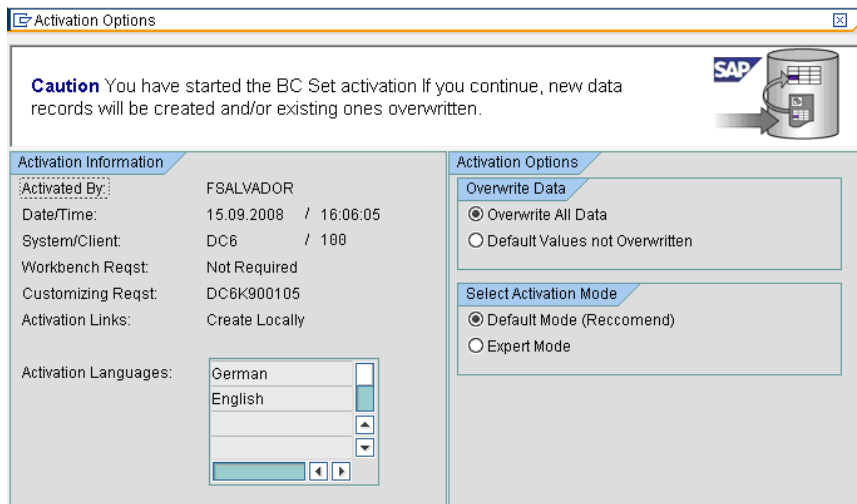
3. Import .SAR files.

A .SAR file is a file that contains a third-party add-on package for SAP, such as the Spectrum™ Technology Platform SAP Module. The .SAR file is located on the Spectrum™ Technology Platform installer in the `SAP Objects` folder. For information about importing .SAR files into SAP applications, see your SAP Basis administrator.

4. Activate the business configuration (BC) sets. The activation options and sequence differs for ECC and CRM installations.

a) **Activate BC sets for ECC and S/4 HANA installations**

1. Log-on to the client where the settings for the Spectrum™ Technology Platform SAP Module is to be configured.
2. Enter the transaction code `SCPR20`. This activates BC sets and places the default entries on the Spectrum™ Technology Platform customizing tables.
3. In the **BC Set** field, enter `/HSGRP1/BCSET_BC_BAS_PV`.
4. Activate it with the options **Overwrite All Data** and **Default Mode**.



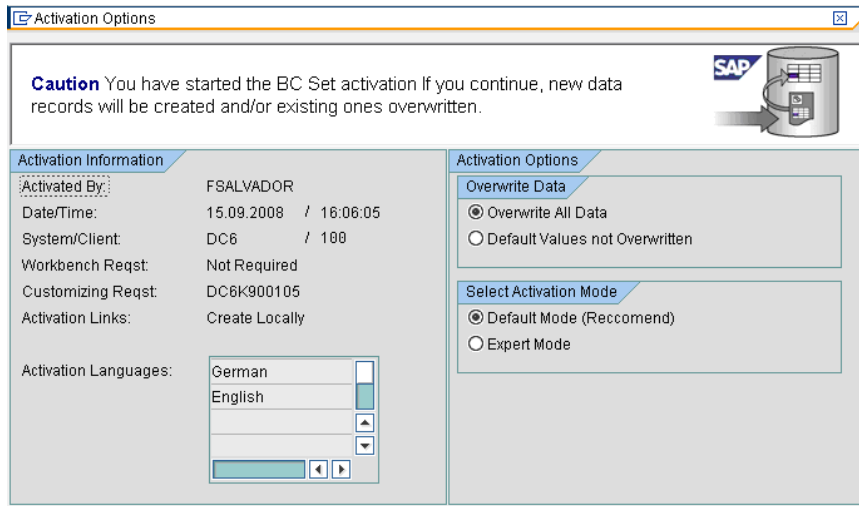
5. Select and activate the remaining BC sets with the activation options set to **Overwrite All Data** and **Expert Mode**

Note: Activate these BC sets in the order listed.

`/HSGRP1/BCSET_BC_BAS_GTX`
`/HSGRP1/MERGE_SETTINGS`
`/HSGRP1/BCSET_BUPA_CUSTOM`
`/HSGRP1/BCSET_BC_BAS_DES`
`/HSGRP1/BCSET_DQC_CUSTOM`

b) **Activate BC sets for CRM installations**

1. Log-on to the client where the settings for the Spectrum™ Technology Platform SAP Module is to be configured.
2. Enter the transaction code `SCPR20`. This activates BC sets and places the default entries on the Spectrum™ Technology Platform customizing tables.
3. In the **BC Set** field, enter `9. /HSGRP1/BCSET_BC_BAS_DES`.
4. Activate it with the options **Overwrite All Data** and **Default Mode**.



5. Select and activate the remaining BC sets with the activation options set to **Overwrite All Data** and **Expert Mode**

Note: Activate these BC sets in the order listed.

/HSGRP1/BCSET_BC_BAS_PV
 /HSGRP1/BCSET_BC_BAS_GTX
 /HSGRP1/ICWC_SETTING
 /HSGRP1/MERGE_SETTINGS

5. Set up the RFC destination.
 - a) Enter transaction code **SM59**.
 - b) Click **Create**.
 - c) In the **RFC Destination** field, enter a name of your choice.
 - d) In the **Connection Type** field, enter **G** (HTTP connection to external server).
 - e) In the **Description 1** field, enter a meaningful description.
 - f) Press the Enter key.
 - g) Click the **Technical Settings** tab.
 - h) In the **Target Host** field, enter the computer name or IP Address of the Spectrum™ Technology Platform server.
 - i) In the **Service No** field enter 8080.
 - j) Click the **Special Options** tab.
 - k) Select **No Timeout**.
 - l) Select **HTTP 1.1**.
 - m) After you save, click **Connection Test**.

Note: If there is a pop-up window, check the **Accept All Further Cookies** box and select **YES**.

- n) When the test is successful, go to the **Response Body** tab to view the Spectrum™ Technology Platform page.
6. Set up the Spectrum™ Technology Platform Logging Object
 - a) Enter transaction code `SLG0`.
 - b) Click **New Entries**.
 - c) In the **Object** column, enter `/HSGRP1/DQC`.
 - d) In the **Object text** column, enter `DQC Logging`.
 - e) Save the change.
 7. Configure the BuildGlobalAddress web service in the SAP Visual Admin:
 - a) Go to `<drive>:/usr./sap/<system id>/DVEBMGS01/ j2ee/admin` and click *go.bat* and enter `J2EE_ADMIN` as password.
 - b) Go to **Cluster > Server > Services > JCo RFC Provider** and select the **Bundles** tab.
 - c) Enter all the information needed by the application and click **Set** to save the changes.
 - d) Go to **Cluster > Server > Services > Web Services Security**.
 - e) Create a proxy in **Web Services Client > sap.com > Dynamic WSProxies** with the name `PBBIWebServiceConnectorBGA`.
 - f) For the URL, enter:


```
http://<spectrumservername>:<port>/soap/BuildGlobalAddress?wsdl
```

For example,

```
http://MySpectrumServer:8080/soap/BuildGlobalAddress?wsdl
```
 - g) Restart the application server.
 8. If you will be using French address validation, you must install the Data Normalization Module table `cdq-TableLookup-SAP.tba` on the Spectrum™ Technology Platform server. For more information, see the *Spectrum™ Technology Platform Installation Guide*.
 9. To configure DPV and RDI options, open T-code `/hsgrp1/options`, and specify **Y** (to enable) or **N** (to disable), as needed.
 - **PVPO**: For PO Box address validation
 - **PVST**: For street address validation
 - **PVQU**: For batch address validation

3 - Integrating SAP with Spectrum on Demand

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Integration of SAP with Spectrum on Demand

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Integration of SAP with Spectrum on Demand

To integrate SAP services with Spectrum on Demand, follow these steps:

1. Import a Spectrum on Demand (SPOD) SSL Certificate on SAP client machine, follow these steps:
 1. Run Transaction Code *STRUST* in **SSL Client Standard** tab.
 2. Navigate to the path where you have placed the SSL Certificate.
 3. Add the certificate to the **Certificate List** and save it.
 4. Run Transaction Code *SM59*, **RFC Destination SPOD PRODUCTION** screen is displayed.
 5. Click **Technical Settings** tab and enter these details:
 - Enter `spectrum.pitneybowes.com` in the **Target Host** field
 - Enter `/soap/` in the **Path Prefix** field.
 6. Click **Logon & Security** tab and enter your credentials in the **Logon With User** section.

Note: You will receive these credentials from the Pitney Bowes support.
 7. In the **Security Options** section, set the status of secure protocol as active by selecting the **Active** check box and select **DEFAULT SSL Client (Standard)** from the SSL Certificate drop down. This certificate is the same as added by the Transaction Code *STRUST*.

Note: If your SAP product version is below *CRM 7.0 EHP4* or *ECC 6.0 EHP8*, you are required to apply a SAP note in your system for registering WSDL in SOAMANAGER. The SAP note is available at <https://launchpad.support.sap.com/#/notes/2388992>
2. Register services with SPOD through SOA Manager, follow these steps:
 1. Run Transaction Code *SOAMANAGER*, You will be redirected to **SOA Management** web page.
 2. Click **Web Service Configuration**
 3. Obtain the ABAP Name, follow these steps:
 - a. Run Transaction Code *SE80*
 - b. Enter `/HSGRP1/SPOD` in the package field
 - c. Go to **Enterprise Services > Service Consumers** and select the desired *ABAP Name*.
 4. Enter the *ABAP Name* obtained from the last step in the search field, click **Search** and select the service from the **Search Result**.
 5. Click the **Create** tab and select **WSDL based configuration**
 6. Enter the **Logical Port Name** and **Description**.
 7. Select the **Logical Port is Default** check box.

8. Click **Next**, **WSDL Access Settings** WSDL Location screen is displayed.
9. Select **Via HTTP Access** check box, enter the **URL for WSDL Access**, your WSDL Access credentials and click **Next**.
10. Click **Next** and enter your User Name and password.
11. Click **Next** until the **Finish** button is activated.
12. Click **Finish**

Note: Repeat steps 3-8 for these WSDL URLs:

<https://spectrum.pitneybowes.com/soap/SAPGenerateMatchKey?wsdl>

<https://spectrum.pitneybowes.com/soap/SAPGenerateMatchScore?wsdl>

<https://spectrum.pitneybowes.com/soap/SAPGenerateSearchKey?wsdl>

<https://spectrum.pitneybowes.com/soap/SAPBatchAssignGeoTAXInfo?wsdl>

https://spectrum.pitneybowes.com/soap/Connectors_ValidateAddressWithCandidates?wsdl

<https://spectrum.pitneybowes.com/soap/SAPBatchValidateAddress?wsdl>

https://spectrum.pitneybowes.com/soap/Connectors_ValidateAddressWithCandidates?wsdl

<https://spectrum.pitneybowes.com/soap/SAPValidateAddressAndAssignGeoTAXInfo?wsdl>

To get Geocode and Tax details:https://spectrum.pitneybowes.com/soap/Connectors_ValidateAddressWithCandidates_EGM_ETM?wsdl

3. Activate SPOD development, follow these steps:
 1. Run Transaction Code *SM30*, **Edit Table Views: Initial Screen** is displayed
 2. Enter */HSGRP1/SPOD_CON* in the **Table/View** field
 3. Click **Maintain**
 4. Select the **Active** check box corresponding to **SpectrumOnDemand** to activate SPOD development.

4 - Using the SAP Interface

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Searching for Records

The SAP modules provide various ways in which you can search records. Error-tolerant searches allow you to find customers, vendors, prospects, or business partners, even if you don't have all their information or the information is incomplete or partly wrong.

1. When searching for customers, vendors, prospects, or business partners, the error-tolerant search feature allows you to use "Rough" or "Fuzzy" search logic to locate records. To enable this search logic, the value of **FuzzySearch** field in **SAP DQC Services** window should be set to **1**. By default, it is set to **0**. You also have to run the Tcode **SM30** and enter **/HSGRP1/hsgrp1/svc_opt** in the **table** field.

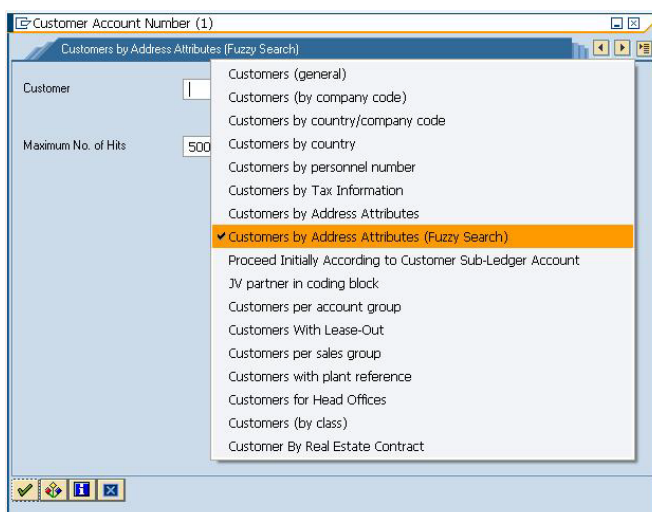
Note: To enable **FuzzySearch** in Spectrum on Demand (SPOD), run the Tcode **SM30** and enter **/hsgrp1/SPOD_opt** in the **table** field.

You must perform search key initialization for these conditions:

- If you are upgrading from version 11.0 or earlier and the value of **FuzzySearch** is set to **0**.
- If you are upgrading from version 11.0 SP1 or later and the value of **FuzzySearch** is set to **1**.

For more information, see [Initializing Search Key](#) on page 34.

Note: Search key initialization should be performed every time you change the value of **FuzzySearch** field.



2. Enter any information in any of the fields to perform the error-tolerant search. In this particular case, the information "Pitney Bowes Business Insight" was entered in the name field.

The screenshot shows a search window titled "PB1(1)/100 Search for customers by address attributes (fuzzy search)". It contains several input fields:

- Name:** A text field containing "Pitney Bowes Business Insight".
- Street Address:** A section containing:
 - Street/House number:** An empty text field.
 - Postal Code/City:** A wide text field.
 - Region:** A dropdown menu.

At the bottom left, there are checkmark and X icons.

- Execute the search to display the Results pop-up with a list of possible matches.

The screenshot shows a results window titled "PB1(1)/100 Fuzzy/Rough Search (Pitney Bowes Business Insight)". It displays a table of search results for "Pitney Bowes Business Insight".

PV Status	Customer No.	Similarity %	Name1 / Last Name	Name2 / First Name	Formatted Address
✓	0000000007	100.0	Pitney Bowes Business Insight		Pitney Bowes Business Insight / 1210 Trinity Rd / Raleigh NC 27607-4945-4945
✓	0000000006	71.0	Pitney Bowes		Pitney Bowes / 1210 Trinity Rd / Raleigh NC 27607-4945-4945

At the bottom, there are buttons for "Open Selected Record" and "Cancel".

- Select from the given list and click on **Open Selected Record**, or simply click on Cancel to cancel the search.

Note: This search logic doesn't work for some fields.

Address Validation

Address validation is the process of correcting address information and validating addresses against the postal database and is performed on partial or complete records. Address validation is done in several places in the SAP system. Address validation is done whenever address information is created or updated, for example when you create or update a customer record via transaction codes XD01 and XD02 or when you create or update a business partner via transaction code BP in SAP.

Validating an Address

You can validate an address when creating a business partner, customer, or vendor so that address data entered into your system is valid.

- Create a new business partner, customer, or vendor.

- To create a new business partner, enter the transaction code /NBP.
 - To create a new customer, enter the transaction code /NXD01.
 - To create a new vendor, enter the transaction code /NXX01.
2. Enter the address.
 3. Press the F8 key or click the check icon.
 4. If the address you entered needs to be corrected, the **Address Changed** window appears, listing the corrected version of the address. If the address you entered matched multiple candidate addresses, the **Address Search** window appears, listing the candidate addresses.
 - Click **Accept Changes** to save the corrected version of the address to the record. If there are multiple addresses listed, select the address you want to use before clicking **Accept Changes**.
 - Click **Accept Current** to keep the address as you entered it.
 - Click the **Advanced** button to access the Advanced Search window. For more information on the Advanced Search window refer to [Validating Address Components](#) on page 23. This option will be available only if the Simple/Advanced Search option is enabled, and the address entered does not produce a unique result.
 - Click the red "X" to cancel the validation.

In addition to address validation, you may see the following information returned with the address:

- If you have licensed the Enterprise Tax Module and the Tax Jurisdiction Code is required, the Tax Jurisdiction Code is returned with the address.
 - Note:** For *S4HANA*, the Tax Jurisdiction value does not populate in the field though Spectrum™ Technology Platform returns it in the pop up.
- If you have licensed the Enterprise Geocoding Module, the latitude and longitude coordinates of the address will be returned.

Note: When only the Postal Code, Country, and Region fields are populated, the address list does not show any candidate records in the simple tab and an error message is displayed.

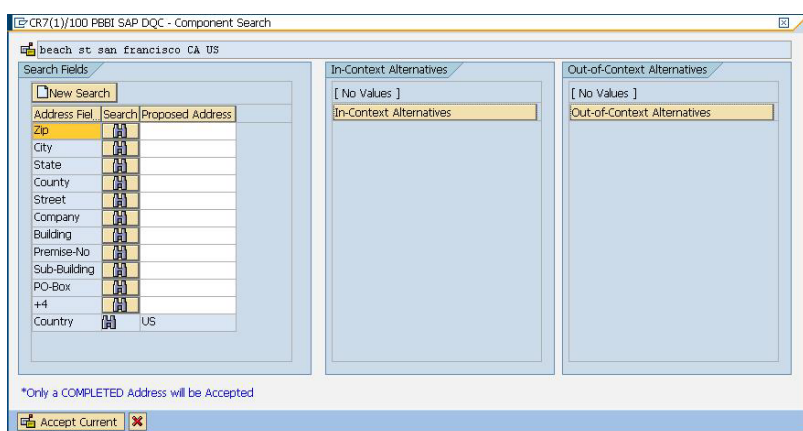
Validating Address Components

The Advanced Search is helpful when there is uncertainty in the address entered. This feature eases the difficulty of entering and searching even the most complex addresses.

The Component Tab contains Proposed and Current columns. Initially, the 'Proposed' column does not contain any value. This is because the values are selected per field.

Note: This option will be available only if the Simple/Advanced Search option is enabled, and the address entered does not produce a unique result.

1. Enter the address data in SAP.
2. The address goes through the validation process. The Advanced Search Tab screen is displayed with blank fields.
3. To begin a search, click Advanced button. The Advanced Search screen is displayed. On this screen, the entered address is not displayed on the Proposed Address column. The address to be searched has to be typed in the fields.
4. Results are only displayed on the Out-Of-Context Alternatives box when entries are found out of the scope of the search criteria.
5. To begin a search, enter the address to be searched and click on the binoculars button beside the field for which you want to search. Searches are done on a field-by-field basis only. The results are displayed either on the In-Context Alternatives, or the Out-Of-Context Alternatives.



6. To commit a field, double-click an entry on the In-Context Alternatives box. Once a field is committed, the system will provide you with a list of possible entries based on what was committed. This list is based on a search hierarchy. The hierarchy is as follows:
 - Zip
 - City
 - State
 - Street
 - Company
 - Building
 - Premise-No
 - Sub-Building
 - PO-Box

Note: When a search is made, and there are no results matching the search criteria, the next field in the hierarchy will be returned with its possible results.

7. Continue searching until all fields are complete enough for the address to be considered a complete and valid address.

Search Fields

Address Field	Search	Proposed Address
Zip	(U)	20706
City	(U)	LANHAM
State	(U)	MD
County	(U)	PRINCE GEORGES
Street	(U)	PARLIAMENT PL
Company	(U)	GROUP 1
Building	(U)	
Premise-No	(U)	4200
Sub-Building	(U)	STE 600
PO-Box	(U)	
+4	(U)	1844
Country	(U)	US

*Only a COMPLETED Address will be Accepted

Accept Changes Accept Current X

Note: Only a Completed Address will be accepted by the system.

8. To make another search, just click the **New Search** button in the advanced search screen.

Search Fields

Address Field	Search	Proposed Address
Zip	(U)	20706
City	(U)	LANHAM
State	(U)	MD
County	(U)	PRINCE GEORGES
Street	(U)	PARLIAMENT PL
Company	(U)	GROUP 1
Building	(U)	
Premise-No	(U)	4200
Sub-Building	(U)	STE 600
PO-Box	(U)	
+4	(U)	1844
Country	(U)	US

*Only a COMPLETED Address will be Accepted

Accept Changes Accept Current X

Note: You can choose a new search provided you have not selected the **Accept Changes** button. Once the **Accept Changes** button has been selected the committed address will be reflected in the create data screen.

9. Click the **Accept Changes** button to accept the validated (completed) address. Click the **Accept Current** button to accept the address you entered. Or click the red "X" to cancel the validation.

Viewing U.S. Address Details and Geocode

Note: U.S. address details and geocode are only available in SAP ECC 6.0.

When a U.S. address is validated, several U.S. Postal Service codes are added to the SAP record to provide detailed information about the address. If you have licensed the Enterprise Geocoding Module, the latitude/longitude coordinates of the address are also added to the SAP record. To view this information:

1. Open the business partner, customer, or vendor record in SAP.
2. Do one of the following:
 - If you are viewing a customer or vendor, click **Custom Fields**.
 - If you are viewing a business partner, click the **Customer Data** tab.

U.S. Postal Service Codes

CMRA Codes

A Commercial Mail Receiving Agency (CMRA) is a private company that rents out mailboxes. A CMRA, also known as a mail drop, typically operates as a Private Mail Box Operator. Addresses at a CMRA are therefore given the designation "PMB" (private mail box) instead of "POB" (Post Office box).

A customer of a CMRA can receive mail and other deliveries at the street address of the CMRA rather than the customer's own street address. Depending on the agreement between the customer and the CMRA, the CMRA can forward the mail to the customer or hold it for pickup.

A customer may wish to use the services of a CMRA for privacy. For example, a person running a home-based business may not wish to divulge the home address. Alternatively, a customer in one community may contract with a CMRA in another community with a better known or more prestigious address.

When you validate an address, the address is assigned a CMRA code in the **CMRA** field. The CMRA codes are:

Y	Yes, the address is a CMRA.
N	No, the address is not a CMRA.
U	Unconfirmed.

DPV Codes

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

When you validate an address, the address is assigned a DPV code in the **DPV** field. The DPV codes are:

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

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

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

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

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

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

EWS Codes

The Early Warning System (EWS) provides up-to-date address information for new and recently changed addresses that have not yet been updated in the monthly USPS database. EWS prevents address records from miscoding due to a delay in postal data reaching the USPS[®] databases.

The older the U.S. Postal Database, the higher potential you have for miscoding addresses. When a valid address is miscoded because the address it matches to in the U.S. Postal Database is inexact, it will result in a broken address.

EWS data consists of partial address information limited to the ZIP Code[™], street name, predirectional, postdirectional, 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.

When you validate an address, the address is assigned an EWS code in the **EWS** field. The EWS codes are:

- Y** The address was found in the EWS data.
- N** The address was not found in the EWS data.

RDI Codes

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

When you validate an address, the address is assigned an RDI code in the **RDI** field. The RDI codes are:

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

Performing Batch Address Validation

Batch address validation is the process of updating address data in a data set so that the address data is valid and cleansed. If a record has been saved with unclesed data (e.g. lower cased address), running the batch address cleansing will automatically cleanse the record.

1. Enter the transaction code `/NSE38`.
2. In the **Program** field enter `RSADRQU1`.

Note: This is a standard SAP program for the quarterly adjustment process.

3. Press the F8 key or click the execute icon.
4. Complete the fields to specify the records you want to include in the batch address validation.
5. Press the F8 key or click the execute icon.
6. When you see a message saying "INDX created", click the back icon until you are at the screen titled **ABAP Editor: Initial Screen**.
7. In the **Program** field enter `/HSGRP1/RSADRQU2`.
8. Press the F8 key or click the execute icon.
9. Choose one of the following options:

Address Validation Only	This will only validate and cleanse the records.
GeoTAX Validation Only	This will only perform tax jurisdiction assignments on the records. This option only works if you have the Enterprise Tax Module installed on the Spectrum™ Technology Platform server.
Address Validation and GeoTAX	This will validate, cleanse, and perform tax jurisdiction assignments on the records. This option only works if you have the Enterprise Tax Module installed on the Spectrum™ Technology Platform server.
10. Press the F8 key or click the execute icon.
11. When you see a message saying that the process has ended, click the back icon until you are at the screen titled **ABAP Editor: Initial Screen**.
12. In the **Program** field, enter `/HSGRP1/RSADRQU3`.
13. Press the F8 key or click the execute icon.

14. Press the F8 key or click the execute icon again.

Batch address validation is now complete.

Viewing the Address Validation Report





The address validation report lists address information for records that have been processed through batch and interactive address validation. The report contains information such as the address, RDI and DPV codes and whether the address is cleansed.

1. Enter the transaction code `/N/HSGRP1/MASTER`.
2. In the **By Address** and **By Address Type** sections, specify the filter criteria to use to select records to include in the report.
3. In the **By Address Status** section, select one or more of the following:

Cleansed	Check this box to include addresses that the system has validated and cleansed.
Not Yet Cleansed	Check this box to include addresses that the system has not attempted to validate or cleanse.
Differing	Check this box to include addresses that were entered into the system at a time when address validation was disabled.
4. In the **Maximum No. of Hits** field enter the maximum number of records you want to include in the report.
5. Press the F8 key or click the execute icon.

The records that match your criteria are displayed. The **Status** column indicates the address validation status for each record.

Table 2: Status Icons

Icon	Description
	Address has been checked and conforms to the reference data.
	Address has been checked and does not conform to the reference data. Only the user can set this status.
	Address has not been checked or it has failed cleansing.
	No address.

6. Click **Show Statistics** to view a count of the records included in the report.

Geocoding

Geocoding is the process of determining the latitude and longitude coordinates for a given address. With the geocode you can perform a variety of geospatial calculations, such as finding the point on a map, getting driving directions, and determining distances to other locations.

If you have licensed the Enterprise Geocoding Module along with the SAP Module, the latitude and longitude coordinates for an address are automatically added when you validate a customer, vendor, or business partner address.

Deduplication

Deduplication is the process of identifying duplicate records in a data set. The SAP modules allow you to identify duplicate business partner records based on a variety of fields. Once duplicate records are found you can then choose to ignore them or create a master record by merging information found in each duplicate.

To enable deduplication for HANA, follow these steps:

- Run this transaction code- `/nsm30`, **Edit Table Views: Initial Screen** is displayed.
- Enter `/HSGRP1/DD_TCODE` in the table field, **Display View "Tcode for which dedupe is activated in HANA": Overview** is displayed.
- Enter XD01, XK01, and BUG1 in the **Transaction Code** field and select the corresponding **Activate** check boxes.

Deduplicating a Business Partner

When you create a business partner record you can check to make sure you are not creating a duplicate of an existing business partner.

1. Enter the transaction code `/NBP` to create a new business partner.
2. Create the new business partner.
3. When you are done entering information, press the F8 key or click the check icon.
4. If the address you entered is not valid, you are prompted to choose a valid address.

5. If a record in the system is similar to the record being created, the deduplication window is displayed. This window shows the candidate duplicate or duplicates of the record you are creating.
 - Click **Continue** to ignore any duplicates displayed in the pop-up and create the new record.
 - Click **Switch to Duplicate** to display the selected candidate duplicate and cancel the creation of the current duplicate.
 - Click **Display Partner** to view the selected duplicate record. After viewing the duplicate record click the back button to return to this window.
 - Click **Create Cleansing Case** to merge the two records manually using the transaction code `/NBUPA_CLEAR`. This option allows you to choose which record is the source record and which one is the target record for the merge.
 - Click the red **X** to cancel the deduplication process.

Merging Business Partner Records

Record Merging is the process of reconciling duplicate records. Duplicate records are reconciled by merging the duplicate to the current record or by merging the current to the duplicate record.





Note: Merging is only available for business partner records.

1. Enter the transaction code `/N/HSGRP1/MASTER`.
2. In the **By Address** and **By Address Type** sections, specify the filter criteria to use to select records to include in the report.
3. In the **By Address Status** section, select one or more of the following:

Cleansed	Check this box to include addresses that the system has validated and cleansed.
Not Yet Cleansed	Check this box to include addresses that the system has not attempted to validate or cleanse.
Differing	Check this box to include addresses that were entered into the system at a time when address validation was disabled.
4. In the **Maximum No. of Hits** field enter the maximum number of records you want to include in the report.
5. In the **Duplicate Check Threshold** field, enter a threshold for considering two records duplicates. The threshold is a percentage that indicates the amount of similarity between two records that qualifies them to be duplicates. For example, if you enter `30,0` any records that are 30% the same will be considered duplicates. You must enter the percentage in the format *percentage,0*.
6. Press the F8 key or click the execute icon.

The records that match your criteria are displayed. The **Status** column indicates the address validation status for each record.

Table 3: Status Icons

Icon	Description
	Address has been checked and conforms to the reference data.
	Address has been checked and does not conform to the reference data. Only the user can set this status.
	Address has not been checked or it has failed cleansing.
	No address.

- Click **Check for Duplicates** to view the candidate duplicate or duplicates for the selected record.
- In the **Duplicates** window, select the record that is a duplicate of the one you selected in the main window then click one of the following buttons:

Merge Current To Duplicate Merges the record from the main screen to the selected record in the pop-up screen.

Merge Duplicate To Current Merges the selected record of the pop-up screen to the record of the main screen.

If the **Batch Merging** option is set to **PBBI Merge Process**, the records are merged automatically.

If the **Batch Merging** option is set to **SAP Merge Process**, the data cleansing cases are created and the cleansing case process must be done manually to complete the merge.

Note: The **Batch Merging** option can be accessed by entering transaction code `/NSPRO`, clicking **SAP Reference IMG**, then expanding **SAP NetWeaver > Application Server > Basis Services > Address Management > PBBI SAP DQC > Merging**.

Batch Merging Business Partner Records

Batch merge is the process of merging business partner candidates with corresponding duplicates. Business partner candidates flagged for archiving are not included in the process. The merge behavior depends on whether the merge settings are set to the Pitney Bowes merge process or the SAP merge process.

- Enter the transaction code `/NSE38`.
- In the **Program** field, enter `/HSGRP1/BP_MERGING`.
- Press the F8 key or click the execute icon.
- Enter the package size and specify whether you want the merged record to be archived.

5. Press the F8 key or click the execute icon.
6. After executing, a message confirming that batch merging has been completed is displayed.

Performing Batch Deduplication

Batch deduplication is the process of initializing the duplicate status field in the table /HSGRP1/MATCHKEY.

1. Enter the transaction code /NSE38.
2. In the **Program** field, enter /HSGRP1/RSADRDEDUP.
3. Press the F8 key or click the execute icon.
4. Enter the package size then press the F8 key or click the execute icon.

Viewing the Log

The SAP Module uses the built-in application log of SAP. To view the log entries, you can enter the transaction SLG1.

1. Enter the transaction code SLG1.
2. In the **Object** field, enter /HSGRP1/DQC.

This is the object name used to view logs specific to Spectrum™ Technology Platform.

3. Enter any filtering criteria you want to use to limit the transactions displayed in the log.
4. Press the F8 key or click the execute icon.
5. To view the XML message passed or received by the Spectrum™ Technology Platform server, select a log and press the F7 key or click the details icon.

Note: XML message logs are created depending on the General Behavior settings.

```

Display logs
<?xml version="1.0" encoding="utf-8" ?>
- <message>
- <propertysets>
- <propertyset name="context">
  <property key="account.id" value="guest" />
  <property key="account.password" value="" />
  <property key="service.name" value="SAPGenerateMatchScore" />
</propertyset>
</propertysets>
- <dataset>
- <columns>
  <column name="AddressNumber" />
  <column name="PersonNumber" />
  <column name="Name1" />
  <column name="Name2" />
  <column name="AddressLine1" />
  <column name="HouseNumber" />
  <column name="ApartmentNumber" />
  <column name="City" />
  <column name="StateProvince" />
  <column name="Country" />
  <column name="PostalCode" />
  <column name="Delimiter" />
  <column name="MatchGroup" />
  <column name="Threshold" />
</columns>
- <records>
- <record>
  <field value="0000010610" />
  <field value="0000010609" />
  <field value="" />
  <field value="Pitney Bowes" />
  <field value="Trinity Rd" />
  <field value="1210" />
  <field value="" />
  <field value="Raleigh" />
  <field value="NC" />
  <field value="US" />
  <field value="27607-4945" />
  <field value="" />
  <field value="SAPDQC" />

```

Resynchronizing the Index Pool

Index Pool Resynchronization is the process of reinitializing the table `/HSGRP1/MATCHKEY`.

- If there are records created during a downtime of some sort, there is a possibility that the search process will not provide complete results. Upon creation, update, or search, automatic resynchronization will take place to update the index. If the number of unsync records exceeds the set threshold, you will be prompted to choose whether to continue the resync process or not.

Initializing Search Key

Search Key Initialization is the process of initializing the table `/HSGRP1/MATCHKEY`.

1. Enter the transaction code `/NSE38`.
2. In the **Program** field enter `/HSGRP1/RSADRINI`
3. Press the F8 key or click the execute icon.
4. Select the appropriate options.
5. Press the F8 key or click the execute icon.

Appendix

In this section

ISO Country Codes and Module Support

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A - ISO Country Codes and Module Support

In this section

ISO Country Codes and Module Support

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ISO Country Codes and Module Support

This table lists the ISO codes for each country as well as the modules that support addressing, geocoding, and routing for each country.

Note that the Enterprise Geocoding Module includes databases for Africa (30 countries), Middle East (8 countries) and Latin America (20 countries). These databases cover the smaller countries in those regions that do not have their own country-specific geocoding databases. The Supported Modules column indicates which countries are covered by these Africa, Middle East, and Latin America databases.

Also, the Geocode Address World database provides geographic and limited postal geocoding (but not street-level geocoding) for all countries.

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Afghanistan	AF	AFG	Universal Addressing Module
Aland Islands	AX	ALA	Universal Addressing Module
Albania	AL or SQ (Routing)	ALB	Universal Addressing Module Enterprise Geocoding Module Enterprise Routing Module
Algeria	DZ	DZA	Enterprise Geocoding Module (Africa) Universal Addressing Module
American Samoa	AS	ASM	Universal Addressing Module
Andorra	AD	AND	Enterprise Geocoding Module. (Andorra is covered by the Spain geocoder) Universal Addressing Module GeoComplete Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Angola	AO	AGO	Enterprise Geocoding Module (Africa) Universal Addressing Module
Anguilla	AI	AIA	Universal Addressing Module
Antarctica	AQ	ATA	Universal Addressing Module
Antigua And Barbuda	AG	ATG	Universal Addressing Module
Argentina	AR	ARG	Enterprise Geocoding Module Universal Addressing Module Enterprise Routing Module
Armenia	AM	ARM	Universal Addressing Module
Aruba	AW	ABW	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Australia	AU	AUS	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module
Austria	AT	AUT	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Azerbaijan	AZ	AZE	Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Bahamas	BS	BHS	Enterprise Geocoding Module Universal Addressing Module Enterprise Routing Module
Bahrain	BH	BHR	Enterprise Geocoding Module (Middle East) Universal Addressing Module
Bangladesh	BD	BGD	Universal Addressing Module
Barbados	BB	BRB	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Belarus	BY	BLR	Universal Addressing Module Enterprise Routing Module
Belgium	BE	BEL	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Belize	BZ	BLZ	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Benin	BJ	BEN	Enterprise Geocoding Module (Africa) Universal Addressing Module
Bermuda	BM	BMU	Universal Addressing Module Enterprise Routing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Bhutan	BT	BTN	Universal Addressing Module
Bolivia	BO	BOL	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Bonaire, Saint Eustatius And Saba	BQ	BES	Universal Addressing Module
Bosnia And Herzegovina	BA	BIH	Enterprise Geocoding Module Universal Addressing Module Enterprise Routing Module Enterprise Geocoding Module
Botswana	BW	BWA	Enterprise Geocoding Module (Africa) Universal Addressing Module
Bouvet Island	BV	BVT	Universal Addressing Module
Brazil	BR	BRA	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
British Indian Ocean Territory	IO	IOT	Universal Addressing Module
Brunei Darussalam	BN	BRN	Enterprise Geocoding Module Universal Addressing Module
Bulgaria	BG	BGR	Enterprise Geocoding Module Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Burkina Faso	BF	BFA	Enterprise Geocoding Module (Africa) Universal Addressing Module
Burundi	BI	BDI	Enterprise Geocoding Module (Africa) Universal Addressing Module
Cambodia	KH	KHM	Universal Addressing Module
Cameroon	CM	CMR	Enterprise Geocoding Module (Africa) Universal Addressing Module
Canada	CA	CAN	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Cape Verde	CV	CPV	Universal Addressing Module
Cayman Islands	KY	CYM	Universal Addressing Module
Central African Republic	CF	CAF	Universal Addressing Module
Chad	TD	TCD	Universal Addressing Module
Chile	CL	CHL	Enterprise Geocoding Module Universal Addressing Module Enterprise Routing Module GeoComplete Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
China	CN or zh_CN (Routing)	CHN	Enterprise Geocoding Module Universal Addressing Module Enterprise Routing Module
Christmas Island	CX	CXR	Universal Addressing Module
Cocos (Keeling) Islands	CC	CCK	Universal Addressing Module
Colombia	CO	COL	Enterprise Geocoding Module Universal Addressing Module
Comoros	KM	COM	Universal Addressing Module
Congo, Republic Of The	CG	COG	Enterprise Geocoding Module (Africa) Universal Addressing Module
Congo, The Democratic Republic Of The	CD	COD	Enterprise Geocoding Module (Africa) Universal Addressing Module Enterprise Routing Module
Cook Islands	CK	COK	Universal Addressing Module
Costa Rica	CR	CRI	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Côte d'Ivoire	CI	CIV	Universal Addressing Module
Croatia	HR	HRV	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Cuba	CU	CUB	Enterprise Geocoding Module (Latin America) Enterprise Routing Module Universal Addressing Module
Curacao	CW	CUW	Universal Addressing Module
Cyprus	CY	CYP	Enterprise Geocoding Module Universal Addressing Module
Czech Republic	CZ or CS (Routing)	CZE	Enterprise Geocoding Module Universal Addressing Module Enterprise Routing Module GeoComplete Module
Denmark	DK	DNK	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Djibouti	DJ	DJI	Universal Addressing Module
Dominica	DM	DMA	Universal Addressing Module
Dominican Republic	DO	DOM	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Ecuador	EC	ECU	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Egypt	EG	EGY	Enterprise Geocoding Module (Middle East) Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
El Salvador	SV	SLV	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Equatorial Guinea	GQ	GNQ	Universal Addressing Module
Eritrea	ER	ERI	Universal Addressing Module
Estonia	EE	EST	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module
Ethiopia	ET	ETH	Universal Addressing Module
Falkland Islands (Malvinas)	FK	FLK	Universal Addressing Module
Faroe Islands	FO	FRO	Universal Addressing Module
Fiji	FJ	FJI	Universal Addressing Module
Finland	FI	FIN	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
France	FR	FRA	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
French Guiana	GF	GUF	Enterprise Geocoding Module (<i>French Guiana is covered by the France geocoder.</i>) Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
French Polynesia	PF	PYF	Universal Addressing Module
French Southern Territories	TF	ATF	Universal Addressing Module
Gabon	GA	GAB	Enterprise Geocoding Module (Africa) Universal Addressing Module
Gambia	GM	GMB	Universal Addressing Module
Georgia	GE	GEO	Universal Addressing Module
Germany	DE	DEU	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Ghana	GH	GHA	Enterprise Geocoding Module (Africa) Universal Addressing Module Enterprise Routing Module
Gibraltar	GI	GIB	Enterprise Geocoding Module (<i>Gibraltar is covered by the Spain geocoder.</i>) Universal Addressing Module
Greece	GR	GRC	Enterprise Geocoding Module Universal Addressing Module
Greenland	GL	GRL	Universal Addressing Module
Grenada	GD	GRD	Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Guadeloupe	GP	GLP	Enterprise Geocoding Module (<i>Guadeloupe is covered by the France geocoder.</i>) Universal Addressing Module
Guam	GU	GUM	Universal Addressing Module
Guatemala	GT	GTM	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Guernsey	GG	GGY	Universal Addressing Module
Guinea	GN	GIN	Universal Addressing Module
Guinea-Bissau	GW	GNB	Universal Addressing Module
Guyana	GY	GUY	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Haiti	HT	HTI	Universal Addressing Module
Heard Island and McDonald Islands	HM	HMD	Universal Addressing Module
Holy See (Vatican City State)	VA	VAT	Enterprise Geocoding Module (<i>The Vatican is covered by the Italy geocoder.</i>) Universal Addressing Module
Honduras	HN	HND	Enterprise Geocoding Module (Latin America) Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Hong Kong	HK	HKG	Enterprise Geocoding Module Universal Addressing Module
Hungary	HU	HUN	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Iceland	IS	ISL	Enterprise Geocoding Module Universal Addressing Module
India	IN	IND	Enterprise Geocoding Module Universal Addressing Module
Indonesia	ID	IDN	Enterprise Geocoding Module Universal Addressing Module
Iran, Islamic Republic Of	IR	IRN	Universal Addressing Module
Iraq	IQ	IRQ	Enterprise Geocoding Module (Middle East) Universal Addressing Module
Ireland	IE	IRL	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Isle Of Man	IM	IMN	Universal Addressing Module
Israel	IL	ISR	Universal Addressing Module Enterprise Routing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Italy	IT	ITA	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Jamaica	JM	JAM	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Japan	JP	JPN	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Jersey	JE	JEY	Universal Addressing Module
Jordan	JO	JOR	Universal Addressing Module Enterprise Geocoding Module (Middle East) Enterprise Routing Module
Kazakhstan	KZ	KAZ	Universal Addressing Module
Kenya	KE	KEN	Enterprise Geocoding Module (Africa) Universal Addressing Module Enterprise Routing Module
Kiribati	KI	KIR	Universal Addressing Module
Korea, Democratic People's Republic Of	KP	PRK	Universal Addressing Module
Korea, Republic Of	KR	KOR	Enterprise Geocoding Module Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Kosovo	KS	KOS	Enterprise Geocoding Module Universal Addressing Module GeoComplete Module
Kuwait	KW	KWT	Enterprise Geocoding Module (Middle East) Universal Addressing Module
Kyrgyzstan	KG	KGZ	Universal Addressing Module
Lao People's Democratic Republic	LA	LAO	Universal Addressing Module
Latvia	LV	LVA	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module
Lebanon	LB	LBN	Enterprise Geocoding Module (Middle East) Universal Addressing Module
Lesotho	LS	LSO	Enterprise Geocoding Module (Africa) Universal Addressing Module Enterprise Routing Module
Liberia	LR	LBR	Universal Addressing Module
Libyan Arab Jamahiriya	LY	LBY	Universal Addressing Module
Liechtenstein	LI	LIE	Enterprise Geocoding Module (<i>Liechtenstein is covered by the Switzerland geocoder.</i>) Enterprise Routing Module Universal Addressing Module GeoComplete Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Lithuania	LT	LTU	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module
Luxembourg	LU	LUX	Enterprise Geocoding Module (<i>Luxembourg is covered by the Belgium geocoder.</i>) Enterprise Routing Module Universal Addressing Module GeoComplete Module
Macao	MO	MAC	Enterprise Geocoding Module Universal Addressing Module
Macedonia, Former Yugoslav Republic Of	MK	MKD	Enterprise Geocoding Module Universal Addressing Module
Madagascar	MG	MDG	Universal Addressing Module
Malawi	MW	MWI	Enterprise Geocoding Module (Africa) Universal Addressing Module
Malaysia	MY	MYS	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module
Maldives	MV	MDV	Universal Addressing Module
Mali	ML	MLI	Enterprise Geocoding Module (Africa) Universal Addressing Module
Malta	ML	MLT	Enterprise Geocoding Module Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Marshall Islands	MH	MHL	Universal Addressing Module
Martinique	MQ	MTQ	Enterprise Geocoding Module (<i>Martinique is covered by the France geocoder.</i>) Universal Addressing Module
Mauritania	MR	MRT	Enterprise Geocoding Module (Africa) Universal Addressing Module
Mauritius	MU	MUS	Enterprise Geocoding Module (Africa) Universal Addressing Module
Mayotte	YT	MYT	Enterprise Geocoding Module (<i>Mayotte is covered by the France geocoder.</i>) Universal Addressing Module
Mexico	MX	MEX	Enterprise Geocoding Module Universal Addressing Module
Micronesia, Federated States Of	FM	FSM	Universal Addressing Module
Moldova, Republic Of	MD	MDA	Universal Addressing Module Enterprise Routing Module
Monaco	MC	MCO	Enterprise Geocoding Module (<i>Monaco is covered by the France geocoder.</i>) Universal Addressing Module
Mongolia	MN	MNG	Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Montenegro	ME	MNE	Enterprise Geocoding Module Universal Addressing Module
Montserrat	MS	MSR	Universal Addressing Module
Morocco	MA	MAR	Enterprise Geocoding Module (Africa) Universal Addressing Module
Mozambique	MZ	MOZ	Enterprise Geocoding Module (Africa) Universal Addressing Module Enterprise Routing Module
Myanmar	MM	MMR	Universal Addressing Module
Namibia	NA	NAM	Enterprise Geocoding Module (Africa) Universal Addressing Module
Nauru	NR	NRU	Universal Addressing Module
Nepal	NP	NPL	Universal Addressing Module
Netherlands	NL	NLD	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
New Caledonia	NC	NCL	Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
New Zealand	NZ	NZL	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module
Nicaragua	NI	NIC	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Niger	NE	NER	Enterprise Geocoding Module (Africa) Universal Addressing Module
Nigeria	NG	NGA	Enterprise Geocoding Module (Africa) Universal Addressing Module
Niue	NU	NIU	Universal Addressing Module
Norfolk Island	NF	NFK	Universal Addressing Module
Northern Mariana Islands	MP	MNP	Universal Addressing Module
Norway	NO	NOR	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Oman	OM	OMN	Enterprise Geocoding Module (Middle East) Universal Addressing Module
Pakistan	PK	PAK	Universal Addressing Module
Palau	PW	PLW	Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Palestinian Territory, Occupied	PS	PSE	Universal Addressing Module
Panama	PA	PAN	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Papua New Guinea	PG	PNG	Universal Addressing Module
Paraguay	PY	PRY	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Peru	PE	PER	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Philippines	PH	PHL	Enterprise Geocoding Module Universal Addressing Module Enterprise Routing Module
Pitcairn	PN	PCN	Universal Addressing Module
Poland	PL	POL	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Portugal	PT	PRT	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Puerto Rico	PR	PRI	Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Qatar	QA	QAT	Enterprise Geocoding Module (Middle East) Universal Addressing Module
Reunion	RE	REU	Enterprise Geocoding Module (<i>Reunion is covered by the France geocoder.</i>) Universal Addressing Module
Romania	RO	ROU	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module
Russian Federation	RU	RUS	Enterprise Geocoding Module Universal Addressing Module GeoComplete Module
Rwanda	RW	RWA	Enterprise Geocoding Module (Africa) Universal Addressing Module
Saint Barthelemy	BL	BLM	Universal Addressing Module
Saint Helena, Ascension and Tristan Da Cunha	SH	SHE	Universal Addressing Module
Saint Kitts and Nevis	KN	KNA	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Saint Lucia	LC	LCA	Universal Addressing Module
Saint Martin (French Part)	MF	MAF	Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Saint Pierre and Miquelon	PM	SPM	Universal Addressing Module
Saint Vincent and the Grenadines	VC	VCT	Universal Addressing Module
Samoa	WS	WSM	Universal Addressing Module
San Marino	SM	SMR	Enterprise Geocoding Module (<i>San Marino is covered by the Italy geocoder.</i>) Universal Addressing Module
Sao Tome and Principe	ST	STP	Universal Addressing Module
Saudi Arabia	SA	SAU	Enterprise Geocoding Module (Middle East) Universal Addressing Module
Senegal	SN	SEN	Enterprise Geocoding Module (Africa) Universal Addressing Module
Serbia	RS	SRB	Enterprise Geocoding Module Universal Addressing Module
Seychelles	SC	SYC	Universal Addressing Module
Sierra Leone	SL	SLE	Universal Addressing Module
Singapore	SG	SGP	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Sint Maarten (Dutch Part)	SX	SXM	Universal Addressing Module
Slovakia	SK	SVK	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Slovenia	SI	SVN	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Solomon Islands	SB	SLB	Universal Addressing Module
Somalia	SO	SOM	Universal Addressing Module
South Africa	ZA	ZAF	Enterprise Geocoding Module Universal Addressing Module GeoComplete Module
South Georgia And The South Sandwich Islands	GS	SGS	Enterprise Geocoding Module Universal Addressing Module
South Sudan	SS	SSD	Universal Addressing Module
Spain	ES	ESP	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Sri Lanka	LK	LKA	Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Sudan	SD	SDN	Universal Addressing Module
Suriname	SR	SUR	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Svalbard And Jan Mayen	SJ	SJM	Universal Addressing Module
Swaziland	SZ	SWZ	Enterprise Geocoding Module (Africa) Universal Addressing Module
Sweden	SE	SWE	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Switzerland	CH	CHE	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
Syrian Arab Republic	SY	SYR	Universal Addressing Module
Taiwan, Province of China	TW or zh_TW (Routing)	TWN	Universal Addressing Module Enterprise Routing Module
Tajikistan	TJ	TJK	Universal Addressing Module
Tanzania, United Republic Of	TZ	TZA	Enterprise Geocoding Module (Africa) Universal Addressing Module Enterprise Routing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Thailand	TH	THA	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module
Timor-Leste	TL	TLS	Universal Addressing Module
Togo	TG	TGO	Enterprise Geocoding Module (Africa) Universal Addressing Module
Tokelau	TK	TKL	Universal Addressing Module
Tonga	TO	TON	Universal Addressing Module
Trinidad and Tobago	TT	TTO	Enterprise Geocoding Module (Latin America) Universal Addressing Module
Tunisia	TN	TUN	Enterprise Geocoding Module (Africa) Universal Addressing Module
Turkey	TR	TUR	Enterprise Geocoding Module Universal Addressing Module GeoComplete Module
Turkmenistan	TM	TKM	Universal Addressing Module
Turks And Caicos Islands	TC	TCA	Universal Addressing Module
Tuvalu	TV	TUV	Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Uganda	UG	UGA	Enterprise Geocoding Module (Africa) Universal Addressing Module
Ukraine	UA	UKR	Enterprise Geocoding Module Universal Addressing Module
United Arab Emirates	AE	ARE	Enterprise Geocoding Module (Middle East) Universal Addressing Module
United Kingdom	GB	GBR	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
United States	US	USA	Enterprise Geocoding Module Enterprise Routing Module Universal Addressing Module GeoComplete Module
United States Minor Outlying Islands	UM	UMI	Universal Addressing Module
Uruguay	UY	URY	Enterprise Geocoding Module Universal Addressing Module
Uzbekistan	UZ	UZB	Universal Addressing Module
Vanuatu	VU	VUT	Universal Addressing Module
Venezuela, Bolivarian Republic Of	VE	VEN	Enterprise Geocoding Module Universal Addressing Module

ISO Country Name	ISO 3116-1 Alpha-2	ISO 3116-1 Alpha-3	Supported Modules
Viet Nam	VN	VNM	Enterprise Geocoding Module Universal Addressing Module
Virgin Islands, British	VG	VGB	Universal Addressing Module
Virgin Islands, U.S.	VI	VIR	Universal Addressing Module
Wallis and Futuna	WF	WLF	Universal Addressing Module
Western Sahara	EH	ESH	Universal Addressing Module
Yemen	YE	YEM	Enterprise Geocoding Module (Middle East) Universal Addressing Module
Zambia	ZM	ZMB	Enterprise Geocoding Module (Africa) Universal Addressing Module
Zimbabwe	ZW	ZWE	Enterprise Geocoding Module (Africa) Universal Addressing Module

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