

PC Lookup®



User's Guide PC Lookup® Correction Unix

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PC Lookup ® Correction
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PC Lookup ® Correction V1.14 is on the list of software recognized by Canada Post Corporation until September 30, 2010. 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

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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 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 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 may contain several different street names.
4. A single postal code may contain streets in more than one community.
5. There may be more than one postal code 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 is V3M 6A1. There can be only one correct postal code 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 is incorrect.

Comdata Services Ltd
6451 Telford Ave
Burnaby BC V5H 2Z2

The correct postal code 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) is wrong.

In the next example, although the civic number and postal code do not match, we can correct the record because the postal code 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 correctability 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

`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
```

```

                                PC Lookup ® Correction V1.13
Validate and Correct a Single Address
  Addressee                      :SMITH, JOHN
  ADDRESS Line 1                 :4283 ARTHUR
  Address Line 2                 :ST
  Community                      :LADNER
  Province/State                 :BC
  Postal/Zip Code                 :
                                Returned Address
  Non-Address Data               :
  Addressee                      :SMITH, JOHN
  Address Line 1                 :4283 ARTHUR DR
  Address Line 2                 :
  Community                      :DELTA
  Province/State                 :BC
  Postal/Zip Code                 :V4K 2X1

  Correctable
                                89 Unusual component
                                60I Municipality Invalid
                                64M Postal Code Missing
                                14I Street Type Invalid

Select Options: VALIDATE ANOTHER ADDRESS TRACE MODE EXIT

```

Select 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 displays the full information available. To enter trace mode, select the "Trace Validation" option and enter the address in the same manner as before.

Screen 1

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).

Screen 2

Column 1 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 2 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.

```

PC Lookup ® Correction V1.13
Addressee           : SMITH, JOHN           SMITH, JOHN
Suite Keyword       :
Street Number       :
Street Number       : 4283                 4283
Street Name         : ARTHUR                ARTHUR
Street Type         : ST DR
Street Direction   :
Municipality        : LADNER                DELTA
Province           : BC                   BC
Postcode           :                      V4K2X1
Box Identifier      :
Box Keyword         :
Delivery Area Name  :
Del. Inst. Keyword  :
Del. Inst. Qual.   :
Gen. Del. Keyword   :
Route Service Keywd :
Route Service Ident :
Select Option: CONTINUE NEXT SCREEN

```

```
PC Lookup ® Correction V1.13
Record Type          :Street Address      Correctable
Address Type         :Civic                89 Unusual component
Province Code        :BC                  60I Municipality Invalid
Major Community      :DELTA                64M Postal codeOM Missing
Street Name          :ARTHUR              14I Street Type Invalid
Type                 :DR
Direction            :
Number Code          :Odd
Ending Number        :004397
Suffix               :
Suite                :
Beginning Number     :004237
Suffix               :
Suite                :
Municipality         :DELTA

Postal codeOM         :V4K2X1
Del. Inst. Post Cd. :V4K1V0

Select Option: CONTINUE
```

Database Searches

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 :
2 Municipality :Montreal :
3 Starting at Street :

Select Option: EXIT SEE ALTERNATES

```

Select the SEE ALTERNATES 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

Select Option: CONTINUE EXIT

```

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:

```

          PC Lookup ® Correction V1.13
    Display the Alternate Municipality Name Table

      1 Province                :QC
      2 Starting at Municipality :MONTREAL

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

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.

```

          PC Lookup ® Correction V1.13

    Display the Alternate Municipality Table

    Old Municipality and Province Correct Municipality and Province      Acceptable
    ADEYTON                NF HILLVIEW                NF      No
    ADMIRALS COVE         NF CAPE BROYLE                NF      No
    AILIK                  NF POSTVILLE                NF      No
    ALDERBURN              NF NORRIS ARM NORTHSIDE        NF      No
    ALLATOK                NF HOPEDALE                  NF      No
    ANDERSONS COVE        NF RENCONTRE EAST             NF      No
    ANGLE BROOK            NF GLOVERTOWN SOUTH           NF      No
    ANSE-AU-CLAIR          NF L'ANSE AU CLAIR            NF      Yes
    ANSE-AU-LOUP           NF L'ANSE AU LOUP             NF      Yes
    APLETON                NF GLENWOOD                   NF      No
    APSEY BROOK TB         NF CLARENVILLE              NF      No
    ARGENTIA                NF FRESHWATER PB              NF      No
    ARNOLD'S COVE          NF ARNOLDS COVE               NF      No
    ARNOLD'S COVE STATION  NF ARNOLDS COVE               NF      No

    Select Option: CONTINUE EXIT
  
```

Hooking PC Lookup ® Correction into Existing Applications

One of the strengths of PC Lookup ® Correction is the ease in which it is possible to link into external programs. Using the three PC Lookup ® Correction routines, you can build address correction and validation into your online or batch programs.

All data that is passed to and returned from PC Lookup ® Correction routines is in character format; no numeric translations are done.

PC Lookup ® Correction (UNIX) is written in “C”. It is important to note that “C” terminates all strings with a null character, adding 1 byte to each record element length. This does not apply to single character elements. When calling the routines from all other languages, make sure to separate each multi-character element with a single character initialized to ASCII 0. See the COBOL program in the Source Directory as an example.

The three PC Lookup ® Correction routines are:

MMINIT	initializes PC Lookup ® Correction (loads tables and opens files)
MMCHEK	address validation and correction
MMSTAT	run statistics

The following is a sample algorithm using the PC Lookup ® Correction routines.

```
...
MMINIT
.
.
.
while NOT EOF customer file DO
.
.
    MMCHEK
.
.
end while
.
.
.
MMSTAT
...
```

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.

Function prototype are as follows:

int	MMINIT(char *status);
	Returns TRUE (1) initialization success or False (0) initialization failure. See status message.
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.
header file	mminit.h

MMCHEK - Address Validation and Correction

void	MMCHEK (MM_IN_PARSED *MMINPAR, PARAM_TAB *MMINREC, MM_OUT_PARSED *MMOUTPAR, PARAM_TAB *MMOUTREC)
header file	mmchek.h

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.
header file	mmstat.h

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.

Passing Parameters

The MMCHEK modules validate and correct a single address. The passing parameters are grouped into four areas:

MMINPAR	This 170 character string defines how MCHEK 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. A sample record layout for most languages is included in the appendices. Each string will now be discussed in detail.

PC Lookup ® Correction is written in the “C” language, in which strings of more than one character are terminated with an additional null character. An implication of this is that when calling PC Lookup ® Correction from languages that do not use this construct, you must provide a 1-byte filler to simulate the null character, as shown in the COBOL sample program.

Input Data

Some databases store address components separately; when the fields for address line 1 and 2 are blank, PC Lookup ® Correction will refer to fields SUITEID through to ROUTEKEY for address information. Note that address length fields must still be set to avoid ‘70 Address too long for Field’ errors.

MMINPAR

ADDRESS1LEN	This 2 character field must contain a number between 01 and 50 that indicates the length of address line one.
ADDRESS2LEN	This 2 character field must contain a number between 00 and 50 that indicates the length (if any) of address line 2.
ADDRESSEECHECK	This 1 character field must contain a “N” and is obsolete but retained for compatibility with earlier releases.
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’.
LANGUAGE	If set to “N” then all information will be converted to upper case only. 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 address to French																
	O	Retain original address language																
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 to the Non-address field.																
LVRVALID		This 1 character field should contain a "N" and is obsolete but retained for compatibility with earlier releases.																
SKIPRURAL		This 1 character field should contain a "N" and is obsolete but retained for compatibility with earlier releases.																
TIME_OUT		This 2 character field represents the maximum allowable time in seconds that PC Lookup ® Correction will spend attempting to correct an address. Eg 00-99 or spaces which defaults to 99.																
CITY_LEN		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.																
STREET_LEN		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.																
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.																
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.																
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 following list. <table border="0" style="margin-left: 40px;"> <tr> <td>\$ = Â</td> <td>= = Å</td> <td>< = Ç</td> <td>% = Ê</td> </tr> <tr> <td>* = É</td> <td>> = È</td> <td>! = Ë</td> <td>@ = Î</td> </tr> <tr> <td>? = Ï</td> <td>ç = Û</td> <td>; = Ü</td> <td># = Ö</td> </tr> <tr> <td>+ = Ù.</td> <td></td> <td></td> <td></td> </tr> </table>	\$ = Â	= = Å	< = Ç	% = Ê	* = É	> = È	! = Ë	@ = Î	? = Ï	ç = Û	; = Ü	# = Ö	+ = Ù.			
\$ = Â	= = Å	< = Ç	% = Ê															
* = É	> = È	! = Ë	@ = Î															
? = Ï	ç = Û	; = Ü	# = Ö															
+ = 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 8 character field is reserved for future expansion and should be space filled.																
SUITEID		This 6 character field contains the suite number or letter combination.																
SUITEKEY		This 6 character field contains the suite keyword, ie. Suite, Apt, Unit.																
STREETNUM		This 6 character field contains the civic number.																
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.																
STREETNAME		This 30 character field contains the street name.																
STREETTYPE		This 6 character field contains the street type, ie. Ave, St, Rd.																
STREETDIR		This 2 character field contains the abbreviated street direction or spaces.																
BOXID		The 6 character field contains the PO Box number or letters.																
BOXKEY		This 6 character field contains either PO Box or CP.																

DELAREA	This 30 character field contains the delivery station area.
DELKEY	The 6 character field contains the delivery station keyword, ie, STN, RPO.
DELQUAL	This 15 character field contains the delivery station qualifier.
GENDELKEY	This 2 character field contains GD for General Delivery addresses.
ROUTEIDENT	This 6 character field contains the rural route number or letter combination.
ROUTEKEY	This 2 character field contains the rural route keyword, ie. RR, MR, SS

MMINREC

IDENTIFIER	This 10 character field contains the unique user identifier; it is not used by PC Lookup ® Correction .
NONADDRESS	This 50 character field contains non-address information, ie. Site 3 Comp 6.
ADDRESSEE	This 65 character field contains the addressee.
ADDRESS1	This 50 character field contains address line 1.
ADDRESS2	This 50 character field contains address line 2.
CITY	This 30 character field contains the city.
PROVINCE	This 25 character field contains the Province.
COUNTRY	This 30 character field contains the country.
POSTCODE	This 10 character field contains the postal code ^{OM} .

Output Data

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

Note that when the corrected address information does not fit into the 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.

MMOUTPAR

CATEGORY	This 1 character field contains one of the following values: V Valid F Foreign C Corrected N Non-correctable
ERRORTXT1	This 30 character field contains the first error message text or spaces.
ERRORTXT2	This 30 character field contains the second error message text or spaces.
ERRORTXT3	This 30 character field contains the third error message text or spaces.
ERRORTXT4	This 30 character field contains the fourth error message text or spaces.
ERRORTXT5	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.
SUITEID	This 6 character field contains the suite number or letter combination.
SUITEKEY	This 6 character field contains the suite keyword, ie. Suite, Apt, Unit.
STREETNUM	This 6 character field contains the civic number.
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.
STREETNAME	This 30 character field contains the street name.
STREETTYPE	This 6 character field contains the street type, ie. Ave, St, Rd.

STREETDIR	This 2 character field contains the abbreviated street direction or spaces.
BOXID	The 6 character field contains the PO Box number or letters.
BOXKEY	This 6 character field contains either PO Box or CP.
DELAREA	This 30 character field contains the delivery station area.
DELKEY	The 6 character field contains the delivery station keyword, ie, STN, RPO.
DELQUAL	This 15 character field contains the delivery station qualifier.
GENDELKEY	This 2 character field contains GD for General Delivery addresses.
ROUTEIDENT	This 6 character field contains the rural route number or letter combination.
ROUTEKEY	This 2 character field contains the rural route keyword, ie. RR, MR, SS

MMOUTREC

IDENTIFIER	This 10 character field contains the unique user identifier; it is not used by PC Lookup ® Correction .
NONADDRESS	This 50 character field contains non-address information, ie. Site 3 Comp 6.
ADDRESSEE	This 65 character field contains the addressee.
ADDRESS1	This 50 character field contains address line 1.
ADDRESS2	This 50 character field contains address line 2.
CITY	This 30 character field contains the city.
PROVINCE	This 25 character field contains the Province.
COUNTRY	This 30 character field contains the country.
POSTCODE	This 10 character field contains the postal code ^{OM} .

Your monthly distribution media includes the following sample programs:

sample_1.c	("C" source code)
sample_2.cob	(COBOL source code)
sample_3.proc	(Oracle Pro-c source code)

The installation process will place these files in the source directory.

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 a "TAR" format save set with some files compressed. Since the UNIX operating system is case sensitive, please ensure that you use UPPER or lower case when indicated. A pre-requisite for installation is the availability of an ANSI standard "c" compiler. This is a first-time procedure and must be completed before PC Lookup can be run on any machine.

Step 1 Login as "root". If you are unable to do so, please contact us so that we might suggest alternative installation procedures.

Step 2 Create a directory "pclookup" in a file system with at least 600 megabytes of free space.

```
mkdir plookup
```

Step 3 Set your directory to "pclookup"

```
cd plookup
```

Step 4 Download the correct chipset and operating system from the Comdata FTP site. Choose carefully as this is critical for the c-tree database handler to be built correctly for your environment.

```
c-tree.hpux.v11.risc.32bit.tar.gz  
c-tree.hpux.v11.ia64.32bit.tar.gz  
c-tree.hpux.v11.risc.64bit.tar.gz  
c-tree.hpux.v11.ia64.64bit.tar.gz  
c-tree.osx.v10.4.u.32bit.tar.gz  
c-tree.osx.v10.5.64bit.tar.gz  
c-tree.osx.v10.5.u.32bit.tar.gz  
c-tree.osx.v10.3.32bit.tar.gz  
c-tree.linux.ia64.64bit.tar.gz  
c-tree.linux.x64.64bit.tar.gz  
c-tree.linux.x86.32bit.tar.gz  
c-tree.aix.v5.2.32bit.tar.gz  
c-tree.aix.v5.2.64bit.tar.gz  
c-tree.aix.v5.3.32bit.tar.gz  
c-tree.aix.v5.3.64bit.tar.gz  
c-tree.solaris.v5.10.x64.64bit.tar.gz  
c-tree.solaris.v5.10.32bit.tar.gz  
c-tree.solaris.v5.10.64bit.tar.gz  
c-tree.solaris.v5.10.x86.32bit.tar.gz
```

Step 5 Expand the tar set

Step 6 Set your default to the pro directory

```
cd pro
```

Step 7 Run the options script

```
./mtmake -ctdb
```

Step 8 Choose the output directory for the sublibrary as shown

m-tree will place your Project/Makefile in any directory location you desire.
Enter a directory name for your Project/Makefile - [./myProject1]: pclookup

Step 9 Select option 1 for the type of Makefile to be generated

Select the type of MakeFile(s) you wish to generate:
1. c-tree Plus: Make your Client-Side or Standalone Libraries.
6. c-tree Server: Make your own c-tree Server or Special DB Engine.
8. c-treeSQL Server: Make your own c-treeSQL Server with Java support.
Q. Quit

Enter Product Number or (Q)uit: 1

Step 10 Select option 2 for the configuration

Select Configuration for the makefile...
1. Client Side Interface: c-tree Server Client Side Library and Apps
2. Stand Alone c-tree Plus: SingleUser or MultiUser Non-Client/Server Apps
Q. Quit

Enter Option Number or (Q)uit- [1]: 2

Step 11 Select option 3 for the library type

Select Type of c-tree Library for the makefile.

1. SingleUser Stand Alone - Without Transaction Processing (NOTFORCE).
 2. SingleUser Stand Alone - With Transaction Processing (NOTFORCE).
 3. MultiUser Stand Alone - Transaction Processing not Supported (FPUTFGET).
 4. MultiThread Stand Alone- -Transaction Processing not Supported (FPUTFGET).
- Note: MultiUser Tran Proc supported with Servers.

Q. Quit

Enter Option Number or (Q)uit- [1]: 3

Step 12 The next question may not be asked in your environment. Accept the default of N if it is.

---- FairCom c-tree Plus UniCode Support ----

This version of c-tree Plus provides support for UNICODE field types.

Do you want to support UniCode field types? (Y)es (N)o (D)efaults- [N]:

Step 13 If you are asked a question concerning shared versus static libraries then reply with the number corresponding to "static".

Step 14 Select option 1 for the components.

Select Components for the makefile.

1. Utilities, and Libraries.
2. Samples, Utilities, and Libraries.
- Q. Quit

Enter Option Number or (Q)uit- [1]: 1

Step 15 C-tree now creates the options file and confirms the selections

```
Now Creating Make File for      .... ctree:
Operating Sys                  ...:  Apple MacOSX
Compiler                       .....:  Standard Unix cc
Memory Model                   ....:  Flat Memory Model
```

```
-----
----- FairCom Multi-User FPUTFGET -----
---- >> DISTRIBUTION OR USAGE LICENSE REQUIREMENT << -----
```

Thank you for choosing FairCom. Press Enter key to continue.

Step 16 Press return after reviewing the Faircom license agreement

Your c-tree makefile 'pclookup1/ctree.mak' has been created.

After you execute your make, 'bin' and 'obj' directories will be created based on your 'mtmake' options. Because of c-tree's numerous configurations, it is always a good idea to ensure that your 'obj' directory is clear before invoking the make. If this is your first time, then proceed by running the 'mk' batch file. If you are invoking the make a second time, then ensure your 'obj' directory has been cleared before you run the 'mk' batch file. Clearing your 'obj' directory will ensure a clean library build.

Therefore, be sure the following directory has been cleared:
pclookup/obj

Then execute 'mk' to Start the Make.

Step 17 Set your directory to the one chosen at step 6.

```
cd plookup
```

Step 18 The output directories must be cleared if this step is rerun for any reason

```
rm /obj/*.*
```

Step 19 The build process can then be started. Some compiler warnings can be expected but if the process fails then contact Comdata.

```
./mk
```

Step 20 Press return when asked to build the debug version.

Note:

We will build a debug version by default.

If you want a release build then type: mk release

Press RETURN to Continue....

... compiler messages now appear...

Step 21 Copy the site specific library file to the Comdata required location

```
cp plookup/obj/debug/libctreestd.a /plookup/c-tree/lib.fpg
```

Step 22 Copy the site specific source code includeable modules to the Comdata required location

```
cp /plookup/include/*.* /plookup/c-tree/ctree/include/*.*
```

Step 23 You may now delete the chip specific directory and saveset downloaded in step 4.

Step 24 Set your default to the PC Lookup Correction directory.

```
cd /plookup
```

Step 25 Download the special first-time source code and data file saveset from the Comdata FTP site

```
distrib.tar
```

- Step 26 Expand the tar set which will populate the source and data directories.
- Step 27 Execute the PC Lookup installation script
- ```
./mm_install
```
- This will guide you through the installation. Reply "N" to the "Stop Installation" prompt and the install will take a few minutes to compile and build the PC Lookup programs and data structures.
- Step 28 Before you can access the PC Lookup Correction programs you must establish the pointer to the data files. Type it in now so that it will be available, substituting your filesystem and/or path name for "/u".
- ```
for "C" shell
setenv MM_DATA "/u/pclookup/data/"
for Bourne or Kern shell
MM_DATA=/u/pclookup/data/; export MM_DATA
```
- This must be set before users can access the PC Lookup Correction modules and should be added to each user's login script (.profile for Bourne or Kern shells and .login or .cshrc for C shell).
- Step 29 Set your default to the binary directory
- ```
cd ../bin
```
- Step 30 You are now ready to run PC Lookup Correction for the first time to establish your authorization key.
- ```
./pcl_correct
```
- step 31 At the "Please enter your PC Lookup Authorization Key" prompt, enter the four digit number assigned to your site and press return. Upon acceptance, the PC Lookup Correction menu is displayed and PC Lookup Correction is available for use.
- step 32 If you see unusual window behaviour such as the return key not reacting normally then ensure that the terminal is set to "VT100" emulation or run as an XTERM window. Review the compiler options in the Makefile.user script of the source directory. You may need to change the options for your configuration. If you make a change, ensure that you rebuild the PC Lookup application in its entirety.

make clean
make

You can then return to step 30.

Step 33 Now would be a good time to make a backup of the PC Lookup directory structure before commencing normal use.

You may wish to compile and link the sample programs provided as part of the distribution media. These are listed in Chapter 3 and demonstrate the use of the CALLable PC Lookup Correction modules. Our license agreement with Faircom Corporation requires us to request that you delete the Faircom source code upon successful installation. If you wish to retain the Faircom source code and use it in your own applications, a separate license agreement with Faircom must be purchased. Please contact Comdata for prices and details.

Installing PC Lookup ® Correction Updates

PC Lookup ® Correction is distributed as a “tar” format tape, with some files compressed. Since the UNIX operating system is case sensitive, please ensure that you use UPPER or lower case where indicated.

- Step 1 Login as “root”. If you are unable to do so, please contact us so that we may suggest alternative installation procedures.
- Step 2 Set your directory to the directory created during your initial installation. .
- ```
cd plookup
```
- Step 3                    This procedure will delete the current set of data files. You may wish to make a backup at this point.
- Step 4                    Mount the distribution medium on a local input drive and restore the saveset, substituting your input drive name for “/dev/inputdevice”. Some versions of UNIX require that you specify a tapesize and blocking factor. The PC Lookup ® Correction tapesize is 1024000 and the blocking factor is 20.
- ```
tar xf /dev/inputdevice
```
- The restore process will take several minutes.
- Step 5 The install process will restore the files to the existing directory structure.
- ```
plookup
plookup /src (source code)
plookup c-tree (database source code with sub-directories)
plookup /data (data files)
plookup /bin (executables)
```
- Step 6                    You may now run the PC Lookup ® Correction install script.
- ```
mm_install
```
- If your PATH does not contain an entry for the current directory you might need to execute the script by specifying an explicit path to the current directory. This will also apply to all other scripts of executables mentioned in this document e.g.
- ```
./mm_install
```

This script will guide you through the PC Lookup ® Correction installation, since this is an upgrade to PC Lookup ® Correction files and not a new installation, you should reply “N” to the “Stop Installation” prompt and the “mm\_install” script will complete the basic PC Lookup ® Correction installation process. This process will take between 1 and 3 hours depending upon system performance.

Step 7 Set your default to the PC Lookup ® Correction executable directory.

```
cd ./bin
```

Step 8 You must now run PC Lookup ® Correction for the first time to establish your Authorization Key.

```
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 use.

Step 9 When the build has completed, it is a good idea to backup the PC Lookup ® Correction directory structure.

**Note:**

When running PC Lookup ® Correction, ensure that the terminal is set to "VT100" emulation or run as an XTERM window.

You may wish to compile and link the sample programs provided as part of the distribution medium. These are listed in Chapter 3 for more details.

## Sample - Address Accuracy Statement

Run Date:10-Feb-2 PC Lookup Correction V1.13 Address Accuracy Statement Page :1

These addresses have been processed on 10-Feb-2 against  
National Address file ACDROM which is in effect from 09-Jul-20

Customer List Identifier :Sample Data Test

| Error Type                    | Corrected | Non-Correctable |
|-------------------------------|-----------|-----------------|
| 12I Civic # Suffix Invalid    | 2         | 85              |
| 12M Civic # Suffix Missing    | 0         | 1               |
| 13I Street Name Invalid       | 1212      | 290             |
| 13M Street Name Missing       | 2         | 3               |
| 14I Street Type Invalid       | 459       | 276             |
| 14M Street Type Missing       | 908       | 0               |
| 15I Street Direction Invalid  | 397       | 202             |
| 15M Street Direction Missing  | 579       | 0               |
| 16I Suite Keyword Invalid     | 1029      | 15              |
| 22I Route Keyword Invalid     | 717       | 1               |
| 24I Route Ident. Invalid      | 3         | 198             |
| 24M Route Ident. Missing      | 224       | 0               |
| 32I Lock Box Keyword Invalid  | 857       | 2               |
| 34I Lock Box Ident. Invalid   | 0         | 303             |
| 34M Lock Box Ident. Missing   | 100       | 0               |
| 42I Gen. Del. Keyword Invalid | 397       | 10              |
| 42M Gen. Del. Keyword Missing | 2         | 0               |
| 52I Del. Inst. Area Invalid   | 402       | 0               |
| 54I Del. Inst. Type Invalid   | 10        | 198             |
| 54M Del. Inst. Type Missing   | 676       | 0               |
| 56I Del. Inst. Qual. Invalid  | 224       | 200             |
| 56M Del. Inst. Qual. Missing  | 565       | 0               |
| 60I Municipality Invalid      | 801       | 0               |
| 60M Municipality Missing      | 200       | 0               |
| 64I Postal Code Invalid       | 204       | 261             |
| 64M Postal Code Missing       | 787       | 0               |
| 80 Abbreviation               | 11        | 1               |
| 81 Typo                       | 2138      | 5               |
| 82 Numeric Street Spelling    | 2         | 1               |
| 84 Component Alternate        | 88        | 2               |
| 86 Extra Information          | 481       | 59              |
| 89 Unusual component          | 188       | 0               |
| 92 Component Spelled in Full  | 445       | 62              |
| -----                         |           |                 |
| Totals                        | : 15624   | 2644            |
|                               |           |                 |
| Valid Addresses               | :         | 20102           |
| Foreign Addresses             | :         | 0               |
| Corrected Addresses           | :         | 9659            |
| Non-Correctable Addresses     | :         | 1700            |
|                               |           |                 |
| Total Addresses Scanned       | :         | <u>31461</u>    |

PC Lookup Correction improved this list from 63.89% to 94.60% accuracy. This copy of PC Lookup Correction V1.13U has been licensed to COMDATA UNIX TEST for use on a Mac This software uses files containing data from the Canada Post Corporation Postal Code files which are protected under the Copyright Act and may not be copied except to make a single copy for backup purposes . Copyright (c) 2010 Comdata Services Ltd. Burnaby, B.C. All rights reserved. Recognized by Canada Post Corp. under the SERP program until Mar.10th, 2011

### Sample continued

Address Accuracy Statement  
 Comdata Services Ltd.  
 6451 Telford Ave  
 Burnaby BC V5H 2Y8

=====

CPC Tape Used : ACDROM            09-Jul-20

|                 |      |    |  |
|-----------------|------|----|--|
| Customer Name   |      |    |  |
| Customer Number |      |    |  |
| Service Bureau  |      |    |  |
| Address         |      |    |  |
| City            | Prov | PC |  |

Total Number of Records Processed            :        31461

-----  
 | Processing Date : 10-Feb-2 |  
 -----

```

* Address Accuracy Level : 94.6% *
* Questionable Apt.Adds. : 1.6% *
* Questionable Rural Adds.: 0.6% *
* Expiry Date :2011-Feb-1 *

```

=====

PC Lookup Correction improved this list from 63.89% to 94.60% accuracy. This copy of PC Lookup Correction V1.13U has been licensed to COMDATA UNIX TEST for use on a Mac This software uses files containing data from the Canada Post Corporation Postal Code files which are protected under the Copyright Act and may not be copied except to make a single copy for backup purposes . Copyright (c) 2010 Comdata Services Ltd. Burnaby, B.C. All rights reserved. Recognized by Canada Post Corp. under the SERP program until Mar.10th, 2011

## Installing the PC Lookup Correction POCAD file.

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 file 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.

## 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 <sup>OM</sup> Invalid |
| 64M | Postal code <sup>OM</sup> Missing |
| 66I | Country Invalid                   |
| 66M | Country Missing                   |

## Special Cases

|    |                                                                                                                                                                                                                                                     |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 70 | Address Too Long for Field<br>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<br>PC Lookup ® Correction has detected a possible loop situation. Please contact Comdata Technical Support with all available information.                                                                              |
| 72 | Street Name Too Long<br>The corrected street name will not fit into the street name field using the length specified in MMINPAR_STREETLEN.                                                                                                          |
| 73 | City Name Too Long<br>The corrected city name will not fit into the city name field using the length specified in MMINPAR_CITYLEN.                                                                                                                  |
| 74 | MM Parameter Error<br>One of the MMINPAR parameters has an illogical setting; refer to Chapter 3 for possible settings.                                                                                                                             |
| 80 | Abbreviation<br>A list of the approved abbreviations is provided in the "Canadian Addressing Standard".                                                                                                                                             |
| 81 | Typo<br>This is usually a modifier following the error message indicating the component in error.                                                                                                                                                   |
| 82 | Numeric Street Spelling<br>"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<br>PC Lookup ® Correction has translated some portion of the address                                                                                                                                                                    |
| 84 | Component Alternate<br>There are some special cases in which alternates may be used                                                                                                                                                                 |
| 85 | Area Name < >Municipality<br>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<sup>OM</sup> 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<sup>OM</sup> Retired  
The postal code<sup>OM</sup> has a valid Canadian format but does not exist on the postal database.
- 95    Postal code<sup>OM</sup> Format  
The address appears to be Canadian but the postal code<sup>OM</sup> does not fit the Canadian ANANAN format
- 99    Foreign  
The address must be foreign based on a check of the postal code<sup>OM</sup>, province, country and municipality.

### c-tree Error Messages

| Error Number | Meaning                                               |
|--------------|-------------------------------------------------------|
| 10           | Insufficient disk space                               |
| 12           | File open error - cannot find file or access conflict |
| 14           | File is corrupt                                       |

## 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 or "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<br>Station                       | PO<br>STN  | Bureau De Poste<br>Succursale<br>Comptoir Service Postal | BDP<br>SUCC<br>CSP |
| Letter Carrier Depot<br>Retail Postal Outlet | LCD<br>RPO | Poste Des Facteurs<br>Bureau Auxiliaire                  | PDF<br>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".