



Informatica® Cloud Data Quality
December 2022

Verifier assets

Informatica Cloud Data Quality Verifier assets
December 2022
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Preface

Refer to *Verifier* to learn how to use a verifier asset to measure and enhance the quality of your postal address data. You configure a verifier asset in Data Quality, and you add the asset to a Verifier transformation in a mapping in Data Integration. You can also use a verifier to update the structure of your addresses, retrieve alternative suggestions for incomplete addresses, and add information to your addresses.

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CHAPTER 1

Introduction to verifier assets

A verifier is an asset that evaluates the accuracy and deliverability of address records. Use a verifier to determine the accuracy of the input addresses, fix errors in the addresses, and enhance the addresses where possible with additional information.

You can also use a verifier to measure and report on the quality of each address, to retrieve global and country-specific enrichments for addresses, and to verify addresses to the certification standards that a country defines.

To evaluate and update input addresses, the verifier compares the input address data with address reference data. The Secure Agent downloads the reference data to the local system when the mapping runs. In the case of an elastic mapping, the Secure Agent delegates the download operation to the elastic cluster, and the cluster downloads the reference data when the mapping runs.

Verifier operations

When you configure a verifier asset, you create a template for the input and output addresses that a Verifier transformation will read and write in a mapping. To create the template, you select a set of input fields that correspond to the address data columns that you will connect to the transformation. Likewise you select a set of output fields that represent the data structure that you want to write to downstream objects in the mapping.

When you run a mapping with a transformation that specifies a verifier, the transformation compares the input address fields to the reference data and performs the actions that the asset defines.

The verifier can perform the following operations:

Verify

A verifier verifies the address data to fix errors and to complete partial address records. To fix an address, the transformation looks for a positive match with an address in the reference data. The transformation replaces any incorrect or absent data elements in the input address with the correct elements in the address reference data.

Format

You can configure a verifier to format the output address data to meet the requirements that the local postal authorities specify. You can also configure a verifier to create an output address in a structure that suits your project or data structure requirements.

Suggest

A verifier can provide you with a list of address suggestions from which you can select the most relevant address. The address list includes the best matches between the input address and the reference data.

Measure

A verifier can measure the quality of an address and help you to understand and analyze the results of the verification process. You select the fields that contain the address status information when you configure the output address structure.

Enrich

A verifier can provide additional information as enrichments to help you better understand and use your address data. You can configure a verifier to provide enrichments that are specific to addresses in individual countries or enrichments that apply to every country. You can also configure a verifier to add geocoordinates as an enrichment to verified addresses.

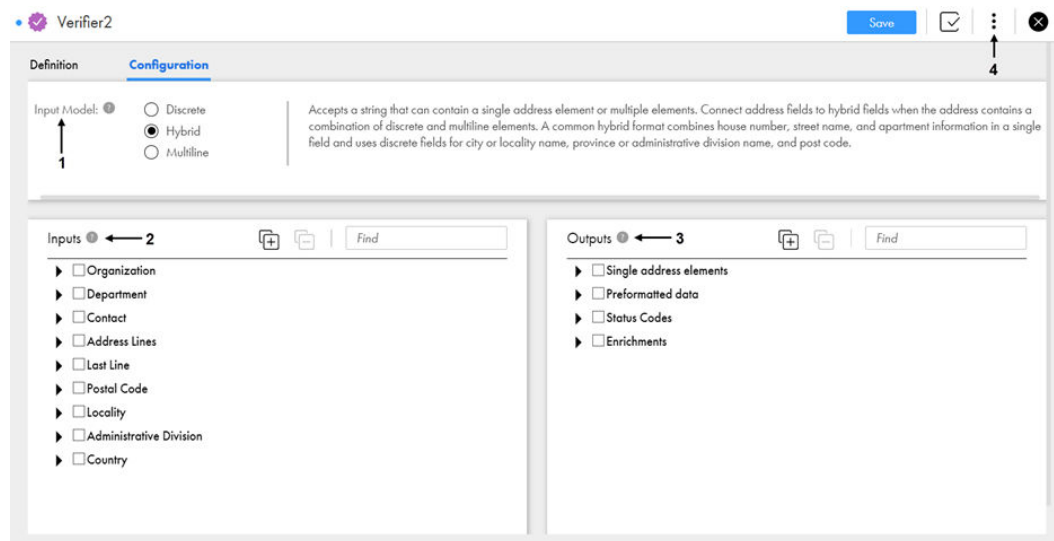
Certify

Postal certification is an additional level of address verification and standardization in Australia, Canada, France, New Zealand, and the United States. Certification requires that a software application validates address accuracy and prepares address records in accordance with the format and quality levels that the national postal carriers expect. Address verification in Data Quality meets the latest certification standards.

Verifier structure

The verifier has configurable options on two tabs. Use the **Definition** tab options to provide a name, description, and location for the asset. Use the **Configuration** tab options to define a template for the addresses that the mapping will read and write at run time.

The following image shows the **Configuration** tab:



The **Configuration** tab has the following options:

1. Input Model. Indicates the type of address template that you will use to define the input address structure. Each input model has a corresponding set of address elements that represent the common ways in which a data source might store address data values.

Note: The input model selection does not affect the output fields that you can choose from.

2. Inputs. Indicates the available input fields on the model that you select.

3. **Outputs.** Indicates the output fields that you can use to define the structure of the output address records.
4. **Actions.** Provides options that you can use to update the address verification properties and to validate the asset for use in a mapping.

Input model

An input model is a set of address elements that you can use to define the input address fields that the Verifier transformation can read at run time. Select the model that best represents the data structure of the address records that the Verifier transformation will read.

Select one of the following input models for the verifier:

Discrete

Accepts input fields that contain a single address element. Connect address fields to discrete fields when each field represents a unique address element, such as a house number, apartment number, street name, city or locality name, or post code.

Hybrid

Accepts input fields that can contain a single address element or multiple elements. Connect address fields to hybrid fields when the address contains a combination of discrete and multiline elements. A common hybrid format combines house number, street name, and apartment information in a single field and uses discrete fields for city or locality name, province or administrative division name, and post code.

Multiline

Accepts input fields that contain multiple address elements. Connect address fields to multiline fields when each field represents multiple address elements. For example, Address Line 1 in a multiline address might contain "100 Main Street, Suite 1" and Address Line 2 might contain "New York, NY 10001."

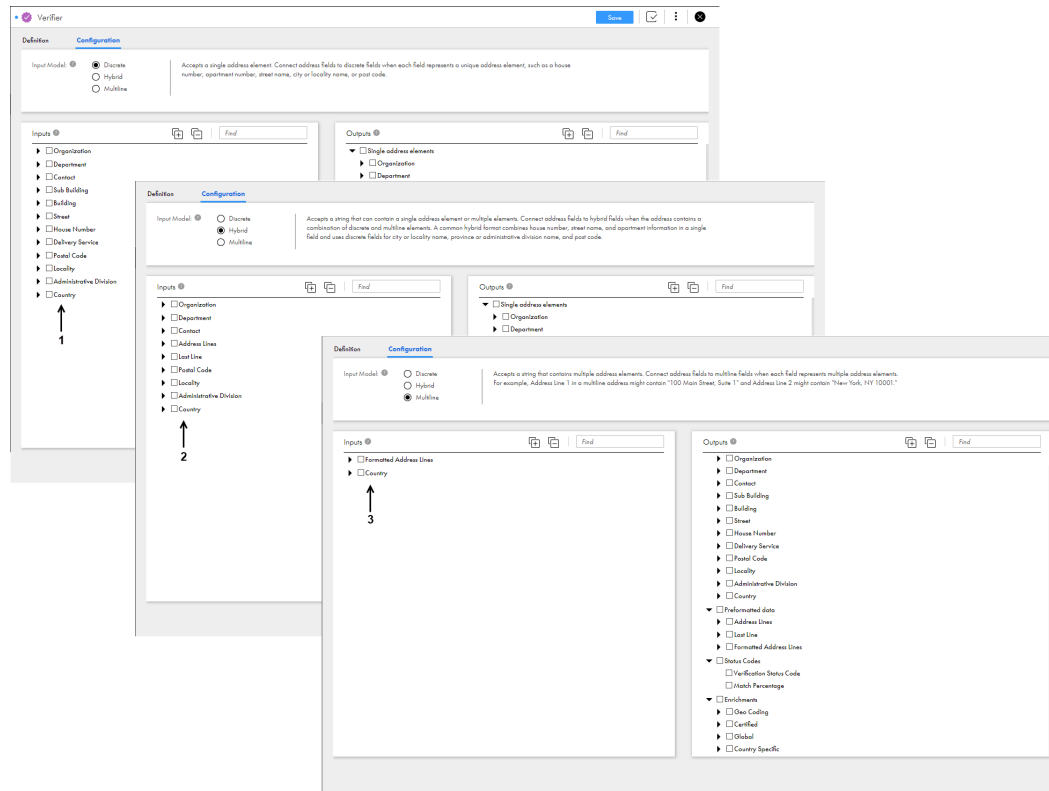
For more information, see ["Selecting an input model" on page 17](#).

Inputs

The Inputs section shows the address fields that you can use to define the structure of your input address data. Select the appropriate fields for the address data that the verification process will analyze at run time.

The address fields that display are based on the input model that you select. You can expand an address field to drill-down to lower levels of the address structure.

The following image shows the input address fields:



The Inputs section includes the following fields:

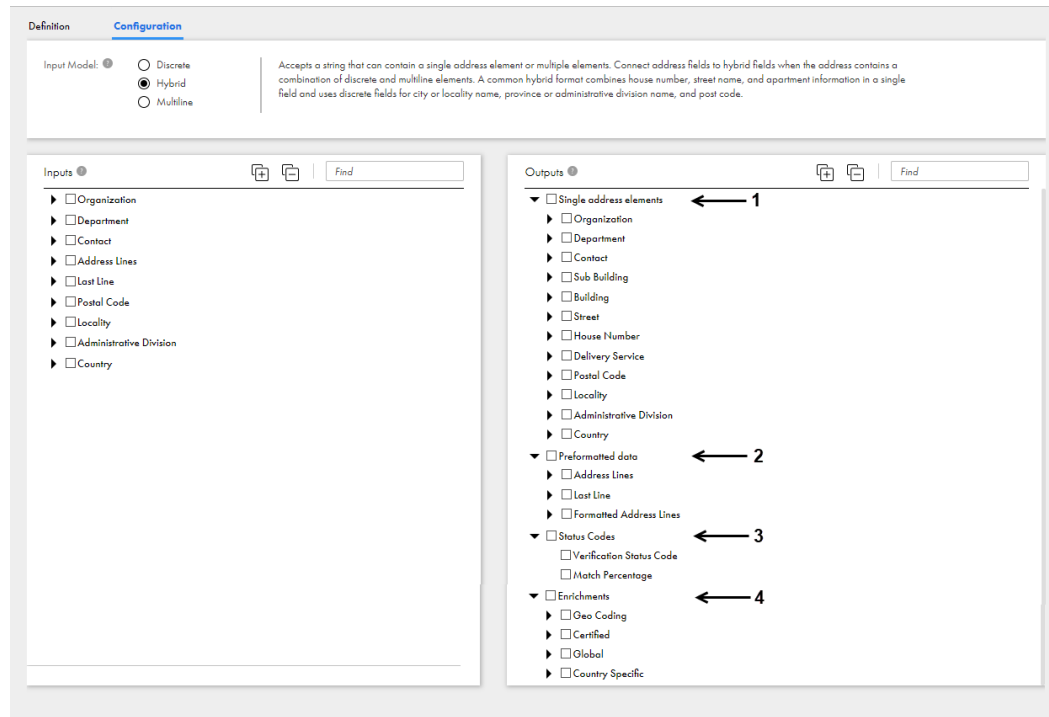
1. **Discrete fields.**
Displays input fields that contain data for a single address element. Use when your input address structure assigns individual address elements to discrete fields.
2. **Hybrid fields.**
Displays input fields that combine discrete fields with fields that can contain multiple address elements. Use when your input address contains a mix of field types.
3. **Multiline fields.**
Displays input fields that contain multiple address elements. Use when your input address assigns multiple address elements to a single field.

Outputs

The Outputs section shows the address fields that you can use to create an address record. Select the fields that represent the address information that you want the output records to contain.

The Single address elements and Preformatted data fields correspond to the input address fields in the Inputs section. The Status Codes fields provide information about the output address quality. The Enrichments field add postally-relevant demographic and geographic information to the address records. You can expand an address field to drill-down to lower levels of the address structure.

The following image shows the output groups:



The Outputs section includes the following output groups:

1. Single address elements group.
Contains output fields that correspond to individual address elements. Use to create an address record that assigns the primary elements in the address to individual fields.
2. Preformatted data group.
Contains output fields that correspond to the lines of an address as they appear on an envelope or address label. Use to create an address record that you can print in a manner that is ready for postage.
3. Status Codes group.
Contains status reporting fields that report on the quality of the address. Use to examine the deliverability and accuracy of an address.
4. Enrichments group.
Contains multiple enrichment fields that provide additional information about an addresses and that can increase the usefulness of the address record.

Understanding the address structure

Before you can select the input model and configure the input and output address fields, you must understand the structure of the address data that the Verifier transformation will read and the structure of the addresses that the transformation will write.

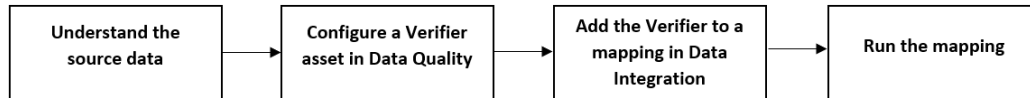
You might work with a data steward to learn more about the source data structure and to understand the required structure of the transformation output. You might also run a profile on the source data to discover the input data structure.

Note: The input and output address structures do not need to be the same.

Address verification process flow

To verify an address, you perform steps in Data Quality and in Data Integration.

The following image shows the steps involved in the verification process:



The verification process includes the following steps:

1. Analyze the structure of the source data, so that you can identify the fields that contain the address elements. You might run a profile to understand the data structure. You might also consult with a data steward who is responsible for the data. You will connect each address field to the appropriate input field in the Verifier asset that you create.
2. In Data Quality, configure a Verifier asset that can process the address data.
To configure the asset, perform the following steps:
 - a. In the Verifier, select the input fields that match the address fields in the source data.
 - b. Select the output fields that represent the structure of the address data that you want to write to the mapping target.
Optionally, add status reporting fields to the output fields. Status reporting fields are optional but important elements that report on the success or otherwise of the verification operation.
Optionally, add enrichment fields to the output fields.
 - c. Review the verification properties, and update the property values if necessary.
3. In Data Integration, define a mapping that can run the verification operation.
As part of the mapping definition, do the following:
 - a. Add the verifier asset to a Verifier transformation.
 - b. Connect the verifier asset input and output fields to the upstream and downstream objects in the mapping.
4. Run the mapping and review the outcome of the verification operation. You can modify the Verifier and re-run the mapping to obtain better results.

Certified verification

Postal certification is an additional standard of address verification in Australia, Canada, France, New Zealand, and the United States. You can configure a verifier asset to create output addresses that meet the certification standards.

The verifier is certified for address validation by the following postal services:

Australia Post

Australia Post defines the Address Matching Approval System (AMAS) standard for software applications that validate Australian addresses. Select the Australia-AMAS field to verify that an address was validated by an AMAS-certified application.

Canada Post

Canada Post defines the Software Evaluation and Recognition Program (SERP) standard for software applications that validate Canadian addresses. Select the Canada-SERP field to indicate that an address was validated by a SERP-certified application.

La Poste

La Poste defines the National Address Management Service (SNA) standard for software applications that validate French addresses. Select the France-SNA field to indicate that an address was validated by an SNA-certified application.

New Zealand Post

New Zealand Post defines the SendRight standard for software applications that validate New Zealand addresses. Select the New Zealand-Send Right field to indicate that an address was validated by a SendRight-certified application.

United States Postal Service (USPS)

The USPS defines the Coding Accuracy Support System (CASS) standard for software applications that validate United States addresses. Select the United States-CASS field to verify that an address was validated by a CASS-certified application.

To generate addresses that meet the certification standards, select *Certified verification* on the Process tab of the **Properties** dialog box.

Address enrichments

Address enrichments provide additional information that helps you better understand and use the address data. The enrichments include data that increases the precision of the address, provides additional information about the administrative or statistical regions to which the address belongs, and helps the postal service to find the destination mailbox more easily.

For example, a verifier can return the latitude and longitude geocoordinates of an address. You can determine the precision of the geocoordinates that the verifier returns. For more information, see [“Enrichments: Geocoding fields” on page 50](#).

Many enrichments are specific to addresses in individual countries, such as the census-based information that a verifier can return for United States addresses. The output fields that accompany certified verification are also a form of address enrichment. Some enrichments apply equally to every country. For more information, see [“Enrichments: Country Specific fields” on page 59](#) and [“Enrichments: Global fields” on page 59](#).

Verifier assets and mappings

The verifier that you create is available to the users who create mappings in Data Integration. You or other users can add a Verifier transformation to a mapping and then add a verifier asset to the transformation. The Verifier transformation applies the logic in the verifier asset to the data source that the mapping identifies.

A Verifier transformation works in a similar way to a Mapplet transformation. A Data Integration user connects the transformation inputs and outputs to other objects in the mapping in the same manner as a

mapplet connects to other mapping objects. When the Data Integration user runs the mapping, the Verifier transformation applies the verifier logic to the input data and generates output data for downstream objects.

You can add a verifier asset to a Verifier transformation in an elastic mapping and in a non-elastic mapping. You cannot edit a verifier asset in Data Integration.

Verifier assets and dimensions

The data quality issues that you may find in your data can fall into a range of common categories. Data Quality assets can identify the categories as dimensions. When you configure an asset in Data Quality, you can use the **Dimension** property to indicate the type of data quality issue that you want the asset to examine.

Find the Dimension property on the **Definition** tab of the asset.

For more information about data quality dimensions, see the *Introduction* in Data Quality documentation.

Reference data

Address reference data contains authoritative data for the postal addresses in a country. For many countries, the address reference data contains complete data for every postal address. When you run a mapping with a Verifier transformation, the transformation compares the input address data to the reference data files.

The mapping compares the elements in each input address separately and collectively against the reference data to verify that the address identifies a single deliverable address. The mapping results include the verified or corrected versions of the address and any additional information that you requested.

Consider the following rules and guidelines for address reference data:

- The Secure Agent downloads the current versions of the files that you need. If the current version of a file is already present on the Secure Agent host machine, the file is not downloaded again.

The download operation checks the files that the mapping requires and does not necessarily check the status of every reference data file on the system.

- The download operation downloads a hash file with each reference data file. When you run a mapping, the Secure Agent uses the hash file data to verify that the reference data location contains the current version of the file.

The address reference data files and hash data files are read-only files. Do not move or delete any file that the Secure Agent downloads for address verification.

- The default location of the reference data files is `[Informatica_root_directory]/avdata`. You can review or update the reference data location in the Administrator service.
- If you change the reference data location, the Secure Agent downloads the reference data to the new location on the next occasion that you run a mapping.
- Ensure that you have enough disk space available in the system for the download files. The disk space that you require depends on the countries for which you download data and the number and type of files that you download. The full set of global reference data files takes up approximately 55 GB of disk space.

If the current mapping requires a large volume of reference data, the download process may take some time.

- The reference data files require a valid license. Informatica sends you the license keys that you need when you buy the data. You enter the license keys as a data property on the Secure Agent.
- The address reference data that enables certified address verification for United States addresses is not licensed for use outside the United States.

For more information on the reference data properties, see [Chapter 5, “Address verification properties” on page 39](#).

CHAPTER 2

Verifier configuration

When you configure a verifier asset, you select the appropriate address model for the input address structure and you specify the input and output fields. Select the input fields based on the structure of the source data that the mapping will read. Select the output fields based on the task that you want the mapping to perform.

You can also review and update the properties that determine how the Verifier transformation reads, writes, and processes data at run time.

You can configure a verifier to perform the following tasks on address data:

- Verify and correct address data
- Update the address structure
- Generate address suggestions
- Measure address quality
- Generate geocodes
- Retrieve country-specific address enrichments
- Retrieve global address enrichments
- Retrieve certification data

Note: Every task that you perform with a verifier will attempt to verify and correct the address data.

Selecting an input model

Review the source data structure and select the input model for the address data.

1. Examine the input address structure. You can run a profile to understand the source data. If a data steward is assigned to the data, you might also consult with the data steward.
2. Select one of the following address models:
 - **Discrete.** The discrete input fields contain address information on a single data element, such as a house number, street, or post code.
 - **Hybrid.** The hybrid input fields can contain a single address element or multiple address elements.
 - **Multiline.** The multiline input model contains multiple address elements. Each input column corresponds to a line of an address.

For more information, see [“Input model” on page 10](#).

Selecting the input fields

Select the input fields that correspond to the address fields in the data that the Verifier transformation will read.

For example, if the input data contains the house number, street, and apartment in a single field, you might select an Address Lines field in the Hybrid input model. You can enter the remaining address information, such as the locality, province, and postal code in their respective fields.

If the input data contains street and locality in a single field, select a Formatted Address Lines field in the Multiline input model.

If the input data contains the address information in individual address fields, select the corresponding address fields in the Discrete input model.

Note: An address might use more than one level within a given field. For example, an address in India can contain four locality levels. The element of the largest size is level 1. Levels 2, 3 and other levels are subdivisions of the preceding element. Disregard any level that the address does not use.

For more information about the uses of the input address fields, see [Chapter 7, “Input address fields” on page 44](#).

Selecting the output fields

The verifier provides you with a range of output address fields. The output fields that you select depend on your objectives for the address verification process. In some cases, the selection of the output fields might overlap. For example, when you select output fields to verify an address or generate address suggestions, you might select the same output fields.

You can use the output fields to update the structure of the address data. Additionally, you can select Status Codes and Enrichments fields to perform tasks such as reporting on the quality of each address and retrieving enrichment data for valid addresses.

For more information about the uses of the output address fields, see [Chapter 7, “Input address fields” on page 44](#).

Selecting output fields to verify and correct addresses

Verify your address records to determine the accuracy and deliverability of the addresses.

Address verification is the basic objective of all tasks that a verifier can perform. All tasks that you perform with a verify asset will try to verify and correct the input address data.

If your objective is to verify your addresses and to preserve the input address structure, you can choose the same fields for input and output.

1. Select the input model for the address data.
2. Select the input fields. The source data structure defines the input fields for the address.
3. Select the output fields. You define the output fields based on the result that you want to achieve.

For example, the source data might include the following address:

```
1960 W CHELSEA AVE STE 2006R  
ALLENTOWN PA 18104  
USA
```

The following table shows the input fields that correspond to the address data:

Address Information	Input Fields	Input Model
1960 W CHELSEA AVE STE 2006R	Formatted Address Lines 1	Multiline
ALLENTOWN PA 18104	Formatted Address Lines 2	Multiline
USA	Country 1	Multiline

The following table shows the output fields that you can select to verify the address data:

Output Fields	Address Information
Formatted Address Lines 1	1960 W CHELSEA AVE STE 2006R
Formatted Address Lines 2	ALLENTOWN PA 18104
Country	USA

Selecting output fields to update the address structure

Use the output fields to organize the address data into a set of columns that suits your project or data storage requirements. For example, your current address records might contain multiple address elements in a single field. You can specify individual fields for each address element in the output address.

1. Select the input model for the address data.
2. Select the input fields. The source data structure defines the input fields for the address.
3. Select the output fields. You define the output fields based on the result that you want to achieve.

For example, the source data might include the following address:

```
1960 W CHELSEA AVE STE 2006R
ALLENTOWN PA 18104
USA
```

The following table shows the input fields that correspond to the address data:

Address Information	Input Fields	Input Model
1960 W CHELSEA AVE STE 2006R	Formatted Address Lines 1	Multiline
ALLENTOWN PA 18104	Formatted Address Lines 2	Multiline
USA	Country 1	Multiline

The following table shows the output fields that you can select to update the address structure of the address data:

Output Fields	Address Information
Sub Building 1	STE 2006R
Street 1	W CHELSEA AVE
House Number 1	1960
Postal Code 1	18104
Locality 1	ALLENTOWN
Administrative Division Name 1	PA
Country Name 1	UNITED STATES

Selecting output fields to generate address suggestions

If your source data contains an incomplete address, or an address of uncertain quality, the address verification mapping can return valid suggestions for the addresses from the reference data. To receive the list of address suggestions, set the verification mode in the verifier properties to *Verification with suggestions*.

1. Select the input model for the address data.
2. Select the input fields. The source data structure defines the input fields for the address.
3. Select the output fields. You define the output fields based on the result that you want to achieve.

For example, the source data might include the following address:

```
1960 W CHELSEA AVE STE 2006R
18104
USA
```

The following table shows the input fields that correspond to the address data:

Address Information	Input Fields	Input Model
1960 W CHELSEA AVE STE 2006R	Formatted Address Lines 1	Multiline
18104	Formatted Address Lines 2	Multiline
USA	Country 1	Multiline

The following table shows the output fields that you can select for the address data:

Output Fields	Address Information
Sub Building 1	STE 2006R
Street 1	W CHELSEA AVE

Output Fields	Address Information
House Number 1	1960
Postal Code 1	18104
Locality 1	ALLENTOWN
Administrative Division Name 1	PA
Country Name 1	UNITED STATES

Note: The mapping will return the complete address, including the city and state information.

4. Choose the *Verification with suggestions* option from the **Verification mode** field of the **Process** tab property to generate the list of address suggestions for the address.

Selecting output fields to measure address quality

You measure the quality of the address data to check the deliverability of the addresses and to identify any address that the address verification mapping cannot correct. Select output fields that write each address data element to a separate field. Also, select the address validation status field that provide detailed information on the accuracy and completeness of the output data.

1. Select the input model for the address data.
2. Select the input fields. The source data structure defines the input fields for the address.
3. Select the output fields. You define the output fields based on the result that you want to achieve. Include the Status Codes fields in the output.

For example, the source data might include the following address:

1960 W CHELSEA AVE STE 2006R
ALLENTOWN PA 18104
USA

The following table shows the input fields that correspond to the address data:

Address Information	Input Fields	Input Model
1960 W CHELSEA AVE STE 2006R	Formatted Address Lines 1	Multiline
ALLENTOWN PA 18104	Formatted Address Lines 2	Multiline
USA	Country 1	Multiline

The following table shows the output fields that you can select for the address data:

Output Fields	Address Information
Sub Building 1	STE 2006R
Street 1	W CHELSEA AVE

Output Fields	Address Information
House Number 1	1960
Postal Code 1	18104
Locality 1	ALLENTOWN
Administrative Division Name 1	PA
Country Name 1	UNITED STATES
Verification Status Code	V4
Match Percentage	100

Verification Status Code values

The Verification Status Code field returns an alphanumeric code that indicates the result of the verification process on each input address.

The following table describes the codes:

Status Code	Description
V4	Verified. The input data is correct. Address verification checked all postally relevant elements, and inputs matched perfectly.
V3	Verified. The input data is correct, but address verification standardized some or all elements, or the input contains outdated names or exonyms.
V2	Verified. The input data is correct, but address verification could not verify some elements because of incomplete reference data.
V1	Verified. The input data is correct, but user standardization has adversely affected deliverability. For example, the post code length is too short.
C4	Corrected. Address verification has checked all postally relevant elements.
C3	Corrected. Address verification could not check some elements.
C2	Corrected, but the delivery status is unclear because of absent reference data.
C1	Corrected, but the delivery status is unclear because user standardization introduced errors.
I4	Address verification could not correct the data completely, but there is a single match with an address in the reference data.
I3	Address verification could not correct the data completely, and there are multiple matches with addresses in the reference data.
I2	Address verification could not correct the data. Interactive mode returns partial suggested addresses.
I1	Address verification could not correct the data completely. Batch mode cannot suggest an address.

Status Code	Description
N7	Verification error. Verification did not take place because single-line verification is not unlocked.
N6	Verification error. Verification did not take place because single-line verification is not supported for the destination country.
N5	Verification error. Verification did not take place because the reference database is out of date.
N4	Verification error. Verification did not take place because the reference data is corrupt or badly formatted.
N3	Verification error. Verification did not take place because the country data cannot be unlocked.
N2	Verification error. Verification did not take place because the required reference database is not available.
N1	Verification error. Verification did not take place because the country is not recognized or not supported.

Selecting output fields to generate geocodes

You can add the geocodes data to address records to improve the likelihood of delivery, for example in rural areas. The geocodes indicate the closest latitude and longitude coordinates for each address that the reference data can provide. Select the Geo Coding fields to add geocodes to the address records.

1. Select the input model for the address data.
2. Select the input fields. The source data structure defines the input fields for the address.
3. Select the output fields. You define the output fields based on the result that you want to achieve. Include the Geo Coordinates and Geo Coding Accuracy Code fields in the output. Find the fields under **Enrichments > Geo Coding** in the Outputs section.

For example, the source data might include the following address:

```
1960 W CHELSEA AVE STE 2006R
ALLENTOWN PA 18104
USA
```

The following table shows the input fields that correspond to the address data:

Address Information	Input Fields	Input Model
1960 W CHELSEA AVE STE 2006R	Formatted Address Lines 1	Multiline
ALLENTOWN PA 18104	Formatted Address Lines 2	Multiline
USA	Country 1	Multiline

The following table shows the output fields that you can select for the address data:

Output Fields	Address Information
Sub Building 1	STE 2006R
Street 1	W CHELSEA AVE
House Number 1	1960
Postal Code 1	18104
Locality 1	ALLENTOWN
Administrative Division Name 1	PA
Country Name 1	UNITED STATES
Geo Coordinates	[Latitude and longitude coordinates]
Geo Coding Accuracy Code	[Geo Coding Accuracy Code value]

Geo Coding Accuracy Code values

The Geo Coding Accuracy Code field returns an alphanumeric code that indicates the result of the geocoding process for each input address.

The following table describes the codes:

Status Code	Description
EGC0	Address verification cannot append geocoordinates to the input address because no geocoordinates are available for the address.
EGC4	Geocoordinates are partially accurate to the postal or ZIP code level. For example, the geocoordinates might map to a 795xx ZIP code value.
EGC5	Geocoordinates are accurate to the postal or ZIP code level.
EGC6	Geocoordinates are accurate to the locality level.
EGC7	Geocoordinates are accurate to the street level.
EGC8	Geocoordinates are accurate to the house number level. (Estimated location of the parcel of land with street-side offset.)
EGC9	High-precision arrival point geocoordinates. (Measured entryway to the parcel of land.)

Selecting output fields to retrieve certification data

You can retrieve certification data to verify that your addresses meet the data standards that a local postal service may define.

The certification standards require that each address in an address set includes values that can affirm the deliverability and accuracy of the address. To receive the certification values, set the verification mode in the verifier properties to *Certified verification*.

1. Select the input model for the address data.
2. Select the input fields. The source data structure defines the input fields for the address.
3. Select the output fields. You define the output fields based on the result that you want to achieve.

Include the CASS Status, Barcode, and Carrier Route fields in the output. Find the fields under **Enrichments > Certified > UnitedStates-CASS** in the Outputs section.

For example, the source data might include the following address:

1960 W CHELSEA AVE STE 2006R
ALLENTOWN PA 18104
USA

The following table shows the input fields that correspond to the address data:

Address Information	Input Fields	Input Model
1960 W CHELSEA AVE STE 2006R	Formatted Address Lines 1	Multiline
ALLENTOWN PA 18104	Formatted Address Lines 2	Multiline
USA	Country 1	Multiline

The following table shows the output fields that you can select for the address data:

Output Fields	Address Information
Sub Building 1	STE 2006R
Street 1	W CHELSEA AVE
House Number 1	1960
Postal Code 1	18104
Locality 1	ALLENTOWN
Administrative Division Name 1	PA
Country Name 1	UNITED STATES
CASS Status	[Certification Status Code Value]
Barcode	[An 11-digit number that represents the delivery point for the record.]
Carrier Route	[A four-character code assigned to a mail delivery or collection route within a 5-digit ZIP Code.]

CHAPTER 3

Verifier asset properties

You can configure properties on a verifier asset that determine how a mapping that includes the asset will read, write, and process addresses. To view the properties, open the **Properties** dialog box from the Actions menu on the Data Quality toolbar.

The **Properties** dialog box displays the options on **Input**, **Process**, and **Result** tabs. On the **Input** tab, you can specify the delimiter that the mapping uses to identify the input fields and set options that identify the destination country for the addresses. On the **Process** tab, you can specify the type of verification that you want the mapping to perform and the depth at which level you want to verify the addresses. On the **Result** tab, you can specify options such as casing style, language, and character set for the output addresses.

Edit the properties to suit your source data and your project requirements. Each property has a default value that you can accept.

Input properties

The **Input** tab properties determine how the mapping parses the input fields and can also assign a destination country to the addresses.

The following image shows the **Input** tab properties:

The screenshot shows a 'Properties' dialog box with a close button (X) in the top right corner. It has three tabs: 'Input' (selected), 'Process', and 'Result'. Under the 'Input' tab, there are three settings, each with a help icon (i):
1. 'Input delimiter:' with a dropdown menu showing 'CRLF'.
2. 'Force country:' with a dropdown menu showing 'None'.
3. 'Default country:' with a dropdown menu showing 'None'.
At the bottom left is a help icon (i), and at the bottom right are 'OK' and 'Cancel' buttons.

You can review and update the following properties:

Input delimiter

Specifies the field separator that the input addresses use. For example, if you set the Input delimiter to comma, the verifier treats strings on either side of a comma as separate fields. By default, the mapping treats each line of data as a separate field.

You can select one of the following options:

- Comma. Identifies a comma as the field separator.
- CR. Identifies a carriage return (Return keystroke) as the field separator.
- CRLF. Identifies a carriage return (Return keystroke) or a line ending as the field separator. Default value.
- LF. Identifies a line ending as the field separator.
- Pipe. Identifies a pipe character as the field separator.
- Tab. Identifies a tab character as the field separator.

Force country

Specifies the destination country for all addresses in the file. The option overrides any country information in the input data. The default value is None.

Default country

Specifies the destination country for any input address that does not contain country information. The default value is None.

Process properties

The **Process** tab properties specify the verification process that the address verification mapping applies to the data and also specify the depth to which the mapping verifies the address data.

The following image shows the **Process** tab properties:

The screenshot shows a 'Properties' dialog box with a close button (X) in the top right corner. Inside the dialog, there are three tabs: 'Input', 'Process' (which is selected and highlighted with a blue underline), and 'Result'. Below the tabs, there are two settings: 'Verification mode:' with a dropdown menu set to 'Verification only', and 'Verification level:' with a dropdown menu set to 'Full address'. At the bottom left of the dialog is a help icon (question mark), and at the bottom right are 'OK' and 'Cancel' buttons.

You can set the following properties:

Verification mode

Identifies the address verification process that the mapping runs on the input data.

You can select one of the following options:

- Verification only. Default value. The mapping verifies and corrects the input address data.
- Verification with suggestions. The mapping verifies and corrects the input address data and returns address suggestions for any input address that is ambiguous or incomplete.
- Certified verification. The mapping verifies and corrects the input address data to the certification standards that the postal authority in a country specifies. You can perform certified verification on addresses in Australia, Canada, France, New Zealand, and the United States.

The verifier complies with the following postal certifications:

- Address Matching Approval System (AMAS) certification for Australia Post.
- Coding Accuracy Support System (CASS) certification for the United States Postal Service.
- SendRight certification for New Zealand Post.
- Service National de L'Adresse (SNA) certification for La Poste of France.
- Software Evaluation and Recognition Program (SERP) certification for Canada Post.

Verification level

Specifies the address depth that the mapping seeks to verify in the input data.

You can select one of the following options:

- Full address. Default value. The mapping seeks to verify all available information.
- Locality level. The mapping seeks to verify all information to locality level, starting with the largest geographical area in the address.
- Premise level. The mapping seeks to verify all information to building or house level, starting with the largest geographical area in the address.
- Street level. The mapping seeks to verify all information to street level, starting with the largest geographical area in the address.

Result properties

The **Result** tab properties specify the formatting options that the mapping applies to the output data.

The following image shows the **Result** tab properties:

The screenshot shows a 'Properties' dialog box with three tabs: 'Input', 'Process', and 'Result'. The 'Result' tab is selected and highlighted in blue. The dialog contains several settings for output formatting:

- Language:** A dropdown menu set to 'Country standard'.
- Script:** A dropdown menu set to 'Country standard'.
- Descriptor standardization:** A dropdown menu set to 'Database'.
- Casing:** A dropdown menu set to 'Country standard'.
- Use country-specific abbreviations:** Radio buttons for 'Yes' and 'No', with 'No' selected.
- Expand numerical ranges:** Radio buttons for 'Yes' and 'No', with 'No' selected.
- Standardize invalid addresses:** Radio buttons for 'Yes' and 'No', with 'No' selected.

At the bottom of the dialog, there is a help icon (question mark in a circle), an 'OK' button, and a 'Cancel' button.

You can set the following properties:

Language

Indicates the language to use for the output data when the reference data files include data in more than one language.

You can select one of the following options:

Alternative language 1, Alternative language 2, Alternative language 3

Returns address elements in one of the alternative languages available in the reference data. The alternative languages depend on the country to which the address belongs.

Country standard

Default value. Returns all available address elements in the default language of the address in the reference data for the country.

English

Returns province and locality information in English if the reference data contains the information.

Preserve input

Returns the address information in the language that the input data uses. Preserves the language if the reference data contains the address information in the input language.

Script

Indicates the character set to use for the output data when the country supports more than one character set.

You can select one of the following options:

Country standard

Default value. Returns the address in the character set in which the reference data stores the address.

Latin with diacritics

Returns the address in a Latin script with diacritics.

Latin without diacritics

Returns the address in a Latin script without diacritics.

Preserve input

Returns the address in the in the character set that the input data uses.

Descriptor Standardization

Specifies whether to abbreviate street and directional descriptors when abbreviations are available in the reference data.

You can select one of the following options:

- Database. Default value. Returns the standard element descriptors from the reference data.
- Long version. Returns the expanded form of the element descriptors. For example, a mapping returns STREET for the input element ST.
- Preserve input. Copies the element descriptors from the input to the output.
- Short version. Returns the abbreviated form of the element descriptors. For example, a mapping returns AVE for the input element AVENUE.

Casing

Specifies the character case for the output address data.

You can configure one of the following options:

- Country standard. Default value. Returns the output in the standard casing style that the reference data uses for the country rules.
- Lower. Returns the output in lowercase letters.
- Mixed. Returns the output in mixed case according to country-specific casing guidelines.

- Upper. Returns the output in uppercase letters.

Use country-specific abbreviations

Determines whether the output address uses abbreviated names, such as street and town names, when the names are available in the reference data. The default value is No.

Note: You set the policy for street and locality name abbreviations separately from the descriptor standardizations. The valid full versions and abbreviated versions of the street and locality names are stored in the reference data.

Expand numerical ranges

Specifies whether to expand house or building number ranges into individual numbers in address suggestions when the individual numbers are available in the reference data. The default value is No.

Standardize invalid addresses

Determines whether to standardize common address elements in addresses that do not otherwise pass validation, such as addresses that return an Ix score in the Verification Status Code field. Use the property when you do not expect to find valid versions of the address data and you want to standardize terms that occur throughout the data as an alternative. The default value is No.

Address verification can standardize the following address elements:

- Street types, for example Road to Rd.
- Pre-directional and post-directional indicators, for example West to W.
- Delivery service terms, for example Post Office Box to P. O. Box.
- Sub-building descriptors, for example Apartment to Apt.
- State, province, or regions, for example California to CA.

CHAPTER 4

Frequently asked questions

The frequently asked questions provide quick solutions on how to set up various operations in a verifier. Each question corresponds to a value on a property or option in the verifier.

Why does the verifier asset show multiple instances of a single field?

The verifier asset displays multiple input and output fields for many field types. Use the fields to define an input and output address structure that best suits your address records and your data needs.

In many cases, the fields allow the asset to verify addresses that contain multiple levels of information for a single element. For example, a United Kingdom address might include the district of BETHNAL GREEN and the town of LONDON. To verify the address, you select the Locality 1 and Locality 2 input and output fields on the asset. At run time, the Data Integration user who adds the asset to a Verifier transformation can assign the fields that contain BETHNAL GREEN and LONDON to the Locality 1 and Locality 2 fields respectively.

Additionally, a single Address Lines or Formatted Address Lines field can contain data for multiple address elements. Your address records might use the fields to create address data that matches the standard layout of a printed address. For example, you might select the Formatted Address Lines 1 and Formatted Address Lines 2 fields for the following address data:

```
Field 1: 350 5TH AVE  
Field 2: NEW YORK NY 10118
```

Note: You can select the Address Lines 1 field and the Last Line 1 field for the same address.

How do I set the input and output address properties for an address?

The toolbar on the **Configuration** tab includes an Actions menu option. Each property in the **Properties** dialog box includes options that you can select based on the type of information that you want the address verification mapping to read and write.

For more information about configuring the properties, see [Chapter 3, “Verifier asset properties” on page 26](#).

How do I standardize street and directional descriptors?

In the **Properties** dialog box, select the **Result** tab. The **Result** tab includes the **Descriptor standardization** property, which you can use to standardize the descriptor data.

You can choose one the following options to standardize the address elements:

- Database, or the reference data standard
- Long version
- Preserve input
- Short version

For more information about setting the **Result** tab properties, see [“Result properties” on page 29](#).

How do I activate suggestions for addresses that I cannot verify?

In the **Properties** dialog box, select the **Process** tab. The **Process** tab includes the **Verification mode** property, which you can use to activate suggestions for an address. Choose the *Verification with suggestions* option to receive address suggestions.

For more information about setting the **Process** tab properties, see [“Process properties” on page 28](#).

How do I specify the delimiter in the input address records?

In the **Properties** dialog box, select the **Input** tab. The **Input** tab includes the **Input delimiter** property, which you can use to set the delimiter for an address. For example, choose the *Comma* option to set a comma delimiter.

For more information about setting the **Input** tab properties, see [“Input properties” on page 26](#).

How do I abbreviate street and locality names?

Use the **Use country-specific abbreviations** property on the **Result** tab to abbreviate the names in countries where they are available in the reference data. Choose Yes to abbreviate the names.

For more information about setting the **Result** tab properties, see [“Result properties” on page 29](#).

Note: You set the policy for street and locality name abbreviations separately from the descriptor standardizations. The valid full versions and abbreviated versions of the street and locality names are stored in the reference data.

How do I set the level of verification for an address?

In the **Properties** dialog box, select the **Process** tab. The **Process** tab includes the **Verification level** property, which you can use to set the level of verification for an address.

You can choose one the following options:

- Full address
- Locality level
- Premise level
- Street level

For more information about setting the **Process** tab properties, see [“Process properties” on page 28](#).

How do I standardize common terms in addresses that fail verification?

Use the **Standardize invalid addresses** property on the **Result** tab to standardize common address terms. For example, you might decide to change all instances of Apartment to Apt. You might select the property as a fallback option for addresses of low quality that do not pass verification. Choose Yes to standardize the terms.

For more information about setting the **Result** tab properties, see [“Result properties ” on page 29](#).

How do I set the output address data to upper case?

In the **Properties** dialog box, select the **Result** tab. The **Result** tab includes the **Casing** property, which you can use to set the casing to upper case.

For more information about setting the **Result** tab properties, see [“Result properties ” on page 29](#).

How do I set the destination country for the input addresses?

The **Input** tab includes the **Default Country** and **Force Country** properties.

Use the **Default Country** property to identify a country for any input address that does not contain country identification data. The **Default Country** property does not apply to any address that identifies a destination country.

Use the **Force Country** property to specify a common destination country for all input addresses. The **Force Country** property overrides any country information in an input address.

To activate either property, choose a country name from the respective country list.

Note: The address verification mapping looks for country identification for all input addresses so that it can read the correct reference data file for the address.

For more information about setting the **Input** tab properties, see [“Input properties” on page 26](#).

How do I specify the character set for the output address data?

In the **Properties** dialog box, select the **Result** tab. The **Result** tab includes the **Script** property, which you can use to set the character set for the output addresses. Select a character set that accommodates the verified addresses in the data set.

For more information about setting the **Result** tab properties, see [“Result properties ” on page 29](#).

Can I expand the numerical ranges in address suggestions?

The **Expand numerical ranges** property of the **Result** tab helps you expand the house or building number ranges into individual numbers in address suggestions when the individual numbers are available in the reference data. Choose Yes to expand the numerical ranges.

For more information about setting the **Result** tab properties, see [“Result properties ” on page 29](#).

How do I change the language of the output address data?

In the **Properties** dialog box, select the **Result** tab. The **Result** tab includes the **Language** property, which you can use to set the output language. The property applies in countries where the reference data contains elements in more than one language. Choose the language property from the options available.

For more information about setting the **Process** tab properties, see [“Result properties ” on page 29](#).

How do I verify addresses to the standards that the postal authority in a country specifies?

In the **Properties** dialog box, select the **Process** tab. The **Process** tab includes the **Verification mode** property, which you can use to verify addresses to certification standards. Choose the *Certified verification* option to verify your addresses to the standards that the postal services define.

For more information about setting the **Process** tab properties, see [“Process properties” on page 28](#).

How do I generate a certification report for addresses in Australia, Canada, New Zealand, and the United States?

To generate a certification report, perform the following steps:

1. Use the **Generate report** property on the **Process** tab to generate a Certification report. Choose Yes to generate the report.

Note: The **Generate report** property appears on the **Process** tab when you set the **Verification mode** property to *Certified verification*.

2. Use the **Choose report to generate** property on the **Process** tab to select the type of Certification report to generate.

You can choose one of the following reports for generation:

- AMAS Report
- CASS Report
- SendRight Report
- SERP Report

Note: The **Choose report to generate** property appears on the **Process** tab when you choose Yes in the **Generate report** property.

3. Enter the report details for the type of report that you choose.

Note: Each Result property is set to default when you choose the Yes option to generate a report.

AMAS report fields

When you configure an AMAS report, you provide information about the organization that submits the certified address record set to Australia Post.

The following table describes the information that you enter:

Field	Description
Report filename	Name and location of the report that the address verification operation creates. The default location of the certified report is [Informatica_root_directory]/avreports. The Administrator service determines the location. For information about the report location, see CertifiedReportLocation in "Reference data properties" on page 39 .
Name of address list	Name of the address record set that you submit to Australia Post.
List processor name	Name of the organization that submits the address record set.
Name of list manager/owner	Name of the manager or owner of the address data in the organization.
Phone number	Contact telephone number of the organization that submits the address record set.
Address	Address of the organization that submits the address record set.

CASS report fields

When you configure a CASS report, you provide information about the organization that submits the certified address record set to the USPS.

The following table describes the information that you enter:

Field	Description
Report filename	Name and location of the report that the address verification operation creates. The default location of the certified report is [Informatica_root_directory]/avreports. The Administrator service determines the location. For information about the report location, see CertifiedReportLocation in "Reference data properties" on page 39 .
List name/ID	Name or identification number of the address list that you submit to the mail carrier.
List processor name	Name of the organization that performs the address verification.
Name/Address	Postal name and address of the organization that performs the address verification.

SendRight report fields

When you configure a SendRight report, you provide information about the organization that submits the certified address record set to New Zealand Post.

The following table describes the information that you enter:

Field	Description
Customer name	The name of the organization that submits the address record set.
Customer NZP number	The New Zealand Post account number of the organization that submits the address record set. If a mailhouse submits the records on behalf of the organization, enter the mailhouse transport identification (TPID) number.
Customer database	The name of the file that contains the address record set.
Customer address	The address of the organization that submits the address record set.

SERP report fields

When you configure a SERP report, you provide information about the organization that submits the certified address record set to Canada Post.

The following table describes the information that you enter:

Field	Description
Report filename	Name and location of the report that the address verification operation creates. The default location of the certified report is [Informatica_root_directory]/avreports. The Administrator service determines the location. For information about the report location, see CertifiedReportLocation in "Reference data properties" on page 39 .
Customer CPC number	Customer number issued by the Canada Post Corporation to the organization that performs the address verification.
Customer name/address	Name and address of the organization that performs the address verification.

Where can I find the certified reports?

You can find the certified reports at the location that you set in the Administrator service.

For information about the certified reports property, see CertifiedReportLocation in [“Reference data properties” on page 39](#).

Can the Secure Agent download the CASS data files?

If your Secure Agent is located in the United States, the Secure Agent downloads the CASS data files. You can confirm the Secure Agent location in the **DownloadCASSdata_SALocatedinUSA** property.

For information about the property, see [“Reference data properties” on page 39](#).

CHAPTER 5

Address verification properties

Informatica Intelligent Cloud Services applies a range of properties to the address verification process. The properties provide configuration information to the runtime environment, including the amount of memory to assign to a verification process and the identities of any reference data files to preload into memory.

Configure the properties on the Secure Agent that will run a mapping with a Verifier transformation. The Secure Agent stores the properties in the IDQAD property set on the Data Integration Server.

Note: The Data Integration Server on the Secure Agent also displays configuration options for the CDQAV property set. The CDQAV properties are reserved for a future release. You do not need to configure the CDQAV properties.

Reference data properties

The reference data properties determine how the Secure Agent reads address reference data files and allocates memory for address verification. Configure the properties on the Secure Agent on which you'll run a mapping that contains a Verifier transformation.

All properties except the ReferenceDataLocation property have a default value that the Verifier transformation can use.

The following table describes the reference data properties:

Property	Description
ReferenceDataLocation	<p>Location of the address reference data files. The default location of the files is <i>[Informatica_root_directory]/avdata</i>.</p> <p>Note: If you change the reference data location, the Secure Agent downloads the reference data to the new location the next time that you run an address verification mapping.</p> <p>Do not configure a common reference data location for more than one Secure Agent if the Secure Agents run mappings on a combination of Microsoft Azure and non-Microsoft Azure pods.</p>
LicenseKey	<p>License key to activate reference data. You might have more than one key, for example, if you use batch reference data and geocoding reference data. Enter keys as a comma-delimited list.</p> <p>You might have enrichment license keys for a single country, for multiple countries, or for the entire world.</p> <p>The property is empty by default.</p>

Property	Description
FullPreLoadCountries	<p>List of countries for which all reference data, excluding geocoding data, is loaded into memory before address verification begins. Enter the three-character ISO country codes in a comma-separated list. For example, enter DEU, FRA, USA. Enter ALL to load all data sets. The property is empty by default.</p> <p>Load the full reference database to increase performance. Some countries, such as the United States, have large databases that require significant amounts of memory.</p>
PartialPreLoadCountries	<p>List of countries for which reference data, excluding geocoding data, metadata and indexing structures are loaded into memory before address verification begins. Enter the three-character ISO country codes in a comma-separated list. For example, enter DEU, FRA, USA. Enter ALL to partially load all data sets. The property is empty by default.</p> <p>Partial preloading increases performance when not enough memory is available to load the complete databases into memory.</p>
NoPreLoadCountries	<p>List of countries for which no reference data, except geocoding data, is loaded into memory before address verification begins. Enter the three-character ISO country codes in a comma-separated list. For example, enter DEU, FRA, USA. Default is ALL.</p>
FullPreLoadGeoCodingCountries	<p>List of countries for which all geocoding reference data is loaded into memory before address verification begins. Enter the three-character ISO country codes in a comma-separated list. For example, enter DEU, FRA, USA. Enter ALL to load all data sets. The property is empty by default.</p> <p>Load all reference data for a country to increase performance when processing addresses from that country. Some countries, such as the United States, have large data sets that require significant amounts of memory.</p>
PartialPreLoadGeoCodingCountries	<p>List of countries for which geocoding reference metadata and indexing structures are loaded into memory before address verification begins. Enter the three-character ISO country codes in a comma-separated list. For example, enter DEU, FRA, USA. Enter ALL to partially load all data sets. The property is empty by default.</p> <p>Partial preloading increases performance when not enough memory is available to load the complete databases into memory.</p>
NoPreLoadGeoCodingCountries	<p>List of countries for which no geocoding reference data is loaded into memory before address verification begins. Enter the three-character ISO country codes in a comma-separated list. For example, enter DEU, FRA, USA. Default is ALL.</p>
MemoryUsage	<p>Number of megabytes of memory that the address verification process can allocate. Default is 4096.</p>
CacheSize	<p>Size of cache for databases that are not preloaded. Caching reserves memory to increase lookup performance in reference data that has not been preloaded.</p> <p>Set the cache size to LARGE unless all the reference data is preloaded or you need to reduce the amount of memory usage.</p> <p>Enter one of the following options for the cache size in uppercase letters:</p> <ul style="list-style-type: none"> - NONE. No cache. Enter NONE if all reference databases are preloaded. - SMALL. Reduced cache size. - LARGE. Standard cache size. <p>Default is LARGE.</p>

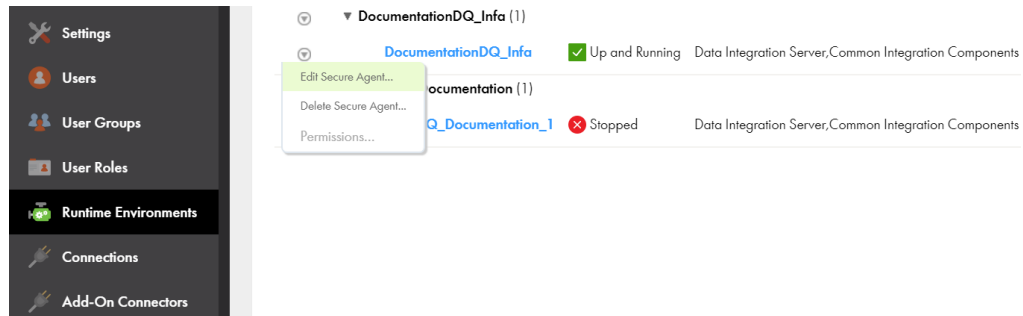
Property	Description
PreloadingMethod	Determines how the Data Integration service preloads address reference data into memory. The MAP method and the LOAD method both allocate a block of memory and then read reference data into this block. However, the MAP method can share reference data between multiple processes. Default is MAP.
FullPreLoadAddressCodeCountries	Not active in the current release.
PartialPreLoadAddressCodeCountries	Not active in the current release.
NoPreLoadAddressCodeCountries	Not active in the current release.
ReportLocation	Location to which an address verification mapping writes a report and any log file that relates to the report. You generate a report to verify that a set of address records meets the certification standards of the Post. Enter a local path on the machine that hosts the Data Integration service that runs the mapping. By default, address verification writes the report file to the bin directory of the Informatica installation.
MaxResultCount	Maximum number of addresses that address verification can return when you select <i>Verification with suggestions</i> in the verifier properties. Set a number in the range 1 through 100. Default is 20.
MaxAddressObjectCount	Maximum number of address verification instances to run at the same time. Default is 3.
DownloadCASSdata_SALocatedinUSA	Indicates whether your Secure Agent is located in the United States. Enter Yes if the Secure Agent is located in the United States. Default is No. Note: If the Secure Agent is not located in the United States, the Secure Agent does not download the CASS certification data files to the environment.
CertifiedReportLocation	Location of the certified report. The default location of the certified report is <i>[Informatica_root_directory]/avreports</i> .

Configuring the reference data properties

Before you run a mapping with a Verifier transformation, configure the properties in the Administrator service.

1. From the **My Services** page, select the **Administrator** service.
2. Choose the **Runtime Environments** option.
3. Select the **Secure Agent** that you will use to run address verification mappings.
4. Hover over the **Actions** icon for the Secure Agent, and select the **Edit Secure Agent** option.

The following image shows the option:



The **Secure Agent** page appears.

5. Under **System Configuration Details**, select the following options:

- Select **Data Integration Server** in the **Service** field.
- Select **IDQAD** in the **Type** field.

The **System Configuration Details** pane returns a list of properties based on the type that you specified.

6. Review the properties.

You must enter a license key for each type of reference data that you will download and use in a mapping. You can accept the default values for all other properties.

Optionally, update the property values to suit your system and the mappings that you will run.

CHAPTER 6

Validation and testing

Validate a verifier asset in Data Quality before you add it to a Verifier transformation in a mapping.

Validate a verifier

Validate a verifier to verify that the asset is ready for use in a Verifier transformation.

1. Open the verifier asset.
2. Click the **Validation** option on the asset toolbar. Or, open the Actions menu from the toolbar and select **Validation**.

If the validation process reports any error in the asset, fix the error before using the asset.

CHAPTER 7

Input address fields

A verifier displays a range of fields in the Inputs and Outputs sections of the **Configuration** tab. Each input field appears in one or more input models. Every field appears as an output field.

The following address fields appear in the both Inputs and Outputs sections:

Address Lines

Contains multiple elements of delivery information such as street, house number, and sub-building information, in a single field. Use in conjunction with a Last Line field. The input fields appear in the Hybrid input model.

The number of Address Line fields you need can differ from country to country. Select the number of Address Line fields that you need.

Administrative Division

Contains name of the largest administrative area below the national level, such as a province in Canada, state in India, or county in the United Kingdom. The input fields appear in the Discrete and Hybrid input models.

A verifier includes three levels of Administrative Division fields in the input. Use Administrative Division 1 to identify the primary or largest region. Use Administrative Division 2 to identify the primary subdivision in the province. For example, use Administrative Division 2 for county data in the United States. If the province data is highly complex, use the Administrative Division 3 field.

A verifier includes the following types of Administrative Division output fields:

- Administrative Division Standard
- Administrative Division Name
- Administrative Division Abbreviation
- Administrative Division ISO

Each sub-field contains three levels.

Building

Contains building information. A Building field contains building-level data such as the building descriptor, building name, and building number. If an address record contains more than one building, select additional Building fields. The input fields appear in the Discrete input model.

Contact

Contains contact information such as name, function, and salutation. The input fields appear in the Discrete and Hybrid input models.

A verifier includes the following types of Contact fields:

- Contact 1

- First Name 1
- Middle Name 1
- Surname 1
- Title 1
- Function 1
- Salutation 1

Note: If your address verification mapping will read contact data, select the Contact 1 input field or select one or more of the Firstname 1, Lastname 1, and Surname 1 input fields.

Country

Contains country information. The input fields appear in the Discrete, Hybrid, and Multiline input models.

A verifier includes two levels of Country information in the input.

The output field contains the following types of Country fields:

- Country Name
- Country ISO 3
- Country ISO 2

Each field type contains two levels.

Delivery Service

Contains delivery service information. A delivery service is a mail pickup location managed by the post office, such as a P.O. Box. If the address record contains delivery service elements at more than one level, select additional Delivery Service fields. The input fields appear in the Discrete input model.

Department

Contains information about a department within an organization. The input fields appear in the Discrete and Hybrid input models.

Formatted Address Lines

Contains multiple elements in a single field. You can enter every line of an address on a formatted address line. You can use the Formatted Address Line output to print envelopes or to generate address labels. The input fields appear in the Multiline input model.

Select Formatted Address Lines input fields when the input data consists wholly of address lines instead of fields for different information types. Select Formatted Address Lines output fields to write addresses that you want to format for envelope printing and mail delivery.

House Number

Contains house number information. The house number identifies a building at street level. If the address record contains house numbers at more than one level, select additional House Number fields. The input fields appear in the Discrete input model.

Last Line

Contains last-line address information such as locality, postal code, and province information. Use in conjunction with Address Line fields. The input fields appear in the Hybrid input model.

Select a Last Line input field when you format the input address for postal delivery. Select a Last Line output field to create a formatted address that writes the last line of data to a single field.

Locality

Contains town or city name. Most countries use Locality 1 and optionally Locality 2. You might select additional locality fields if the locality data is highly complex. The input fields appear in the Discrete and Hybrid input models.

Organization

Contains organization information. An Organization field contains organization-level data, such as the organization name and organization descriptor. The input fields appear in the Discrete and Hybrid input models.

Postal Code

Contains postal code information. If the address record contains postal codes at more than one level, select additional Postal Code fields. The input fields appear in the Discrete and Hybrid input models.

Street

Contains street information. A Street field contains street-level data such as the street name, street post-descriptor, street post-directional, street pre-descriptor, and street pre-directional. If an address record contains more than one street, select additional Street fields. The input fields appear in the Discrete input model.

Sub Building

Contains sub-building information, such as an apartment or suite number. A Sub Building field contains sub-building level data such as the sub-building descriptor, sub-building name, and sub-building number. If an address record contains more than one sub-building level, select additional Sub Building fields. The input fields appear in the Discrete input model.

CHAPTER 8

Output address fields

When you process an address, you receive a result that can contains a large number of fields, including address elements, address line elements, and enrichment values. The result can also contain process-related information and status codes that describe the outcome of the verification process for the address.

Select the output fields that suit your address data and your business needs.

Single address and preformatted data fields

The output fields that you can select in the *Single address elements* and *Preformatted data* groups carry the same types of information as the input fields of the same name.

For more information about the fields, see See [Chapter 7, “Input address fields” on page 44](#).

Status fields

Status field information indicates whether an address is accurate enough for delivery and describes the result of the verification process.

You can select the following status fields:

Verification Status Code

Provides a summary of the address verification process and indicates the general quality of the address.

Match Percentage

Indicates the degree of similarity between the input data and reference data. The value ranges from 0 through 100. Values close to 100% indicate high similarity.

Verification Status Codes

The Verification Status Code value summarizes the results of the comparison of the input address to the reference data. The code also summarizes any correction that the mapping makes to the address. Find the field in the Status Codes output group.

The following table describes the Verification Status Code output values:

Code	Description
A1	Address code lookup found a partial address or a complete address for the input code.
A0	Address code lookup found no address for the input code.
C4	Corrected. All postally relevant elements are checked.
C3	Corrected. Some elements cannot be checked.
C2	Corrected, but the delivery status is unclear due to absent reference data.
C1	Corrected, but the delivery status is unclear because user standardization introduced errors.
I4	Data cannot be corrected completely, but there is a single match with an address in the reference data.
I3	Data cannot be corrected completely, and there are multiple matches with addresses in the reference data.
I2	Data cannot be corrected. Verification returns partial suggested addresses.
I1	Data cannot be corrected. Verification cannot suggest an address.
N7	Validation error. Verification did not take place because single-line validation is not unlocked.
N6	Validation error. Verification did not take place because single-line validation is not supported for the destination country.
N5	Validation error. Verification did not take place because the reference database is out of date.
N4	Validation error. Verification did not take place because the reference data is corrupt or badly formatted.
N3	Validation error. Verification did not take place because the country data cannot be unlocked.
N2	Validation error. Verification did not take place because the required reference database is not available.
N1	Validation error. Verification did not take place because the country is not recognized or not supported.
Q3	<i>Verification with suggestions</i> mode. The verifier can retrieve one or more complete addresses from the address reference data that correspond to the input address.

Code	Description
Q2	<i>Verification with suggestions</i> mode. The verifier can combine the input address elements and elements from the address reference data to create a complete address.
Q1	<i>Verification with suggestions</i> mode. The verifier cannot suggest a complete address. To generate a complete address suggestion, add data to the input address.
Q0	<i>Verification with suggestions</i> mode. There is insufficient input data to generate a suggestion.
RB	Country recognized from abbreviation. Recognizes ISO two-character and ISO three-character country codes. Can also recognize common abbreviations such as "GER" for Germany.
RA	Country recognized from the Force Country property.
R9	Country recognized from the Default Country property.
R8	Country recognized from the country name.
R7	Country recognized from the country name, but the validation process identified errors in the country data.
R6	Country recognized from territory data.
R5	Country recognized from province data.
R4	Country recognized from major town data.
R3	Country recognized from the address format.
R2	Country recognized from a script.
R1	Country not recognized because multiple matches are available.
R0	Country not recognized.
S4	The address was parsed perfectly.
S3	The address was parsed with multiple results.
S1	There was a parsing error due to an input format mismatch.
V4	Verified. The input data is correct. Address validation checked all postally relevant elements, and inputs matched perfectly.
V3	Verified. The input data is correct, but some or all elements were standardized, or the input contains outdated names or exonyms.
V2	Verified. The input data is correct, but some elements cannot be verified because of incomplete reference data.
V1	Verified. The input data is correct, but user standardization has negatively impacted deliverability. For example, the post code length is too short.

Enrichments: Geocoding fields

To increase the chance of successful delivery, for example in rural areas, you can enrich the verified addresses with geocodes. Geocodes identify the latitude and longitude of an address.

A verifier asset supports the following levels of geocoding:

Arrival Point GeoCoding

Arrival point geocoordinates map to a point in the center of the street segment in front of a house or a building. Arrival point is the default geocoding type.

Standard GeoCoding

Standard geocoding interpolates a point close to an address based on the geocoordinates of nearby addresses. For example, if the geocoordinates for the first and last houses on a street are available, a verifier uses the known geocoordinates to interpolate the geocoordinates for a house that is situated in between.

The precision of the geocodes depends on the depth of the geocoding data that the reference data stores for the country.

You can select the following fields:

Geo Coding Accuracy Code

Returns the level of accuracy to which a verifier can return geocodes for an address in a given country.

Geo Coordinates

Returns the closest latitude and longitude coordinates that a verifier can return for the input address.

Geo Coordinates Latitudes

Returns the closest latitude coordinates that a verifier can return for the input address.

Geo Coordinates Longitude

Returns the closest longitude coordinates that a verifier can return for the input address.

Geocoding Accuracy Codes

The Geo Coding Accuracy Code value describes the result of the geocoding process for an output address. The code can indicate the level of precision to which address verification returns the geocodes. Find the field in the Geo Coding output group.

The following table describes the Geo Coding Accuracy Code output values:

Value	Description
EGC0	Cannot append geocodes to the input address because geocodes are not available for the address.
EGC1-3	Reserved for future use.
EGC4	Geocodes are partially accurate to the postal code level.
EGC5	Geocodes are accurate to the postal code level.
EGC6	Geocodes are accurate to the locality level.

Value	Description
EGC7	Geocodes are accurate to the street level.
EGC8	Geocodes are accurate to the house number level. The geocodes estimate the house number location and include an offset to the side of the street that contains the mailbox.
EGC9	Geocodes are accurate to the arrival point or rooftop.
EGCA	Geocodes are accurate to the center of the parcel of land.
EGCC	The geocode database is corrupted.
EGCN	Cannot find the geocode database.
EGCU	The geocode database is not unlocked.

Enrichments: Certified fields

You can use the *Certified verification* mode to verify addresses to the standards that a country defines.

Australia-AMAS

The following table describes the values and data indicators that a verifier can return when you verify an Australia address in certified mode:

Field	Description
AMAS Error Code	A two-character code that represents the validity of the address with respect to the AMAS standard. The code can indicate that the address is fully valid, or the code can describe the reason why the address does not meet the AMAS standard.
Record Type	An alphabetic value that identifies the type of data in the record. Record type codes include the following: <ul style="list-style-type: none"> - B. Building - F. Organization - L. Large volume receiver. The reference data adds or validates the organization name. - P. Post Office Box or a delivery service. - S. Street. S is the default address type. If Address Verification cannot determine the address type from the address data, it returns the default value. - U. Unidentified. The address is not valid, and verification does not assign a record type.
Delivery Point ID	An eight-digit identifier that Australia Post assigns to a delivery point. Each DPID is unique and randomly generated. Australia Post creates DPIDs in a range from 30,000,000 to 99,999,999.
Lot Number	The lot reference number that a government department assigned to a property during the subdivision of a parcel of land and prior to road numbering.

Field	Description
Postal Delivery Number	The number information in the delivery service. For example, the post office box number in a P.O. Box address. Australia Post stores a postal delivery number as a five-digit number in the Postal Address File (PAF). Therefore, the PAF stores the postal delivery number 500 as 00500. If the address does not contain a postal delivery number, a verifier does not populate the field.
Postal Delivery Number Prefix	The prefix character in a postal delivery number. For example, A in A500.
Postal Delivery Number Suffix	The suffix character in a postal delivery number. For example, A in 500A.
House Number 1	The primary house number in a street address. Australia Post stores a house number as a five-digit number in the PAF. Therefore, the PAF stores the house number 123 as 00123.
House Number 1 Suffix	An alphabetical suffix to a House Number 1 value. For example, A in 123A.
House Number 2	The secondary house number in a street address. Australia Post stores a house number as a five-digit number in the PAF. Therefore, the PAF stores the house number 456 as 00456. If the address does not contain a secondary house number, a verifier returns 00000 as the field value.
House Number 2 Suffix	An alphabetical suffix to a House Number 2 value. For example, B in 456B.

Canada-SERP

The following table describes the values and data indicators that a verifier can return when you verify a Canada address in certified mode:

Field	Description
SERP Category	The verification category for the address. The category summarizes the result of the verification operation for the address. Contains one of the following values: <ul style="list-style-type: none"> - V. Address valid. - C. Address corrected. - N. Not valid. - VQ. Considered valid, but questionable because of insufficient data or input. For example, some "general delivery" addresses. - V1A. Valid apartment type record. - V2A. Valid commercial type record. - C1A. Corrected apartment type record. - C2A. Corrected commercial type record. The 1A and 2A types usually refer to database records containing building information.
Excluded	Indicates that the value is excluded from SERP calculations because the sub-building input data is incorrect. Occurs in conjunction with SERP category N. The field contains the value EXCLUDED for an ignored record. Otherwise, the field is empty.

France-SNA

The following table describes the values and data indicators that a verifier can return when you verify a France address in certified mode:

Field	Description
SNA Category	<p>The verification category for the address. The category summarizes the result of the verification operation for the address.</p> <p>Contains one of the following values:</p> <ul style="list-style-type: none">- ORI. Address valid, output identical to input.- RES. Address valid or corrected, output not identical to input.- AVE. Address rejected, user input required.- NOK. Address rejected.

New Zealand-Send Right

The following table describes the values and data indicators that a verifier can return when you verify a New Zealand address in certified mode:

Field	Description
Address Type	<p>The address type.</p> <p>Contains one of the following values:</p> <ul style="list-style-type: none">- Bag- Box- CMB Rural- CMB Urban- Counter- Rural- Urban
Delivery Service Type	<p>Specifies the type of the delivery service. It may be PO Box, Private Bag, CMB, Response Bag, Counter Delivery, or Poste Restante.</p>
Delivery Service Number	<p>The box or bag number. It contains no leading zeros or spaces, separators, or other punctuation.</p>
Delivery Service Locality	<p>Part of the Suburb line for New Zealand addresses. Contains Box Lobby as the value.</p>
House Number	<p>Number of the structure erected on the property associated with the delivery point.</p>
House Number Alpha	<p>The alphabetical part of the house number of the property associated with the delivery point.</p>
Validity Code	<p>Helps to determine the validity of the input address.</p> <p>Contains one of the following values:</p> <ul style="list-style-type: none">- Unique match - VALID-U- Base Address match - VALID-B- Not valid - INVALID
Rural Delivery Number	<p>A six-character field that identifies the rural delivery route number of an address.</p>

Field	Description
Delivery Point Identifier	An eight-digit number that uniquely identifies each delivery point in New Zealand.
Hygiene	A flag that indicates whether address cleansing is possible.
SOA Record Ignored	Indicates whether the Statement of Accuracy ignores the record. The following address records maybe ignored for SOA calculation: <ul style="list-style-type: none"> - Poste Restante - Private Bags with no number The field contains the value Excluded for an ignored record. Otherwise, the field is empty.

United States-CASS

The following table describes the values and data indicators that a verifier can return when you verify a United States address in certified mode:

Field	Description
CASS Error Code	Indicates whether the fields in the US Specific field group contain data for the address. Verifier does not currently generate output on the CASS Error Code field.
Barcode	An 11-digit number that represents the delivery point for the record. It consists of the nine-digit ZIP+4 code and the two-digit Delivery Point Answer.
Carrier Route	A four-character code assigned to a mail delivery or collection route within a 5-digit ZIP Code. The first character of the code is alphabetical and the last three are numeric: <ul style="list-style-type: none"> - Bnnn = PO box - Hnnn = Highway contract - Rnnn = Rural route - Cnnn = City delivery - Gnnn = General delivery
DPV Footnote Complete*	All data values from the populated DPV Footnote fields in a single string.
Congressional District	A standard value that identifies a geographic area served by a member of the United States House of Representatives or Senate. If the address is an Army/Air Force (APO) address or a fleet post office (FPO) address, the field is blank. If there is only one member of congress within the state, the value is AL (At Large).
Default Flag	Indicates that the record matched to a high-rise, rural route, or street default record in the ZIP + 4 data. The flag has the value Y for a matching record.
Delivery Point Answer	The final two digits of the house/box number, or if a High-rise record is matched, the secondary unit number that represents the delivery point information. The Delivery Point Answer contributes to the 11-digit delivery point barcode (DPBC).

Field	Description
Delivery Point Check Digit	<p>A number that you can add to the sum of the other digits in the delivery point barcode (DPBC) to yield a number that is a multiple of ten. For example:</p> <p>ZIP+4 code = 123456789</p> <p>Delivery Point Answer = 01</p> <p>Sum of digits (1+2+3+4+5+6+7+8+9+0+1) = 46</p> <p>Check digit = 4 (46+4 = 50)</p>
DPV 3553 Confirmation*	<p>Indicates whether to add the address to the total number of addresses recorded in the ZIP + 4/DPV Confirmed column on form 3553:</p> <ul style="list-style-type: none"> - Increment the total number of addresses. - Do not increment the total number of addresses.
DPV CMRA Indicator*	<p>Indicates the result of the call to the DPV CMRA (Commercial Mail Receiving Agent) hash table:</p> <ul style="list-style-type: none"> - Y =Address was found in the CMRA table. - N =Address was not found in the CMRA table. - Blank = Address was not presented to the hash table.
DPV Confirmation Indicator*	<p>Indicates the result of the call to the Delivery Point Validation (DPV) Confirmation hash table:</p> <ul style="list-style-type: none"> - Y =Address was DPV confirmed for both primary and (if present) secondary numbers. - D =Address was DPV confirmed for the primary number only, and secondary number information was missing. - S = Address was DPV confirmed for the primary number only, and secondary number information was present but unconfirmed. - N =Both primary and (if present) secondary number information failed to DPV confirm. - Blank = Address was not presented to the hash table.
DPV Door Not Accessible*	<p>Identifies addresses that do not provide a door or entry point that the postal carrier can access. A Door Not Available (DNA) address might not provide a door for mail delivery, or the mailbox might reside behind a locked gate.</p> <p>The DPV DNA indicator can contain the values of Y or N:</p> <ul style="list-style-type: none"> - Y = Address does not have a door available for postal delivery. - N = Address has a door available for postal delivery. - Blank = Address was not presented to the hash table.
DPV False Positive Indicator*	<p>Indicates the results of the call to the DPV False Positive hash table:</p> <ul style="list-style-type: none"> - Y = Address was found in the False Positive table. - N = Address was not found in the False Positive table. - Blank = Address was not presented to the hash table.

Field	Description
DPV Footnote 1* DPV Footnote 2* DPV Footnote 3*	<p>The footnote(s) returned for an address from DPV processing:</p> <ul style="list-style-type: none"> - AA - Input address matched to the ZIP + 4 file. - A1 - Input address did not match to the ZIP + 4 file. - BB - Input address matched to DPV (all components). - CC - Input address primary number matched to DPV, but secondary number did not match (present but not valid). - F1 - Input address matched to a military address. - G1 - Input address matched to a general delivery address. - N1 - Input address primary number matched to DPV, but the address is missing a secondary number. - M1 - Input address primary number is missing. - M3 - Input address primary number is not valid. - P1 - Input address Post Office, Rural Route, or Highway Contract Box number is missing - P3 - Input address Post Office, Rural Route, or Highway Contract Box number is not valid. - PB - Input address matched to a PO Box Street Address (PBSA). - RR - Input address matched to CMRA and Private Mailbox (PMB) designator is present. - R1 - Input address matched to CMRA, but PMB designator is not present. - R7 - Input address matched to a physical address that does not receive delivery from the USPS (R777). - TA - Input house number includes a trailing alphabetical character and cannot DPV confirm. However, the address DPV confirms without the trailing alphabetical character. - U1 - Input address matched to a unique ZIP code.
DPV No Secure Location*	<p>Identifies an address that does not provide a reliable mailbox or reception point for mail:</p> <ul style="list-style-type: none"> - Y = Location is not secure. - N = Location is secure. - Blank = Address was not presented to the hash table.
DPV PBSA*	<p>Indicates that the address is a Post Office Box Street address (PBSA):</p> <ul style="list-style-type: none"> - Y =Address was found in the PBSA table. - N =Address was not found in the PBSA table. - Blank = Address was not presented to the hash table. <p>A verifier also returns the footnote PB for a PBSA address.</p>
DPV Throwback Indicator*	<p>Indicates a valid street address for which the USPS forwards mail to a Post Office Box:</p> <ul style="list-style-type: none"> - Y = The address is a Throwback address. - N = The address is not a Throwback address. - Blank = Address was not presented to the hash table.
DSF2 No Stats Indicator*	<p>Indicates the results of the call to the DPV No-Stat table:</p> <ul style="list-style-type: none"> - Y = Address was found in the No-Stat table. - N = Address was not found in the No-Stat table. - Blank = Address was not presented to the hash table.

Field	Description
DSF2 No Stats Reason*	<p>A single-digit code that identifies the reason why an address returned a Y in the <i>DSF2 No Stats Indicator</i> field.</p> <p>The code can have the following values:</p> <ul style="list-style-type: none"> - 1 - <i>IDA</i> Internal Drop Address. The verified address does not physically receive mail. Instead, the USPS delivers mail to a 'drop' address associated with the verified address. - 2 - <i>CDS</i> The address identifies a new construction that cannot yet accept delivery. Or, the address lies on a Rural Route, Highway Contract Route, or Contract Delivery Service route and the delivery point is unoccupied for more than 90 days. - 3 - <i>Collision</i> The address does not DPV confirm. A verifier users will not see the collision value, because address validation will change the NoStats indicator to N in this case and clear the NoStats Reason code. - 4 - <i>CMZ</i> The address is in a college, military, or other zone. A CMZ address is a ZIP+4 address that the USPS has added to the reference data. - 5 - <i>Regular No-Stat</i> The address is no longer deliverable or lies on an R777 route, Or, the address includes a Post Office Box that has never been rented or is not available to rent.
DSF2 Vacant Indicator*	<p>Indicates the results of the call to the DPV Vacant table:</p> <ul style="list-style-type: none"> - Y = Address was found in the Vacant table. - N = Address was not found in the Vacant table. - Blank = Address was not presented to the hash table.
Early Warning System (EWS) Return Code*	<p>Indicates whether the address was found in the EWS data:</p> <p>Y = Address was found in the EWS data, thus resulting in a ZIP + 4 No Match.</p> <p>Blank = Address was not found in the EWS data.</p>
eLOT Flag	<p>The Enhanced Line of Travel (eLOT) order in which delivery points are delivered within a given add-on code.</p> <p>For example, if the code is A (Ascending) and the house numbers are 1, 3, and 5, the carrier delivers 1, 3, and 5, in that order (low to high). If the code is D (Descending), the carrier delivers first to 5, then 3, and then 1 (high to low).</p>
eLOT Sequence Number	A number that indicates the order in which add-on codes are arranged within a given carrier route.
High-rise Default	A flag that indicates that the record is assigned to a default high-rise record.
High-rise Exact	Identifies high-rise addresses that contain unit identifiers.
LACS Indicator*	<p>Identifies an address that matched to a LACS address in the ZIP + 4 file. A LACS address is an address that was converted to the city-style address format so that emergency vehicles can more easily find the address location.</p> <p>Return values:</p> <ul style="list-style-type: none"> - L = Address matched to a LACS address in the ZIP + 4 file. - Blank = Address is not a LACS address in the ZIP + 4 file.

Field	Description
LACSLink Indicator*	An indicator returned when the LACSLink hash tables are queried: <ul style="list-style-type: none"> - Y = The input record matched a record in the master file. - N = The input record did not match a record in the master file. - Blank = Address was not presented to the hash table.
LACSLink Return Code*	A return value from LACSLink processing: <ul style="list-style-type: none"> - A = <i>LACS record match</i> A new address can be furnished. The input record matched to a record in the master file. - 00 = <i>No match</i> A new address cannot be furnished. The input record cannot be matched to a record in the master file. - 14 = <i>Found LACS record, but new address did not convert at run time.</i> The new address cannot be converted to a deliverable address. The input record matched to a record in the master file. - 92 = <i>LACS record, secondary number dropped from input address.</i> The record is a ZIP + 4 street-level or high-rise match. The input record matched to a master file record, but the input address had a secondary number and the master file record did not.
Non-Delivery Days*	A seven-character code that identifies the day or days of the week on which an address cannot receive mail. The code contains a seven-character string that represents the days of the week from Sunday through Saturday. A verifier returns the first letter of a weekday in the corresponding position in the code if the address does not receive mail on that day. A verifier returns a dash symbol in the corresponding position otherwise.
PO Box Only	Indicates if the address is located in a ZIP code that contains post office box addresses only. Y = Address is in a PO Box only Delivery Zone.
Record Type Code	An alphabetic value that identifies the type of data in the record. Record type codes include the following: <ul style="list-style-type: none"> - F = Firm - G = General delivery - H = High-rise - P = PO box - R = Rural route/highway contract - S = Street - U = Unidentified. Verification does not assign a record type.
Residential Delivery Indicator *	Indicates if the delivery point is residential: <ul style="list-style-type: none"> - Y = Indicates residential delivery. - N = Not residential delivery. - Blank = Did not query the Residential Delivery Indicator (RDI) data.
Rural Route Default	A flag that indicates that the record is assigned to a default rural route record. This occurs when the input house number does not match to the primary numbers in the reference data and there is a corresponding rural route record with no primary numbers.
Rural Route Exact	Indicates if the address matches a rural route address in the USPS address reference data set.

Field	Description
SuiteLink Return Code*	<p>A return value of SuiteLink Processing:</p> <ul style="list-style-type: none"> - <i>A = SuiteLink Record Match</i> <p>The input record matched to a record in the master file. An improved business address can be furnished.</p> <ul style="list-style-type: none"> - <i>00 = No Match</i> <p>Business address not improved. The input record cannot be matched to a record in the master file. An improved business address can not be furnished.</p>
ZIPMove Return Code*	<p>A return value of ZIPMove processing:</p> <ul style="list-style-type: none"> - <i>Y = ZIPMove match was made.</i> - <i>N = ZIPMove match was not made.</i>

Note: Fields marked with * will only be populated for United States customers, as per USPS licensing restrictions.

Enrichments: Global fields

Use the Global field to activate enrichments that can apply in the same way to addresses in every country.

You can select the following global enrichment fields:

TimeZone Code

A one- to three-character numeric value that indicates the offset between the address time zone and Greenwich Mean Time. For example, the time zone code for Eastern Standard Time is -5.

TimeZone Name

A three-character code that identifies the time zone to which the address belongs. For example, EST identifies Eastern Standard Time.

The global enrichments TimeZone Code and TimeZone Name are available only for United States addresses.

Enrichments: Country Specific fields

Verifier can provide additional information as enrichments to addresses from several countries.

Enrichments for Australia addresses

You can configure a verifier to include address enrichments in the validated Australia addresses. The verifier bases the enrichments on geographical areas that the Australian Bureau of Statistics defines.

A verifier provides enrichment data for the following statistical elements:

Census Collection District Code 2006

A seven-digit code that represents a census collection district that the Australia Bureau of Statistics defined for the 2006 census. A census collection district is an area that a census data collector might

cover in a ten-day period. In urban areas, the district might comprise 220 homes. In rural areas, the district might comprise fewer homes and the geographical area might increase.

Greater Capital City Statistical Area 5-Char

A five-character alphanumeric code that identifies the greater capital city (GCCSA) statistical area to which an address belongs. A greater capital city statistical area comprises multiple level-4 statistical areas.

There are 16 spatial GCCSA regions, including eight regions that represent the Australian state and territory capital cities and eight regions that cover the rest of each state and the Northern Territory. In addition, there are 18 non-spatial greater capital city statistical areas.

The five character code includes a single-digit state and territory identifier and a four-character GCCSA identifier.

Greater Capital City Statistical Area Name

The name of the greater capital city statistical area to which an address belongs.

Greater capital city statistical areas are named for the cities they represent or, if they do not identify a city, for the rest of the state or territory that they represent.

Geocoded National Address File Identifier

A 14-digit code that identifies an address in the Geocoded National Address File (GNAF). Australian government departments and organizations recognize the code as a persistent, unique identifier for the address.

Mesh Block 11-Digit 2011

An 11-digit code that identifies the mesh block to which an address belongs. Mesh Block 11-Digit 2011 represents the areas that the Australian Bureau of Statistics defined for the 2011 census. A mesh block represents the smallest geographical area that the Australian Bureau of Statistics uses to generate statistical information.

Mesh blocks are building blocks for statistical information rather than areas for which the Australian Bureau of Statistics releases information. The Australian Bureau of Statistics builds statistical areas and regions from mesh blocks. Mesh blocks broadly align with land use, such as residential use, commercial use, or parkland. A mesh block might contain thirty to sixty dwellings, although some mesh blocks are designed to contain no dwellings.

Mesh Block 11-Digit 2016

An 11-digit code that identifies the mesh block to which an address belongs. Mesh Block 11-Digit 2016 represents the areas that the Australian Bureau of Statistics defined for the 2016 census.

Note: The Australian Bureau of Statistics might maintain statistical information for some mesh blocks that it defined for the 2016 census.

See also *Mesh Block 11-Digit 2011*.

Level One Statistical Area 7-Digit

A seven-digit code that identifies the level-1 statistical area that an address belongs to but that does not provide the full hierarchy of geographical information that Level One Statistical Area 11-Digit provides. The seven-digit code comprises the state and territory identifier, SA2 identifier, and SA1 identifier.

A level-1 statistical area is typically the smallest area for which the Australian Bureau of Statistics releases statistical data.

Level One Statistical Area 11-Digit

An 11-digit code that identifies the level-1 statistical area to which an address belongs. A level-1 statistical area is typically the smallest area for which the Australian Bureau of Statistics releases statistical data.

The 11 digits of the Level One Statistical Area 11-Digit code include the values of the larger areas in the statistical area hierarchy. That is, the Level One Statistical Area 11-Digit includes a state and territory identifier, SA4 identifier, SA3 identifier, and SA2 identifier in addition to the SA1 identifier. The final two digits in the code identify the level-1 statistical area. In this way, the Level One Statistical Area 11-Digit uniquely identifies the area to which the address belongs.

Level Two Statistical Area 5-Digit

A five-digit code that identifies the level-2 statistical area that an address belongs to but that does not provide the full hierarchy of geographical information that SA2_MAIN_NO provides. The five-digit code comprises the state and territory identifier and the four-digit SA2 identifier.

A level-2 statistical area is a physical area that broadly defines a single social or economic community. A level-2 statistical area comprises multiple level-1 statistical areas.

Level Two Statistical Area 9-Digit

A nine-digit code that identifies the level-2 statistical area to which an address belongs. A level-2 statistical area is a physical area that broadly defines a single social or economic community. A level-2 statistical area comprises multiple level-1 statistical areas.

The nine digits of the Level Two Statistical Area 9-Digit code include the values of the larger areas in the statistical area hierarchy. That is, the Level Two Statistical Area 9-Digit includes a state and territory identifier, SA4 identifier, and SA3 identifier in addition to the SA2 identifier. The final four digits in the code identify the level-2 statistical area.

Level Two Statistical Area Name

The name of the level-2 statistical area to which the address belongs. Each level-2 name is unique, and each name contains no more than forty characters. In an urban area, the name is based on the suburb or suburbs that the area covers. In rural areas, the name is based on the locality that the area covers.

Level Three Statistical Area 5-Digit

A five-digit code that identifies the level-3 statistical area to which an address belongs. A level-3 statistical area comprises multiple level-2 statistical areas.

The five digits of the level-3 statistical areas include the values of larger geographical regions. That is, the Level Three Statistical Area 5-Digit includes a state and territory identifier and SA4 code in addition to the SA3 identifier. The final two digits in the code identify the level-3 statistical area.

A level-3 statistical area generally covers a population of between 30,000 and 130,000 people.

Level Three Statistical Area Name

The name of the level-3 statistical area to which the address belongs. Each level-3 name is unique, and each name contains no more than forty characters. SA3 names reflect the names of the cities, towns, or rural areas that they cover.

Level Four Statistical Area 3 Digit

A three-digit code that identifies the level-4 statistical area to which an address belongs. A level-4 statistical area comprises multiple level-3 statistical areas.

The three digits of the level-4 statistical areas include the values of the largest sub-state regions in the main structure of the Australian Statistical Geography Standard (ASGS). That is, the Level Four

Statistical Area 3 Digit includes a state and territory identifier and SA4 identifier. The final two digits in the code identify the level-4 statistical area.

A level-4 statistical area contain at least 100,000 people. In regional areas, a level-4 statistical area might include between 100,000 and 300,000 people. In urban areas, a level-4 statistical area might include between 300,000 and 500,000 people.

Level Four Statistical Area Name

The name of the level-4 statistical area to which the address belongs. Each level-4 name is unique, and each name contains no more than forty characters. SA4 names reflect the names of the cities, towns, or rural areas that they cover.

State or Territory Code

An unique one-digit code that represents a state or territory.

State or Territory Name

Represents the name of a state or territory.

AU status

When you validate Australia addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EAU0

Country-specific enrichment is not available for the input address.

EAU1

The output address contains country-specific enrichment data.

EAUC

The country-specific database is corrupted.

EAUN

The verification operation cannot find the country-specific database.

EAUU

The country-specific database is locked.

Enrichments for Austria addresses

You can configure a verifier to include unique identification codes in the output for valid Austria addresses.

A verifier can return the following code values:

Postal Address Code AT

The Postal Address Code AT is a unique identifier for a current Austria address.

Postal Address Code Identifier AT

The Postal Address Code Identifier AT is the Postal Address Code AT of the address at which a building receives mail if the building has more than one address.

Postal Address Code AT enrichment

The Postal Address Code is a unique identifier for the current version of an address in Austria. For example, the following address returns a Postal Address Code value of 105176447:

```
Plättenstraße 7  
2380 Perchtoldsdorf  
Niederösterreich  
AUT
```

Postal Address Code Identifier AT enrichment

An Austria address has a Postal Address Code Identifier AT value when the address identifies a mailbox that receives mail at another address. For example, a building at an intersection of two streets might have an address on both streets and might specify one of the addresses as the mailbox address.

Note: The address that gives access to the mailbox is called the Ident address.

A street address that does not receive mail has a Postal Address Code value and a Postal Address Code Identifier AT value. The Postal Address Code Identifier AT value is the Postal Address Code of the Ident address that receives the mail. The postal carrier delivers mail to the address that the Postal Address Code Identifier AT identifies.

The following table lists street addresses that identify a single mail destination:

Address	Postal Address Code AT	Postal Address Code Identifier AT
Hauptplatz 4 8010 Graz AUT	100001915	100004254
Neue-Welt-Gasse 2 8010 Graz AUT	100004254	Not applicable

The address "Hauptplatz 4" does not receive mail because the mailbox is at another address at the same location. The building receives mail at "Neue-Welt-Gasse 2" and therefore "Neue-Welt-Gasse 2" is the Ident address. The Postal Address Code Identifier AT is the Postal Address Code AT of the address that receives the mail. The Postal Address Code value for the Ident address is 100004254.

AT status

When you validate Austria addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EAT0

Country-specific enrichment is not available for the input address.

EAT1

The output address contains country-specific enrichment data.

EATC

The country-specific database is corrupted.

EATN

The verification operation cannot find the country-specific database.

EATU

The country-specific database is locked.

Enrichment for Belgium addresses

You can configure a verifier to add the National Institute of Statistics (StatBel) or NIS Code as an enrichment to validated Belgium addresses.

NIS codes are five-digit codes that uniquely identify geographic areas in Belgium. If you enable enrichment for Belgium, a verifier returns a nine-digit code that contains the five-digit NIS code and a four-digit Neighborhood ID.

For example, a verifier returns `21004A001` as an enrichment to the following address:

```
Rue au Beurre 1  
1000 Bruxelles  
BEL
```

In this example, `21004` is the NIS code and `A001` is the Neighborhood ID.

BE status

When you validate Belgium addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output.

EBE0

Country-specific enrichment is not available for the input address.

EBE1

The output address contains country-specific enrichment data.

EBEC

The country-specific database is corrupted.

EBEN

The verification operation cannot find the country-specific database.

EBEU

The country-specific database is locked.

Enrichments for Brazil addresses

You can configure a verifier to include the Institute of Geography and Statistics (IBGE) Code as enrichment to validated Brazil addresses.

The IBGE code is a seven-digit numeric code that identifies cities and states in Brazil. The IBGE code is useful for e-commerce operations as you can use this code for taxation and audit purposes.

Example: Institute of Geography and Statistics Code

When you validate the following address with the address enrichment enabled, a verifier returns an IBGE code of `Institute of Geography and Statistics Code: 2606101` as an enrichment to the validated output.

```
Rua da Matriz 9  
Centro  
Glória do Goitá-pe  
55620-000  
Brazil
```

BR status

When you validate Brazil addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EBR0

Country-specific enrichment is not available for the input address.

EBR1

The output address contains country-specific enrichment data.

EBRC

The country-specific database is corrupted.

EBRN

The verification operation cannot find the country-specific database.

EBRU

The country-specific database is locked.

Enrichment for Czech Republic addresses

You can configure a verifier to add RUIAN ID codes as an enrichment to a valid Czech Republic address. The Czech Office for Surveying, Mapping and Cadastre (ČÚZK) maintains the RUIAN code data.

The RUIAN ID enrichment comprises the following codes:

- RUIAN Delivery Point Identifier. Uniquely identifies the address delivery point.
- RUIAN Building Identifier. Identifies the address to building level.
- RUIAN Building Entrance Identifier. Identifies the building entrance.

The database for the Czech Republic includes RUIAN Delivery Point Identifier and RUIAN Building Identifier values for ninety-nine percent of Czech Republic addresses. The database includes RUIAN Building Entrance Identifier values for a small percentage of addresses.

Example: RUIAN ID Codes

The supplementary database stores all types of RUIAN ID data for the following address:

```
Musorgského 320/2  
Kohoutovice  
623 00 Brno 23  
CZE
```

A verifier returns the following RUIAN ID codes for the address from the database:

```
RUIAN Delivery Point Identifier: 19382481  
RUIAN Building Identifier: 19204035  
RUIAN Building Entrance Identifier: 76838
```

CZ status

When you validate Czech Republic addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

ECZ0

Country-specific enrichment is not available for the input address.

ECZ1

The output address contains country-specific enrichment data.

ECZC

The country-specific database is corrupted.

ECZN

The verification operation cannot find the country-specific database.

ECZU

The country-specific database is locked.

Enrichments for France addresses

You can configure a verifier to include the INSEE-5 Code and the INSEE-9 Code in the validated output for France addresses.

The INSEE code is a numeric indexing code that the French National Institute for Statistics and Economic Studies (INSEE) use to identify entities such as French communes and departments. INSEE codes are particularly helpful in uniquely identifying French communes that share the same name, spelling, and pronunciation. Of a five-digit INSEE code for a commune, the first two digits represent the department and the last three denote the commune. INSEE codes are also used as National Identification Numbers for French citizens.

The INSEE-9 code is also known as the IRIS code. IRIS stands for aggregated units for statistical information in French, and represents a demographic group that contains a maximum of 2000 people. France is composed of around 16,100 IRIS units including 650 units in overseas departments.

For example, you receive INSEE-5 Code 47001 and INSEE-9 Code 470010115 when you validate the following France address:

```
6 RUE DU PUIITS DU SAUMON
47000 AGEN
FRA
```

FR status

When you validate France addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EFRO

Country-specific enrichment is not available for the input address.

EFR1

The output address contains country-specific enrichment data.

EFRC

The country-specific database is corrupted.

EFRN

The verification operation cannot find the country-specific database.

EFRU

The country-specific database is locked.

Enrichments for Germany addresses

You can configure a verifier to include multiple address enrichments in validated Germany addresses.

You can configure a verifier to include the following enrichments in validated Germany addresses.

Official Municipality Key DE

The Official Municipality Key DE is an eight-digit identification number for a German municipality. A municipality is administrative area in the German federal system.

Locality Identifier DE

The Locality Identifier DE is a variable length code that uniquely identifies a locality in Germany.

Street Identifier DE

The Street Identifier DE is a variable length code that uniquely identifies a street address in Germany.

Street Code

The Street Code is a three-digit code that identifies a street in Germany. Positions 6, 7, and 8 of the Frachtleitcode or Freight code form the street code. A street code value of 994 indicates that the address points to a packstation.

For example, when you validate

```
Röntgenstr. 9  
67133 Maxdorf  
Germany
```

A verifier returns the following additional information in the validated output:

```
DEU_AGS: 07338018  
Locality Identifier DE: 68015519  
Street Identifier DE: 100560690  
Street Code: 057
```

DE status

When you validate Germany addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EDE0

Country-specific enrichment is not available for the input address.

EDE1

The output address contains country-specific enrichment data.

EDEC

The country-specific database is corrupted.

EDEN

The verification operation cannot find the country-specific database.

EDEU

The country-specific database is locked.

Enrichments for Italy addresses

You can configure a verifier to add ISTAT Code data as an enrichment to a valid Italy address. The ISTAT Code contains a series of values that provide geographic and demographic information about the address locale, including the province, municipality, and region to which the address belongs. The Italian National Institute of Statistics (ISTAT) maintains the ISTAT codes.

IT status

When you validate Italy addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EIT0

ISTAT code data is not available for the input address.

EIT1

The output address contains country-specific enrichment data.

EITC

The country-specific database is corrupted.

EITN

The verification operation cannot find the country-specific database.

EITU

The country-specific database is locked.

Enrichments for Japan addresses

You can configure a verifier to add enrichments to valid Japan addresses.

A verifier offers the following enrichments for Japan:

- **Choumei Aza Code JP**
- **New Choumei Aza Code JP**
- **Current Choumei Aza Code JP**
- **Gaiku Code**

Choumei Aza Codes

A Choumei Aza code is an 11-digit string that represents an address to delivery-point level in Japan. When Japan Post updates the address information for a delivery point, Japan Post also issues a new Choumei Aza code for the delivery point. Therefore, a delivery point might have a current address and one or more legacy addresses and a corresponding set of current and legacy Choumei Aza codes.

You can submit a Japan address in batch or interactive mode and return one or more Choumei Aza codes that represent different versions of the address.

A verifier returns the following types of Choumei Aza code:

Choumei Aza Code JP

The code that corresponds directly to the validated version of the address that you submit.

New Choumei Aza Code JP

The code that corresponds to the next iteration of the input address that you submit. For example, if you enter the first or oldest version of the address, the New Choumei Aza Code JP value that the verifier returns represents the second version of the address.

Current Choumei Aza Code JP

The code that corresponds to the current version of the address that you submit.

Example

The Japan reference data contains the current version of an address and two older versions. You have the first or oldest version of the address. You select the Japan enrichments, and you submit the address in batch mode. A verifier verifies the address and returns the Choumei Aza code enrichments.

Note: The New Choumei Aza Code JP returns the Choumei Aza code for the update that directly followed the address that you submitted. You can rerun the steps with the New Choumei Aza Code JP value to find each version of the address in the reference data.

Gaiku Code

A Gaiku code is a four-digit code that identifies a city block in Japan.

Append the Gaiku code to a current Choumei Aza code to create a 15-digit string that you can submit in address code lookup mode to find an address.

JP status

When you validate Japan addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EJPO

Country-specific enrichment is not available for the input address.

EJP1

The output address contains country-specific enrichment data.

EJPC

The country-specific database is corrupted.

EJPN

The verification operation cannot find the country-specific database.

EJPU

The country-specific database is locked.

Enrichments for Poland addresses

You can configure a verifier to include the Gmina Code PL, TERYT Locality Identifier PL, and TERYT Street Identifier PL as enrichments for validated Poland addresses.

Official Register of the Territorial Division of the Country (TERYT) is the agency responsible for identifiers and names of territories, localities, roads, and buildings in Poland. Gmina is the Polish equivalent of communes or municipalities. TERYT assigns and manages Gmina code and TerytIDs.

For example, when you validate

```
ul. Laskowa 1  
50-510 Wrocław  
POL
```

A verifier returns the following enrichment values:

```
Gmina Code PL: 2183  
TERYT Locality Identifier PL: 0986544  
TERYT Street Identifier PL: 10666
```

PL status

When you validate Poland addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EPL0

Country-specific enrichment is not available for the input address.

EPL1

The output address contains country-specific enrichment data.

EPLC

The country-specific database is corrupted.

EPLN

The verification operation cannot find the country-specific database.

EPLU

The country-specific database is locked.

Enrichments for Russia addresses

You can configure a verifier to include the Federal Information Addressing System (FIAS) ID in the validated output for Russia addresses.

The FIAS ID is an alphanumeric string.

RU status

When you validate Russia addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

ERU0

Country-specific enrichment is not available for the input address.

ERU1

The output address contains country-specific enrichment data.

ERUC

The country-specific database is corrupted.

ERUN

The verification operation cannot find the country-specific database.

ERUU

The country-specific database is locked.

Enrichments for Serbia addresses

You can configure a verifier to include the Postal Address Code RS as an enrichment to the validated output for Serbia addresses.

The Postal Address Code RS is a six-digit code that maps to the street level. Including the Postal Address Code RS in an address ensures correct and prompt delivery to recipients in Serbia. You do not need the Postal Address Code RS for items that you address to a P.O. Box, *poste restante*, or to a military address.

RS status

When you validate Serbia addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

ERS0

Country-specific enrichment is not available for the input address.

ERS1

The output address contains country-specific enrichment data.

ERSC

The country-specific database is corrupted.

ERSN

The verification operation cannot find the country-specific database.

ERSU

The country-specific database is locked.

Enrichments for South Africa addresses

You can configure a verifier to include the National Address Database Identifier ZA in the validated output for South Africa addresses. The National Address Database Identifier ZA is a unique numeric ID that is assigned to street addresses in South Africa.

For example, a verifier returns the National Address Database Identifier ZA value of 2170232 in the output when you validate the following address:

```
4 Balmoral Road  
Vincent  
East London  
5247  
South Africa
```

ZA status

When you validate South Africa addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EZA0

Country-specific enrichment is not available for the input address.

EZA1

The output address contains country-specific enrichment data.

EZAC

The country-specific database is corrupted.

EZAN

The verification operation cannot find the country-specific database.

EZAU

The country-specific database is locked.

Enrichments for Spain addresses

You can configure a verifier to add INE code data as an enrichment to a valid Spain address. The INE code contains a series of values that identify the province, municipality, and street to which the address belongs. The National Statistics Institute of Spain (INE) maintains the INE codes.

A verifier returns the following INE codes:

- INE Province Code
- INE Municipality Code
- INE Street Code

ES status

When you validate Spain addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EES0

INE code data is not available for the input address.

EES1

The output address contains country-specific enrichment data.

EESC

The country-specific database is corrupted.

EESN

The verification operation cannot find the country-specific database.

EESU

The country-specific database is locked.

Enrichments for Switzerland addresses

You can configure a verifier to include the additional postal code characters in the validated output for Switzerland addresses.

A verifier returns the additional postal code characters in an enrichment field called Postal Code Extension.

For example, when you validate the following Switzerland address with the address enrichment enabled, a verifier returns a Postal Code Extension value of 05.

```
Hohlen 1  
3800 Sundlaenen  
Switzerland
```

CH status

When you validate Switzerland addresses with the country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

ECH0

Country-specific enrichment is not available for the input address.

ECH1

The output address contains country-specific enrichment data.

ECHC

The country-specific database is corrupted.

ECHN

The verification operation cannot find the country-specific database.

ECHU

The country-specific database is locked.

Enrichments for United Kingdom addresses

You can configure a verifier to include address enrichments in validated United Kingdom addresses.

Address Key

An eight-digit numeric code that maps to an address in the Postcode Address File (PAF) from the Royal Mail. An Address Key in conjunction with Organization Key and the Post Code Type uniquely identifies an address.

Delivery Point Suffix

A two-character suffix that the Royal Mail assigns to a mailbox in a United Kingdom post code area. The first character in a delivery point suffix is a number and the second character is a letter. A combination of a post code and the delivery point suffix identifies a mailbox.

Delivery Point Type

A single-character code that indicates whether the address points to a residence (R), a small organization (O), or a large organization (L).

Organization Key

A unique 8-digit numeric code that Royal Mail assigns to small organizations.

Unique Delivery Point Reference Number GB

An eight-character code that uniquely identifies each postal address in the Royal Mail PAF database. The Unique Delivery Point Reference Number (UDPRN) remains uniquely tied to the physical delivery point regardless of changes in the address.

UPRN

A numeric code that uniquely identifies a land or property unit in the United Kingdom. The Unique Property Reference Number (UPRN) is a code that the United Kingdom government assigns and can contain a maximum of 12 digits.

Examples

The following examples show enrichment values for different delivery point type addresses.

Delivery Point Type	Input Address	Enrichment Values
Residence	FLAT 17 GROVE HOUSE WAVERLEY GROVE LONDON N3 3PU UNITED KINGDOM	Address Key: 18161676 Delivery Point Suffix: 1H Delivery Point Type: R Organization Key: 00000000 Unique Delivery Point Reference Number GB: 15498195 UPRN: 200123099
Large Organization	PO BOX 43078 LONDON NW1 1SF UNITED KINGDOM	Address Key: 02356470 Delivery Point Suffix: 1A Delivery Point Type: L Organization Key: 00000000 Unique Delivery Point Reference Number GB: 17635833 UPRN: 10015054387
Small Organization	17A THE GROVE LONDON N3 1QN UNITED KINGDOM	Address Key: 28470295 Delivery Point Suffix: 1H Delivery Point Type: O Organization Key: 01464593 Unique Delivery Point Reference Number GB: 15491057 UPRN: 200210632

GB status

When you validate United Kingdom addresses with country-specific enrichments enabled, a verifier returns the following status codes along with the address output:

EGB0

Country-specific enrichments not available for the input address.

EGB1

The output address contains country-specific enrichment data.

EGBC

The country-specific database is corrupted.

EGBN

The verification operation cannot find the country-specific database.

EGBU

The country-specific database is locked.

Enrichments for United States addresses

You can configure a verifier to add multiple address enrichments when you verify United States addresses.

Core Based Statistical Area Identification

A Core-Based Statistical Area (CBSA) identification number is a five-digit number that identifies an urban area with a population greater than 10,000. A CBSA can be a Metropolitan Statistical Area or Micropolitan Statistical Area. A Metropolitan Statistical Area has over 50,000 inhabitants. A Micropolitan Statistical Area has between 10,000 and 50,000 inhabitants.

Census Block Group

A 12-digit number that identifies a Census Block Group. A Census Block Group is a group of Census Blocks that share the same first digit. The first digit in the Census Block number is the last digit in the 12-digit Census Block Group number.

Census Block Number

A four-digit number that identifies a Census Block. A Census Block is the smallest entity for which the Census Bureau collects census information.

Census Tract Number

A six-digit number that identifies a Census Tract. A Census Tract is a statistical subdivision of a county.

Country Federal Information Processing Standard Code

A three-digit number that identifies a county in the United States.

Note: The Federal Information Processing Standards (FIPS) include a set of numbers that identify states, counties, and other territorial possessions in the United States. A two-digit state code identifies each state. A three-digit county code identifies a county within a state. Together, the five digits of the state and county codes uniquely identify a county.

Finance Number

A finance number is a six-digit number that the United States Postal Service (USPS) assigns to post offices and other postal facilities to support the collection of cost and statistical data. The first two digits of the finance number identify the state. The final four digits identify the post office or postal facility.

Minor Civil Division Identification

A Minor Civil Division (MCD) identification number is a five-digit number. An MCD is a primary legal subdivision of a county.

Metropolitan Statistical Area Identification

The Metropolitan Statistical Area (MSA) identification number is a five-digit number that identifies an urban area that has a population of 50,000 or more.

Place Federal Information Processing Standard Code

A five-digit number that identifies a locality in the United States.

State Federal Information Processing Standard Code

A two-digit number that identifies a state in the United States.

US status

When you validate United States addresses with the address enrichments enabled, a verifier returns the following status codes along with the address output:

EUS0

Country-specific enrichment is not available for the input address.

EUS1

The output address contains country-specific enrichment data.

EUSC

The country-specific database is corrupted.

EUSN

The verification operation cannot find the country-specific database.

EUSU

The country-specific database is locked.

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