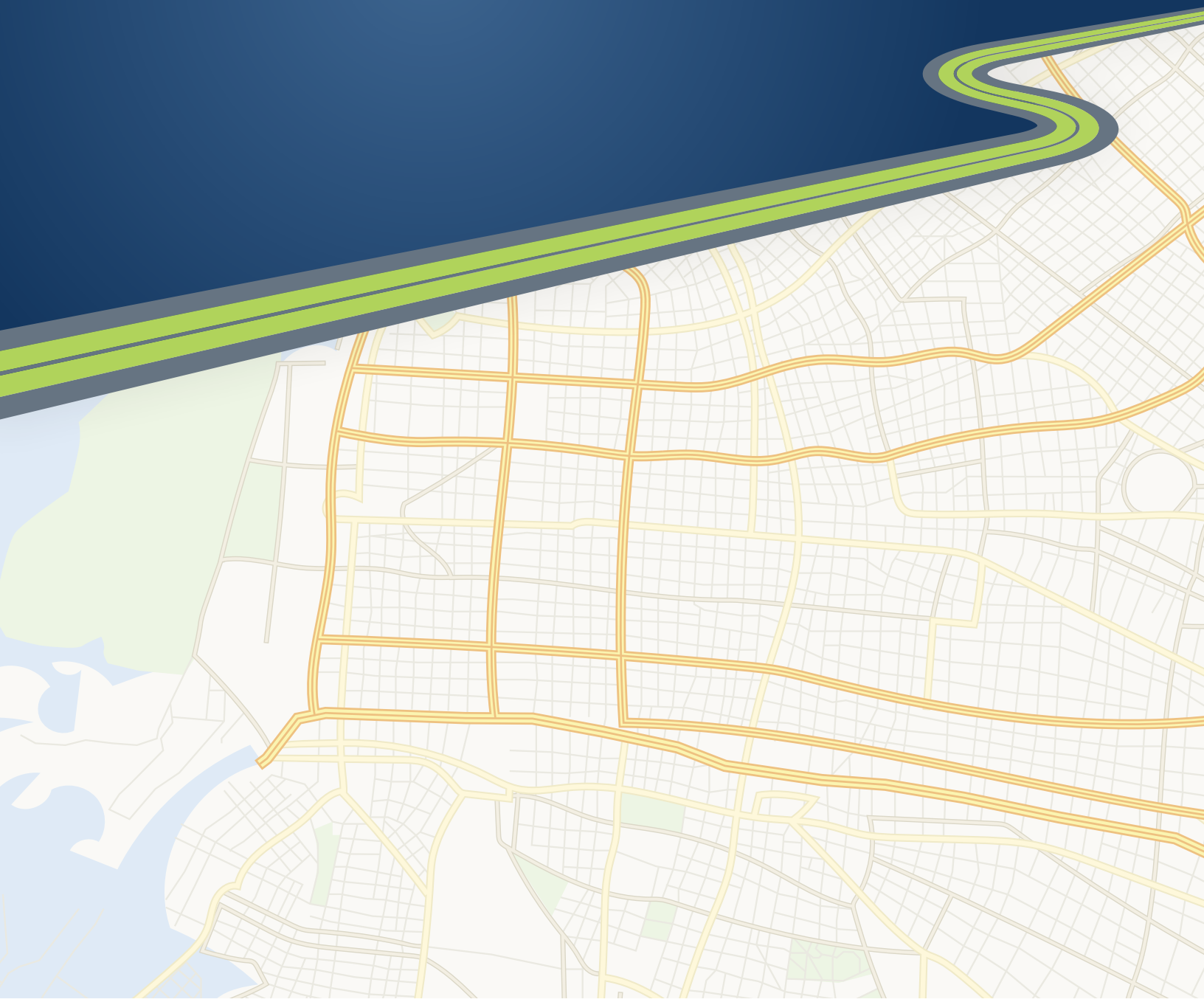
User's Guide

PC*MILER® 22

Rail-BatchPro



Technology Beyond Miles

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A TRIMBLE COMPANY

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16. Intentionally omitted.

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19. Intentionally omitted

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22. Date: This EULA was last updated on November 2, 2015. Visit www.pcmiler.com for regular updates.

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Chapter 1 Introduction

PC*MILER®|Rail-BatchPro™ is a batch processing module created for use with ALK's PC*MILER|Rail. It can be launched from within another application, giving PC*MILER|Rail the power and flexibility to handle the processing of large volumes of origin-destination records. Using an input file of car location messages (CLMs) or similarly formatted data, BatchPro enables PC*MILER|Rail to calculate the distance between locations identified on a single record (single line) or adjacent records. As part of this process, BatchPro can also generate report files that summarize mileage activity by car ID, state/province and railroad carrier.

NOTE: It is possible to create an extensive mileage database with BatchPro. Under the provisions of your license agreement, any such database must remain on the same computer platform on which PC*MILER|Rail 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 What is PC*MILER|Rail?

PC*MILER|Rail is point-to-point rail routing and mileage software. Its powerful North American rail network contains over **240,000** total miles of rail line, **over 49,400 active freight stations**, **802 rail carriers**, and **over 4,000 unique junction interchanges**. PC*MILER|Rail provides rail routes and mileage for rate determination and negotiation, equipment management, rail car mileage auditing, and carrier selection.

Through ALK's close working relationship with all major railroads, PC*MILER|Rail features the industry-leading electronic representation of current North American railroad routes and mileage. For over 30 years, ALK's railroad database has proven to be an accurate source for determining the routes and mileage used in processing the U.S. Surface Transportation Board's Carload Waybill Sample. It has also been used in numerous traffic diversion studies and in a variety of costing applications. ALK's railroad database is widely used by virtually all major railroads and rail car lessors.

PC*MILER|Rail generates routes and determines mileage between any two rail-served locations in North America. Each location can be identified by station name and state abbreviation or by commonly used geographic codes.

With PC*MILER|Rail you can quickly calculate the **Shortest** route (least distance) and/or the **Practical** route (based on historical operations) between any

two points. You may specify interline junctions or let PC*MILER|Rail choose junctions by weighing location versus gateway importance. A **Fuel Surcharge** routing option is provided to accommodate the Surface Transportation Board ruling on mileage-based fuel surcharge calculations. Routings for **Intermodal**, **Coal/Bulk** and multi-level **Auto Rack** trains are also included.

1.2 PC*MILER|Rail Route Calculation

PC*MILER|Rail uses a minimum impedance routing program for computing routes. The link impedance used in route calculations is derived as distance multiplied by a cost factor, which essentially corresponds to route quality. High density mainlines are given a lower link cost, while medium density mainline, medium density branchline, and low density branchline have higher cost factors. The minimum impedance route between any two nodes (geographic locations) on ALK's Rail Network is the sequence of links whose impedance sum is less than that of any other sequence of links.

For interline routes calculated from the AutoRouter, junction interchange impedances are added to link impedances. The junction impedance for the forwarding and receiving railroads is based on the historic volume of traffic interchanged at that junction to/from those railroads.

Link costs and junction costs may be different for each of the PC*MILER|Rail routing types. Additionally, the link costs are adjusted to accommodate any directional routing arrangements.

All the various cost factors have been derived from extensive research using railroad timetables, maps provided by railroads, the *Official Railway Guide*, *Official Railroad Station List*, railroad atlases, city and county maps, and articles from railroad industry resources. ALK has periodically updated these costs over the years to maintain a good match with current realistic routes.

See section 3.6, *Output Options*, for a description of **route formulas** and **other route options** that affect how rail lines and junctions are selected for a route, total route mileage, and (with AutoRouting) the number of routes that are generated.

1.3 New in BatchPro Version 22

- ***NEW!...* User Interface Redesigned.** Keeping pace with recent trends in technology, PC*MILER|Rail-BatchPro has been updated with a new user interface while retaining the same features and functionality that users are familiar with from previous versions.

- ***NEW!...* Format File Creation Simplified.** Previous versions of BatchPro required users to create a .DIR format file manually or by editing a supplied

template. The .DIR file described the layout of the columns in an input file using start and end positions, allowing BatchPro to identify where each data element (SPLC, car number, etc.) was located in a record. In Version 22 the input file format is entered directly into the BatchPro window and can be saved for future use in a .CFG configuration file, eliminating the need to create a separate format file.

- ***NEW!...* Route Options Can Now Be Saved.** An advantage of the new .CFG format files described above is that route options selected in the BatchPro window can be saved to the current .CFG file along with format information. For users this means that when the .CFG file is used again, the previously selected route options will be applied automatically unless they are changed in the BatchPro window.

- ***ENHANCEMENT!…* Error Message Update.** The error messages that BatchPro returns have been updated to provide improved guidance.

Chapter 2 Installing PC*MILER|Rail-BatchPro

PC*MILER|Rail-BatchPro is an add-on product that can be installed when you install PC*MILER|Rail or at a later time. See section 2.2 below if you already have a base installation of PC*MILER|Rail 22 and are adding BatchPro.

To install a full PC*MILER|Rail 22 installation with the BatchPro add-on, see your *PC*MILER|Rail User's Guide* or *Getting Started Guide* for complete instructions.

2.1 Requirements

The PC*MILER|Rail-Connect product is intended to allow language-independent Windows application development. You need to have:

- An installation of PC*MILER|Rail Version 22.
- PC/LAN Windows® (Windows 7, 8 or 10).
- PC with a 1.5-2 GHz processor or networked personal computers.
- An additional 1 MB free on your hard disk (in addition to 700 MB required for the PC*MILER|Rail database).
- 512 MB RAM required, 1 GB recommended for standard desktop.

2.2 Adding BatchPro to a PC*MILER|Rail Installation

If you are purchasing and installing the BatchPro module after PC*MILER|Rail has already been installed, follow the steps below:

First, call **PC*MILER Sales** at **800.377.6453** (or 1.609.683.0220 outside of the U.S.), 9:00am-5:00 pm EST, Monday-Friday to purchase the product and obtain a new Product Key Code to license and install the new solution(s).

Once you receive the new product key code, follow the instructions below for a single user or multi-user workstation.

SINGLE USER AND MULTI-USER SERVER INSTALLATION

1. Go to the Windows **Start** menu **> Programs** (or **All Programs**) **> PCMILER Rail 22 > License Status**.

2. In the PC*MILER License Tool window, click **Add License.**

3. In the PC*MILER Product Activation window, enter the **product key** for the purchased component and click **Add License.**

4. When prompted, enter your **Email Address**.

5. Click **Activate**.

6. When the activation process is complete, you will see the message "**License Activation Complete!**". Close the Product Activation window.

7. Back in the License Tool window, make sure all new and existing components are listed under **Licensed Components**, then close the window.

8. **To install newly added components,** go to the Windows **Start** menu > **Control Panel** > **Programs and Features** (or the equivalent on your system).

9. In the list of installed programs, **right click** "PC*MILER|Rail 22" and choose *Change*.

10. In the InstallShield Wizard, choose **Modify** and click **Next**.

11. In the next screen, you will see the list of **Licensed Features**. All activated features will be listed. Check that the component you are installing is included in the list, then click **Next** to continue.

12. In the next screen you'll see the **Destination Folder** for the installation. Click **Next** to start copying files.

13. When the installation is complete, click **Finish**.

MULTI-USER INSTALLATION, FROM A WORKSTATION

1. Go to the workstation.

2. Browse to the shared …\PCRWIN22\network folder on the server.

3. Run the setup.exe and choose **Modify**.

4. Follow through with the rest of the installation (steps 10-13 above).

2.3 Technical Support Options

ALK Technologies offers free technical support to all users of PC*MILER|Rail and related products. If you have any questions or problems with the software that cannot be resolved using this *User's Guide*, contact ALK Technologies.

Hours:	8:00am - 5:00pm, Mon-Fri, Eastern Standard Time
Phone:	1.800.377.6453 ext. 2, or 1.609.683.0220 ext. 2
Email:	pcmsupport@alk.com or from within PC*MILER|Rail select the Help tab > *Email Technical Support* and follow the instructions provided. If you have any supporting material, click **Attach File** and browse for the file(s) to attach. Attachments of supporting documentation can be **up to 10 MB**. When ready, click **Send**. ALK's technical support team will send a confirmation email to the email entered in the "Enter your email here" field when it is received. Please include your Product Key Code and product version number (e.g. 22.0.1) in all correspondence. To find this information, go to the Help tab > *About*.
Fax:	1.609.252.8108 ATTN: PC*MILER|Rail Technical Support
Web Site:	www.pcmiler.com (click **Support** > **PC*MILER|Rail**)

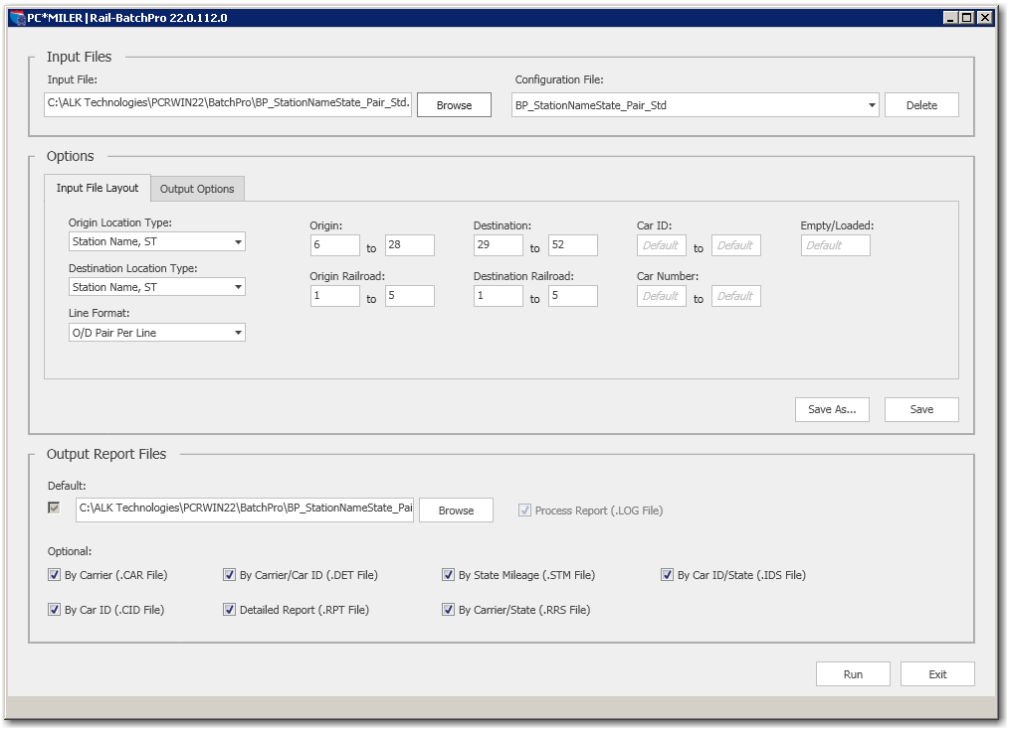
2.4 User Guides

NOTE: You must have Adobe Acrobat Reader on your computer to properly view the PDF user guides for PC*MILER|Rail products. (Using another PDF reader may cause faulty pagination or other problems.) If you do not have this program installed already, a free copy can be downloaded from www.adobe.com.

To make Adobe Reader your default reader, from within the Adobe Reader application select the Edit menu > Preferences > General and click **Select Default PDF Handler**. Select Adobe Reader from the drop-down, and click **Apply** then **OK** to close the Preferences dialog.

To access the user guide for any PC*MILER|Rail product, click the Windows **Start** button > **All Programs** (or the equivalent on your system) > **PCMILER Rail 22** > *User Guides* and select one of the .pdf files.

Chapter 3 Using PC*MILER|Rail-BatchPro



*PC*MILER|Rail-BatchPro Window*

3.1 How Does BatchPro Work?

BatchPro works as follows: the name of your input file of car records is passed as a parameter to BatchPro. Guided by the description of the input file format that is entered in the BatchPro window, PC*MILER|Rail first determines the validity of the sighting railroad/sighting location combinations contained in the file. PC*MILER|Rail then attempts to generate a mileage for each valid pair of consecutive records or each single record containing a valid O/D pair.

An output file is created in which the mileage figure is placed at the end of each record from the input file. The output file is named **xxxxxxxx.OUT**, where "**xxxxxxxx**" is the name of the input file, and is placed in a folder that you specify or in the folder where the input file resides. If mileage is not generated for an O/D pair due to processing errors, data errors, or other factors, an error message will be generated in the .OUT file.

3.2 How to Use BatchPro

The steps to generate BatchPro mileage and reports are below. See sections 3.3 – 3.14 for more detailed instructions.

1. To open the BatchPro window, go to the Windows Start menu > All Programs (or the equivalent on your system) > PCMILER Rail 22 > BatchPro and click **PCMILER Rail-BatchPro 22**.
2. At the top of the BatchPro window, designate an **Input File** of car records using the **Browse** button.
3. To the right, select a **Configuration File** that matches the type of input in your input file.
4. If necessary, under **Options** edit the column positions in the configuration file to match the current input file (**Input File Layout** tab).
5. If necessary, select how stations are formatted in the origin and destination columns of the input file (**Origin Location Type** and **Destination Location Type** drop-downs).
6. In the **Line Format** drop-down, select **O/D Pair Per Line** if the input file includes one origin/destination pair per line (this is required for AutoRouting), or **Single Location Per Line** if each line includes only one station.
7. (Optional) Under **Options**, in the **Output Options** tab adjust routing and output options as needed.
8. (Optional) Under **Output Report Files**, designate a location where output files will be placed. By default, output files are placed in the folder where the input file is located.
9. (Optional, for Standard routing only) Under **Optional**, select report files to generate in addition to the default mileage output (.OUT file).
10. Click **Run** to begin batch processing. Depending on the options you chose, a minimum of two output files will be created (.LOG and .OUT files) in the folder where the input file resides or in another user-designated location.

3.3 Input File Requirements

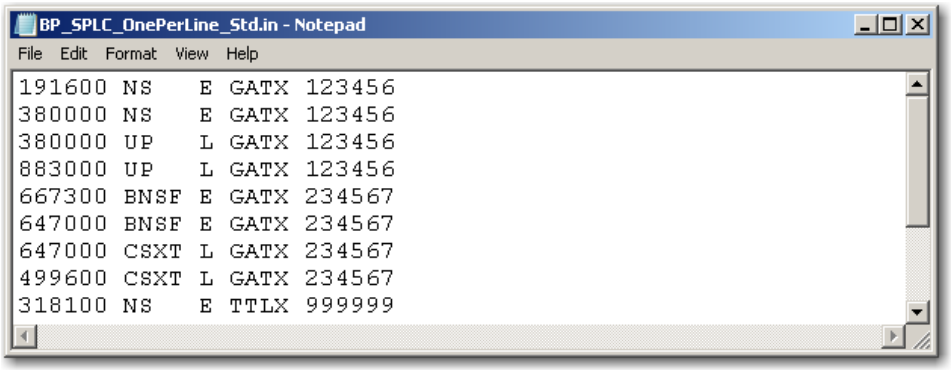
To generate distances, PC*MILER|Rail-BatchPro requires an input file (.IN) of car records and a configuration file (.CFG) which enables BatchPro to interpret the data in the input file correctly.

Under **Input File** in the BatchPro window, use the **Browse** button to select your input file.

Car sighting data may be gathered for input via electronic data interchange (EDI) directly from major rail carriers using a communications software package,

through third parties such as RAILINC or Kleinschmidt, Inc., or even edited via software such as Lotus or dBase.

Input data must be in flat ASCII files. Each record in the input file must contain at least one geographic location, and may contain fields identifying empty/loaded status and car mark/number. Additionally, a car number or car ID is required for files that have one station per line, to distinguish where each trip starts and ends. In the sample file below, you can see two complete trips – for car GATX 123456 and GATX 234567.



Sample Input File – One Location Per Line

Standard routes need a railroad column, while AutoRoutes can be run without a railroad, with a pair of railroads, or with just one railroad (at either the origin or destination). If no railroad is specified for AutoRoutes, multiple routes will be generated.

NOTE: Comment lines starting with a semi-colon (**;**) are permitted in input files.

NOTE Also: Since batch processing may create several large output files, your available hard disk space must be approximately **twice** as large as the size of the input file.

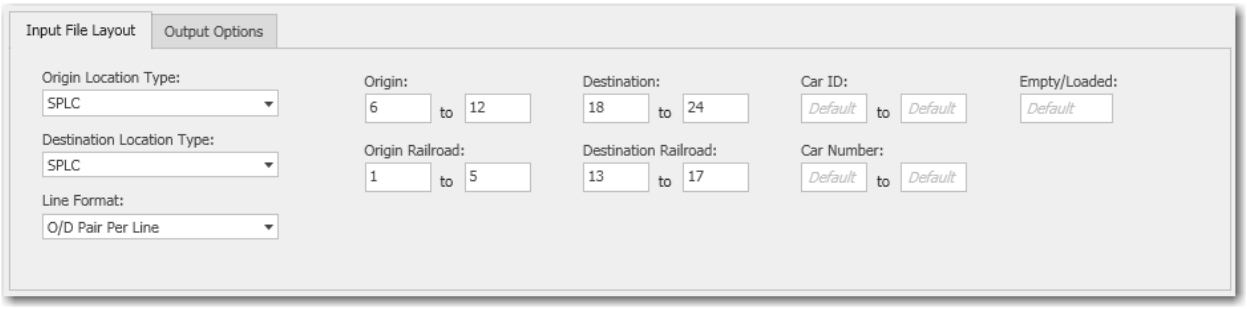
Sample input files with the file extension "**.in**" are included with the BatchPro installation. The default installation location is C:\ALK Technologies\ PCRWIN22\BatchPro.

3.4 Configuration Files

After selecting an input file, you must select a .CFG configuration file. This file describes the layout of the columns in your input file using start and end positions, allowing BatchPro to identify where each data element (SPLC, car number, etc.) is located in each record in your input file. The .CFG file also specifies output and route options.

In the BatchPro window, use the **Configuration File** drop-down to select a configuration file. Five .CFG templates are initially provided. After selecting a .CFG, you'll see that file's default options displayed under **Options**. You can then customize the options and save the file for future use – click **Save As** to give the file a new name, or **Save** to retain the same filename and overwrite the original template. By default your edited files are saved in the App folder of the PC*MILER|Rail installation (usually C:\ALK Technologies\PCRWIN22\App), **they must be saved in this folder to be seen** in the Configuration File drop-down.

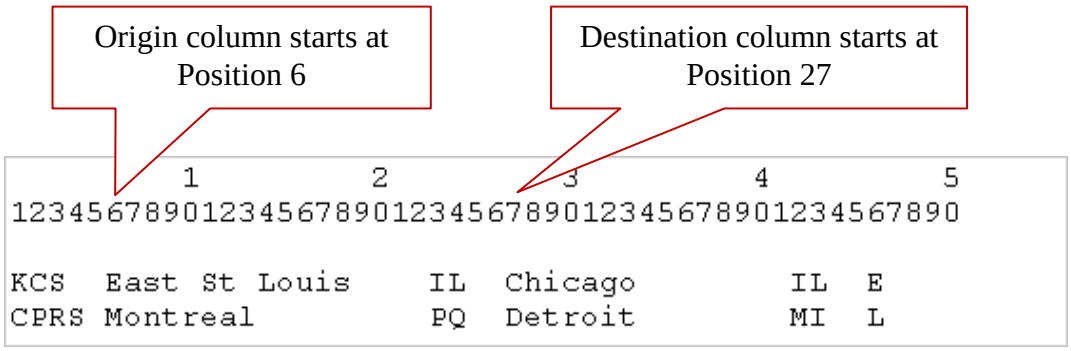
NOTE: Please note that **only advanced users** should manually edit a configuration file. Also note that if a configuration file is added to the App folder while BatchPro is already running, it won't be available in the Configuration File drop-down.



Default Layout for the BP_SPLC_AR_Railroads .CFG Template File

3.5 Input File Layout Options

The **Input File Layout** options enable BatchPro to locate and identify the data in each record of your input file. The ASCII text file below shows character positions at the top to illustrate the concept of column start/end positions in the input file layout:



The Input File Layout values can be edited as follows:

Origin/Destination Location Type: In the drop-down, select the type of location in the origin and destination columns. The type must be the same within a column, but the columns can have different types; for example, origins can be SPLC and destinations can be Station Name/ST.

Line Format: The option selected here must match your input file, otherwise the file won't be processed. Select whether records in the input file include an origin and destination on one line (**O/D Pair Per Line**) or a **Single Location Per Line**. In the latter case, mileage is generated between locations in each consecutive line.

NOTE: **OD Pair Per Line** is required for AutoRouting, AutoRoutes won't run using the Single Location Per Line format.

Origin/Destination: Enter the start and end positions of the origin and destination locations in each record. For a one-per-line file, the destination is ignored.

Origin/Destination Railroad: If the file includes railroads, enter the start and end positions of the origin and destination railroads in each record. For a one-per-line file, the destination railroad value is ignored.

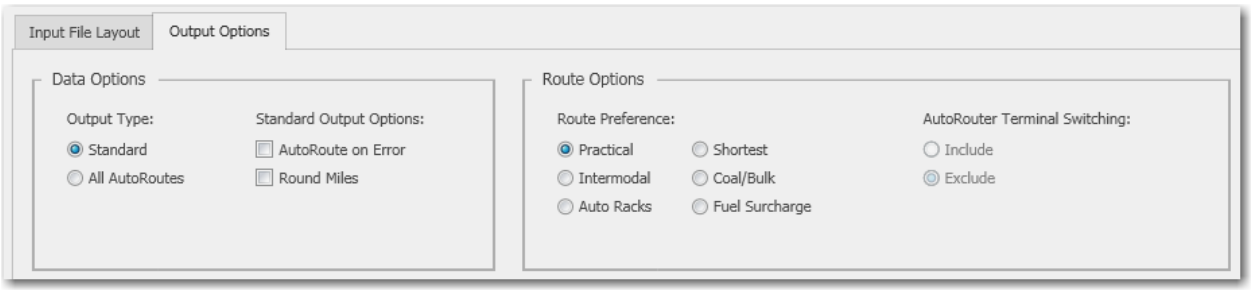
Car ID: If the file includes car IDs, enter the start/end positions of the column. For one-station-per-line input, a car ID or car number column must be identified.

Car Number: If the file includes car numbers, enter the start/end positions of the column. For one-station-per-line input, a car ID or car number column must be identified.

Empty/Loaded: If the file includes empty/loaded status, enter the one-byte position of the column.

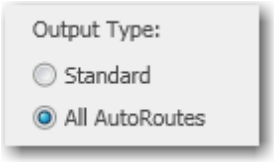
3.6 Output Options

To edit the output and route options in a configuration file, click the **Output Options** tab under **Options**.



Output Options Tab

3.6.1 Data Options – Output Type



Select **Standard** if you simply want to generate mileage for the origin/destination pairs in your input file. Using this option, if a record is determined to be invalid, the mileage for that record is returned as "0". "0" mileage will appear if an invalid sighting railroad/location is detected, or if a route cannot be run between an origin and destination pair as it occurs in the file.

In Standard output, diagnostic checks will identify inconsistencies in the input data. An error message placed to the right or under the mileage field will identify the problem. See section 3.14, *Error Messages You May Encounter.*

Geocode error for an invalid location

```
 S  East St Louis        IL Chicago              IL   810.4
 CPRS Montreal           PQ Detroit              MI   572.5
 CN   Vancouver          BC Toronto              ON  2742.1
 CSXT Ne                 NJ Pittsburgh           PA     0.0  <--
 GeoErrorO: No Matches Found
 NS   Norfolk            VA Atlanta              GA   667.8
```

Error Message in a Standard Output (.OUT) File

If **All Auto Routes** is selected, AutoRouting will be used to calculate mileage for every feasible route between each valid origin/destination pair in the input file.

```
NEWARK, NJ to LOS ANGELES, CA
1: (RRs: 3) 3181.6              191600 CSXT    396640 BNSF    883000    1141.8    2039.8
2: (RRs: 3) 3209.9              191600 CSXT    380000 UP      883000    958.0     2251.9
3: (RRs: 3) 3066.5              191600 NS      566900 BNSF    883000    1304.8    1761.7
4: (RRs: 3) 3147.7              191600 NS      380000 UP      883000    895.8     2251.9
CHICAGO, IL to SEATTLE, WA
1: (RRs: 2) 2387.6              380000 BNSF    845200      2387.6
2: (RRs: 2) 2406.6              380000 UP      845200      2406.6
DALLAS, TX to CLEVELAND, OH
1: (RRs: 2) 1473.3              667300 NS      341800      1473.3
```

Sample AR Output (.OUT) File Using "All Auto Routes" (column widths adjusted)

The AutoRoutes output file shows the number of participating carriers, total mileage and the route (railroad – junction sequence) information. At the top of the

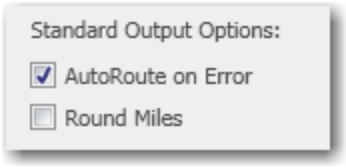
sample output file shown above, there are four output routes from SPLC 191600 (Newark NJ) to 883000 (Los Angeles CA), two originating on CSXT and two originating on NS. Route 1 has a total distance of 3181.6 miles and uses the junction 396640 (East St. Louis, IL). The distance from 191600 to 396640 is 1141.8 miles, and the distance from 396640 to 883000 is 2039.8 miles.

In the AutoRoutes output file, an invalid location or other error in a record in the input file produces a "No autoroutes were found" error message for that record without any additional description:

```
Trip 4: No autoroutes were found.
```

NOTE: The output file of AutoRoutes shown above was opened using Notepad and column widths were adjusted. The column layout will vary depending on the application you use. Output files can be opened in Microsoft Excel – select "All Files" as the file type.

3.6.2 Data Options – Standard Output Options



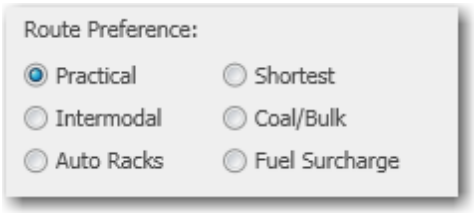
These options are available if **Standard** is the output type. Select **AutoRoute on Error** to have PC*MILER|Rail interpolate missing junctions (and railroads) from incomplete input using AutoRouting where necessary to determine a mileage. This is useful if there are records that "skip" from a location on one railroad to a different location on another railroad. (Normally, these sequences generate an error message and ignore any potential mileage because there's no way of knowing which railroad(s) carried the car between the locations.)

The inferred segments appear in the output file and are used to determine the mileage by railroad and state in reports. This option reduces output errors by using ALK's routing assumptions to connect otherwise unconnected records.

If **Round Miles** is checked, all mileages will be rounded to the nearest whole number. If it is not checked, tenths of miles are shown.

NOTE: You should review the output file and check the frequency and/or seriousness of any diagnostic messages that appear. Depending on how "clean" the data is, you may want to review and edit the original input and then rerun batch processing. See section 3.13, *Correcting Recurring Data Errors*.

3.6.3 Route Options – Route Preference



The default value for Route Preference is always Practical.

- **Practical** routings simulate the most likely movements of general merchandise train traffic. Main lines are preferred to branch lines. A Practical route can sometimes be more circuitous than the shortest possible route.

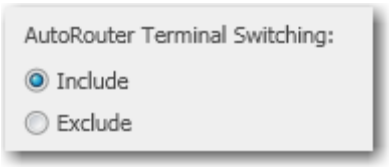
- **Shortest** route calculations find the rail route with the least distance between the stops. For a Standard route, the shortest path within the railroad is determined for each segment. For AutoRoutes, the shortest path across all North American railroads is calculated, irrespective of origin and destination railroad specifications.

- **Intermodal**, **Coal/Bulk**, or **Auto Racks** can be used to determine the exceptional routings that these types of trains sometimes require.

- **Fuel Surcharge** routing is essentially a combination of the Shortest and Practical route formulas (because some railroads use Shortest mileage and some use Practical mileage when figuring their fuel surcharges). It provides mileage suitable for calculating fuel surcharges in conformance with the Surface Transportation Board ruling STB Ex Parte No. 661.

NOTE: **Fuel Surcharge** routing is not available for AutoRoutes.

3.6.4 Route Options – AutoRouter Terminal Switching

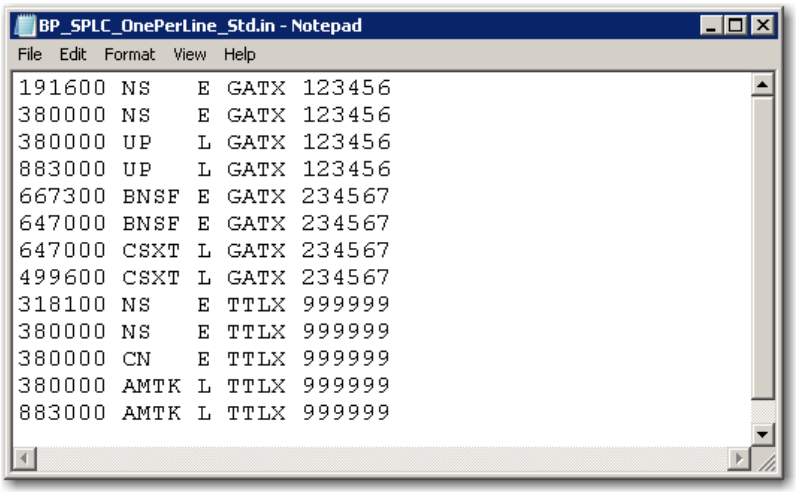


When using AutoRouting, routes with the originating or terminating carrier having a switch move only (common with terminal railroads) may be included or excluded from the list of generated routes, depending on whether **Include** or **Exclude** is chosen.

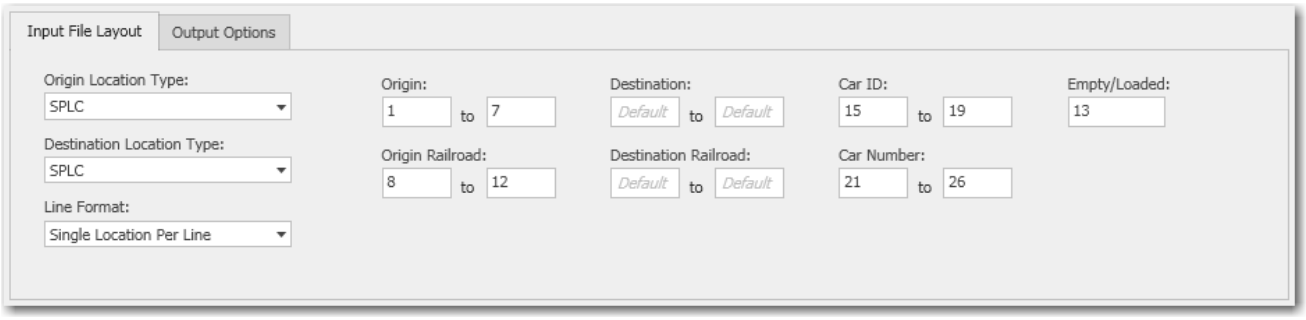
The Terminal Switching option affects the number of routes that are generated. For example, between Los Angeles, CA and Charleston, SC there are nine AutoRoutes generated when switch-move-only carriers are included, and only four generated when these carriers are excluded.

3.7 Sample Input: One SPLC Per Line – Standard Routing

The records in the sample file **BP_SPLC_OnePerLine_Std.in** include one SPLC per line as shown below. From left to right in this file, each record includes a SPLC, a railroad, the empty/loaded status of the car, the initials contained in the car ID, and the car ID number. In this type of one-per-line input, there must be a car number or ID for each record to distinguish where a trip starts and ends. In this sample file, three trips are listed (for car number 123456, 234567, and 999999).



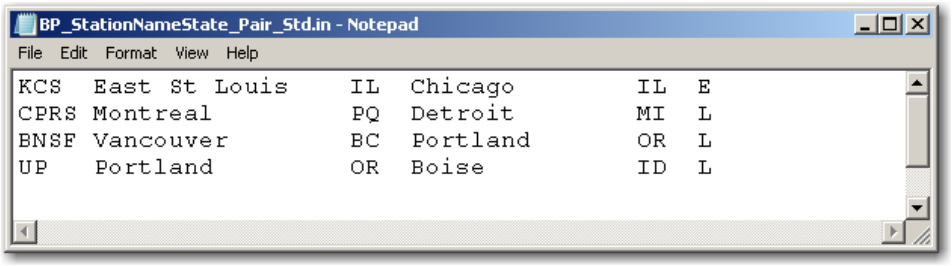
"BP_SPLC_OnePerLine_Std.in" Sample Input File

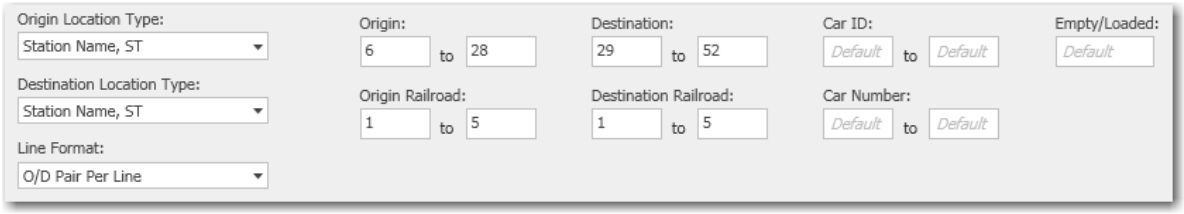


Default Layout Options in the "BP_SPLC_OnePerLine_Std.in" Sample Configuration File

3.8 Sample Input: One O/D Pair Per Line – Standard Routing

Each record in the sample file **BP_StationNameState_Pair_Std.in** includes an origin and a destination in station/state format. From left to right in this file, each record includes a railroad, an origin and a destination in station/state format, and the empty/loaded status of the trip.

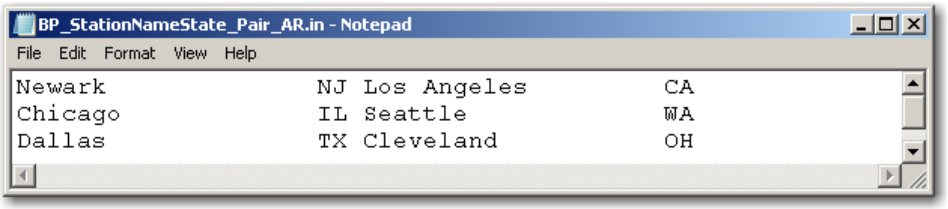




"BP_StationNameState_Pair_Std" Sample Input File and .CFG Layout Options

3.9 Sample Input: One O/D Pair Per Line – AutoRouting

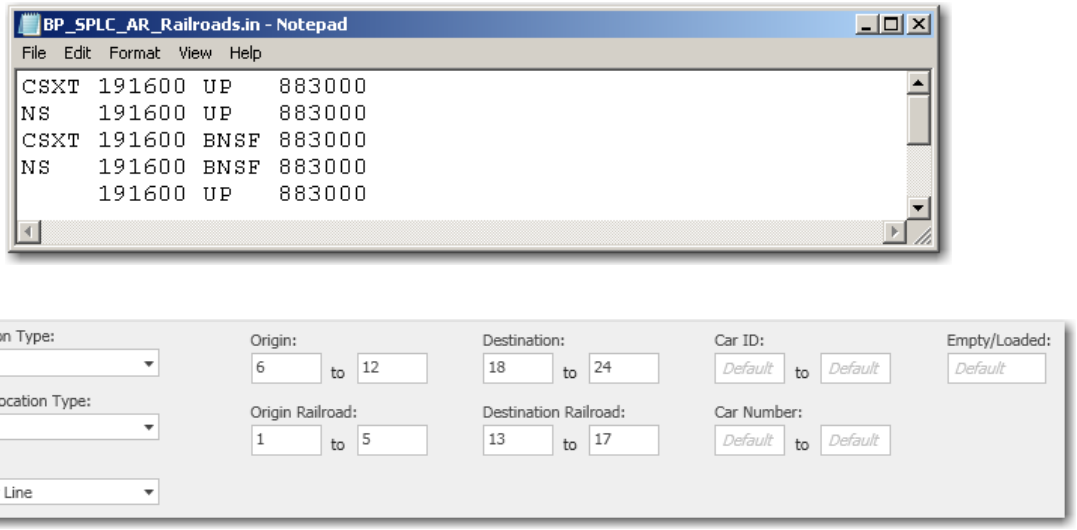
Each record in the sample file **BP_StationNameState_Pair_AR.in** includes only an origin and a destination in station/state format. Because there is no railroad information, all possible routes will be generated.



"BP_StationNameState_Pair_AR" Sample Input File and .CFG Layout Options

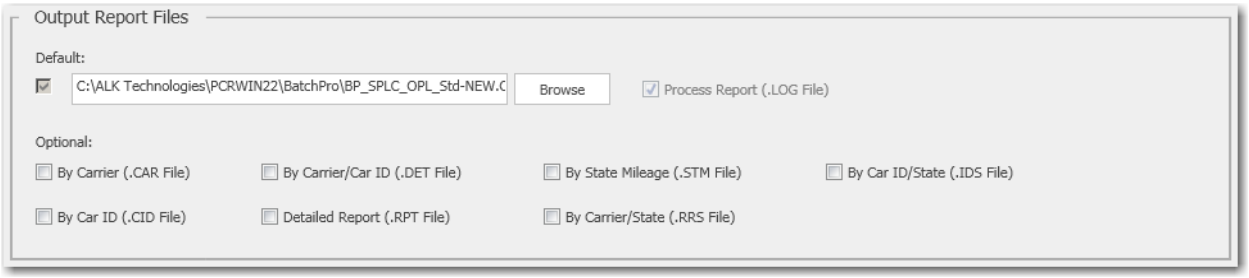
3.10 Sample Input: O/D Pair With Railroads – AutoRouting

Each record in the sample file **BP_SPLC_AR_Railroads.in** includes an origin railroad and SPLC, and a destination railroad and SPLC.



"BP_SPLC_AR_Railroads" Sample Input File and .CFG Layout Options

3.11 Options for Output Report Files



For every input file that BatchPro processes, an output file of mileage with the extension ".OUT" will be generated. Under **Default**, click **Browse** to select a location where the mileage output file will be placed. If a custom location is not specified, by default the .OUT file will always be placed in the same folder as the input file.

Additionally, a log file will always be generated – see section 3.12 below.

For Standard routes, up to seven report files can also be selected under **Optional** – see Chapter 4, *Optional Report Files*, for descriptions of these reports.

```
191600 NS   E GATX 123456     0.0
380000 NS   E GATX 123456   895.8
380000 UP   L GATX 123456     0.0  <-- E/L Change
883000 UP   L GATX 123456  2251.9
667300 BNSF E GATX 234567     0.0  <-- New Car Mark
647000 BNSF E GATX 234567   615.7
647000 CSXT L GATX 234567     0.0  <-- E/L Change
499600 CSXT L GATX 234567  1009.6
318100 NS   E TTLX 999999     0.0  <-- New Car Number
380000 NS   E TTLX 999999   277.4
380000 CN   E TTLX 999999     0.0
380000 AMTK L TTLX 999999     0.0  <-- E/L Change
883000 AMTK L TTLX 999999  2225.8
```

Sample .OUT File (One Per Line Input)

3.12 Automatic Log File

BatchPro automatically generates a log file for each batch file that is run, placing it in the same folder as other output files. The .LOG file is a complete record for reference that includes date/time, input and output file names/locations, options used, and processing information as shown in the sample file below.

```
PC*MILER|Rail BatchPro 22.0.123.0
(c) 2015 ALK Technologies Inc.

Date and Time
    - Start: December 19, 2015 21:36:07
    - End: December 19, 2015 21:36:08

Input IN File:
    - C:\ALK Technologies\PCRWIN22\BatchPro\Sample1_AR.in


Output Report File Root:
    - C:\ALK Technologies\PCRWIN22\BatchPro\Sample1_AR


Configuration Name:
    - Sample1_AR



Route Formula: Practical
  Route Output: All AutoRoutes
  Input Format: O/D Pair Per Line
  Round Miles: Off
  AutoRoute on Error: Off


Total Number of O / D pairs Processed : 200

Number of routes successfully run : 198

Number of routes with errors : 2
```

Sample .LOG File

3.13 Correcting Recurring Data Errors with Override Files

If you are experiencing recurring errors during route entry because the station or railroad you attempted to enter can't be found in the PC*MILER|Rail database, there are override files you can use to correct this problem. These text files are located in the **RailNet** subdirectory of your PC*MILER|Rail installation, usually **C:\ALK Technologies\PCRWIN22\Data\Rail\Base\RailNet**.

The data override files can be used whenever different codes or names for stations in the user's database do not exactly match those registered with the Centralized Station Master files, the source for the PC*MILER|Rail database.

Additionally, the override feature allows users to run routes to new stations created after the latest release of PC*MILER|Rail, by using a neighboring station as a proxy to generate non-error routes with almost correct mileage.

Override files can also be used to create custom location names (use the OVERRIDE.NAM file) and to edit or create junction interchange preferences for interline routing (use the OVERRIDE.JCT file).

Each override file now includes instructions for its use, in comment lines beginning with the pound sign (#) at the top of the file. Additionally, an "Example Override Data.txt" file containing examples is included in the same folder as the override files.

There are six override files for six types of station and railroad input:

OVERRIDE.ERP
OVERRIDE.FSC
OVERRIDE.NAM
OVERRIDE.SCA
OVERRIDE.SPL
OVERRIDE.JCT

These files are blank initially (except for instructions), and may be filled with records (rows of text) in the correct format for each type. The records you add will tell PC*MILER|Rail that "when this is entered, it means that".

The added records must include an input column and a translation column. The input column contains an abbreviation or numerical configuration that a user might enter as a station location or railroad during route entry, and the translation column contains the valid entry for that location that PC*MILER|Rail will recognize because it matches what's in the database.

Follow the steps below to add records to an override file:

1. Find the RailNet folder in your PC*MILER|Rail installation. For a typical installation, go to:

   C:\ALK Technologies\PCRWIN22\Data\Rail\Base\RailNet;

   or if the installation location was customized, search for the **RailNet** folder using Windows Explorer.

2. Right-click on one of the override files and open it using Notepad or Wordpad.

3. In the override file, type your entries, matching the column structure appropriate to the file type (see descriptions for each file type below).

4. To save your changes, select File > *Save* at the top of the Notepad or Wordpad window. The stations, railroads and/or preferences you added will now be valid when you input them during route entry.

Sample records for each file type are shown below. Detailed instructions for adding entries are included at the top of each file, in lines preceded by the pound sign (#).

OVERRIDE.SCA

```
TFM KCSM;
```

The format for the entry must be: old or custom RR (SCAC) in positions 1-4, a blank, the proxy SCAC (recognized by PC*MILER|Rail 22), and a semicolon at the end.

OVERRIDE.FSC

```
ABCD 10000 09999;
```

The format for the entry must be: RR SCAC in positions 1-4, a blank, the new or custom 5-digit FSAC, a blank, the 5-digit proxy FSAC (recognized by PC*MILER|Rail 22), and a semicolon at the end.

OVERRIDE.SPL

```
ABCD 110000 089999;
```

The format for the entry must be: RR SCAC in positions 1-4, a blank, the new or custom 6-digit SPLC, a blank, the 6-digit proxy SPLC (recognized by PC*MILER|Rail 22), and a semicolon at the end.

OVERRIDE.ERP

```
PALMCV      PALMER   MA;
HAGECSXT MD HAGERSTOWMD;
SALT LAKEUT SALLAKCITUT;
```

The format for the entry must be: 11-char ERPC/3-3-3 (new or custom code), a blank, the 11-char (including a 2-character state abbreviation in the last two places) proxy ERPC/3-3-3 (recognized by PC*MILER|Rail 22), and a semicolon at the end.

OVERRIDE.NAM

```
MOOJAW SK MOOSE JAW SK;
YOYO IL   CHICAGO IL;
```

The format for the entry must be: up to 22-char name (new or custom station name), a blank, the up to 22-char (including a 2-character state abbreviation in the last two places) proxy Station Name (recognized by PC*MILER|Rail 22), and a semicolon at the end.

OVERRIDE.JCT

```
BNSF CSXT BHAM  P A;
BNSF CSXT BHAM  C A;
BNSF NS   CHGO  I F;
BNSF NS   CHGO  A F;
```

The columns in this file from left to right are:

- RR1, up to 4 characters followed by 1 blank
- RR2, up to 4 characters followed by 1 blank
- R260 junction code, up to 5 characters followed by 1 blank
- Route type to which the preference will be applied (P=Practical, C=Coal/Bulk, I=Intermodal, A=Auto Racks), 1 character followed by 1 blank
- Type of preference (A=Avoid, F=Favor), 1 character followed by a semicolon

3.14 Error Messages You May Encounter

Error messages you may encounter as you use PC*MILER|Rail-BatchPro are listed in the table below with brief descriptions. Error messages appear in the .OUT output file on the line relevant to the error. If you continue to see the same error message and cannot resolve the problem, please contact ALK Technical Support (see section 2.3).

Error Message	Action/Explanation of Error Code	Average Frequency
"Internal memory error."	**Call Technical Support**	Extremely Rare.
"Invalid argument passed into API function."	**Call Technical Support**	Extremely Rare.
"Error: Previous RR does not serve this location."	Inbound and Outbound Railroads do not junction at this location.	Common; Use "AutoRoute on Error" or AutoRouter.
"Error: Railroad stations are disconnected"	Inbound and Outbound Railroads do not junction at this location.	Common; Use "AutoRoute on Error" or AutoRouter.
"Error: This trip contains no stops."	Either no stops or only 1 stop.	Extremely Common; A prior Geocode has failed.
"Error: Unable to retrieve name information for given stop."	Origin or destination are invalid	Rare; Data Issue.
"No cleanups found for one or more stops in this trip."	Origin and destination combination are invalid	Rare; Geocoding Issue.
"Error: This trip contains no legs."	Origin and destination combination are invalid	Uncommon; Routing Error.
"Error: Invalid network data."	**Call Technical Support**	Extremely Rare; Bad Configuration.
"Error: Invalid min path data."	**Call Technical Support**	Extremely Rare; Bad Configuration.
"Error: This trip contains an invalid leg."	Origin and destination combination are invalid	Uncommon; Routing Error.
"Error: Intermodal stations were found but excluded."	Intermodal is set to exclude but the stop is using an intermodal	Common; Ensure Intermodal Options as intended.
"Error: Station does not have intermodal service."	Route is Intermodal but the stop does not support it.	Common; Ensure Intermodal Options as intended.
"No autoroutes were found."	The AutoRouter cannot generate a valid route given the Stops and Options.	Rare; Most AutoRoutes should succeed unless totally disconnected.
"Routing was cancelled."	The BatchPro run was cancelled.	Extremely Rare; Only when Cancelling Interactive.
"Unknown Error"	**Call Technical Support**	Rare.

PREFIXES:		
"TripError: "	Prefix for a Runtime Trip Error.	
"GeoError:"	Prefix for a Geocode Error in a Single Line.	
"GeoErrorO:"	Prefix for a Geocode Error in the Origin.	
"GeoErrorD:"	Prefix for a Geocode Error in the Destination.	
NOTES AND COMMENTS:		
" Trip Failure, using AutoRouter."	Displays when using the "AutoRoute on Error" option and an Error Occurs.	
" No implcit junctions available. AutoRouting failure."	Displays when there is no valid result from "AutoRoute on Error" attempt.	
"New Car Number"	Comment displaying that there's a new Car Number.	
"New Car Mark"	Comment displaying that there's a new Car Mark (ID).	
"E/L Change"	Comment displaying when the Empty/Loaded status changes.	

3.15 Using BatchPro From the Command Line

The BatchPro application can be run from your PC's command line, without invoking the user interface. This feature is useful for scheduled runs, running a sequence of batch files, or for running BatchPro from another application – for example, executing an overnight batch run for your scheduler.

While running BatchPro from the command line does not allow users to modify the options, it can take a pre-existing input file and configuration file and process the origin/destination pairs without the additional overhead of the UI. Using the command line allows for automation and scripting without the need to pop up a visual element.

NOTE: Configuration files can only be modified in the user interface.

The syntax of opening BatchPro from the command line involves invoking the **ALK.BatchproRail.Desktop.exe** with additional parameters. The .exe can be found in the App folder of the PC*MILER|Rail installation. There are two required parameters and one optional:

-input: – Provide the input file (relative or absolute path), ending in .IN.

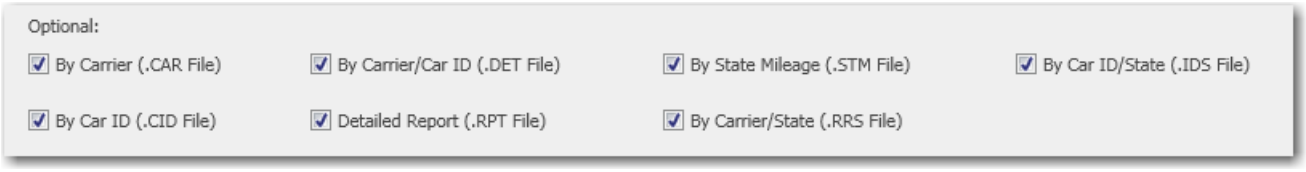
-config: – Provide the name of the configuration file saved or created by the user (without the ".CFG" extension).

-output: – (This parameter is optional.) Provide the (Base) name of the output file if it will be different from the input file. Do not include ".OUT" as all reports are based off of it.

Upon completion, the application will output the same message as the UI does in the bottom right and you may then check the .LOG and .OUT files associated with your input for more detail.

Chapter 4 Optional Report Files

In addition to the mileage output file, BatchPro can generate up to seven report files each time it processes an input file. Under **Output Report Files**, place a checkmark next to the optional report(s) you want to generate. These options are available only when "Standard" is selected as the output type.



To see any generated report, in Windows Explorer navigate to the folder where the output files were placed. Right-click the file name and open it with Notepad or Wordpad.

Samples of each report type are shown below and on the following pages.

4.1 Mileage By Railroad Carrier (.CAR)

The Carrier file (**.CAR**) summarizes mileage by railroad carrier.

```
PC*MILER|Rail BatchPro 22.0.131.0

Mileage Summary Report by Carrier

Carrier     Empty Mi     Loaded Mi     Total Mi
-------------------------------------------------
 NS          1173.2           0.0        1173.2
 UP             0.0        2251.9        2251.9
 BNSF         615.7           0.0         615.7
 CSXT           0.0        1009.6        1009.6
 AMTK           0.0        2225.8        2225.8
-------------------------------------------------
TOTAL        1788.9        5487.3        7276.2
```

*Sample **.CAR** Report File*

4.2 Mileage By Car ID and Railroad (.DET)

The Detailed file (**.DET**) summarizes mileage by both car mark and railroad:

```
PC*MILER|Rail BatchPro 22.0.131.0

Mileage Summary Report by Car I.D. & Carrier

Car Mark Car Num Carrier    Empty Mi    Loaded Mi    Total Mi
-------------------------------------------------------------
  GATX    123456   NS          895.8          0.0       895.8
                   UP            0.0       2251.9      2251.9
                ------------------------------------------------
                Subtotal       895.8       2251.9      3147.7

  GATX    234567   BNSF        615.7          0.0       615.7
                   CSXT          0.0       1009.6      1009.6
                ------------------------------------------------
                Subtotal       615.7       1009.6      1625.3

  TTLX    999999   AMTK          0.0       2225.8      2225.8
                   NS          277.4          0.0       277.4
                ------------------------------------------------
                Subtotal       277.4       2225.8      2503.2

-------------------------------------------------------------
TOTAL                        1788.9       5487.3      7276.2
```

*Sample **.DET** Report File*

4.3 Mileage By Car ID (.CID)

The Car ID file (**.CID**) summarizes mileage by car mark and number:

```
PC*MILER|Rail BatchPro 22.0.131.0

Mileage Summary Report by Car I.D.

Car Mark Car Num    Empty Mi    Loaded Mi    Total Mi
-----------------------------------------------------
  GATX    123456       895.8       2251.9      3147.7
  GATX    234567       615.7       1009.6      1625.3
  TTLX    999999       277.4       2225.8      2503.2
-----------------------------------------------------
TOTAL                 1788.9       5487.3      7276.2
```

*Sample **.CID** Report File*

4.4 Mileage By State or Province (.STM)

The State Mileage file (**.STM**) summarizes empty, loaded and total mileage by state or province:

PC*MILER|Rail BatchPro 22.0.131.0

State Mileage Summary Report

State	Empty Mi	Loaded Mi	Total Mi
CA	0.0	596.6	596.6
CO	0.0	189.3	189.3
IA	0.0	353.2	353.2
IL	30.4	354.2	384.6
IN	305.5	0.0	305.5
NE	0.0	442.9	442.9
NJ	67.5	0.0	67.5
NV	0.0	212.7	212.7
OH	291.4	0.0	291.4
PA	398.6	0.0	398.6
UT	0.0	386.4	386.4
WY	0.0	453.8	453.8
AL	0.0	88.5	88.5
FL	0.0	804.7	804.7
LA	258.5	43.8	302.3
MS	0.0	72.6	72.6
TX	357.2	0.0	357.2
AZ	0.0	387.1	387.1
KS	0.0	473.2	473.2
MI	79.8	0.0	79.8
MO	0.0	198.6	198.6
NM	0.0	429.7	429.7
TOTAL	1788.9	5487.3	7276.2

*Sample **.STM** Report File*

4.5 Mileage By Carrier and State (.RRS)

The Railroad-State file (**.RRS**) summarizes empty, loaded, and total mileages by carrier and state:

PC*MILER|Rail BatchPro 22.0.131.0

State Mileage Summary Report by Carrier

Carrier	State	Empty Mi	Loaded Mi	Total Mi
NS	IL	30.4	0.0	30.4
	IN	305.5	0.0	305.5
	NJ	67.5	0.0	67.5
	OH	291.4	0.0	291.4
	PA	398.6	0.0	398.6
	Subtotal	1093.4	0.0	1093.4
UP	CO	0.0	8.5	8.5
	IA	0.0	333.1	333.1
	IL	0.0	136.2	136.2
	NE	0.0	442.9	442.9
	NV	0.0	212.7	212.7
	UT	0.0	386.4	386.4
	WY	0.0	453.8	453.8
	Subtotal	0.0	1973.6	1973.6
BNSF	TX	357.2	0.0	357.2
	Subtotal	357.2	0.0	357.2
CSXT	FL	0.0	804.7	804.7
	LA	0.0	43.8	43.8
	MS	0.0	72.6	72.6
	Subtotal	0.0	921.1	921.1
AMTK	CA	0.0	318.3	318.3
	CO	0.0	180.8	180.8
	IA	0.0	20.1	20.1
	IL	0.0	218.0	218.0
	KS	0.0	473.2	473.2
	MO	0.0	198.6	198.6
	NM	0.0	429.7	429.7
	Subtotal	0.0	1838.7	1838.7
TOTAL		1450.6	4733.4	6184.0

*Sample **.RRS** Report File*

4.6 Mileage By Car ID and State/Province (.IDS)

The ID-State file (**.IDS**) summarizes empty, loaded and total mileages by both car ID and state or province:

```
PC*MILER|Rail BatchPro 22.0.131.0

State Mileage Summary Report by Car I.D.

Car Mark Car Num   State      Empty Mi     Loaded Mi     Total Mi
-------------------------------------------------------------------
GATX     123456      CA            0.0         278.3         278.3
                     CO            0.0           8.5           8.5
                     IA            0.0         333.1         333.1
                     IL           15.2         136.2         151.4
                     IN          152.0           0.0         152.0
                     NE            0.0         442.9         442.9
                     NJ           67.5           0.0          67.5
                     NV            0.0         212.7         212.7
                     OH          262.5           0.0         262.5
                     PA          398.6           0.0         398.6
                     UT            0.0         386.4         386.4
                     WY            0.0         453.8         453.8
                    ----------------------------------------------
                Subtotal         895.8        3147.7        3147.7

GATX     234567      AL            0.0          88.5          88.5
                     FL            0.0         804.7         804.7
                     LA          258.5          43.8         302.3
                     MS            0.0          72.6          72.6
                     TX          357.2           0.0         357.2
                    ----------------------------------------------
                Subtotal         615.7        1625.3        1625.3

TTLX     999999      AZ            0.0         387.1         387.1
                     CA            0.0         318.3         318.3
                     CO            0.0         180.8         180.8
                     IA            0.0          20.1          20.1
                     IL           15.2         218.0         233.2
                     IN          153.5           0.0         153.5
                     KS            0.0         473.2         473.2
                     MI           79.8           0.0          79.8
                     MO            0.0         198.6         198.6
                     NM            0.0         429.7         429.7
                     OH           28.9           0.0          28.9
                    ----------------------------------------------
                Subtotal         277.4        2503.2        2503.2

-------------------------------------------------------------------
TOTAL                        1788.9        5487.3        7276.2
```

*Sample **.IDS** Report File*

4.7 Detailed Report (.RPT)

The Detailed Report option generates a Detailed Geocode Report for each origin/destination pair that is processed. This file is intended for customers who want to review individual routes from the batch run.

IMPORTANT NOTE: Selecting the Detailed Report output option will slow down the batch process. The resulting file can be extremely large, as it will contain every station location and all leg and cumulative miles along the route, followed by a summary report by railroad and state for every origin-destination pair in the input file. Hence it is recommended that this report be generated only for small batch runs.

The contents of this report are the same as in the Detailed Geocode Report in the PC*MILER|Rail user interface. The output file is tab delimited and will align into appropriate columns when opened with Microsoft Excel (be sure to choose "All Files" in the file type drop-down in Excel, otherwise you won't see the .RPT file listed).

For each O/D pair, the .RPT lists all points on the route, along with leg and cumulative mileage. Each O/D pair route is demarcated with a dashed line (-----), under which the origin, destination and corresponding line number from the .OUT file is listed. A state mileage summary and breakdown of mileage by railroad is included at the end of each route's report.

```
Report for Line# 1 in OUT file:
DETAILED REPORT

Newark, NJ (NS) to Los Angeles, CA (UP)
3147.7 Miles, Practical, Include Intermodal-Only

RR      ST      Station Name    Leg Miles       Total Miles

Origin: Newark, NJ
NS      NJ      Newark Poinier St    1.3             1.3
NS      NJ      Newark Aei           1.1             2.4
NS      NJ      Hillside             1.3             3.7
NS      NJ      Townley              1.7             5.4
NS      NJ      Aldene               1.7             7.1
NS      NJ      Aldene               0.8             7.9
NS      NJ      Cranford Jct         1.2             9.1
NS      NJ      Clark                1.3            10.4
NS      NJ      Goodman              1.7            12.1
NS      NJ      Potter               1.9            14.0
NS      NJ      Oak Tree             1.7            15.7
NS      NJ      South Plainfield     1.7            17.4
NS      NJ      New Market           2.4            19.8
NS      NJ      Middlesex            2.0            21.8
NS      NJ      South Bound Brook    1.9            23.7
NS      NJ      Manville             3.0            26.7
NS      NJ      Royce                2.0            28.7
```

*Sample **.RPT** Report File*

STATE	MILES
CA	278.3
CO	8.5
IA	333.1
IL	151.4
IN	152.0
NE	442.9
NJ	67.5
NV	212.7
OH	262.5
PA	398.6
UT	386.4
WY	453.8

RR	MILES
NS	895.8
UP	2251.9

TOTAL	3147.7

State Mileage Summary at the End of a Route in the Detailed Report