

precisely

Spectrum Technology Platform

Spectrum SAP User's Guide

Version 2020.1.0



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1 - Introduction

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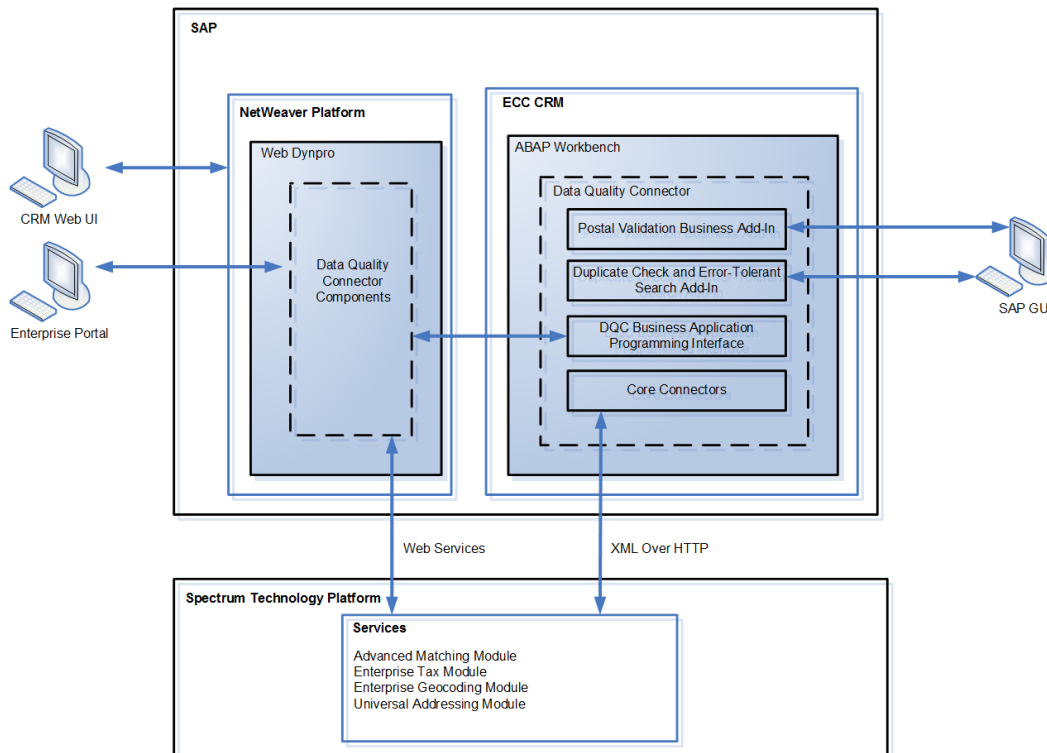


Spectrum SAP

The Spectrum Technology Platform SAP 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.

This 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: Spectrum Universal Address Databases

Database Name & Description	Required or Optional	Supplier
<p>U.S. Postal Database</p> <p>The U.S. Postal Database is in a Precisely 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	Precisely monthly subscription
<p>Canadian Postal Database</p> <p>The Canadian Postal database is in Precisely 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	Precisely 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	Precisely 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	Precisely 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	Precisely 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 (for example, 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	Precisely 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 https://postalpro.usps.com/.</p>	Optional; U.S. addresses only	Download for free from USPS® website
<p>LACS^{Link}® Database</p> <p>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.</p> <p>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.</p> <p>USPS licensing also prohibits exporting the LACS^{Link} database outside the United States</p>	Optional, but required for CASS Certified™ processing; U.S. addresses only	Precisely 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	Precisely 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	Precisely monthly subscription

2 - Integrating SAP with Spectrum

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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 - Canada Database	IGEO_CAN
Enterprise Geocoding - U.S. Database	EGM_US
Enterprise Tax Database	ETM
Universal Addressing - Canada Database	Canada
Universal Addressing - Loqate Database	Loqate
Universal Addressing - U.S. Database	UAM_US

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

`SpectrumDirectory\server\import`

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

Universal AddressingModule	ValidateAddressWithCandidates_UAM.df SAPBatchValidateAddress.df
Enterprise Geocoding	ValidateAddressWithCandidates_EGM.df
Enterprise Geocoding Universal Addressing	ValidateAddressWithCandidates_UAM_EGM.df
Enterprise Tax Universal Addressing	ValidateAssignGeoTAXInfo.df SAPBatchAssignGeoTAXInfo.df SAPValidateAddressAndAssignGeoTAXInfo.df ValidateAddressWithCandidates_UAM_ETM.df
Universal Addressing without Loqate	SAPValidateAddressWithCandidate_UAM.df
Universal Addressing without Loqate Enterprise Tax	ValidateAssignGeoTAXInfo.df SAPBatchAssignGeoTAXInfo.df SAPValidateAddressAndAssignGeoTAXInfo.df ValidateAddressWithCandidates.UAM_ETM.df
Universal Addressing with Loqate	ValidateAddressWithCandidates_UAM_Loqate.df
Universal Addressing with Loqate Enterprise Geocoding	ValidateAddressWithCandidates_UAM_Loqate_EGM.df
Universal Addressing with Loqate Enterprise Tax	ValidateAddressWithCandidates_UAM_Loqate_ETM.df

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

Universal Addressing with Loqate Enterprise Geocoding Enterprise Tax	ValidateAddressWithCandidates_UAM_Loqate_EGM_ETM.df
----------------------------------------------------------------------------	-----------------------------------------------------

Universal Addressing, Loqate only	ValidateAddressWithCandidates_Loqate.df
-----------------------------------	-----------------------------------------

Universal Addressing, Loqate only Enterprise Geocoding	ValidateAddressWithCandidates_Loqate_EGM.df
-----------------------------------------------------------	---------------------------------------------

Enterprise Geocoding	GeocodeUSAddressWithCandidates.df ValidateAddressWithCandidates_EGM.df
----------------------	---------------------------------------------------------------------------

Enterprise Tax	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\USERNAME\Local Settings\Temp\glAssemblies*. After deleting the contents of this folder, log in again.

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. 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 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 keyword `*hsggrp1*` and find all the BC Sets in this namespace.
4. Activate it with the options **Overwrite All Data** and **Default Mode**.

5. Select and activate the 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_DES
/HSGRP1/BCSET_BC_BAS_GTX
/HSGRP1/BCSET_BC_BAS_PV
/HSGRP1/BCSET_BUPA_CUSTOM
/HSGRP1/BCSET_DQC_CUSTOM
/HSGRP1/BCSET_VENDOR
/HSGRP1/DD_TCODE
/HSGRP1/FUZZY_SEARCH_INPUT_PARAM
/HSGRP1/MERGE_SETTINGS
/HSGRP1/ONP_PO
/HSGRP1/SPOD_CON_TABLE
/HSGRP1/SPOD_IN_TABLE
/HSGRP1/SPOD_OPT_TABLE
/HSGRP1/SPOD_OUT_TABLE
/HSGRP1/SPOD_PO

```

b) **Activate BC sets for CRM installations where ICWC isn't required (IC Web Client)**

1. Log on to the client where the settings for the Spectrum Technology Platform SAP 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 keyword `*hsggrp1*` and find all the BC Sets in this namespace.
4. Activate it with the options **Overwrite All Data** and **Default Mode**.

5. Select and activate the 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_DES
/HSGRP1/BCSET_BC_BAS_GTX
/HSGRP1/BCSET_BC_BAS_PV
/HSGRP1/BCSET_BUPA_CUSTOM
/HSGRP1/BCSET_DQC_CUSTOM
/HSGRP1/BCSET_VENDOR
/HSGRP1/DD_TCODE
/HSGRP1/FUZZY_SEARCH_INPUT_PARAM
/HSGRP1/HYBRID_CONFIG
/HSGRP1/MERGE_SETTINGS
/HSGRP1/ONP_PO
/HSGRP1/SPOD_CON_TABLE
/HSGRP1/SPOD_CON_ENTRY
/HSGRP1/SPOD_IN_TABLE
/HSGRP1/SPOD_OPT_TABLE
/HSGRP1/SPOD_OUT_TABLE
/HSGRP1/SPOD_PO
/HSGRP1/SPOD_SSE_ENTRY

```

5. Set up the RFC destination for Spectrum OnPremise.
 - 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.

Note: To setup RFC Destination for Spectrum OnDemand, see [Integration of SAP with Spectrum on Demand](#) on page 28.

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 `ValidateAddressWithCandidates`.
 - f) For the URL, enter:

`http://spectrumservername:port/soap/ValidateAddressWithCandidates?wsdl`

For example,


```
http://MySpectrumServer:8080/soap/ValidateAddressWithCandidates?wsdl
```

- g) Restart the application server.
8. If you will be using French address validation, you must install the Data Normalization table `cdg-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

Integrating with SAP Interaction Center WebClient

Before continuing verify these:

- The Interaction Center WebClient user has the `CRM_UI_PROFILE` parameter ID with `IC_AGENT` as the Parameter Value
- The duplicate option is activated in SPRO under ICWC (**SPRO > CRM > ICWC > Define Account Identification Profiles**)

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

Note: The SAP Interaction Center WebClient is supported only for new installations of Data Quality Connector.

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 - Canada Database	IGEO_CAN
Enterprise Geocoding - U.S. Database	EGM_US
Enterprise Tax Database	ETM
Universal Addressing - Canada Database	Canada
Universal Addressing - Loqate Database	Loqate
Universal Addressing - 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.
- If you are adding Enterprise Tax or Universal Addressing to an existing installation, open Spectrum Technology Platform Enterprise Designer, select **View > Server Explorer**, and delete this dataflow: SAPValidateAddressWithCandidates.
 - Go to: `SpectrumDirectory\server\modules\dataflows\sap`.
 - Review the following table then copy the applicable dataflow files to:

`SpectrumDirectory\server\import`

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

Universal Addressing	SAPValidateAddressWithCandidates.df SAPValidateAddressWithCandidates.UAM.df
Enterprise Geocoding	SAPValidateAddressWithCandidates.EGM.df
Enterprise Geocoding Universal Addressing	SAPValidateAddressWithCandidates.UAM_EGM.df
Enterprise Tax Universal Addressing	SAPAssignGeoTAXInfo.df SAPBatchAssignGeoTAXInfo.df SAPValidateAddressAndAssignGeoTAXInfo.df SAPValidateAddressWithCandidates.UAM_ETM.df

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

Enterprise Geocoding Enterprise Tax Universal Addressing	SAPValidateAddressWithCandidates.UAM_ETM_EGM.df
Universal Addressing without Loqate	SAPValidateAddressWithCandidate_UAM.df
Universal Addressing without Loqate Enterprise Tax	SAPAssignGeoTAXInfo.df SAPBatchAssignGeoTAXInfo.df SAPValidateAddressAndAssignGeoTAXInfo.df SAPValidateAddressWithCandidates.UAM_ETM.df
Universal Addressing with Loqate	ValidateAddressWithCandidates_UAM_Loqate.df
Universal Addressing with Loqate Enterprise Geocoding	ValidateAddressWithCandidates_UAM_Loqate_EGM.df
Universal Addressing with Loqate Enterprise Tax	ValidateAddressWithCandidates_UAM_Loqate_ETM.df
Universal Addressing with Loqate Enterprise Geocoding Enterprise Tax	ValidateAddressWithCandidates_UAM_Loqate_EGM_ETM.df
Universal Addressing, Loqate only	ValidateAddressWithCandidates_Loqate.df
Universal Addressing, Loqate only Enterprise Geocoding	ValidateAddressWithCandidates_Loqate_EGM.df
Enterprise Geocoding	GeocodeUSAddressWithCandidates.df ValidateAddressWithCandidates_EGM.df

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

Enterprise Tax	ValidateAssignGeoTAXInfo.df
	ValidateAddressWithCandidates_ETM.df
	SAPBatchAssignGeoTAXInfo.df

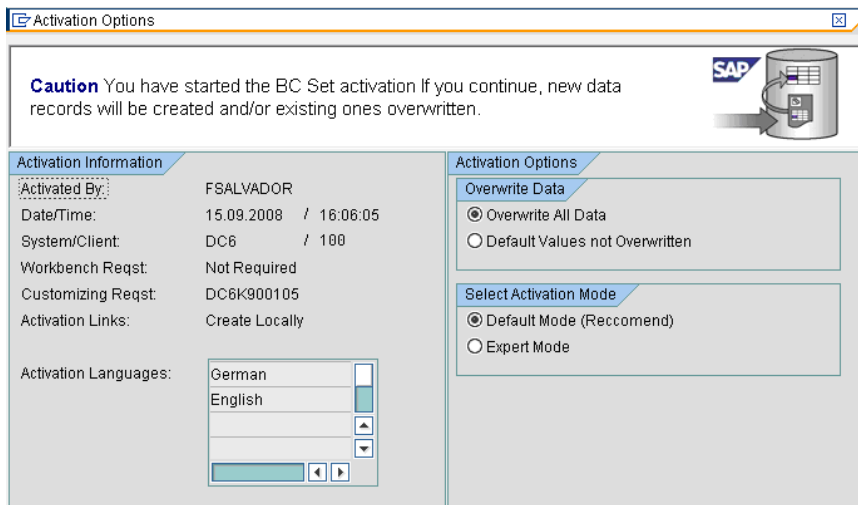
Note: If errors occur in Management Console or Enterprise Designer, delete the contents of *WindowsTemporaryDirectory\glAssemblies*, where *WindowsTemporaryDirectory* is one of these: *%TMP%*, *%TEMP%*, *%USERPROFILE%*, or the *Windows directory*. Typically, *C:\Documents and Settings\USERNAME\Local Settings\Temp\glAssemblies*. After deleting the contents of this folder, log in again.

3. Import .SAR files.

A .SAR file is a file that contains a third-party add-on package for SAP, such as Spectrum Technology Platform SAP. 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 BC sets for CRM installation where ICWC is required (IC Web Client) - You have already assigned CRM_UI_Profile parameter to the user with appropriate roles and authorization.**

- a. Log on to the client where the settings for Spectrum Technology Platform SAP is to be configured.
- b. Enter the transaction code *SCPR20*. This activates BC sets and places the default entries on the Spectrum Technology Platform customizing tables.
- c. In the **BC Set** field, enter keyword **hsggrp1** and find all the BC Sets in this namespace.
- d. Activate it with the options **Overwrite All Data** and **Default Mode**.



- e. Select and activate the 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_DES
/HSGRP1/BCSET_BC_BAS_GTX
/HSGRP1/BCSET_BC_BAS_PV
/HSGRP1/FUZZY_SEARCH_INPUT_PARAM
/HSGRP1/ICWC_SCRN_CFG
/HSGRP1/ICWC_SETTINGS
/HSGRP1/MERGE_SETTINGS
/HSGRP1/ONP_PO_CRM
/HSGRP1/SPOD_CONFIG
/HSGRP1/SPOD_IN_TABLE
/HSGRP1/SPOD_OPT_TABLE
/HSGRP1/SPOD_OUT_TABLE
/HSGRP1/SPOD_PO_CRM
/HSGRP1/SPOD_SSE_ENTRY

```

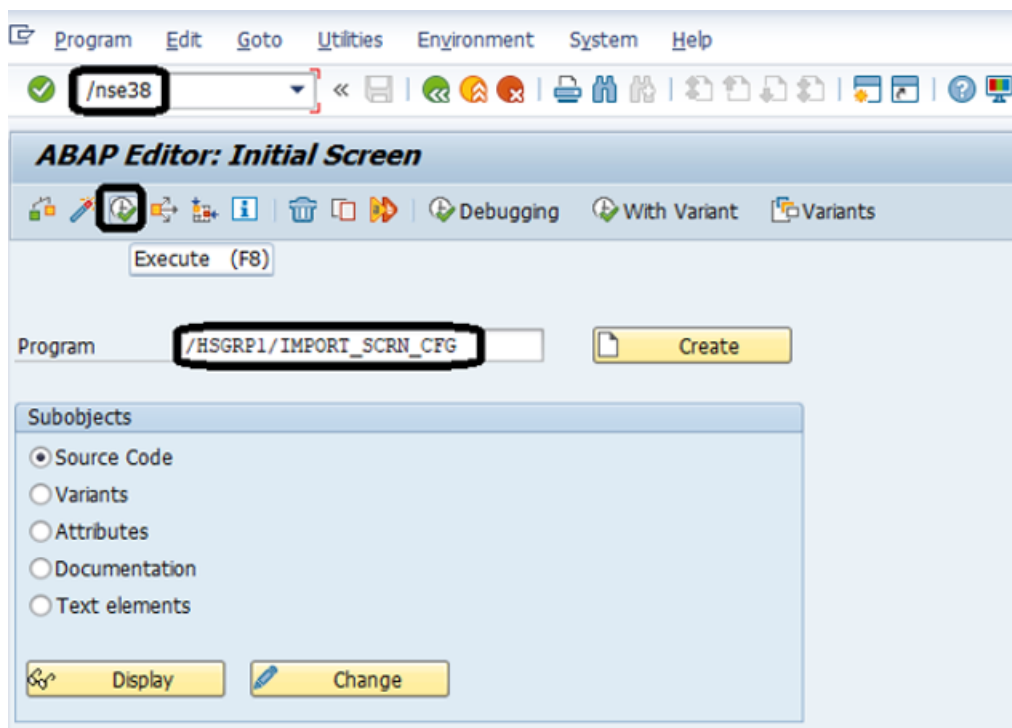
Note: Ignore any activation error or warnings with BC Set: /HSGRP1/ICWC_SCRN_CFG

5. Set up the RFC destination for Spectrum OnPremise
 - 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.

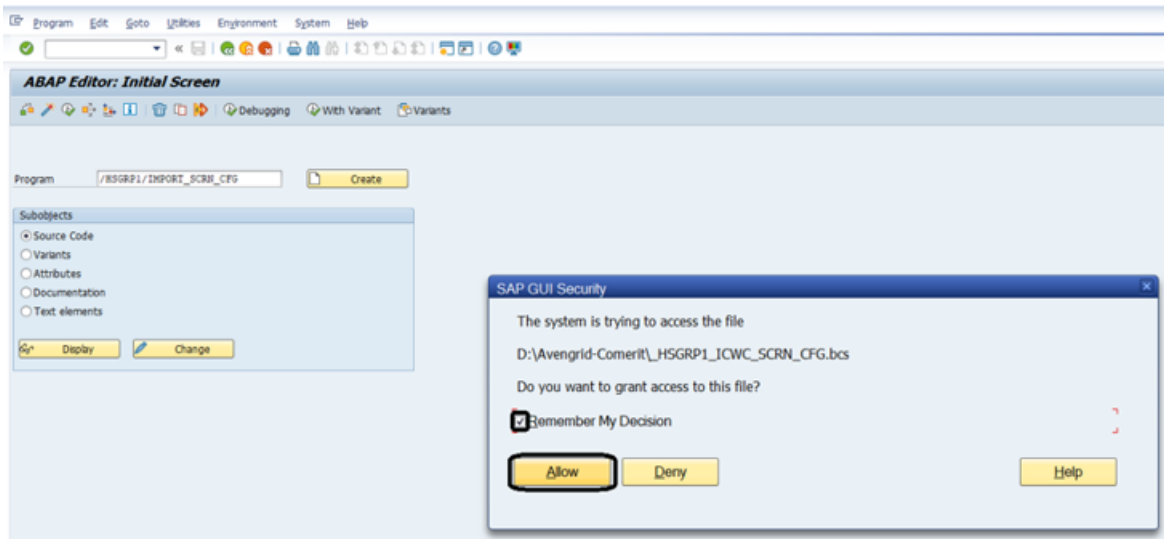
- f) Press the Enter key.
- g) Click the **Technical Settings** tab.
- h) In the **Target Host** field, enter the computer name or IP Address of the Spectrum Technology Platform server.
- i) In the **Service No** field enter 8080.
- j) Click the **Special Options** tab.
- k) Select **No Timeout**.

Note: These steps are not valid for *Spectrum OnDemand* as it is not supported for ICWC.

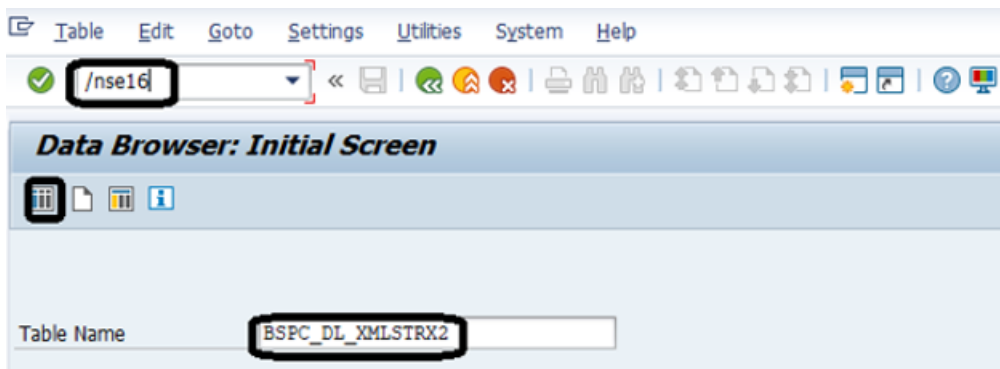
6. Use these steps to import the upload the ICWC configuration file (`CQ7_All_Screen_Configurations.cfg`). The file resides on the Spectrum Technology Platform installer at this location: `SAP Objects\SAP CRM 7.0\data\inst_cs7`.
 - a. On the initial screen, go to Tcode 'SE38' and enter ' /HSGRP1/IMPORT_SCRN_CFG '
 - b. Click Execute.



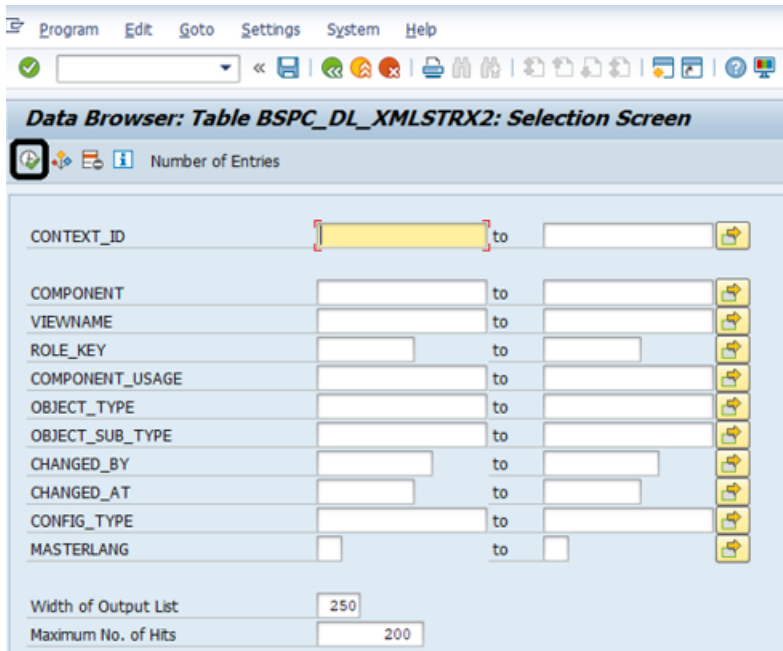
- c. Locate the `CQ7_All_Screen_Configurations.cfg` file and select it.
- d. Grant access as shown in the image below.



- e. Go to tcode SE16.
- f. Enter **Table Name** as BSPC_DL_XMLSTRX2.
- g. Click **Table Content** icon.



- h. Click the **Execute** icon.



i. Check these entries:

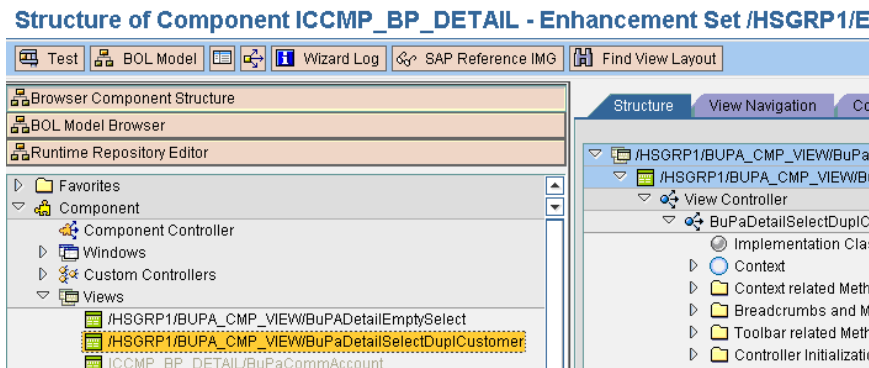
CLIENT	CONTEXT_ID	COMPONENT	VIEWNAME	ROLE_KEY	COMPONENT_USAG	OBJECT_TYPE	OBJECT_SUB_TYPE
100	1A94D4F2EF74558AA39BB015AEFF27B10AAA4EB	BP_ADDR	STANDARDADDRESS	<DEFAULT>	<DEFAULT>	BP_ADDRESS	CORP_ID
100	26C90585C4D6015EB110A21BFF2A6D07476A71DE	BP_ADDR	STANDARDADDRESS	<DEFAULT>	<DEFAULT>	BP_ADDRESS	INDIVIDUAL_DISPLAY
100	37603F62407D299C02F1DDE47E9AE535ECB9272F	ICOMP_BP_DETAIL	BUPADDETAILB2B	DEFAULT_IC	BPdetail	BP_ADDRESS	BPCTEPERSON
100	3B4C5FF37DF76BC326639371F8EFC201710FB2F6	BP_ADDR	STANDARDADDRESS	<DEFAULT>	<DEFAULT>	BP_ADDRESS	INDIVIDUAL
100	428849E22D366CF5518F5C9E307EF5C85CC5BE74	ICOMP_BP_DETAIL	BUPADDETAILB2B	DEFAULT_IC	BPdetail	BP_ADDRESS	BPCTEPERSON
100	43CA280EA21D6675D0FD4247A3773DB91F6459E7	ICOMP_BP_DETAIL	BUPACREATE	DEFAULT_IC	BPdetail	BP_ADDRESS	BPCTEPERSONS
100	461F764BEA84E5234197FE34301D2789A9AD2C85	BP_ADDR	STANDARDADDRESS	<DEFAULT>	<DEFAULT>	BP_ADDRESS	IND_ID
100	49DFC66BF26764F7FE24536590C10B2A36490D70	BP_ADDR	STANDARDADDRESS	<DEFAULT>	<DEFAULT>	BP_ADDRESS	IND_ID_DISPLAY
100	4E920A6F815550BF0C3242CAE818A7CC6E7530C9	ICOMP_BP_DETAIL	BUPADUPLICATECREATE	DEFAULT_IC	BPdetail	BP_ADDRESS	BPCTEACCOUNT
100	5842A17ADBF58C0820A8A2F9866ADA8483445442	ICOMP_BP_DETAIL	BUPADUPLICATECREATE	DEFAULT_IC	BPdetail	BP_ADDRESS	BPCTEACCOUNT

Note: Ignore errors or warning messages related to missing users, as shown in the image below.

```
Report /HSGRP1/IMPORT_SCRN_CFG
-----
Config for 1A94D4F2EF74558AA39BB015AEFF27B10AAA4EB  BP_ADDR  STANDARDADDRESS  Same as in the file
Config for 26C90585C4D6015EB110A21BFF2A6D07476A71DE  BP_ADDR  STANDARDADDRESS  Same as in the file
Config for 37603F62407D299C02F1DDE47E9AE535ECB9272F  ICOMP_BP_DETAIL  BUPADDETAILB2B  Same as in the file
Config for 3B4C5FF37DF76BC326639371F8EFC201710FB2F6  BP_ADDR  STANDARDADDRESS  Same as in the file
Config for 428849E22D366CF5518F5C9E307EF5C85CC5BE74  ICOMP_BP_DETAIL  BUPADDETAILB2B  Same as in the file
Config for 43CA280EA21D6675D0FD4247A3773DB91F6459E7  ICOMP_BP_DETAIL  BUPACREATE  Same as in the file
Config for 461F764BEA84E5234197FE34301D2789A9AD2C85  BP_ADDR  STANDARDADDRESS  Same as in the file
Config for 49DFC66BF26764F7FE24536590C10B2A36490D70  BP_ADDR  STANDARDADDRESS  Same as in the file
Config for 4E920A6F815550BF0C3242CAE818A7CC6E7530C9  ICOMP_BP_DETAIL  BUPADUPLICATECREATE  Same as in the file
E: Cfg for 5842A17ADBF58C0820A8A2F9866ADA8483445442  ICOMP_BP_DETAIL  BUPADUPLICATECREATE  GW_ADMIN was not found
```

7. 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.
8. Enable the Precisely IC WebClient Enhancement Set.
- a) Enter the transaction code SM30.
 - b) In the **Table/View** field, enter BSPWDV_EHSET_ASG.
 - c) Click **Maintain**.
 - d) Click **New Entries**.
 - e) In the **Client** field, enter the client number where the enhancement set will take effect.
 - f) In the **Enhancement Set** field, enter /HSGRP1/ENHANCEMENT_SET.
9. Add the IC WebClient Configurations.
- a) Enter the transaction code BSP_WD_CMPWB.
 - b) In the **Component** field, enter ICCMP_BP_DETAIL.
 - c) Click the check icon.
 - d) In the **Enhancement Set** field, enter /HSGRP1/ENHANCEMENT_SET.
 - e) Click **Display**.
 - f) Expand the **Views** folder and select **/HSGRP1/BUPA_CMP_VIEW/BuPaDetailSelectDuplCustomer**.



- g) Click the **Configuration** tab.
- h) On the edit screen select Full Name, Telephone, Street, City and Country context then click the right arrow button and arrange them in this order:
 - Full Name
 - Telephone
 - Street
 - City
 - Country
- i) Save the configuration.

10. If you will be using French address validation, you must install the Data Normalization table `cdg-TableLookup-SAP.tba` on the Spectrum Technology Platform server. For more information, see the *Spectrum Technology Platform Installation Guide*.

3 - Integrating 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:
 - a. Run Transaction Code *STRUST* in **SSL Client Standard** tab.
 - b. Navigate to the path where you have placed the SSL Certificate.
 - c. Add the certificate to the **Certificate List** and save it.
 - d. Run Transaction Code *SM59*, **RFC Destination SPOD PRODUCTION** screen is displayed.
 - e. Click **Technical Settings** tab and enter these details:
 - Enter `spectrum.precisely.com` in the **Target Host** field
 - Enter `/soap/` in the **Path Prefix** field.
 - f. Click **Logon & Security** tab and enter your credentials in the **Logon With User** section.

Note: You will receive these credentials from the Precisely support.
 - g. 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:
 - a. Run Transaction Code *SOAMANAGER*, You will be redirected to **SOA Management** web page.
 - b. Click **Web Service Configuration**
 - c. Obtain the ABAP Name, follow these steps:
 1. Run Transaction Code *SE80*
 2. Enter `/HSGRP1/SPOD` in the package field
 3. Go to **Enterprise Services > Service Consumers** and select the desired *ABAP Name*.
 - d. Enter the *ABAP Name* obtained from the last step in the search field, click **Search** and select the service from the **Search Result**.
 - e. Click the **Create** tab and select **WSDL based configuration**
 - f. Enter the **Logical Port Name** and **Description**.
 - g. Select the **Logical Port is Default** check box.

- h. Click **Next**, **WSDL Access Settings** WSDL Location screen is displayed.
- i. Select **Via HTTP Access** check box, enter the **URL for WSDL Access**, your WSDL Access credentials and click **Next**.
- j. Click **Next** and enter your User Name and password.
- k. Click **Next** until the **Finish** button is activated.
- l. Click **Finish**

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

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

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

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

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

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

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

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

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

To get Geocode and Tax

details:https://spectrum.precisely.com/soap/Connectors_ValidateAddressWithCandidates_EGM_ETM?wsdl

3. Activate SPOD development, follow these steps:
 - a. Run Transaction Code *SM30*, **Edit Table Views: Initial Screen** is displayed
 - b. Enter */HSGRP1/SPOD_CON* in the **Table/View** field
 - c. Click **Maintain**
 - d. 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/hsggrp1/svc_opt** in the **table** field.

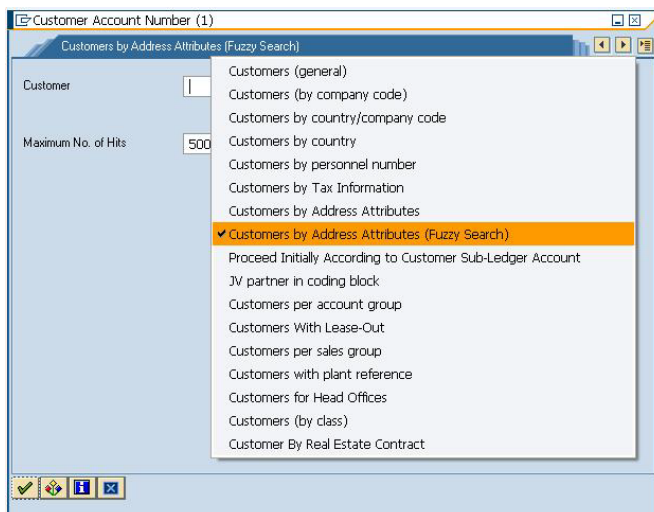
Note: To enable **FuzzySearch** in Spectrum on Demand (SPOD), run the Tcode **SM30** and enter **/hsggrp1/SPOD_opt** in the **table** field.

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 44.

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

4. 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.

1. 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 vender, enter the transaction code /NXK01.
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 33. 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 *S/4HANA 1610* and *S/4 HANA 1709*, 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.

CR7(1)/100 PBBI SAP DQC - Component Search

beach st san francisco CA US

Search Fields

Address Field	Search	Proposed Address
Zip	[No Values]	
City	[No Values]	
State	[No Values]	
County	[No Values]	
Street	[No Values]	
Company	[No Values]	
Building	[No Values]	
Premise-No	[No Values]	
Sub-Building	[No Values]	
PO-Box	[No Values]	
+4	[No Values]	
Country	[No Values]	US

In-Context Alternatives: [No Values]

Out-of-Context Alternatives: [No Values]

*Only a COMPLETED Address will be Accepted

Accept Current

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.

CR7(1)/100 PBBI SAP DQC - Component Search

beach st san francisco CA US

Search Fields

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

In-Context Alternatives: [No Values]

Out-of-Context Alternatives: [No Values]

*Only a COMPLETED Address will be Accepted

Accept Changes Accept Current

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	In-Context Alternatives	Out-of-Context Alternatives
<input type="checkbox"/> New Search	[No Values]	[No Values]
Address Field Search Proposed Address	In-Context Alternatives	Out-of-Context Alternatives
Zip () 20706		
City () LANHAM		
State () MD		
County () PRINCE GEORGES		
Street () PARLIAMENT PL		
Company () GROUP 1		
Building ()		
Premise-No () 4200		
Sub-Building () STE 600		
PO-Box ()		
+4 () 1844		
Country () 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 private 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 "PO BOX" (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 uncleansed 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 Precisely 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" />
      </record>
    </records>
  </dataset>
</message>

```

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.

Supported Transaction Entities for ECC 6.0 EHP7

These transaction entities are supported for **Address Validation** and **Deduplication**:

Note: Underlying *SAP Modules* should be pre-configured for these entities.

Table 4: Supported Transaction Entities

Entity		T- Code	Address Validation	Deduplication
Sales Order	Create	VA01	Yes	Yes
	Update	VA02	Yes	Yes
Purchase Order	Create	ME21N	Yes	N/A
	Update	ME22N	Yes	N/A
FI Invoices		FB60, FB70	Yes	Yes
MM Invoice		MIRO	Yes	Yes
Work Order	Create	IW31	Yes	N/A
	Update	IW32	Yes	N/A

How to Video - SAP DQ Connector

This video describes how the connector improves the completeness, validity, and accuracy of customer data. https://www.youtube.com/watch?v=i_HanD6i-6w

5 - Using the Interaction Center WebClient

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User Roles

These user roles are supported in the **Interaction Center WebClient**:

- **IC_AGENT** - Interaction Center Agent
- **UTIL_IC** - Utilities IC Agent

Searching

Error-tolerant search allow users to find customers, vendors, prospects, or business partners, even if the pieces of information are incomplete or partly wrong.

The querying page of CRM IC Web Client is the default page that will be loaded after you have login to IC Web Client.

Button

Function

Search Account

Perform search using the provided information

Button

Function

Clear

Clear all the fields



Go to create account page

Entering any information in the search field will perform the error-tolerant search. When multiple matches were found, results will be displayed in the Result List table. When exact match was found, Modify Account page will be displayed.

Account	Account ID	Street	Postal Code	City	Telephone	Extension
Sample	93	Milk St	02109-5101	Boston		
Sample2	94	Water St	01238-9006	Lee		

Here, the user can choose (select) from the result list to display the details of the account, or simply click on Clear button to reset the search.

Creating a Business Partner Account

The Create Account page is used for creating a business partner account. It can be accessed by clicking the **Create Account** button in the search screen.

Button	Function
--------	----------



	Perform postal validation and data de-duplication and save the created account.
--	---------------------------------------------------------------------------------



	Cancels the create account process. It will return to previous screen.
--	------------------------------------------------------------------------

Enter	Perform postal validation and data de-duplication.
--------------	----------------------------------------------------

During the creation of account, data cleansing and data deduplication will be performed.

Modifying a Business Partner Account

The Modify Account page is used for displaying or modifying a business partner account. It can be accessed by selecting an account in search screen.

Button	Function
--------	----------

Confirm	Confirm the account
----------------	---------------------



	Perform postal validation and data de-duplication then save the account.
--	--------------------------------------------------------------------------



Cancels the modify account process. It will return to previous screen

Related

Create related business partner or contact person.



Start modifying the account. This button should be clicked to enable Save button

Enter

Perform postal validation and data de-duplication.

To start modifying the account, click **Edit**. When you are finished modifying the account, click the save button, Data cleansing and data de-duplication will be performed.

Validating an Address

When you enter an address into SAP, the SAP Module attempts to validate the address and allows you to accept or reject the validated address.

1. Enter the address data in SAP.

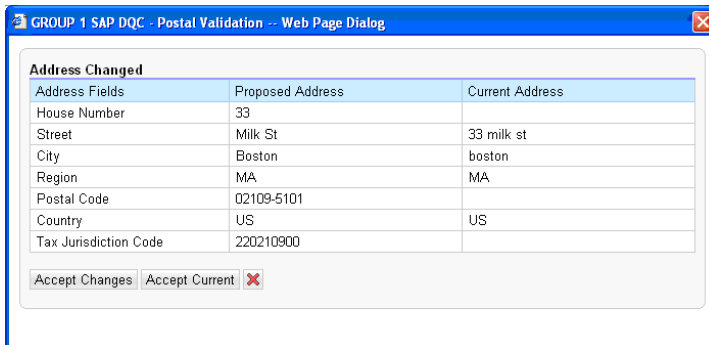
For example:

33 milk st, boston, ma, US

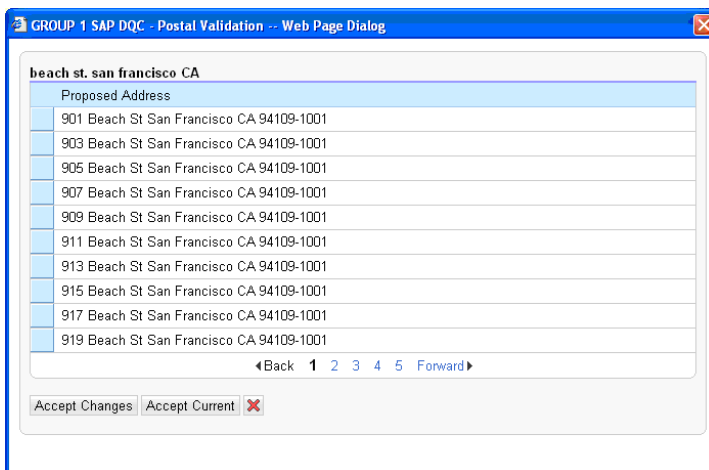
The screenshot shows the 'Create Account' form in SAP. The fields are filled with the following data:

Account*	Sample
Account ID	95
Street/House Number	33 milk st
City	boston
Postal Code/Region	ma
Country	US
Telephone	
Fax	
E-Mail Address	

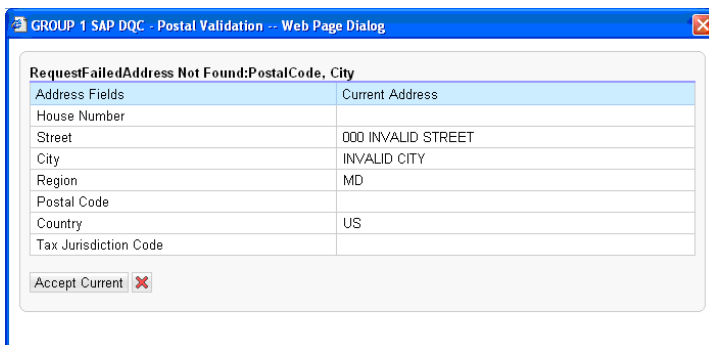
2. When you save the record, the address validation process attempts to validate the address. Depending on the result of the validation process, one of the following windows appears:
 - If the address can be validated, the Postal Validation window shows the validated (Proposed) address and the address as you entered it (Current Address).



- If the address you entered matches to multiple addresses in the postal data, the Address List Popup displays candidate addresses.



- If the address cannot be validated, the Invalid Entry Popup displays with the appropriate error message.



3. Choose the action you want to perform:

- Click **Accept Changes** to accept the address in the Proposed Address column.
- Click **Accept Current** to accept the address in the Current Address column.
- Click [X] to cancel the validation.

Data Deduplication

Data deduplication is the process of identifying duplicate records in a data set. These duplicate records will be presented to the user so that appropriate action (i.e. ignore or choose duplicate record) can be taken.

If a record in the system is similar with the record being created, Data deduplication takes place after address validation. The duplicate result list shows the candidate duplicate or duplicates of the record being created.

Button	Function
	Check if the modified information still contains duplicates.
	Pushes through with the creation of the current record
	Cancels deduplication and account creation.
Enter	Same as Check button



User can select the candidate duplicate by clicking on the Result List table. When a duplicate was selected, it will cancel the creation of current account.

Known Issues

After creating a business partner and going to account overview, if you try to change or modify an address, de-duplication is not triggered.

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ISO Country Codes and Module Support.....55

A - ISO Country Codes and Module Support

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ISO Country Codes and Module Support.....56



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 Spectrum Enterprise Geocoding 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 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Afghanistan	AF	AFG	Spectrum Universal Address
Aland Islands	AX	ALA	Spectrum Universal Address
Albania	AL or SQ (Routing)	ALB	Spectrum Universal Address Spectrum Enterprise Geocoding Spectrum Spatial Routing
Algeria	DZ	DZA	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
American Samoa	AS	ASM	Spectrum Universal Address
Andorra	AD	AND	Spectrum Enterprise Geocoding. (Andorra is covered by the Spain geocoder) Spectrum Universal Address
Angola	AO	AGO	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Anguilla	AI	AIA	Spectrum Universal Address
Antarctica	AQ	ATA	Spectrum Universal Address
Antigua And Barbuda	AG	ATG	Spectrum Universal Address
Argentina	AR	ARG	Spectrum Enterprise Geocoding Spectrum Universal Address Spectrum Spatial Routing
Armenia	AM	ARM	Spectrum Universal Address
Aruba	AW	ABW	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Australia	AU	AUS	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Austria	AT	AUT	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Azerbaijan	AZ	AZE	Spectrum Universal Address
Bahamas	BS	BHS	Spectrum Enterprise Geocoding Spectrum Universal Address Spectrum Spatial Routing

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Bahrain	BH	BHR	Spectrum Enterprise Geocoding (Middle East) Spectrum Universal Address
Bangladesh	BD	BGD	Spectrum Universal Address
Barbados	BB	BRB	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Belarus	BY	BLR	Spectrum Universal Address Spectrum Spatial Routing
Belgium	BE	BEL	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Belize	BZ	BLZ	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Benin	BJ	BEN	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Bermuda	BM	BMU	Spectrum Universal Address Spectrum Spatial Routing
Bhutan	BT	BTN	Spectrum Universal Address
Bolivia	BO	BOL	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Bonaire, Saint Eustatius And Saba	BQ	BES	Spectrum Universal Address
Bosnia And Herzegovina	BA	BIH	Spectrum Enterprise Geocoding Spectrum Universal Address Spectrum Spatial Routing Spectrum Enterprise Geocoding
Botswana	BW	BWA	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Bouvet Island	BV	BVT	Spectrum Universal Address
Brazil	BR	BRA	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
British Indian Ocean Territory	IO	IOT	Spectrum Universal Address
Brunei Darussalam	BN	BRN	Spectrum Enterprise Geocoding Spectrum Universal Address
Bulgaria	BG	BGR	Spectrum Enterprise Geocoding Spectrum Universal Address
Burkina Faso	BF	BFA	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Burundi	BI	BDI	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Cambodia	KH	KHM	Spectrum Universal Address
Cameroon	CM	CMR	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Canada	CA	CAN	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Cape Verde	CV	CPV	Spectrum Universal Address
Cayman Islands	KY	CYM	Spectrum Universal Address
Central African Republic	CF	CAF	Spectrum Universal Address
Chad	TD	TCD	Spectrum Universal Address
Chile	CL	CHL	Spectrum Enterprise Geocoding Spectrum Universal Address Spectrum Spatial Routing
China	CN or zh_CN (Routing)	CHN	Spectrum Enterprise Geocoding Spectrum Universal Address Spectrum Spatial Routing
Christmas Island	CX	CXR	Spectrum Universal Address
Cocos (Keeling) Islands	CC	CCK	Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Colombia	CO	COL	Spectrum Enterprise Geocoding Spectrum Universal Address
Comoros	KM	COM	Spectrum Universal Address
Congo, Republic Of The	CG	COG	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Congo, The Democratic Republic Of The	CD	COD	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address Spectrum Spatial Routing
Cook Islands	CK	COK	Spectrum Universal Address
Costa Rica	CR	CRI	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Côte d'Ivoire	CI	CIV	Spectrum Universal Address
Croatia	HR	HRV	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Cuba	CU	CUB	Spectrum Enterprise Geocoding (Latin America) Spectrum Spatial Routing Spectrum Universal Address
Curacao	CW	CUW	Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Cyprus	CY	CYP	Spectrum Enterprise Geocoding Spectrum Universal Address
Czech Republic	CZ or CS (Routing)	CZE	Spectrum Enterprise Geocoding Spectrum Universal Address Spectrum Spatial Routing
Denmark	DK	DNK	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Djibouti	DJ	DJI	Spectrum Universal Address
Dominica	DM	DMA	Spectrum Universal Address
Dominican Republic	DO	DOM	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Ecuador	EC	ECU	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Egypt	EG	EGY	Spectrum Enterprise Geocoding (Middle East) Spectrum Universal Address
El Salvador	SV	SLV	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Equatorial Guinea	GQ	GNQ	Spectrum Universal Address
Eritrea	ER	ERI	Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Estonia	EE	EST	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Addressing
Ethiopia	ET	ETH	Spectrum Universal Address
Falkland Islands (Malvinas)	FK	FLK	Spectrum Universal Address
Faroe Islands	FO	FRO	Spectrum Universal Address
Fiji	FJ	FJI	Spectrum Universal Address
Finland	FI	FIN	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
France	FR	FRA	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
French Guiana	GF	GUF	Spectrum Enterprise Geocoding (<i>French Guiana is covered by the France geocoder.</i>) Spectrum Universal Address
French Polynesia	PF	PYF	Spectrum Universal Address
French Southern Territories	TF	ATF	Spectrum Universal Address
Gabon	GA	GAB	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Gambia	GM	GMB	Spectrum Universal Address
Georgia	GE	GEO	Spectrum Universal Address
Germany	DE	DEU	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Ghana	GH	GHA	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address Spectrum Spatial Routing
Gibraltar	GI	GIB	Spectrum Enterprise Geocoding (<i>Gibraltar is covered by the Spain geocoder.</i>) Spectrum Universal Address
Greece	GR	GRC	Spectrum Enterprise Geocoding Spectrum Universal Address
Greenland	GL	GRL	Spectrum Universal Address
Grenada	GD	GRD	Spectrum Universal Address
Guadeloupe	GP	GLP	Spectrum Enterprise Geocoding (<i>Guadeloupe is covered by the France geocoder.</i>) Spectrum Universal Address
Guam	GU	GUM	Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Guatemala	GT	GTM	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Guernsey	GG	GGY	Spectrum Universal Address
Guinea	GN	GIN	Spectrum Universal Address
Guinea-Bissau	GW	GNB	Spectrum Universal Address
Guyana	GY	GUY	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Haiti	HT	HTI	Spectrum Universal Address
Heard Island and McDonald Islands	HM	HMD	Spectrum Universal Address
Holy See (Vatican City State)	VA	VAT	Spectrum Enterprise Geocoding (<i>The Vatican is covered by the Italy geocoder.</i>) Spectrum Universal Address
Honduras	HN	HND	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Hong Kong	HK	HKG	Spectrum Enterprise Geocoding Spectrum Universal Address
Hungary	HU	HUN	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Iceland	IS	ISL	Spectrum Enterprise Geocoding Spectrum Universal Address
India	IN	IND	Spectrum Enterprise Geocoding Spectrum Universal Address
Indonesia	ID	IDN	Spectrum Enterprise Geocoding Spectrum Universal Address
Iran, Islamic Republic Of	IR	IRN	Spectrum Universal Address
Iraq	IQ	IRQ	Spectrum Enterprise Geocoding (Middle East) Spectrum Universal Address
Ireland	IE	IRL	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Isle Of Man	IM	IMN	Spectrum Universal Address
Israel	IL	ISR	Spectrum Enterprise Geocoding Spectrum Universal Address Spectrum Spatial Routing
Italy	IT	ITA	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Jamaica	JM	JAM	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Japan	JP	JPN	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Jersey	JE	JEY	Spectrum Universal Address
Jordan	JO	JOR	Spectrum Universal Address Spectrum Enterprise Geocoding (Middle East) Spectrum Spatial Routing
Kazakhstan	KZ	KAZ	Spectrum Universal Address
Kenya	KE	KEN	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address Spectrum Spatial Routing
Kiribati	KI	KIR	Spectrum Universal Address
Korea, Democratic People's Republic Of	KP	PRK	Spectrum Universal Address
Korea, Republic Of	KR	KOR	Spectrum Enterprise Geocoding Spectrum Universal Address
Kosovo	Xk	XXK	Spectrum Enterprise Geocoding Spectrum Universal Address
Kuwait	KW	KWT	Spectrum Enterprise Geocoding (Middle East) Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Kyrgyzstan	KG	KGZ	Spectrum Universal Address
Lao People's Democratic Republic	LA	LAO	Spectrum Universal Address
Latvia	LV	LVA	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Lebanon	LB	LBN	Spectrum Enterprise Geocoding (Middle East) Spectrum Universal Address
Lesotho	LS	LSO	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address Spectrum Spatial Routing
Liberia	LR	LBR	Spectrum Universal Address
Libyan Arab Jamahiriya	LY	LBY	Spectrum Universal Address
Liechtenstein	LI	LIE	Spectrum Enterprise Geocoding (<i>Liechtenstein is covered by the Switzerland geocoder.</i>) Spectrum Spatial Routing Spectrum Universal Address
Lithuania	LT	LTU	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Luxembourg	LU	LUX	Spectrum Enterprise Geocoding (<i>Luxembourg is covered by the Belgium geocoder.</i>) Spectrum Spatial Routing Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Macao	MO	MAC	Spectrum Enterprise Geocoding Spectrum Universal Address
Macedonia, Former Yugoslav Republic Of	MK	MKD	Spectrum Enterprise Geocoding Spectrum Universal Address
Madagascar	MG	MDG	Spectrum Universal Address
Malawi	MW	MWI	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Malaysia	MY	MYS	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Maldives	MV	MDV	Spectrum Universal Address
Mali	ML	MLI	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Malta	ML	MLT	Spectrum Enterprise Geocoding Spectrum Universal Address
Marshall Islands	MH	MHL	Spectrum Universal Address
Martinique	MQ	MTQ	Spectrum Enterprise Geocoding (<i>Martinique is covered by the France geocoder.</i>) Spectrum Universal Address
Mauritania	MR	MRT	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Mauritius	MU	MUS	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Mayotte	YT	MYT	Spectrum Enterprise Geocoding (<i>Mayotte is covered by the France geocoder.</i>) Spectrum Universal Address
Mexico	MX	MEX	Spectrum Enterprise Geocoding Spectrum Universal Address
Micronesia, Federated States Of	FM	FSM	Spectrum Universal Address
Moldova, Republic Of	MD	MDA	Spectrum Universal Address Spectrum Spatial Routing
Monaco	MC	MCO	Spectrum Enterprise Geocoding (<i>Monaco is covered by the France geocoder.</i>) Spectrum Universal Address
Mongolia	MN	MNG	Spectrum Universal Address
Montenegro	ME	MNE	Spectrum Enterprise Geocoding Spectrum Universal Address
Montserrat	MS	MSR	Spectrum Universal Address
Morocco	MA	MAR	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Mozambique	MZ	MOZ	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address Spectrum Spatial Routing
Myanmar	MM	MMR	Spectrum Universal Address
Namibia	NA	NAM	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Nauru	NR	NRU	Spectrum Universal Address
Nepal	NP	NPL	Spectrum Universal Address
Netherlands	NL	NLD	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
New Caledonia	NC	NCL	Spectrum Universal Address
New Zealand	NZ	NZL	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Nicaragua	NI	NIC	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Niger	NE	NER	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Nigeria	NG	NGA	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Niue	NU	NIU	Spectrum Universal Address
Norfolk Island	NF	NFK	Spectrum Universal Address
Northern Mariana Islands	MP	MNP	Spectrum Universal Address
Norway	NO	NOR	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Oman	OM	OMN	Spectrum Enterprise Geocoding (Middle East) Spectrum Universal Address
Pakistan	PK	PAK	Spectrum Universal Address
Palau	PW	PLW	Spectrum Universal Address
Palestinian Territory, Occupied	PS	PSE	Spectrum Universal Address
Panama	PA	PAN	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Papua New Guinea	PG	PNG	Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Paraguay	PY	PRY	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Peru	PE	PER	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Philippines	PH	PHL	Spectrum Enterprise Geocoding Spectrum Universal Address Spectrum Spatial Routing
Pitcairn	PN	PCN	Spectrum Universal Address
Poland	PL	POL	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Portugal	PT	PRT	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Puerto Rico	PR	PRI	Spectrum Universal Address
Qatar	QA	QAT	Spectrum Enterprise Geocoding (Middle East) Spectrum Universal Address
Reunion	RE	REU	Spectrum Enterprise Geocoding (<i>Reunion is covered by the France geocoder.</i>) Spectrum Universal Address
Romania	RO	ROU	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Russian Federation	RU	RUS	Spectrum Enterprise Geocoding Spectrum Universal Address
Rwanda	RW	RWA	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Saint Barthelemy	BL	BLM	Spectrum Universal Address
Saint Helena, Ascension and Tristan Da Cunha	SH	SHE	Spectrum Universal Address
Saint Kitts and Nevis	KN	KNA	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Saint Lucia	LC	LCA	Spectrum Universal Address
Saint Martin (French Part)	MF	MAF	Spectrum Universal Address
Saint Pierre and Miquelon	PM	SPM	Spectrum Universal Address
Saint Vincent and the Grenadines	VC	VCT	Spectrum Universal Address
Samoa	WS	WSM	Spectrum Universal Address
San Marino	SM	SMR	Spectrum Enterprise Geocoding (<i>San Marino is covered by the Italy geocoder.</i>) Spectrum Universal Address
Sao Tome and Principe	ST	STP	Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Saudi Arabia	SA	SAU	Spectrum Enterprise Geocoding (Middle East) Spectrum Universal Address
Senegal	SN	SEN	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Serbia	RS	SRB	Spectrum Enterprise Geocoding Spectrum Universal Address
Seychelles	SC	SYC	Spectrum Universal Address
Sierra Leone	SL	SLE	Spectrum Universal Address
Singapore	SG	SGP	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Sint Maarten (Dutch Part)	SX	SXM	Spectrum Universal Address
Slovakia	SK	SVK	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Slovenia	SI	SVN	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Solomon Islands	SB	SLB	Spectrum Universal Address
Somalia	SO	SOM	Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
South Africa	ZA	ZAF	Spectrum Enterprise Geocoding Spectrum Universal Address
South Georgia And The South Sandwich Islands	GS	SGS	Spectrum Enterprise Geocoding Spectrum Universal Address
South Sudan	SS	SSD	Spectrum Universal Address
Spain	ES	ESP	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Sri Lanka	LK	LKA	Spectrum Universal Address
Sudan	SD	SDN	Spectrum Universal Address
Suriname	SR	SUR	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Svalbard And Jan Mayen	SJ	SJM	Spectrum Universal Address
Swaziland	SZ	SWZ	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Sweden	SE	SWE	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Switzerland	CH	CHE	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Syrian Arab Republic	SY	SYR	Spectrum Universal Address
Taiwan, Province of China	TW or zh_TW (Routing)	TWN	Spectrum Universal Address Spectrum Spatial Routing
Tajikistan	TJ	TJK	Spectrum Universal Address
Tanzania, United Republic Of	TZ	TZA	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address Spectrum Spatial Routing
Thailand	TH	THA	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
Timor-Leste	TL	TLS	Spectrum Universal Address
Togo	TG	TGO	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Tokelau	TK	TKL	Spectrum Universal Address
Tonga	TO	TON	Spectrum Universal Address
Trinidad and Tobago	TT	TTO	Spectrum Enterprise Geocoding (Latin America) Spectrum Universal Address
Tunisia	TN	TUN	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Turkey	TR	TUR	Spectrum Enterprise Geocoding Spectrum Universal Address
Turkmenistan	TM	TKM	Spectrum Universal Address
Turks And Caicos Islands	TC	TCA	Spectrum Universal Address
Tuvalu	TV	TUV	Spectrum Universal Address
Uganda	UG	UGA	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Ukraine	UA	UKR	Spectrum Enterprise Geocoding Spectrum Universal Address
United Arab Emirates	AE	ARE	Spectrum Enterprise Geocoding (Middle East) Spectrum Universal Address
United Kingdom	GB	GBR	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
United States	US	USA	Spectrum Enterprise Geocoding Spectrum Spatial Routing Spectrum Universal Address
United States Minor Outlying Islands	UM	UMI	Spectrum Universal Address
Uruguay	UY	URY	Spectrum Enterprise Geocoding Spectrum Universal Address

ISO Country Name	ISO 3166-1 Alpha-2	ISO 3166-1 Alpha-3	Supported Modules
Uzbekistan	UZ	UZB	Spectrum Universal Address
Vanuatu	VU	VUT	Spectrum Universal Address
Venezuela, Bolivarian Republic Of	VE	VEN	Spectrum Enterprise Geocoding Spectrum Universal Address
Viet Nam	VN	VNM	Spectrum Enterprise Geocoding Spectrum Universal Address
Virgin Islands, British	VG	VGB	Spectrum Universal Address
Virgin Islands, U.S.	VI	VIR	Spectrum Universal Address
Wallis and Futuna	WF	WLF	Spectrum Universal Address
Western Sahara	EH	ESH	Spectrum Universal Address
Yemen	YE	YEM	Spectrum Enterprise Geocoding (Middle East) Spectrum Universal Address
Zambia	ZM	ZMB	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address
Zimbabwe	ZW	ZWE	Spectrum Enterprise Geocoding (Africa) Spectrum Universal Address

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