

Quality Address Management Paper

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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)
- Locatable Address Conversion System (LACS)
- Z4Change
- ZIPMove
- Address Element Correction (AEC)
- Address Change Service (ACS)
- NCOA or NCOA^{Link}
- *FASTforward*[®]
- Early Warning System
- Z4Info
- Machine 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 our goal of achieving the lowest combined cost for providing and receiving mail.

In 2001, the USPS processed over 207.5 billion mailpieces. Of those mailpieces, 2.75 percent were undeliverable-as-addressed (UAA), which adversely affected delivery of over 5.7 billion mailpieces! This represents a substantial waste of time, money, and opportunity for both mailers and the Postal Service™.

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, our goal at the NCSC is to provide mailers with top quality address products and services as we move toward 100 percent barcoding automation of letter mail.

2 Products Overview

Coding Accuracy Support System (CASS™)

The Coding Accuracy Support System (CASS) is a process of 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®, 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 US Postal Service™ 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.

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.

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 CASSTM 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.

ZIPMove

To reflect USPS® ZIP Code realignment efforts, the ZIPMove data file was created to assist address matching software in providing up-to-date, accurate ZIP+4® Codes. The primary objective in creating this product was to maximize mailers' ZIP+4 Code matching potential in situations in which ZIP Code realignments have taken place and a change in city name and/or finance number has occurred (which normally prevents address-matching software from determining the newly-assigned ZIP Code). Mailers are encouraged to incorporate ZIPMove as a regular part of their address hygiene process as a means of correcting addresses that have undergone a ZIP Code realignment in which a change in city name and finance number occurred.

Address Element Correction (AEC)

When CASS™ (Coding Accuracy Support System) -Certified address-matching software cannot match an address to 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 transforms problem addresses into accurate, standardized addresses, which allows mailers to take full advantage of automation discounts.

AEC focuses on correcting the following address element deficiencies: Misspellings, nonstandard abbreviations, incorrectly joined elements, improperly ordered elements, address lines containing data, and missing elements other than the actual address

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. The correct address is returned to the customer as both a complete address and a parsed address separated into individual address elements. If an address cannot be corrected using AEC, it is returned with the elements parsed and tagged with diagnostic codes identifying the element's problem(s). An "opinion" code that offers a suggestion as to why the address could not be matched to the ZIP+4 Product is also returned to aid in problem diagnosis. In addition, the address is flagged as potentially undeliverable so the customer can decide whether to use the address.

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 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 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) and Linkage System (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. This is also used on Local Video Encoders (LVE) and Remote Video Encoders (RVE).

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. This project will continue to be pursued, and we hope to have a beta file released prior to the end of the year.

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, LVE, and 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

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.

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 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

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.

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 “current USPS database” product cycle is defined by the following matrix.

File Release <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

When should you use CASS software?

- At the point of data entry, to keep bad addresses from ever getting into your database. Most vendors allow you to access CASS software in a batch mode or interactively through an 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

The use of CASS programs frequently interact with other programs and systems. Any changes to the CASS 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 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 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

5. Document all system functions that integrate with the CASS 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.
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.
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 engines and determine how improvements to the output of the CASS engine could provide benefit to the company/USPS.
10. Work with the technical teams running the CASS software to ensure parameter settings for the software will meet the new USPS requirements.
11. Evaluate how often the CASS process is run and how to improve, 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.
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 drivers prior to the CASS 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. There are no legitimate add-ons of all 0s.
- b) Invalid +4 add-ons of 9999. 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 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 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 163 PINE HILL DR 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 ones are actual delivery points (use 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)

Not 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 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 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.

Invalid

The address has missing or nonaddress data. The CASS 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.

Examples:

Address Level	Example	Comments	Postage Rates
ZIP+4 Code	105 E Main St Mytown, ST 23456-7890	All needed address elements	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. 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. 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 missing	Full Rate or not mailed May be 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 give 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.

Job scripts are already set up

Job scripts that were set 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 my growth or following movers). 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 upgrade 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.

But, to obtain discounts from CASS processing, you don't need to be CASS certified, you just need to be using a CASS certified 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 open 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 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.

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 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 investigate.

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. Missing out is missed opportunities. Plus, 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. Reasons include:

- In May/June, the USPS re-aligns the ZIP codes, so many changes may occur. Addresses should still code, just differently.
- The databases we 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 an on-line, interactive CASS coders that offer many of the same functions as the Interactive mode.

If a corrected address still can not 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 does not utilize CASS certified software for their responses.

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.

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.

Verify the CASS Report



CASS™ Summary 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.

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 ▷	①	From	① To	d. 5-Digit Coded ▷	①	From	① To
b. Z4Change Processed ▷	①			e. CRRT Coded ▷	①	From	① To
c. DPBC Assigned ▷	①	From	① To	f. eLOT Assigned ▷	②	From	② To
D. Mailer				3. Name and Address of 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					
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

PS Form 3553, January 2004 (Page 1 of 2)

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 “current USPS database” product cycle is defined by the following matrix.

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 total by total input records. Percentage should be over 90%.	⑮ 30 days before (the 15th of each month or bimonthly) or no later than 105 days after the ZIP + 4	180 days after the DPBC valid “From” date.

	This should be the same as ZIP+4 Coded.	product file 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 20 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 20 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 20 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

E. Qualitative Statistical Summary (QSS)

This information allows mailers and list processors to evaluate the quality of their address list processed through CASS 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.

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.

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 software product.

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 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)

eLOT

Early Warning System (EWS)

Locatable Address Conversion System (LACS)

Residential Delivery Index (RDI)

Z4Change

Z4Info

ZIPMove