

Quality Address Management Paper

Table of Contents

1 Document Overview.....	1.1
Purpose.....	1.1
Scope.....	1.1
Subjects.....	1.1
USPS National Customer Support.....	1.2
2 Products Overview.....	2.1
Coding Accuracy Support System (CASS™).....	2.1
Delivery Point Validation (DPV™).....	2.1
Locatable Address Conversion System (LACS).....	2.1
Z4CHANGE.....	2.1
Address Change Service (ACS).....	2.2
National Change of Address (NCOA ^{Link™}).....	2.2
FASTforward®.....	2.3
Early Warning System (EWS).....	2.3
Z4Info.....	2.4
Multiline Accuracy Support System (MASS™).....	2.4
3 Coding Accuracy Support System (CASS™).....	3.1
Product Description.....	3.2
What is CASS?.....	3.2
Why is CASS needed?.....	3.3
Requirements and Recommendations.....	3.3
When is CASS Certified Software Processing Required?.....	3.4
Using CASS certified software.....	3.5
Addressing Problems and Coding Examples.....	3.6
Considerations.....	3.9
MERLIN Address Accuracy Verification.....	3.11
Common Misconceptions.....	3.12
Maximizing the Benefits of the CASS Program.....	3.15
Future Changes.....	3.15
Technical Aspects.....	3.16
Implementation Tips.....	3.16
Platform.....	3.17
Best Practices.....	3.19
Optimize Performance.....	3.20
CASS Certification Form 3553.....	3.21
Verify the CASS Report.....	3.22
Using CASS Certified Software Information on the Postage Statement.....	3.25
4 Delivery Point Validation (DPV™).....	4.2
Product Description.....	4.2
What is Delivery Point Validation (DPV™).....	4.2
Key Distinctions.....	4.3
Why is DPV needed?.....	4.3
Requirements and Recommendations.....	4.3

When is DPV Required?	4.3
Restrictions of Use.....	4.3
Using DPV certified software	4.4
Considerations.....	4.4
Common Misconceptions	4.5
Maximizing the Benefits of the DPV Program.....	4.6
Future Changes	4.7
Technical Aspects	4.8
DPV Secondary Information	4.9
Implementation Tips	4.11
Platform	4.13
Issues, not related to Platform	4.14
Best Practices.....	4.14
Optimize Performance	4.14
Summary	4.15

Quality Address Management Paper

1 Document Overview

Purpose

The primary purpose of this document is to disseminate information to anyone interested or responsible for address management. It is designed for software users, end users, and for the general mailing industry. This document does not contain information on how to become a software vendor or how to write interface programs. This effort is a result of a consortium of concerned experts from the United States Postal Service, software vendors, and major mailers.

Scope

This is a living document in that it will be changing and updated as needed. We are releasing information as it is prepared rather than waiting for all subjects to be completed or perfected. Therefore the document will contain both current information as well as information regarding known, planned, or proposed changes.

Another living feature of this document is the technical information. As best practices are shared and technology changes, so will this document change. We invite your input and feedback on any item.

Subjects

The subjects that will be included are:

- Coding Accuracy Support System (CASS™)
- Delivery Point Validation (DPV^M)
- Locatable Address Conversion System (LACS^{Link})
- Z4Change
- Address Element Correction (AEC)
- Address Change Service (ACS)
- NCOA or NCOA^{Link}
- *FASTforward*®
- Early Warning System (EWS)
- Multiline Accuracy Support System (MASS)
- Delivery Sequence File (DSF²)

For each of these subjects, there will be information regarding (as appropriate):

- Product Description
- Requirements and Recommendations
- Product Details
 - Using the product Common Misconceptions
 - Maximizing the benefits
 - Relationship to other products and services
- Technical Aspects
 - Implementation Tips
 - Issues, not related to Platform
 - Platform Related Issues
 - Best Practices
- Summary

USPS National Customer Support

Cost-effective and timely delivery of every mailpiece depends on an accurate address containing only elements that are complete and correct. Accurately addressed mailpieces are USPS ® (United States Postal Service) automation-compatible, which supports the goal of achieving the lowest combined cost for providing and receiving mail.

To confront these challenges, the National Customer Support Center (NCSC) in Memphis, Tennessee, continues to develop products and services to lead the USPS and the mailing industry into compatibility with USPS automation goals. Every business that uses the USPS can both improve its mailing image and reduce postage costs by using NCSC products and services. Mailers are encouraged to take advantage of the products and services offered by the NCSC. Address quality is more important than the mail volume processed annually. Therefore, the goal at the NCSC is to provide mailers with top quality address products and services as the industry moves toward 100 percent barcoding automation of letter mail.

Source of Address Management Information and Products

All AIS (Address Information Systems) products not related to mail forwarding are derived from the USPS's master addressing database, known as AMS (Address Management System). The information contained in AMS consists primarily of ZIP Codes and place names, USPS facility information, carrier routes, address ranges, and individual delivery addresses. Approximately 700 Postal Service personnel maintain AMS data. Known as AMS Specialists, they are located across the country in District offices and some satellite locations. These specialists work with the USPS delivery unit and mail processing personnel, as well as state and local governments, to ensure that AMS contains the most current and accurate information possible.

The AMS Specialists also perform periodic quality control reviews, during which the information contained in AMS is directly compared to the physical reality "on the street". Further quality analysis efforts occur in the Address Quality department of Address Management, to help continually drive the quality of Postal Service addressing data products to a higher level.

2 Products Overview

Coding Accuracy Support System (CASS™)

The Coding Accuracy Support System (CASS) is a certification process for evaluating address-matching software. The Coding Accuracy Support System improves the accuracy of carrier route, five-digit ZIP Code, ZIP + 4® Code, and delivery point codes that appear on mailpieces. CASS is offered to all mailers, service bureaus, and software vendors who want to evaluate their address-matching software and improve the quality of their ZIP + 4®, Carrier Route Information System (CRIS), and five-digit coding accuracy.

CASS enables the Postal Service™ to evaluate the accuracy of address-matching software programs in three areas: (1) ZIP+4 delivery point coding, (2) carrier route coding, and (3) five-digit coding. CASS allows vendors/mailers the opportunity to test their address-matching software packages and, after achieving a certain percentage of compliance, to be certified by the Postal Service. CASS does not measure the accuracy of ZIP+4 delivery point, five-digit ZIP, or carrier route codes in a mailer's existing files. CASS enables mailers to measure and diagnose internally written, commercially available, address-matching software packages. The effectiveness of service bureaus' matching software can also be measured.

Delivery Point Validation (DPV™)

The Delivery Point Validation System is one of the SnappCheck Address Management Technologies™ that is available from the USPS™ to help mailers identify inaccurate or incomplete addresses. The Delivery Point Validation System assists mailers in obtaining accurate delivery address information and facilitates identification of erroneous addresses contained in mailer address files. Mailer use of DPV will help to reduce the amount of Undeliverable As Addressed (UAA) pieces, which in turn will result in more efficient postal mail processing and delivery operations. Delivery Point Validation™ is available through USPS® Certified DPV Vendors. It is an option (for a potentially additional cost) in CASS certified vendor software.

Delivery Point Validation is an integral part of the Postal Service's Product Redesign plans for address managements and postage discounts.

Locatable Address Conversion System (LACS)

The Locatable Address Conversion System (LACS) service provides mailers an automated method of obtaining new addresses when a 911 emergency system has been implemented. 911 address conversions normally involve changing rural-style addresses to city-style addresses, but in some instances conversions may result in the renaming or renumbering of existing city style addresses. Address Management Systems offices across the country are currently collecting and transferring information for this database to the National Customer Support Center.

The LACS service is available only through National Change of Address (NCOA) licensees. This service is offered as a stand-alone process or as a back-end process with the NCOA service to ensure a high quality mailing list. In the CASS cycle for 2005, access to the LACS information will be available (for a potentially additional cost) from CASS certified software vendors.

Z4CHANGE

In cooperation with the mailing industry, the USPS® (United States Postal Service) designed the Z4CHANGE Product to provide mailers the information necessary to create an application that

would facilitate frequent and cost-effective processing for updating very large computerized mailing lists for automation compatibility and improved deliverability.

The Z4CHANGE product eliminates the need to reprocess an entire address list through CASS by providing a means of maintaining continuous qualification for discounted automation rates. Z4CHANGE helps customers achieve this goal by providing data that indicates which ZIP+4 Codes have been realigned in the past twelve months. Customers must then develop their own software to access Z4CHANGE to determine which records on their address lists need to be reprocessed by CASS Certified software. As a result, only the records that have had transactions will need to be reprocessed, which can be done on a monthly or bimonthly basis. Should the USPS® determine that a significant change in CASS™ requirements warrants a complete update of all addresses, Z4CHANGE customers may be notified that they will be required to reprocess their entire address lists. Otherwise, Z4CHANGE customers will only be required to reprocess their entire address lists at the end of the third year following Z4CHANGE certification. It is an option (for a potentially additional cost) in CASS certified vendor software.

Address Element Correction (AEC)

When CASS Certified™ (Coding Accuracy Support System) address-matching software cannot match an address to the ZIP+4® Product, the address becomes a candidate for Address Element Correction (AEC). AEC is a service that corrects and standardizes address elements. AEC processing may transform problem addresses into accurate, standardized addresses, which allows mailers to take full advantage of automation discounts.

AEC focuses on correcting address element deficiencies such as misspellings, nonstandard abbreviations, incorrectly joined elements, improperly ordered elements, address lines containing data other than the actual address and missing elements. After resolving address element issues, AEC matches the address against the ZIP+4 Product using CASS Certified address-matching software, resulting in a correct, standardized address.

For additional information contact the National Customer Support Center at 1-800-238-3150 or view the AEC Technical Guide at www.ribbs.usps.gov/files/addressing/PUBS/.

Address Change Service (ACS)

Address Change Service (ACS) helps meet the needs of business mailers by providing a cost-effective, efficient means of obtaining accurate customer change-of-address (COA) information electronically.

To participate in ACS, mailers must modify their mailing label format to include a mailer identification (participant) code assigned by the National Customer Support Center (NCSC). A mailer-assigned keyline, printed on the mailpiece, is also required if the mailer wants to participate in the nixie service.

With ACS, mailers may schedule the frequency of their address correction notifications — daily, weekly, biweekly, monthly, or bimonthly. Under ACS, the USPS® provides Change-Of-Address information on computer tape, cartridge, and diskette. Depending on a mailpiece's class and endorsement, mailers may also receive information on addresses that are undeliverable for reasons other than a customer move (i.e., nixie notifications). The major benefits of ACS include the additional savings realized by receiving address change information electronically, which reduces costs associated with manual processing, and the opportunity for mailers to maintain up-to-date addresses for customers who have moved.

National Change of Address (NCOA^{Link™})

The National Change of Address (NCOA) option is available only through companies licensed by the Postal Service to offer this service. The mailer's computerized list is matched with official Postal Service customer provided permanent COA orders received from individuals, families, and

businesses within the past four years. These official records are updated and provided to NCOA licensees' weekly. NCOA system provides mailers with ZIP+ 4[®] codes plus two extra digits for delivery point barcoding and carrier route codes. Before using the list processed through NCOA, the mailer must apply the address changes.

The NCOA system also provides mailers with documentation that shows a list was updated on a given date and the Move Update requirements have been met if the address for which a move is indicated is updated.

NCOA^{Link} is a prime example of how the Postal Service is using innovative technology that offers the highest privacy and security protection to the mailer and the consumer. The next generation of the USPS NCOA program, NCOA^{Link} service is a comprehensive program that aids mailers in identifying changes of address before mail enters the mail stream. The NCOA^{Link} service is provided by private sector and independent companies that are certified and licensed by the Postal Service.

FASTforward[®]

The *FASTforward*[®] system consists of a licensed computer system containing *FASTforward*[®] name- and address-matching software and the Change-Of-Address (COA) database. The Postal Service is the sole owner and distributor of the *FASTforward* hardware[®] and software components that comprise the *FASTforward*[®] system. Specifically, this includes the *FASTforward*[®] software, the computer system itself, and the small computer systems interface (SCSI) cable that connects the *FASTforward*[®] system to the licensee owned or -leased system components.

Multiline Optical Character Reader (MLOCR). Allows users (mailers) to comply with the Move Update requirements as they actually process mail, provided that the mail is automation compatible. Licensed *FASTforward*[®] MLOCR users must obtain an approved interface from their MLOCR vendors. As mail is run through the MLOCR, the system automatically checks names and addresses against a national Postal Service database that is encrypted, contains updates from the previous 13 months, and contains only permanent COA records. If a change of address is applicable, the correct address and barcode are imprinted on the mailpiece.

The Mailing List Correction (MLC). Provides *FASTforward*[®] licensees with the ability to update computer-based name and address mailing lists electronically prior to the creation of the mailpiece. This version also requires licensees to have a *FASTforward*[®] interface that meets Postal Service specifications. The new address information is obtained through a matching process. The name and address contained in the mailing list are compared to the national Postal Service encrypted database of permanent COA records. Address change information is only provided for those records from the previous 13 months that have a matching name and an old address. In the event new address information is returned, the effective date of the move and the carrier information for the new address is also returned.

Early Warning System (EWS)

The Early Warning System refers to a project conducted by the CASS Department to identify errors that may result due to the currency of the ZIP + 4 database. Analysis demonstrated that new addresses added to the Address Management System (AMS) database experience miscoding when matched against ZIP + 4 databases in use per DMM policy. The monthly ZIP + 4 database product is extracted from AMS approximately 30 days prior to the official "release date". ZIP + 4 databases can be used for 105 days. Addresses that are activated after the extract of monthly ZIP + 4 product release may not be accessible to address matching products for 135 days. The potential for miscoding of valid addresses increases with the age of the ZIP + 4 database in use. Once a valid address is updated with erroneous match results, the effect is permanent without manual intervention. The CASS Department is evaluating the posting of "miscoded" addresses for

use by address matching products in identifying potential errors. CASS would post a listing of ZIP + 4 codes only.

Z4Info

The Address Management group has developed a file called Z4Info based on actual addresses as they are represented in the Delivery Point File (DPF). The DPF is extracted on a weekly basis from the Address Management Systems (AMS) database. AMS is the source for all address data and products used by mailers and by internal USPS mail processing operations. The Z4Info file uses the address-specific information to identify the address formats that are imbedded in the numeric ZIP+4 ranges as described above. The file will present a record for every ZIP+4 Code in which the primary (house number) range or the secondary (apartment/suite) range contains information at the delivery point level that is not explicitly represented in the ZIP+4 record. The Z4Info record will consist of the ZIP+4 Code followed by one or two alpha characters. The alpha characters will indicate the imbedded address formats present within the ZIP+4 Code.

Multiline Accuracy Support System (MASS™)

The MASS™ (Multiline Accuracy Support System) is an extension of CASS™ (Coding Accuracy Support System), which is a process designed in cooperation with the mailing industry to improve the accuracy of postal codes that appear on mail.

MASS provides certification for Multiline Optical Character Readers (MLOCRs), remote video encoding (RVE) systems, and encoding stations. The MASS certification process is designed to evaluate the ability of MLOCRs, Local Video Encoding (LVE), and Remote Video Encoding (RVE) systems, and encoding stations to process address information and apply an accurate delivery point barcode (DPBC).

The NCSC issues MASS certification once the required level of accuracy is achieved. MASS certification is an annual requirement and is valid from the certification date until the end of any current annual period. MASS certification is required for all mailers using MLOCRs, RVE systems, or encoding stations when printing DPBCs on mailpieces that are to be submitted for mailing at discounted automation rates.

For additional information contact the National Customer Support Center at 1-800-238-3150.

3 Coding Accuracy Support System (CASS™)

- 3 Coding Accuracy Support System (CASS™)3.2
 - Product Description3.2
 - What is CASS?3.2
 - Why is CASS needed?3.3
 - Requirements and Recommendations3.3
 - When is CASS Certified Software Processing Required?3.3
 - Using CASS certified software.....3.5
 - Addressing Problems and Coding Examples3.6
 - Considerations.....3.9
 - MERLIN Address Accuracy Verification3.11
 - Common Misconceptions3.12
 - Maximizing the Benefits of the CASS Program3.15
 - Future Changes3.15
 - Technical Aspects3.16
 - Implementation Tips3.17
 - Platform3.17
 - Best Practices.....3.19
 - Optimize Performance3.20
 - CASS Certification Form 3553.....3.21
 - Verify the CASS Report3.22
 - Using CASS Certified Software Information on the Postage Statement3.25

3 Coding Accuracy Support System (CASS™)

Product Description

What is CASS?

The Coding Accuracy Support System (CASS) is a process of evaluating address-matching software. The Coding Accuracy Support System (CASS) improves the accuracy of delivery point codes, ZIP+4 codes, 5-digit ZIP Codes, and carrier route codes on mailpieces. CASS provides a common platform to measure the quality of address matching software and to diagnose and correct software problems.

Developers of address matching software, vendors and individual company developers, must update their software with the USPS changes and have the software certified annually. Refer to the Technical Aspects section regarding the various database choices, installation timing and techniques.

To become CASS-certified, address-matching software must demonstrate proficiency and compliance with USPS requirements in the process of matching addresses and assigning postal codes. The USPS creates tests containing address examples that exercise the address-matching software logic. To be certified, the software must achieve a passing score percentage as established by the USPS. If the software meets the established quality threshold, CASS certification is granted and is approved for use in qualifying mail seeking postage discounts.

Vendors must pass a Stage II test. The CASS Stage I files are tests with answers provided and are intended to enable businesses to measure and diagnose the accuracy of their address-matching software. All CASS Stage I files are created from data in ZIP+4 Product, a database containing accurate ZIP+4 codes for the United States and its territories. Stage 1 files are not returned to the USPS for grading as the vendor uses them for internal testing purposes. The CASS Stage II files (ZIP+4/D P, 5-digit ZIP Code, Carrier Route, and Merge/eLOT) enable developers to demonstrate the accuracy of their address-matching software. The CASS Stage II files are tests for which customer answers are required.

For further information, obtain a CASS™ MASS™ Guidelines CD-ROM from:

Email: cassman.ncsc@usps.gov

Fax: 901-681-4440

Mail: CASS DEPARTMENT
NATIONAL CUSTOMER SUPPORT CENTER
UNITED STATES POSTAL SERVICE
6060 PRIMACY PKWY STE 201
MEMPHIS TN 38188-0001

It is important to understand that not all facets of the address-matching software's functionality are tested. The USPS focuses on those areas that are known deficiencies common across software products that require correction. This is important to understand, as CASS certification does not guarantee that the address-matching software will always produce the correct assignments. How the software performs in the non-tested categories is not included in the CASS certification. The

CASS certification process also focuses on implementation of changes that result from changing USPS processing needs. As an example, prior to 1996 the USPS did not sort mail in delivery sequence for apartment or suite addresses. In 1997, the USPS began sorting apartment addresses in sequence for carrier delivery, requiring the address-matching software to change the way these addresses were assigned.

Why is CASS needed?

In the late 1980s, the United States Postal Service implemented a program that provided mailers a postage discount for matching their address records using USPS-provided data and assigning the appropriate postal codes, for example, carrier route ID, 5-digit ZIP Code, and the ZIP+4 Code. This allowed the USPS to provide more cost-efficient mail processing based on the advance work performed by the mailer in providing high-quality addresses on the mail.

In the implementation of “worksharing discounts” the USPS learned that the quality of the commercial address-matching software was inconsistent and some software products were assigning postal codes incorrectly. To resolve this problem, the USPS in cooperation with the mailing industry developed CASS. The CASS program began testing the accuracy of address-matching software programs in three areas: (1) ZIP+4 and delivery point coding, (2) carrier route coding, and (3) 5-digit ZIP Code assignment coding. By testing each software product, the USPS could be better assured that the commercial address-matching software product was meeting the quality expectations necessary to warrant providing of postage discounts.

Requirements and Recommendations

When is CASS Certified Software Processing Required?

Automation Requirement

Any mailing claimed at an automation rate must be produced from address lists properly matched and coded with CASS-certified address matching methods listed below. A mailer using Multiline Optical Character Readers (MLOCRs) to print delivery point barcodes on mailpieces (or for flats, ZIP+4 barcodes) must also obtain CASS certification (including Multiline Accuracy Support System (MASS)) for the address matching software used on the MLOCRs. A mailer using any encoding devices, such as Remote Video Encoding (RVE) or Local Video Encoding (LVE) must also obtain CASS certification.

Presort Usage

Currently CASS-certified software may also be used to verify 5-digit ZIP Codes. This must be done annually for Presort level discounts. The preferred annual update time is May/June, due to ZIP re-alignments.

Methods

Delivery point or ZIP+4 coding may be obtained by using the

- CASS-certified DPBC address matching software
- CASS-certified Z4CHANGE process

CASS is required prior to many other Address Hygiene (DPV, Move Updates, LACS, DSF2 etc...) and Discounting (Pre-sort) processes. In many cases, CASS processing is bundled with these other products or services.

Date of Address Matching and Coding

Unless Z4CHANGE is used, all automation and carrier route mailings bearing addresses coded by any AIS product must be coded with current CASS-certified software and the current USPS database.

Coding must be done within

- 90 days before the mailing date for all carrier route mailings
- 180 days before the mailing date for all non-carrier route automation rate mailings.

Mailers must update their data files bi-monthly. Monthly updates are optional but preferred.

Regular MLOCRs require the update every other month as stated, while FASTforward MLOCR systems require monthly updates, and directories are only valid for the 105 day life span.

All AIS products may be used immediately on release. New product releases must be included in address matching systems no later than 45 days after the release date. The overlap in dates for product use allows mailers adequate time to install the new data files and test their systems. Mailers are expected to update their systems with the latest data files as soon as practicable and need not wait until the “last permissible use” date. The mailer’s signature on the postage statement certifies that this standard has been met when the corresponding mail is presented to the USPS. The following matrix defines the “current USPS database” product cycle.

File Release (Database Date) <i>Use of file released on</i>	Required Use Must begin no later than...	Last Permissible Use And must end no later than...
February 15	April 1	May 31
April 15	June 1	July 31
June 15	August 1	September 30
August 15	October 1	November 30
October 15	December 1	January 31
December 15	February 1	March 31

Using CASS certified software

What CASS Certified Software does:

The elementary functions of the coding software are:

- Parses the address (splits into element pieces)
 - Destination Post Office: City, State and ZIP Code
 - Delivery Address:
 - House Number, Pre-Directional, Street Name,
 - Suffix, Post-Directional, Secondary Unit Designator, secondary values
 - or PO Box
 - or Rural Route and Box Number
- Standardizes each element internally (proper abbreviations)
- Matches to the USPS Address Management System II (AMS II) database for that range of house numbers
- Updates with correct address elements: Pre-Directional, Street Name,
 - Suffix, Post-Directional, Secondary Unit Designator, secondary values, or PO Box, or Rural Route and Box Number; City, State, ZIP Code
- Provides 13 character city abbreviation when needed
- Appends
 - ZIP+4 Code
 - Delivery Point Barcode Information
 - Carrier Route Information
- Reports
 - USPS Form 3553 (CASS Certification)
 - Statistics Reports: Total records coded in each category

The software is not allowed to “guess” at address matches. It can make reasonable decisions when no multiple matches are determined.

Optional functionality

- Can properly format 2 address lines (street address & apartment/suite) into a single line
- Some software can Upper/Lower case address data

What CASS Certified software DOES NOT do:

- Compare Individual Name to Address; CASS Certified Software never looks at individual’s names, but does look at firm names
- Add street numbers, apartment or suite numbers when used alone. (When using the LACS^{Link} Product, the ZIPMOVE Product, following the Recombo Rule or following the Chase the Base rule, some of these corrections are possible.)
- Change Non-US address data (Canadian “CASS type” software and/or International Address correction software is available...at a much higher cost)
- Presort a list for postal discounts - a different software program does Presorting
- Does not indicate if the address actually exists!!
- (“23 Main Street” in ZIP Code 63301 looks good and if (in the USPS database) there exists a street range record like “1-99 Main Street” for zip 63301; this record will pass and be coded with ZIP+4/DPBC/CRRT information.... BUT, it doesn’t mean there really is a “23 Main Street”)

- Does not give a new address if someone has moved.

Addressing Problems and Coding Examples

The USPS statistics* show the 26.3% of addresses are incorrect. Most of this is due to missing or incorrect address elements. This is further broken down as follows:

2.4%	Moved	0.4%	Rural Route / Box Number
4.8%	City, State, or ZIP	6.0%	Directional / Suffix
5.9%	Street Name / House Number	4.1%	Apartment Number

* Reflects results of a USPS 2004 study on UAA mail

Listed below are examples of what may occur with the coding software.

Moves

This includes: Left No Forwarding Address and Forwarding Order Expired.

The coding software does not handle moves. It deals only with coding of the address, regardless of who lives there. Move updates are handled through NCOA^{Link™}, *FASTforward®*, and Address Changes Services (ACS).

City, State and ZIP

Missing and incorrect destination post office information can be a problem. There are multiple cities with the same name. Washington is both a city and a state name. Transposition of ZIP Code digits and abbreviations of city names are other factor.

MVC, UT Without the ZIP Code, The software may not be able to determine the city name and append the correct ZIP+4 Code.

Anchorage, AK 93305 ==> Eureka, CA 93305
The ZIP Code is one digit off, and the street exists in both cities. The software may not be able to determine the correct city and append the correct ZIP+4 Code, or it may append the incorrect ZIP+4, based on the incorrect ZIP Code.

House Number Range

House number range does not exist. The match is made to a range of house numbers, not to individual house numbers. The range usually represents one block face (equivalent to the assigned ZIP+4 Code). The match is also done by odd or even side of the block, since those would be different ZIP+4 Codes. Problems also occur when apartment numbers are appended to the house number instead of being at the end of the delivery address line.

If the USPS database does not have that range for the house number, no match can be made.

2333 Maple Dr Maple Dr ranges from 3000-5999
This could have been a transposition error in data entry.

Other possibilities for a non-match or a mismatch:

- One digit in the house number could have been dropped in data entry.
- The apartment number is appended to the house number and is interpreted as part of the house number range.

Street name

Street does not exist according to the USPS database. This could be due to misspelling of the street name, an abbreviation, or the renaming of a street (when the USPS is not notified).

The software may make a reasonable assumption when the misspelling is simple:

Red Ceder => Red Cedar

However, if there are two streets that may be the correct spelling, the software cannot guess.

Hollywalk? Hollywood or Hollyhock?

Rural Route and Box Number

A box number by itself is considered a Post Office Box. Rural Route numbers frequently require both the RR number and a Box number. PO Box numbers when used on the same line as the street address are coded instead of the street address.

Box 43 ==> PO Box

A box number is considered a PO Box.

RR 2 Box 423 Acceptable

Directionals

An address may have missing or incorrect pre- or post-directionals. Since ZIP+4 Codes are assigned by block face, the directional is critical to determining the correct block.

101 Pine St 101 E Pine St

The ZIP+4 could be assigned by the software if there only one directional for that house range (there is no W Poplar St).

Other possibilities for a non-match or a mismatch:

If there is N and S Pine, there cannot be a ZIP+4 assigned.

If one direction of the street is in one ZIP Code, and another directions in another ZIP Code, not only can't the ZIP+4 be assigned, but the ZIP Code cannot be confirmed.

According to USPS addressing standards, dual pre-directionals will have the first word abbreviated and the second word left as the street name, and post-directionals will have the last directional abbreviated

1235 East-West Highway ==> 1235 E West Highway
815 Spruce North West ==> 815 Spruce North W

Suffix

An address may have missing or incorrect suffixes. Many towns have numbered streets that have different suffixes or have street names that have more than one suffix.

8345 Beechwood 8345 Beechwood Cir

If there is only one Beechwood, the software may determine the suffix and append the correct ZIP+4 Code. If there is only one Beechwood in that house range, the software may determine the suffix and append the correct ZIP+4 Code. If there are multiple matches for the house number and

When should you use CASS Certified Software?

CASS Certified software should be used

- At the point of data entry, to keep bad addresses from ever getting into your database. Most vendors allow you to access CASS Certified Software in a batch mode or interactively through an Application Program Interface (API).
- On a cyclical basis for updating the database
- In batch mode, before every mailing, with the most current database.

These decisions will be based on company policy, the origination of the address list (such as in-house or purchased), and the type of mailing.

Considerations

Why so much Undeliverable Mail?

Assumptions:

- The USPS Database is as accurate as it has ever been
- CASS Certified software is as accurate as possible (as currently written)
- CASS coded addresses may not be deliverable addresses
- Addresses that are not CASS coded, may be deliverable, but definitely have something missing or incorrect.

If we believe these assumptions, then why is there so much “Undeliverable as Addressed” mail and what changes or improvements to CASS can be made to reduce the amount of undeliverables?

Attacking the Source

The traditional approach of using CASS as a means of correcting addresses places the burden on Mailers and Presort houses who are most often using purchased lists from List Vendors and/or lists supplied to them by their Clients. Each time a mailer receives a list (or multiple lists) they run the list(s) through their CASS Certified Software to standardize the addresses before mailing. Makes perfect sense, but doesn't fix the source of bad addresses.

Educational Recommendations:

More pressure should be brought to bear on list (sellers) providers so they only sell addresses that pass CASS Certified Software requirements. Since the USPS can't really regulate commerce, all those who purchase lists must create this pressure.

Would you pay for a Telemarketing List if 20-50% of the names did not have phone numbers--then why pay for a Mailing List with undeliverable addresses?

- Mailers/Clients - When ordering lists should inform the List Provider that they will only pay for CASS approved addresses and will return addresses, for credit, that are not coded by CASS Certified Software. Ask each List provider for a CASS 3553 for the list you are purchasing. If you can't get one, you may want to consider a different provider.

- Mailers - Encourage your direct clients to update their house lists with the results from your CASS process. Let them know which addresses did not pass the CASS standards, and why. Most CASS Certified Software provides error codes to identify address problems. Advise your clients to attempt to correct these addresses or delete them altogether before doing additional mailings. They will save postage and package creative costs by only mailing to CASS approved addresses.
- Clients with House lists - It's really simple, update your database or PAY more. Do you want to pay the design costs and postage for pieces destined for the dumpster? The USPS will have no choice but to raise rates if Undeliverable mail is not significantly reduced in the near term.

The use of CASS programs frequently interact with other programs and systems. Any changes to the CASS Certified Software and U.S. Postal Service Regulations have to be reviewed as part of any entire system change. Below are some considerations for integrating and maintaining CASS with other systems.

1. Read the vendor provided manual! It will contain many useful suggestions about how to use the software most effectively. Attend any training courses that your vendor offers. Make sure new or replacement employees also attend training. For more information, see the CASS Technical Guide at: <http://www.ribbs.usps.gov/files/cass/casstech.pdf>
2. Review the processing reports. Many different reports are usually offered by the software products. Find out which ones provide you with the information about how the software coded your addresses and use these reports to identify what was changed, what wasn't coded, and other details about your address list.
3. Learn how to read the PS Form 3553 report produced by the software! This is perhaps one of the most useful reports you can look at. At the bottom of this report you will see a section titled "Qualitative Statistical Summary". This section details very important information about your address list that will tell you how complete your address information is and how many incomplete or outdated addresses you have in your address file.
4. If possible, don't mail CASS failures. Perform CASS processing early enough in your mailing process so that you can do something about addresses that don't match. For example, most CASS Certified Software ships with an interactive tool-kit for analyzing failed addresses in an interactive mode. Other tools and services are available and covered in other white-papers. Consult with your software vendor on these additional tools.
5. Document all system functions that integrate with the CASS Certified Software. This includes feeding data into the system as well as using the output address information. This will assist in the continuity of processes when staffing changes occur.
6. Determine legal/regulatory requirements regarding addressing components and updating of customer address data to ensure the business clearly understands any legal or regulatory rules in this area. Some companies have policies that do not allow changing a database from the data that was originally supplied by the customer.
7. Understand current address flow and any ordering/system edits that require certain formatting requirements that are non-compliant to USPS standards. This may include such items as address length, abbreviations used, etc.
8. Determine any Methods & Procedures or Training that is provided to Service Representatives who access customer name and address data and determine any adjustments to modify as a result.

9. Understand the architecture of the CASS Certified Software processing system and determine how improvements to the output of the system could provide benefit to the company/USPS.
10. Work with the technical teams running the CASS Certified Software to ensure software parameter settings for the software will meet the new USPS requirements. This may require learning more about the software options and testing of your own processes and addresses on an on-going basis.
11. Evaluate how often the CASS process is run and how to improve it, where feasible.
Example - Determine if Z4 Change provides assistance in performance of CASS run-time.
12. Ensure technical teams are aware of annual CASS process updating and allocate time to evaluate and manage software changes as required.
13. Determine how to improve the quality of the address data from the source – evaluating the opportunity to put CASS/DPV on front-end ordering systems, where feasible. Entering the correct address into the system in the beginning is much easier than fixing or cleaning it later.
14. Maintain a trended history on CASS results to ensure CASS % continues to improve as additional address initiatives are facilitated.
15. Identify ways to correct CASS failed addresses to improve overall address quality.
16. Know whether there are specific/unique interface prior to the CASS Certified software process that allow for improved address matching. Determine what the driver is doing and whether this is a certified driver from the CASS vendor or an internal driver developed.

MERLIN Address Accuracy Verification

The USPS is moving to requiring addresses formatted to their specifications, with the complete content included – and that taking a direct match from the CASS engine is likely the best answer to ensure discounts in the future.

MERLIN (Mailing Evaluation Readability Lookup Instrument) has begun verifying address accuracy. Beginning January 17, 2004, the system is testing for high-level errors. The two being reviewed are:

- a) Any +4 add-on on of 0000 to the 5-digit ZIP Code. There are no legitimate add-ons of all 0s.
- b) Invalid +4 add-ons of 9999 to the 5-digit ZIP Code. The only legitimate add-ons of all 9s are for General Delivery and some specific Postal Service usage.

There is 0% tolerance of these errors – in other words, the entire mailing fails for postal discounts if even just **one** of these errors is found.

Future enhancements for MERLIN include:

- a) Full reverse address lookup (reading the address, determining the DPBC, and matching it to the printed POSTNET barcode)
- b) Finest depth of coding (coding to the apartment level, not the default level as an example)

Common Misconceptions

As the CASS program became more widely known within the mailing industry, its purpose and function has been misunderstood. Mailers often assumed that using a CASS-certified product meant that the software will always assign the correct postal codes. Additionally, mailers believed that if an address was matched using CASS-certified software then it meant the address was a valid, deliverable address. A couple of common phrases heard were, "My address list is CASS-certified." and, "The CASS Certified Software I use scored 99% on the CASS test so it is automatically better than software that only scored a 98% and will makes better matches on my address list!"

List is CASS Certified

The statement that "My address list is CASS-certified" is inaccurate since an individual address list is never tested by CASS, only the address-matching software is tested. And, because only certain features are tested, how well the CASS-certified software will handle addresses that were not one of the test conditions cannot be determined without fairly extensive research.

Addresses are Good because they went through CASS

It is not true that passing through CASS means my address is updated, fully corrected, deliverable, etc. It just means that it has been standardized. Some updates / corrections are possible. For instance:

- 163 PINE HILL COURT could get corrected to 163 PINEHILL COURT or LISLIE IL 60532 could get corrected to LISLE IL 60532
- CASS can validate that there are a range of addresses between 100 and 199 on Main Street, but it does not know which addresses are actual delivery points. Use of Delivery Point Validation (DPV) will determine specific delivery points. See the full section on DPV.
- CASS deals only with the address - it does not confirm that the name of the person on your list lives there or has moved (use Move Update).
- CASS does not change addresses to meet the new 911 requirements (use LACS)

Passing through CASS and/or not getting to a ZIP+4 and barcode does not necessarily mean that the mail to that address can be delivered. New addresses are being created all the time, but the CASS databases are only updated monthly or bi-monthly. The USPS database may reflect Apartment numbers 1-4, but on the actual building they have A-D. Address with Apt A will not fully CASS code, but can still be delivered.

Address Quality Levels

The software is not allowed to “guess” at address matches. However, it can make reasonable decisions when no multiple matches are determined.

The output from the CASS Certified Software is in several levels of address coding:

- ZIP+4 Coded— Delivery Point Barcode
- 5-Digit ZIP Code— Good ZIP Code
- Non Verified — Cannot match the ZIP Code
- Invalid — Incomplete or missing major address elements

ZIP+ 4 Coded

The address contains sufficient information to match to the USPS database. The ZIP+4 Code, delivery point barcode, and carrier route information is added to the address record. Most clients have 90% to 96% of their file in this group. These addresses are eligible for various barcode discounts.

5-Digit ZIP Code

The address contains enough information to match only to the ZIP Code in the USPS database for that street address. The address might be missing elements that are needed to determine the ZIP+4 Code, but can confirm that a variation of that delivery address does exist in that ZIP Code. This is usually less than 1% of the input file. The addresses in this group only qualify for presort discounts.

Non Verified

The address does not contain accurate data. The CASS Certified Software cannot verify that the delivery address could exist in that ZIP Code or City. A non verified address may look like a good address to the human eye, but the software cannot match it to the USPS database. The mailpiece may be mailable, but may not be deliverable.

Invalid

The address has missing or nonaddress data and the CASS Certified Software frequently cannot determine the delivery address. An invalid address may or may not look like a good address to the human eye, but the software cannot match it to the USPS database. The mailpiece may be mailable, but most likely will not be deliverable.

Examples:

Address Level	Example	Comments	Postage Rates
ZIP+4 Code	105 E Main St Mytown, ST 23456-7890	All needed address elements present	Automation Barcode rates
5-Digit ZIP Code	105 Main St Mytown, ST 23456	Directional is missing, but address (whether East or West) is in the ZIP Code. Valid ZIP Code Note: you cannot visually tell that this is an incomplete address.	Presort Rates May be undeliverable

Non Verified	1050 Main St Mytown, ST 23456	House number range does not exist in that ZIP for either East or West Main St. ZIP Code not valid. Note: you cannot visually tell that this is an incorrect address.	Full Rate, First-Class only May be undeliverable
Invalid	Dentist Office Mytown, ST 23456	Address elements obviously missing	Full Rate or not mailed Likely undeliverable

CASS Product matches at higher rate

Because CASS only tests commercial address-matching software in selected areas that the USPS had identified as having the highest error, it does not test each and every address matching function. Match rates for any given address list using CASS-certified software can vary greatly depending on address format, use of non-standard abbreviations, currency of the address, as well as the capability of the individual address-matching software. In a test of several major address-matching software products, including the address-matching software developed by the USPS, not one of the products was able to match perfect input addresses 100% correctly! Recognizing the difficulty software has in matching input addresses correctly may help the reader to understand how CASS-certified software may come up with the wrong answer when it is given imperfect addresses to process. Comparing two products based on the CASS score is inappropriate, as the score does not guarantee the overall quality of the product.

Software parameter settings already done

Parameter settings that were developed up by my vendor's Professional Services do not need to change. This is incorrect. Each year CASS rules change to increase the quality of matches made. The way you access your CASS certified program should be reviewed each year when you install the new version of software.

For more information, the CASS Technical Guide is found at:
<http://www.ribbs.usps.gov/files/cass/casstech.pdf>

Maximizing the Benefits of the CASS Program

To maximize the benefits of using CASS-certified address-matching software it is important to have a clear understanding of what the CASS program is and is not, as discussed previously. Another important factor to maximize the benefits of the CASS program is to understand how all of the various parts have to work together. This includes the format and precision of the address data, the features and quality of the address-matching software, and the accuracy of the USPS address database.

The USPS Address Databases

1. Update your USPS-supplied reference data as frequently as possible. The USPS issues all Address Information System Products on a monthly or bi-monthly frequency. Install the updates you get as quickly as possible to insure you are using the most current data.
2. Take advantage of other USPS-supplied products that enhance the value of your address hygiene processing. The USPS supplies many other products to help keep your address information accurate and up-to-date.
3. Understand what is contained in the address reference products you are using. The address data in the USPS ZIP+4 File used by CASS-certified address-matching software only shows address ranges and not individual addresses, for example, 1 to 99 MAIN ST in ZIP 56789. When the address matching software is given an input address of 33 MAIN ST, it determines that it falls in the range of 1 – 99 MAIN ST so it assigns the ZIP Code and ZIP+4 Code based on the match to this address range. However, because only the range is known, CASS-certified software can't tell you whether 33 MAIN ST actually exists or not. If it does not, a mail piece sent to 33 MAIN ST may still be returned as "Undeliverable-as-Addressed", even though it was checked using CASS-certified software!
4. Use EWS (Early Warning System) to prevent addresses from being incorrectly changes (Detail in EWS white paper).

Future Changes

Database Timing

The Federal Register notices have been published for change the update requirements. These are expected to be implemented with the next rate case (estimated for early 2006).

Coding must be done within:

- 90 days before the mailing date for all carrier route mailings
- 95 days before the mailing date for all non-carrier route automation rate mailings

Data files must be updated monthly.

Information on the Federal Register notices can be found on the Internet:

www.Ribbs.USPS.gov

under Federal Register Notices

United States Postal Service 2003

This particular one is 03-22048 dated 09-02-2003.

Technical Aspects

Implementation Tips

Know your data & what you need

Many CASS vendors offer products & databases with regional (not just national) support. This was done initially when disk space was a premium. This is no longer the case. Plus, many companies soon expanded outside of their region (either company growth or following customers who move). So, their regional databases were not providing as much benefit. So, even if you don't think you need it now, plan for the future and consider implementing the national databases, so you will not have to implement an upgraded plan later.

Foreign

Today, more foreign addresses are being introduced into lists due to website and automated name/address capturing systems.

Lists should begin capturing and storing Country name information.

When processing a list, you need to sort out the FOREIGN records – or;

- a) Find a software vendor product that can properly sort them out
- b) Find a software vendor product that can code foreign records at the same time
- c) Manually segment or sort the foreign records out

Parsed

As a best practice, list processor should attempt to store records in PARSED (split field) format. An example would be to have the City, State, and ZIP Code in separate fields. The same can be done with the delivery address —separate fields for the house number, directional, street name, suffix and secondary unit description/number.

- Software products, across the board, have a better success factor when working with pre-parsed input data
- Parsed data can assist in better performance
- Parsed data assists in working with foreign data

This could cause hardships on legacy applications, but these changes are highly encouraged

Certification

The USPS regulations change on a yearly basis. To remain, CASS certified, a product must re-certify every year.

To obtain potential discounts from CASS processing, you don't need to be CASS certified, you just need to be using a CASS certified software product. But, that means that you will need to update your software on a yearly basis and, often, your own drivers &/ processes.

In a typical CASS cycle, the USPS releases the new yearly requirements in August of a given year. Note, there are 50 Categories that are testing during CASS certification. Code changes to affect one category often affect others. Vendors typically release their certified updates in Quarter 2 of a given year (often after a Beta phase). The updates must be applied before August 1 of a given

year. For a company that has procedures requiring 90 days to test, update and approve any production changes, this could be problematic.

So, when considering an in-house solution, consider your available resources in the End of Quarter 2 – Quarter 3 time frame to address the updates along with your company policies for performing upgrades.

Platform

For various reasons (some discussed later), choosing from solutions that only run native on your platform may not be the best implementation for you in the long run. Consider all the options and use the vendors to provide you the information needed to make the best decision in the long run.

Interface

What interface do you want to define and run CASS jobs? Native Interface (JCL) includes "scripts" or a generic term that might be used is "operating system control languages."

- GUI (Graphical User Interface)
- Native Interface (JCL)

Pick the package the fits your need(s).

Flexibility

CASS batch processing is standard across vendors. However, some also offer Interactive Processing – which is good for investigating bad addresses, etc. Some vendors also offer a Data Entry solution which allows for addresses to be CASS checked and validated while being entered (often allowing for an address to be entered with fewer keystrokes).

Consider both your current a future needs when selecting a vendor.

Issues, not related to Platform

Read and understand the operating manual from your vendor.

This means attending any training and being fully aware of enhancements and updates and the impact it will have on you particular application.

In many cases, performance of a vendor's software can be optimized based on the characteristics of your data such as:

- Distribution (regional versus National)
- Size
- Arrangement (sort order)
- Layout
- Etc...

Integration

There are enough vendors that a solution exists for almost any platform.

If you have multiple platforms or feel that you may switch platforms in the future, you may want to look for vendor's that support multiple platforms.

Some vendors also offer products, services, and interfaces to help you off-load or migrate processing from one or multiple platforms to another, single platform.

Some vendors offer their products as engines with drivers to allow the customer to integrate processing directly into their own programs & processes.

Consider the same vendor when you have multiple platforms performing address standardization (not just for switching). Using the same vendor will increase the odds of having the same answers by platform. Windows data entry, mainframe batch jobs from the same coding product from a vendor increases the odds of producing the same parsed elements, standardization and matches.

Database Architecture

The layout of you data within your database can affect both your implementation and your performance.

First, many legacy databases contain only 2- 20 character fields for street address information. Solutions to this issue exist with either post processing scripts or using parsed output from vendor software. The USPS is updating the City/State/ZIP file used for the database to include an option for a 30 character address line.

Second, in general, parsed information is better in terms of increasing performance.

On a Similar note, in an effort to save space, some mailers have implemented a database layout that only stores the ZIP but not the City and State. The City and State are determined at mail time. This is a bad design. ZIP's can change. It would be better to store the City and State and determine the ZIP at mail time.

Platform Related Issues

Mainframes

Space and Central Processing Unit (CPU) time can be a premium and not an easy enhancement. You should expect CASS data, requirements, and processing options to continue to increase, thus requiring more space and CPU time.

Solutions exist that allow you to offload the processing from a mainframe to another system (say PC based). The processing can still be controlled and monitored from the mainframe. And, you still have a single support location that may also be able to be utilized by other PC based systems.

In many cases, overall processing time could even be better with the offloading solution.

However, you would need to have the necessary talented resources and equipment to support the offloading systems and processes.

Consider the tradeoffs to file transfer (FTP) from a mainframe to a PC based system:

- a) In regards to transfer time data files
- b) Data management tools on PC (mainframes good for production, scheduling, off-hour lights out processing)
- c) Consider staffing requirements on each platform (network administrators, list processing staff, operations staff, tape librarian/operators, programmers)
- d) Running native on one platform can simplify your process

Best Practices

Maintain a staff that knows how to monitor reports &/ work with the software

Document all changes, including the software changes and links to other programs or systems.

If you do not know how to interpret the reports, you do not know if you are getting the maximum benefit for your company, or if you are even in compliance.

If you do not monitor, you do not know when there is a trend or a problem that needs to be investigated.

With each yearly CASS cycle, there may be changes and new features that can affect the quality of your implementation or present opportunities for increased quality and opportunities. The changes may require changes to various Scripts or Print Stream processes – so you need resources familiar with these processes and any programs involved.

To stay up to date on upcoming changes, schedules, issues, etc., monitor both the USPS and your vendor's web sites.

If the CASS coding statistics suddenly change drastically after implementing a CASS database update, first, you need to detect it, and then you need to know why. Some reasons may include:

- In May/June, the USPS re-aligns the ZIP codes, so many changes may occur. Addresses should still code, just differently.
- The databases was damaged / corrupted during transport &/ loading.
- Internal data was re-organized and scripts / processes used while performing CASS were not updated.

Don't just do the Minimum

If you are just doing the minimum CASS processing to get the postal discounts, you are not maximizing your ROI – especially with an in-house solution.

Vendors can often help you analyze your entire business to help you obtain the maximum benefit to your company while increasing customer satisfaction and reducing USPS costs.

Investigate failed addresses

If an address fails to CASS code, don't just ignore it.

Failure to CASS code is an indication that any mail sent to that address will encounter a delay in delivery – if it can even be delivered.

There are many resources available to mailers to investigate CASS failures.

First, if your vendor supplied software comes with an Interactive Mode, it can be very useful in providing information to allow you to a correct address.

Many vendors also offer online, interactive CASS coders that offer many of the same functions as the Interactive mode.

If a corrected address still cannot be determined, then products that use 3rd party (consumer) data can often provide the information needed. For instance, an address (1200 Main Street) was determined to be invalid because the range was outside the valid range for that street (100 – 200). Third party products can use additional data (like the person's name – John Smith) to attempt to determine and make a correction (John Smith at 120 Main Street).

Know your USPS database vintage date. This is key when attempting to track down why an address may not have coded. Things change month to month based on underlying USPS data. Checking the USPS website, various vendors can assist in analysis, but your most likely will obtain different results. There is no ONE authority on a right or wrong answer. Just because an answer does not match on the USPS website, does not mean the vendor is incorrect. The USPS website is not meant to be absolute answer. The process for identifying an address that the mailer and/or USPS® believe is coding incorrectly is to contact the address' local AMS office or email the AIS Support staff. To find an AMS office, visit the AMS Locator on the USPS® web site at: www.usps.com/ncsc/lookups/ams_office_locator.html

Another offering from the USPS is Address Element Correction (AEC). This will be covered in an upcoming section.

Optimize Performance

In general, the following will allow for the best (and fastest) results from your CASS process:

- Addresses listed in ZIP order
- Remove all Foreign and known garbage addresses
- Have address components in parsed fields.
- Standardized address elements

Other Issues

Maintenance

CASS database updates currently come in either every month or every other month. The USPS has regulations regarding when a new CASS database must be installed. You need to make sure that you have the necessary resources and procedures in place to perform any evaluation required / desired of new data in a timely manner.

Business Regulations

Many business practices (especially financial) do not allow for address to be updated without prior notification / confirmation from the customer.

One solution is to send separate confirmation communications to these customers (or phone calls) – this can be expensive.

Another solution is to always print address correction information as part of every mailing (but this requires document space and increases costs). Plus, people get used to ignoring what they always see.

Solutions exist that will allow for notification / confirmation information to be added only to the documents that need them. Some vendors have even setup a web page that allows the customer to log in and verify the address changes automatically.

CASS Summary Report 3553

The mailer must complete a Form 3553 for each mailing claimed at all automation rates and all carrier route rates. A computer-generated facsimile may be used if it contains the required data elements in a format similar to the USPS form. The data recorded on Form 3553 must refer only to the address list used to produce the mailing with which it is presented. The postage statement must be annotated in the block(s) provided to reflect the date when address matching and coding were performed. When a mailing is produced using multiple lists, the mailer must show the earliest (oldest) date of address matching and coding (shown on Form 3553, section B2). The mailer certifies compliance with this standard when signing the corresponding postage statement.

Retention Period

Form 3553 and other documentation must be retained by the mailer or the mailer's agent for 1 year from the date of mailing and be made available to the USPS on 24-hour notice.

Using Output Information

The data recorded on Form 3553 is taken from the summary output report generated by the computer process by which address lists are matched and ZIP+4 coded using CASS-certified software. The summary output information may also be generated as a facsimile Form 3553. Form 3553 may show summary output information for a single address list or consolidate summary output information from multiple address lists combined to produce a single mailing. Figures on Form 3553 are not required to match total mailpiece figures on the corresponding postage statement.

Verify the CASS Report



This form may be generated as the output of address matching processing using CASS-Certified™ software in conjunction with current USPS® address database files. Any facsimile must contain the same information in the same format as the printed form.

See Domestic Manual Section A950 for more information.

CASS™ Summary Report

A. Software			
CASS A1	1. CASS-Certified Company Name	2. CASS-Certified Software Name & Version	3. Configuration
	4. Z4Change Certified Company Name	5. Z4Change Certified Software Name & Version	6. Configuration
	7. eLOT Certified Company Name	8. eLOT Certified Software Name & Version	9. Configuration
MASS A2	1. MASS™ Certified Company Name	2. MASS Certified Software Name, Version & Model No.	3. Configuration
			4. MLOCR Serial No.

B. List		
1. List Processor's Name	2. Date List Processed	3. Date of Database Product Used
	a. Master File 1	a. ZIP + 4® File 2
	b. Z4Change 3	b. Z4Change 4
	c. eLOT 5	c. eLOT 6
	d. CRIS 7	d. CRIS 8
4. List Name or ID No.	5. Number of Lists 9	6. Total Records Submitted for Processing 10

C. Output					
Output Rating	1. Total Coded	2. Validation Period	Output Rating	1. Total Coded	2. Validation Period
a. ZIP + 4 Coded ▷	11	From 12	d. 5-Digit Coded ▷	16	From 17 To
b. Z4Change Processed ▷	13		e. CRRT Coded ▷	18	From 19 To
c. DPBC Assigned ▷	14	From 15	f. eLOT Assigned ▷	20	From 21 To

D. Mailer	
I certify that the mailing submitted with this form has been coded (as indicated above) using CASS-Certified software meeting all of the requirements listed in the <i>Domestic Mail Manual</i> Section A950.	
1. Mailer's Signature	2. Date Signed
3. Name and Address of Mailer	

E. Qualitative Statistical Summary (QSS)							
For informational purposes only: QSS is solely made available for the list processor's review and analysis. This information is not to be considered by the Postal Service™ personnel in determining rate eligibility under any circumstances. See reverse for a detailed explanation.							
High Rise Default	High Rise Exact	RR Default	RR Exact	LACS	EWS	DPV	RDI

Notice the PS 3553, January 2004: this is key in knowing that you are running the accurate and latest report. This report changes with every CASS cycle.

What to Verify

A. Software

Periodically verify that the correct software names, versions, and configurations are correct.

B. List

2. Date List Processed: The processing date for each list. If multiple lists, the oldest date from the list.	3. Date of Database Product Used: The version date of each database package used for processing. If multiple lists, the oldest version date from the lists.
<ul style="list-style-type: none"> ① a. Master File: must within 6 months of the mail date ③ b. Z4 Change: must within 6 months of the mail date ⑤ c. eLOT: for Carrier Route must be within 90 days of the mail date. ⑦ d. CRIS: For Carrier Route, must be within 90 days of the mail date. 	<ul style="list-style-type: none"> ② e. ZIP+4 File: Current appropriate database usage ranges – see matrix ④ f. Z4 Change: Current appropriate database usage ranges – see matrix ⑥ g. ELOT: Current appropriate database usage ranges – see matrix ⑧ h. CRIS: Current appropriate database usage ranges – see matrix
5. Number of Lists: The number of lists used to produce the mailing. ⑨	6. Total Records Submitted for Processing: Enter the total number of address records (from all lists in item B5) submitted at the time the list(s) was coded. ⑩
Verify the number of input lists you planned to process versus the number processed.	Use the total input records to determine percentages of coding with the following section

The following matrix defines the “current USPS database” product cycle.

File Release Use of file released on...	Required Use Must begin no later than...	Last Permissible Use And must end no later than...
February 15	April 1	May 31
April 15	June 1	July 31
June 15	August 1	September 30
October 15	December 1	January 31
December 15	February 1	March 31
August 15	October 1	November 30

C. Output

Output Rating	Total Coded	Validation Period: From	To:
a. ZIP+4 Coded	⑪ Calculate percentage coded by dividing this total by total input records. Percentage should be over 90%.	⑫ 30 days before (the 15th of each month or bimonthly) or no later than 105 days after the file date.	180 days after the ZIP + 4 valid “From” date.
b. Z4 Change Processed	⑬ There is nothing to verify for this number.		
c. DPBC Assigned	⑭ Calculate percentage coded by dividing this	⑮ 30 days before (the 15th of each month	180 days after the DPBC valid “From”

	total by total input records. Percentage should be over 90%. This should be the same as ZIP+4 Coded.	or bimonthly) or no later than 105 days after the ZIP + 4 product file date.	date.
d. 5-Digit Coded	16 Calculate percentage coded by dividing this total by total input records. Percentage should be over 90% and slightly greater than ZIP+4 or DPBC Assigned.	17 30 days before (the 15th of each month or bi-monthly) or no later than 105 days after the ZIP + 4, Five-digit ZIP, or the Carrier Route product date.	365 days after the Five-Digit Valid "From" date.
e. CRRT Coded	18 Calculate percentage coded by dividing this total by total input records. Percentage should be over 90%. This total may be larger than ZIP+4 or DPBC assigned.	19 30 days before or up to 105 days after the ZIP + 4, Five-digit ZIP, or the Carrier Route product date (the 15th of each month or bimonthly) or up to 105 days after the file date	90 days after the Carrier Route Valid "From" date
f. eLOT Assigned	20 Calculate percentage coded by dividing this total by total input records. Percentage should be over 90%.	21 30 days before or up to 105 days after the eLOT file product date (the 15th of each month or bi-monthly).	90 days after the eLOT valid "From" date

Note that the percentages stated in these calculations are mailing industry information only. They do not represent any requirements by the USPS. They are meant to be an indication of address quality and a means of identifying potential program input errors that may affect accurate address coding.

E. Qualitative Statistical Summary (QSS)

This information allows mailers and list processors to evaluate the quality of their address list processed through CASS Certified Software before its contents enter the mailstream. A significant number of highrise and/or rural route default matches, although these addresses remain eligible for postal automation rate discounts at this time, increase the costs and reduce the efficient delivery of this mail. Mailer's should research to obtain secondary unit designator address information or highrise addresses and specific box number information for rural route addresses which are coded to default records on the National ZIP + 4 File. Rural Route Default is bad or missing RR/HC box #s. High Rise Default indicates bad or missing apartment or Ste #s.

Locatable Address Conversion System (LACS)

Entries in this box show the number of addresses, which have been converted, from primarily rural route and box number to standard city style addresses under the National Emergency 911 program. Mailers should make every effort to obtain current address information from a LACS vendor. Please visit the USPS web site at ribbs.usps.gov/files/lacs for more information.

Early Warning System (EWS)

Entries in this box show the number of addresses on the processed address list that are new addresses not in the current US Postal Service's ZIP+4 File. These addresses are, however, valid

addresses as formatted and should not be changed in any way since the Postal Service will assign ZIP+4's to these addresses on the next monthly ZIP+4 File.

Delivery Point Validation (DPV)

Entries in this box show the number of records delivery point confirmed. Only DPV enabled software will return a value in this box (Check with your software vendor for obtaining this option). These address records are valid delivery points by the US Postal Service. Addresses that are not confirmed by DPV are either new addresses not available on the current Delivery Sequence File, or are not valid and the list holder should further investigate to determine the accuracy of these addresses. Presently, the Postal Service is not requiring delivery point validation for rate eligibility. However, this policy is subject to change and mailers should make every effort to ensure the quality of their address list(s).

Residential Delivery Indicator (RDI)

Entries in this box show the number of addresses on the processed address list that are residential. RDI is designed to be used in conjunction with CASS-certified ZIP+4 or DPV enabled address-matching software. RDI will assist user's/licensees in shopping for the lowest delivery cost for a specific address by identifying whether that address is listed as business or residential in the USPS Address Management System database. In order to enter into the process to develop RDI-enabled software, you must be a developer of currently CASS certified address matching software.

Using CASS Certified Software Information on the Postage Statement

For Postage Statements, the dates from the CASS™ Summary Report are used as follows: On the Postage Statement, the second section labeled "Mailing Information"

Mailing Information	Post Office of Mailing	Processing Category (DMM C050) <input type="checkbox"/> Letters <input type="checkbox"/> Flats <input type="checkbox"/> Automation Flats (DMM C820)	Mailing Date	Federal Agency Cost Code	Statement Seq. No.	Number of Containers
	Permit No.		Weight of a Single Piece 0 _____ pound		Total Pieces	No. of pieces with Repositionable Notes attached: (DMM C810.7)
	For Mail Enclosed Within Another Class <input type="checkbox"/> Periodicals <input type="checkbox"/> Bound Printed Matter <input type="checkbox"/> Library Mail <input type="checkbox"/> Media Mail <input type="checkbox"/> Parcel Post		If Sacked, Based on <input type="checkbox"/> 125 pcs. <input type="checkbox"/> 15 lbs. <input type="checkbox"/> both		Total Weight	
	For Automation Rate Pieces, Enter Date of Address Matching and Coding (DMM A950.3.0) ____/____/____	For Enhanced Carrier Route Rate Pieces, Enter Date of Address Matching and Coding (DMM A950.3.0) ____/____/____	For Enhanced Carrier Route Rate Pieces, Enter Date of Carrier Route Sequencing (DMM M050.4.0) ____/____/____			

From CASS™ Summary Report, Section B: List:

- ① a. Master File: must within 6 months of the mail date
- ⑤ c. eLOT: for Carrier Route must be within 90 days of the mail date.
Used for Standard Mail
- ⑦ d. CRIS: For Carrier Route, must be within 90 days of the mail date.
Used for First-Class Mail

Summary

CASS is a process of testing selected features of address-matching software products.

CASS doesn't apply to an address file, only to the certification process.

Using CASS-certified address-matching software doesn't guarantee your mailpiece is deliverable.

There are multiple components that go into the process, the format and quality of your address database, the quality of the address-matching software and how you use it, and the timeliness and completeness of the USPS address database.

Other Products and Services for Consideration in Conjunction with CASS

Delivery Point Validation (DPV) Product

Delivery Sequence File (DSF²)

Electronic Line of Travel (eLOT)

Early Warning System (EWS)

Locatable Address Conversion System (LACS^{Link})

National Change of Address (NCOA^{LinkTM})

Residential Delivery Index (RDI)

Z4Change

Z4Info

4 Delivery Point Validation (DPV™)

Delivery Point Validation (DPV™).....	4.2
Product Description	4.2
What is Delivery Point Validation (DPV™).....	4.2
Key Distinctions	4.3
Why is DPV needed?.....	4.3
Requirements and Recommendations	4.3
When is DPV Required?.....	4.3
Restrictions of Use.....	4.3
Using DPV certified software	4.4
Considerations.....	4.4
Common Misconceptions	4.5
Maximizing the Benefits of the DPV Program.....	4.6
Future Changes	4.7
Technical Aspects	4.8
DPV Secondary Information	4.9
Implementation Tips	4.11
Platform	4.13
Issues, not related to Platform	4.14
Best Practices	4.14
Optimize Performance	4.14
Summary	4.15

4 Delivery Point Validation (DPV™)

Product Description

What is Delivery Point Validation (DPV™)

The Delivery Point Validation System is one of the SnappCheck Address Management Technologies™ that is available from the US Postal Service™ to help mailers identify inaccurate or incomplete addresses. The Delivery Point Validation System assists mailers in verification of accurate delivery address information and facilitates identification of erroneous addresses contained in mailer address files.

DVP is a validation process, not a correction process. It validates one of the following scenarios:

- The address field has the correct primary and secondary data
- The address has the correct primary but not secondary data
- The address cannot be validated

DPV does NOT does not append any missing data or correct any address elements.

DPV is a way to assure that the addresses in your mailings match up with the 145,000,000+ deliverable addresses on file with the United States Postal Service®. With DPV, mailers can achieve a finer level of address quality than through CASS™ (Coding Accuracy Support System) cleansing alone, thereby helping to reduce their return mail costs. Mailer use of DPV, along with corrective actions, will help to reduce the amount of Undeliverable-As-Addressed (UAA) pieces — which in turn will result in more efficient postal mail processing and delivery operations. Mailers benefit when the right mail goes to the right address at the right time.

Delivery Point Validation is an integral part of the Postal Service's Product Redesign plans for address management and postage discounts. The Delivery Point Validation™ process is available through USPS® Certified DPV Vendors and the USPS® API Software. The Delivery Point Validation™ files are available to licensees from the USPS®.

Source of Address Management Information and Products

All AIS (Address Information Systems) products not related to mail forwarding are derived from the US Postal Service's master addressing database, known as AMS (Address Management System). The information contained in AMS consists primarily of ZIP Codes and place names, USPS facility information, carrier routes, address ranges, and individual delivery addresses. AMS data is maintained by approximately 700 Postal Service personnel, AMS Specialists who are located across the country in District offices and some satellite locations. This staff works with the USPS delivery unit and mail processing personnel, as well as state and local governments, to ensure that AMS contains the most current and accurate information possible.

The AMS Specialists also perform periodic quality control reviews, during which the information contained in AMS is directly compared to the physical reality "on the street". Further quality analysis efforts occur in the Address Quality department of Address Management, to help continually drive the quality of Postal Service addressing data products to a higher level.

AIS ZIP +4 Products and services are some times mistakenly referred to as CASS™. Throughout the remainder of this paper CASS will refer to the certification software process and AIS ZIP +4 will refer to the actual product.

Key Distinctions

The Coding Accuracy Support System (CASS) is a process of evaluating address-matching software. CASS certified software is used to perform address hygiene and append the ZIP+4 Code, delivery point barcode, and carrier route information. During the process, address elements may be changed, added, or eliminated to "cleanse" the address.

DPV validates the precise address data submitted. It does not append any missing data or correct any address elements. The DPV file does not contain name information. In the return structure, DPV provides indicators only.

Why is DPV needed?

Coding Accuracy Support System (CASS™) certified software is the preliminary step to address hygiene. The AIS (Address Information System) ZIP+4 Product can validate that a valid range of addresses covers a specific address, but it does not know which ones are actual delivery points.

The DPV process adds the possibility to verify ZIP+4, delivery point, and carrier route information for valid, deliverable addresses.

For example, there are valid addresses between "10 Main Street" and "100 Main Street". So, both "20 Main Street" and "22 Main Street" would successfully standardize and be assigned a Delivery Point Barcode by CASS certified software.

With DPV, the mailer is then able to validate whether the standardized address they obtained is- an actual address to which the USPS delivers mail. For instance, "20 Main Street" is a deliverable address, but "22 Main Street" is not and this would be reflected in the DPV indicators returned.

Requirements and Recommendations

When is DPV Required?

DPV is currently not required for any postage discounts or mail preparation. Mailing industry leaders anticipated that it may be required on some level with the upcoming rate case. Future rate cases or discounts may be tied to the use of DPV.

Use of DPV is required by anyone obtaining a Full Service Provider License of NCOA^{Link}.

Companies are beginning to adapt the use of DPV software to enhance the overall quality of their customer's addresses.

Restrictions of Use

Licensee Performance Requirements

The USPS is bound by Title 39 Section 412 of the United States Code. To ensure compliance with this statute, USPS has included a number of safeguards in the DPV program whereby it licenses the use of DPV, including restricting export of DPV outside the boundaries of the United States, and retaining the ability for USPS to periodically audit or review the use of DPV. USPS licensees must comply with the DPV License Agreement and Licensee Performance Requirements and must ensure that their customers similarly comply with the USPS terms and conditions.

General Requirements

The Licensee shall not export the DPV Product outside the boundaries of the United States of America or its territories without prior written approval of the USPS. Legal analysis by the mailing

industry leaders have interpreted this to preclude storing, maintaining, or executing DPV from any location outside the USA.

Specific Requirements

Licensees will synchronize the release of their AIS ZIP+4 product and the DPV Product with the same release dates. This will ensure validation is performed utilizing matched ZIP+4 and DPV release data. In fact, some vendors enforce this requirement within their software to ensure that the Licensees can not run with unmatched ZIP+4 and DPV databases, which could produce inaccurate results.

Using DPV certified software

DPV is used in conjunction with CASS certified software. You can obtain DPV modules to your CASS certified software from your DPV licensee. A list of all USPS licensed vendors is available on the www.ribbs.usps.gov site.

This site also provides information on becoming a DPV licensed vendor.

When should you use DPV software?

- At the point of data entry, to keep bad addresses from ever getting into your database. Most vendors allow you to access DPV software in a batch mode or interactively through an API.
- On a cyclical basis for updating the database and for measuring the rate of deliverability of the addresses.
- In batch mode, before every mailing, with the most current database.

These decisions will be based on company policy, the origination of the address list (such as in-house or purchased), and the type of mailing.

Considerations

Companies must decide on the usefulness of the data.

The best time to validate customer information is at the point of data entry. Therefore, DPV may be most valuable as part of an input data system. In order to obtain potential postal discounts and maximum address quality, DPV may also be needed to run in a batch mode in the correct timeframe prior to the mailing.

The DPV Return Codes provide the key business benefit from the DPV process. Special attention should be paid to adequately and properly integrating the return data into the user's database or front end processes. Logic for this is provided in the Technical Aspects section.

Currently several companies are integrating DPV into their addressing systems. If it is determined by the United States Postal Service that this will be a rate case issue requirements will be published.... at...

What is the business need for DPV?

Here are the scenarios we see where DPV will bring value to customers.

- DPV brings data validation to finer precision in Information Quality projects. Addresses as verified at the level of the individual house, suite, or apartment, rather than the block. As a result, the address identification solution can catch errors in house, apartment, or suite numbers that would otherwise not be detected by the normal ZIP+4 process.

In today's business environment, success is based on the ability to identify, acquire, retain, and grow the most profitable customers. Operational systems provide information about the

customer, product, inventory, and supplier. The enterprise solution, with feeds from the appropriate operational systems, offers a single repository with the necessary data, and the tools to analyze the information.

The challenge is to have the right customer data integrated into a single view across the enterprise. Detecting errors in customer data with the DPV solution will increase the accuracy of matched records. By having an accurate view of each customer, more sophisticated marketing campaigns become possible — such as loyalty programs, or more highly personalized offers. As marketers do their job better, customers become more satisfied, as they are offered the right products and services.

- For mailers, DPV presents the opportunity to screen out some Undeliverable-As-Addressed (UAA) mail caused by addressing errors that direct mail to a location that is not an actual delivery point thus saving all the production costs. For service bureaus, DPV may be an additional chargeable service; at a minimum, DPV scoring results will help a bureau set client expectations regarding deliverability of a list. Better quality addresses may also help reduce customer service calls.
- Based on statistics from the USPS, approximately 23.6% of all mail, as originally addressed, is incorrect. The USPS has many methods and procedures in place to allow many of those pieces to still be correctly delivered with little or no delay. The mail that is not delivered is costly to the mailer. There is \$0.12 to \$0.37 per piece in just mailing costs, and that figure doesn't even include the cost of the paper, ink, binding, and business opportunity lost when the piece doesn't reach its intended final destination.
- For merchants, DPV may be an additional tool in the perpetual fight against mail-order fraud. Coupon-redemption houses can use DPV to detect unauthorized circumvention of the "one per household" offers by providing false house or apartment numbers. A retail store has expressed interest in flagging Commercial Mail Receiving Agency (CMRA) addresses because of problems with fraudulent credit card orders.

Increased accuracy of data also presents opportunities for better fraud detection: enabling detection of bad records at the point of entry, preventing the fraudulent data from ever entering the database.

Common Misconceptions

DPV validates existing address data. It does not append any missing data or correct any address elements, so if files are missing apartment numbers, DPV will detect that the information is missing but will not add it. The DPV file does not contain name information.

Failing to DPV match on secondary address information does not mean the secondary information is invalid and/or should be removed.

As new growth appears across the country some companies may have more current data than what is on the USPS DPV database. For example, prior to the addition into the USPS database Utility companies may have more apartment numbers.

In some cases, the USPS may have secondary address information in a different format from what is actually displayed on the residences and used by the occupants. For instance, the USPS may have a set of apartments identified as Apt 1 and Apt 2, but they are actually labeled Apt A and Apt B. Those errors will be corrected during the normal USPS quality process.

In theory, each DPV product should provide the same results. However, in reality, DPV results differ between products. DPV relies on results from the CASS certification coding and these results may vary from product to product. If different AIS ZIP+4 products produce the same coding results, then they should return the same DPV results.

Maximizing the Benefits of the DPV Program

Run at the point of data entry:

The best time to validate customer information is at the point of data entry. This is especially true if the point of data entry occurs while a representative is on the phone with the customer. That way, any errors can be immediately corrected. Since many data entry centers are already integrated with CASS certified engines for verification of addresses, DPV should be an easy add-on to the system, which uses batch or transaction-based processing. However, running DPV at the point of data entry will not meet any potential requirements for future rate discounts.

Run Near the time of the mailing:

New addresses are being created (new housing), removed (destruction of buildings), and altered (single address converted to 2 apartments) continually. For the latest and most accurate information, the most current DPV databases should be used and processing should occur as close to the time of the mailing as possible. In order to obtain potential postal discounts and maximum address quality, DPV must be run in a batch mode in the correct timeframe prior to the mailing.

However, the verification check should not be run so close to the time of the mailing that there is insufficient time to perform additional follow up and research on addresses that fail DPV. Time to correct the addresses before the mailing has to be generated is critical.

Get Monthly AIS Products and DPV Updates:

As mentioned above, address information is changing continually. Maximum match rates are achieved with the most recent and accurate information available.

Corrective Action Suggestions

Based on the various return codes listed in the Technical section, determine a course of action. Some suggestions are:

- Customer Service follow-up
- Address variation processing
- Review the CASS™ Certified software results for alternatives
 - Try DPV processing on all suggestions
 - If there is only one DVP validation, then the address is most likely correct
 - If there are multiple matches, you cannot use any, as you can't positively identify which address it should be.
- Address Element Correction (AEC) processing
- Eliminate addresses that fail validation from direct mail advertising mailings
- Consider using Third party databases to enhance or complete the address elements.

Future Changes

Use of DPV is part of the USPS Product Redesign program. It is anticipated that it may be required on some level with the upcoming rate case. Future rate cases and or discounts may be tied to the use of DPV.

Upcoming Federal Register notices and the next rate case should be monitored for information regarding DPV.

Information on the Federal Register notices can be found on the Internet:

www.Ribbs.USPS.gov

under Federal Register Notices

Additional Questions – To Be Addressed:

The mailing industry has requested clarification from the USPS regarding how the future DPV requirements may be met. The process will be defined by the USPS as to how the mailers will identify a DPV validated piece vs. a ZIP+4 processed mail piece and plans will be devised to minimize the impact on customers and their end-users. If there are specific indicators that must be set or passed, they will be defined at that future point in time when the requirements are drafted.

Some of the items to be defined may include:

- The Postal Service will provide information on which return codes are going to be considered for the validation of the address. For example, would an "S" return code be acceptable? This will be critical if DPV is part of a discount rate.
- All other concerns will be addressed as determined by the USPS.
For Example:
 - Having an indicator on the mailpiece for DPV
 - Separate or different mail preparation
 - New documentation.

The impact to Mailing Evaluation Readability Lookup Instrument (MERLIN) will be determined and those requirements for DPV processing during acceptance and verification will be published once those requirements are determined.

Technical Aspects

DPV enabled software is required to provide certain standard return codes. The DPV process provides the following five return codes for use.

Return Code	Definition
N	No Delivery Point Validated
Y	Delivery Point Validated /Primary Valid and Secondary Number (When Present) Valid
S	Valid Primary Number; But Secondary (Primary for Rural Route) Present and is Not Confirmed
D	Valid Primary; Input Missing Secondary (Primary for Rural Route) and is required
Blank	The necessary address information to perform a DPV check was not available (i.e. record did not successfully CASS code)

In addition to the return codes, DPV enabled software must be able to return footnote codes to further detail the results of DPV processing: These footnote codes are defined by the USPS and must be provided by all software vendors. It is possible for more than one Footnote to be generated for a given address.

AA	Input Address Matched to the ZIP+4 file
A1	Input Address Not Matched to the ZIP+4 file
BB	Input Address Matched to DPV (all components)
CC	Input Address Primary Number Matched to DPV but Secondary Number not Matched (present but invalid)
N1	Input Address Primary Number Matched to DPV but Address Missing Secondary Number
M1	Input Address Primary Number Missing
M3	Input Address Primary Number Invalid
P1	Input Address RR, or HC Box number Missing
P3	Input Address PO, RR, or HC Box number Invalid
RR	Input Address Matched to Commercial Mail Receiving Agent (CMRA) and Private Mail Box (PMB) designator present (PMB 123 or #123)
R1	Input Address Matched to CMRA but PMB designator not present (PMB 123 or #123)

New footnotes will be in effect August 2005.

F1	Input Address Matched to a Military Address
G1	Input Address Matched to a General Delivery Address
U1	Input Address Matched to a Unique ZIP Code

On the new footnotes of F1, G1 and U1 DPV return code will be "Y" and spaces will be in all other flags.

DPV Secondary Information

DPV enabled software must attempt to confirm both the primary and secondary number when present. When the DPV return code equals “N”, software must attempt to confirm the primary number without the parsed secondary. If the primary number confirms, software returns the standardized output and sets the DPV code to “S”. If the primary number does not confirm, software must return the output address, as usual, adhering to CASS requirements.

When the input address has no parsed secondary number and the ZIP+4 record is a default match, and the DPV return code initially equals “Y”, software then is required to set the DPV value to “D”—or default to indicate that the secondary was missing. For rural route type records, if the input address is missing the box number, the return code is set to “D”; if the box number is present, but unconfirmed, the return code is set to “S”. When the final DPV code is obtained, software must query the DPV Commercial Mail Receiving Agency (CMRA) table.

As a final note, secondary information must always be submitted for DPV confirmation when present in the input address regardless of the level of match obtained. This is important, because some street records contain secondary information and this bit of information may be critical to delivery. CASS has always taken the position that software should not drop secondary information even when the DPV return code is “N”.

DPV Return Code:	Footnote:	Suggestion:
N	AA	Verify the address. The address validated on the CASS certified software engine but can not be validated in the DPV process.
Y	AA BB	No action needed, the address validated to all components.
Y	AA RR	No action needed, the address validated. It has been found in the CMRA table with PMB information present.
Y	AA R1	No action needed, the address validated. It has been found in the CMRA table without PMB information and is not required for USPS delivery. However, it may be problematic for internal sorting in the CMRA, so further investigation may be warranted.
Y	AA F1	No action needed. (Future Code)
Y	AA G1	No action needed. (Future Code)
Y	AA U1	No action needed. (Future Code)
S	AA CC	Verify secondary information, it is present but can not be confirmed in the DPV process.
S	AA P3	Verify the box number, it is present for this PO Box, RR or HC address but can not be confirmed in the DPV process.
S	AA CC RR	Verify secondary information, it is present but can not be confirmed in the DPV process. It has been found in the CMRA table with PMB info present.
S	AA CC R1	Verify secondary information, it is present but can not be confirmed in the DPV process. It has been found in the CMRA table without PMB information and is not required for USPS delivery.
D	AA P1	Verify the box number, it is not present for this PO Box, RR or HC address but needed to confirm in the DPV process.
D	AA N1	Verify secondary information, it is not present.
D	AA N1 RR	Verify secondary information, it is not present. It has been found in the CMRA table with PMB information present.
D	AA N1 R1	Verify secondary information, it has been found in the CMRA

		table without PMB information and is not required for USPS delivery.
Blank	A1 M1	Get correct address, this address can not be found in CASS certified software engine so it is not presented to the DPV process.
Blank	A1 M3	Get correct address, this address can not be found in CASS certified software engine so it is not presented to the DPV process.
Blank	A1	Get correct address, this address can not be found in CASS certified software engine so it is not presented to the DPV process.

DPV Seeds (purpose and effect)

The purpose of DPV is to validate your existing addresses. You cannot use DPV to simply generate a list of valid addresses.

For that reason, the USPS has populated the DPV database with “seed” addresses. These are addresses that should never be encountered unless someone is attempting to generate a list of valid mailing addresses by passing all possible address combinations through DPV.

When one of these “seed” addresses is encountered, the software that runs DPV is required to stop performing DPV processing for that run. A report must be generated and sent to the USPS. Once the USPS clears this event, you must contact your software vendor for instructions on how to re-activate DPV processing. The ZIP+4 processing can continue. The lockout is applied only to the mailing list being processed. It does not prevent any future runs, so, with the unlocking of the software from the vendor, other lists could be processed.

If a seed is found during NCOA processing, the NCOA licensee will continue processing the file. A report must be generated and sent to the USPS. Once the USPS clears the event, the file may then be released to the customer.

Again, the USPS has created seed addresses that should never be encountered by anyone processing a bonafide mailing list. The probability of hitting a seed is extremely unlikely for a bonafide mailing list.

Public Seeds have been created. Vendors may freely provide these addresses to their customers to validate that the ‘stop processing’ procedures are working correctly. Customers should insert one or more of these records into their test address file(s) and process the list(s) normally. The program should recognize that a seed address has been submitted and initiate the ‘stop process’ function. Please process these seed hits as you would any other seed hits, reporting them as usual. The Postal Service will account for these hits as public seed hits and not count the event against the customer.

Please see the following link for a list of those records:
<http://ribbs.usps.gov/files/DPV/DPVINFO/PUBLICSEEDS.TXT>

Implementation Tips

DPV Files

There are three types of data files: the full file, the split files, and the flat file. The full file and the split files are currently in use.

Full DPV

The DPV Product utilizes what is referred to as a “hash” table. The hash tables are secure data sets that will only answer, “Does the USPS deliver mail to this address?” This hash table will include all delivery addresses.

Split DPV Files

Due to the large size of some of the hash tables, implementers will be able to request a version of the datasets that have been sub-divided into 100 smaller files (by first two digits of the ZIP Code). To use these tables you will need to pass a third parameter to your lookup function that contains the first two digits of the ZIP Code. At each change of two-digit ZIP Code you will need to load all the tables associated with those two digits. You will also need to dynamically determine the size of the table to determine the largest offset in that table for the lookup. The interface should check to see if your next probe is for the same 2-digit table as your current one to keep from closing and reopening tables unnecessarily.

Flat DPV File

The DPV flat file name is DHF.DPV and the file size is 1.9 GB. The DPV file consists of 12 bytes with a ZIP Code and 9 bytes without a ZIP Code.

The DPV Flat File consists of 12 bytes:

The first 3 bytes are the ZIP Code. The ZIP Code is for sorting or splitting the file. Once the file has been sorted or split, the ZIP Code should then be removed from the file. Once the ZIP Code has been removed, you will then load your 9-byte file into a KSDS VSAM file.

A few customers have tested the DPV flat file. The feedback seems to be that it is faster to load the 100 split files into memory and use them instead of the flat file. However, there are some additional considerations to this approach. The split files as currently structured are prone to a very small number of false positive matches that are not returned by the full or flat files. The fix for this discrepancy will require a doubling of the size of the hash tables in the split DPV product. This may make the DPV flat file a more desirable means of processing. Customers should talk to their vendors for more specifics when making the decision to use the flat or split files. See further information under Platform.

Use Same Months databases for AIS ZIP+4 and DPV

The DPV database is generated from some of the same information as the AIS ZIP+4 database. Addresses are to be ZIP +4 processed using CASS certified software prior to processing through DPV because much of the address information used by DPV comes from the AIS products. From month to month, it is possible for the ZIP+4 to change. As a result, an address’s matching result may be a valid delivery point one month, but not the next.

In most cases, a vendor’s software requires that the AIS ZIP+4 and DPV databases be of the same month. So, keep this in mind when planning your maintenance cycles (i.e. that both databases should be updated at the same time).

Investigate addresses that fail to Delivery Point Validate

Obviously, it is best to investigate and resolve problems with addresses that fail to DPV confirm.

When you first start using DPV, this could be a daunting task depending on the quality of your address list. It is recommended that you use the Return Codes and the Footnote codes provided by the USPS in the DPV software to prioritize the order in which addresses are investigated. For instance, you would probably want to start with the addresses that do not DPV confirm at any level. Once these are resolved, move on to the addresses for which there is an indication of missing secondary information (Return Code 'D'), and then on to addresses for which the secondary information could not be confirmed (Return Code 'S').

Use the Footnote codes to guide your investigation. They can give you an indication of what the problem is with the address that is keeping it from being validated by DPV.

Obviously, one method for obtaining corrected information is to contact the customer. But you can't rely on mail and you may not have another method of contact (i.e. phone number). That's where the use of 3rd party data comes in. Third party data uses a recipients name in addition to the address information when finding a match. These third party products can quickly process a large number of addresses and may be able to correct invalid address information (such as a Primary Range) or add missing information (such as secondary information). They may be able to provide you with alternate contact information (i.e. a phone number) that you can use to contact the customer to obtain the correct and or missing information.

Know your data and what you need

Foreign

DPV is not designed for non-domestic (foreign) addresses.

Today, more foreign addresses are being introduced into lists due to website and automated name/address capturing systems.

Lists should begin capturing and storing Country name information

When processing a list, you need to sort out the FOREIGN records - or

- a) Find a software vendor product that can properly sort them out
- b) Find a software vendor product that can code foreign records at the same time
- c) Manually segment or sort the foreign records out

Parsed

Addresses passed through DPV must first have the correct ZIP+4 Code. This is normally done through the ZIP+4 process with CASS certified software.

As a best practice, list processor should attempt to store records in PARSED (split field) format. An example would be to have the City, State, and ZIP Code in separate fields. The same can be done with the delivery address —separate fields for the house number, directional, street name, suffix and secondary unit description/number.

- Software products, across the board, have a better success factor when working with pre-parsed input data
- Parsed data can assist in better performance
- Parsed data assists in working with foreign data

This could cause hardships on legacy applications, but these changes are highly encouraged

Certification

In order to improve address quality the rules regarding CASS requirements are enhanced on a yearly basis. To remain DPV certified, a product must re-certify every CASS Cycle. Only prospective licensees and renewing licensees have to certify for DPV.

Generally CASS certification and DPV licensing occur at the same time. That means when you update your AIS ZIP+4 software on a yearly basis and, consequently, your own drivers and/or processes related to ZIP+4 processing, you will also need to update programs, drivers or processes related to DPV.

Platform

Overcoming Technical Barriers to Processing Speed

The decision to add a new process to address cleansing can pose a business risk when it comes to meeting mailing deadlines. However, some of these potential time delay issues can be negated with the right hardware and software in place.

The problem is that it's an additional process, and any time an additional process runs, it adds to total processing time – time that you simply don't have when you've got mailing deadlines to meet. To optimize access to the DPV database, you need to be able to load it all into memory. This is not usually a problem when processing via Windows® and UNIX™ workstation platforms, since memory is fairly inexpensive and easy to install. In mainframe environments it can take longer to process because of memory issues. Here's how you can optimize processing efficiency, no matter what environment you work in.

PRODUCTION TIP	ENVIRONMENT
1. Select a solution with 'buffering' to speed processing times on MVS™ systems. Buffering allows users to increase the buffer size on the mainframe system, so that the data file can use as much memory as is available. This approach shows the most significant impact on MVS systems.	Mainframe
2. Use a 'split file' processing solution to improve VSE™ system processing times. This capability helps divide the DPV database into portions, eliminating the need to access the entire database for every address. File splitting shows the most improvement on VSE systems.	Mainframe
3. Use a 2GHz, 1Gig RAM processor. Internal Vendor testing shows that this larger machine can process records in 1/4 of the time that a 1GHz machine (with 512M RAM) will take to process the same amount of records.	Workstation
4. Additional suggestions for optimum results: <ul style="list-style-type: none">• Assure that files going into CASS then DPV are sorted in ZIP Code order• Save an indicator for those files that have passed DPV• Use DPV at the point of data entry, for interactive address cleansing	All

Issues, not related to Platform

Read and understand the operating manual from your vendor.

This means attending any training and being fully aware of enhancements and updates and the impact it will have on your particular application.

In many cases, performance of a vendor's software can be optimized based on the characteristics of your data such as:

Distribution (regional versus National)

Size

Arrangement (sort order)

Layout

Etc...

Best Practices

Maintain a staff that knows how to monitor reports and work with the software

Document all changes, including the software changes and links to other programs or systems.

If you do not know how to interpret the reports, you do not know if you are getting the maximum benefit for your company, or if you are even in compliance.

If you do not monitor, you do not know when there is a trend or a problem that needs to be investigated.

Investigate failed addresses

If an address fails to DPV code, don't just ignore it.

Failure to DPV code is an indication that any mail sent to that address will encounter a delay in delivery – if it can even be delivered.

Optimize Performance

In general, the following will allow for the best (and fastest) results from your DPV process:

- Addresses listed in ZIP Code order
- Remove all Foreign and known garbage addresses
- Have address components in parsed fields. This is normally done through the ZIP+4 process. If DPV is run at a different time, it is best to store the output from the ZIP+4 process as parsed fields.

Other Issues

Maintenance

DPV database updates currently come in from the USPS to the vendors every month. Some vendors offer the database shipments every month or every other month. The USPS has regulations regarding when a new DPV database must be installed. You need to make sure that you have the necessary resources and procedures in place to perform any evaluation required or desired of new data in a timely manner.

Business Regulations

While DPV does not change addresses, it is used as an indicator as to which one may need updating. Many business practices (especially financial) do not allow for address to be updated without prior notification or confirmation from the customer.

One solution is to send separate confirmation communications to these customers (or phone calls) – this can be expensive.

Another solution is to always print address correction information as part of every mailing (but this requires document space and increases costs). Plus, people get used to ignoring what they always see.

Solutions exist that will allow for notification or confirmation information to be added only to the documents that need them. Some vendors have even setup a web page that allows the customer to log in and verify the address changes automatically.

Summary

DPV is a process of validating addresses. It does not update or change addresses.

Using a ZIP+4 address-matching software alone doesn't guarantee your mailpiece is deliverable.

Using DPV process, combined with data review and repair, enhances the deliverability.

There are multiple components that go into the process, the format and quality of your address database, the quality of the address-matching software, and the timeliness and completeness of the USPS address database.

Other Products and Services for Consideration in Conjunction with DPV

Coding Accuracy Support System (CASS)

Delivery Sequence File (DSF₂)

eLOT

Early Warning System (EWS)

Locatable Address Conversion System (LACS)

Residential Delivery Index (RDI)

Z4Change

Z4Info

ZIPMove

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