

Finalist[®]

Release 8.3.0 - November 2013
Installation Guide
for Linux, Unix, Windows, and z/OS

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CHAPTER 1

Installing Finalist for Windows

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Before You Begin the Windows Installation

Before installing a new version of Finalist, we recommend that you uninstall any previous version of Finalist. For detailed information on uninstalling Finalist, refer to the section “[Uninstalling Finalist for Windows](#)” on page 13. The requirements for installing Finalist in a Windows environment are:

- A supported platform. For a list of supported platforms, see the “Supported Platforms” document available at <http://www.g1.com/support>.
- A Pentium or higher processor.
- A minimum of 96 MB RAM. This memory requirement does not include memory for your application code and data.
- A minimum of 11 MB of free hard disk space to install the product. To install all databases on disk, you will require additional hard disk space as noted below:
 - The addressing databases, zip4us.dir and city.dir, require approximately 1.1 GB of space.
 - The Early Warning System (EWS) file requires 300 KB of space.
 - The enhanced Line of Travel (LOT) Option File is a separate database requiring 625 MB of space.
 - If you are using the Delivery Point Validation (DPV) Option, the DPV database requires additional space depending on the DPV database type:
 - 635 MB for FULL
 - 1.1 GB for SPLIT
 - 2.2 GB for FLAT
 - If you are using the LACS^{Link} Option, the LACS^{Link} database requires 375 MB of space.
 - If you are using the Suite^{Link} Option, the Suite^{Link} database requires 525 MB of space.
 - If you are using RDI, the RDI databases requires 24 MB of space.
- Software keys for all the platforms and options being installed.
- DVD-ROM drive.

Finalist Keys

The Finalist key is restricted to your licensed System ID(s). The System ID information must be provided to your Pitney Bowes Software Account Manager before a software key can be created for your use. If you use Finalist on more than one system, you can provide up to seven System IDs in a single key.

NOTE: When you upgrade your hardware, you must provide the new System ID information to your Pitney Bowes Software Account Manager so a new software key can be generated.

Finding Your System ID

After installing Finalist on your system, to find your System ID:

1. Open a Windows command prompt (cmd.exe).
2. Change to the installed Finalist bin directory.
3. Execute the KeyStore.exe program with no parameters. You will see output similar to:

```
cd "\Program Files (x86)\Pitney Bowes\Finalist\bin"  
C:\Program Files (x86)\Pitney Bowes\Finalist\bin>KeyStore.exe  
Syntax: keystore key  
       where key is the Finalist key.  
       A file called keyfile.txt will be generated  
       and should be placed in your working folder.
```

```
System Tag(s): 10C048, 3681D0  
C:\Program Files (x86)\Pitney Bowes\Finalist\bin>
```

4. The System IDs for Finalist® display in the System Tag(s) field. In the example above, the System IDs for Finalist® are:

```
10C048  
3681D0
```

The System IDs are required to generate your license key. This information is based on your host system. If you are running on a virtual machine (VM) and move your VM to a new host system, you will need a new key with new System IDs.

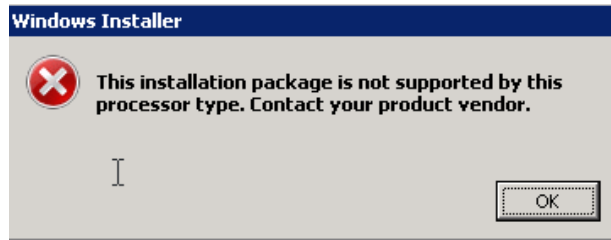
Saving Your Software Key

The KeyStore.exe program allows you to avoid storing your software key in your individual driver code or in individual pbfncfg files. KeyStore.exe generates a keyfile.txt file that is to be placed in the folder where you are *running* Finalist (not necessarily the Finalist /bin folder). The output will be similar to:

```
C:\Program Files\Pitney Bowes\Finalist\bin\ KeyStore.exe <your software key>  
Software key: <your software key>  
Finalist version: xx.xx.*  
Platform: Windows  
CASS expires: mm-dd-yyyy  
Finalist key {your software key} successfully set.  
  
C:\Program Files (x86)\Pitney Bowes\Finalist\bin>
```

Finalist for Windows Files

This section describes the Finalist files for installation on a Windows platform. You can install Finalist in 32-bit or 64-bit mode. You can install both versions at the same time on a Windows 64-bit system. You can only install the 32-bit version on a Windows 32-bit system. If you process in a 32-bit mode and attempt to install the 64-bit version, an error message displays.



The files listed in [Table 1](#), [Table 2](#), and [Table 3](#) are available (duplicated) for both installations

Finalist for Windows Library Files

Table 1: Finalist for Windows Library Files

File Name	Description
addrscan.dll	Address scan utility
addrscan.lib	Library for ADDRSCAN
dpvdl.dll	Delivery Point Validation (DPV) Option .dll
lacsflink.dll	LACSLink Option .dll
mfwrapmn.dll	Support library
mfwrapmn.lib	Support library
pbelot.dll	Enhanced Line of Travel (eLOT) Option .dll
pbfn.dll	Finalist engine
pbfn.lib	Library for Finalist engine
rdif.dll	Residential Delivery Indicator (RDI) Option .dll
stelinkflink.dll	SuiteLink Option .dll

Finalist for Windows Application Files

Table 2: Finalist for Windows Application Files

File Name	Description
configDriver.exe	Utility for editing the pbfncfg configuration file
finalist.exe	Finalist batch driver
keystore.exe	Utility to store software key in product
lookup.exe	Finalist lookup tool
statecut.exe	Utility to create regional bases from national base
workbench.exe	Graphical user interface to launch Finalist applications

Finalist for Windows Postal Coding Files

The Finalist for Windows software includes the postal coding files and a current copy of the monthly database files. The postal coding files include a static library, header files, and support files for programming and operation of the postal coding library.

Table 3: Finalist Postal Coding Files (Part 1 of 2)

File Type	Files
CASS run mode files	xxf.su\$ xxl.su\$
Database files	city.dir zip4us.dir ewsmdd.txt elotmmy.dir
Delivery Point Validation (DPV) Option database files	dpv.db (DPV Flat File) dpvh.db (DPV Full File) dps.db (DPV Split File)
Suite ^{Link} Option database files	slk.db
LACS ^{Link} Option database file	llk.db
Log file	log.txt
Configuration file	pbfncfg
Includes	C header files
Includes\copylib	COBOL copybooks

Table 3: Finalist Postal Coding Files (Part 2 of 2)

File Type	Files
Documentation files	Documentation files
Samples	Sample Finalist job/def/input files
Samples\C	C sample files
Samples\CPP	C++ sample files
Samples\Java	Java sample files
Samples\VB	Visual Basic sample files

Finalist for Windows Installation Default Directories

Table 4: Installation Default Directories for Finalist Files

Files	Installation Default Directory
.dll, .exe, and pbfncfg files	C:\Program Files\Pitney Bowes\FinalistXXX\Bin
Library files	C:\Program Files\Pitney Bowes\FinalistXXX\lib
Include files	C:\Program Files\Pitney Bowes\FinalistXXX\includes
Sample files	C:\Program Files\Pitney Bowes\FinalistXXX\Samples
Documentation files	C:\Program Files\Pitney Bowes\FinalistXXX\Documentation

- For “FinalistXXX”, “XXX” represents the current version.
- For “Program Files”:
 - When Finalist 32-bit is installed in a 32-bit OS, the default Finalist installation directory is C:\Program Files\Pitney Bowes\FinalistXXX.
 - When Finalist 32-bit is installed in a 64-bit OS, the default Finalist installation directory is C:\Program Files (x86)\Pitney Bowes\FinalistXXX.
 - When Finalist 64-bit is installed in a 64-bit OS, the default Finalist installation directory is C:\Program Files\Pitney Bowes\FinalistXXX.

NOTE: Finalist 64-bit **cannot** be installed in a 32-bit OS.

Finalist for Windows and Environment Variables

Finalist for Windows does not support the use of environment variables. Finalist searches for components in the current directory (e.g. pbfm.dll, finalist.exe, etc.).

Uninstalling Finalist for Windows

Before installing a new version of Finalist, we recommend that you uninstall any previous version of Finalist. The steps for uninstalling Finalist for Windows are:

1. From the Start menu, select Settings/Control Panel.
2. Double-click on the Add/Remove programs icon.
3. Click on the Finalist list item and click on the Add/Remove button.
4. Click on the Yes button in response to the Confirm File Deletion message.

Installation Steps for Windows

To install Finalist on a Windows platform, follow these steps.

1. Download the product update. Windows customers can select one of two options to receive a new Finalist® release.
 - a. **Download the software via the eStore.** This is the preferred, fastest and most expeditious channel. You will receive an automatic notification via email with special links to the Finalist release for supported platforms. Click on the desired link and follow the instructions carefully in the FAQ section of the email to complete the download. Backup media may also be ordered via this channel for a fee. **NEW USERS TO THE eSTORE WILL NEED TO ESTABLISH A NEW eSTORE ACCOUNT** for the first download transaction.
 - b. **Download the software via the support site.** Establish and log in to an account at <http://www.g1.com/support>. Log in to Support > My Products > Finalist > Product Updates. This channel is for electronic download only and does not support backup media orders.
2. Download the installation .ZIP file.
3. Use the "Save-As" option to save the .ZIP file to your system.
4. Extract the files.
5. Double click on Setup_32.exe for 32-bit installations or Setup_64.exe for 64-bit installations.

6. Follow the instructions provided by the installation program for a successful installation.

Installing the Finalist Database

This section provides instructions for installing the following Finalist database files.

- city.dir
- zip4us.dir

NOTE: The same Finalist databases are used for the 32-bit and 64-bit installations of Finalist.

To install the database files, follow the steps below.

1. Download the database files. You can select one of two download options.
 - a. **Download the database(s) via the eStore.** This is the preferred, fastest and most expeditious channel. You will receive an automatic notification via email with special links to the Finalist databases. Click on the desired link and follow the instructions carefully in the FAQ section of the email to complete the download. Backup media may also be ordered via this channel for a fee. NEW USERS TO THE eSTORE WILL NEED TO ESTABLISH A NEW eSTORE ACCOUNT for the first download transaction.
 - b. **Download the database(s) via the support site.** Establish and log in to an account at <http://www.g1.com/support>. Select the appropriate file(s). The download and installation instructions will be provided to you as part of the download process once you are logged in.
2. Download the installation .ZIP file.
3. Use the "Save-As" option to save the .ZIP file to your system.
4. Extract the files.
5. Follow the instructions provided by the installation program for a successful database installation.

6. The installation process places the database files in the location shown in Table 5.

Table 5: Installation Default Directories for Finalist Database Files

Files	Installation Default Directory
city.dir	C:\Pitney Bowes\FinalistXXX\db
zip4us.dir	C:\Pitney Bowes\FinalistXXX\db

Installing the Optional Finalist Databases

This section provides instructions for installing the optional Finalist database files in a Windows environment.

NOTE: The same optional databases are used for the 32-bit and 64-bit installations of Finalist.

Table 6: Optional Finalist Databases

Optional Database	Required for CASS Processing?
Early Warning System (EWS)	No
Line of Travel (eLOT)	No
Delivery Point Validation (DPV)	Yes
LACS ^{Link}	Yes
Suite ^{Link}	Yes
Residential Delivery Indicator (RDI)	No

NOTE: Pitney Bowes Software does not distribute the RDI databases. You must contact the USPS directly to obtain the RDI databases.

To install the optional Finalist databases on a Windows platform, follow these steps.

1. Download the database files. You can select one of two download options.
 - a. **Download the database(s) via the eStore.** This is the preferred, fastest and most expeditious channel. You will receive an automatic notification via email with special links to the Finalist databases. Click on the desired link and follow the instructions carefully in the FAQ section of the email to complete the download. Backup media may also be ordered via this channel for a fee. NEW USERS TO THE eSTORE WILL NEED TO ESTABLISH A NEW eSTORE ACCOUNT for the first download transaction.
 - b. **Download the database(s) via the support site.** Establish and log in to an account at <http://www.g1.com/support>. Select the appropriate file(s). The download and installation instructions will be provided to you as part of the download process once you are logged in.
2. Download the installation .ZIP file.
3. Use the "Save-As" option to save the .ZIP file to your system.
4. Extract the files.
5. Follow the instructions provided by the installation program for a successful database installation.
6. Move the extracted files directly to your database location.

Verifying the Finalist for Windows Installation

To verify your Finalist for Windows installation, follow these steps:

1. Make sure Finalist has access to the database files. If you would like to run with the database files locally, copy them from the DVD-ROM to a local directory on your hard drive. If you would like to access the database files directly from the DVD-ROM, make sure the Finalist DVD-ROM is in your DVD-ROM drive.
2. Modify the Finalist configuration file `pbfn.cfg` to indicate the location of the database files. Use an ASCII text editor to modify the lines in the `pbfn.cfg` to set the City and ZIP+4 file names and the Software Key. For our installation example above, the appropriate lines would be:

```
City Directory Filename = C:\PitneyBoves\Finalist\db\city.dir
ZIP+4 Directory Filename 1 = C:\PitneyBoves\Finalist\db\zip4us.dir
SOFTWARE KEY = software key shipped with the product
```


3. Go to the samples directory and run the batch driver program, using sample.job from the samples directory as the input job file.

```
C:\Program Files\Pitney Bowes\FinalistXXX\Samples> ..\bin\finalist sample.job
```

NOTE: In “FinalistXXX” above, “XXX” represents the current version.

4. After the command is completed, the sample.out, sample.val, sample.err, and sample.rpt files are created in the samples directory. The sample.out file contains the output addresses. The output addresses in this file appear in upper case. If the files are generated and the addresses are in upper case, the program ran to completion.

CHAPTER 2

Installing Finalist for Unix

This chapter provides instructions for installing Finalist on a Unix platform.

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Before You Begin the Unix Installation

This section provides information on requirements for installing Finalist on a Unix platform. The requirements for installing Finalist in a Unix environment are:

- A supported platform. For a list of supported platforms, see the “Supported Platforms” document available at <http://www.g1.com/support>.
- A minimum of 96 MB RAM. This memory requirement does not include memory for your application code and data.
- A minimum of 11 MB of free hard disk space to install the product. To install all databases on disk, you will require additional hard disk space as noted below:
- The addressing databases, zip4us.dir and city.dir, require approximately 1.1 GB of space.
- The Early Warning System (EWS) file requires 300 KB of space.
- The enhanced Line of Travel (LOT) Option File is a separate database requiring 625 MB of space.
- If you are using the Delivery Point Validation (DPV) Option, the DPV database requires additional space depending on the DPV database type:
 - 635 MB for FULL
 - 1.1 GB for SPLIT
 - 2.2 GB for FLAT
 - If you are using the LACS^{Link} Option, the LACS^{Link} database requires 375 MB of space.
 - If you are using the Suite^{Link} Option, the Suite^{Link} database requires 525 MB of space.
 - If you are using RDI, the RDI databases requires 24 MB of space.
- DVD-ROM drive.

Finalist Keys

The Finalist key is restricted to your licensed System ID(s). The System ID information must be provided to your Pitney Bowes Software Account Manager before a software key can be created for your use. If you use Finalist on more than one system, you can provide up to seven System IDs in a single key.

NOTE: When you upgrade your hardware, you must provide the new System ID information to your Pitney Bowes Software Account Manager so a new software key can be generated.

Finding Your System ID

You can run the KeyStore program (refer to the section “[Saving Your Software Key](#)” on page 22) with no input to display your System ID information. If you do not have access to the KeyStore program, the following method can also be used to obtain the System ID information.

HP-UX

1. From a prompt, issue the following command:

```
uname -i
```

2. The response is similar to:

```
3509210850
```

3. The System ID for Finalist® is the last six characters. In the example above, the value is:

```
210850
```

AIX

1. From a prompt, issue the following command:

```
uname -m
```

2. The response is similar to:

```
00C2E8BE4C0
```

3. The System ID for Finalist® is in characters 3-8 of the response. In the example above, the value is:

```
C2E8BE
```

SunOS

1. From a prompt, issue the following command:

```
hostid
```

2. The response is similar to:

```
830294e1
```

3. The number returns in a hexadecimal format. Convert the number to decimal. The sample response converts to:

```
2197984481
```

4. The System ID for Finalist is the last six characters. In the example above, the value is:

```
984481
```

Saving Your Software Key

KeyStore is an optional program that allows you to avoid storing your software key in your individual driver code or in individual pbfn.cfg files. KeyStore generates a keyfile.txt file that can be placed in the folder where you are running Finalist (not the Finalist /bin folder).

KeyStore is a command line program (not a GUI). The syntax of the program is:

```
./keystore <your software key>
```

KeyStore generates a keyfile.txt file that is to be placed in the folder from which you will run Finalist.

If you run KeyStore without a parameter, KeyStore displays the System ID. It is this System ID that is required to generate your Finalist software key. You can use this method as an alternative to the commands described above.

Finalist for Unix Files

The Finalist for Unix installation package includes the postal coding files and a current copy of the monthly database files. The postal coding files include a static library, header files, and support files for programming and operation of the postal coding library. [Table 1](#) lists the Finalist for Unix library files.

NOTE: Finalist installation includes a 32-bit version and a 64-bit version. The 32-bit version of Finalist is located in the finalist/bin and finalist/lib folders. The 64-bit version of Finalist is located in the finalist/bin64 and finalist/lib64 folders. The same samples and databases are used by the 32-bit and 64-bit versions of Finalist.

Table 1: Finalist for Unix Files

File Type	Files
Binary files	finalist keystore statecut xxf.su\$ xxl.su\$
Configuration file	pbfncfg
Documentation files	Documentation files
Include files	C header files and COBOL copybooks
Library files	libaddrscan.a libpbfnc.a
Delivery Point Validation (DPV) Option database files	dpu.db (DPV Flat file) dpuh.db (DPV Full file) dpuv.db (DPV Split file)
Suite ^{Link} Option database file	slk.db
LACS ^{Link} Option database file	llk.db
Samples	Sample Finalist job/def/input files
Samples/C	C sample files
Samples/CPP	C++ sample files
Samples/Java	Java sample files

Finalist for Unix and Environment Variables

Finalist for Unix does not support the use of environment variables. Finalist searches for components in the current directory (i.e., finalist, statecut, etc.).

Installation Steps for Unix

To install Finalist on a Unix platform, follow these steps.

1. Download the product update. Unix customers can select one of two options to receive a new Finalist® release.
 - a. **Download the software via the eStore.** This is the preferred, fastest and most expeditious channel. You will receive an automatic notification via email with special links to the Finalist release for supported platforms. Click on the desired link and follow the instructions carefully in the FAQ section of the email to complete the download. Backup media may also be ordered via this channel for a fee. **NEW USERS TO THE eSTORE WILL NEED TO ESTABLISH A NEW eSTORE ACCOUNT** for the first download transaction.
 - b. **Download the software via the support site.** Establish and log in to an account at <http://www.g1.com/support>. Log in to Support > My Products > Finalist > Product Updates. This channel is for electronic download only and does not support backup media orders.
2. Download the installation file.
3. Use the "Save-As" option to save the file to your system.
4. Extract the files.
5. Use an FTP type of program to binary transfer the .Z file from your Windows machine to your desired platform. You must ensure the filename ends with a capital Z.
6. Use the following commands to uncompress FINALIST.Z:

```
%> uncompress FINALIST.Z
%> tar -xvf FINALIST
```
7. Follow the instructions to install the Finalist product files.

Installing the Finalist Database

This section provides instructions for installing the following Finalist database files.

- city.dir
- zip4us.z

NOTE: The same Finalist databases are used for the 32-bit and 64-bit installations of Finalist.

To install the database files, follow the steps below.

1. Download the database files. Unix customers can select one of two download options.
 - a. **Download the database(s) via the eStore.** This is the preferred, fastest and most expeditious channel. You will receive an automatic notification via email with special links to the Finalist databases. Click on the desired link and follow the instructions carefully in the FAQ section of the email to complete the download. Backup media may also be ordered via this channel for a fee. NEW USERS TO THE eSTORE WILL NEED TO ESTABLISH A NEW eSTORE ACCOUNT for the first download transaction.
 - b. **Download the database(s) via the support site.** Establish and log in to an account at <http://www.g1.com/support>. Select the appropriate file(s). The download and installation instructions will be provided to you as part of the download process once you are logged in.
2. Download the installation file.
3. Use the "Save-As" option to save the file to your system.
4. Extract the files.
5. Use an FTP type of program to binary transfer the files from your Windows machine to your desired platform. You must ensure the zip4us.Z ends with a capital Z on your desired platform.
6. Type the following commands to uncompress zip4us.dir.

```
%> uncompress zi p4us. Z  
%> mv zi p4us zi p4us. di r
```

Installing the Optional Finalist Databases

This section provides instructions for installing the following optional Finalist databases in a Unix environment.

NOTE: The same optional databases are used for the 32-bit and 64-bit installations of Finalist.

Table 2: Optional Finalist Databases

Optional Database	Required for CASS Processing?
Early Warning System (EWS)	No
Line of Travel (eLOT)	No
Delivery Point Validation (DPV)	Yes
LACSLink	Yes
SuiteLink	Yes
Residential Delivery Indicator (RDI)	No

NOTE: Pitney Bowes Software does not distribute the RDI databases. You must contact the USPS directly to obtain the RDI databases.

To install the database files, follow the steps below.

1. Download the database files. Unix customers can select one of two download options.
 - a. **Download the database(s) via the eStore.** This is the preferred, fastest and most expeditious channel. You will receive an automatic notification via email with special links to the Finalist databases. Click on the desired link and follow the instructions carefully in the FAQ section of the email to complete the download. Backup media may also be ordered via this channel for a fee. NEW USERS TO THE eSTORE WILL NEED TO ESTABLISH A NEW eSTORE ACCOUNT for the first download transaction.
 - b. **Download the database(s) via the support site.** Establish and log in to an account at <http://www.g1.com/support>. Select the appropriate file(s). The download and installation instructions will be provided to you as part of the download process once you are logged in.
2. Download the installation file.

3. Use the "Save-As" option to save the file to your system.
4. Extract the files.
5. Use an FTP type of program to binary transfer the files from your Windows machine to your desired platform. You must ensure the zip4us.Z ends with a capital Z on your desired platform.
6. Type the following commands to uncompress zip4us.dir.

```
%> uncompress zip4us.Z
%> mv zip4us.zip4us.dir
```

Verifying the Finalist for Unix Installation

To verify your Finalist for Unix installation, follow the steps described next.

1. Make sure Finalist has access to the database files. If you would like to run with the database files locally, copy them from the DVD-ROM to a local directory on your hard drive.
2. Modify the Finalist configuration file pbfncfg to indicate the location of the database files. Use the Unix text editor vi or another ASCII text editor to modify the lines in the pbfncfg to set the City and ZIP+4 file names and the software key. For our installation example above, if you wanted to access the database files directly from the DVD-ROM, the appropriate lines would be:

```
City Directory Filename = /pntneybowes/finalist/db/city.dir
ZIP+4 Directory Filename 1 = /pntneybowes/finalist/db/zip4us.dir
SOFTWARE KEY = software key
```

3. Go to the samples directory and run the batch driver program, using sample.job from the samples directory as the input job file.

```
cd /pntneybowes/finalist/samples
./bin/finalist sample.job
```

4. After the command is completed, the sample.out, sample.val, sample.err, and sample.rpt files are created in the samples directory. The sample.out file contains the output addresses. The output addresses in this file appear in upper case. If the files are generated and the addresses are in upper case, the program ran to completion.

Defining the Database Paths

After you copy the database files from the distribution media, make sure to set the following entries in the `pbfn.cfg` file to the path name of the installed database files.

```
City Directory Filename = /.../ci ty. di r
```

```
ZIP+4 Directory Filename 1 = /.../zi p4us. di r
```

Finalist for Unix Documentation Notes

The Finalist software follows a platform design and programming approach which assures that the same library functionality is available via all Finalist libraries whether running under z/OS, Windows, or Unix. For documentation purposes, the API overviews and descriptions are documented once for all platforms. For detailed descriptions of each API call, refer to your *Developer's Reference Guide*.

CHAPTER 3

Installing Finalist for Linux

This chapter provides instructions for installing Finalist on a Linux platform.

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Before You Begin the Linux Installation

This section provides information on requirements for installing Finalist on a Linux platform. The requirements for installing Finalist in a Linux environment are:

- A supported version of Linux. For a list of supported versions of Linux, see the “Supported Platforms” document available at <http://www.g1.com/support>.
- A minimum of 96 MB RAM. This memory requirement does not include memory for your application code and data.
- A minimum of 11 MB of free hard disk space to install the product. To install all databases on disk, you will require additional hard disk space as noted below:
- The addressing databases, zip4us.dir and city.dir, require approximately 1.1 GB of space.
- The Early Warning System (EWS) file requires 300 KB of space.
- The enhanced Line of Travel (LOT) Option File is a separate database requiring 625 MB of space.
- If you are using the Delivery Point Validation (DPV) Option, the DPV database requires additional space depending on the DPV database type:
 - 635 MB for FULL
 - 1.1 GB for SPLIT
 - 2.2 GB for FLAT
 - If you are using the LACS^{Link} Option, the LACS^{Link} database requires 375 MB of space.
 - If you are using the Suite^{Link} Option, the Suite^{Link} database requires 525 MB of space.
 - If you are using RDI, the RDI databases requires 24 MB of space.
- DVD-ROM drive.

Finalist Keys

The Finalist key is restricted to your licensed System ID(s). The System ID information must be provided to your Pitney Bowes Software Account Manager before a software key can be created for your use. If you use Finalist on more than one system, you can provide up to seven System IDs in a single key.

NOTE: When you upgrade your hardware, you must provide the new System ID information to your Pitney Bowes Software Account Manager so a new software key can be generated.

Finding Your System ID

You can run the KeyStore program (see section “Saving Your Software Key” on page 32) with no input to display your System ID information. If you do not have access to the KeyStore program, the following method can also be used to obtain the System ID information.

Red Hat

1. From a prompt, issue the following command:

```
/sbin/ifconfig
```

2. The response is similar to:

```
eth0      Link encap: Ethernet  HWaddr 00:06:5B:AB:19:68
...
```

3. The System ID for Finalist® is the last six actual characters following Ethernet HWaddr. In the example above, the value is:

```
AB1968
```

z/SuSE

1. From a prompt, issue the following command:

```
cat /proc/cpuinfo
```

2. The response is similar to:

```
vendor_id      : IBM/S390
# processors   : 2
bogomips per cpu: 514.45
processor 0: version = 00,  identification = 000777,  machine = 2096
processor 1: version = 00,  identification = 100777,  machine = 2096...
```

3. The System ID for Finalist® is the numbers following identification. In the example above, the two values are:

```
000777
100777
```

Saving Your Software Key

KeyStore is an optional program that allows you to avoid storing your software key in your individual driver code or in individual pbfn.cfg files. KeyStore will generate a keyfile.txt file that can be placed in the folder where you are running Finalist (not the Finalist /bin folder).

KeyStore is a command line program (not a GUI). The syntax of the program is:

```
./keystore <your software key>
```

KeyStore generates a keyfile.txt file that is to be placed in the folder from which you will run Finalist.

If you run KeyStore without a parameter, KeyStore displays the System ID. It is this System ID that is required to generate your Finalist software key. You can use this method as an alternative to the commands described above.

Finalist for Linux Files

The Finalist for Linux installation package includes the postal coding files and a current copy of the monthly database files. The postal coding files include a static library, header files, and support files for programming and operation of the postal coding library. [Table 1](#) lists the Finalist for Linux library files.

NOTE: Finalist installation includes a 32-bit version and a 64-bit version. The 32-bit version of Finalist is located in the finalist/bin and finalist/lib folders. The 64-bit version of Finalist is located in the finalist/bin64 and finalist/lib64 folders. The same samples and databases are used by the 32-bit and 64-bit versions of Finalist.

Table 1: Finalist for Linux Files

File Type	Files
Binary files	finalist keystore statecut xxf.su\$ xxl.su\$
Configuration file	pbfn.cfg
Documentation files	Documentation files
Include files	C header files and COBOL copybooks
Library files	libaddrscan.a libpbfn.a liblot.a librdi.a
Delivery Point Validation (DPV) Option database files	dpv.db (DPV Flat file) dpvh.db (DPV Full file) dpsv.db (DPV Split file)
Suite ^{Link} Option database file	slk.db
LACS ^{Link} Option database file	llk.db
Samples	Sample Finalist job/def/input files
Samples/C	C sample files
Samples/CPP	C++ sample files
Samples/Java	Java sample files

Installation Steps for Linux

The Finalist product installation for Linux requires you to log in as root. The installation process installs Finalist into the following folder:

`/usr/lib/Finalist-v.r.m-1`

Where v.r.m is the version, release, and modification level of Finalist.

The installation process also places a symbolic link to the finalist executable in the following folder:

`/usr/bin`

Follow these steps to complete the Finalist product installation for Linux.

1. Download the product update. Linux customers can select one of two options to receive a new Finalist® release.
 - a. **Download the software via the eStore.** This is the preferred, fastest and most expeditious channel. You will receive an automatic notification via email with special links to the Finalist release for supported platforms. Click on the desired link and follow the instructions carefully in the FAQ section of the email to complete the download. Backup media may also be ordered via this channel for a fee. NEW USERS TO THE eSTORE WILL NEED TO ESTABLISH A NEW eSTORE ACCOUNT for the first download transaction.
 - b. **Download the software via the support site.** Establish and log in to an account at <http://www.g1.com/support>. Log in to Support > My Products > Finalist > Product Updates. This channel is for electronic download only and does not support backup media orders.
2. Download the installation file.
3. Use the "Save-As" option to save the file to your system.
4. Extract the files.
5. Use an FTP type of program to binary transfer the Finalist.rpm file from your Windows machine to your desired platform.
6. Log in as the root user.
7. Open a command prompt (if you logged in using a GUI).
8. Go to the directory where the Finalist RPM file exists (DVD or download).

9. Type the following:

```
rpm -ivh Finalist.rpm
```

10. To verify a successful product installation, type the following:

```
finalist -v
```

Non Root/Alternate Location Installation

To install the Finalist product into a location other than /usr or if you do not want to use root authority to install Finalist, follow the instructions in this section.

You can create your own installation location by using instructions similar to:

```
cd /usr/USERID (NOTE: This is the location where you want to install Finalist.)
mkdir rpm
rpm --initdb --root /usr/USERID --dbpath rpm
rpm --dbpath /usr/USERID/rpm --relocate /usr=/usr/USERID --nodeps -i Finalist.rpm
```

Removing an old RPM installation

To remove an older installation of Finalist, use the -e option of rpm:

```
rpm -e Finalist-v.r.m-1
```

If you installed using an alternate rpm installation database, you can either simply delete the folders or uninstall using the following.

```
rpm -e Finalist-v.r.m-1.x86_64 --root /usr/USERID --dbpath rpm
```

Installing the Finalist Database

This section provides instructions for installing the following Finalist database files.

- city.dir
- zip4us.z

NOTE: The same Finalist databases are used for the 32-bit and 64-bit installations of Finalist.

To install the database files, follow the steps below.

1. Download the database files. Linux customers can select one of two download options.
 - a. **Download the database(s) via the eStore.** This is the preferred, fastest and most expeditious channel. You will receive an automatic notification via email with special links to the Finalist databases. Click on the desired link and follow the instructions carefully in the FAQ section of the email to complete the download. Backup media may also be ordered via this channel for a fee. NEW USERS TO THE eSTORE WILL NEED TO ESTABLISH A NEW eSTORE ACCOUNT for the first download transaction.
 - b. **Download the database(s) via the support site.** Establish and log in to an account at <http://www.g1.com/support>. Select the appropriate file(s). The download and installation instructions will be provided to you as part of the download process once you are logged in.
2. Download the installation file.
3. Use the "Save-As" option to save the file to your system.
4. Extract the files.
5. Use an FTP type of program to binary transfer the files from your Windows machine to your desired platform. You must ensure the zip4us.Z ends with a capital Z on your desired platform.
6. Type the following commands to uncompress zip4us.dir.

```
%> uncompress zi p4us. Z
%> mv zi p4us zi p4us. di r
```

Installing the Optional Finalist Databases

This section provides instructions for installing the following optional Finalist databases in a Linux environment.

NOTE: The same optional databases are used for the 32-bit and 64-bit installations of Finalist.

Table 2: Optional Finalist Databases

Optional Database	Required for CASS Processing?
Early Warning System (EWS)	No
Line of Travel (eLOT)	No
Delivery Point Validation (DPV)	Yes
LACSLink	Yes
SuiteLink	Yes
Residential Delivery Indicator (RDI)	No

NOTE: Pitney Bowes Software does not distribute the RDI databases. You must contact the USPS directly to obtain the RDI databases.

To install the database files, follow the steps below.

1. Download the database files. Linux customers can select one of two download options.
 - a. **Download the database(s) via the eStore.** This is the preferred, fastest and most expeditious channel. You will receive an automatic notification via email with special links to the Finalist databases. Click on the desired link and follow the instructions carefully in the FAQ section of the email to complete the download. Backup media may also be ordered via this channel for a fee. NEW USERS TO THE eSTORE WILL NEED TO ESTABLISH A NEW eSTORE ACCOUNT for the first download transaction.
 - b. **Download the database(s) via the support site.** Establish and log in to an account at <http://www.gl.com/support>. Select the appropriate file(s). The download and installation instructions will be provided to you as part of the download process once you are logged in.
2. Download the installation file.
3. Use the "Save-As" option to save the file to your system.

4. Extract the files.
5. Use an FTP type of program to binary transfer the files from your Windows machine to your desired platform. You must ensure the zip4us.Z ends with a capital Z on your desired platform.
6. Type the following commands to uncompress zip4us.dir.

```
%> uncompress zip4us.Z
%> mv zip4us zip4us.dir
```

To install the optional Finalist databases in a Linux environment, copy the files to the desired directory in the local or network drive. For example:

```
% cp /dvdrom/* /pi tneybowes/finalist/db/.
```

Verifying the Finalist for Linux Installation

To verify your Finalist for Linux installation, follow the steps described next.

1. Make sure Finalist has access to the database files. If you would like to run with the database files locally, copy them from the DVD-ROM to a local directory on your hard drive.
2. Modify the Finalist configuration file pbfncfg to indicate the location of the database files. Use the Linux text editor vi or another ASCII text editor to modify the lines in the pbfncfg to set the City and ZIP+4 file names and the software key. For our installation example above, if you wanted to access the database files directly from the DVD-ROM, the appropriate lines would be:

```
City Directory Filename = /pi tneybowes/finalist/db/city.dir
ZIP+4 Directory Filename 1 = /pi tneybowes/finalist/db/zip4us.dir
SOFTWARE KEY = software key
```

3. Go to the samples directory and run the batch driver program, using sample.job from the samples directory as the input job file.

```
cd /pi tneybowes/finalist/samples
../bin/finalist sample.job
```

4. After the command is completed, the sample.out, sample.val, sample.err, and sample.rpt files are created in the samples directory. The sample.out file contains the output addresses. The output addresses in this file appear in upper case. If the files are generated and the addresses are in upper case, the program ran to completion.

Defining the Database Paths

After you copy the database files from the distribution media, make sure to set the following entries in the `pbfn.cfg` file to the path name of the installed database files.

```
City Directory Filename = /.../city.dir
```

```
ZIP+4 Directory Filename 1 = /.../zip4us.dir
```

Finalist for Linux Documentation Notes

The Finalist software follows a platform design and programming approach which assures that the same library functionality is available via all Finalist libraries whether running under z/OS, Windows, Unix, or Linux. For documentation purposes, the API overviews and descriptions are documented once for all platforms. For detailed descriptions of each API call, refer to your *Developer's Reference Guide*.

NOTE: In guides other than the Installation Guide, there is no differentiation made between Unix and Linux. If you see a reference to Unix and no mention of Linux, then that feature operates the same on Linux as it does on Unix.

CHAPTER 4

Installing Finalist for z/OS

This chapter provides instructions for installing Finalist on a z/OS platform.

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Before You Begin the z/OS Installation

This section provides information on requirements for installing Finalist on a z/OS platform. The Finalist product and the Finalist databases are distributed on separate sets of tapes. The Finalist product tape consists of one tape. The Finalist database tape consists of multiple tapes. The Finalist database tapes are shipped monthly. The Finalist product tape is shipped on an as needed basis.

The requirements for installing Finalist in a z/OS environment are:

- You must be running on a currently supported IBM operating system.
- See <http://www.ibm.com/software/info/supportlifecycle> for a list of currently supported IBM operating systems.
- For batch processing, you must run in a region that has at least 70M of storage available. Additional options like DPV or LACS^{Link} can significantly increase the storage requirements.
- Finalist provides, as a default option, a version of batch executable compiled with IBM's High Performance Linker option also called XPLINK. XPLINK requires the use of PDSEs. You are not required to use the XPLINK version of Finalist. If you choose not to use the XPLINK version, remove the steps in INSTALLB that begin with XP. If you choose to use the XPLINK version of Finalist batch processing, replace your normal Finalist batch loadlib with the XPLINK Finalist loadlib.
- Finalist provides, as a default option, a version of batch executable compiled for 64-bit z/OS. This version uses the X64 qualifier in the dataset name. You are not required to use the X64 version of Finalist. If you choose not to use the X64 version, remove the steps in INSTALLB that begin with X6. If you choose to use the X64 version of Finalist batch processing, replace your normal Finalist batch loadlib with the X64 Finalist loadlib.
- If you are installing Finalist z/OS for CICS, you must install the batch option first, then move ahead to Chapter 5, Installing Finalist for z/OS CICS.
- If you are installing Finalist z/OS for IMS, you must install the batch option first, then move ahead to Chapter 6, Installing Finalist for z/OS IMS.

Finalist Keys

The Finalist key is restricted to your licensed System ID(s). The System ID information must be provided to your Pitney Bowes Software Account Manager before a software key can be created for your use. If you use Finalist on more than one system, you can provide up to seven System IDs in a single key.

NOTE: When you upgrade your hardware, you must provide the new System ID information to your Pitney Bowes Software Account Manager so a new software key can be generated.

Finding Your System ID

You can run the KeyStore program with no input to display your System ID information. If you do not have access to the KeyStore program, the following methods can also be used to obtain the System ID information.

z/OS

1. Issue the operator command:

```
D M=CPU
```

2. The response is similar to:

```
IEE174I 15.33.37 DISPLAY M 648
PROCESSOR STATUS
ID CPU SERIAL
00 + 01E3E02096
...
```

3. The System ID for Finalist® is the first six characters below the SERIAL field. In the example above, the value is:

```
01E3E0
```

Storing the Finalist Key

PGM=KEYSTORE is a program that allows you to avoid storing your software key in your individual driver code or in individual pbfncfg files. The method for storing your software key differs based on whether you are running in a 31-bit mode or a 64-bit mode.

KEYSTORE for 31-Bit

PGM=KEYSTORE generates a PBFNKEYF load module that is linked into your Finalist load library. This is required for CI users and optional for all other users.

NOTE: Pitney Bowes Software provided CICS and IMS transactions run with the CI interface. If you are using CICS or IMS, you will need to run PGM=KEYSTORE multiple times, each one targeting the proper LOAD library.

Sample JCL for KeyStore can be found in the FNSOURCE library that is part of the installation. In summary, PGM=KEYSTORE:

1. Reads in the key
2. Generates an assembler (BAL) program that is compiled and linked and placed into the Finalist LOADLIB. This program only needs to be rerun if you replace your LOADLIB or change your system hardware.

If you run PGM=KEYSTORE without a value in SYSIN, the System ID displays. It is this System ID that is required to generate your Finalist software key. You can use this method as an alternative to the D M=CPU command described above.

KEYSTR64 for 64-Bit

Sample JCL for KEYSTR64 can be found in the FNSOURCE library that is part of the installation. In summary, PGM=KEYSTORE:

1. Reads in the key
2. Generates a C program called PBFNKEYF.
3. PBFNKEYF is compiled into the installed Finalist X64 object library.
4. PBFN is re-linked into the installed X64 LOADLIB using the newly created KEYFILE.

This program only needs to be rerun if you replace your LOADLIB or change your system hardware.

Terminology

While many parts of the Finalist documentation are geared toward Windows and Unix customers, Finalist functions equally well on z/OS operating systems. While some parts of the documentation refer to Windows and Unix style names, z/OS style names can be used. For example, the pbfncfg file used on Windows and Unix operating systems is referenced as DD PBFNCFG on z/OS systems. Where generic descriptions are used, Windows and Unix conventions will be followed. Where specific detail is provided, z/OS details are given.

Installation Library Description

A description of the installation library is provided below.

Table 1: Installation Library Description

Installation Library Member	Contents Description
BALCOPYL	Assembler (BAL) macros and COPY members used to access the Finalist product.
BAOBJLIB	Object members used to create the executable version of Finalist. This library contains both batch and IMS object members.
CINCLUDE	C headers used to access the Finalist product.
CIOBJLIB	Object members used to create the executable version of Finalist for CICS.
CISOURCE	Source to use in conjunction with the Finalist for CICS option. Contains a mixture of Assembler (BAL), COBOL, C, and CICS source.
COBCOPYL	COBOL COPY members used to access the Finalist product.
FNSOURCE	JCL and notes for installing and verifying Finalist.
SAMPLIVP	Sample input stream to test the successful installation of Finalist. This file does not necessarily contain codeable addresses. The purpose of this file is simply to verify that the Finalist installation was successful.
X6OBJLIB	Contains object members used to create the executable version of batch Finalist using 64-bit.
XBOBJLIB	Object members used to create the executable version of batch Finalist using XPLINK, IBM's High Performance Linker.

Installing Finalist for z/OS from the Internet

To install the Finalist for z/OS software from the Internet, follow these steps.

1. Download the product update from the Pitney Bowes Software website to a PC. Unzip the file.
2. Use binary FTP files to send files to your mainframe.
 - a. The first set of files is the *.UNLOAD files. These files should be uploaded to an FB 80 sequential dataset using as much as 100 3390 tracks. A specific block size is not required.
 - b. The second set of files is the *.DAT files.

DPVSUD00.DAT is a dataset with a size of 1 track and RECFM=F (not FB) and LRECL=7.

LLKSUD00.DAT is a dataset with a size of 1 track and RECFM=F (not FB) and LRECL=7.

SAMPLIVP.DAT is a dataset with a size of 10 3390 tracks and RECFM=FB and LRECL=600.
 - c. An uploadz.ftp file has been provided to give approximate file sizes for files to be uploaded to your mainframe. These file sizes are based on 3390 DASD storage. This file is based on standard IBM FTP protocol. The FTP protocol may vary on your system. See your systems programmer for site-specific details.
3. Edit the uploadz.ftp file and insert your mainframe address.
 - a. Edit the USERID and PASSWORD values to the appropriate values for your system. You may remove any sections that do not apply to your site. Note that there are separate sections for install component uploading and for sample restore JCL uploading. (You may remove the IMS or CICS sections if you do not use those options.)
 - b. Change "yourhlq." to the appropriate high level qualifier for your installation.
4. The uploadz.bat file has been provided to automatically execute FTP to send the files to your mainframe. From Windows Explorer, double click the uploadz.bat file to send the files to your mainframe.

5. All customers should edit and submit the yourhlq.RECEIVEB.JCL JCL to create the base (batch) object libraries:
 - BALCOPYL
 - BAOBJLIB
 - CINCLUDE
 - COBCOPYL
 - FNSOURCE
 - X6OBJLIB
 - XBOBJLIB
6. CICS customers should edit and submit the yourhlq.RECEIVEC.JCL JCL to create the CICS object libraries:
 - CIOBJLIB
 - CISOURCE
7. IMS customers should edit and submit the yourhlq.RECEIVEI.JCL JCL to create the IMS object libraries:
 - ACBCNTL
 - DBDSORC
 - GENMAC
 - JCLLIB
 - PSBSORC
 - SORCLIB
 - TFMTSORC
8. Continue with the installation. However, skip the steps that access the installation tape (INSTALL and INSTALI1).

Installation Steps for z/OS

To install Finalist in a z/OS environment, follow the steps below.

1. Load the source file from the Finalist tape. Skip this step if you are installing from the Internet.

This step requires access to the Finalist product tapes. Use the following JCL to extract the initial Finalist source library (FNSOURCE) from tape to DASD (PDS INSTALL.FNSOURCE).

```
//TLBL002 EXEC PGM=I EBCOPY, REGION=4M
//SYSPRINT DD SYSOUT=*
//TAPE DD DSN=FINALIST.FNSOURCE, DISP=(OLD, PASS),
1 // LABEL=(2, NL), UNIT=xxxx,
// DCB=(RECFM=FB, LRECL=80, BLKSIZE=27920),
2 // VOL=SER=volsery
3 //DISK DD DSN=yourhlq.INSTALL.FNSOURCE,
// DISP=(, CATLG, DELETE),
// DCB=(LRECL=80, BLKSIZE=0, RECFM=FB),
4 // UNIT=yyyy,
// DSNTYPE=LIBRARY,
5 // SPACE=(CYL, (n, n, n), RLSE),
6 // VOL=SER=nnnnnn
//SYSUT3 DD UNIT=SYSDA, SPACE=(TRK, (1, 1), RLSE)
//SYSUT4 DD UNIT=SYSDA, SPACE=(TRK, (1, 1), RLSE)
//SYSIN DD *
COPY INDD=TAPE, OUTDD=DISK
/*
/**
```

Figure 1: JCL to Extract the FNSOURCE Library

A number appears to the left of each statement that contains a user-defined variable. The numbers correspond to the following descriptions.

Table 2: JCL to Extract the FNSOURCE Library

Statement Number	Description
1	Replace "xxxx" with the unit for your tape drive.
2	Replace "volsery" with the volume serial number for the Finalist product you received.
3	Set "yourhlq" to the high level qualifier to use for Finalist.
4	Replace "yyyy" with the unit number of a disk drive (DASD).
5	Replace "n, n, n" with the amount of DASD space required to hold the datasets (use "1,1,27" for 3390).
6	Replace "nnnnnn" with the volume serial number for the output disk dataset.

2. Load the remaining files from the Finalist tape. Skip this step if you are installing from the Internet.

This step requires access to the Finalist product distribution tape. After the source library has been extracted (FNSOURCE), edit and submit member INSTALL to download the remainder of the files from the tape. Edit member INSTALL using the comments at the beginning of the member. While the size of the files may vary, at time of publication, about '15,15,15' 3390 cylinders can be used for library files and '15,15' 3390 cylinders can be used for the SAMPLIVP file.

3. Link the Finalist base product.

After downloading the remaining files, edit and submit member INSTALLB to build the Finalist executable system from the object members. This member creates regular executables, XPLINK (High Performance linker) executables, and 64-bit executables (X64). XPLINK requires z/OS 1.2 and higher for complete support.

INSTALLB generates PDSE datasets for both object and load libraries. If you do not want to use PDSE datasets, you may manually remove the DSNTYPE=LIBRARY statement from the install member. The XPLINK and X64 executables require PDSE datasets. If you remove PDSE datasets, you must also manually remove the XPLINK and X64 LINK-EDIT steps. All XPLINK and X64 LINK-EDIT step names begin with the letter X.

Steps LINKLIST and LINKADSC normally display RC=4. Edit member INSTALLB using the comments at the beginning of the member.

4. Store your Finalist key into the Finalist load library.

If you will be running the Compatibility Interface (CI aka Wrapper), you must also edit and submit member KEYSTORE to store your Finalist key into the Finalist load library. Edit member KEYSTORE using the comments at the beginning of the member.

Using Libraries Created by INSTALLB

The INSTALLB installation process creates:

- yourhlq.BATCH.IMPORT
- yourhlq.BATCH.LOAD
- yourhlq.BATCH.X64.LOAD
- yourhlq.BATCH.X64.IMPORT
- yourhlq.BATCH.XPLINK.LOAD
- yourhlq.BATCH.XPLINK.IMPORT

The yourhlq.*.LOAD library should be used in your STEPLIB or JOBLIB concatenation to run this version of Finalist.

The yourhlq.*.IMPORT library should be used as a definition side-deck (DD SYSDEFSD) when compiling your programs that call the Finalist native APIs (e.g. PBFNInit, PBFNProcess, PBFNTerminate).

Installing the Finalist Database

After completing the Finalist build, you must load the Finalist databases. This step requires access to the Finalist database distribution tapes. This is a separate step because the database load should be rerun each month with current data.

The Finalist database files include data for all 50 states, DC, and all United States territories. If your input file only includes address records from specific states, you can use the State Cut feature to create a database file for just the specific states you need to process your input file. Using the smaller state-specific database files allows Finalist to search through less data during address assignment and to use less processing time. Follow the instructions below to load the full Finalist databases or state-specific databases.

NOTE: The USPS data varies each month. For information on finding database file information, including record counts, and calculating cylinders/tracks, refer to the sections “[Finding Database File Information](#)” on page 55 and “[Calculating the Number of Cylinders/Tracks](#)” on page 55.

Loading the Full Finalist Databases

1. Edit and submit member DBREPRO to create and load the Finalist VSAM database files with current data.
2. Edit member DBREPRO using the comments at the beginning of the member. This step requires access to the installation tapes.

NOTE: Use the combination of DBALOCF and DBREPROD if you are loading the Finalist databases from the Internet instead of tape. DBALOCF gets the files from an FTP server. DBREPROD loads the file into the database.

Loading State-Specific Databases

The Finalist City and ZIP+4 database files are both required to use the State Cut feature. The State Cut feature creates new City and ZIP+4 database files containing data for the requested states. These files must be used together to perform address assignment. The newly created City File will not work with the original Finalist Data File. Also, the newly created Data File will not work with the original City File. You must use both newly created files together to properly perform address assignment.

1. Edit and submit member STATECUT to create and load smaller state-specific Finalist VSAM database files with current data.
2. Edit member STATECUT using the comments at the beginning of the member. The amount of space required when using the STATECUT program depends on the number and/or size of the state(s) selected.

NOTE: Use the combination of STATECUT and STATCUTD if you are loading the Finalist databases from the Internet instead of tape. DBALOCF gets the files from an FTP server.

Installing Additional Finalist Databases

To load the additional Finalist databases, follow the steps below.

Installing the EWS Databases (Optional)

This step requires access to the Finalist database distribution tapes.

1. To perform EWS processing, run job EWREPRO to load the EWS data files. EWS data can come from two different sources. Finalist provides the most current file each month on tape. However, the USPS updates this file weekly. The JCL is setup to load the data from the Finalist distribution tapes.
2. Build the VSAM EWS databases using member EWREPRO.
3. Edit member EWREPRO using the comments at the beginning of the member.

NOTE: Use DBALOCEW and EWREPROD if you are loading the EWS database from the Internet instead of from tape.

Installing the DPV DPVDB, DPVSDB, or DPVHDB Databases

USPS CASS regulations require DPV processing to generate a USPS Form 3553 (CASS Summary Report).

1. This step requires access to the DPV database tapes.
2. After deciding the appropriate DPV database format for your installation site, use the corresponding JCL below to load the DPV database.

Table 3: Delivery Point Validation (DPV) Database Files (Part 1 of 2)

File	Description
Flat	Flat builds the DPVDB file. To load the DPV Flat database from tape, use DPREPRO.
	NOTE: To load the DPV Flat database from the Internet, use DBALOC and DPREPROD.

Table 3: Delivery Point Validation (DPV) Database Files (Part 2 of 2)

File	Description
Split	Split builds the DPVSDB file. To load the DPV Split database from tape, use DPREPROS. NOTE: To load the DPV Split database from the Internet, use DBALOCDS and DPREPRSD.
Hash (Full)	Hash builds the DPVHDB file. To load the DPV Hash (Full) database from tape, use DPREPROH. NOTE: To load the DPV Hash (Full) database from the Internet, use DBALOCDH and DPREPRHD.

Installing the LACSLink LLKDB Database

USPS CASS regulations require LACSLink processing to generate a USPS Form 3553 (CASS Summary Report).

This step requires access to the LACSLink database tapes.

1. To perform LACSLink processing, run job LLREPRO to load the LACSLink data files.
2. Edit member LLREPRO using the comments at the beginning of the member.

NOTE: Use DBALOCLL and LLREPROD if you are loading the LACSLink databases from the Internet instead of from tape.

Installing the SuiteLink SLKDB Databases

USPS CASS regulations require SuiteLink processing to generate a USPS Form 3553 (CASS Summary Report).

This step requires access to the SuiteLink database tapes.

1. To perform SuiteLink processing, run job SLREPRO to load the SuiteLink data files.
2. Edit member SLREPRO using the comments at the beginning of the member.

NOTE: Use DBALOCSL and SLREPROD if you are loading the SuiteLink databases from the Internet instead of from tape.

Installing the eLOT Databases (Optional)

This step requires access to the LOT distribution tapes.

1. To perform eLOT processing, run job LTREPRO to load the eLOT data files.
2. Edit member LTREPRO using the comments at the beginning of the member.

NOTE: Use DBALOCLT and LTREPROD if you are loading the eLOT databases from the Internet instead of from tape.

Installing the RDI Databases (Optional)

Pitney Bowes Software does not distribute the RDI databases. You must contact the USPS directly to obtain the RDI databases.

After obtaining the databases, run the RDREPROD (FNRDJCL for IMS) JCL to make the RDI databases available to Finalist on the mainframe. Mainframe users can access RDI in batch, CICS, and IMS environments.

NOTE: Use DBALOCRD and RDREPROD if you are loading the RDI database from the Internet instead of from tape.

Using the EWS Table in z/OS Environments

For information on using the Finalist Early Warning System (EWS) option, refer to the section "Early Warning System (EWS) Option" in your Getting Started With Finalist Guide.

For z/OS environments, the FNSOURCE PDS includes the LOADEWS JCL. LOADEWS reads the raw EWS file and creates a BAL (assembler) table that contains the same data. This table is compiled and linked under the name PBFNEWS. The PBFNEWS module replaces the default (empty) module that ships with Finalist. Customers choosing to use the PBFNEWS module must re-populate and replace the module every time new EWS data is received. Pitney Bowes Software ships EWS data monthly. The USPS distributes EWS data weekly.

Verifying the Finalist z/OS Installation

To verify your Finalist for z/OS installation, follow the steps below.

1. Make sure you have the Finalist databases installed. This may include EWS, eLOT, DPV, LACS^{Link}, and Suite^{Link} databases depending on your environment.
2. Edit and submit member FINALIST in your FNSOURCE library.
3. Verify that the job ran to a successful completion and produced a valid USPS Form 3553 (CASS Summary Report) and Finalist Batch Report.

Finding Database File Information

You can find information for the Finalist database files, including record counts, in the Finalist Technical Bulletin. To access the Finalist Technical bulletin, go to the Pitney Bowes Software Web site at <http://www.g1.com/Support> and click on Customer Login in the upper right corner. Log in with your User ID and password. On the left side of the window under "Technical Services" click on My Documentation and then click on Greenbars and Technical Bulletins to access the Finalist Technical Bulletin. You can use the information in the Finalist Technical Bulletin to calculate the required number of cylinders/tracks for the database files.

Calculating the Number of Cylinders/Tracks

This section provides instructions for calculating the number of cylinders/tracks required for a given Finalist VSAM cluster. The number of cylinders/tracks required varies according to type of DASD, record size, and control interval size. The actual number of records in the Finalist VSAM clusters also varies slightly with each new update or distribution. Refer to the IBM VSAM Administration Guide to find capacity and physical record sizes by device type.

The Technical Bulletin, available on the Pitney Bowes Software Web site, shows the record counts for each of the files. Use the information from the Technical Bulletin and the following formula to calculate the number of cylinders/tracks that a given VSAM cluster requires.

1. Subtract 8 from the control interval size of the file. Divide this value by the record size (LRECL). The result is the number of logical records per VSAM physical record.
2. Multiply the result from step 1 by the number of physical records that fit on one track. The chart in the IBM VSAM Administration Guide (z/OS users) shows the number of physical records that fit on one track. The result is the total number of VSAM physical records in the file.

3. Divide the total number of records in the file by the result from step 2. The result is the number of tracks required for the file. To find the number of cylinders required, divide the number of tracks required by the number of tracks per cylinder.

The following example demonstrates how to calculate the number of cylinders/tracks for a 17,479 record VSAM cluster having a record size of 4088 and a control interval size of 4096 on 3390 DASD.

1.
$$\begin{array}{r} 4096 \\ - \quad 8 \\ \hline 4088 \\ / \quad 4088 \\ \hline 1 \end{array}$$

(VSAM control interval size)
(VSAM overhead)
(Number of data bytes per physical record)
(Divide by record size)
(Number of logical records per physical record)
2.
$$\begin{array}{r} 1 \\ \times \quad 12 \\ \hline 12 \end{array}$$

(Number of logical records per physical record)
(Physical records per track for 3390 DASD)
(Number of logical records per track for 3390 DASD)
3.
$$\begin{array}{r} 17479 \\ / \quad 12 \\ \hline 1457 \\ / \quad 15 \\ \hline 98 \end{array}$$

(Total number of records in the file)
(Number of logical records per track for 3390 DASD)
(Total number of 3390 tracks required)
(Tracks per cylinder for 3390)
(Number of cylinders required)

Figure 2: Sample Calculation for the Number of Cylinders/Tracks

CHAPTER 5

Installing Finalist for z/OS CICS

This chapter provides instructions for installing Finalist in a z/OS CICS environment.

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Before You Begin the z/OS CICS Installation

This section provides information on requirements for installing Finalist in a z/OS CICS environment. The Finalist product and the Finalist databases are distributed on separate sets of tapes. The Finalist product tape consists of one tape. The Finalist database tape consists of multiple tapes. The Finalist database tapes are shipped monthly. The Finalist product tape is shipped on an as needed basis.

The requirements for installing Finalist in a z/OS CICS environment are:

- You must be running on a currently supported IBM operating system.
- See <http://www.ibm.com/software/info/supportlifecycle> for a list of currently supported IBM operating systems.

Installation Library Description

A description of the installation library CICS-specific members is provided below.

Table 1: Installation Library Description

Installation Library Member	Description
CIOBJLIB	Contains object members used to create the executable version of Finalist for CICS.
CISOURCE	Contains source that may be used in conjunction with the Finalist for CICS option. This contains a mixture of Assembler (BAL), COBOL, C, and CICS source.
COBCOPYL	Contains COBOL COPY members used to access the Finalist product.
FNSOURCE	Contains JCL and notes for installing and verifying Finalist.

Installing Finalist z/OS CICS

The USPS CASS regulations now require DPV, LACS^{Link}, and Suite^{Link} to run in CASS mode. Other ancillary databases like EWS are not required, but provide additional coding accuracy. While online access is not required to run in CASS mode, consistent results between online and batch can only be achieved if the same process is followed in both cases. To install Finalist z/OS CICS, follow the steps below.

1. Follow the steps to install Finalist for z/OS in [Chapter 4, "Installing Finalist for z/OS"](#).
2. Edit and submit member INSTALLC from the FNSOURCE PDS to build the Finalist CICS system from the object members. Consult your CICS systems programmer for your system details. Edit member INSTALLC using the comments at the beginning of the member.
3. After building the Finalist CICS option, add your Finalist key to the Finalist CICS load library. To do this, edit and submit member KEYSTORE. You can find KEYSTORE in your Finalist FNSOURCE library. Perform the edits using the comments at the beginning of the member.
4. After building the Finalist CICS option, you will need to add the Finalist requirements to your CICS region. For the Finalist CICS option, see PBFN015D in CISOURCE for the RDO entries required. PBFN015D references Finalist and other ancillary database file names. These should be edited for accurate names (change yourhlq.). Member RDOJCL (in the CISOURCE library) contains starter JCL for running RDO. Consult your CICS systems programmer for your system details.

Updating the EWS File in a z/OS CICS Environment

Finalist reads the Early Warning System (EWS) File into memory only after recycling a CICS region or after issuing a NEWCOPY command to PBFNEWS. This reduces input/output and significantly improves product performance. If you update the EWS File, CBEWS, and do not recycle your CICS region, issue a NEWCOPY command for the module PBFNEWS as follows:

```
CEMT S PROG(PBFNEWS) NEW
```

Using Libraries Created by INSTALLC

The INSTALLC installation process creates:

- yourhlq.CICS.LOAD
- yourhlq.CICS.IMPORT

The yourhlq.CICS.LOAD library should be used in your DFHRPL concatenation for CICS to run this version of Finalist.

The yourhlq.CICS.IMPORT library should be used as a definition side-deck (DD SYSDEFSD) when compiling your programs that call the Finalist native APIs (e.g. PBFNInit, PBFNProcess, PBFNTerminate).

Verifying the Finalist CICS Installation

If you decide to install the CICS component of Finalist, refer to the section “Getting Started with Finalist CICS” in your *Working With Finalist Guide* for information on verifying your Finalist CICS installation using the sample transactions LPCT, PBFN, and LPCF.

Using the Exceptions Table in a z/OS CICS Environment

For information on Finalist exceptions processing, refer to the section “Exceptions Table Option” in your *Getting Started With Finalist Guide*. CICS and IMS Finalist exceptions processing is similar, but the Exceptions File is converted into load module format for performance and usability. The following section describes how to convert the Exceptions File statements as documented in your *Getting Started With Finalist Guide* into load module format for use in the CICS and IMS environments.

To create an Exceptions Table for CICS or IMS Finalist or to replace a current Exceptions Table with a new one, execute the JCL shown below. This JCL includes the job stream required to build the table and place the table in the CICS or IMS load library.

JCL to Build the Exceptions Table

The figure below contains JCL to build the exceptions table.

```

1 //STEP1      EXEC PGM=PBFNEXCP
2 //STEPLIB   DD DSN=yourhlq.BATCH.LOAD
3 //SYSPRINT  DD SYSOUT=*
4 //SYSLOG    DD SYSOUT=*
5 //SYSUDUMP  DD SYSOUT=*
6 //EXCPIN    DD *
L1MANE      MAIN          RP60187 (Sample Control Card)
7 //*
8 //EXCPOUT   DD DSN=&&TEMP,UNIT=SYSDA,SPACE=(TRK,(1,1),RLSE),
//           DCB=(RECFM=FB,LRECL=80,BLKSIZE=800),DISP=(,CATLG)
//*
9 //ASMCC     EXEC PGM=ASMA90,
//           PARM=(ASA,DECK,NOOBJECT,RENT,BATCH,NORLD)
10 //SYSIN    DD DISP=SHR,DSN=*.STEP1.EXCPOUT
11 //SYSLIB   DD DISP=SHR,DSN=SYS1.MACLIB
12 //SYSUT1   DD UNIT=(SYSDA,SEP=SYSLIB),SPACE=(CYL,(1,1))
13 //SYSPUNCH DD DISP=(,PASS),UNIT=SYSDA,SPACE=(CYL,(1,1)),
//           DCB=(BLKSIZE=3200,LRECL=80,RECFM=FB)
14 //SYSPRINT DD SYSOUT=*
//*
15 //LKED     EXEC PGM=IEWL,
//           PARM='LIST,MAP,RENT,XREF,AMODE=24,RMODE=24'
16 //SYSLIB   DD DUMMY
17 //SYSUT1   DD UNIT=SYSDA,SPACE=(CYL,(1,1))
18 //SYSPRINT DD SYSOUT=*
19 //SYSLMOD  DD DISP=SHR,DSN=yourhlq.xxxx.LOAD
20 //SYSLIN   DD DSN=*.ASMCC.SYSPUNCH,DISP=SHR
//           DD *
//           NAME LPFNEXTB(R)
//

```

Figure 1: JCL to Build the Exceptions Table

A number appears to the left of each statement that contains a user-defined variable. The numbers correspond to the following descriptions.

Table 2: Exceptions Table JCL

Statement Number	Description
1	<p>This statement executes PBFNEXCP to process the Exceptions File created. This program processes the Exceptions Table control cards and creates an assembly listing that is passed to the following assemble and link edit steps.</p> <p>The second step performs the assembly of the program. The output from the assembly step is then passed to the third and final step. The linkage editor creates a load module and contains all statements contained in the original Exceptions File as input to the first step. This load module must be put in the CICS and/or IMS Finalist load library where the module can be accessed from CICS and/or IMS transactions as well as any IMS BMP transactions calling FINALB modules. If this module is not found during processing, exceptions processing is ignored.</p>
2	This statement identifies the load library containing your batch Finalist programs.
3	This statement identifies the print class for system messages or error messages generated during the execution program.
4	Include this statement if you require system messages to be written to the system log.
5	This statement identifies the print class for a system dump in case of an ABEND.
6	This statement defines the input for the program. The input cards are identical to those used for exceptions table processing in the batch environment. For more information on exceptions table processing, refer to "Exceptions Table Option" in your <i>Getting Started With Finalist Guide</i> .
7	This statement indicates the end of the input file.
8	This statement defines the output file created by the program. This file contains Assembler statements. These statements become the Exceptions Table in load module format for use in the CICS and/or IMS environment with the Finalist CICS and/or IMS system.
9-14	These statements execute the Assembler program using the output file from the first step as input. This step's output is the final step's input.
15-20	These statements execute the linkage editor using the output from the previous step as input. Output from this step is the Exceptions Table in load module format. It is important that the library referenced in statement 19 is the library in which you have loaded your Finalist CICS or IMS programs. The DSN parameter in statement 20 must appear as shown. If not, the Finalist CICS or IMS system cannot reference the Exceptions Table.

Finding Database File Information

You can find information for the Finalist database files, including record counts, in the Finalist Technical Bulletin. To access the Finalist Technical bulletin, go to the Pitney Bowes Software Web site at <http://www.g1.com/Support> and click on Customer Login in the upper right corner. Log in with your User ID and password. On the left side of the window under "Technical Services" click on My Documentation and then click on Greenbars and Technical Bulletins to access the Finalist Technical Bulletin. You can use the information in the Finalist Technical Bulletin to calculate the required number of cylinders/tracks for the database files.

Calculating the Number of Cylinders/Tracks

This section provides instructions for calculating the number of cylinders/tracks required for a given Finalist VSAM cluster. The number of cylinders/tracks required varies according to type of DASD, record size, and control interval size. The actual number of records in the Finalist VSAM clusters also varies slightly with each new update or distribution. Refer to the IBM VSAM Administration Guide to find capacity and physical record sizes by device type.

The Technical Bulletin, available on the Pitney Bowes Software Web site, shows the record counts for each of the files. Use the information from the Technical Bulletin and the following formula to calculate the number of cylinders/tracks that a given VSAM cluster requires.

1. Subtract 8 from the control interval size of the file. Divide this value by the record size (LRECL). The result is the number of logical records per VSAM physical record.
2. Multiply the result from step 1 by the number of physical records that fit on one track. The chart in the IBM VSAM Administration Guide (z/OS users) shows the number of physical records that fit on one track. The result is the total number of VSAM physical records in the file.
3. Divide the total number of records in the file by the result from step 2. The result is the number of tracks required for the file. To find the number of cylinders required, divide the number of tracks required by the number of tracks per cylinder.

The following example demonstrates how to calculate the number of cylinders/tracks for a 17,479 record VSAM cluster having a record size of 4088 and a control interval size of 4096 on 3390 DASD.

1.
$$\begin{array}{r} 4096 \\ - \quad 8 \\ \hline 4088 \\ \wedge \quad 4088 \\ \hline 1 \end{array}$$

(VSAM control interval size)
(VSAM overhead)
(Number of data bytes per physical record)
(Divide by record size)
(Number of logical records per physical record)
2.
$$\begin{array}{r} 1 \\ \times \quad 12 \\ \hline 12 \end{array}$$

(Number of logical records per physical record)
(Physical records per track for 3390 DASD)
(Number of logical records per track for 3390 DASD)
3.
$$\begin{array}{r} 17479 \\ \wedge \quad 12 \\ \hline 1457 \\ \wedge \quad 15 \\ \hline 98 \end{array}$$

(Total number of records in the file)
(Number of logical records per track for 3390 DASD)
(Total number of 3390 tracks required)
(Tracks per cylinder for 3390)
(Number of cylinders required)

Figure 2: Sample Calculation for the Number of Cylinders/Tracks

CHAPTER 6

Installing Finalist for IMS

This chapter provides instructions for installing Finalist on a z/OS IMS platform.

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Before You Begin the z/OS IMS Installation

The requirements for installing Finalist IMS:

- You must be running on a currently supported IBM operating system.
- See <http://www.ibm.com/software/info/supportlifecycle> for a list of currently supported IBM operating systems.

Installation Library Description

Descriptions of the IMS-specific installation libraries are provided below.

Table 1: Installation Library Description

Installation Library	Description
ACBCNTL	ACB generation parameters for Finalist for IMS
DBDSORC	Database descriptions for Finalist for IMS
GENMAC	Transaction generation descriptions for Finalist for IMS
JCLLIB	Sample JCL for various tasks for Finalist for IMS
PSBSORC	PSB source samples for Finalist for IMS
SORCLIB	SORCLIB Sample source for various tasks for Finalist for IMS
TFMTSORC	Source for Finalist screens for Finalist for IMS

Installing Finalist in a z/OS IMS Environment

The USPS CASS regulations now require DPV, LACS^{Link}, and Suite^{Link} to run in CASS mode. Other ancillary databases, like EWS, are not required, but provide additional coding accuracy. While online access is not required to run in CASS mode, consistent results between online and batch can only be achieved if the same process is followed in both cases. To install Finalist On-Line in a z/OS IMS environment, complete the following steps.

1. Follow the steps to install Finalist for z/OS in [Chapter 4, "Installing Finalist for z/OS"](#).
2. Link the Finalist IMS product (optional). This step requires access to the Finalist distribution tapes.

3. Edit and submit member INSTALI1 from the FNSOURCE PDS to extract the Finalist IMS files from the product tape. Edit member INSTALI1 using the comments at the beginning of the member.
4. After you have built the Finalist IMS option, you will need to add your Finalist key to the Finalist IMS load library. To do this, edit and submit member KEYSTORE that is in your Finalist FNSOURCE library. Perform the edits using the comments at the beginning of the member.
5. Edit and submit member INSTALI2 from the FNSOURCE PDS to build the Finalist IMS system from the object members. Edit member INSTALI2 using the comments at the beginning of the member.
6. Finalist IMS requires the use of DL/I data files and provides definitions for using SHISAM databases. Finalist IMS provides sample transactions S56LPCH and S56LPWNH to access Finalist using DL/I processing.
7. For additional IMS installation steps specific to IMS, refer to members MFSGEN, PSBGEN, and ACBGEN in Finalist IMS JCLLIB as samples to run the necessary IMS generations. At time of publication the following are sizes for IMS related files:

Table 2: Finalist IMS File Sizes

IMS File	Size Required
IMS.ACBCNTL	'1,1,15' 3390 tracks
IMS.DBDSORC	'1,1,15' 3390 tracks
IMS.GENMAC	'1,1,15' 3390 tracks
IMS.JCLLIB	'2,1,15' 3390 tracks
IMS.PSBSORC	'1,1,15' 3390 tracks
IMS.SORCLIB	'5,1,15' 3390 tracks
IMS.TFMTSORC	'5,1,15' 3390 tracks

Using Libraries Created by INSTALI2

The INSTALI2 installation process creates:

- yourhlq.IMS.LOAD
- yourhlq.IMS.IMPORT

The yourhlq.IMS.LOAD library should be used in your STEPLIB or JOBLIB concatenation to run this version of Finalist.

The yourhlq.IMS.IMPORT library should be used as a definition side-deck (DD SYSDEFSD) when compiling your programs that call the Finalist native APIs (e.g. PBFNInit, PBFNProcess, PBFNTerminate).

Completing the Finalist IMS Installation

Use the installation instructions in this section to complete the installation of Finalist for IMS.

DL/I Processing Overview

IMS Finalist requires the use of IMS Data Language/I (DL/I) for all Finalist files. You need to generate Data Base Descriptions (DBDs) to define the database structures for IMS. Source for generating the DBDs is provided. Conversion programs are required to convert some Finalist files into a SHISAM format. JCL is provided in the Finalist IMS JCLLIB to define and populate the IMS SHISAM files.

For DL/I processing you must pass the PCB addresses for all Finalist files your application needs. These addresses are available when your application receives control from the IMS DL/I control program. COBOL users must use program LPFNPCB to pass the input PCB address to the Finalist control structure. See the following COBOL source extract.

```
...
COPY LPFNCL01.
...
LINKAGE SECTION.
*==*=====
*==* THIS PROGRAM USES 8 PCB'S. -
*==* (1) AN I/O PCB TO COMMUNICATE WITH THE TERMINAL
*==* AND RECEIVE MESSAGES FROM THE TERMINAL.
*==* (2) A PCB THAT POINTS TO THE DL/I DATAFILE.
*==* (3) A PCB THAT POINTS TO THE DL/I CITYFILE.
*==* (4-8) PCB'S THAT POINT TO ANCI LLARY DATABASES.
*==*=====

COPY LPCFIPCB.
                                EJECT
COPY LPCFDPCB.
                                EJECT
COPY LPCFCPCB.
                                EJECT
*==*=====
*==*
*==* THE LENGTH OF THE FOLLOWING PCB'S ARE NOT EXACT NOR
*==* DO THEY NEED TO BE.
*==*
*==*=====
01 FNEWS-PCB          PIC  X(42).
01 FNLOT-PCB         PIC  X(42).
01 DPV-PCB          PIC  X(42).
01 LLK-PCB          PIC  X(42).
01 SLK-PCB          PIC  X(42).
01 RDI -PCB         PIC  X(42).
...
PROCEDURE DIVISION.
    ENTRY 'DLITCBL' USING I-O-PCB, DATAFILE-PCB, CITY-PCB,
                           FNEWS-PCB, FNLOT-PCB,
```

```

DPV-PCB, LLK-PCB, SLK-PCB, RDI-PCB.

CALL 'LPFNPCB' USING DATAFILE-PCB IMS-INITDAT.
CALL 'LPFNPCB' USING CITY-PCB IMS-INITCITY.
CALL 'LPFNPCB' USING FNEWS-PCB PCBFNEWS.
CALL 'LPFNPCB' USING FNLOT-PCB PCBFNLOT.
CALL 'LPFNPCB' USING DPV-PCB PCBFNDPV.
CALL 'LPFNPCB' USING LLK-PCB PCBFNLLK.
CALL 'LPFNPCB' USING SLK-PCB PCBFNSLK.
CALL 'LPFNPCB' USING RDI-PCB PCBFNRDI.

...
MOVE 'O' TO FINAL-FUNCTION-CODE
CALL 'FINALI' USING FINAL-CALL-AREA

```

Figure 1: Sample COBOL Program Called by IMS When Calling Finalist

DL/I Installation Procedures

To install IMS Finalist and convert the Finalist City/State and Data Files to a DL/I format, follow the steps below.

1. Perform an MFSGEN for all format members in the yourhlq.IMS.TFMTSORC library. Use sample MFSGEN in yourhlq.IMS.JCLLIB as an example for the members you need to generate.
2. If necessary, modify the DBDGENs for all Finalist databases that you require. Use sample DBDGEN in yourhlq.IMS.JCLLIB to define the databases.
3. Create an application PSB for all application programs that call Finalist. Finalist requires S56LPCH and S56LPWNH for its online applications. Use sample PSBGEN in yourhlq.IMS.JCLLIB to complete the PSB gen.
4. Use the sample FNDBJCL (Internet distribution) or FNDBJCLT (tape distribution) in yourhlq.IMS.JCLLIB to create and populate the Finalist DL/I files.
 - a. Use the sample FNDPJCL (Internet distribution) or FNDPJCLT (tape distribution) in yourhlq.IMS.JCLLIB to create and populate the DPV DL/I files.
 - b. Use the sample FNLLJCL (Internet distribution) or FNLLJCLT (tape distribution) in yourhlq.IMS.JCLLIB to create and populate the LACS^{Link} DL/I files.
 - c. Use the sample FNEWJCL (Internet distribution) or FNEWJCLT (tape distribution) in yourhlq.IMS.JCLLIB to create and populate the EWS DL/I files.
 - d. Use the sample FNLTJCL (Internet distribution) or FNLTJCLT (tape distribution) in yourhlq.IMS.JCLLIB to create and populate the eLOT DL/I files.

- e. Use the sample FNRDJCL (Internet distribution) in yourhlq.IMS.JCLLIB to create and populate the RDI DL/I files.
 - f. Use the sample FNSLJCL (Internet distribution) or FNSLJCLT (tape distribution) in yourhlq.IMS.JCLLIB to create and populate the Suite^{Link} DL/I files.
 - g. Use the sample FNSUDJCL in yourhlq.IMS.JCLLIB to create and populate the DPV and LACS^{Link} security DL/I files.
 - h. Use the sample FNRDJCL in yourhlq.IMS.JCLLIB to create and populate the RDI DL/I files.
5. Perform the ACBGEN for the members contained in yourhlq.IMS.ACBCNTL. Use sample ACBGEN in yourhlq.IMS.JCLLIB as an example of the members you need to generate.
 6. Add the IMS Finalist load library (yourhlq.IMS.LOAD) to the STEPLIB for the IMS region. Your STEPLIB should be concatenated as shown below.

```
//STEPLIB DD DISP=SHR,DSN=yourhlq. IMS. LOAD
```

7. Run a Stage 1 MSGEN based on the Stage 1 macro supplied in member FINALIST in the yourhlq.IMS.GENMAC library. A Stage 1 GEN is only required the first time you install IMS Finalist, or when changes are made to the transaction names or the SPA sizes.
8. Edit DFSMDA in yourhlq.IMS.JCLLIB to reference your database names. For more information, refer to your IBM IMS/VS Utilities Manual. Use sample IMSDALOC in yourhlq.IMS.JCLLIB to process the DFSMDA statements you just edited.
9. Finalist reads the Early Warning System (EWS) File into memory only after recycling your IMS region or after stopping and restarting program PBFNEWS. This reduces input/output and significantly improves product performance. If you update the EWS File, CBEWS, and do not recycle your IMS region, issue the following IMS commands (xx is the current message number for your IMS WTOR):

```
/xx/STO PROG PBFNEWS  
/xx/STA PROG PBFNEWS
```

10. If your site uses Exceptions File processing, refer to [“Using the Exceptions Table in an IMS Environment” on page 73](#) for more information. This step is optional and is the final step in the installation. Use sample LPFNEXTB in yourhlq.IMS.JCLLIB to process your Exceptions File.
11. Verify your installation. For information on verifying your Finalist IMS installation, refer to your *Working With Finalist Guide*.

DL/I Batch Processing

When running Finalist in a batch environment, you can run either as a z/OS batch job or a DL/I batch job.

When running as a z/OS batch job, follow the normal steps for running Finalist.

When running with the IMS DLIBATCH procedure (or executing DFSRRC00 directly), you must concatenate the yourhlq.IMSBATCH.LOAD library in front of yourhlq.IMS.LOAD library and the yourhlq.BATCH.LOAD library when specifying your job's STEPLIB or JOBLIB. For example:

```
//STEP3 EXEC DLI BATCH, MBR=program_name,
//          PSB=program_psb
//G. STEPLIB DD
//          DD
//          DD DI SP=SHR, DSN=yourhlq.IMSBATCH.LOAD
//          DD DI SP=SHR, DSN=yourhlq.IMS.LOAD
//          DD DI SP=SHR, DSN=yourhlq.BATCH.LOAD
//G. I EFRDER DD DSN=NULLFILE, UNIT=SYSDA
//G. SYSUDUMP DD SYSOUT=*
//G. SYSOUT DD SYSOUT=*,
//          DCB=(LRECL=133, BLKSIZE=0, RECFM=FBA)
//G. DFSVSAMP DD *
8192, 40
/*
```

NOTE: Using IMSBATCH.LOAD library allows Finalist to load files into memory for better performance and produce a USPS Form 3553 (CASS Summary Report) and other reports that are turned off for IMS online processing.

You must also create a PSB for the application program. The application program must accept the PCBs passed into the program and pass the PCBs on to Finalist.

When using the DLIBATCH procedure, you use the same DD names as you would for your normal z/OS batch processing but you must point to the DL/I datasets that are used by the IMS On-Line system.

NOTE: DFSVSAMP must run with a minimum buffer size of 8192.

Verifying the Finalist IMS Installation Batch

A batch driver, FINALSTI, is provided to allow execution of Finalist in a batch environment using SHISAM databases.

After IMS is installed, run the IMS sample JCL FINALSTI to ensure IMS was properly installed in your environment. Please note that the ancillary databases use an alternate DDNAME.

FINALSTI uses PSBs for all of the possible Finalist and ancillary databases. If you do not have an option for an ancillary database, please provide a dummy PSB (duplicate a previously used file) and make sure your applications do not access that file.

NOTE: If you access the file but your PSB is not pointing to the proper database, unpredictable results will occur which may or may not include z/OS or IMS system ABENDs.

Verifying the Finalist IMS Installation On-Line

If you decide to install the IMS component of Finalist, refer to the section “Getting Started with Finalist IMS” in your *Working With Finalist Guide* for information on verifying your Finalist IMS installation using the sample transactions S56LPCH and S56LPWNH.

Using the Exceptions Table in an IMS Environment

For information on Finalist exceptions processing, refer to the section “Exceptions Table Option” in your *Getting Started With Finalist Guide*. CICS and IMS Finalist exceptions processing is similar, but the Exceptions File is converted into load module format for performance and usability. The following section describes how to convert the Exceptions File statements as documented in your *Getting Started With Finalist Guide* into load module format for use in the CICS and IMS environments.

To create an Exceptions Table for CICS or IMS Finalist or to replace a current Exceptions Table with a new one, execute the JCL shown below. This JCL includes the job stream required to build the table and place the table in the CICS or IMS load library.

JCL to Build the Exceptions Table

The figure below contains JCL to build the exceptions table.

```

1 //STEP1      EXEC PGM=PBFNEXCP
2 //STEPLIB   DD DSN=yourhlq.BATCH.LOAD
3 //SYSPRINT  DD SYSOUT=*
4 //SYSLOG    DD SYSOUT=*
5 //SYSUDUMP  DD SYSOUT=*
6 //EXCPIN    DD *
L1MANE      MAIN          RP60187 (Sample Control Card)
7 //*
8 //EXCPOUT   DD DSN=&&TEMP,UNIT=SYSDA,SPACE=(TRK,(1,1),RLSE),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=800),DISP=(,CATLG)
//*
9 //ASMCC     EXEC PGM=ASMA90,
//          PARM=(ASA,DECK,NOOBJECT,RENT,BATCH,NORLD)
10 //SYSIN    DD DISP=SHR,DSN=*.STEP1.EXCPOUT
11 //SYSLIB   DD DISP=SHR,DSN=SYS1.MACLIB
12 //SYSUT1   DD UNIT=(SYSDA,SEP=SYSLIB),SPACE=(CYL,(1,1))
13 //SYSPUNCH DD DISP=(,PASS),UNIT=SYSDA,SPACE=(CYL,(1,1)),
//          DCB=(BLKSIZE=3200,LRECL=80,RECFM=FB)
14 //SYSPRINT DD SYSOUT=*
//*
15 //LKED     EXEC PGM=IEWL,
//          PARM='LIST,MAP,RENT,XREF,AMODE=24,RMODE=24'
16 //SYSLIB   DD DUMMY
17 //SYSUT1   DD UNIT=SYSDA,SPACE=(CYL,(1,1))
18 //SYSPRINT DD SYSOUT=*
19 //SYSLMOD  DD DISP=SHR,DSN=yourhlq.xxxx.LOAD
20 //SYSLIN   DD DSN=*.ASMCC.SYSPUNCH,DISP=SHR
//          DD *
//          NAME LPFNEXTB(R)
//

```

Figure 2: JCL to Build the Exceptions Table

A number appears to the left of each statement that contains a user-defined variable. The numbers correspond to the following descriptions.

Table 3: Exceptions Table JCL

Statement Number	Description
1	<p>This statement executes PBFNEXCP to process the Exceptions File created. This program processes the Exceptions Table control cards and creates an assembly listing that is passed to the following assemble and link edit steps.</p> <p>The second step performs the assembly of the program. The output from the assembly step is then passed to the third and final step. The linkage editor creates a load module and contains all statements contained in the original Exceptions File as input to the first step. This load module must be put in the CICS and/or IMS Finalist load library where the module can be accessed from CICS and/or IMS transactions as well as any IMS BMP transactions calling FINALB modules. If this module is not found during processing, exceptions processing is ignored.</p>
2	This statement identifies the load library containing your batch Finalist programs.
3	This statement identifies the print class for system messages or error messages generated during the execution program.
4	Include this statement if you require system messages to be written to the system log.
5	This statement identifies the print class for a system dump in case of an ABEND.
6	This statement defines the input for the program. The input cards are identical to those used for Exceptions Table processing in the batch environment. For more information on Exceptions Table processing, refer to "Exceptions Table Option" in your <i>Getting Started With Finalist Guide</i> .
7	This statement indicates the end of the input file.
8	This statement defines the output file created by the program. This file contains Assembler statements. These statements become the Exceptions Table in load module format for use in the CICS and/or IMS environment with the Finalist CICS and/or IMS system.
9-14	These statements execute the Assembler program using the output file from the first step as input. This step's output is the final step's input.
15-20	These statements execute the linkage editor using the output from the previous step as input. Output from this step is the Exceptions Table in load module format. It is important that the library referenced in statement 19 is the library in which you have loaded your Finalist CICS or IMS programs. The DSN parameter in statement 20 must appear as shown. If not, the Finalist CICS or IMS system cannot reference the Exceptions Table.

Finding Database File Information

You can find information for the Finalist database files, including record counts, in the Finalist Technical Bulletin. To access the Finalist Technical bulletin, go to the Pitney Bowes Software Web site at <http://www.g1.com/Support> and click on Customer Login in the upper right corner. Log in with your User ID and password. On the left side of the window under "Technical Services" click on My Documentation and then click on Greenbars and Technical Bulletins to access the Finalist Technical Bulletin. You can use the information in the Finalist Technical Bulletin to calculate the required number of cylinders/tracks for the database files.

Calculating the Number of Cylinders/Tracks

This section provides instructions for calculating the number of cylinders/tracks required for a given Finalist VSAM cluster. The number of cylinders/tracks required varies according to type of DASD, record size, and control interval size. The actual number of records in the Finalist VSAM clusters also varies slightly with each new update or distribution. Refer to the IBM VSAM Administration Guide to find capacity and physical record sizes by device type.

The Technical Bulletin, available on the Pitney Bowes Software Web site, shows the record counts for each of the files. Use the information from the Technical Bulletin and the following formula to calculate the number of cylinders/tracks that a given VSAM cluster requires.

1. Subtract 8 from the control interval size of the file. Divide this value by the record size (LRECL). The result is the number of logical records per VSAM physical record.
2. Multiply the result from step 1 by the number of physical records that fit on one track. The chart in the IBM VSAM Administration Guide (z/OS users) shows the number of physical records that fit on one track. The result is the total number of VSAM physical records in the file.
3. Divide the total number of records in the file by the result from step 2. The result is the number of tracks required for the file. To find the number of cylinders required, divide the number of tracks required by the number of tracks per cylinder.

The following example demonstrates how to calculate the number of cylinders/tracks for a 17,479 record VSAM cluster having a record size of 4088 and a control interval size of 4096 on 3390 DASD.

1.
$$\begin{array}{r} 4096 \\ - \quad 8 \\ \hline 4088 \\ \wedge \quad 4088 \\ \hline 1 \end{array}$$

(VSAM control interval size)
(VSAM overhead)
(Number of data bytes per physical record)
(Divide by record size)
(Number of logical records per physical record)
2.
$$\begin{array}{r} 1 \\ \times \quad 12 \\ \hline 12 \end{array}$$

(Number of logical records per physical record)
(Physical records per track for 3390 DASD)
(Number of logical records per track for 3390 DASD)
3.
$$\begin{array}{r} 17479 \\ \wedge \quad 12 \\ \hline 1457 \\ \wedge \quad 15 \\ \hline 98 \end{array}$$

(Total number of records in the file)
(Number of logical records per track for 3390 DASD)
(Total number of 3390 tracks required)
(Tracks per cylinder for 3390)
(Number of cylinders required)

Figure 3: Sample Calculation for the Number of Cylinders/Tracks

CHAPTER 7

Installation Notes and Tips

This chapter provides notes and tips to help you with a successful Finalist installation.

- CASS vs. Non-CASS Installation 78
- CASS vs. Non-CASS Technical Notes 79
- Database Expiration Warning Message 79
- Engine Expiration Warning Message 79
- Performance Notes 80
- Finalist Quick Start 80

CASS vs. Non-CASS Installation

Finalist allows you to turn USPS CASS-certified processing on and off. This feature does not affect the way that addresses are corrected. It simply gives you the option of avoiding some USPS rules which are designed for high-volume mailers. In order to receive postal discounts for a volume mailing, a mailer is required to bring the USPS Form 3553 (CASS Summary Report) that was generated by CASS-certified software to the post office.

Regulations require that current address validation data be used. If CASS-certified processing is turned on, the database files received with Finalist will expire four months after the month listed.

For example, the February database files will expire on June 1. The system will issue an error message when you attempt to initialize Finalist (via calling PBFNInit) if the database has expired.

If you are not processing to achieve postal discounts and do not need the USPS Form 3553 (CASS Summary Report) to submit with your mailing (required in order to receive a postal discount), then you have the option of running in a non-CASS mode and turning off the LACS^{Link}, Suite^{Link}, and DPV options. Your addresses will still be processed using CASS regulations, but Finalist will not generate the USPS Form 3553 (CASS Summary Report). Running in non-CASS mode prevents your application from receiving the error message from PBFNInit indicating the database has expired.

NOTE: The Finalist product only runs in CASS mode as defined by the USPS. The Finalist product can continue to run in a non-CASS mode outside of the window set by the USPS.

CASS vs. Non-CASS Technical Notes

This information will help you decide whether or not your application should be run in a CASS-certified mode. When the PBFNInit API is called, Finalist verifies CASS mode based on the CASS Flag setting in the pbfncfg file. The contents of this file indicates to Finalist whether or not to proceed as CASS-certified software.

This field determines whether Finalist checks expiration dates for bases and engines. For batch processing, cCASSFlag=ON ensures that CASS-required options are turned on including DPV, LACSLink, SuiteLink, CASS configuration, Carrier Route (CR), and Delivery Point (DPBC).

The two areas affected are:

- At PBFNInit time, Finalist validates the postal coding database files. The data maintenance dates contained within the files must be within the range indicated by the USPS for CASS certification.
- Finalist only generates the USPS Form 3553 (CASS Summary Report) if the system is running in CASS-certified mode.

NOTE: If CASS Flag = ON and a conflicting option is encountered (Configuration, Assign CR, Return DPBC, LACSLink=OFF, SuiteLink=OFF, or DPV=OFF), a warning message is written to the log file indicating that CASS has been forced off and the reason for CASS being forced off. The message is similar to:

Warning Message; CASS forced off: CASS Configuration, Return DPBC, Assign CR, Assign SuiteLink, Assign LACSLink, Assign DPV

Database Expiration Warning Message

If you are running in CASS-certified mode and the database is within 10 days of expiration (30 days on a mainframe), PBFNInit will return a value of PBFN_HAVE_WARNING.

Engine Expiration Warning Message

The Finalist engine will expire soon. PBFNInit returns the value PBFN_ENGINE_WARNING. Finalist issues the following warning message. This warning message displays on all platforms 1 month before the key expires.

CASS ENGINE expires on MM-DD-YYYY

Performance Notes

To fine-tune the Finalist system for your environment, keep in mind the following items which may affect performance.

- When running in batch mode, sort your input file based on ZIP Code, then State, then City.
- The system uses the "cache size" parameter in the pbfncfg file to determine how much cache to use. This is the maximum number of 4K buffers Finalist can use as internal database cache. If your input file is sorted by ZIP Code, the larger the cache size the faster Finalist processes. If your input file is not sorted, use a small cache size to cut down on input/output time for each ZIP Code change.
- For information on maximizing database performance, refer to the section "Maximizing Performance" on page 85 in Chapter 8, Finalist Databases.

Finalist Quick Start

Now that your software is installed, you might want to begin your work with the product as described in the steps that follow.

1. Refer to the Finalist Developer's Reference Guide for information on the application program interfaces (APIs) available with the Finalist product.
2. Experiment with the Workbench and the Lookup Tool (not distributed for Unix). This step lets you see how the product's features operate.
3. Design and code your application.
4. Compare the results you achieve with your application to results generated by the tools. For example, if your application cannot postal code an address, use the Lookup Tool to help determine why your application could not code the address.
5. Verify that the pbfncfg file contains correct paths to the postal database files city.dir and zip4us.dir.
6. If you are running Finalist under Windows, perform the following steps to become familiar with Finalist features.
 - a. Look at the program group created by the Finalist installation procedure.
 - b. Click on Lookup.
 - c. The first time you run the Lookup application, it will bring you to the configuration dialog. In the Files tab, locate the database files available to your PC, in the Product tab, enter the Software key shipped with the product.

- d. Click OK.
- e. You will see four icons in the main window.
- f. Click Postal Code.
- g. Enter your street address, city and state, and click Code.

If your address is able to be verified against the national address data contained within the database files, your address will be displayed in a standardized format, along with other relevant addressing information, such as ZIP+4, carrier route, etc.

CHAPTER 8

Finalist Databases

This chapter provides information on the Finalist databases including notes and tips to help you maximize your system performance when processing with the Finalist databases.

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File Sizes	86
Processing Options	86
Virtual Memory Requirements	87

Finalist Databases

Table 1: Finalist Databases (Part 1 of 2)

Database	Required/ Recommended	Description
CITYFILE	Required	Provides basic address matching.
DATAFILE	Required	Provides ZIP + 4 address matching.
EWSFILE	Recommended	<p>The Early Warning System (EWS) database provides early alerts to address changes that could impact your address file. For example, your input file contains the address 123 MAIN ST. The ZIP4 DATABASE only contains MAIN RD. Since MAIN RD is the only entry in the ZIP + 4 database, without EWS processing, the input address would be changed to MAIN RD. Finalist can read the EWS database to determine that a new address MAIN ST has been created. Finalist does not change the input address to MAIN RD ensuring that mail is not delivered to the wrong location.</p> <p>Each monthly database ships with a copy of the EWSFILE database. However, you are encouraged to obtain the most current information available from the USPS web site. Visit http://ribbs.usps.gov/cassmass/documents/tech_guides/ and look for file EWS002C0.ZIP.</p>
LOTFILE	Recommended	<p>The Enhanced Line Of Travel or eLOT database provides routing information for your coded addresses. While eLOT processing is not required for CASS certification, it is required to obtain discounts. To accomplish this, perform eLOT processing as part of your address hygiene processing or separately as part of your presort processing.</p>
DPVxDB	Required	<p>The Delivery Point Validation (DPV) database provides point specific information about addresses. The ZIP4 databases match addresses to a range. For example, for the address "100-200 N MAIN ST.", DPV further qualifies the address to identify 101 as a valid delivery point where 103 is not.</p> <p>DPV has three (3) formats of its data:</p> <ul style="list-style-type: none"> • Full (often called hash) — Use DPV Full when storage of the databases is the most critical factor. The DPV Full database requires about 620M of disk storage. • Split — Use DPV Split for a medium storage factor. The DPV Split file requires about 1.2GB of disk storage. • Flat — Use DPV Flat for the largest storage factor. The DPV Flat file requires about 2.1GB of disk storage. <p>NOTE: USPS CASS regulations require DPV processing for CASS certification. If you do not perform DPV processing, Finalist does not generate a USPS Form 3553 (CASS Summary Report).</p>
LLKDB	Required	<p>The LACSLink database provides address conversion. For example, the old style address "RR 1 BOX 123" should be converted to "604 S 450 W" for a more accurate delivery of the mailpiece. This is often referred to as the E911 database since it allows emergency personnel to more accurately identify the address location.</p> <p>NOTE: USPS CASS regulations require LACSLink processing for CASS certification. If you do not perform LACSLink processing, Finalist does not generate a USPS Form 3553 (CASS Summary Report).</p>

Table 1: Finalist Databases (Part 2 of 2)

Database	Required/ Recommended	Description
SLKDB	Required	<p>The Suite^{Link} database provides more accurate matching for firms and businesses. For example, PITNEY BOWES; 2200 WESTERN CT; LISLE IL 60532 is missing the unit (suite) information to accurately deliver the mail. Suite^{Link} provides the ability to look into the address file and determine that firm PITNEY BOWES really belongs at a secondary range of STE 100.</p> <p>NOTE: USPS CASS regulations require Suite^{Link} processing for CASS certification. If you do not perform Suite^{Link} processing, Finalist does not generate a USPS Form 3553 (CASS Summary Report).</p>
RDIDB	Recommended	The Residential Delivery Indicator (RDI) Option is designed to identify if an address is a residential (RDI=Y) or a business (RDI not equal to Y) address. The RDI data files are obtained directly from the USPS.

Maximizing Performance

For best performance in a batch environment, DPV Flat is recommended with a Large memory model. Running with the Flat Large memory model will require about 50M of additional virtual memory for the processing run. For CICS and IMS processing, Finalist forces a Pico memory model.

For LACS^{Link}, a Medium memory model is recommended if your system can provide the 250M virtual memory requirement. A Small memory model will require only 35M of virtual storage with a minimal performance loss. Ultra-Small will require only 1M of virtual storage, but has significant performance loss.

For Suite^{Link}, a Large memory model will require 50M of storage and provide excellent performance results. A Medium memory model will require only 7M of storage and provides good performance results. Small and Ultra-Small will require only 1M of storage, but have significant performance loss.

File Sizes

The following table provides the approximate physical files sizes of the Finalist databases.

Table 2: Finalist Database File Sizes

Database	Approximate Physical Size
Finalist City file	75 MB
Finalist Data file	1.0 GB
EWS file	300 KB
eLOT	625 MB
DPV Flat	2.2 GB
DPV Full (hash)	635 MB
DPV Split	1.1 GB
LACSLink	375 MB
SuiteLink	525 MB
RDIDB	24 MB

Processing Options

Refer to the following table for the recommended processing options for your platform.

Table 3: Recommended Processing Options (Part 1 of 2)

Platform	Recommended Processing Settings
Mainframe Batch	Finalist cache buffers = 30 DPV FLAT with Large Memory Model LACSLink with Medium or Small Memory Model SuiteLink with Medium Memory Model
Windows and Unix	Finalist cache buffers = 12 DPV FLAT with Large Memory Model LACSLink with Large Memory Model SuiteLink with Large Memory Model

Table 3: Recommended Processing Options (Part 2 of 2)

Platform	Recommended Processing Settings
CICS and IMS On-Line	Finalist cache buffers = off DPV FLAT with Pico Memory Model LACS ^{Link} with Ultra-Small or Pico Memory Model Suite ^{Link} with Pico Memory Model

Virtual Memory Requirements

Refer to the following table for the approximate virtual memory requirements for the DPV, LACS^{Link}, and Suite^{Link} databases.

NOTE: Results can vary by month.

Table 4: DPV, LACS^{Link}, and Suite^{Link} Database Virtual Memory Requirements (Part 1 of 2)

Database	Setting	Virtual Memory Required
DPV FLAT	Huge	2.1G
	NOTE: Not recommended on mainframes.	
	Large	50M
	Medium	50M
	Small	1M
	Ultra-Small	1M
	Pico	0M
NOTE: Not recommended on mainframes.		
DPV Full	Huge	580M
	Large	50M
	Medium	50M
	Small	2M
	Ultra-Small	0M
	Pico	0M

Table 4: DPV, LACS^{Link}, and Suite^{Link} Database Virtual Memory Requirements
(Part 2 of 2)

Database	Setting	Virtual Memory Required
DPV Split	Huge	166M
	<p>NOTE: For Huge and Large settings, subtract 1M if not using CMRA, 64M if not using the No-Stat table, and 32M if not using the Vacant table.</p>	
	Large	132M
	Medium	36M
	Small	4M
	Ultra-Small	30K
	Pico	0M
<p>NOTE: Pico memory model does not load any files or indexes.</p>		
LACS ^{Link}	Huge	380M
	Large	290M
	Medium	250M
	Small	35M
	Ultra-Small	1M
	Pico	0M
Suite ^{Link}	Huge	525M
	Large	50M
	Medium	10M
	Small	0M
	Ultra-Small	0M
	Pico	0M

NOTE: USPS CASS regulations require DPV, LACS^{Link}, and Suite^{Link} processing for CASS certification. If you do not perform DPV, LACS^{Link}, and Suite^{Link} processing, Finalist does not generate a USPS Form 3553 (CASS Summary Report).

GLOSSARY

Term	Definition
3553 Report	USPS CASS Report.
API	Application programming interface. A set of routines, protocols, and tools for building software applications.
APO	Army Post Office. Mail for Army personnel is sent to one of several APOs in the United States. Each APO then forwards the mail to military bases throughout the world. Finalist does not process APOs as a conventional address. If Finalist does not find an exact match, the record will fail.
Barcode	An array of rectangular marks and spaces which appear in a predetermined pattern following unambiguous rules in a specific way to represent elements of data which are referred to as characters.
Base Street Name	The base street name is the street name that the USPS actually lists in the ZIP+4 postal file. For CASS certification purposes, your processing job should return the base street name. However, the USPS will accept either the alias street address or the base street address on the mail piece.
Carrier Route Code	A five-position code that designates the appropriate delivery route for a particular address. The USPS establishes carrier route coding schemes. Each scheme is ZIP specific.
CASS	USPS Coding Accuracy Support System.
Check Character	A character included within a symbol with a value used for the purpose of performing a mathematical check to ensure the accuracy of the data.
Check Digit	See Check Character.
CICS	Customer Information Control System.
City Delivery	A combination of delivery methods within a community where all residential and business customers are served according to postal regulations.
City Place Name	The name of a city, place, town, or other name by which a five-digit ZIP Code is commonly known.



CMRA Private companies offering mailbox rental services to individuals and businesses are Commercial Mail Receiving Agents (CMRA). See also PMB.

Conventional Address Address in which there is a street name and number. The street direction indicator (if any) in a strictly conventional address is between the street range number and the street name. For example, 1710 N. FOREST is a typical address line from a conventional address.

Delimiter A character that marks the beginning or end of a unit of data.

Delivery Point Barcode (DPBC) A 14-digit barcode consisting of two framing characters, a five-byte ZIP Code, a four-byte +4 code, a two-byte delivery point, and a one-digit modulo check digit. Modulo is a term used to describe several packet-switched network parameters, such as packet number (i.e., set to modulo 10, counted from 0 to 9). When the maximum count is exceeded, the counter is reset to 0.

Delivery Point Validation (DPV) The Finalist Delivery Point Validation (DPV) Option uses DPV data available from the USPS to determine whether an address actually exists. The Delivery Point Validation (DPV) Option can verify the existence of an address to as fine a level as an apartment or suite. Mailers can use the Delivery Point Validation (DPV) Option to ensure the addresses in their address file are actual physical addresses to which the USPS delivers mail.

Deprecated A term applied to features that are superseded and should be avoided. Although deprecated features remain in the current version, the use of deprecated features generates warning messages. Deprecated features will be removed in the future. Features are deprecated in order to give programmers using the feature time to bring their code into compliance with the new standard.

Directional NE, West, etc.

DLL See Dynamic Link Library (DLL).

Dual Address A dual address is an address that contains more than one mailable address (i.e., an address that contains both a PO BOX and a street address).

DVD (or DVD-ROM) DVD-ROM stands for "Digital Versatile Disk" or "Digital Video Disk", read only memory. A DVD holds 4.7 gigabytes of data. You cannot delete or update a file on a DVD-ROM.

Dynamic Link Library (DLL) Dynamic Link Library called dynamically at execution time.

Early Warning System (EWS)	USPS CASS 2002-2003 regulations require all CASS-certified software to be able to read the USPS Early Warning System (EWS) File. The Finalist Early Warning System (EWS) Option verifies input addresses that are not found in the current ZIP+4 File against the USPS EWS File. If an input address is found in the EWS File, the input address is not matched to any similar addresses in the current ZIP+4 File. Instead, the input address fails and is not coded until the ZIP+4 File is updated with the correct address from the USPS EWS File.
False-Positive Violation	The USPS has put in place security measures to ensure mailers using DPV and LACS ^{Link} processing do not use these applications to generate mailing lists. If the USPS identifies a mailer as repetitively generating false-positive violations, the USPS may direct Pitney Bowes Software to invalidate their license. Towards that end, the USPS has created and monitors addresses that generate a false-positive result. The USPS requires Pitney Bowes Software to report any organization generating a false-positive result during DPV and/or LACS ^{Link} processing.
Finance Number	The Finance Number consists of a state code (first two digits) and a postal installation code. There is a unique Finance Number for each post office name.
FIPS Code	Federal Information Processing Standards (FIPS) code. A FIPS code is a two-character state code followed by a three-character county code.
FPO	Fleet Post Office. Mail for Navy personnel is sent to one of several FPOs in the United States. Each FPO then forwards the mail to Navy bases throughout the world. Finalist does not process FPOs as a conventional address. If Finalist does not find an exact match, the record will fail.
Frame Characters	A special barcode character that provides the scanner with the start and stop instructions. Place the frame character at the beginning and ending of the Delivery Point barcode.
HCHighway Contract Route	HC provides for the transportation of mail between post offices or other designated points where mail is received or distributed.
IMS	Information Management System.
LACS^{Link}	The USPS LACS ^{Link} database contains data on address conversions.
Last Line Information	The address last line information contains the city, state, and ZIP Code.



Line of Travel (LOT)	Line of travel sequence is an option for mailers who prepare carrier route mailings other than high-density/125-piece or saturation mailings. LOT sequencing is required for Basic Enhanced Carrier Route Standard Mail except automation-compatible, letter-size pieces. LOT sequence is not an exact walk sequence but a sequence of ZIP+4 codes arranged in the order that the route is served by a carrier. First the ZIP+4 groups are sequenced. Then the addresses within each are identified as being in ascending or descending order.
Mailing Statement	A postal service form the mailer fills out, which lists the number of pieces of mail he or she is submitting at discount prices.
Modulo	A term to describe the adjustment value to bring a number up to the next multiple of its base number. For example, 13 modulo 10 has a value of 7. That is, you have to add 7 to 13 to bring it up to the next multiple of 20.
Mother ZIP	The term Mother ZIP is used to refer to the lowest ZIP Code within the finance area.
Nickname Alias Street Name	An alternate street name, maintained at the 5-digit ZIP Code level. It could be a name by which a street was formerly known, or a commonly used nickname for the street.
Non-Deliverable Address	Non-deliverable areas include vacant lots and land that borders railroad tracks, areas to which the USPS does not deliver mail.
Non-Mailing Name	A city name that is recognized by the USPS, but is not the preferred name for the ZIP Code. This is often a vanity name for the area.
Non-Parsed Address	Components of an address are combined into a single field. For example, an address 1 field might contain the Range, Street name, and Street suffix all separated by spaces. A last line address could consist of City, State, and/or ZIP all in the same field. With non-parsed address components, Finalist must spend additional time and resources to determine the individual components.
Parse	To analyze or separate into component parts.
Parsed Address Components	Components of an address are stored independently of each other. Components of a complete street address are some combination of: Range, Pre Directional, Street Name, Post Directional, Street Suffix, Unit Designator, Unit Range, Unit 2 Designator, Unit 2 Range, PMB Designator, PMB Range. Components of a last line are City, State, ZIP, ZIP+4, Delivery Point, Carrier Route, Advanced Bar Code. With Parsed Address components, Finalist does not need to determine the individual components.
PMB	A private mail box.

Point Of Entry	The point (post office) from which mail is entered (submitted).
Post-Directional	A geographic direction which follows the street name.
Pre-Directional	A geographic direction which precedes the street name.
Preferred Alias Street Name	Street names that are not standardized, that is, those addresses that include directional or suffix words as part of the street name, and not in their own fields. For example, a standardized address such as NE Military Sq would list NE in the pre-directional field, Military in the street name field and SQ in the suffix field. In contrast, the preferred alias street name would list Square in its non-standardized for as part of the street name (i.e., Military Square).
Range	Section of a street or road normally identified with a number. For example, 1985 DOWNING LANE uses a number to denote where to deliver the letter or package on Downing Lane. If the address is other than conventional, the range field denotes the pertinent PO box or rural route number.
Region	The first letter of the ZIP Code that indicates the region of the country.
Residential Delivery Indicator	Residential Delivery Indicator (RDI) indicates whether an address is a residential delivery address (not a business delivery addresses).
Return Values	A code that a program or subroutine issues to indicate the status of the processing performed. For example, the subroutine passes a return code to the calling (driver) program to indicate whether to assign a carrier route code to a given address.
SCF	Sectional Center Facility, a major USPS mail collection and distribution center. For multi-ZIP cities, the first three digits of the ZIP Code the city indicate the SCF.
Sector Segment	The ZIP add-on, or, commonly +4 code. See also ZIP Sector Number and ZIP Segment Number.
Street Direction	Refers to the geographical location of any given street address (for example, North, South, East, or West).
Suffix	Normally, a word that follows the street name, indicating the type of street. The following are common suffixes to the street name in a conventional address: Boulevard, Road, Lane, Avenue, Highway, Court, Street, and Drive.



Suite^{Link}	The USPS Suite ^{Link} database contains data on business addresses that were identified as high-rise default records during CASS processing. Finalist uses the USPS Suite ^{Link} database to append the secondary (suite) information to business addresses identified in the input file as high-rise default records. Records that have been processed through CASS Certified™ ZIP + 4® matching software and identified as high-rise defaults are potential candidates for Suite ^{Link} processing.
Three-Digit ZIP Prefix	The first three digits of the ZIP Code. These digits determine the appropriate SCF or postal facility to which the mail should be routed.
Unassigned Address	An address that does not have a sector segment number assigned by the post office.
Undefined Records	Records of varying length that do not contain a record length field. An undefined record is equivalent to a block.
Unique ZIP Code	A ZIP Code that is unique to a building or business.
Unit designator	Type of unit (i.e., APT, STE, #, etc.)
URB	See Urbanization.
Urbanization	Denotes a sector, area, or development within a geographic area. Only used in Puerto Rico urban areas.
ZIP Code	The Zoning Improvement Plan (ZIP), established in 1963, is a system of five-digit codes identifying the individual post office or metropolitan area delivery station associated with an address. ZIP Code is a USPS trademark.
ZIP Sector Number	The ZIP sector number forms the first two digits of the ZIP add-on code. Geographically, a ZIP sector is a subdivision of a five-digit ZIP Code area. ZIP sector boundaries do not Finalist state or county lines.
ZIP Segment Number	The ZIP segment number forms the last two digits of the ZIP add-on code. The ZIP segment is a sub-division of a ZIP sector. Geographically, ZIP segments represent areas such as one side of a city block between intersections; both sides of a street, including cul-de-sacs; a company or building; a floor or group of floors within a building; a cluster of mailboxes; sections of post office boxes; or other similar delivery groups.

ZIP + 4 code The nine-digit code, established in 1981 is composed of:

Initial Code — the first five digits identifying the post office or metropolitan area delivery station associated with an address; a hyphen.

Expanded Code — Includes the additional four digits. The first two additional digits designate the sector (a geographic portion of a zone, a portion of rural route, several city blocks or a large building, part of a box section, or an official designation). The last two digits designate the segment (a specific block face, apartment house bank of boxes, a firm, a floor in a large building, or other specific location). ZIP+4 is a USPS trademark.

Zone — Last two digits of the ZIP Code; also, an area defined by the Postal Service for the purpose of establishing mailing rates. Mileage from a central mailing point determines all zones.

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