

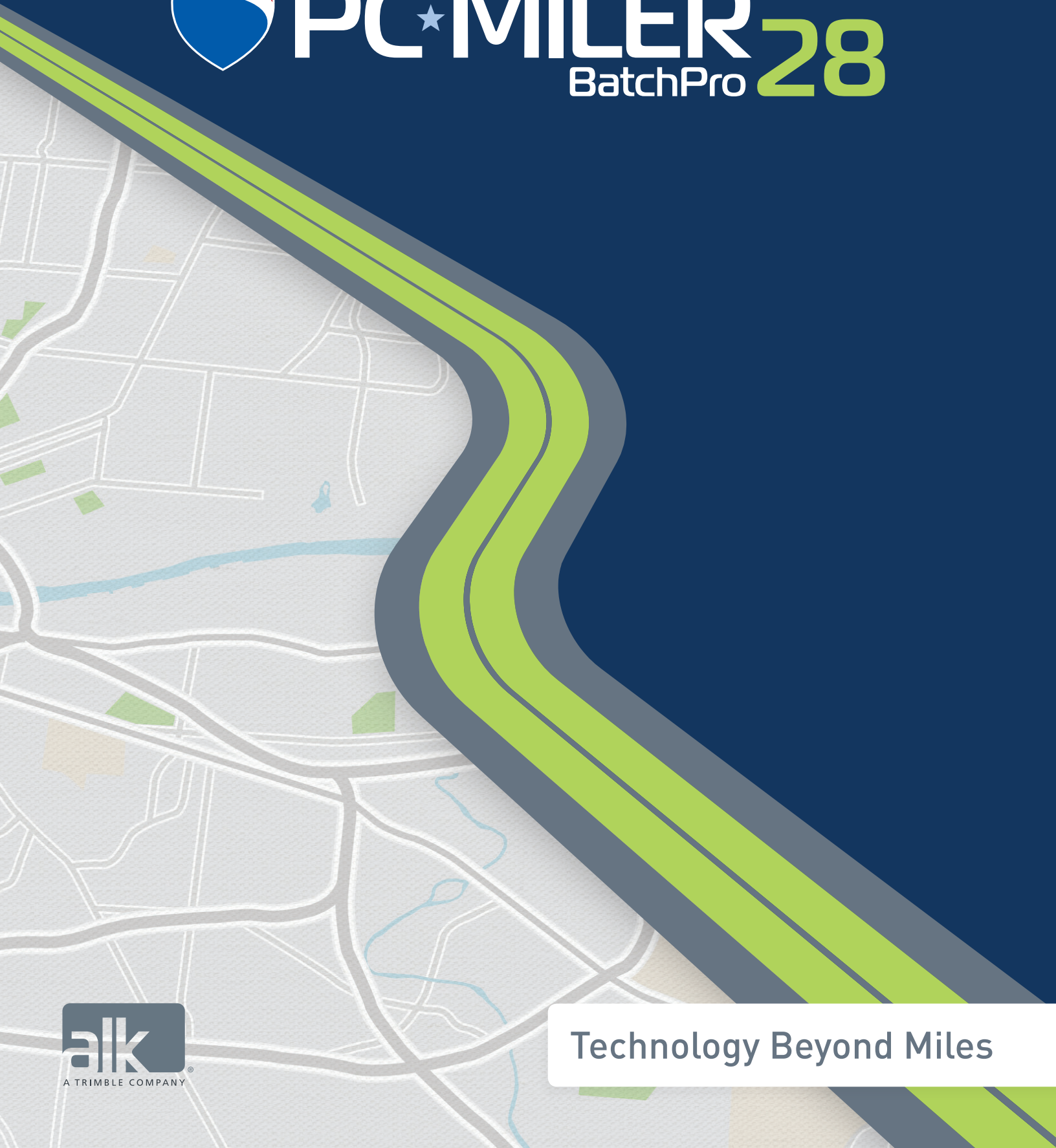
User's Guide

For UNIX (AIX, Solaris, HP-UX and LINUX)



PC★MILER[®] 28

BatchPro



Technology Beyond Miles



ALL RIGHTS RESERVED

You may print one (1) copy of this document for your personal use. Otherwise, no part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language, in any form or by any means electronic, mechanical, magnetic, optical, or otherwise, without prior written permission from ALK Technologies, Inc.

Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and other countries.

IBM is a registered trademark of International Business Machines Corporation.

*PC*MILER, CoPilot, and ALK are registered trademarks and BatchPro and RouteMap are trademarks of ALK Technologies, Inc.*

GeoFUEL™Truck Stop location data ©Copyright 2012 Comdata Corporation®, a wholly owned subsidiary of Ceridian Corporation, Minneapolis, MN. All rights reserved.

Traffic information provided by INRIX ©2014. All rights reserved by INRIX, Inc.

*SPLC data used in PC*MILER products is owned, maintained and copyrighted by the National Motor Freight Traffic Association, Inc.*

Canadian Postal Codes data based on Computer File(s) licensed from Statistics Canada. ©Copyright, HER MAJESTY THE QUEEN IN RIGHT OF CANADA, as represented by the Minister of Industry, Statistics Canada 2003-2014. This does not constitute an endorsement by Statistics Canada of this product.

Partial Canadian map data provided by GeoBase®.

United Kingdom full postal code data supplied by Ordnance Survey Data ©Crown copyright and database right 2014. OS OpenData™s covered by either Crown Copyright, Crown Database copyright, or has been licensed to the Crown.

Certain Points of Interest (POI) data by Infogroup ©Copyright 2014. All Rights Reserved.

Geographic feature POI data compiled by the U.S. Geological Survey.

Oil and gas field content provided by GeoTrac Systems Inc.©Copyright 2014. All rights reserved.

Cartographic data provided by multiple sources including Instituto Nacional de Estadística y Geografía, U.S. Geological Survey, Natural Earth and ©Department of Natural Resources Canada. All rights reserved.

Copyright ALK Data ©2014 – All rights Reserved.

Copyright HERE Data ©2014 – All rights Reserved. HERE Data ©is subject to the terms set forth at http://corporate.navteq.com/supplier_terms.html.

ALK Technologies, Inc. reserves the right to make changes or improvements to its programs and documentation materials at any time and without prior notice.

*©Copyright 1994-2014 ALK Technologies, Inc.
457 North Harrison Street, Princeton, NJ 08540*

Table of Contents

PC*MILER® PRODUCT LINE END-USER LICENSE AGREEMENT	i
1.0 PC*MILER® BatchPro™ Overview	1
1.1 How Does PC*MILER BatchPro Work?.....	1
1.2 Recent Enhancements	1
1.3 Technical Notes (<u>PLEASE READ</u>)	2
1.4 Installation	6
2.0 PC*MILER BatchPro Operating Procedures.....	7
2.1 PC*MILER BatchPro Input	8
2.1.1 Input File Creation	10
2.1.1.1 Route Save	10
2.1.1.2 Input File for Resequencing and Hub Routing	11
2.1.2 Format Files and Format Conventions.....	11
2.1.2.1 The Pcmsave.fmt Sample File	13
2.1.2.2 Format File for Resequencing and Hub Routing	13
2.2 Running PC*MILER/BatchPro	14
2.3 BatchPro Output for City/State Combinations or ZIP Codes	16
2.3.1 .IN File	16
2.3.2 .OUT File	16
2.3.3 .STA File.....	17
2.3.4 .MIL File.....	17
2.3.5 .TOT File.....	18
2.3.6 .RTR File.....	19
2.4 Using BatchPro with Optional SPLC and Canadian Postal Code Add-ons	20
3.0 Optimizing PC*MILER BatchPro Performance	21
4.0 PC*MILER BatchPro Errors	22
5.0 Technical Support.....	23

PC*MILER[®] PRODUCT LINE END-USER LICENSE AGREEMENT

1. **Grant of License:** Subject to the terms, conditions, use limitations and payment of fees as set forth herein, ALK Technologies, Inc. (“ALK”) grants the end-user (“you”) a license to install and use the PC*MILER solution(s) (including traffic data subscriptions) you have purchased (“PC*MILER”) on a single personal computer. The PC*MILER software, data and documentation are provided for your personal, internal use only and not for resale. They are protected by copyright held by ALK and its licensors and are subject to the following terms and conditions which are agreed to by you, on the one hand, and ALK and its licensors (including their licensors and suppliers) on the other hand.
2. **Title:** You acknowledge that the PC*MILER computer programs, data, concepts, graphics, documentation, manuals and other material by, developed by or licensed to ALK, including but not limited to program output (together, “program materials”), are the exclusive property of ALK or its licensors. You do not secure title to any PC*MILER program materials by virtue of this license.
3. **Copies:** You may make one (1) copy of the PC*MILER program materials, provided you retain such copy in your possession and use it solely for backup purposes. You agree to reproduce the copyright and other proprietary rights notices of ALK and its licensors on such a copy. Otherwise, you agree not to copy, reverse engineer, interrogate or decode any PC*MILER program materials or attempt to defeat protection provided by ALK for preventing unauthorized copying or use of PC*MILER or to derive any source code or algorithms therefrom. You acknowledge that unauthorized use or reproduction of copies of any program materials or unauthorized transfer of any copy of the program materials is a serious crime and is grounds for suit for damages, injunctive relief and attorneys' fees.
4. **Limitations on Transfer:** This license is granted to you by ALK. You may not directly or indirectly lease, sublicense, sell or otherwise transfer PC*MILER or any PC*MILER program materials to third parties, or offer information services to third parties utilizing the PC*MILER program materials without ALK's prior written consent. To comply with this limitation, you must uninstall PC*MILER from your computer prior to selling or transferring that computer to a third party.
5. **Limitations on Network Access:** You may not allow end-users or software applications on other computers or devices to directly or indirectly access this copy of PC*MILER via any type of computer or communications network (including but not limited to local area networks, wide area networks, intranets, extranets, the internet, virtual private networks, Wi-Fi, Bluetooth, and cellular and satellite communications systems), using middleware (including but not limited to Citrix MetaFrame and Microsoft Terminal Server) or otherwise (including but not

- limited to access through PC*MILER connectivity products), or install or use PC*MILER on a network file server, without first notifying ALK, executing a written supplemental license agreement, and paying the license fee that corresponds to the number and types of uses to which access is to be allowed.
6. **Limitations on Data Extraction:** You may extract data (including but not limited to program output such as distances, maps, and driving directions) from PC*MILER and use it in other applications on the same computer on which PC*MILER is legally licensed and installed. You may not transfer data extracted from PC*MILER onto any other computer or device unless you have licensed PC*MILER for that computer or device.
 7. **Limitations on Mobile Communications:** Without limiting the generality of the foregoing, you may not transmit PC*MILER street-level driving directions through mobile communications systems such as Qualcomm, satellite, or cellular services or to mobile devices such as computers, handhelds, pagers, or telephones without first executing a written supplemental license agreement with ALK and paying the license fee that corresponds to the number and types of devices and systems to and through which transmission is to be permitted.
 8. **Limitations on Disclosure:** You may disclose PC*MILER distances to trading partners for specific origin-destination moves for which you provide transportation services and use PC*MILER distances as a basis for payment. You may not make any other disclosure of PC*MILER programs and materials, including but not limited to program output, to anyone outside the legal entity that paid for and holds this license, without prior written permission of ALK. You acknowledge that the PC*MILER programs and materials by, developed by or licensed to ALK are very valuable to ALK and its licensors, and their use or disclosure to third parties except as permitted by this license or by a written supplemental license agreement with ALK is strictly prohibited.
 9. **Security:** You agree to take reasonable and prudent steps to safeguard the security of the PC*MILER program materials and to notify ALK immediately if you become aware of the theft or unauthorized possession, use, transfer or sale of the PC*MILER program materials licensed to you by ALK.
 10. **Acceptance:** You are deemed to have accepted the PC*MILER program materials upon receipt.
 11. **Warranties:** ALK represents and warrants that:
 - A. For ninety (90) days from date of purchase, PC*MILER, when delivered and properly installed, will function substantially according to its specifications on a computer purchased independently by you.
 - B. For ninety (90) days from date of purchase, the software media on which ALK provides PC*MILER to you will function substantially free of errors and defects. ALK will replace defective media during the warranty period at no

charge to you unless the defect is the result of accident, abuse, or misapplication of the product.

- C. THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITING THE GENERALITY OF THE FOREGOING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE. THE PC*MILER PROGRAM, DATA AND DOCUMENTATION IS SOLD "AS IS". IN NO EVENT SHALL ALK OR ITS LICENSORS BE LIABLE FOR ANY INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS, BUT NOT LIMITED TO, LOSS IN CONNECTION WITH OR ARISING OUT OF THE EXISTENCE OF THE FURNISHING, FUNCTIONING OR USE OF ANY ITEM OF SOFTWARE, DATA OR SERVICES PROVIDED FOR IN THIS AGREEMENT. IN THE EVENT THAT A COURT OF PROPER JURISDICTION DETERMINES THAT THE DAMAGE LIMITATIONS SET FORTH ABOVE ARE ILLEGAL OR UNENFORCEABLE THEN, IN NO EVENT SHALL DAMAGES EXCEED THE CONTRACT PRICE. THIS WARRANTY SHALL NOT ACCRUE TO THE BENEFIT OF THIRD PARTIES OR ASSIGNEES.
12. Disclaimer: The data may contain inaccurate, incomplete or untimely information due to the passage of time, changing circumstances, sources used and the nature of collecting comprehensive geographic data, any of which may lead to incorrect results. PC*MILER's suggested routings and traffic data are provided without a warranty of any kind. The user assumes full responsibility for any delay, expense, loss or damage that may occur as a result of their use. The user shall have no recourse against Canada, whether by way of any suit or action, for any loss, liability, damage or cost that may occur at any time, by reason of possession or use of Natural Resources Canada data.
13. Termination: This Agreement will terminate immediately upon any of the following events:
- A. If you seek an order for relief under the bankruptcy laws of the United States or similar laws of any other jurisdiction, or a composition with or assignment for the benefit of creditors, or dissolution or liquidation, or if proceedings under any bankruptcy or insolvency law are commenced against you and are not discharged within thirty (30) calendar days.
 - B. If you materially breach any terms, conditions, use limitations, payment obligations, or any other terms of this Agreement.
 - C. Upon expiration of any written supplemental license agreement between you and ALK of which this license is a part.
14. Obligations on Termination: Termination or expiration of this Agreement shall not be construed to release you from any obligations that existed prior to the date of such termination or expiration.

15. **Hold Harmless and Indemnity:** To the maximum extent permitted by applicable law, you agree to hold harmless and indemnify ALK and its subsidiaries, affiliates, officers, agents, licensors, co-branders or other partners, and employees from and against any third party claim (other than a third party claim for Intellectual Property Rights) arising from or in any way related to your use of PC*MILER, including any liability or expense arising from all claims, losses, damages (actual and/or consequential), suits, judgments, litigation costs and attorneys' fees, of every kind and nature. ALK shall use good faith efforts to provide you with written notice of such claim, suit or action.
16. **Disclosure for products containing Historical or Real-time Traffic data:** traffic data, including historical traffic data, is licensed as a subscription service which must be renewed annually for continued use. ALK and its licensor(s) will use commercially reasonable efforts to make traffic data available at least 99.5% of the time each calendar month, excluding minor performance or technical issues as well as downtime attributable to necessary maintenance, and Force Majeure.
17. **Limitations on Export:** You hereby expressly agree not to export PC*MILER, in whole or in part, or any data derived therefrom, in violation of any export laws or regulations of the United States.
18. **Miscellaneous:** This Agreement shall be construed and applied in accordance with the laws of the State of New Jersey. The Courts of the State of New Jersey shall be the exclusive forum for all actions or interpretation pertaining to this Agreement. Any amendments or addenda to this Agreement shall be in writing executed by all parties hereto. This is the entire Agreement between the parties and supersedes any prior or contemporaneous agreements or understandings. Should any provision of this Agreement be found to be illegal or unenforceable, then only so much of this Agreement as shall be illegal or unenforceable shall be stricken and the balance of this Agreement shall remain in full force and effect.

1.0 PC*MILER®|BatchPro™ Overview

PC*MILER|BatchPro is a batch processing module created for use with PC*MILER® that can be launched from within any other program. BatchPro gives PC*MILER the power and flexibility to handle tasks involving the processing of large volumes of origin/destination records. Instead of entering and running routes one by one as you normally would in PC*MILER, a large database of origin/destination records created using an electronic spreadsheet program, a database management program, or a text file editor can be processed automatically using PC*MILER|BatchPro.

In addition, PC*MILER|BatchPro permits the integration of PC*MILER with other types of software which require mileage data as part of their operation, including dispatching and fuel tax packages.

NOTE: With PC*MILER|BatchPro, it is possible to create an extensive mileage database. Under the provisions of your license agreement, any such database must remain on the same computer platform on which PC*MILER is installed. The transfer or porting of data to another computer platform or to a third party is strictly prohibited without the written consent of ALK Technologies, Inc.

1.1 How Does PC*MILER|BatchPro Work?

The BatchPro module works as follows: the name of your input file is passed as a parameter to BatchPro. BatchPro produces an output file with the same name and a different extension. After BatchPro has finished processing the input file, it closes and control returns to the calling program.

1.2 Recent Enhancements

PC*MILER|BatchPro Version 28 includes the following enhancements that have been added in recent versions:

- Mexican Postal Codes are now accessible. See the interactive PC*MILER *User's Guide* for details.
- PC*MILER|BatchPro can now route to custom places created within the PC*MILER interactive program.
- Speed limits for various road types that affect BatchPro's time estimates can now be edited *by individual state* from within the PC*MILER interactive program.

- Canadian postal codes and Standard Position Location Codes (SPLC) may be entered as stops (available as separate add-on modules from ALK Technologies).
- County names have replaced the FIPS (Federal Information Processing Standard) county codes used in previous releases of PC*MILER.
- Routing is now available in Bermuda (BD), Greenland (GL), Hawaii (HI), and Puerto Rico (PR).
- Ferry miles have been added to the .TOT Report.
- City names should now include a comma after the city name, e.g. **new york, ny**. (If not using a comma, there is a mandatory space between the city name and jurisdiction code; e.g. new york<space>ny.)
- PC*MILER|BatchPro now uses long place names.
- The Mexican place names format now include the Estado (formerly Mexican names were entered using just “MX” for the state abbreviation).

1.3 Technical Notes (**PLEASE READ**)

IMPORTANT: Batchpro has undergone major revisions. ALK has made every effort to maintain backward compatibility with previous versions. However, Batchpro Versions 15 - 28 are significantly different from previous releases.

DO NOT remove your previous version of PC*MILER|Batchpro until you have verified the functioning of your application that depends on Batchpro for distances and routing.

NOTE: Some software packages store distances from previously run trips. Contact your program vendor to verify that you are actually testing your new Version 28 Batchpro. You can also verify that you are getting new lookups from your Version 28 Batchpro by sending a unique trip that your company would never have made before.

IMPORTANT: The province of Quebec has changed its jurisdiction code from “PQ” to “QC” and Newfoundland has changed from “NF” to “NL”.

Batchpro and Latitude/Longitude Points

The algorithm that Batchpro uses to calculate the distance between latitude/longitude points has changed. Previous versions of Batchpro used the distance from each lat/long to the nearest node in its calculations (a node is where two PC*MILER highway segments join together). For nearby points, Batchpro

now returns the air distance directly between the two points, which is a more accurate measurement of the actual distance traveled.

Changes to PC*MILER Stop Names

For users upgrading from older versions of Batchpro, there have been significant changes to the way PC*MILER stop names are formatted. If you try to enter names in the old way, your application that uses Batchpro will stop functioning unless you only pass ZIP codes to Batchpro.

A comma or space between the city name and the state or province abbreviation is now mandatory as in the examples below:

new york, ny
Quebec, QC
Princeton nj

Note that for Mexican cities use the city name and Estado (see below).

Beginning with Version 17, each entry must have a space or comma before the state abbreviation to avoid getting an error message.

The length of the stops you pass affects the match rate against the PC*MILER cities file. Passing 22-character cities reduces the possible matches by about 10%. Additionally, the length of stops passed to BatchPro controls the length of cities returned by Batchpro in the .STA and .OUT reports. (See section 2.1, *BatchPro Input*, for more information.)

Mexican Place Names Now Include an Estado Abbreviation

Instead of using “MX” as the state abbreviation as in previous versions, beginning with Version 18 PC*MILER uses Estado abbreviations (e. g. “Puerto Vallarta, JA”). Mexican Estado abbreviations used in PC*MILER are listed in the *Appendix* section of the PC*MILER *User's Guide*.

Changes to Duplicate City Delineation – Removal of FIPS codes

In previous releases of PC*MILER (14 or earlier), three-digit FIPS county codes were appended to the ends of all duplicate U.S. cities that were not routable by ZIP code. A duplicate city occurs when a state has two or more towns with the same name that do not have a unique ZIP code (for example, Springfield, Pennsylvania).

All U.S. city names in the database now include county information. If duplicate cities are a concern, your input cities will have to include county information with your request. The format for including county information is:

City <comma> State Abbreviation <comma> County Name
or
City <space> State Abbreviation < space > County Name

The length that you set in your format file will have to account for this additional county information. NOTE: Increasing the size of your input cities affects the city returns in the .OUT and .STA reports. (See section 2.1, *BatchPro Input*, for more information.)

Reports Are Different Than in Previous Versions of Batchpro

For users upgrading from previous versions of Batchpro, reports have undergone revision due to changes in the underlying data. Efforts were made to maintain backward compatibility, but some differences were unavoidable. The only report that is significantly different is the .RTR (turn-by-turn driving instructions), which has undergone major changes. Unlike previous versions, the new .RTR report cannot be directly displayed on a screen without parsing.

Changes By Report

.MIL Report:

The .MIL report returns ZIP codes plus city/state abbreviations. This report has now increased from 22 to 25 stop name characters by default (or can be set using the <-w> option), and the U.S. county is returned if space permits. Stop names over 25 characters in length are truncated at 25 characters, so state information may not be returned. For example, Aluminum CO of America Plant, PA, Dauphin is truncated to:

Aluminum CO of America Pl

.OUT Report:

This report returns stops in the format in which they were passed. For Version 28, a comma between the city name and state abbreviation is returned, but in the input file the comma is optional. The length of the stop name returned will match the length of the stop set in your format file. Previous versions had a maximum stop length of 22 characters. (See section 2.1, *BatchPro Input*, for more information.)

.STA Report:

This report has had ferry miles added. The columns in the order returned are now Total Miles, Toll Mile, Non-Toll Miles, Ferry Miles, Loaded Miles, and Empty Miles.

Like the .OUT report, the .STA report returns stops in the format in which they were passed. For Version 28, a comma between the city name and state abbreviation is returned, and the input file should include a comma or space between the city name and state abbreviation. The length of the stop name returned will match the length of the stop set in your format file. Previous versions had a maximum stop length of 22 characters. (See section 2.1, BatchPro Input, for more information.)

.RTR Report:

This report has undergone some major enhancements. It is no longer designed to be directly displayed on a screen without parsing. See the description of this report in section 2.3. The full PC*MILER stop name of City <comma> State Abbreviation <comma> County Name Is returned regardless of the length of the stop set in the format file. (See section 2.1, *BatchPro Input*, for more information.)

.TOT Report:

This report now includes ferry miles. The columns in the order returned are now Total Miles, Toll Mile, Non-Toll Miles, Ferry Miles, Loaded Miles, and Empty Miles.

Important Note for Hazmat Users

When the optional PC*MILER®|HazMat™ add-on module is installed and the default routing type is set to one of the four Hazmat routing types in PC*MILER interactive, Batchpro will return HazMat distances and routes for the continental United States.

The default routing type is displayed in the title bar of your PC*MILER interactive program after you first open it:

```
+-----+
| PC*MILER|HAZMAT - NA, Practical, Open, Radioactive   Version 28.0 |
+-----+
```

When Batchpro is started with a default routing type set to one of the four HazMat routing types (General, Explosives, Inhalants, and Radioactives), all returns will be for that HazMat routing type until the default value is changed from within the PC*MILER interactive program. If this requirement does not suit

your needs, you are encouraged to use the mileage and routing shared library PC*MILER|Connect, or to contact ALK Technologies to discuss your needs.

1.4 Installation

PC*MILER|BatchPro is now distributed on the PC*MILER Product Line CD. Please refer to Chapter 2 in the PC*MILER *User's Guide* for installation instructions.

2.0 PC*MILER|BatchPro Operating Procedures

Batch processing using PC*MILER|BatchPro is a straightforward, three-step process. First, an input file containing the origin/destination pairs for which mileages are to be calculated must be created. In situations where PC*MILER is integrated with a dispatching, fuel tax, or other software program, this input file must be generated by the host program. This input file must be accompanied by a format file in which the column layout of the input file is specified.

Once the input and corresponding format files are created, the BatchPro processing routine can be initiated. In cases where PC*MILER is integrated with other software programs, the BatchPro call can be made from within the host program. This results in the creation of a number of optional mileage files, offering the same variety of information that can be generated interactively with PC*MILER. In situations where PC*MILER is integrated with another software program, those output files can be read, interpreted, and used by the host program to satisfy its internal mileage requirements.

PC*MILER|BatchPro makes use of the following file naming convention:

XXXXXXXX.YYY

where XXXXXXXX represents the file name, which can be up to eight characters in length, and YYY represents the file extension, which can be up to three characters in length. The file name and extension are separated by a period [.]

In PC*MILER|BatchPro, you are free to use any unique file name of your own choice. However, all input files that you create must have the file extension .IN and all format files must have the file extension .FMT.

Once the batch processing routine has been performed, a number of optional report files will be generated. These files will all share the same file name as the input file used in their generation. They will be differentiated by their file extension. These files are discussed in detail in section 2.3, *BatchPro Output for City/State Combinations or ZIP Codes*.

2.1 PC*MILER|BatchPro Input

PC*MILER city name format:

A comma or space between the city name and the state or province abbreviation is mandatory as in the examples below:

new york, ny
Quebec, QC
princeton nj

Note that for Mexican cities use only the city name and country abbreviation "MX".

Previous versions of PC*MILER|BatchPro considered the last two letters of an entry to be the state or jurisdiction abbreviation. Beginning with Version 17, however, your entry will fail and you will get an error message if you do not use a comma or space.

Character Length for Cities:

Since Version 15 of PC*MILER, the character length of cities in the PC*MILER database has increased from 22 characters to 95.

Increasing the lengths of your inputs will increase the size of the origin/destination/mileage portion of the .STA and .OUT reports that are returned. Reports in previous versions of PC*MILER had a maximum line length of 56 characters (22 characters Origin + 22 characters Destination + 6 characters padding + 6 characters Mileage return – maximum 9999.9 miles).

If you increase the size of your inputs to 70 characters, your return will be 152 characters as follows:

70 Origin + 70 Destination + 6 spaces padding + 6 characters Mileage return

City name returns are:

ZIP Code/Canadian Postal Code (if it exists) then city name, state abbreviation, county name.

WARNING: The length of the city name format that you set directly affects your match rate to the PC*MILER cities database. Setting the city length to 22 characters will reduce the number of possible matches by about 10%.

The length you set includes the city name, a comma and a 2-character state abbreviation.

NOTE: The length that you set for your stops becomes the size of the cities returned in the .STA and .OUT reports. If you set your city length at 22 characters, cities in the .STA and .OUT reports will be 22 characters; if you have 45 characters set in your .FMT file, the .STA and .OUT reports will be 45 characters.

The .MIL report will return the number of characters set using the <-w> option (see section 2.2, *Running BatchPro*). The .RTR reports will return the entire PC*MILER long city name – up to 95 characters regardless of the length of your input.

Addresses:

For passing addresses to PC*MILER|BatchPro, use a semi-colon as the address delimiter between the ZIP code or the state abbreviation. For example, to enter the address for ALK Technologies you would enter:

Princeton, NJ; 457 North Harrison Street

Duplicate City Delineation:

Since Version 15 of PC*MILER, there have been significant changes to duplicate city delineation.

In previous releases of PC*MILER, three-digit FIPS county codes were appended to the ends of all duplicate U.S. cities that were not routable by ZIP code. A duplicate city occurs when a state has two or more towns with the same name that do not have a unique ZIP code (for example, Springfield, Pennsylvania). All U.S. city names in the database now include county information.

If duplicate cities are a concern, you will have to include county information with your request. The format for including county names is:

City <comma> State Abbreviation <comma> County Name

or

City <space> State Abbreviation <space> County Name

The length that you set in your format file will have to account for this additional county information.

Data is input into PC*MILER|BatchPro in the form of a flat, ASCII text file. Each line in this file must contain an individual origin/destination pair, which can be expressed as either a valid five-digit ZIP code, a valid city/state name found in PC*MILER's database, or a latitude/longitude.

SPLC's or Canadian Postal Codes can be used when the corresponding add-ons are installed. Please note that SPLC and Canadian Postal Codes add-ons are mutually exclusive, they cannot be used together. If your company needs access to both add-ons you will have to contact ALK for assistance.

NOTE: The input files required for stop optimization, hub routing, and simple trips must have one stop per line. An input file cannot contain more than thirty (30) stops and the first stop is always assumed to be the origin.

Files in which information is mixed are also permitted. As stated earlier, input files can have any name, up to eight characters in length, but *must* have the file extension .IN. The data in the input file must correspond to the layout specified in an accompanying format file. File format is discussed in detail in section 2.1.2.

2.1.1 Input File Creation

Input files corresponding to the criteria stated above can be created in a number of ways. Your data may already exist in a database created by using an electronic spreadsheet program or a database management software program. If this is the case, follow the manufacturer's instructions for saving the spreadsheet or database file as a space delimited text file. Once it is saved as a text file, you can use a text file editor to clean up the format, if necessary.

If you do not already have your data stored in a computer database, you can create an input text file from scratch using a text file editor program. Alternatively, you can use PC*MILER's Route Save feature.

2.1.1.1 Route Save

With Route Save, you can use PC*MILER to help create BatchPro input files. On the PC*MILER main screen, enter your origin, destination, and any intermediate stop-off points, using either ZIP code or city/state input. To initiate Route Save, press the <ALT> and <S> keys simultaneously.

At this point, PC*MILER will prompt you to enter a file name. You can enter a new file name or the name of an existing input file. If you enter the name of an existing file, PC*MILER will add this route to that file. When entering a file name, do not enter the file extension ".in". When you have finished inputting the file name, press <ENTER>.

PC*MILER will then prompt you to enter a trip identification number. This optional field, which can be up to twenty characters in length, can be used to record a trip date, driver log number, driver name, or other reference. This field is particularly helpful whenever you are adding several trips to the same file.

Once the file name and trip ID fields are complete, press <F10> to save the file or <ESC> to abort. (If the file name that you had specified is an existing file, PC*MILER will ask you if you want to append the route to the file. Answer <Y> to add this route to your existing input file. Answer <N> to abort Route Save.)

Files created using Route Save are stored in the `/usr/local/pcm280/na/options` directory. If you installed PC*MILER in a directory other than `/usr/local`, the appropriate directory will be used.

NOTE: When intermediate stop-off points are used in the creation of a Route Save file, the first stop-off point will serve as the *destination* point of the *first* record and the *origin* point of the *second* record. The second stop-off point will serve as the *destination* point of the *second* record and the *origin* point of the *third* record, and so on.

The format file will be the following:

```
21 * starting column of origin city and state
35 * length (number of characters) of origin city and state
56 * starting column of destination city and state
35 * length (number of characters) of destination city and state
```

2.1.1.2 Input File for Resequencing and Hub Routing

The file below is an example of the one-stop-per-line input file that is required for taking advantage of resequencing.

```
08855
02140
ORLANDO, FL
08540 PRINCETON, NJ
```

Trip.in File

2.1.2 Format Files and Format Conventions

In order for PC*MILER|BatchPro to work properly, the program must be instructed where to look in each input file for the route origin and destination data. This is the purpose of the format file. As noted earlier, format files always have the file extension `.fmt`.

To assist you in using BatchPro, the following four sample format files are included with the package: `pcmcity.fmt`, `pcmzip.fmt`, `pcmsave.fmt`, `trip.fmt`.

Depending on the source and composition of your input file, you can modify and utilize these sample files or use them as models for the creation of your own format files. To look at these files, from the prompt, type:

```
cd /usr/local/pcm280/sample-files <ENTER>
more XXX.fmt <ENTER>
```

where XXX denotes the file name of the file you want to view. Note that the format files each contain four lines, except trip.fmt which contains two lines, and each line is accompanied by a brief description.

Pcmcity.fmt, reproduced below, is an example of a format file that would accompany an input file in which the origin and destination records are in city/state form, or an input file in which the origin and destination records are in both city/state and ZIP code form.

```
1 * starting column of origin city and state (FOR 'PCMCITY.IN' FILE)
15 * length (number of characters) of origin city and state
16 * starting column of destination city and state
15 * length (number of characters) of destination city and state
```

Pcmcity.fmt File with Optional Empty/Loaded Designator

This format file would instruct BatchPro to look in column 1 of each line of the input file for the first character of the origin city/state and in column 16 of each line for the first character of the destination city/state. This file also indicates that the origin and destination names, including the two-character state abbreviation, will be no more than 35 characters in length.

NOTE: For origin or destination names that are less than sixteen characters in length, BatchPro will ignore trailing blank spaces. BatchPro will also ignore any blank spaces between the city name, the comma, and the state abbreviation.

Pcmzip.fmt, reproduced below, is an example of a format file that would accompany an input file containing data in ZIP code form only.

```
1 * starting column of origin ZIP code
5 * length (number of digits) of origin ZIP code
9 * starting column of destination ZIP code
5 * length (number of digits) of destination ZIP code
```

Pcmzip.fmt File

This format file would instruct BatchPro to look in column 1 of each line of the input file for the first digit of the origin ZIP code and in column 9 for the first digit of the destination ZIP code.

For input files you create directly using a text file editor, or for input files that originate from the conversion of electronic spreadsheets or database files into text files, you can make use of these sample format files.

The column layout specified in these sample format files may not match the actual layout of your input files. Using a text file editor, you can either modify your input file layout so that it matches the format file or edit the format file so that the layout parameters it specifies are consistent with your input file layout.

2.1.2.1 The Pcmsave.fmt Sample File

The Pcmsave.fmt file shown below is an example of a format file created when an input file is saved in PC*MILER using PC*MILER's Route Save feature. The layout parameters specified below reflect the parameters of files produced when Route Save is used.

```
21 * starting column of origin city and state
35 * length (number of characters) of origin city and state
56 * starting column of destination city and state
35 * length (number of characters) of destination city and state
```

Pcmsave.fmt File

2.1.2.2 Format File for Resequencing and Hub Routing

Trip.fmt, reproduced below, is an example of the format file that can be used to resequence stops in the file trip.in.

```
1 * starting column of STOP
35 * length (number of characters) in STOP
```

Trip.fmt File

This format file instructs BatchPro to look in column 1 of each line for the first character of the stop and to use up to 22 characters from column 1 for the name.

2.2 Running PC*MILER/BatchPro

Once the input file and a corresponding format file have been created, PC*MILER|BatchPro can be run. You can issue the BatchPro run command from the prompt or, in situations where PC*MILER is integrated with another software package, the command can be issued by the host program.

To run BatchPro, from the prompt, type:

```
pcmbatch {NETWORK TYPE} {INPUT FILE} {OUTPUT FILE(S)  
REQUESTED} {OPTIONS} <ENTER>
```

The individual elements of the BatchPro run command are as follows:

{**NETWORK TYPE**} specifies whether practical or shortest route mileages are to be calculated. Enter <P> for practical routes, <S> for shortest routes, <N> for National Network routes, <T> for Toll-Discouraged, and <F> for 53' Trailer routes.

{**INPUT FILE**} is the name of the batch input file you created containing the origin and destination records for which mileages are to be calculated. Be sure to specify the full file path. You do not have to include the file extension .in.

{**OUTPUT FILE(S) REQUESTED**} is the numeric code referring to the type of mileage file that you want BatchPro to generate. These files, which will be discussed more fully below, will share the same file name that you assigned to your input and format files.

- <1> The appended mileage output file. This file will have the file extension .out.
- <2> The state summary file. This file will have the file extension .sta.
- <3> The mileage file. This file will have the file extension .mil.
- <4> The total mileage summary file. This file will have the file extension .tot.
- <5> The route detail file. This file will have the file extension .rtr.

You may generate as many of these output files as you desire by including the appropriate numerical code within the BatchPro run command. If no output files are specified in the BatchPro run command, PC*MILER|BatchPro will generate all five.

{**OPTIONS**} refers to a set of special instructions that you can give to PC*MILER|BatchPro. These instructions are:

- <-c> The PC*MILER cost estimate for each trip will be included in the output files.
- <-d> This instructs BatchPro to resequence the stops with the destination fixed. The input file can have up to thirty stops, one per line.
- <-f{format file}> This instruction tells BatchPro which format file to use to process your input file. Format file names no longer have to match the input file name, as long as the layout parameter specified in the format file exactly matches the file layout of your input file.

However, if your input and format files *do* share the same file name, then this instruction is optional.

- <-h> This instructs BatchPro to do hub mode processing for the input file. The input file can have one origin and up to twenty-nine destinations. See section 4.9, *The Hub Distance Generator*, in your PC*MILER *User's Guide* for more information.
- <-k> This instructs BatchPro to use kilometers in place of miles in the output files.
- <-n> This instructs BatchPro to process the file as a simple trip. The input file can have a maximum of thirty stops in a one stop per line format.
- <-r> This instructs BatchPro to resequence the stops in the input file using the route through all stops criteria. The input file can have up to thirty stops, one per line.
- <-t> Includes the PC*MILER time estimate for each trip in the output files.
- <-u> Invokes PC*MILER's Intra-US/Intra-Canada Routing option. See the main PC*MILER *User's Guide* for more information.
- <-w> Invokes a PC*MILER option to set how many stop name characters are returned in the .MIL report (the default is 25).
- <-z> This will suppress the BatchPro logo screen, which normally appears once the BatchPro run command is issued and the mileage calculations are being made. This option is useful when PC*MILER is integrated with another software package.

Three sample input files, `pcmcity.in`, `pcmzip.in`, and `trip.in`, have been included with PC*MILER|BatchPro. The BatchPro run command

```
pcmbatch P pcmcity 1 2 3 4 5 -t
```

will produce every output file using the data contained in the file pcmcity.in. These output files will contain PC*MILER's time estimates and will be based on practical mileages. Since both the input and format files share the same file name, the -fpcmcity.fmt instruction was omitted.

NOTE: To halt the BatchPro program at any time, press the <ESC> key.

2.3 BatchPro Output for City/State Combinations or ZIP Codes

PC*MILER|BatchPro can produce five different mileage reports, offering the same variety of mileage information that is available with PC*MILER. To view any of these files after the BatchPro process is complete, from the prompt, type:

more XXXXXXXX.YYY <ENTER>

where **XXXXXXXX** is the filename you assigned to your input file and **YYY** is the file extension of the particular output file you want to view.

2.3.1 .IN File

This file contains the input origin/destination combinations that PC*MILER|BatchPro will process. The output files for the sample file below are shown in sections 2.3.2 - 2.3.6.

PRINCETON,	NJ	SPRING GLEN,	NY
SPRING GLEN,	NY	WEST HAVEN,	CT

Sample .IN File

2.3.2 .OUT File

This file follows the same format as your input file, with the calculated mileages placed to the right of the destination data. The length of the City <comma> State returned will match the length set in your request format file.

The example below shows a sample .out file generated from an input file containing data in city/state form:

PRINCETON,	NJ	SPRING GLEN,	NY	124.6
SPRING GLEN,	NY	WEST HAVEN,	CT	114.9

Sample .OUT File

2.3.3 .STA File

This file contains the same information as that provided by the .OUT file, but for each origin/destination record for which a mileage is calculated, a mileage summary table, similar in form to PC*MILER's state mileage summary report, is generated. See your PC*MILER *User's Guide* for more information about the state mileage summary report.

Output includes total, toll, free, ferry, loaded and empty mileages for each state of travel. The length of the Stop returned will match the length set in your request format file. The example below shows a sample .STA file:

PRINCETON,	NJ	SPRING GLEN,	NY		124.6	
NJ	69.0	0.0	69.0	0.0	69.0	0.0
NY	55.6	14.0	41.6	0.0	55.6	0.0
SPRING GLEN,	NY	WEST HAVEN,	CT		114.8	
CT	39.9	0.0	39.9	0.0	39.9	0.0
NY	75.0	1.8	73.3	0.0	75.0	0.0

Sample .STA File

2.3.4 .MIL File

The .mil file is similar to the .out file. However, if the origin/destination data contained in your input file is in ZIP code form, the .MIL file will perform a translation and present both ZIP code and city/state/county data. Similarly, if the data contained in your input file is in city/state form, the .MIL file will present both city/state and ZIP code data.

NOTE: Return of the translated city is limited to 25 characters by default, or the number of characters set using the <-w> option (see section 2.2, *Running BatchPro*). Stops longer than 25 characters will be truncated and state information may be lost. For example:

Aluminum CO of America Plant, PA, Dauphin is truncated to:

Aluminum CO of America Pl

The example below shows a sample .mil file generated from an input file containing data in ZIP code form:

08540 Princeton, NJ, Merc	12483 Spring Glen, NY, Ul	124.6
12483 Spring Glen, NY, Ul	06516 West Haven, CT, New	114.9

Sample .MIL File

2.3.5 .TOT File

The .tot file provides a mileage summary table, similar in form to PC*MILER's state mileage summary report, that is a grand summary for all the origin/destination records in the input file. Refer to your PC*MILER *User's Guide* for more information about the state mileage summary report. Output includes total, toll, free, ferry, loaded, and empty mileages for each state of travel.

The example below shows a sample .tot file:

Total Mileages for 2 Records						
	Total	Toll	Free	Ferry	Loaded	Empty
CT	39.9	0.0	39.9	0.0	39.9	0.0
NJ	69.0	0.0	69.0	0.0	69.0	0.0
NY	130.6	15.8	114.8	0.0	130.6	0.0

US	239.6	15.8	223.8	0.0	239.6	0.0

TOT	239.6	15.8	223.8	0.0	239.6	0.0

Sample .TOT File

2.3.6 .RTR File

The .rtr file contains detailed driving instructions. It is not the same detailed route listing that can be generated interactively with PC*MILER, because it contains additional information that cannot fit on the standard terminal screen. For returned Cities, the entire PC*MILER stop of City <comma> State Abbreviation <comma> County Name is returned regardless of the length of input city.

The columns in this report are separated by <TAB> characters. The report is not intended to be displayed in its unparsed form.

Origin: 52401 Cedar Rapids, IA, Linn													0:00	(off-Duty)	0.00								
IA	S	US-151 Business	(1st Ave E)	0.3	0:00																		
IA	N	8th St NE	0.1	0:00																			
IA	N	Ramp	0.2	0:01																			
IA	N	I-380	43.6	0:37																			
IA	N	Ramp	1.1	0:03																			
IA	W	I-380	5.9	0:05																			
IA	W	US-20	177.4	2:58																			
IA	W	US-20	34.8	0:38																			
IA	W	US-20 Business	3.2	0:03																			
IA	N	Ramp	0.1	0:00																			
IA	N	N Lewis Blvd	0.1	0:00																			
IA	S	Local	0.1	0:00																			
Arrive Empty																							
Dest: 51101 Sioux City, IA, Woodbury													0:00	(off-Duty)	0.00								
Origin: 52401 Cedar Rapids, IA, Linn													0:00	(off-Duty)	0.00								
IA	S	US-151 Business	(1st Ave E)	0.3	0:00																		
IA	N	8th St NE	0.1	0:00																			
IA	W	8th St	0.1	0:00																			
IA	S	Ramp	0.2	0:01																			
IA	S	I-380	20.3	0:17																			
IA	S	Ramp	0.4	0:01																			
IA	W	I-80	114.5	1:38																			
IA	W	Exit 72B	0.8	0:02																			
IA	W	I-80	94.6	1:21																			
IA	E	Exit 27	0.6	0:02																			
IA	E	I-680	16.0	0:14																			
IA	W	Ramp	0.3	0:01																			
IA	N	I-29	10.0	0:09																			
IA	N	Exit 82	0.2	0:01																			
IA	W	IA-300	1.3	0:02																			
Arrive Empty																							
Dest: 51556 Modale, IA, Harrison													0:00	(off-Duty)	0.00								

Sample .RTR File

2.4 Using PC*MILER|BatchPro with Optional SPLC and Canadian Postal Code Add-ons

If you purchased the optional SPLC add-on module, you can use SPLC codes with PC*MILER|BatchPro. To be recognized, each SPLC must be preceded by a designator prefix.

For example: **SPLC111111000 SPLC323235000**

The format file should be created in such a way that the SPLC prefix is taken into consideration.

Canadian Postal Codes can be used in the input files just like US ZIP codes, if the optional add-on module is installed. No special handling is required.

The format for Canadian Postal Codes is:

L#L<space>#L#

Where **L**= Letter and **#** = Number

NOTE: For Version 16 and higher: SPLC and Canadian Postal Codes add-ons can now be used together.

3.0 Optimizing PC*MILER|BatchPro Performance

Considerable time can be saved by ordering your input files so that lines with the same origin follow each other.

The example below represents a poorly sorted input file:

```
08540      80218
13346      08540
12345      01234
08540      60609
```

PC*MILER|BatchPro would perform more efficiently (and quickly) if the origin and destination in record 2 were switched and the file was then sorted again by origin (see the example on the next page).

The example below represents a properly sorted input file:

```
08540      80218
08540      13346
08540      60609
12345      01234
```

4.0 PC*MILER|BatchPro Errors

PC*MILER|BatchPro will advise you of input errors by placing the message <BAD RECORD> in place of calculated mileage in the output files. If you encounter a <BAD RECORD> message, you should do the following:

- (A) Make sure that your input data is valid. Using PC*MILER interactively, make sure that the origin or destination is in the PC*MILER database. For city/state data, check the spelling of the city name and make sure that the two-character state abbreviation is correct. A comma between the city and state is optional, but you must have a space there if not using commas.
- (B) Make sure that your input file has the proper format and layout. Throughout the input file, origin and destination data must be contained within the columns so specified in your format file. Spacing must be exact and consistent.

NOTE: Some electronic spreadsheet and database management software programs use tabs to separate data in separate columns or data fields when the conversion to a text file is made. Tabs *cannot* be used in BatchPro input files. Using a text file editor, replace any tabs with blank spaces.

- (C) Make sure your input file is properly named, with the .in file extension.
- (D) Make sure that the layout parameters specified in your format file are consistent with the arrangement and the layout of data in your input file.

5.0 Technical Support

ALK Technologies offers one year of free technical support to all registered users of PC*MILER products. If you have any questions about PC*MILER|BatchPro or problems with the software, contact our staff at the phone number or e-mail address below:

PC*MILER Technical Support Staff
Hours: M-F, 9:00 am-5:00 pm EST
Phone: (609) 683-0220 x 2
Email: pcmsupport@alk.com

When calling, ask for PC*MILER Technical Support. **Please be sure to have your PC*MILER version number, registration code, and hardware configuration information (manufacturer, speed, and monitor type) available before your call.** If you are contacting us by e-mail, please include this information in your message and type "BATCHPRO UNIX" in the subject line.

To download any new executables and program files that have been developed since the initial release of your version of PC*MILER, visit our web site at www.alk.com/support.