

## Processing United States Addresses in Certified Mode

## Abstract

Informatica Address Verification can verify addresses to the Coding Accuracy Support System (CASS) standard of the United States Postal Service. This article describes how to set up Address Verification for CASS certification and describes the status and enrichment values that Address Verification can return for certified addresses.

## Supported Versions

- Informatica Address Verification 3.0 and later
- Informatica Address Verification (On-Premises) 5.14.0 and later

## Table of Contents

Introduction. . . . .	2
Configuring the Engine for CASS Certification . . . . .	2
Reference Data Files for CASS Certification. . . . .	3
CASS Enrichment Data. . . . .	5
CASS Status Values. . . . .	9

## Introduction

You can use the certified process mode in Informatica Address Verification to verify United States addresses to CASS standards. Address Verification is approved at this time to certify addresses in accordance with CASS Cycle N. Address Verification also supports several requirements that the United States Postal Service proposes for CASS Cycle O.

When you validate addresses in certified mode, Address Verification can return enrichment data to enhance the deliverability of each address and to report on the usability of each address in the certified address list. Address Verification can also return status values that indicate the success or otherwise of the provision of enrichment data for each address.

To verify addresses to the CASS standard, you must install the certified reference data that Informatica provides. CASS certification of United States addresses is available only to customers in the United States.

## Configuring the Engine for CASS Certification

You configure the address verification engine to return CASS-certified addresses in two steps. First, you select the Certified processing mode. Next, you configure the verification process to return CASS enrichments.

To configure the engine, set the following attributes on the `Process` element in `Parameters.xml`:

- To enable certified mode, set the `Mode` attribute to `CERTIFIED`.
- To return CASS enrichments for United States addresses, set the `EnrichmentCASS` attribute to `ON`.

**Note:** Before you enable certified mode, install the certified reference address databases and include the appropriate unlock codes in the `SetConfig.xml` file.

For best results in certified mode, set following attributes to their default values:

- The `PreferredLanguage` attribute of the `Result` element. The default value is `DATABASE`.
- The `MatchingAlternatives` attribute of the `Process` element. The default value is `ALL`.

- The `MatchingScope` attribute of the `Process` element. The default value is `ALL`.
- The `OptimizationLevel` attribute of the `Process` element. The default value is `STANDARD`
- The `GlobalMaxLength` attribute of the `Result` element.
- The `GlobalCasing` attribute of the `Result` element. The default value is `NATIVE`.
- Attributes of the `AddressElementStandardize` element.

## Reference Data Files for CASS Certification

To verify United States addresses in certified mode, install the United States certified databases. The certified databases are numbered USA5C101.MD through USA5C132.MD. The databases enable the address verification process to analyze and update different aspects of the address according to the different USPS postal criteria. Add the unlock codes for the files to `SetConfig.xml`.

The following table summarizes the types of data in the databases:

Database File Name	Database Contents
USA5C101.MD	EWS (Early Warning System) data
USA5C102.MD	ZIPMOVE data
USA5C103-111.MD	LACSLink data
USA5C112.MD	Street Alias data
USA5C113.MD	DPV data - all delivery points
USA5C114.MD	DPV data - CMRA delivery points
USA5C115.MD	DPV data - false-positive delivery points
USA5C116.MD	DPV data to resolve ZIP Codes to a common base ZIP Code
USA5C117-119.MD	SuiteLink data
USA5C120.MD	DPV data - vacant delivery points
USA5C121.MD	DPV data - NoStat delivery points
USA5C122-123.MD	Residential Data Indicator data
USA5C124-125.MD	Enhanced Line of Travel data
USA5C126.MD	PBSA (Post Office Box Street Address) data
USA5C127.MD	DNA (Door Not Accessible) data
USA5C128.MD	NSL (No Secure Location) data
USA5C129-130.MD	NDD (Non-Delivery Days) data

Database File Name	Database Contents
USA5C131.MD	NoStat Reason data
USA5C132.MD	Throwback data

Consider the following rules and guidelines for the reference data files:

- Do not combine any CASS file numbered USA5C101.MD through USA5C132.MD with any CASS file numbered USA5C1.MD through USA5C26.MD. The file types are not compatible.
- The CASS certification files that the United States Postal Service provides comply with the SHA-256 standard.
- Address Verification does not currently read the following files:
  - USA5C105.MD
  - USA5C106.MD
  - USA5C107.MD
  - USA5C108.MD
  - USA5C109.MD
  - USA5C110.MD
  - USA5C119.MD

Informatica delivers the files for users who run older versions of Address Verification. Address Verification does not preload the files into memory.

- The DPV database has information that helps you check whether a ZIP+4 coded address is in the USPS delivery file as a known address record. You can use the DPV product to confirm known USPS addresses and to identify potential addressing issues that might affect delivery. If you do not install the certified databases, Informatica Address Verification adds ZIP+4 Codes to United States addresses if the USA5BI.MD database is available.
- Informatica Address Verification sends records with input suite data that does not match the ZIP+4 Code reference data through the SuiteLink process. If Address Verification finds a match for such addresses with SuiteLink, Address Verification retains the input suite data in the residue component and writes the correct suite data in DAL2. The USPS requires that the address verification operation retains the non-matching input data.

## CASS Enrichment Data

Address Verification returns a range of enrichment data with certified addresses as `Type` attributes on the CASS element. You can find the CASS element under the `EnrichmentData` element in the `Result.xml` file.

The following table describes the data values:

Value	Description
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 Answer	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"> <li>- Bnnn = PO box</li> <li>- Hnnn = Highway contract</li> <li>- Rnnn = Rural route</li> <li>- Cnnn = City delivery</li> <li>- Gnnn = General delivery</li> </ul>
Concatenation of DPV Footnotes*	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).
Delivery Point Check Digit Answer	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: ZIP+4 code = 123456789 Delivery Point Answer = 01 Sum of digits (1+2+3+4+5+6+7+8+9+0+1) = 46 Check digit = 4 (46+4 = 50)
DPV 3553 Confirmation*	Indicates whether to add the address to the total number of addresses recorded in the ZIP + 4/DPV Confirmed column on form 3553: <ul style="list-style-type: none"> <li>- Increment the total number of addresses.</li> <li>- Do not increment the total number of addresses.</li> </ul>
DPV CMRA Indicator*	Indicates the result of the call to the DPV CMRA (Commercial Mail Receiving Agent) hash table: <ul style="list-style-type: none"> <li>- Y =Address was found in the CMRA table.</li> <li>- N =Address was not found in the CMRA table.</li> <li>- Blank = Address was not presented to the hash table.</li> </ul>

<b>Value</b>	<b>Description</b>
DPV Confirmation Indicator*	<p>Indicates the result of the call to the Delivery Point Value (DPV) Confirmation hash table:</p> <ul style="list-style-type: none"> <li>- Y =Address was DPV confirmed for both primary and (if present) secondary numbers.</li> <li>- D =Address was DPV confirmed for the primary number only, and secondary number information was missing.</li> <li>- S = Address was DPV confirmed for the primary number only, and secondary number information was present but unconfirmed.</li> <li>- N =Both primary and (if present) secondary number information failed to DPV confirm.</li> <li>- Blank = Address was not presented to the hash table.</li> </ul>
DPV Door Not Available*	<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"> <li>- Y = Address does not have a door available for postal delivery.</li> <li>- N = Address has a door available for postal delivery.</li> <li>- Blank = Address was not presented to the hash table.</li> </ul>
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"> <li>- Y = Address was found in the False Positive table.</li> <li>- N = Address was not found in the False Positive table.</li> <li>- Blank = Address was not presented to the hash table.</li> </ul>
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"> <li>- AA - Input address matched to the ZIP + 4 file.</li> <li>- A1 - Input address did not match to the ZIP + 4 file.</li> <li>- BB - Input address matched to DPV (all components).</li> <li>- CC - Input address primary number matched to DPV, but secondary number did not match (present but not valid).</li> <li>- F1 - Input address matched to a military address.</li> <li>- G1 - Input address matched to a general delivery address.</li> <li>- N1 - Input address primary number matched to DPV, but the address is missing a secondary number.</li> <li>- M1 - Input address primary number is missing.</li> <li>- M3 - Input address primary number is not valid.</li> <li>- P1 - Input address Post Office, Rural Route, or Highway Contract Box number is missing</li> <li>- P3 - Input address Post Office, Rural Route, or Highway Contract Box number is not valid.</li> <li>- PB - Input address matched to a PO Box Street Address (PBSA).</li> <li>- RR - Input address matched to CMRA and Private Mailbox (PMB) designator is present.</li> <li>- R1 - Input address matched to CMRA, but PMB designator is not present.</li> <li>- R7 - Input address matched to a physical address that does not receive delivery from the USPS (R777).</li> <li>- TA - Input house number includes a trailing alphabetical character and cannot DPV confirm. However, the address DPV confirms without the trailing alphabetical character.</li> <li>- U1 - Input address matched to a unique ZIP code.</li> </ul>
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"> <li>- Y = Location is not secure.</li> <li>- N = Location is secure.</li> <li>- Blank = Address was not presented to the hash table.</li> </ul>
DPV PBSA*	<p>Indicates that the address is a Post Office Box Street address (PBSA):</p> <ul style="list-style-type: none"> <li>- Y =Address was found in the PBSA table.</li> <li>- N =Address was not found in the PBSA table.</li> <li>- Blank = Address was not presented to the hash table.</li> </ul> <p>Address Verification also returns the footnote PB for a PBSA address.</p>

Value	Description
DPV Throwback Indicator*	An alphabetic value that identifies a valid street address for which the USPS forwards mail to a Post Office Box: <ul style="list-style-type: none"> <li>- Y = The address is a Throwback address.</li> <li>- N = The address is not a Throwback address.</li> <li>- Blank = Address was not presented to the hash table.</li> </ul>
DSF2 No Stats Indicator*	Indicates the results of the call to the DPV NOSTATS table: <ul style="list-style-type: none"> <li>- Y = Address was found in the NO STATS table.</li> <li>- N = Address was not found in the NO STATS table.</li> <li>- Blank = Address was not presented to the hash table.</li> </ul>
DSF2 No Stats Reason*	A two-digit code that identifies the reason why an address returned a Y in the <i>DPV No Stats Indicator</i> field. The code can have the following values: <ul style="list-style-type: none"> <li>- 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.</li> <li>- 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.</li> <li>- 3 - <i>Collision</i>  The address does not DPV confirm. Address Verification 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.</li> <li>- 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.</li> <li>- 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.</li> </ul>
DSF2 Vacant Indicator*	Indicates the results of the call to the DPV VACANT table: <ul style="list-style-type: none"> <li>- Y = Address was found in the VACANT table.</li> <li>- N = Address was not found in the VACANT table.</li> <li>- Blank = Address was not presented to the hash table.</li> </ul>
Early Warning System (EWS) Return Code*	Indicates whether the address was found in the EWS data: Y = Address was found in the EWS data, thus resulting in a ZIP + 4 No Match. Blank = Address was not found in the EWS data.
eLOT Ascending/Descending	The Enhanced Line of Travel (eLOT) order in which delivery points are delivered within a given add-on code. 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).
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.

Value	Description
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"> <li>- L = Address matched to a LACS address in the ZIP + 4 file.</li> <li>- Blank = Address was not compared to the ZIP + 4 file.</li> </ul>
LACSLink Indicator*	<p>An indicator returned when the LACSLink hash tables are queried:</p> <ul style="list-style-type: none"> <li>- Y = The input record matched a record in the master file.</li> <li>- N = The input record did not match a record in the master file.</li> <li>- Blank = Address was not presented to the hash table.</li> </ul>
LACSLink Return Code*	<p>A return value from LACSLink processing:</p> <ul style="list-style-type: none"> <li>- A = <i>LACS record match</i> A new address can be furnished. The input record matched to a record in the master file.</li> <li>- 00 = <i>No match</i> A new address cannot be furnished. The input record cannot be matched to a record in the master file.</li> <li>- 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.</li> <li>- 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.</li> </ul>
Non-Delivery Days*	<p>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.</p> <p>Address Verification returns the first letter of a weekday in the corresponding position in the code if the address does not receive mail on that day. Address Verification returns a dash symbol in the corresponding position otherwise.</p>
P. O. Box Only	<p>Indicates if the address is located in a ZIP code that contains post office box addresses only.</p> <p>Y = Address is in a PO Box only Delivery Zone.</p>
Record Type Code	<p>An alphabetic value that identifies the type of data in the record. Record type codes include the following:</p> <ul style="list-style-type: none"> <li>- F = Firm (ZIP+4)</li> <li>- G = General delivery (5-Digit ZIP, ZIP+4, and Carrier Route)</li> <li>- H = High-rise (ZIP+4)</li> <li>- P = PO box (5-Digit ZIP, ZIP+4, and Carrier Route)</li> <li>- R = Rural route/highway contract (5-Digit ZIP, ZIP+4, and Carrier Route)</li> <li>- S = Street (5-Digit ZIP, ZIP+4, and Carrier Route)</li> </ul>
Residential Delivery Indicator *	<p>Indicates if the delivery point is residential:</p> <ul style="list-style-type: none"> <li>- Y = Indicates residential delivery.</li> <li>- N = Not residential delivery.</li> <li>- Blank = Did not query the Residential Delivery Indicator (RDI) data.</li> </ul>
Rural route Default	<p>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.</p>
Rural route Exact	<p>Indicates if the address matches a rural route address in the USPS address reference data set.</p>



Value	Description
SuiteLink Return Code*	A return value of SuiteLink Processing: - <i>A = SuiteLink Record Match</i>  The input record matched to a record in the master file. An improved business address can be furnished. - <i>00 = No Match</i>  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.
ZIPMove Return Code*	A return value of ZIPMove processing: - <i>Y = ZIPMove match was made.</i> - <i>N = ZIPMove match was not made.</i>

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

## CASS Status Values

When you verify United States addresses in certified mode, Informatica Address Verification can return the following status values to help you interpret and analyze the verification results:

### ECA0

CASS output is not available for the input address.

### ECA1

CASS output is not complete for the input address.

### ECA2

This code is reserved for future use.

### ECA5

CASS output provided for the input address.

## Author

**Shahani Natalia Mendonca**

## Acknowledgements

The author would like to thank Amarpal Kaur Sohi and David Handy for their assistance.