User's Guide
PC Lookup® Correction
Open VMS

Comdata Services Ltd
PO Box 882
504 Center St
Kaslo, BC V0G 1M0

Tel 604.438.8176
Fax 604.437.4769

comdata@pclookup.com

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PC Lookup ® Correction V1.14 is on the list of software recognized by Canada Post Corporation until January 1, 2012. Use of Recognized Software in preparing mailing lists MAY assist the user to meet some of the requirements for incentive mailing rates. For more information on mailing rates and Canada Post Corporation's List of Recognized Software, contact

Director Marketing

Information Transfer Products

Station 852

Canada Post Corporation

720 Heron Rd

Ottawa ON K1A 0B1

Introduction

Address Accuracy, Canada Post and Your Mailing List

Canada Post developed the Address Accuracy program to speed up mail delivery and to reduce labour costs by enabling automation of the sorting process.

For the bulk mailer, the benefits are several:

- An efficient Canada Post delivers mail faster
- An automated Canada Post will need less frequent rate increases
- Less undeliverable mail reduces returned postage costs and wasted
- material
- Faster delivery means improved cash flow
- More accurate addresses reflect well on the professionalism of the mailing
- company

As of January 1st, 1997, the Address Accuracy program requires that incentive mailers meet the following requirement:

> Demonstrate an Address Accuracy rate of 95% based on either a sampling by Canada Post, or an Address Accuracy statement prepared by a RECOGNIZED SOFTWARE product within the last twelve months based on postal code^{OM} data not more than 7 months old with a penalty of $0.05 for each inaccurate address if the 95% level is not reached.

The Software Evaluation and Recognition Program (SERP) is a set of guidelines for testing and examining software products for Address Accuracy.

RECOGNIZED SOFTWARE is required to reach the following goals:

Validation	98% of addresses must be properly categorized as either Valid, Foreign or Non-Correctable
Correction	Of the addresses deemed Correctable between 75% and 100% must be corrected, and of those corrected 99% must be corrected correctly.

Note that all addresses corrected must still pass the Address Validation requirement for 98% accuracy.

For more information on the SERP process and testing procedures please contact:

Administrator
Software Evaluation and Recognition Program
Qualicum Building B, Station 1031
Canada Post Corporation
720 Heron Rd
Ottawa ON K1A 0B1

Understanding Different Address Types

There are five different types of addresses in Canada; these are as follows:

Civic or Street Address

John Smith
1234 Any Rd
Newtown ON M6J 2K6

Street Served by Rural Route

John Smith
1234 Any Rd RR 13
Newtown ON M7H 1K7

Post Office Box

John Smith
PO Box 1234 STN Main
Newtown ON M0A 1A0

Rural Route

John Smith
RR 13 STN Main
Newtown ON M0A 1A1

General Delivery

John Smith
General Delivery STN Main
Newtown ON M0A 1A1

These are broken down into two types - civic and station. Civic addresses include street information and station addresses include postal station information.

Address Type "1"

Record Type "1" Civic or Street Address
Record Type "2" Street Served by Rural Route

Address Type "2"

Record Type "3"	Post Office Box
Record Type "4"	Rural Route
Record Type "5"	General Delivery

Each record type has specific address components which may be present.

Extra Information or Non-Address Data
According to Canada Post, information that is not required for delivery must not be present in the address area. PC Lookup ® Correction will move this information as shown in the following examples:

	Before	After	Non-Address Data
1	RR 3 Site 56 Comp 6	RR 3	Site 56 Comp 6
2	Attn Accounts Payable 5505 Any St	5505 Any St	Attn Accounts Payable

Non-address data should be stored in a separate field so that it can be printed above the addressee information on labels as required by the Canadian Addressing Standard. You may prefer to return Non-address data to address line 1 prior to updating the record if you do not have a field available.

Numeric Street Spellings
Numeric Streets are spelled according to the municipality's notification to Canada Post. This means that there is only one correct spelling of a street name - that provided on the Postal Database. 6, 6th or Sixth, as well as their French parallels 6, 6ieme or Sixieme will be corrected to the spelling on the Canada Post database.

Municipality and Street Saints
Municipalities notify Canada Post of the desired spelling of street names and cities, so in the case of names containing a variant or abbreviation of 'Saint", PC Lookup ® Correction will correct St, Ste, Saint, Sainte, St-, Ste-, Sainte- or Saint- to the spelling indicated on the Postal database.

Here is a link to the Canadian Addressing Standard which explains the standard abbreviations, terminology and minimum requirements of addressing:

http://www.canadapost.ca/Tools/pg/standards/default-e.asp

Postal Codes[OM] , Major and Minor Communities

Points to remember about postal codes[OM] are as follows:

1. A single postal code[OM] may cover several different address types;for example
   V4P 2J9 is a Street Served by Rural Route **and** Rural Route
   R0E 1A0 is a PO Box **and** General Delivery

2. A single postal code[OM] may have dozens of postal records, most often with Street Served postal codes[OM] . In most cases each record represents a single block of a street address with a range of numbers.

3. A single postal code[OM] may contain several different street names.

4. A single postal code[OM] may contain streets in more than one community.

5. There may be more than one postal code[OM] that appears possible for an address. For example, given the address

   615 Belmont St
   New Westminster BC

   there are three possible postal codes[OM] :

   V3M 5Z8 is good for numbers 605 - 629 Belmont St, odd side only

   V3M 6A1 is good for number 615 Belmont St only

   V3M 5Z9 is good for number 615 Belmont St, suites 12 to 232 only

   Since the given address does not have any suite information, the correct postal code[OM] is V3M 6A1. There can be only one correct postal code[OM] for a given address.

6. Some postal codes[OM] are good only for a specific addressee. When an individual or company receives more than 50 pieces of mail a day then they are designated a Large Volume Receiver (LVR) and issued their own postal code.

   For postal purposes, some municipalities and communities are considered minor parts of a major community,

   Burnaby
   Richmond
   West Vancouver
   North Vancouver

   are all part of the major community of Vancouver. Any address in the minor community could also be sent to the major community and would still be valid.

Comdata Services Ltd 6451 Telford Ave Burnaby BC V5H 2Y8	Comdata Services Ltd 6451 Telford Ave Vancouver BC V5H 2Y8

This is true of all address types and has particular importance for station addresses when determining whether the delivery station area must be present.

What Can be Corrected and What Can Not

Examples

In the following example, either the street number or the postal code[OM] is incorrect.

Comdata Services Ltd
6451 Telford Ave
Burnaby BC V5H 2Z2

The correct postal code[OM] for the given street number is V5H 2Y8, however the postal code given is good for numbers between 6450 and 6660 on Telford Avenue. The address cannot be corrected because there is no way to know which component (street number or postal code[OM]) is wrong.

In the next example, although the civic number and postal code[OM] do not match, we can correct the record because the postal code[OM] itself does not exist.

Comdata Services Ltd
6451 Telford Ave
Burnaby BC V5F 2Y8

corrects to

Comdata Services Ltd
6451 Telford Ave
Burnaby BC V5H 2Y8

In the case of station addresses there are some special rules that often cause confusion.

Mr. John Smith
PO Box 2105
Vancouver BC V6B 3T5

corrects to

Mr. John Smith
PO Box 2105 STN Terminal
Vancouver BC V6B 3T5

This is because there are several letter carrier depots in Vancouver; in smaller communities where there is only one postal station, the delivery station information may be dropped.

When trying to understand how PC Lookup ® Correction determines that Address Correction may take place, remember that no matter what is wrong with an address, so long as there is sufficient information to uniquely identify the address, then all incorrect factors can be corrected.

Does PC Lookup ® Correction ever make mistakes?

Address Correction involves many elements utilizing emerging technologies that only now are attaining quantifiable results consistently; specific cases of Address Correction to an invalid state may occur; also, valid addresses may be categorized as Noncorrectable.

Canada Post frequently changes the rules that must be applied to determine the correctablity of addresses. For a better understanding of the rules you can review them using this link to the Address Accuracy Guidelines

http://www.canadapost.ca/Tools/pg/standards/default-e.asp

or contact the SERP administrator at 1-613-734-3489.

Running PC Lookup ® Correction as a Program

Special Function Keys

PF or F Keys:

The PF keys are active within PC Lookup ® Correction and perform the following functions:

PF1	PREV QUESTION returns you to the previous question.
PF2	QUIT aborts what you are doing and returns you to the last decision point; for example out of an inquiry screen to an EXIT, FIND, INSERT, REMOVE prompt.
PF3	PREV MENU returns you to the menu you selected the current option from.
PF4	HELP may be activated by either pressing this key, or the HELP key if your keyboard has one.

Arrows Keys:

Up and Down Arrow Keys are active on all menu screens and may be used to make your selection.

On-Line Validation and Correction

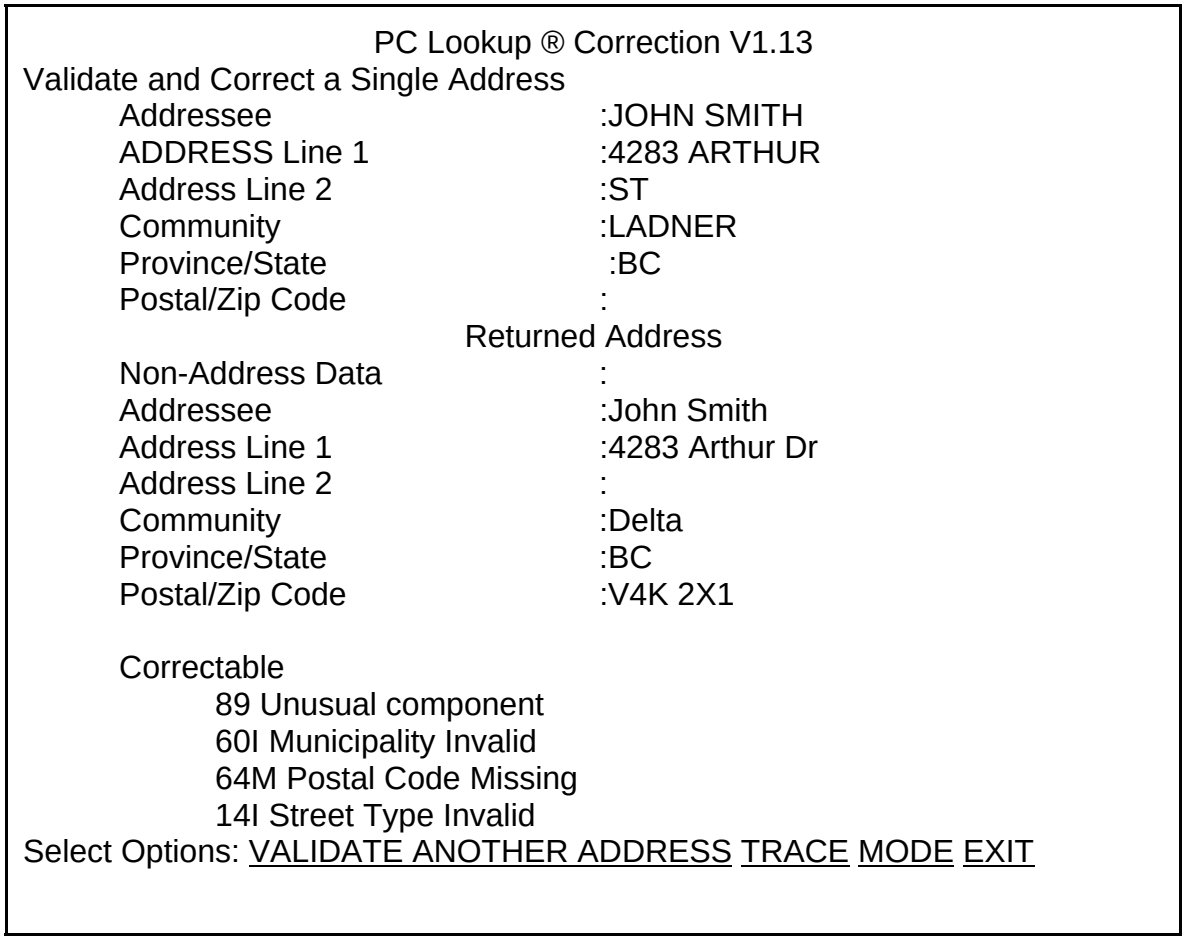
PC Lookup ® Correction may be activated by typing

RUN MMPROG:PCL_CORRECT

After table loading and other initializing functions have completed, the PC Lookup ® Correction menu is displayed.

```
                    PC Lookup ® Correction V1.13

EXIT              Exit (Return to DCL)
SINGLE            Validate a Single Name And Address
SEARCH            Search the Canada Post Database
ALTSTR            Display Alternate Street Names
ALTMUN            Display Alternate Municipality Names


SELECT AN OPTION OR USE THE ARROW KEYS TO CHANGE THE DEFAULT     :EXIT
```

Sele



ct the "Validate Another Address" function and enter in the address to be validated. Note that Addressee information will be checked and must be present. When the postal code has been entered, the address will be validated and corrected as necessary. You will notice that translation and upper to upper/lower case conversion as well as Address Correction are performed and that changed portions of the address are displayed in reverse video to highlight them.

Note that extra information called "Non-Address Data" is stripped from the address and returned as a separate line. .

The previous address is retained as a default so that this provides a simple method of 'experimenting' with variations on an address to determine how PC Lookup ® Correction will handle it.

Using Trace Mode Effectively

When investigating an address, trace mode puts the terminal into 132 column mode and displays the full information available. To enter trace mode, select the "Trace Validation" option and enter the address in the same manner as before. The screen will then shift to 132 column mode and display four columns of information;

Column 1 The original record broken down into its address components

Column 2 The corrected record in component form (note that if the record is ultimately non-correctable, this information may be only partly correct, if at all).

Column 3 The closest matching postal record to the corrected information (this does not imply that this postal information is correct, merely that it is the closest match).

Column 4 The final categorization and any error messages.

Trace mode is particularly useful when investigating potential problems related to parsing errors such as cases where street name information may be confused with street type or direction information or where there is non-address information present.

If you purchased PC Lookup ® Correction Expert, then instead of "Trace Mode", the option is "Correction Expert" which is discussed in Chapter 4.

Database Searches

```
                              PC Lookup ® Correction V1.10

Addressee      :JOHN SMITH   John Smith   Record Type          :Street Address   Correctable
Suite          :                         Address Type         : Civic           89 Unusual Component
                    :                    Province Code        : BC              60I Municipality
   Street                       4283      Major Community      Delta             62M Postal Code Missing
Street Name    ARTHUR        ARTHUR       Street Name          ARTHUR            141 Street Type Invalid
Street Type    ST            DR           Type                 DR
Street         :                          Direction
Municipality   LADNER        Delta        Number Code          Odd
Province       BC            BC           Ending Number        004327
Postcode       :             V4K2X1       Suffix               :
Box            :                          Suite                :
Box Keyword    :                          Beginning Number     004327
Delivery                                  Suffix               :
Del. Inst.                                Suite                :
Del. Inst.     :                          Municipality         Delta
Gen. Del.      :
Route          :
Route                                                           :V4K2X
                                          Del. Inst. Post Cd       :V4K1V0
       Select Option: CONTINUE
```

There are six different database searches available - one for each address type and postal code[OM] .

Select the "SEARCH" option from the main menu and press return. Each search function requires different information criteria, depending upon the record type. If you enter a partial community or street name the database will be searched for all possible matches. Use the arrow keys and the PREV and NEXT SCREEN buttons to move to the line you wish to search on and then press return or SELECT. If you wish to find out what Province a city exists in, then you may leave the Province blank as well.

Since the information for the previous search is retained as a default for the next search, it is quite simple to perform multiple searches with the minimum amount of retyping.

Only fields that are entered will be checked against postal records; blank fields are considered 'wild' and will not prevent display.

CIVIC (STREET)	Province Code Community Street Name Street Type Street Dir Street Number
STREET SERVED	Province Code Community Street Name Street Type Street Dir Street Number Route Type Route Number
BOX	Province Code Community Inst. Area Inst. Type Inst. Qual. Box number
RURAL	Province Code

	Community	
	Inst. Area	
	Inst. Type	
	Inst. Qual.	
	Route Type	
	Route Number	
GEN DEL	Province Code	
	Community	
	Inst. Area	
	Inst. Type	
	Inst. Qual.	
POSTCD	Postal code[OM]	Must exist

Delivery Station Information

PO Box, RR and General Delivery searches allow for the entry of delivery station information. This can usually be left blank, as even if there are multiple records matching the given information, they will all be shown in turn. In a larger city, such as Toronto or Montreal where there are dozens of postal stations, use the delivery station to narrow the search down.

Installation Area	The major or minor community in which the postal station is located, ie. **Don Mills** RPO Flemingdon is a postal station in Toronto.
Installation Type	ie. STN, SUCC, RPO, LCD
Installation Qualifier	In a single station community this is always Main or Bureau-chef, but in a multi-station community then it will indicate the depot name, ie. Edmonton RPO **Canada Place**.

Obsolete Community Names

You may see messages regarding the replacement of obsolete communities from time to time. This is normal and indicates that the community entered is no longer valid and has been replaced. The search will continue with the new community name.

Alternate Street Lookup

From time to time municipalities change the names of streets in a community. When Canada Post is advised of this, the change is recorded in the Alternate Street file. PC Lookup ® Correction will refer to this file to correct addresses that are still using the obsolete name.

Select the ALTSTR option and you will see the following screen:

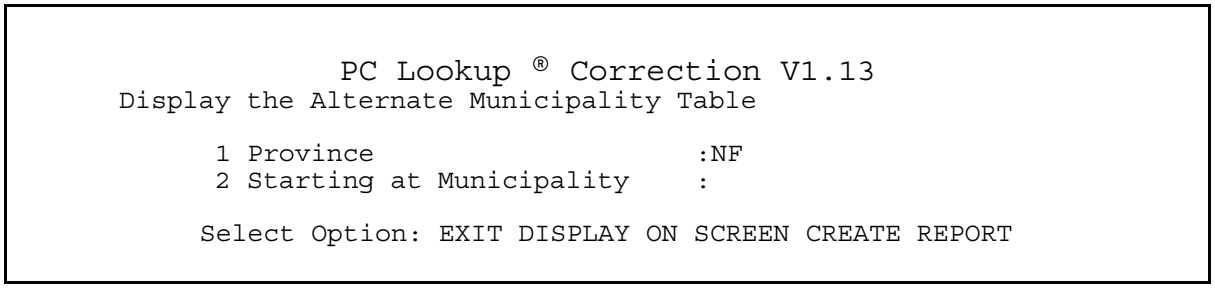
```
                PC Lookup ® Correction V1.13

      Display the Alternate Street Table
            1 Province                    :QC
            2 Municipality :Montreal
            3 Starting at Street :


Select Option: EXIT DISPLAY ON SCREEN CREATE REPORT
```

Select the SEE ALTERNATIVES function and enter in the two character Province code. You will then be asked for the Municipality, at which point you enter the city name. The 'Starting at Street' prompt may be left blank to see all streets for a given city, or a partial street name may be used to narrow the search. The display shows the obsolete and current names.

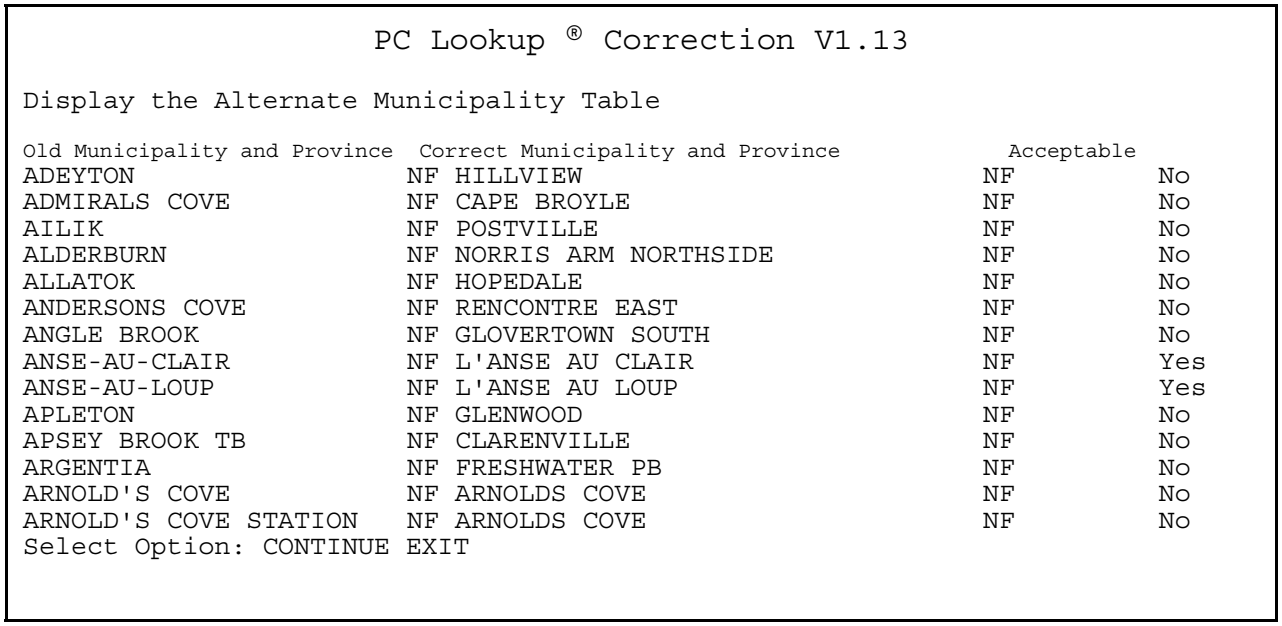
```
                PC Lookup ® Correction V1.13

Display the Alternate Street Table

            Street Name              Type  Dir Municipality and Province
      Old ALEXANDER C HUTCHISON      RUE          MONTREAL           QC
      New ALEXANDER-C.-HUTCHISION    RUE          MONTREAL

      Old ALFRED-PELLAND             RUE          MONTREAL           QC
      New ALFRED-PELLAN              RUE          MONTREAL

      Old ANDRE-AMPERE               PLACE        MONTREAL           QC
      New ADRIEN-HEBERT              RUE          MONTREAL

      Old BERGER                     RUE          MONTREAL           QC
      New DU BERGER                  RUE          MONTREAL

      Old CAROLINE RACICOT           RUE          MONTREAL           QC
      New CAROLINE-RACICOT           RUE          MONTREAL
```

Alternate Municipality Names

Many smaller communities have been incorporated into larger communities over the years as a result of boundary and population shifts. People commonly use the older name as they are more familiar with it, however this is not necessarily correct for postal purposes. Many communities are also reverting to original native names and spellings. Also included in this file are commonly used abbreviations for cities that are permitted alternatives to the full name.



Select the ALTMUN option and you will see the following screen:
Select the SEE ALTERNATIVES function and enter in the two character Province code. The 'Starting Municipality' prompt may be left blank to see all municipalities for a given Province, or a partial name may be entered to narrow the search. The display shows the obsolete and current names, and indicates if the obsolete name is a permitted alternative.



Hooking PC Lookup ® Correction into Existing Applications

MMINIT - Initialization module

The MMINIT module opens the PC Lookup ® Correction files and loads a number of memory tables that will be used during address checking. It also initializes the statistics printed by MMSTAT.

The passing parameters are as follows:

STATUS	This 30 character string will always have a value of blank unless there has been an error during the initialization, in which case it will contain a message indicating the error condition.

MMCHEK - Address Validation and Correction

The MMCHEK module validates and corrects a single address. The passing parameters are grouped into four areas:

MMINPAR	This 170 character string defines how MMCHEK will process the address.
MMINREC	This 320 character string contains the address to be validated and corrected.
MMOUTPAR	This 300 character string returns any error messages and the corrected address separated into address components.
MMOUTREC	This 320 character string contains the returned address.

All passing parameters are left justified, space filled. Sample programs for most languages are included each month on the distribution media. Each string will now be discusssed in detail.

MMINPAR

MMINPAR_ADDRESS1LEN	This 2 character field must contain a number between 01 and 50 that indicates the length of address line 1.
MMINPAR_ADDRESS2LEN	This 2 character field must contain a number between 00 and 50 that indicates the length (if any) of address line 2.
MMINPAR_ADDRESSEECHECK	This 1 character field must contain a N and is obselete but retained for compatibility with earlier releases.
MMINPAR_LOWERCASE	This 1 character field must contain a Y if address information is to be converted to upper and lower case. If an addressee name contains lower case already, then no conversion will take place. This allows hard-coding of unusual names such as 'DeKlerk'. If set to N then all information will be converted to upper case only.
MMINPAR_LANGUAGE	This 1 character field must contain one of four possible values: C Correct to language of community - the preferred default E Force address to English F Force language to French O Retain original address language

MMINPAR_NONCOREXTRA	This 1 character field must contain either a Y to force any address with extra information to be considered Non-correctable or an N to return extra information in the Non-address field.
MMINPAR_LVRVALID	This 1 character field should contain a N and is obselete but retained for compatibility with earlier releases.
MMINPAR_SKIPRURAL	This 1 character field should contain a N and is obselete but retained for compatibility with earlier releases.
MMINPAR_CITYLEN	This 2 character field must contain a number between 1 and 30 with a default of 30, that indicates the maximum length of the city field available on your database. If the corrected city name will not fit into the given length, then PC Lookup ® Correction will check for a permitted abbreviated city name that will fit. If none is available then the address is returned Non-correctable with an error message.
MMINPAR_STREETLEN	This 2 character field must contain a number between 1 and 30 with a default of 30, that indicates the maximum length of the street name field available on your database. If the corrected street name will not fit then the address is returned Non-correctable with an error message.
MMINPAR_CIVICNONCOR	This 1 character field must contain either a "Y" or a "N". A "Y" indicates that when PC Lookup ® Correction determines that the civic number is incorrect it should return the address as Non-correctable. A "N" (the default) indicates that correction should take place if possible.
MMINPAR_LVRNAME	This one character field must contain either a "Y" or "N". A "Y" indicates when PC Lookup ® Correction determines an address is either correctable or valid, the postal code^{OM} will be checked to see if it is a Large Volume Receiver (LVR). When an LVR name is found the first 30 characters of the name are placed in MMISER_OUTPAR_ERRORTEXT4 and the second 30 characters are placed in MMISER_OUTPAR_ERRORTEXT5. If no LVR name is found then ERRORTEXT4 and ERRORTEXT5 are blanked. A "N" indicates that normal error messages (if any) should be returned.
MMINPAR_VALIDOPT	This one character field must contain only one of the four possible values. "N" or (Blank) Valid records will be optimized and reported as "C" correctable. "Y" Valid records will NOT be optimized and reported as "V" valid. "C" Valid records will be optimized and reported as "V" valid.
MMINPAR_ACCENTS	This one character field should contain either a "Y" or "N". An "N" indicates that accent characters will not be returned. A "Y" indicates that accented characters will be substituted according the the following list. $ = Â = = À < = Ç % = Ê * = É >= È ! = Ë @ = Î ? = Ï ¢ = Û ; = Ü # = Ô + = Ù.
MMINPAR_AUTOVALID	This parameter defaults to Y(es) and means that rural postal codes with a zero in position 2 will be automatically set to Valid within SERP rules. When set to N(o), rural addresses will be returned as Non-correctable when invalid. Note that this parameter is only used in interactive applications and not for Address Accuracy.
FILL	This 10 character field is reserved for future expansion and should be space filled.

Some databases store address components separately; when the fields for address line 1 and 2 are blank, PC

Lookup ® Correction will refer to the following fields for address information. Note that address length fields must still be set to avoid '70 Address too long for Field' errors.

MMINPAR_SUITEID	This 6 character field contains the suite number or letter combination.
MMINPAR_SUITEKEY	This 6 character field contains the suite keyword, ie. Suite, Apt, Unit.
MMINPAR_STREETNUM	This 6 character field contains the civic number.
MMINPAR_STREETNUMSUFFIX	This 1 character field contains only the following: 1 indicates 1/4, 2 indicates 1/2, 3 indicates 3/4, a space , or a letter from A-Z.
MMINPAR_STREETNAME	This 30 character field contains the street name.
MMINPAR_STREETTYPE	This 6 character field contains the street type, ie. Ave, St, Rd.
MMINPAR_STREETDIR	This 2 character field contains the abbreviated street direction or spaces.
MMINPAR_BOXID	The 6 character field contains the PO Box number or letters.
MMINPAR_BOXKEY	This 6 character field contains either PO Box or CP.
MMINPAR_DELAREA	This 30 character field contains the delivery station area.
MMINPAR_DELKEY	The 6 character field contains the delivery station keyword, ie, STN, RPO.
MMINPAR_DELQUAL	This 15 character field contains the delivery station qualifier.
MMINPAR_GENDELKEY	This 2 character field contains GD for General Delivery addresses.
MMINPAR_ROUTEIDENT	This 6 character field contains the rural route number or letter combination.
MMINPAR_ROUTEKEY	This 2 character field contains the rural route keyword, ie. RR, MR, SS

MMINREC

MMINREC_IDENTIFIER	This 10 character field contains the unique user identifier; it is not used by PC Lookup ® Correction .
MMINREC_NONADDRESS	This 50 character field contains non-address information, ie. Site 3 Comp 6.
MMINREC_ADDRESSEE	This 65 character field contains the addressee.
MMINREC_ADDRESS1	This 50 character field contains address line 1.
MMINREC_ADDRESS2	This 50 character field contains address line 2.
MMINREC_CITY	This 30 character field contains the city.
MMINREC_PROVINCE	This 25 character field contains the Province.
MMINREC_COUNTRY	This 30 character field contains the country.
MMINREC_POSTCODE	This 10 character field contains the postal code[OM] .

MMOUTPAR

MMOUTPAR_CATEGORY	This 1 character field contains one of the following values: V Valid F Foreign C Corrected N Non-correctable
MMOUTPAR_ERRORTEXT1	This 30 character field contains the first error message text or spaces.
MMOUTPAR_ERRORTEXT2	This 30 character field contains the second error message text or spaces.
MMOUTPAR_ERRORTEXT3	This 30 character field contains the third error message text or spaces.
MMOUTPAR_ERRORTEXT4	This 30 character field contains the fourth error message text or spaces.
MMOUTPAR_ERRORTEXT5	This 30 character field contains the fifth error message text or spaces.
FILL	This 19 character field is reserved for future expansion and will be space filled.

Some databases store address components separately; PC Lookup ® Correction will return an address as both separate components and as a formed address line.

MMOUTPAR_SUITEID	This 6 character field contains the suite number or letter combination.
MMOUTPAR_SUITEKEY	This 6 character field contains the suite keyword, ie. Suite, Apt, Unit.

MMOUTPAR_STREETNUM	This 6 character field contains the civic number.
MMOUTPAR_STREETNUMSUFFIX	This 1 character field contains only the following: 1 indicates 1/4, 2 indicates 1/2, 3 indicates 3/4, a space, or a single letter from A-Z.
MMOUTPAR_STREETNAME	This 30 character field contains the street name.
MMOUTPAR_STREETTYPE	This 6 character field contains the street type, ie. Ave, St, Rd.
MMOUTPAR_STREETDIR	This 2 character field contains the abbreviated street direction or spaces.
MMOUTPAR_BOXID	The 6 character field contains the PO Box number or letters.
MMOUTPAR_BOXKEY	This 6 character field contains either PO Box or CP.
MMOUTPAR_DELAREA	This 30 character field contains the delivery station area.
MMOUTPAR_DELKEY	The 6 character field contains the delivery station keyword, ie, STN, RPO.
MMOUTPAR_DELQUAL	This 15 character field contains the delivery station qualifier.
MMOUTPAR_GENDELKEY	This 2 character field contains GD for General Delivery addresses.
MMOUTPAR_ROUTEIDENT	This 6 character field contains the rural route number or letter combination.
MMOUTPAR_ROUTEKEY	This 2 character field contains the rural route keyword, ie. RR, MR, SS

MMOUTREC

MMOUTREC_IDENTIFIER	This 10 character field contains the unique user identifier; it is not used by PC Lookup ® Correction .
MMOUTREC_NONADDRESS	This 50 character field contains non-address information, ie. Site 3 Comp 6.
MMOUTREC_ADDRESSEE	This 65 character field contains the addressee.
MMOUTREC_ADDRESS1	This 50 caracter field contains address line 1.
MMOUTREC_ADDRESS2	This 50 character field contains address line 2.
MMOUTREC_CITY	This 30 character field contains the city.
MMOUTREC_PROVINCE	This 25 character field contains the Province.
MMOUTREC_COUNTRY	This 30 character field contains the country.
MMOUTREC_POSTCODE	This 10 character field contains the postal code^{OM} .

Note that when the corrected address information does not fit into address line 1, it will be split into address line 1 and address line 2 according to the standards. If there is insufficient space or there is no address line 2, the error message - "70 Address Too Long for Field" is returned and the address is marked Non-correctable.

MMSTAT - Address Accuracy Statement

Statistics gathered since the last MMINIT initialized them may be printed with this option on an Address Accuracy statement.

The passing parameters are as follows:

REP_FILENAME	The 40 character filename (including logicals) where the Address Accuracy Statement is to be created. Note that the file is opened in Access Append mode so it may already exist. MMSTAT will fail if the report file is open by another user.
REP_TITLE	A 40 character database title which will appear on the Address Accuracy statement.

The Address Accuracy statement may print two or three pages depending upon the number of error message types recorded and will be a maximum of 80 characters wide. This is the document which must be presented to Canada Post as part of the bulk mail

application.

When considering the statement "PC Lookup ® Correction has improved the accuracy..." consideration should be given to the fact that PC Lookup ® Correction considers only unchanged and foreign records as being accurate prior to the run. ANY correction, no matter how trivial, will cause PC Lookup ® Correction to consider that record as being improved for the purposes of the statement.

Some corrected addresses may have been Valid prior to correction and as such may have been deliverable and acceptable under the Address Accuracy program; however, as PC Lookup ® Correction has corrected them to a more correct state, they are considered "improved". Refer to the VALIDOPT parameter for optimized treatment of these addresses.

Sample Programs

Your monthly distribution media includes the following sample programs:

VAX-BASIC	TESTPGM.BAS
VAX_COBOL	TESTPGM.COB
VAX_DIBOL	TESTPGM.DIBOL
VAX_DSM	TESTPGM.MUMPS

These programs can be compiled, linked against the PC Lookup® Correction library and run, provided the appropriate compiler is available.

How to Use PC Lookup ® Correction Expert

PC Lookup ® Correction Expert comprises 6 separate screens of information:

ADVICE	The ADVICE screen displays in simple English the problem with the address and a suggested resolution.
FIX ADDRESS	This screen allows you to change the address and to pass it through PC Lookup ® Correction again as often as needed.
PARAMS	This screen allows the user to review the current settings of the programmer hard-coded options that customize PC Lookup ® Correction ™.
VIEW POSSIBLES	Up to five postal records are displayed that are 'close' to the supplied address. Each record is rated according to a proprietary algorithm - the more points the better.
SEARCH	The SEARCH screen is the same as that available from the main PC Lookup ® Correction application - please refer to chapter 2 page 4.
MMPARSE	When determining why PC Lookup ® Correction is having difficulty with an address it is sometimes useful to see how it has been 'parsed' or broken into address components.

Special Keys

PC Lookup ® Correction Expert supports the PF1, PF2, PF3 and PF4 keys on all screens as described in Chapter 2.

Depending upon the circumstance LEFTARROW, RIGHTARROW, UPARROW, PREVSCREEN and NEXTSCREEN may also be available. If in doubt about which special keys are available, press the PF4 or HELP button and read the message displayed.

Hooking PC Lookup ® Correction Expert into your Existing Applications

PC Lookup ® Correction Expert can be used on its own or as part of a regular PC Lookup ® Correction run. Provided that the MMINIT and KBOPEN modules have been called once at the beginning of the run, MMEXPERT and MMCHEK may be called interchangeably.

Programming Considerations

It is the responsibility of the calling program to ensure that screen handling outside the MMEXPERT module is acceptable. MMEXPERT will clear the screen upon entry but it is the calling program's responsibility to clear it afterwards and to re-paint any necessary information. Screen handling is standard VT-style 80 column text painting.

MMEXPERT screens will 'time-out' if there is no keyboard activity within 10 minutes.

The FIX ADDRESS screen that the user sees will be either a formatted address or a component address depending upon whether an Address Line 1 was detected.

The MMEXPERT module allows a user to change an address in its entirety - for example an address in rural Saskatchewan might be changed to one in Switzerland. This may or may not be an issue but is something to bear in mind if the addresses are associated with money or cheques.

MMINIT Initialization module

The MMINIT module opens the PC Lookup ® Correction files and loads a number of memory tables that will be used during address checking. It also initializes the statistics printed by the MMSTAT module.
The passing parameter is as follows

STATUS	This 30 character string will always have a value of blank unless there has been a error during the initialization in which case it will contain a message indicating the error condition.

KBOPEN Open the keyboard

The KBOPEN function must be called prior to the first call to MMEXPERT. The module will determine an available channel to be used for screen handling and make it available to the MMEXPERT module . KBOPEN may be called before or after MMINIT, but is only called once in each program activation. KBOPEN has no passing parameters.

MMEXPERT Review and Modify a Single Address

The MMEXPERT module calls the MMPREP and MMCHEK modules during the address review process and uses exactly the same passing parameters which are discussed in Chapter 3. The passing parameters are grouped into four areas:

MMINPAR	This 170 character string defines how MMEXPERT will process the address.
MMINREC	This 320 character string contains the address to be validated and corrected.
MMOUTPAR	This 300 character string returns any error messages and the corrected address separated into address components.
MMOUTREC	This 320 character string contains the returned address.

Basically a single address is passed into the MMEXPERT module, it is reviewed and possibly modified then returned to the calling program which may then check the returned status to determine whether to update the changes to a database.

Installing PC Lookup ® Correction for the First Time

PC Lookup ® Correction is distributed as two VMS BACKUP format savesets.

Step 1 Login to the username SYSTEM

Step 2 Create a root directory on the disk where you wish to install PC Lookup ® Correction. This disk should have at least 400,000 free blocks.

```
SET DEFAULT diskdevice:[000000]

CREATE/DIRECTORY [PCLOOKUP]
```

Substitute your disk device name for "diskdevice"

Step 3 Download the files PCLCAXP.BCK and PCLCDATA.BCK from the Comdata FTP site.

Step 4 Restore the savesets

```
BACKUP/LOG PCLCAXP.BCK/SAVE diskdevice:[PCLOOKUP]
BACKUP/LOG PCLCDATA.BCK/SAVE diskdevice:[PCLOOKUP:
```

Step 5 Establish the system wide logical to point to the PC Lookup ® Correction device and directory.

```
ASSIGN/SYSTEM diskdevice:[PCLOOKUP] MMPROG
```

Step 6 Modify your startup command file to establish the system wide logical at each system startup.

Step 7 PC Lookup ® Correction reports are created in the logical REP:. This logical should be established for each user that will be running PC Lookup ® Correction directly.

Step 8 The PC Lookup ® Correction object module library is provided on the PCLCAXP.BCK saveset. To link your programs against the PC Lookup ® Correction library you should establish a link library similar to the following:

```
DEFINE/SYSTEM LNK$LIBRARYn MMPROG:SUBLIB.OLB
```

Where "n" is the next available link library number. This command should also be inserted in your startup command file.

Step 9 You must now run PC Lookup ® Correction for the first time to establish your Authorization Key.

```
RUN MMPROG:PCL_CORRECT
```

at the "Please enter your PC Lookup ® Correction Authorization Key" prompt type the 4 digit number assigned to your site and press return. Upon acceptance, the PC Lookup® Correction menu is displayed and PC Lookup ® Correction is ready for access.

Step 10 You may now delete the distribution savesets.

```
DELETE/LOG PCLC*.BCK;
```

Note:

When running PC Lookup ® Correction on windowing devices, ensure that the terminal is set to "VT" emulation using font "80 normal 132 condensed". You may experience difficulties with screen width changes when using remote terminal support rather than LAT and for this reason we do not recommend remote terminal services be used.

You may wish to compile and link the sample programs provided as part of the distribution list. These are listed in Chapter 3 and demonstrate the use of the CALLable PC Lookup ® Correction modules.

Installing PC Lookup ® Correction Updates

PC Lookup ® Correction updates always consist of a complete set of files and programs to ensure compliance with Canada Post date-expiry requirements. PC Lookup ® Correction updates are distributed as two VMS BACKUP format savesets with the Postal code^{OM} Database in one and the link library and standalone program in the other.

Step 1 Login to the username SYSTEM

Step 2 Ensure that there are no users currently accessing the PC Lookup ® Correction database.

```
SHOW DEVICE/FILES diskdevice:
```

Substitute your disk device name for "diskdevice"; the display should show no users accessing PC Lookup ® Correction files

Step 3 Delete the entire contents of the PC Lookup ® Correction directory.

```
DELETE/LOG MMPROG:*.*.*
```

Step 4 Download the new data and library savesets from the Comdata FTP site. Restore the savesets.

```
BACKUP/LOG PCLCAXP.BCK/SAVE diskdevice:[PCLOOKUP]
BACKUP/LOG PCLCDATA.BCK/SAVE diskdevice:[PCLOOKUP]
```

Step 5 You may now delete the backup savesets

```
DELETE/LOG PCLC*.BCK;
```

Step 6 You must now run PC Lookup ® Correction for the first time to establish your Authorization Key.

```
RUN MMPROG:PCL_CORRECT
```

At the "Please enter your PC Lookup ® Correction Authorization Key" prompt type the 4 digit number assigned to your site and press return. Upon acceptance, the PC Lookup® Correction menu is displayed and PC Lookup ® Correction is ready for access.

Preparing an Address Accuracy Statement.

Canada Post has prepared a new, expanded National Address Database that includes an additional 3 million records approximately. These records allow for much improved checking of suite ranges in apartment buildings and rejection of non-existent suite addresses. From January 1st, 2011 to July 1st, 2011 these rejected addresses will be counted as Excluded and appear on your Address Accuracy statement as such. From July 1st, 2011 non-existent suite addresses will be considered Non-correctable and therefore count against the Address Accuracy rate with the potential for additional costs on each mailing. Note that Address Accuracy statements can only be run using the POCAD file and processed by a batch run. They are still valid for one calendar year from the date of processing. The POCAD file is only needed for the preparation of the Address Accuracy statement and takes approximately 750 mb. The data is time-sensitive and will be deleted each time a new address database is installed.

Step 1 The process is similar to that of the normal monthly update procedure (see Appendix B).

Download the file

POCAD.ZIP

from the Comdata FTP site.

Step 2 Unzip the file using the VMS Unzip utility

```
UNZIP POCAD.ZIP
```

Step 3 Extract the POCAD fle from the VMS Backup save set

```
BACKUP/LOG POCAD.BCK/SAVE/SELECT=[*...]*.* MMPROG:
```

This will take several minutes.

Step 4 The POCAD file is now available for use.

Sample - Address Accuracy Statement

```
Run Date :10-Oct-15        PC Lookup Correction V1.14                Page : 1
                          Address Accuracy Statement

          These addresses have been processed on 10-Oct-15 against
        National Address file ACDROM which is in effect from 10-Jun-21

    Customer List Identifier :TEST

    Error Type                          Corrected Non-Correctable

11I Civic # Invalid                        100        72
13I Street Name Invalid                   1008       276
13M Street Name Missing                                3
14M Street Type Missing                    714         1
15M Street Direction Missing               576
16I Suite Keyword Invalid                 1046         4
17I Suite Identifier Invalid                          914
20I Route Service Inf. Invalid                          1
22I Route Keyword Invalid                  704         1
24I Route Ident. Invalid                     5        15
24M Route Ident. Missing                   219
32I Lock Box Keyword Invalid               825         5
34M Lock Box Ident. Missing                100
56I Del. Inst. Qual. Invalid               260        25
56M Del. Inst. Qual. Missing               605
60M Municipality Missing                   199
62M Province Missing                       559         5
64I Postal Code Invalid                    206        80
64M Postal Code Missing                    769
                                        ______     ______
                              Totals:   14826      2648

         Valid Addresses           :    20575
         Corrected Addresses       :     9240
         Non-Correctable Addresses :     2078
                                     ______
         Total Addresses Scanned   :    31893

 PC Lookup Correction improved this list from  64.51% to  94.50% accuracy.

             This copy of "PC Lookup Correction V1.14 " has been licensed to
             COMDATA SERVICES LTD. for use on a DIGITAL PERSONA
  This software contains data copied under license from Canada Post Corporation
 The Canada Post Corporation file from which this data is copied is dated
                                10-Jun-21
  Copyright (c) 2010 Comdata Services Ltd. Burnaby, B.C. All rights reserved.
 Recognised by Canada Post Corp. under the SERP program until Jan 10th, 2012
```

Sample Address Accuracy Statement

Address Error Messages

PC Lookup ® Correction address messages are structured according to standards laid down by the SERP guidelines.

- A maximum of five error messages per address are printed, although more errors may be detected.

- In the case of Non-correctable records, correctable errors are displayed first indicating that some portion of the address may be correctable.

Error Messages

00I	Complete Address Invalid
01I	Addressee Invalid
01M	Addressee Missing
10I	Complete Street Invalid
10M	Complete Street Missing
11I	Civic # Invalid
11M	Civic # Missing
12I	Civic # Suffix Invalid
12M	Civic # Suffix Missing
13I	Street Name Invalid
13M	Street Name Missing
14I	Street Type Invalid
14M	Street Type Missing
15I	Street Direction Invalid
15M	Street Direction Missing
16I	Suite Keyword Invalid
16M	Suite Keyword Missing
17I	Suite Identifier Invalid
17M	Suite Identifier Missing
19I	Delivery Info. Invalid
19M	Delivery Info. Missing
20I	Route Service Inf. Invalid
20M	Route Service Inf. Missing
22I	Route Keyword Invalid
22M	Route Keyword Missing
24I	Route Ident. Invalid
24M	Route Ident. Missing
30I	Lock Box/Bag Inf. Invalid
30M	Lock Box/Bag Inf. Missing
32I	Lock Box Keyword Invalid
32M	Lock Box Keyword Missing
34I	Lock Box Ident. Invalid
34M	Lock Box Ident. Missing
40I	Gen. Del. Inf. Invalid
40M	Gen. Del. Inf. Missing
42I	Gen. Del. Keyword Invalid
42M	Gen. Del. Keyword Missing

50I	Delivery Inst Inf. Invalid
50M	Delivery Inst Inf. Missing
52I	Del. Inst. Area Invalid
52M	Del. Inst. Area Missing
54I	Del. Inst. Type Invalid
54M	Del. Inst. Type Missing
56I	Del. Inst. Qual. Invalid
56M	Del. Inst. Qual. Missing
60I	Municipality Invalid
60M	Municipality Missing
62I	Province Invalid
62M	Province Missing
64I	Postal code^{OM} Invalid
64M	Postal code^{OM} Missing
66I	Country Invalid
66M	Country Missing

Special Cases

70	Address Too Long for Field This message is displayed for addresses where there is insufficient length in either address line 1 or address line 2 for the address to be displayed without truncation. These addresses are always Non-correctable.
71	Notify Comdata - Loop Error PC Lookup ® Correction has detected a possible loop situation. Please contact Comdata Technical Support with all available information.
72	Street Name Too Long The corrected street name will not fit into the street name field using the length specified in MMINPAR_STREETLEN.
73	City Name Too Long The corrected city name will not fit into the city name field using the length specified in MMINPAR_CITYLEN.
74	MMParameter Error One of the MMINPAR parameters has an illogical setting; refer to Chapter 3 for possible settings.
80	Abbreviation A list of the approved abbreviations is provided in the "Canadian Addressing Standard".
81	Typo This is usually a modifier following the error message indicating the component in error.
82	Numeric Street Spelling "Sixth", "Six", "6" and "6th" are all possible ways of spelling a typical numeric street. The only acceptable way is that stored on the postal database.
83	Translation PC Lookup ® Correction has translated some portion of the address
84	Component Alternate There are some special cases in which alternates may be used
85	Area Name < >Municipality The municipality name is different to the postal area name

86 Extra Information
Information that is not relevant to the postal address has been found and retained. This may indicate an invalid address in some cases.

87 Single Inst. Community
There is only one postal station in the community

88 Multi-inst. Community
There are several postal stations in the community

89 Unusual component
Self-explanatory

90 Placement of Component
Usually seen in relation to street types i.e. French street types are found before the street name (except for numeric streets), whereas English street types are placed after the street name in all cases.

91 Missing but consistent
Self-explanatory

92 Component Spelled in Full
Unlikely to be seen as all components are abbreviated

93 Component Outside Range
When a postal code[OM] is limited to a particular odd or even range, this message will appear for addresses that do not match the odd or even range

94 Postal code[OM] Retired
The postal code[OM] has a valid Canadian format but does not exist on the postal database.

95 Postal code[OM] Format
The address appears to be Canadian but the postal code[OM] does not fit the Canadian ANANAN format

99 Foreign
The address must be foreign based on a check of the postal code[OM], province, country and municipality.

Guidelines for Data Entry of Accurate Addresses

The Canada Post Addressing Standard contains a more complete list of approved abbreviations and components, but this guide will serve as a quick reference for data entry personnel.

Punctuation

Do not use commas, quotes, periods or hash signs at all! Hyphens are permitted only to separate suite numbers from a street number or as part of a street or community name.

Suite Numbers and Keywords

APP, APT, BUREAU, SUITE, UNIT and UNITE are permissible as well as using a hyphen to separate a suite number from a street number.
PC Lookup ® Correction will return unusual suite information such as Upper, Lower, Front, Back as non-address data. Floor and room information may be entered instead of suites, but will not be used for validation as neither are officially supported.

Directions

Directions should always be abbreviated, i.e.

East	E	Est	E
North	N	Nord	N
North East	NE	Nord-est	NE
North West	NW	Nord-ouest	NO
South	S	Sud	S
South East	SE	Sud-est	SE
South West	SW	Sud-ouest	SO
West	W	Ouest	O

PO Boxes and Cases Postal

Wrong ways of entering a PO Box

P.O. Box 121
P.O. Box #121
PO Box #121
Box 121
Box #121
Case Postale 121
C.P. 121
C.P. #121

The correct way

PO Box 121, or
CP 121

Rural Routes, Mobile Routes and Suburban Services

There are two types of rural routes - Streets Served by Rural Route and Rural Routes. Each may have "RR" rural routes, "MR" mobile routes of "SS" suburban services (the French abbreviations are the same).

Streets Served have a normal street address and an RR, SS or MR number

i.e. 123 Any Rural St RR 3

Rural Routes have only the RR, SS or MR and delivery installation information

i.e. RR 3 STN MAIN
or SS 3

Wrong ways of entering a rural route

R.R. #3
R.R.#3
RR#3
RR #3
R.R. 3

The only correct way

RR 3

Rural Route Extra Information

The only "extra information" that should be put in the address line is the super mailbox compartment number.

Wrong ways of entering super mailbox information

RR 3 S-3 C-57
RR 3 S 3 C 57
RR 3 S, 3 C,5

The only correct way

RR 3 Site 7 Comp 53

Delivery Installation Types

PO Boxes, General Delivery and Rural Routes are often followed by Delivery Installation information. Always abbreviate the following:

Post Office	PO	Bureau De Poste	BDP
Station	STN	Succursale	SUCC
		Comptoir Service Postal	CSP
Letter Carrier Depot	LCD	Poste Des Facteurs	PDF
Retail Postal Outlet	RPO	Bureau Auxiliaire	BA

Province Names and States

Use only the official two character abbreviations for both Canada and the United States. Note that Quebec is permissible as "QC" as well as the now obsolete "PQ".