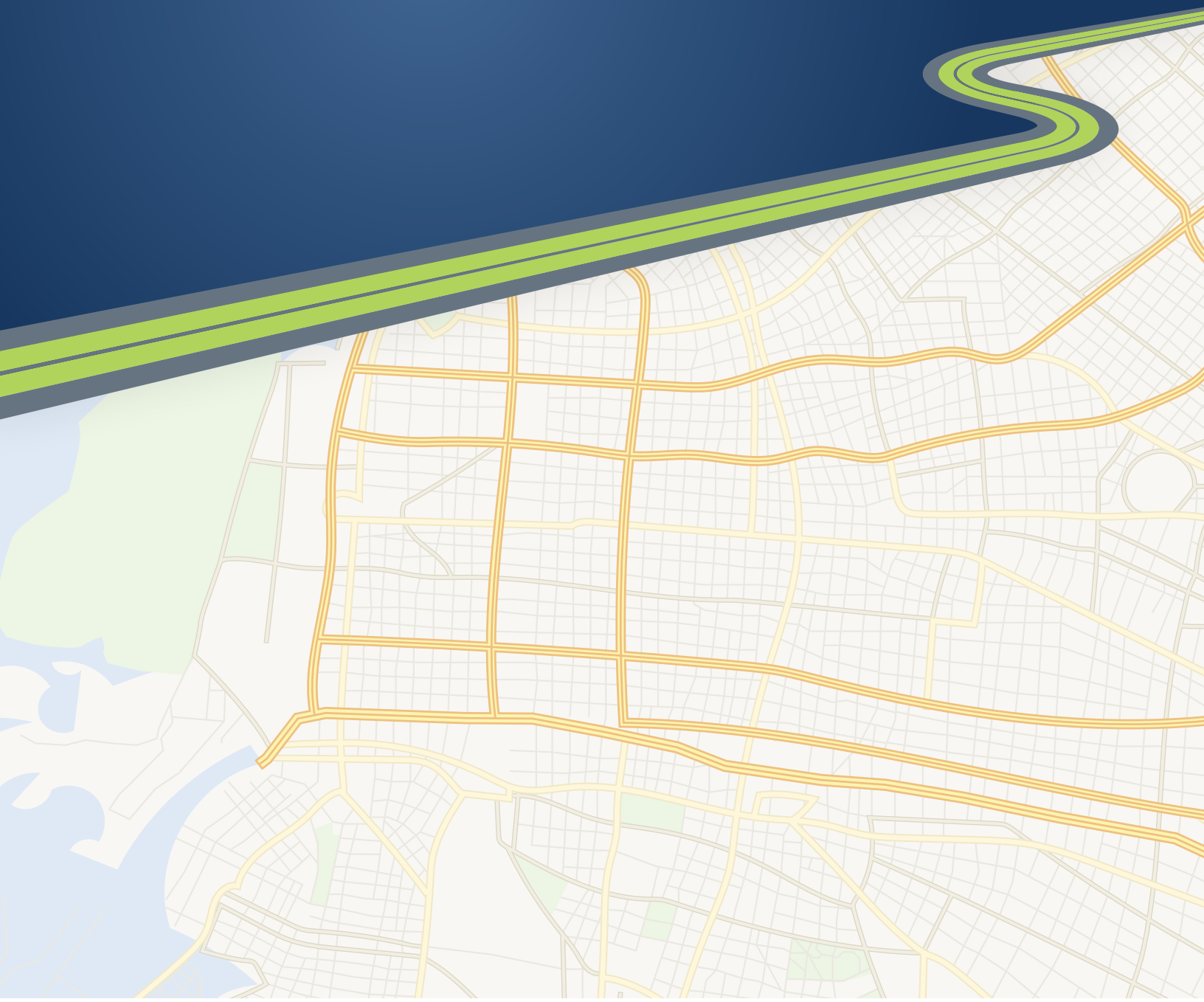
User's Guide

For AIX, Solaris, HP-UX and Linux

PC*MILER® Unix 29



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DO **NOT** COPY THE COMPACT DISK (CD) OR THIS DOCUMENTATION. THE SOFTWARE LICENSE CONTAINED IN THIS MANUAL LIMITS THE NUMBER AND TYPE OF COMPUTER ON WHICH YOU CAN LEGALLY USE PC*MILER. BY OPENING AND USING THE PC*MILER CD, YOU HAVE ACCEPTED THE TERMS AND CONDITIONS OF THE LICENSE AGREEMENT. ALK TECHNOLOGIES, INC. WILL TAKE PROPER LEGAL ACTION AGAINST ANY ILLEGAL USE OF THE PC*MILER SOFTWARE. HOWEVER, YOU MAY MAKE ONE COPY OF THE CD **FOR BACK-UP PURPOSES ONLY**.

1.1 What is PC*MILER?

PC*MILER is a point-to-point mileage generation and routing package for the calculation of highway miles and driver instructions over the United States, Canadian, and Mexican highway systems. PC*MILER provides you with unlimited access to mileage and routes for a single personal computer or a network installation.

PC*MILER calculates point-to-point mileage for an origin – destination pair with up to 29 intermediate stop-off points. It provides leg and cumulative mileage, time and cost estimates, a state-by-state mileage summary, and either Practical, Shortest, National Network, Toll Discouraged, or 53'/102" Trailer mileage over the entire North American system of truck-usable highways.

PC*MILER for UNIX also includes the following major features:

- Optional Address Entry & Street Level Routing
- 29 Stop-off Points
- Detailed Driving Instructions
- Customizable Trip Settings
- Optimal Route Sequencing
- Hub Distance Generator
- Optional PC*MILER®|HazMat Routing Module

- Custom Place Manager
- Latitude-Longitude Points Enabled
- PC*MILER®|Connect, an optional Mileage & Routing Shared Library
- PC*MILER®|BatchPro, an optional batch processing application for large numbers of origin-destination pairs
- PCMServe, an optional legacy server type application which permits the integration of PC*MILER with other software

See the *ALK's Interface Modules* Appendix at the end of this manual or contact ALK or your sales agent for details about the optional products mentioned above.

NOTE: The PC*MILER|Mapping graphics package is not available for UNIX systems.

1.2 What can PC*MILER be used for?

Depending on which PC*MILER system you have, you can use PC*MILER for:

- Mileage calculations for Shortest, Practical, National Network, Toll Discouraged, 53'/102" Trailer, and Hazardous Materials routing
- Dispatching/Routing
- Driver pay
- Rate determination
- Instant customer quotes
- Fuel tax reporting
- Trip time and/or cost estimation
- Empty and loaded mile reporting
- Sequencing stop-offs in optimal order
- Frequent bill auditing
- IFTA and IRP auditing
- FHWA safety auditing

1.3 Recent Enhancements

Added in Version 27:

- ***ENHANCED!...*** **Routing Improvements in North America.** Routing improvements are a major part of each PC*MILER release and each annual version release confirms our commitment to maintaining the quality of PC*MILER's truck-specific routing database. Over the past several years, ALK has added many routing enhancements that have improved PC*MILER's truck-specific database, mileage calculations and driving directions.

Added in Version 25:

- **Geocode and Route to Mexican Postal Codes** – Mexican Postal Codes are now accessible in PC*MILER. There are over 25,000 postal codes in the database that provide comprehensive coverage throughout Mexico. (The database includes unique codes as well as the alternate names accepted for each unique code.) See section 3.1.7.
- **User Control of Pick List Generation** – A new setting in the user.cfg file turns pick list generation on or off. See section 3.1.2.
- **Updated Dangerous Goods Restrictions/Designations in Canada** – Users of PC*MILER|HazMat will see a significant improvement in routing results when generating routes for dangerous goods throughout Canada. Through an extensive research project and the use of feedback from our users, ALK focused on 30 major Canadian cities – selected based on population, the existence of major industrial centers, and the number of regional PC*MILER customers – to update these restrictions and designations. See section 4.6. *(Hazardous Material Routing Requires Add-On Module)*
- **Updated Weight Restrictions** – Updated weight restriction, weight allowance, and commercial vehicle restriction information provided by state and local municipalities has resulted in significant routing improvements in 36 jurisdictions throughout the U.S. and Canada.
- **Improved Time Calculations For Routes With Updated Road Speeds** – When PC*MILER calculates a route, the estimated travel time depends heavily on road speeds according to road. Prior to the release of Version 24 a thorough review of all road speeds in the U.S., Mexico and Canada was implemented. Data was gathered from State DOT's, State Police Departments, State Highway Patrol Departments, The Census Bureau, and State Highway Authorities. A number of road speed updates in the U.S. were incorporated into the PC*MILER database for improved accuracy.

1.4 How does PC*MILER generate mileage and routes?

Following is a description of the PC*MILER database, and how the program calculates distances and routing.

1.4.1 The PC*MILER Highway Database

All PC*MILER products are based on ALK Technologies' proprietary computer representation of the North American highway system. The mileage contained in PC*MILER are derived from official State highway maps, State DOT maps, county maps, local maps, and information received from thousands of industry contacts. All Interstate, Federal and all truck-usable State highways are included.

PC*MILER Version 29 data features thousands of new and updated North American road miles and locations including: **bridges and tunnels**, **border crossings**, **highway exits**, **truck stops**, **state weigh stations**, **CAT Weigh Scale stations**, all **year-2015 five-digit US ZIP codes**, all US Department of Defense **military installations**, **commercial truck restrictions** in the United States, Canada, and Mexico, plus all **highway junctions** and hundreds of thousands of **cities**, **towns**, and **points of interest**.

With the purchase of separate add-on data modules, updated databases of **Canadian Postal Codes**, **SPLC**, and **comprehensive U.S. federal, state, and local hazardous material restrictions and designations** are available as well. In addition, ALK's **PC*MILER|Streets add-on data module** can be purchased for address-to-address routing (see below).

1.4.2 PC*MILER Local Street Address Data

ALK's PC*MILER|Streets local street database, available as an add-on module for use with PC*MILER, contains over **139 million street addresses** in the United States and **30 million** in Canada. Streets data enables you to generate door-to-door routes and mileage. (Note that Canadian street-level data is sold separately.)

1.4.3 Distance Calculation

Distances and routing directions are calculated by first determining which roads a vehicle will travel over to get between two points and then adding up the distances over each section of road to arrive at a total mileage, similar to the manual task that one might follow if using an atlas.

1.4.4 PC*MILER Practical Routes

The PC*MILER Practical Route represents distances and driving routes that a vehicle would normally take to minimize time and cost. Practical routes model the trade-off between taking the most direct path and staying on major, high quality highways. In this sense, interstate highways are given a higher priority than toll roads, which in turn are given a higher priority than secondary highways, and so on. Routing instructions and mileage can be used when actual travel distances and directions are needed.

PC*MILER Practical routings consider distance, road quality, terrain, height and weight restrictions, urban/rural classifications, truck-restricted roads, and designated principal and secondary through routes.

PC*MILER Practical Route mileage and state-by-state mileage breakdowns can be used to supplement your regular fuel tax reporting documents for many states. Several state audit departments have purchased licenses to incorporate PC*MILER into their audit procedures.

NOTE: A PC*MILER user may still be assessed additional taxes even by those states using PC*MILER in their audit procedures. However, your chances of being assessed additional taxes greatly diminishes by utilizing a computerized mileage system in conjunction with your driver logs, trip sheets, invoices, and bills of lading.

In order to minimize your chances of significant tax assessments, you must verify that the PC*MILER-generated route is the *same* as that reported on your driver logs and/or trip sheets. In addition, the carrier must add the appropriate vicinity miles to the PC*MILER generated mileage so that the following equation is true:

TOTAL ODOMETER MILES = PC*MILER Miles + Vicinity Miles

NOTE: PC*MILER accounts for some vicinity miles if non-Keypoints (generally ZIP code locations and/or place names not associated with the downtown metropolitan area) are used as stop-off locations.

ALK Technologies continues to work closely with the member states of the International Fuel Tax Agreement (IFTA) and the International Registration Plan (IRP). Currently many IFTA/IRP states are using PC*MILER as an auditing tool in their fuel and mileage tax audit procedures.

1.4.5 PC*MILER Shortest Routes

PC*MILER's Shortest Route represents distances and driving routes that a vehicle would take to minimize total distance traveled while still following a reasonable route. For instance, Shortest Route mileage and routes will also avoid

truck-restricted roads and, in some cases, may favor a beltway rather than traveling directly through a city.

ALK continues to maintain that carriers and shippers alike would all be better served by using a mileage software package based on *actual miles traveled* (i.e. similar to those generated using the PC*MILER Practical Route option), which would more accurately reflect true transportation costs.

1.4.6 PC*MILER National Network Routes

PC*MILER National Network routing represents distances and driving routes which are most reasonable and legal for the larger trucks authorized by the Surface Transportation Assistance Act of 1982.

The National Network routing option routes on the National Network **only to the extent possible**. Given that many areas are not directly served by the National Network, the origin and stop-offs of your route may not be on the National Network. In these cases PC*MILER will take the shortest reasonable path from the origin and stop-offs to the Network. National Network mileage tend to be higher than Shortest or Practical routings.

The National Network is a government-designated system of highways originally established by the Surface Transportation Assistance Act of 1982. This routing option is based on the federally-designated National Network system updated in the April, 1992 Code of Federal Regulations, Part 658, Appendix A. The National Network includes the Interstate System (several minor segments are not included), and many selected US and state highways.

These designated highways permit, at a minimum, 102 inches wide, single 48 ft. trailers and 28 ft. double trailers. The Interstate system and most, **but not all**, remaining designated routes are open to 80,000 pound vehicles. Certain states, notably Arkansas and Mississippi, have designated certain National Network segments with less than an 80,000 pound capacity.

Highways continue to be added to the National Network by federal and state governments. Future releases of the PC*MILER database will reflect the most current information available.

In addition to the National Network highways, *access routes* and *access policies* are components of routing STAA dimensioned trucks. The federal government has mandated that no state may prohibit travel from the National Network for a minimum of 1 road mile unless safety restrictions apply. Additionally, no state may deny reasonable access to terminals and facilities for food, fuel, repairs and rest.

Several states maintain more generous access policies and lists of specifically designated access routes to terminals and facilities. (See the Appendix for the current status of access policies. For detailed information about pre-approved access routes, contact the individual states). Should you need to travel beyond the National Network and beyond the access roads, you must acquire the proper permit.

NOTE: These suggested National Network routings are based on official highway maps, the Code of Federal Regulations, and information provided by state governments. It is provided without a warranty of any kind. The user assumes full responsibility for any delay, expense, loss, or damage which may occur as a result of its use.

NOTE Also: There are no National Network road segments in Mexico and Canada.

1.4.7 PC*MILER 53'/102" Trailer or Twins Routing

Because every mile equals money, PC*MILER now offers enhanced routing specifically for 53'/102" trailers or 28' tandem trailers ("twins"). The calculations for these routes are based on National Network routing, with the addition of roads that permit 53' trailers or twins.

The regulations that govern the routing of trucks in North America are a function of weight, height, number of axles, distance between axles, number of trailers, and commodity. These regulations take two principal forms: restrictions and designations. In the case of designations, trucks may deviate from the designated road network, on any road that is not otherwise restricted, to access points of loading, unloading and services.

Under a 1991 U.S. federal law known as the STAA, the most important distinction in truck designations is between 96" wide, 48' long trailers on the one hand and 102" wide, 53' long trailers (and twin 28' long trailers) on the other hand. When the 53' Trailer and Twins routing option is used in PC*MILER, PC*MILER's routing algorithm switches to favoring roads designated by the states for "oversize" trucks (meaning over 96" wide or over 48' long).

In PC*MILER, the routing designations for the following equipment types are included in the 53' Trailer or Twins (formerly named "53' Trailer") routing category:

- double trailers no more than 28' long and 102" wide;
- semi-trailers longer than 48' or wider than 96", but no longer than 53' and no wider than 102".

Detailed Route reports for PC*MILER 53' Trailer and Twins routes warn that a road is "Not Designated" if that road is necessary to reach an origin, destination

or stop-off outside of the maximum access distance for that state. If such a warning appears for a route, then a legal route for 53' equipment is either not possible under current state designations or would be so circuitous that you should either consider assigning smaller equipment or petitioning the state to designate a more direct access route. Users should check the legal requirements on these roads because they vary; for example, delivery may be legal, but stopping for food or services may not be.

Three "Not Designated" Warnings in a Detailed Route Report

1.4.8 PC*MILER Toll Discouraged Routes

For the convenience of carriers who desire routings which avoid long stretches of toll roads, ALK provides a Toll Discouraged routing option. Based on PC*MILER's Practical Route option, routes generated using this option will tend to avoid long stretches of toll roads, but will not take long, impractical detours to avoid toll bridges and tunnels. For example, a routing from Boston, MA to Albany, NY will avoid the Massachusetts Turnpike, but a routing from Camden, NJ to Philadelphia, PA will include a toll bridge.

1.5 Additional Options

PC*MILER includes the additional features listed below. For complete descriptions, see the sections in this *User's Guide* referenced for each one.

For alternate keystrokes that emulation users can use in place of function keys, see section 2.9, *Alternate Keys for UNIX (AIX, Solaris, HP-UX or LINUX).*

• Individual stop and leg settings (<Alt-P>)
(See sections 4.4 and 4.5)

The stop-off time and cost for individual stops on a route may be set by the user. Typing **<Alt-P>** invokes a dialog with one line which may be edited for each stop on the stop list.

Also, each leg of the trip may be labeled "L" for loaded or "E" for empty to indicate either a loaded move or a back haul. A per-mile cost for loaded and empty legs may be set in the Parameter Menu (**<Alt-F3>**).

Loaded and empty mileage are included in the Detailed Route Report *(see section 4.1).* In addition, loaded and empty state mileage is summarized in the State Mileage Report *(see section 3.12).*

• Parameter Menu (<Alt-F3>)
(See section 4.5)

A Parameter Menu allows you to define the following default values that are used in PC*MILER calculations of time and cost estimates for each route:

- Miles per hour for various road types, by individual state.
- Default time and cost for all stops that are not edited individually using **<Alt-P>** as described above (the default is 0 if not manually edited).
- Cost-per-mile value for trip legs that have been designated as "Empty" or "Loaded" (the default is $1.36 for both empty and loaded legs if not manually edited).

The Parameter Menu also includes an option that restores the previous set of values that was saved to disk.

• Printer options (<Alt-O>)
(See section 4.12)

Users may set and save these printer options:

- **Select Printer Port** allows users attached to more than one printer to set and change their printer queues.
- **Printer Lines per Page** allows users to set the number of lines per printer page so that reports will be laid out properly on different printers.

• Improved route saving and loading (<Alt-S>, <Alt-L>)
(See section 4.11)

All parameters affecting the route are saved along with the route when **<Alt-S>** is used. This means that in addition to the stops, the following information is saved: route options, route parameters, individual stop and leg settings, and reports. When a route is saved to an existing file, the user will be prompted to append, overwrite or cancel. Appending is helpful for tallying total mileage at regular intervals. The maximum number of stops allowed on one route is 29.

When a route is loaded from disk, all the settings used to create it will be restored. If the route was run before being saved, it does not need to be rerun to see reports. The trip identifier field is displayed in the pick list of saved routes along with the file name.

• Hub mode report
(See section 4.9)

The state and route reports are available in Hub mode. Hub mode calculates the distance to each stop from the origin of a route (the origin is always the first stop on the stop list.)

• Page ejecting (<Ctrl-F9>)

Users can cause the printer to eject a page using **<Ctrl-F9>**. Use in conjunction with **<Alt-F9>** which appends multiple reports together without page breaks.

• Reversing the order of stops (<Ctrl-F10>)
(See section 4.8)

The order of the stops on the stop list can be reversed. This feature is especially useful when used in conjunction with route sequencing.

• Route Optimization (<Alt-F10>)
(See section 4.7)

The order of stops in a stop list can be resequenced into the most efficient driving order. In a resequenced trip, the Origin or first stop listed will not be changed. You can choose between resequencing using a 'Thru All' option (all stops plus the final destination are sorted) or a 'Destination Fixed' option (the origin and destination both remain fixed and all intermediate stops are reordered).

1.6 Getting Started with PC*MILER

To get started with PC*MILER, begin with the installation instructions provided in Chapter 2. **ALL users should review Chapter 2 before installing PC*MILER.**

Chapter 3 details the basic operation of PC*MILER to get you up and running.

Chapter 4 describes all the special additional features found in PC*MILER.

Chapter 5 provides troubleshooting procedures and PC*MILER service and support information.

Chapter 6 provides a general introduction to ALK Technologies, Inc.

Please consult Chapter 5, "Troubleshooting", before contacting ALK Technologies for technical support. You may find an answer to your question!

2.0 INSTALLATION and STARTUP

This chapter will tell you how to install and start PC*MILER on your UNIX server. It includes the following sections:

2.1 Notes and Warnings (PLEASE READ)

2.2 Requirements

2.3 The PC*MILER Installation CD
(a description of what's on the PC*MILER Multi-Platform Product Line Installation CD)

2.4 Installation Instructions
(concise instructions for System Administrators)

2.5 Running PC*MILER Version 22 + Products
(special instructions for PC*MILER Version 22 and higher products)

2.6 Detailed Installation Instructions for the Novice UNIX User

2.7 Installing To a Directory Other Than the Default

2.8 Installing Additional User Licenses (all platforms)

2.9 Alternate Keys for UNIX (AIX, Solaris, HP-UX or LINUX)

2.10 Parameters and Options Defined

2.11 Starting PC*MILER

2.1 Notes and Warnings (PLEASE READ)

NOTE: A Registration Code is needed from ALK Technologies before installation.

Before installing PC*MILER, you will have to call ALK Technologies at **(609) 683-0220 ext. 2** to obtain a registration number. This code will give you access to the PC*MILER products you have purchased. If in the future you purchase any additional products, you will be given another registration number that unlocks those new products. If you are adding a new product to your previously installed PC*MILER, you do not have to reinstall the main PC*MILER Interactive program. (This program is referred to as the "Basic Fileset" during installation.)

GENERAL UPGRADE AND INSTALLATION NOTES

Upgrading your operating system is generally universally recommended, but there is the unlikely possibility that the update may conflict with other software that you run. You should consult your system administrator and/or any other program vendors before upgrading your OS. (See the Appendix *Operating System Upgrades, Math and Runtime Libraries* for more specific information.)

Generally it is safe to attempt to install PC*MILER as long as there is enough available hard disk space. All files are installed to a **../pcm290** directory with the exception of up to two small scripts that can get created in **/usr/bin**: **pcmiler** and **pcmbatch**.

WARNING: If PC*MILER is critical to your business, do not remove your previous version of PC*MILER until Version 29 is running on your system.

Minimum Operating System Levels:

AIX:
Version 5.3.8 or higher.

Solaris:
Solaris 10 (5.10)

NOTE: PC*MILER v. 29 may run on earlier versions of Solaris, ALK was not able to verify backward compatibility.

HP-UX:
B.11.31 or higher

Linux:
Developed Under Fedora Core 4 (kernel version 2.6.11).
Note: For Ubuntu servers, only 32-bit is currently supported.

Disk Space Requirements

You may install PC*MILER Version 29 under any directory that you choose. It is strongly recommended that you first check for available free disk space. Filling the wrong area of a Unix Server's drive to near capacity can cause a server to become unstable. We strongly recommend that you install PC*MILER to a directory below your **/usr** directory. If you are not familiar with your computer system, we encourage you to read section 2.6, *Detailed Installation Instructions for the Novice UNIX User*.

Space Requirements for	*Megabytes*
Base PC*MILER Interactive Program	720 MB
PC*MILER with SPLC add-on	722 MB
PC*MILER with Canadian Postal Codes	754 MB
PC*MILER|BatchPro add-on	1 MB
PCMServe add-on	4 MB
PC*MILER|HazMat add-on	1 MB
PC*MILER|Connect Shared Library add-on	4 MB
PC*MILER|Streets add-on	820 MB

NOTE: PC*MILER|BatchPro, PCMServe, and PC*MILER|Connect share common components. Space requirements are lowered if they are installed together.

NOTE: PC*MILER|Connect Shared Library is referred to as "PC*Miler Server" in the installation script and in some PC*MILER documentation.

IMPORTANT — Reinstallation and Add-On Installation

Reinstalling the Version 29 PC*MILER Interactive program (the "Basic Fileset") will overwrite any changes to routing options that you have made to your PC*MILER program. If in the future you install any additional PC*MILER products, be careful to respond "n" when prompted to install the Basic Fileset by the installation script. See the Appendix *Maintaining Your PC*MILER Installation* for more information on PC*MILER options files.

IMPORTANT — If Parent Directory Is Not /usr/local

If during installation you specified a parent directory other than **/usr/local** you will have to add the **PCM_DATA** environment variable to the startup script to have PC*MILER start automatically for all users.

To do this, edit the PC*MILER startup script in the /usr/bin directory, setting PCM_DATA to the top level of your pcm290 directory. Add to the beginning of line one (this assumes you installed to /usr/lib):

PCM_DATA=/usr/lib/pcm290/ (⇐ The trailing slash is required)

Example:
PCM_DATA=/usr/lib/pcm290/ LD_LIBRARY_PATH=/usr/lib/pcm290
/usr/lib/pcm290/pcmiler $*

FORMAT NOTES

PC*MILER city names:

For Versions 15 - 29 of PC*MILER, the character length of cities in the PC*MILER database has increased from 22 characters to 95. City name returns are:

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

Mexican city names:

The format for entering a Mexican city name now includes the two-letter ISO code for the Estado, e.g. “Puerto Vallarta, JA”. Use the **<F3>** key to find Estado abbreviations.

Canadian Postal Code Entry (Optional Data Add-on):

When typing in Canadian Postal Codes as stops in PC*MILER Interactive or passing them to PC*MILER|BatchPro, PCMServe, or PC*MILER|Connect, the format is (where L =Letter, # =Number):

L#L<space>#L#

Standard Position Location Code (Optional Data Add-on):

When entering SPLC as stops in PC*MILER Interactive or passing them to PC*MILER|BatchPro, PCMServe, or PC*MILER|Connect, you must start each stop with “splc” followed by the 6 or 9-digit SPLC. For example, to enter the SPLC for Cleveland, Maine you would enter:

Splc111001000

Street Level Data (Optional Data Add-on):

When entering addresses as stops in PC*MILER Interactive type in a semi-colon ‘;’ and you will be presented with an address entry field. For passing addresses to PC*MILER|BatchPro, PCMServe, or PC*MILER|Connect, use a semi-colon as the address delimeter 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 – Removal of FIPS Codes:

In previous releases of PC*MILER (Version 14 or less), 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.

2.2 System Requirements

Hardware and software requirements for PC*MILER for UNIX/LINUX are:

ENVIRONMENT: Stand-alone or networked workstations.

PLATFORMS: **IBM AIX** – 5.3.8 or higher
Oracle Solaris – Solaris 10 (5.10)
Linux – Kernel 2.6.11 or higher (with glibc-2.3.5-10 or higher)
*(***NOTE:** *If running **Red Hat Linux**, v. 8.0 or higher is required)*
HP-UX – B.11.31 or higher

REQUIREMENTS: 256 RAM

Hard Disk Space as follows:
PC*MILER: 720 MB
PCMServe: 4 MB
PC*MILER|BatchPro: 1 MB
Canadian Postal Codes: 14 MB
Standard Point Location Codes: 2 MB
PC*MILER|Streets: 820 MB
PC*MILER|HazMat: 1 MB
PC*MILER|Connect: 4 MB

UNIX COMPILERS: The following compilers are supported when using PC*MILER|Connect:
AIX: IBM XL C/C++ Enterprise Edition for AIX, version 9.0 or higher
HP-UX: HP C/aC++ for Integrity Servers B3910B A.06.20 or higher
Oracle Solaris: gcc (GCC) 4.9.2

LINUX COMPILERS: The following compilers are supported when using PC*MILER|Connect:
Linux: gcc version 4.0.2 20051125 (Red Hat 4.0.2-8) or higher

2.3 The PC*MILER Installation CD*

The PC*MILER Installation CD* contains the entire PC*MILER Unix Platform product line for IBM-AIX, HP-UX, Sun-Solaris, and Linux. The Installation CD contains the following PC*MILER Unix Platform Products:

- **PC*MILER® Interactive** – Required for all installations, this installation provides the Highway Network Data used by all PC*MILER Add-on Modules. PC*MILER Interactive is referred to as the 'Basic Fileset' in the installation script.

- **Canadian Postal Code Optional Data Add-on** – Enables routing to Canadian Postal Codes. To use Canadian Postal Codes in conjunction with SPLC, you will have to contact ALK for installation assistance.

- **Standard Location Position Code (SPLC) Optional Data Add-on** – Enables routing to 112,700 SPLC. To use SPLC in conjunction with Canadian Postal Codes, you will have to contact ALK for installation assistance.

- **PC*MILER®|HazMat™ Routing Add-on** – Enables Hazardous Material routing options for the Continental United States.

- **Lan Disks** – Controls the number of simultaneous uses of the PC*MILER highway networks. The default installation allows for 5 simultaneous uses.

- **PC*MILER®|Batchpro™** – Command line mileage and routing batch processor.

- **PCMServe™** – Legacy named pipe mileage and routing client server application. Not available for Linux.

- **PC*MILER®|Connect** – New mileage and routing shared library. PC*MILER|Connect was formerly known as "PC*MILER|Server".

TECHNICAL NOTE: The production of the PC*MILER multi-platform Installation CD necessitated the renaming of some included libraries.

** If PC*MILER|Streets data was purchased there will be an additional DVD.*

2.4 Installation Instructions & Requirements

(For detailed step-by-step instructions, see section 2.6, *Detailed Installation Instructions for the Novice UNIX User*.)

IMPORTANT: Please read section 2.1, *Notes and Warnings*, before proceeding!

Step 1: Obtain a Product Registration Code from ALK Technologies. To do this, call **(609) 683-0220 ext. 2**.

Step 2: You must log in as ROOT.

Step 3: Mount the Installation CD.

Note for HP-UX users:
Use **mount –F cdfs –o cdcase** mount command parameters or you will receive **tar: chown failed: Invalid argument** error messages throughout the installation.

Step 4: Determine the destination location for PC*MILER.

The installation script will create a directory called **pcm290**. You will be prompted for the destination directory, which will become the parent directory for your new pcm290 directory. The parent directory you specify must already exist. Space requirements are listed below.

Space Requirements	***Megabytes***
Base PC*MILER Interactive Program	720 MB
PC*MILER with SPLC add-on	722 MB
PC*MILER with Canadian Postal Codes	754 MB
PC*MILER|BatchPro add-on	1 MB
PCMServe add-on	1 MB
PC*MILER|HazMat add-on	1 MB
PC*MILER|Connect Shared Library add-on	1 MB
PC*MILER|Streets add-on	820 MB

NOTE: PC*MILER|BatchPro, PCMServe and PC*MILER|Connect share some components, so combinations of these products will use somewhat less space.

IMPORTANT: If during installation you specified a parent directory other than **/usr/local** you will have to make use of the **PCM_DATA** environment variable.

Set PCM_DATA to the top level of your pcm290 directory as follows (assuming you installed to /usr/lib):

PCM_DATA=/usr/lib/pcm290/ (⇐ The trailing slash is required.)

To have pcmiler start automatically for all users edit **/usr/bin/pcmiler** and insert PCM_DATA=/usr/lib/pcm290/ at the beginning of line one.

Step 5: Launch the installation script.

5.1 Change directories to your mounted CD

5.2 Launch the installation script.

For AIX: use this command:
/bin/sh<space>./setup.sh

5.3 Follow the on-screen instructions.

Step 6: Installing the Optional PC*MILER|Streets Add-on.

NOTE: ALK produces two versions of the Street Level Data DVD.
DVD's with a volume label of "strdata29i" are for Intel Based Systems (Linux).
DVD's labeled "strdata29" are for AIX, HP-UX, and Solaris.

NOTE Also: For upgrades, you can determine the location of your PC*MILER Version 29 installation by inspecting **usr/bin/pcmiler**.

6.1 Mount the Street Level Data DVD.

6.2 Change to the parent directory of your PC*MILER installation.

For example if you installed PC*MILER 29 to **/usr/local/pcm290**, change to **/usr/local**

Caution: Failure to do this step will result in the placement of 570 megabytes of data in the wrong location.

6.3 Extract the archive.

The archive names are:
istrdata.tar for Linux
strdata.tar for AIX, HP-UX, and Solaris.

6.4 Run **../pcm290/strinst.sh**

IMPORTANT NOTE: Renaming **pcm290** after installation will cause PC*MILER to stop functioning.

2.5 Running PC*MILER Version 29 Products

PC*MILER Version 29 is built on Shared Library Technology. During installation, commands for PC*MILER Interactive and PC*MILER| BatchPro are written to **/usr/bin**. These commands set a library path variable to point to the top level of your PC*MILER installation (pcm290) and then call the program's executable. To use the PC*MILER|Connect routing and mileage shared library, you will have to first set the library path variable as follows (assuming installation to **/usr/local/pcm290**):

Linux and Solaris:

LD_LIBRARY_PATH=/usr/local/pcm290

HP-UX:

SHLIB_PATH=/usr/local/pcm290

IBM-AIX:

LIBPATH=/usr/local/pcm290

2.6 Detailed Installation Instructions for the Novice UNIX User

The following section was designed as a step-by-step guide for installing PC*MILER. The installation of PC*MILER itself is fairly simple, but before you install PC*MILER you must determine if your computer has enough disk space to hold the program and whether your operating system needs to be upgraded.

UNIX is an advanced operating system and requires the user to have a certain minimal level of proficiency. Some of the commands you will issue can have an irreversible effect.

We strongly recommend that you have your system administrator perform the installation. If this is not an option, read carefully and double-check what you have typed in before you hit the **<Enter>** key.

NOTE: PC*MILER runs on four major brands of UNIX: AIX, HP-UX, Solaris, and LINUX. If you already know which type of UNIX system your server runs, you can skip Step 2 below. The commands that you will need to use vary slightly between the UNIX "flavors". The differences, where they exist, will be listed for each command.

Generally it is safe to attempt to install PC*MILER Version 29 as long as you have enough available hard disk space.

DO NOT SKIP Step 4: "Where should I install PC*MILER and Is there enough room?".

Attempting to install PC*MILER Version 29 WILL NOT affect previous versions of PC*MILER, you can safely attempt the upgrade to Version 29 without harming your current version of PC*MILER. **If PC*MILER is critical to your business, do not remove your previous version of PC*MILER until Version 29 is running on your system.**

To install PC*MILER Version 29, perform the following steps carefully:

Step 1: Logging in as Root and getting a command line ("Shell Prompt").

NOTE: Call ALK at (609)683 0220 ext. 2 to get the Registration Number for your installation before you start.

If you cannot get a command line or do not have access to the Root password, you will not be able to install PC*MILER. Contact your system administrator for assistance.

Step 2: What UNIX system are you running?

At a command line type in:
uname <Enter>

If PC*MILER will run on your system, you will get back one of these responses:
AIX
HP-UX
SUNOS
Linux

(Remember which system you are running because some commands you will be using are different for your brand of UNIX.)

Step 3: Will I have to upgrade my Operating System to run PC*MILER Version 29?

For Version 15-29, PC*MILER underwent significant changes. Computers that can run Version 14 or earlier might not be able to run Version 29. You should check to see if you need to update your server before installing PC*MILER Version 29.

At your command line type in:

uname<space>**–sv** <Enter>

or for HP-UX or Linux:
uname<space>**–sr**<Enter>

For PC*MILER v. 29 to run on your computer, you will need to be at or above the following OS Levels:

HP-UX 11.31 or higher (see Warning below)
IBM-AIX 5.3.8 or higher
SUN-Solaris 5.8 (Solaris 8)
Linux Kernel 2.6.11 or higher

WARNING for HP-UX Users: HP-UX users must be running on an Itanium 64-bit platform, not PA-RISC.

If you are below the necessary level, contact your system administrator or see the Appendix *Operating System Upgrades, Math and Runtime Libraries* for a more detailed discussion.

Step 4: Where should I install PC*MILER and is there enough room?

DO NOT SKIP THIS STEP!

CAUTION: Some previous versions of PC*MILER were hard-coded to install themselves to a user area of your server. Version 29 of PC*MILER allows you to install PC*MILER anywhere. Your server probably has hard disk space reserved for use by the operating system. Filling up this reserved space can cause your server to become unstable or crash. To avoid this problem, we strongly recommend that you install PC*MILER under a **/usr/local** directory. If your **/usr** directory is not large enough to hold PC*MILER, we recommend that you have more space allocated to it by your system administrator.

Space Requirements	***Kilobytes***
Base PC*MILER Interactive Program	500,000
PC*MILER with SPLC add-on	5,000
PC*MILER with Canadian Postal Codes	600,000
PC*MILER|BatchPro add –on	1,000
PCMServe add-on	1,000
PC*MILER|HazMat add-on	1,000
PC*MILER|Connect Shared Library add-on	1,000
PC*MILER|Streets	820,000

(1,000 kilobytes = 1 megabyte)

NOTE: Some add-on products share some components, so if you install combinations of products the space requirements can be somewhat smaller.

Checking for Free Hard Disk Space:

From your command line type:
df<space>**-k**<space>**/usr**

Returns will vary according to which type of UNIX system you are running. **NOTE:** With the **–k** option, 1 block = 1 kilobyte and 1,000 blocks = 1 megabyte.

HP-UX example: Disk Free Output for # df –k /usr:

/ (/dev/dsk/c0t6d0): 815337 total allocated Kb
137150 free allocated Kb
678187 used allocated Kb
83 % allocation used

** You are looking for the free allocated Kb number. **

IBM-AIX example: Disk Free Output for # df –k /usr:

Filesystem	1024-blocks	Free	%Used	Iused	%Iused	Mounted on
/dev/hd2	1900544	405148	79%	23524	5%	/usr

** You are looking for the number listed under ‘Free’. **

Sun-Solaris example: Disk Free Output for # df –k /usr:

Filesystem	kbytes	used	avail	capacity	Mounted on
/dev/dsk/c0t0d0s0	6191949	5865330	264700	96%	/

** You are looking for the number under ‘avail’. **

Linux example:

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
/usr	5890124	2403136	3187780	43%	/

** You are looking for the number under ‘avail’. **

Step 5: Mounting the Installation CD

With most UNIX systems you must tell the computer that you have loaded a CD into its CD-ROM Drive.

Sun Solaris:
For Sun Solaris, CD's are automatically mounted to a directory called **/cdrom**.

IBM-AIX:
From a command line type:
mount<space> **–rv**<space>**cdrfs**<space>**/dev/cd0**<space>
/mnt <Enter>

where **/dev/cd0** is your CD-ROM drive and **/mnt** is the directory mount point. (The directory mount point is the directory that you change to when you want to work with a CD.)

Linux:
From a command line type:
mount<space>/dev/cdrom<space>/mnt

where **/dev/cdrom** is your CD-ROM Drive and **/mnt** is your mount point directory. (The directory mount point is the directory that you change to when you want to work with a CD.)

HP-UX:
From a command line type:
mount –F cdfs –o cdcase /dev/dsk/c0t4d0 /mnt <Enter>

where **/dev/dsk/c0trd0** is your CD-ROM drive and **/mnt** is the directory mount point. (The directory mount point is the directory that you change to when you want to work with a CD.)
If you cannot mount the PC*MILER CD, try using another CD-ROM device file:

Type:
cd<space>**/dev/dsk** <Enter>
ls <Enter>

You will see a list of all the CD-ROM device files on your system similar to these:

```
#ls
c0t2d0  c0t4d0  c0t6d0
```

Now go back and try to mount your PC*MILER installation CD using one of the other CD-ROM device files that you see listed.

For example, if this command failed:
mount –F cdfs –o cdcase /dev/dsk/c0t4d0 /mnt <Enter>

try:
mount –F cdfs –o cdcase /dev/dsk/c0t2d0 /mnt <Enter>.

Check to see if the CD is visible. From your command line type:

cd<space>**/mnt** <Enter> (or your CD mount point directory)
ls <Enter>

For Sun-Solaris:
cd<space>/**cdrom/pcm290** <Enter> or
cd<space>**/cdrom/cdrom0** <Enter>

You should see a return that looks like this:
ls
data docs pcm29aix pcm29hp pcm29sun setup.sh

Step 6: Launching the Installation Script

6.1 *Make sure that you are in your CD's directory.*

From your command line type:
cd<space>**/mnt** <Enter> (or your CD's mount point directory)

For Sun Solaris:
cd <space> **/cdrom/pcm290** <Enter>
or
cd <space> **/cdrom/cdrom0** <Enter>

then type:
pwd<Enter>

You should see :
/mnt (or your CD's mount point directory)
or
/cdrom/pcm290 or /cdrom/cdrom0

6.2 *Launch the setup script.*

Type:
./setup.sh<Enter>

For IBM-AIX:
/bin/sh/<space>./setup.sh (in lowercase)

6.3 *You should now be running the PC*MILER installation script. It will look like this:*

Preparing to install PC*Miler 29.0, please wait…
Enter destination directory for PC*Miler Install
Or 'q' to quit:

6.4 *Type in the destination directory for your PC*MILER installation.*

Type the absolute path to the directory (e.g. **/usr/local**) where you want to install PC*MILER. The installation script will create a subdirectory for you called **pcm290** under the specified directory. We **strongly recommend** that you install to **/usr/local**. If you forgot to start your typing with a ' / ' or you typed the name of a directory that does not exist you will get:

Could not find directory.
Enter destination directory for PC*Miler Install
Or 'q' to quit:

If you are starting your typing with a ' / ' and the directory you are typing exists, make sure that you do not have your Caps Lock key on and that you specified the destination directory exactly as being shown when you did an '**ls**' command.

If you need to create your destination directory, use the **mkdir** command.

IMPORTANT: If you rename **pcm290** after the installation, PC*MILER will not run.

6.5 *Type your User Name and Company Name.*

Here you can use upper or lower case letters, then press **<Enter>** after you are done typing. What you type is used only in the splash screen that pops up when you run PC*MILER.

When you are done you will be asked:
Is this correct?

Type in a '**y**' and press **<Enter>**. (Typing an '**n**' here allows you to reenter your user and company names.)

6.6 *You will now be asked for a CD Serial Number and then a Registration Code.*

Press **<Enter>** after typing in each. You must call ALK at **(609) 683-0220 ext. 2** to get the Registration Code. You can find your CD Serial Number printed on a sticker on the outside of the Installation CD case.

The Registration Code can unlock any or all of the following products:

- PC*MILER UNIX 29.0
- PC*MILER UNIX|BatchPro 29.0
- PC*MILER UNIX|Canadian Postal Codes 29.0
- PC*MILER UNIX|HazMat 29.0
- PC*MILER UNIX|PCMServe 29.0
- PC*MILER UNIX|Connect 29.0
- PC*MILER UNIX|SPLC 29.0
- PC*MILER UNIX 29.0 LanDisk

If you purchased a product that is not on your list, you will need to contact ALK Technologies at **(609) 683-0220 ext. 2**. You can continue with the installation now and then install any missing products later if you wish.

NOTE: The basic installation of PC*MILER allows for 5 simultaneous uses. PC*MILER UNIX 29.0 LanDisk does not have to be listed for you to receive a 5-user license. If you have purchased more than a 5-user license, PC*MILER UNIX 29.0 LanDisk must be listed.

6.7 *After your available product list is displayed, you will be asked to continue. If you type in a '**y**' you will then see:*

Installation of the basic filesets necessary for
PC*MILER to operate are about to be installed.
If these files have already been installed,
And you are installing an add-on, enter 'n' below.

Do you wish to install the PC*MILER v. 29 basic fileset? (y|n)

Depending on your situation you should answer accordingly:

CASE 1: This is your first installation of PC*MILER v. 29 on your server.

If this is the first installation of PC*MILER v. 29 on your computer, type '**y**' **<Enter>** , then go to Step **8**.

CASE 2: PC*MILER v. 29 was working, then stopped working, and you are attempting to fix it with a reinstall.

If your PC*MILER v. 29 program has stopped functioning and you are reinstalling in an attempt to fix it, you will have to type in '**y**'.

NOTE: Any changes you have made to trip settings like stop costs and road speeds will be lost. If you have made changes to these settings, see the Appendix: *Maintaining Your PC*MILER Installation.*

CASE 3: You have purchased an additional PC*MILER product to add to your working copy of PC*MILER v. 29.

Here you want to answer '**n**' **<Enter>**.

6.8 *After the 'basic fileset' question you will be asked if you want to install each of the products your Registration Code unlocked.*

Typically you will answer '**y**' **<Enter>** to each of these questions.

NOTE: Canadian Postal Codes and SPLC cannot be installed together, you get your choice of one or the other. If your company needs access to both, you will have to contact ALK technical support at (609) 683-0220 ext. 2 for help in setting up access to both Canadian Postal Codes and SPLC.

6.9 *You should now be at the end of the PC*MILER installation and back at the command line. The final step is to unmount your installation CD.*

From your command line, type:
cd <space> **/** <Enter>

Then type:
pwd<Enter>

You should get a '/' back, you cannot unmount your CD while you are in the mount point directory (usually **/mnt**). If you are not in the **/mnt** directory then type:

umount <space> **/dev/cd0**

For Sun Solaris:
eject <space> **cdrom** <Enter>

For HP-UX:
umount <space> **/dev/dsk/c0t4d0**

For Linux:
Umount<space> /dev/cdrom

Step 7: Installing the Optional PC*MILER|Streets Add-on.

You should be logged in as root if possible.

7.1 Mount the Street Level Data DVD.

With most UNIX systems you must tell the computer that you have loaded a CD into its CD-ROM Drive.

Sun Solaris:
For Sun Solaris, CD's are automatically mounted to a directory called **/cdrom**.

IBM-AIX:
From a command line type:
mount<space>**-rv**<space>**cdfrs**<space>**/dev/cd0**<space>**/mnt**
<Enter>

where **/dev/cd0** is your CD-ROM drive and **/mnt** is the directory mount point. (The directory mount point is the directory that you change to when you want to work with a CD.)

Linux:
From a command line type:
mount<space>/dev/cdrom<space>/mnt

where **/dev/cdrom** is your CD-ROM Drive and **/mnt** is your mount point directory. (The directory mount point is the directory that you change to when you want to work with a CD.)

HP-UX:
From a command line type:
mount –F cdfs –o cdcase /dev/dsk/c0t4d0 /mnt <Enter>

where **/dev/dsk/c0trd0** is your CD-ROM drive and **/mnt** is the directory mount point. (The directory mount point is the directory that you change to when you want to work with a CD.)

If you cannot mount the PC*MILER CD, try using another CD-ROM device file:

Type:
cd<space>**/dev/dsk** <Enter>
ls <Enter>

You will see a list of all the CD-ROM device files on your system similar to these:

#ls
c0t2d0 c0t4d0 c0t6d0

Now go back and try to mount your PC*MILER installation CD using one of the other CD-ROM device files that you see listed.

For example, if this command failed:
mount –F cdfs –o cdcase /dev/dsk/c0t4d0 /mnt <Enter>
try:
mount –F cdfs –o cdcase /dev/dsk/c0t2d0 /mnt <Enter>.

7.2 Check to see if the CD is visible.

NOTE: ALK produces 2 versions of the Street Level Data DVD.
One is for Linux and one for AIX,HP-UX, and SUN.
Be sure that you have the correct DVD for your flavor of UNIX.

The name of the correct tar file is as follows:
Linux – **istrdata.tar**
AIX – **strdata.tar**
HP-UX – **strdata.tar**
SUN – **strdata.tar**

7.2.1 From your command line type:

cd<space>**/mnt** <Enter> (or your CD mount point directory)
ls <Enter>

For Sun-Solaris:
cd<space>/**cdrom/strdata29** <Enter> or
cd<space>/**cdrom/cdrom0** <Enter>

7.2.2 You should see a return that looks like this:

For AIX, HP-UX, and SUN:
ls
strdata.tar

For Linux:
#ls
istrdata.tar

7.3 Change to the correct launch directory.

NOTE: Be extra careful on this step. The Street Level Data is over 570 megabytes. If you launch the extraction (Step 7.5) from the wrong directory you could potentially make your server unstable.

In this step you need to change directories to the directory above your installation of PC*MILER v. 29. If you installed to **/usr/local/pcm290** enter the following command:

cd /usr/local <hit enter>
If you do not know the location of your PC*MILER v. 29 installation, do the following:

cat<space>**/usr/bin/pcmiler** <hit enter>
You will get a return that looks something like:

LD_LIBRARY_PATH=/usr/local/pcm290 /usr/local/pcm290/pcmiler $*

You are looking for the directory listed after the equal sign '='.
You want to change to the directory that ends before the /pcm290.

So if you got back:
LD_LIBRARY_PATH=/usr/lib/pcm290 /usr/lib/pcm290/pcmiler $*

You would change to the **/usr/lib** directory.

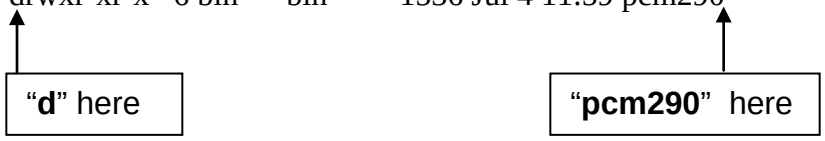
7.4 Double-check that you are in the correct launch directory.

Enter in the following command:

ls –dl<space>pcm290 <hit enter>

If you do not get a return that looks something like the following do not continue to Step 7.5.

drwxr-xr-x 6 bin bin 1536 Jul 4 11:59 pcm290



As long as you see a 'd' in the first position and a 'pcm290' at the end of the line you are in the correct directory and ready to go on to step 7.5.

7.5 Extract the Street level data.
Now that you are sure that you are in the correct directory, type in the following.

AIX, HP-UX, and SUN:
tar –xvf /mnt/strdata.tar <hit enter>
(assuming that you mounted your Street Data DVD to **/mnt** in step 7.1.)

Linux:
tar –xvf /mnt/istrdata.tar <hit enter> (assuming that you mounted your Street Data DVD to **/mnt** in step 7.1)

7.6 Run the installation script.

Type in the following:

cd<space>**pcm290** <hit enter>
./strinst.sh <hit enter>

7.7 Unmount the Street Level Data DVD.

From your command line, type:
cd <space> / <Enter>

Then type:
pwd<Enter>

You should get a '/' back, you cannot unmount your DVD while you are in the mount point directory (usually **/mnt**). If you are not in the **/mnt** directory then type:

umount <space> **/dev/cd0**

For Sun Solaris:
eject <space> **cdrom** <Enter>

For HP-UX:
umount <space> **/dev/dsk/c0t4d0**

For Linux:
Umount<space> **/dev/cdrom**

2.7 Installing To a Directory Other Than the Default

Previous releases of PC*MILER were automatically installed into the **/usr/lib/pcmiler** directory. Version 29 is automatically installed to a directory called **pcm290**. During the installation process you will be prompted for the parent directory of your pcm290 directory.

Renaming your pcm290 directory will disable your PC*MILER installation. If you need to install PC*MILER to a directory other than pcm290, you will have to create a symbolic link from your desired directory to a pcm290 directory.

Step 1: Create the directory where you want to install PC*MILER, if it does not already exist.

Step 2: Type **ln –s** [your install directory name] **/pcm290 /usr/local/pcm290** <Enter> where [your install directory name] is the absolute path to the directory into which you want to install PC*MILER.

Step 3: During installation of PC*MILER, when you are prompted "Enter destination directory for PC*Miler install, or 'q' to quit:" , type in the full path to the parent directory of the **pcm290** directory that was the destination directory in Step 2.

PC*MILER Version 29 installation will create a **pcm290** directory under any directory you choose. ALK recommends installing to **/usr/ local/pcm290**.

2.8 Installing Additional User Licenses and Products (all platforms)

Additional user licenses and additional PC*MILER products are available on your original installation CD. You will have to obtain a new registration code from ALK to unlock access for additional users. Launch the installation script. When asked for the destination directory, type in the absolute path to the parent directory of your existing PC*MILER v. 29 installation, and be sure to answer '**n**' to the question about installing the basic fileset.

REMEMBER: If you are installing the SPLC and Canadian Postal Code add-ons together, you need to contact ALK Technologies for assistance with the installation.

2.9 Alternate Keys For UNIX (AIX, Solaris, HP-UX or LINUX)

Different terminals have different keyboard layouts and respond differently. If a key is not present on your terminal or if pressing it does not work, try one of the alternate keystrokes listed below:

Function Keys: **<CTRL-N>** followed by the digit of the function key.

Example: To use the function key **<F4>**, press **<CTRL>** and **<N>** together and then let go ("**F –** " should appear at the bottom of the screen above the function key display), then press the **<4>** key. (For **<F10>**, use the **<0>** (zero) key.)

<F10>	Press the **<[>** (left bracket) key. Because **<F10>** is used so often and may not work on some keyboards, pressing **<[>** is a convenient shortcut for **<F10>**.
<Alt>	**<CTRL-A>** duplicates the **<Alt>** key. Example: To use **<Alt-F8>**, press **<CTRL>** and **<A>** together, and press the **<F8>** key. If the **<F8>** key does not work, just the **<8>** key will work.
<CTRL>	**<CTRL-F>** duplicates the **<CTRL>** key.
<UP Arrow>	**<CTRL-W>**
<DN Arrow>	**<CTRL-X>**, **<CTRL-J>**, or **<CTRL-M>**
< CTRL-E >	Moves to beginning of trip (Origin).
< CTRL-C >	Moves to end of trip (stop #29) or Page Down if in the picklist.

2.10 Parameters and Options Defined

The terms "parameters" and "options" are used frequently in this manual. The following definitions may be helpful to readers:

Routing options include settings for route types (such as Practical or Shortest), borders (closed/open), hub mode, and the order of states on State Mileage Summary reports.

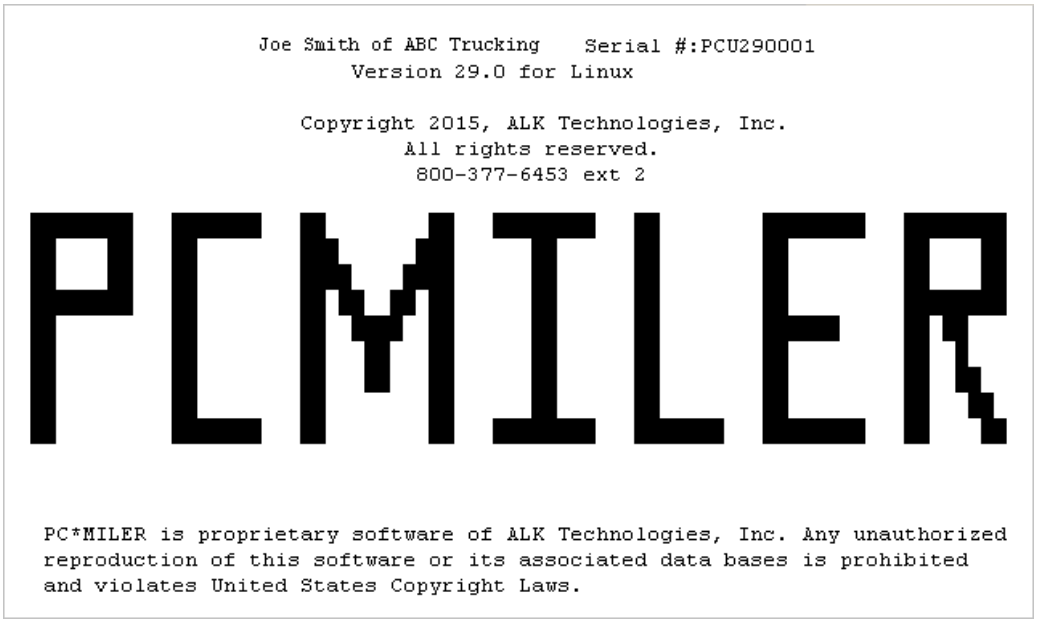
Route parameters include time and cost values used in calculating time and cost estimates for a route, and road speeds on various road types.

2.11 Starting PC*MILER

The PC*MILER installation automatically creates a directory containing the files and programs needed to operate PC*MILER. At the shell prompt, type:

pcmiler <Enter>

3.0 BASIC FEATURES



When you first open PC*MILER, a logo screen will appear which contains a serial number and copyright notices. Press the **<Enter>** key on your keyboard to continue.

The default route type for all mileage and route calculations is PC*MILER Practical. You may optionally specify the parameter **<S>** (Shortest), **<N>** (National Network), or **<T>** (Toll Discouraged) on the command line when first invoking PC*MILER. (See sections 1.4.4-1.4.8 for descriptions of the available route types.) This will cause the software to automatically initialize for the routing option you specify.

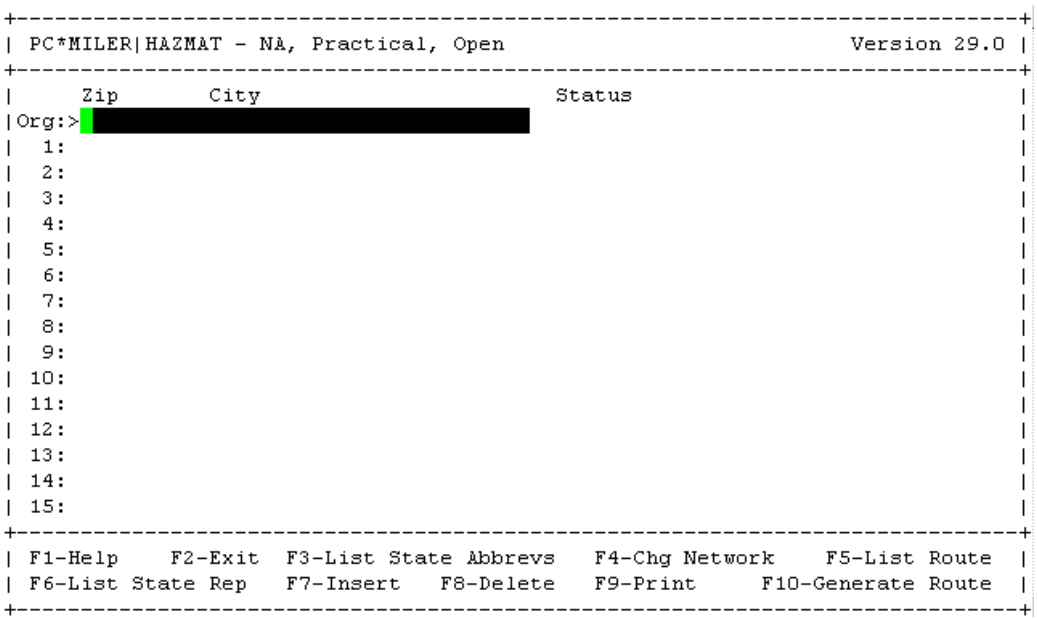
As an example, you can start the program from the shell prompt by typing:

 # pcmiler <S> <Enter>

and the program will start up with Shortest Route mileage.

NOTE: The route type can be changed at any time as you work in PC*MILER, just press the **F4** key and select your choice from the pick list.

After the proper files are loaded from your hard disk, the PC*MILER main input screen for route entry will be displayed.



Main Input Screen for Route Entry

Instructions are located at the bottom of the route entry screen. These instructions tell you which keys to use to perform many of the basic PC*MILER functions.

In general, the **<Esc>** key may be used to cancel out of all PC*MILER menus and reports.

NOTE: Not every function key is listed at the bottom of the route entry screen. For a complete listing of function keys, press the **<F1>** (HELP) key while in the route entry screen or refer to the list in section 3.17. Also see section 2.9, *Alternate Keys for UNIX*.

3.1 Entering City Names

To generate distances and driving instructions, first specify the origin and destination(s). You can input up to 29 stops in the route entry screen using any of the following methods:

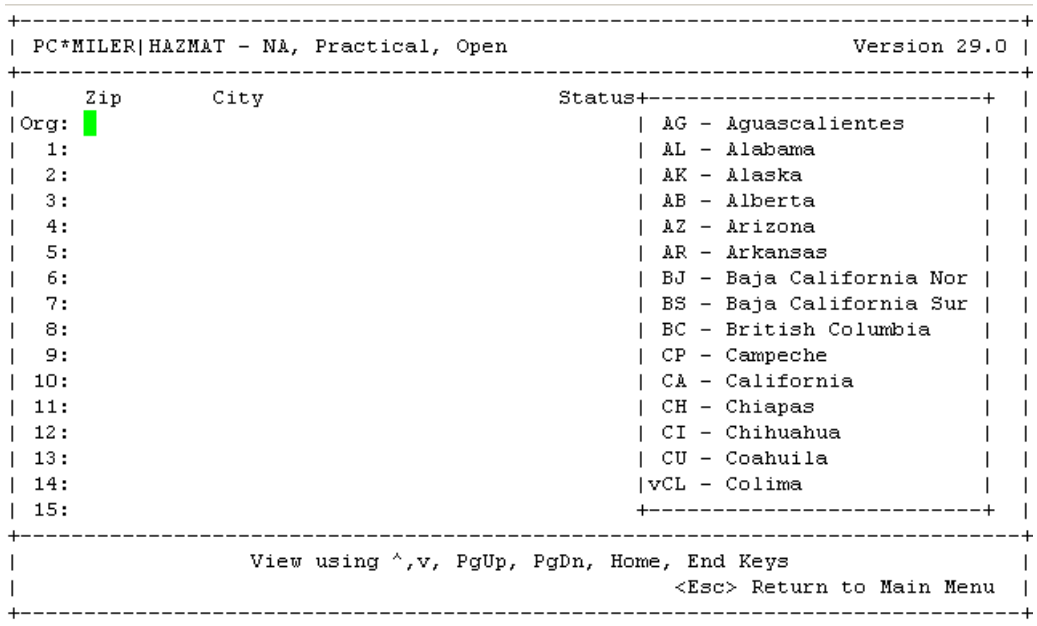
- Enter a city name followed by a state abbreviation
- Use the Spelling Helper
- Enter a 5-digit ZIP code
- Use the ZIP Code Helper
- Enter a 6-digit Canadian Postal Code (available as an add-on)
- Enter a SPLC (available as an add-on module)

3.1.1 City Name and State Abbreviation

Type in the full city name followed by the two-letter state/province abbreviation, then press **<Enter>** on your keyboard. A comma is required after the city name.

Examples: **chicago,il**
Chicago, IL
chicago, il

The city and state do not need to be separated by a space. PC*MILER assumes that the last two letters of the input line represent the state/province abbreviation. For a table of two-letter state/province/estado abbreviations in North America, press the **<F3>** (State Abbreviations) key. (Note that this is not a pick list, it's only a reference list; therefore you cannot make a selection from the list.) Press **<Esc>** to exit the list.



State Abbreviation Pick List

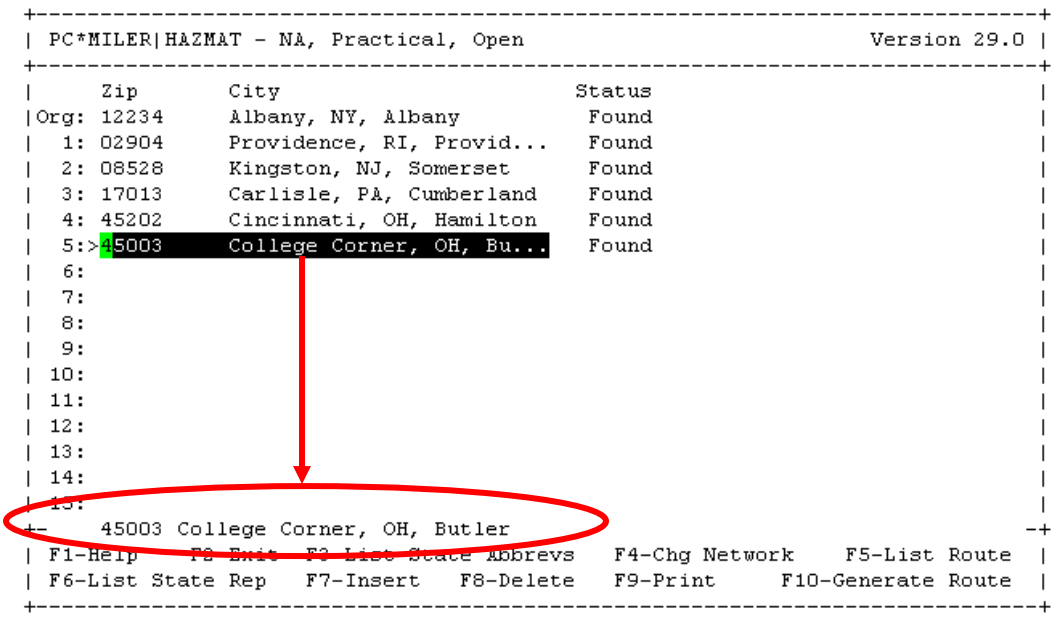
NOTE: If the city name contains two or three words, each portion of the city name must be separated by spaces.

Examples: **los angeles ca**
los angeles,ca
salt lake city,ut

After you enter a city name and state abbreviation, PC*MILER will return the corresponding ZIP code for the city or town, providing the locale has a ZIP code assigned to it. PC*MILER will search through the database and select the first

ZIP code that matches the city name. In the case of large cities with multiple ZIP codes, the match will most often be the main post office. The corresponding county name will also be returned.

When the full city, state abbreviation and county name is returned and it is too long to be fully displayed on the stop list, it will appear to be cut off, followed by a set of ellipses (…). To see the complete location name, simply highlight it and the complete name will appear at the bottom of the stop list:



Display of Complete Location Name

Mexican place names can be entered using the Estado name, e.g. "Puerto Vallarta, JA", or a postal code. See section 3.1.7 on using Mexican postal codes. Use **<F3>** to find Estado abbreviations – you will need to scroll down below the US/Canada list.

Canadian postal codes and **SPLC** can be entered **only using separate add-on data modules**, available through ALK Technologies. Canadian place names can otherwise only be entered as city name and province abbreviation.

3.1.2 Pick List Generation and Default Matches

By default, PC*MILER generates a pick list when more than one possible match exists in the database for a location that is entered as a stop. For example, in the case of multiple postal codes for the same city.

It is possible to turn off pick list generation by editing the **user.cfg** file in your PC*MILER installation. The user.cfg file is located in the **/usr/local/pcm290** directory. To open it for editing, use the "vi" command.

In the **[User Settings]** section, the "**UseDefaultMatch=**" parameter can be set to either "On" (pick list generation is turned off) or "Off" (a pick list is invoked when multiple matches exist). The default setting in user.cfg is "Off" (pick lists will be generated):

[User Settings]
UseDefaultMatch=Off

When pick list generation is turned off, in the case of cities with multiple postal codes or other database entries, the PC*MILER default match will be returned according to the following selection process:

- If a city/state has one or more ZIP or postal codes, PC*MILER will select the code that is the centroid location (closest to the city center based on the placement of the postal codes).
- If a city/state does not have a ZIP or postal code, the "city point" for that city will be returned. The city point is determined by three things (in this order): the GNIS (official government) placement of the point; the location where the metro center of the city is; and customer-driven editing requests (for example, when routing to the official city point is hindered because of one-way streets).

3.1.3 Using the Spelling Helper

If you are unsure of the spelling of a city, or if you received an error message when entering the full city and state name, try using the Spelling Helper: Type the first few letters (at least two) of the city name, a space, and the two-letter state abbreviation, then press **<Enter>**. The more characters specified, the faster PC*MILER will return a list of possible selections

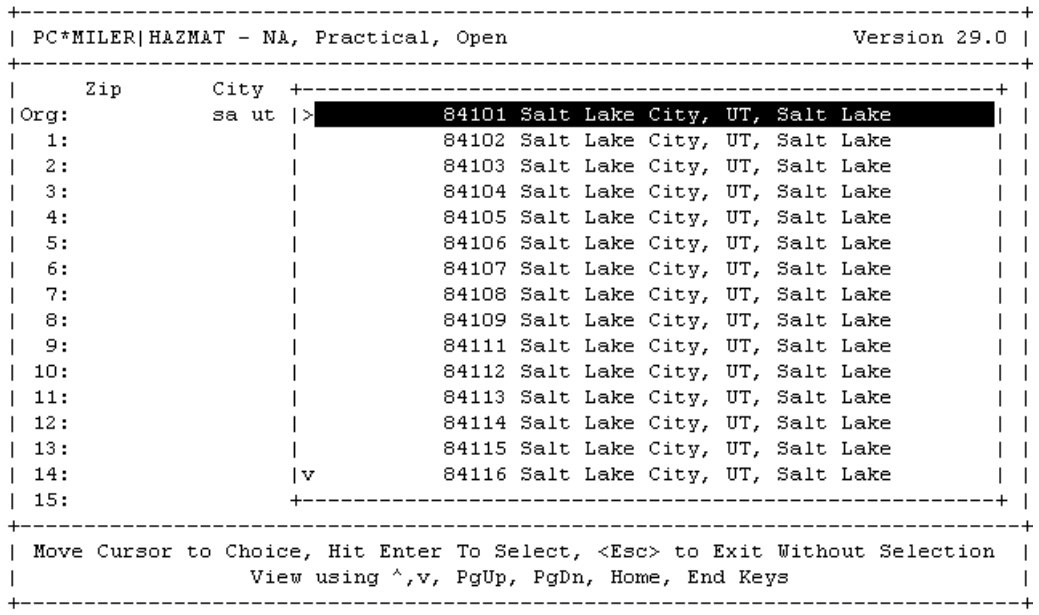
Examples: **ch il** <Enter>
los ang ca <Enter>

The Spelling Helper will search through the cities in the given state and find every name that starts with the specified characters. If only one city starts with the given characters, it will be returned immediately.

If multiple cities start with the same given characters, or if a city has multiple ZIP codes, all matches will be displayed on the screen. Use the up and down arrow keys on your keyboard to highlight the city or ZIP code that you wish to select. Pressing **<Enter>** will select the highlighted city. To exit with no choice, press

the **<ESC>** (Escape) key then use the up arrow on your keyboard to return to input mode.

NOTE: Be patient, it may take several seconds for the pick list to be generated (you will see the **<Generating picklist>** message at the bottom of the stop list).



Spelling Helper

3.1.4 Entering 5-digit ZIP Codes

Entering any valid 5-digit ZIP code will cause PC*MILER to search for the corresponding city and state name and display it in the stop list along with the ZIP code. To enter a ZIP code, type it and then press **<Enter>**.

If you enter: **08540**
PC*MILER will return: **08540 Princeton, NJ, Mercer**

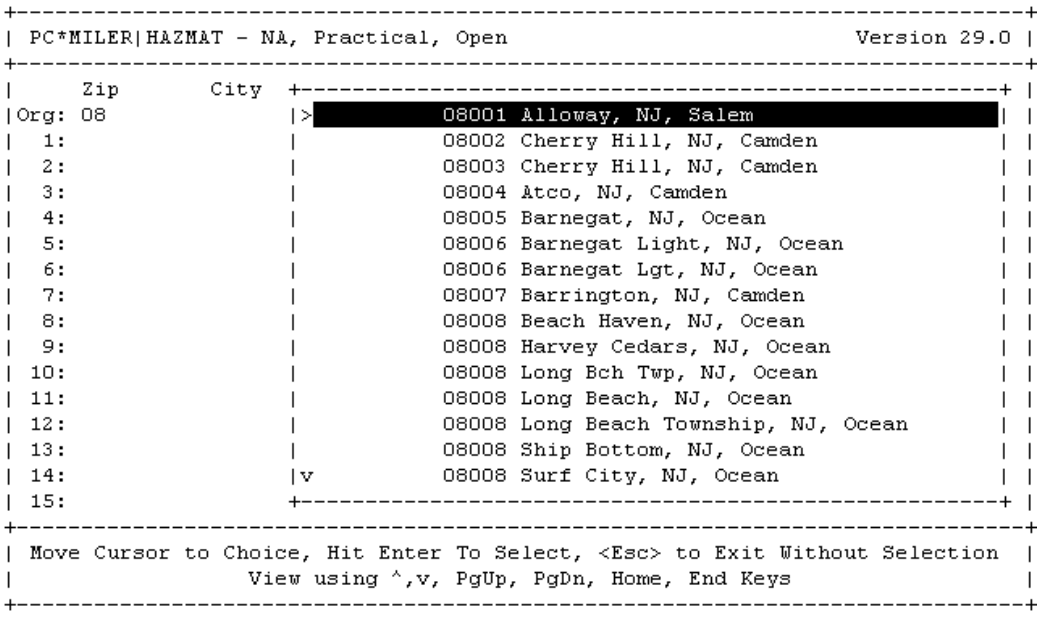
3.1.5 Using the ZIP Code Helper

If you are unsure of a particular ZIP code or if you receive an error message after typing a 5-digit ZIP code, type or retype at least the first two digits followed by an asterisk and then press **<Enter>**. The more digits specified, the faster PC*MILER will return a list of possible selections.

Example: **08*** <Enter>

If there is only one ZIP code matching the digits you entered, it is returned immediately. If there are multiple matching ZIP codes, they will be displayed on the screen. To select your choice, use the up and down arrow keys to highlight the desired ZIP code and press **<Enter>**. To exit without making a choice, press the **<ESC>** key, then use the up arrow on your keyboard to return to input mode.

NOTE: Be patient, it may take several seconds for the pick list to be generated (you will see the **<Generating picklist>** message at the bottom of the stop list).



ZIP Code Helper Screen

3.1.6 Canadian Postal Codes

A list of over 778,750 six-digit Canadian postal codes is available as an add-on data module for PC*MILER.

These codes are always a combination of letters and numbers in the following format: **L#L**<space> **#L#**. Entering any valid Canadian postal code will cause PC*MILER to search for the corresponding city and province name and display it in the stop list next to the postal code.

If you enter: **K7L**<space> **4E7**
PC*MILER will return: **K7L 4E7 Kingston, ON**

To get help with finding the correct Canadian code, type the first three or more characters of the postal code, then press **<Enter>**.

3.1.7 Mexican Postal Codes

Mexican Postal Codes are now accessible in PC*MILER. There are over 25,000 postal codes in the database that provide comprehensive coverage throughout Mexico. The database includes unique codes as well as the alternate names accepted for each unique code.

Mexican and U.S. postal codes share the same format, and some Mexican and U.S. locations have the same postal code assigned to them. When entering Mexican postal codes, you should be aware of the setting in the **user.cfg** file that controls how PC*MILER handles these duplicate postal codes when they occur.

The user.cfg file is located in the **/usr/local/pcm290** directory. To open it for editing, use the "vi" command. If you only want to view it, the "cat" command may be used.

Under the **[Geocoding]** heading in the user.cfg file there are the parameters "UseUSPostCodes=" and "UseMexPostCodes=". These parameters can be assigned the value 1 (meaning "on") or 0 (zero, meaning "off"). So if you want to always have the Mexican postal code used when a postal code is entered that exists in both Mexico and the U.S., you would edit and save these parameters in the user.cfg to look like this:

[Geocoding]
UseUSPostCodes=0
UseMexPostCodes=1

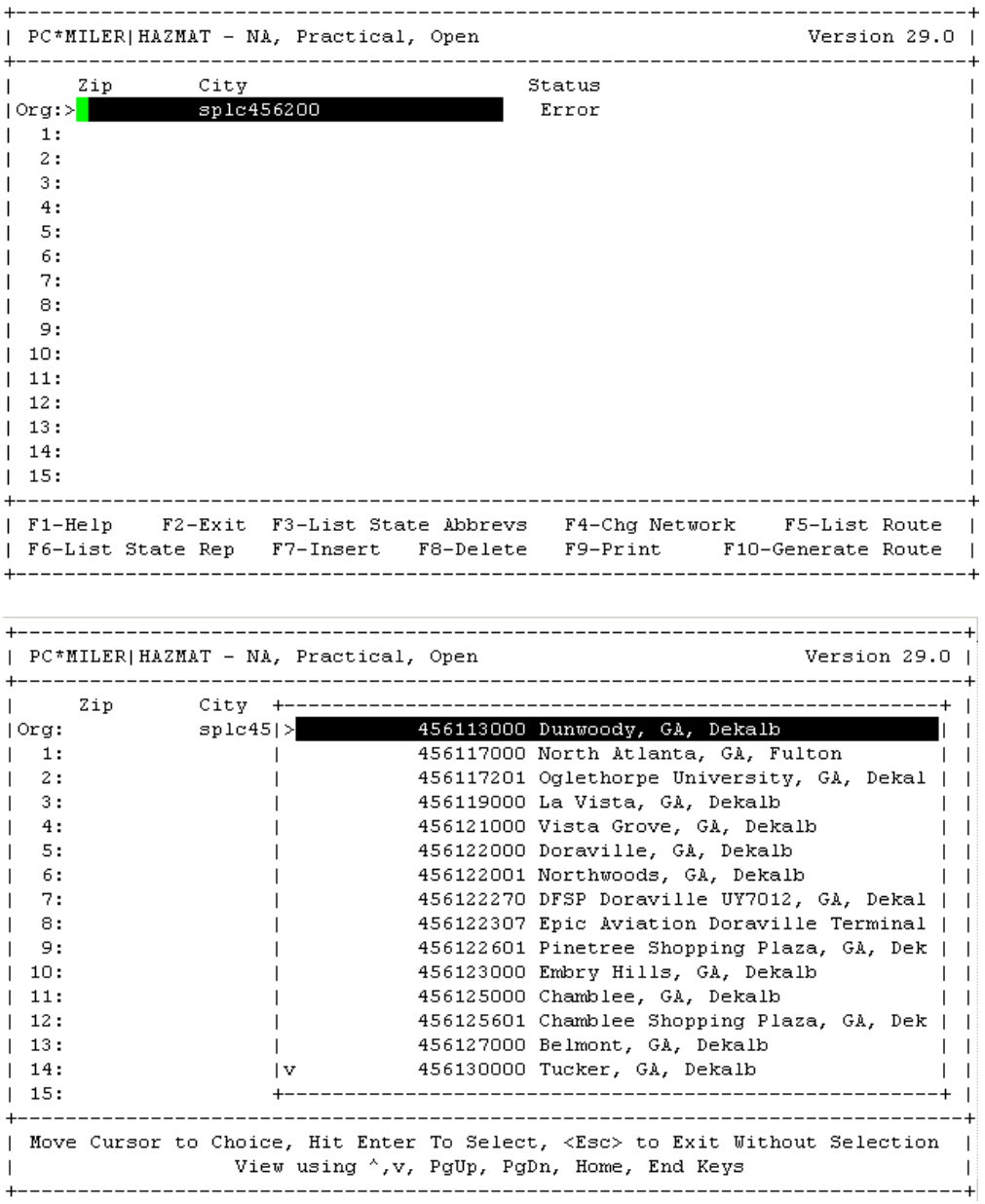
The following are possible combinations of these two settings, and their effect on location selection:

- Both parameters = 0 – Defaults to the U.S. ZIP with no routing to Mexican postal codes
- UseUSPostCodes= 1 and UseMexPostCodes= 0 – Same as above
- Both parameters = 1 – Defaults to the U.S. ZIP, must pass an Estados code to get Mexican location (e.g. "50510,EM")
- UseUSPostCodes=0 and UseMexPostCodes=1 – Only Mexican postal codes are available, in the U.S. only city-state pairs will get U.S. location (e.g. "Chico, CA")

3.1.8 SPLC Entry

A complete database of SPLCs (Standard Point Location Codes) in North America can be purchased as an add-on data module for PC*MILER. A SPLC can be entered as a stop for any location in North America that has a SPLC assigned to it. This code is always either six or nine digits in length.

To enter a SPLC, type "**splc**", then type the code and press **<Enter>**. As with a ZIP code, the full place name associated with the SPLC will be returned.



Entering a SPLC & Using the SPLC Helper

3.1.9 Using the SPLC Helper

A SPLC Helper, similar to the ZIP Code Helper described in section 3.1.5, is available if you need help finding the correct SPLC for a particular location. To invoke the SPLC Helper, type "**splc**" and **the first two or three digits** of the SPLC (e.g. "**splc45**") and then press <**Enter**>.

NOTE: Be patient, it may take several seconds for the pick list to be generated (you will see the <**Generating picklist**> message at the bottom of the stop list).

3.1.10 Input Error Messages

If PC*MILER does not recognize your entry, the word "**Error**" will appear in the Status column of the stop list. If you encounter this error message, then you should try using the Helper feature (enter the first two or three characters and press <**Enter**>) or, in the case of city names, use the exact ZIP code.

In all cases, the ZIP code takes precedence over the city and state name. As a result, certain suburbs or small towns may not have their actual name in the database, but rather the name of the larger nearby city. In these cases, the 5-digit ZIP code for the smaller community will have to be entered to achieve correct results.

NOTE: If you invoke a pick list and then press <**Esc**> to exit the list without making an entry, you will get an error message. Just press the up arrow key to get back to the stop list.

Remember that PC*MILER assumes that the last two letters of the input line contain the state/province abbreviation, whether separated by a space or not. For a list of valid two-letter state/province abbreviations, press the <**F3**> key while in the route entry screen.

3.1.11 Duplicate City Names

Several states have cities or towns that share the same name. For example, in the state of Pennsylvania, there are two towns named Hamlin, one in Wayne County and one in Lebanon County.

The PC*MILER database contains several thousand examples of such duplicates. For some towns, duplicates can be separately identified by means of their differing ZIP codes. Other towns do not have a ZIP code assigned by the Postal Service. However, PC*MILER now uses long names for all places in the database, allowing you to identify the correct town by the name of its county.

To make your selection, use the Spelling Helper to select the correct city based on its county location found in the listing. If you simply type a place name that has duplicates into the stop list, by default the town with a ZIP code will be entered. In cases where all the duplicates lack a ZIP code, a pick list will be displayed unless pick list generation has been turned off (see section 3.1.2).

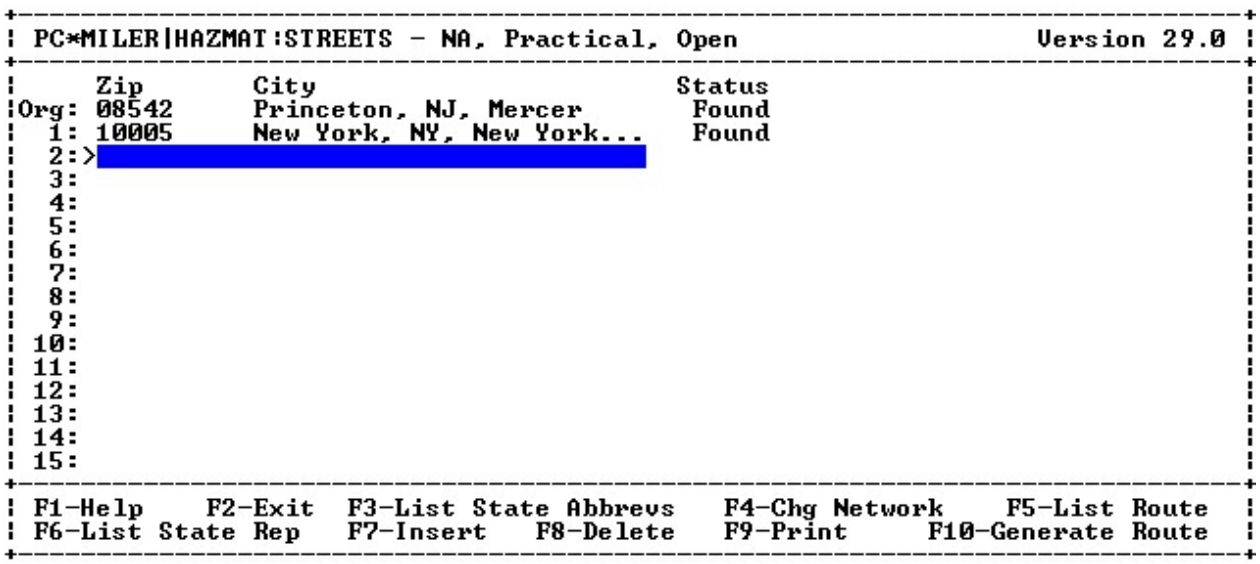
3.2 Address Entry

If you purchased ALK's PC*MILER|Streets add-on data module, you can (optionally) specify a street-level address when you enter a stop. To do this, enter a city name and state abbreviation or ZIP code, then type a **semicolon** (**;**) immediately after your entry. You will be prompted to enter an address:

Use your down arrow key to move the cursor to the **Address** field and type an address, then press **<F10>** to enter. If a pick list of ZIP codes appears, select the desired ZIP and press **<Enter>**.

HINT: If you enter a ZIP code and PC*MILER can't find an address you specify within that ZIP, try expanding your search by entering the city name.

The address you entered may not be visible on the stop list. When an address is entered as a stop, PC*MILER will route from/to that address rather than a central post office or other central point of the entered location.



Address Entered

3.3 Border Crossings

In PC*MILER, it is possible to access state border crossings using the PC*MILER border crossing naming convention. Border crossing names have the following syntax:

!XXYY ZZZZ, XX

where XX is the two-letter abbreviation of the state that is first in alphabetical order, YY is the abbreviation of the state that is second in alphabetical order, and ZZZZ is the route name of the route that crosses the border. In cases where the road name is different on either side of the border, the road name found in state XX is used.

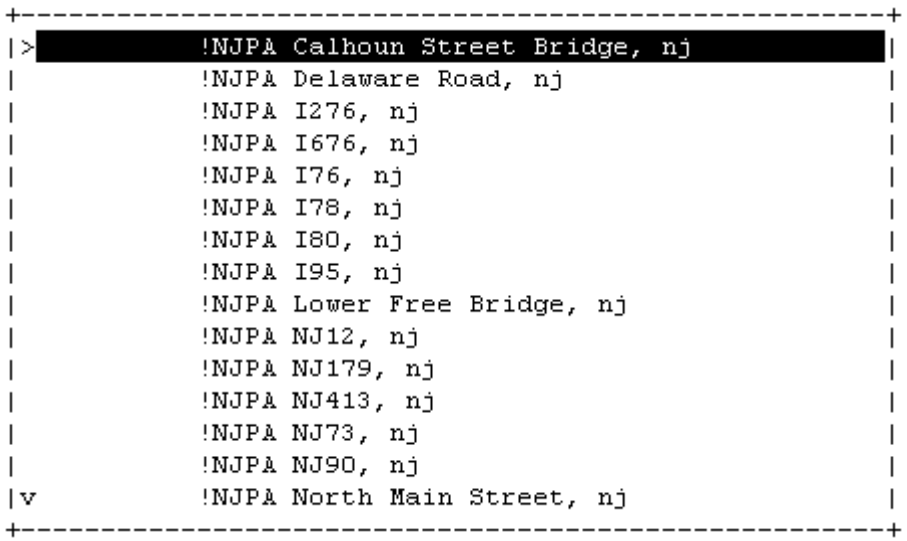
For example, the border along Interstate 95 between Pennsylvania and New Jersey is called

!njpa I95, nj

To quickly locate all possible border crossings between two states, use the [*] wildcard character. For example:

!njpa*, nj

will bring up the pick list shown below.



Pick List of State Border Crossings, NJ/PA

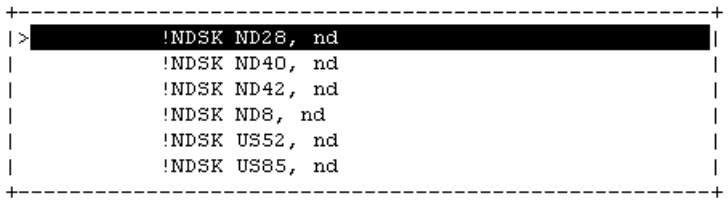
This pick list, similar to the lists generated by the spelling and ZIP Code helpers, lists all Pennsylvania/New Jersey border crossings.

There are two exceptions to the usual format for border crossings:

1. International border crossings have the road name "US-INT" in PC*MILER. Occasionally, there will be several international border crossings between the same state and province. This is true, for example, between North Dakota and Saskatchewan. If you type:

   !ndsk *, nd

   the pick list shown below will appear:

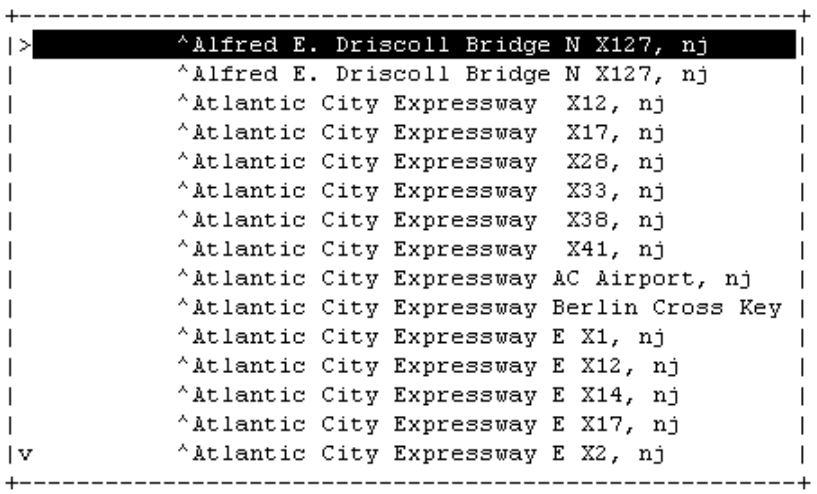


   To determine the correct location, you can run routes using the various border crossings.

2. Occasionally, border points have city/state names assigned to them. This is true of a number of very small communities where the state border passes very near to the center of town. Delmar, Maryland, on the Delaware/Maryland border, is an example of such a place. To access these border crossings, use the city/state or ZIP code that is assigned to them.

3.4 Highway Exits

PC*MILER now includes all Interstate-to-Interstate exit numbers. It also includes all Interstate exits leading to non-Interstate highways, with the exception of exits that have an A\B suffix (e.g. Exit 36A, Exit 14C).



Pick List of Exits on Highways Beginning With "A" in New Jersey

To enter a highway exit as a stop in the route entry window, you can enter "^" (**Shift-6**) followed by a comma and state abbreviation to bring up a pick list. Or, "^" followed by a letter.

For example, entering "^**a, nj**" brings up a pick list of all exits in New Jersey on highways that have names beginning with the letter "a". Make your selection in the pick list and click **OK.**

3.5 Highway Junctions

PC*MILER allows you to access highway junctions between major road types in the United States and Canada. All interstate and US highway junctions are included. State and provincial highway junctions have been limited to those whose route numbers are 100 or less.

Highway junctions can be accessed in a manner similar to that used to access border crossings. The junction naming convention is as follows:

+X XXX Y YYY, ZZ

where the plus sign [+] designates a junction point, X XXX is the lower numbered route name, YYYYY the higher numbered route name and ZZ the state the junction lies in.

Spaces must be used where a hyphen would normally appear. For example:

+i 84 i 380, pa

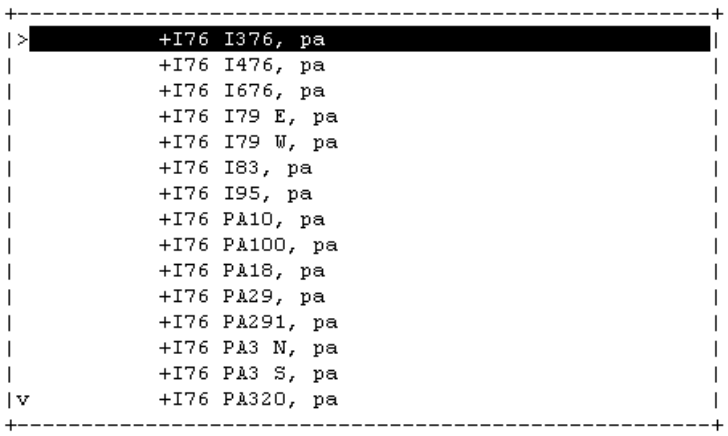
To access junctions where road types differ, the higher level road must be entered first, regardless of road number. For example:

+i 95 i 476, pa
+us 1 pa 23, pa

As with other PC*MILER features, a pick list can be generated which displays all the junctions for a particular highway. For example, typing

+I <space> **76, pa**

will bring up a pick list of every major highway junction in the database that is in PA and involves Route I-76.



Pick List of Highway Junctions

In cases where two junctions by the same highway pair occur within the same state, the junctions are designated by a location direction (N,S,E,W) relative to the location of the other junction. For example:

+i 95 i 280W, nj is located one mile west of **+i 95 i 280E, nj**

In multiple junction cases such as I-95 and US1 in Connecticut, the PC*MILER database is limited to two junction listings.

To designate interstate highways, use the naming convention "**I**". For US highways, use "**US**". For state or provincial highways, use the standard two-letter abbreviation. For example: **i 380** ; **us 101** ; or **pa 100**.

3.6 Truck Stop Locations

In cooperation with Comdata Corporation, the PC*MILER database contains more than 4,000 truck stops used in Comdata's GeoFUEL truck stop network. These truck stops can be accessed in the same way as other places in the PC*MILER database, and can be used as stops on your PC*MILER routings.

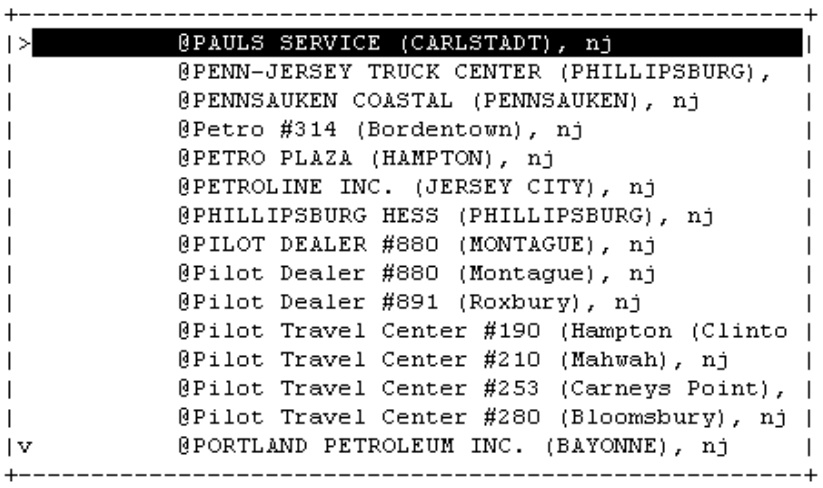
To enter a truck stop as a stop on a route, you may enter its name if you know it. The syntax for truck stops is comprised of the "at" symbol [**@**] marking the entry as a truck stop, the **truck stop name**, and the **state** in which the truck stop is located. An example is:

@Route 46 Truck Stop, NJ

To find all truck stops in a particular state, use the [**@**] symbol followed by a comma and the two-letter state abbreviation. For example, typing

@p, nj

will produce a pick list of all Comdata's listed truck stops in New Jersey beginning with the letter "P".



Truck Stops Pick List

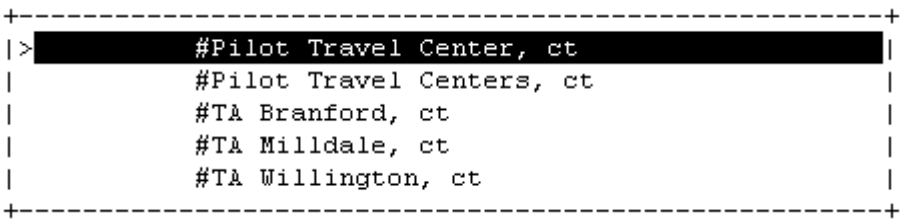
3.7 CAT Scale Weigh Stations

CAT Scale weigh station locations may now be entered as stops on a route. Type its name (if you now it) preceded by a pound sign (#), for example:

#Petro Stopping Center, NJ

To bring up a pick list of all CAT weigh stations in a particular state, enter a pound sign followed by a comma and the state abbreviation. For example:

#, nj



CAT Scale Weigh Stations Pick List

3.8 Latitude/Longitude Points

PC*MILER enables you to enter latitude/longitude points as stops on a route. These points can be entered in ***degrees minutes seconds direction*** format (e.g. **0401750N,0742131W**) or ***decimal degrees*** (e.g. **40.123N,100.333W**).

Degrees-minutes-seconds format:

In degrees-minutes-seconds format the latitude and longitude are each 8 character strings in the following format:

Characters **1-3**	specify the degrees (be sure to include leading zero if required)
Characters **4-5**	specify the minutes
Characters **6-7**	specify the seconds
Character **8**	is either 'N', 'n', 'W', or 'w' with N's for latitude and W's for longitude

Latitude and longitude must be separated by a comma WITHOUT A SPACE. In general the format for a point is:

dddmmssN,dddmmssW

Decimal degrees format:

In decimal degrees format, latitude and longitude are strings of up to 10 characters representing a decimal number. No leading zeros are required. The decimal point counts as one of the characters.

Latitude and longitude must be separated by a comma WITHOUT A SPACE. In general the format for a point is:

dddd.dddN,dddd.dddW

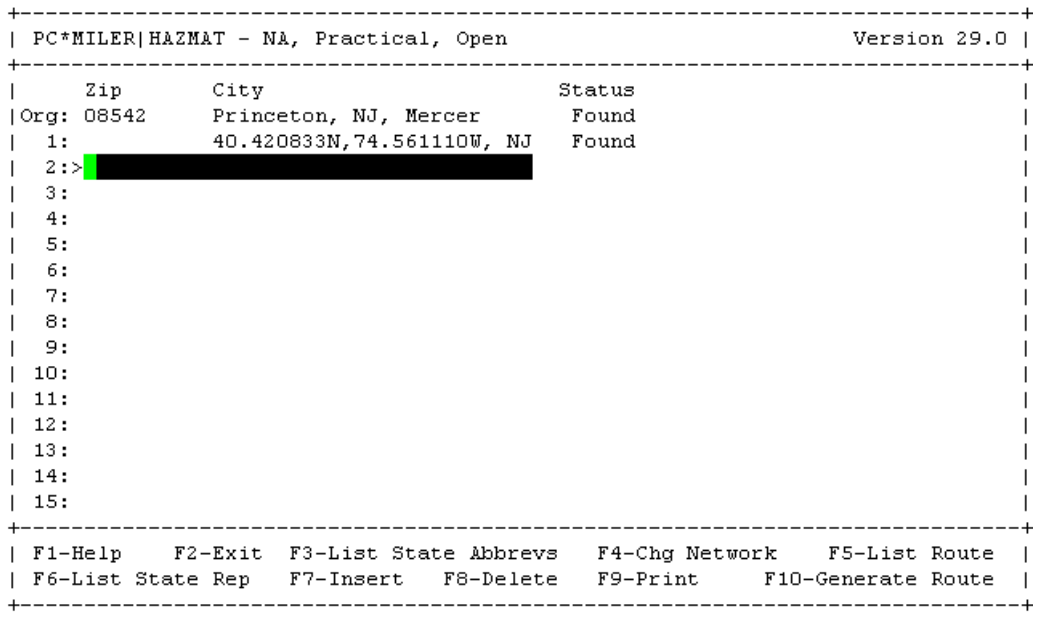
Converting between formats:

To convert from degrees-minutes-seconds to decimal degrees use the following formula:

$$dddmmssN \rightarrow ddd + mm/60 + ss/3600$$

Here is an example of a lat/long near Kendall Park, NJ in both formats:

0402515N,0743340W or **40.421N,74.561W**



Stop Entered Using a Lat/Long

3.9 Inserting and Deleting Stops

Stops can be inserted and deleted anywhere on the stop list by using the **<F7>** key to insert, the **<F8>** key to delete, and the up and down arrow keys to move from stop to stop. To delete all stops, press the **<Alt>** **<F8>** keys.

3.10 Generating a Route

Once the origin and at least one stop have been entered, press the **<F10>** (Run Route) key to generate a route.

When processing is finished, PC*MILER will display leg and cumulative distances, and cost and time estimates, as shown below.

NOTE: The following conditions must be met before a route can be run:

- Each stop must be valid and have a “FOUND” message displayed to its right.
- No blank lines can exist between valid stops. Use the **<F8>** (Delete Stop) key to delete any blank lines.

```
+-------------------------------------------------------------------------------+
| PC*MILER|HAZMAT - NA, Practical, Open                          Version 29.0 |
+-------------------------------------------------------------------------------+
|     Zip       City                          Miles       Cum     Cost-$   Hours |
|Org:>12234     Albany, NY, Albany              0.0       0.0       0.00     0.0 |
|  1: 02904     Providence, RI, Provid...     161.2     161.2     187.06     2.7 |
|  2: 08528     Kingston, NJ, Somerset        226.5     387.7     446.68     6.3 |
|  3: 17013     Carlisle, PA, Cumberland      156.8     544.5     627.77     8.8 |
|  4: 45202     Cincinnati, OH, Hamilton      457.5    1002.0    1148.08    16.0 |
|  5: 45003     College Corner, OH, Bu...      39.9    1041.9    1199.63    16.9 |
|  6:                                                                           |
|  7:                                                                           |
|  8:                                                                           |
|  9:                                                                           |
| 10:                                                                           |
| 11:                                                                           |
| 12:                                                                           |
| 13:                                                                           |
| 14:                                                                           |
| 15:                                                                           |
+-------------------------------------------------------------------------------+
| F1-Help    F2-Exit  F3-List State Abbrevs   F4-Chg Network    F5-List Route  |
| F6-List State Rep   F7-Insert   F8-Delete   F9-Print     F10-Generate Route  |
+-------------------------------------------------------------------------------+
```

Generated Route: Mileage, Cost and Time Estimates

3.11 State Mileage Summary Report

After the route is generated, press the **<F6>** key (State Report) to display a table summarizing mileage by state and country traveled. Toll/non-toll and empty/loaded mileage is listed. A combined grand total is displayed at the bottom, as shown on the next page.

```
+-------------------------------------------------------------------------------+
| PC*MILER|HAZMAT|STREETS - NA, Practical, Open                 Version 29.0 |
+-------------------------------------------------------------------------------+
|     Zip       City       +-------------------------------------------------+ |
|Org: 12234     Albany, NY,|          Total    Toll     Free  Loaded   Empty  | |
|  1: 02904     Providence,| CT       111.3     0.0    111.3   111.3     0.0  | |
|  2: 08528     Kingston, N| MA       111.9    93.2     18.7   111.9     0.0  | |
|  3: 17013     Carlisle, P| NJ        70.2    33.5     36.6    70.2     0.0  | |
|  4: 45202     Cincinnati,| NY        57.9    32.3     25.6    57.9     0.0  | |
|  5: 45003     College Cor| OH       270.7     0.0    270.7   270.7     0.0  | |
|  6:                      | PA       353.8   276.1     77.7   353.8     0.0  | |
|  7:                      | RI        55.6     0.0     55.6    55.6     0.0  | |
|  8:                      | WV        13.3     0.0     13.3    13.3     0.0  | |
|  9:                      | ------------------------------------------------  | |
| 10:                      | US      1044.8   435.2   609.6  1044.8     0.0  | |
| 11:                      |                                                   | |
| 12:                      | ------------------------------------------------  | |
| 13:                      | TOTAL   1044.8   435.2   609.6  1044.8     0.0  | |
| 14:                      |                                                   | |
| 15:                      +-------------------------------------------------+ |
+-------------------------------------------------------------------------------+
|                 View using ^,v, PgUp, PgDn, Home, End Keys                    |
|      F9-Print report                          <Esc> Return to Main Menu       |
+-------------------------------------------------------------------------------+
```

Generated Route With State Report

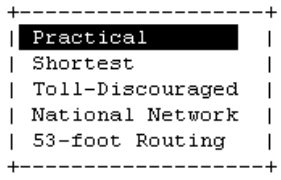
Use the up and down arrow keys, <**PgUp**> (move up one screen), <**PgDn**> (move down one screen), <**Home**> (move to the top of the report), and <**End**> (move to the end of the report) keys to scroll through the report. Press <**F9**> (Print) key to print the report. Press <**Esc**> to close the report.

3.11.1 Order of States in the State Mileage Summary

In the State Mileage Summary Report, the PC*MILER default displays the states in alphabetical order. To display the states in the order in which the route travels through them, press <**Alt**><**B**> before generating the route. To change the order back to alphabetical order, press <**Alt**><**B**> again.

3.12 Changing Routing Types

The <**F4**> key brings up a pick list that lets you choose a different routing type. For example, to change to Toll Discouraged routing, press <**F4**>, scroll the list with the arrow keys and highlight "Toll Discouraged", then press <**Enter**> to save your choice for the current route. See sections 1.4.4-1.4.8 for a description of the available PC*MILER route types.

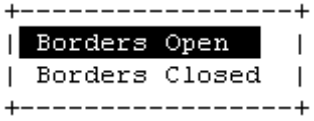


3.13 Borders Open/Closed Routing Option

PC*MILER gives you the option to effectively close the international borders in the PC*MILER database. This will allow you to run routes which remain in one country or another.

For example, if all your stops are in the United States and you select the "Borders Closed" option, the resulting route will remain in the United States even though the most practical or shortest route would normally involve some Canadian mileage. (Note, however, that if you have stops which are in different countries, PC*MILER will route to them whether the borders are open or closed.)

To close international borders, press the <**Alt**> <**F4**> keys from the route entry screen to bring up a prompt:



Use the down arrow key on your keyboard to select "Borders Closed", then press **<Enter>**.

The title bar of the route entry screen will display how this option is set:

```
+-------------------------------------------------------------------------------+
| PC*MILER|HAZMAT|Streets - NA, Shortest, Open                    Version 29.0 |
+-------------------------------------------------------------------------------+
```

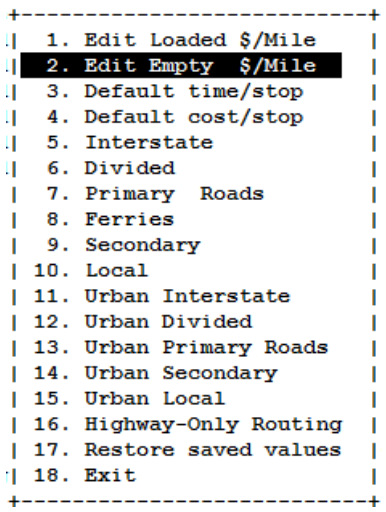
3.14 Miles/Kilometers Conversion

To convert the reporting of distances from miles to kilometers, press the **<Alt><F5>** keys. Then press **<F10>** to generate the route in kilometers – you will see the change reflected in the header at the top of the distance column. To convert back to miles, press the **<Alt><F5>** keys again.

3.15 Editing the Cost Per Mile Value

NOTE: See Chapter 4, for more information on this topic.

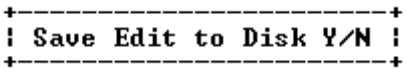
The default cost per mile value that PC*MILER uses in its calculations of cost estimates for a route is $1.36. To change this value, press **<Alt-F3>**. A menu will appear, with "**Edit Loaded $/Mile**" highlighted at the top. (If it is not highlighted, press the down arrow key on your keyboard.)



Press **<Enter>**, then type a per-mile cost for loaded legs on a route. Press **<Enter>** again.

Now use the down arrow on your keyboard to select "**Edit Empty $/Mile**", and enter a per-mile value for empty legs.

Use the **<Esc>** key to get back to the main menu, or scroll down to "**Exit**" at the bottom of the menu. Type "**Y**" if you want to save the values you edited as default values, or "**N**" if you want to cancel the changes you made. For more on editing parameters, see Chapter 4.



3.16 PC*MILER Function Keys

The following is a list of all the function keys in PC*MILER. This summary can also be found by pressing the **<F1>** (Help) key:

***** = Keys that are active only after a route has been generated.

Key(s) Function

F1	Displays Help Menu.
Alt-F1	Reverses the order of stops on a route.
F2	Exits the PC*MILER application.
Alt-F2	Invokes Custom Place options.
F3	Displays a list of state abbreviations.
Alt-F3	Invokes the Parameter Menu.
F4	Invokes a menu of available route types.
Alt-F4	Displays the borders open or borders closed menu.
F5*	Displays the Detailed Route Listing report.
Alt-F5	Toggles between Miles and Kilometers as measure of distance.
F6*	Displays the State Mileage Summary report.
Alt-F6	Toggles between Hub mode and Normal mode.
F7	Inserts a stop below the cursor.
Alt-F7	Invokes HazMat routing options (available only as a separate add-on module).
F8	Deletes the stop the cursor is on.

Alt-F8	Deletes all stops on the screen.
F9*	Prints the current route reports
Alt-F9	Appends multiple reports together without page breaks..
Ctrl-F9	Causes the printer to eject a page (used in conjunction with **Alt-F9**).
F10	Generates routes and distances between stops.
Alt-F10	Resequences stops in an optimal route.
Alt-B	For the State Mileage Summary report, use this key to toggle between displaying states in the order the route travels through them, or in alphabetical order.
Alt-D	Displays a list of previously saved routes and allows the user to delete one or more.
Alt-L	Displays a list of previously saved routes and allows the user to select a route to load.
Alt-O	Invokes a printer options menu.
Alt-P	Set stop-off time and cost for individual stops.
Alt-S	Invokes Route Save to File feature.
<Esc>	Exit key, generally for pick lists and dialogs; returns to the previous screen.

3.17 Exiting PC*MILER

To exit PC*MILER, press the **<F2>** key. Answer the question "Exit PC*MILER?" by pressing the **<Y>** key. This will return you to the shell prompt.

4.0 ADDITIONAL FEATURES and OPTIONS

The following additional features and options are available in PC*MILER:

- Detailed Route Report
- Custom Time, Cost and Road Speed Values
- Route Parameters Editing
- Route Optimization
- Reversing the Stop Order
- Hub Distance Generator
- Custom Place Names
- Trip Saving and Retrieval

4.1 Detailed Route Report (Driving Instructions)

After generating a route, press the **<F5>** key (Route Report) to display detailed driving instructions. The Detailed Route Report lists routes, direction of travel, segment distances, interchange points, empty/loaded status for each leg, leg mileage, and cumulative mileage, as seen in the screen shown below:

```
+-------------------------------------------------------------------------------+
| PC*MILER|HAZMAT - NA, Practical, Open                          Version 29.0 |
+-------------------------------------------------------------------------------+
|12234 Albany, NY, Albany to 45003 College Corner, OH,  5 Stops,   1041.9 Miles|
| +---+---------------------------------------------------------------------+ |
| | State  Route     Miles Interchange                              Leg   Total | |
| | Origin: 12234 Albany, NY, Albany                                      0.0 | |
| |                                                                           | |
| | NY   E US-20         0 + US-20 US-20                            0       0 | |
| | NY   E US-20         0 + US-20 Ramp                             1       1 | |
| | NY   S Ramp          0 + Ramp US-20                             1       1 | |
| | NY   E US-20         1 + US-20 US-20                            2       2 | |
| | NY   S US-20         6 + US-20 Ramp                             8       8 | |
| | NY   S Ramp          0 + Ramp I-90                              8       8 | |
| | NY   E I-90          5 + I-90 Ramp                             13      13 | |
| | NY $ E Ramp          1 + Ramp I-90                             14      14 | |
| | NY $ E I-90 - B     18  (to NY/MA State Line)                  32      32 | |
| | MA $ E I-90 - M     93 + I-90 Exit 10A                        125     125 | |
| |vMA $ E Exit 10A      1 + Exit 10A US-20 Connector             126     126 | |
| +-------------------------------------------------------------------------+ |
+-------------------------------------------------------------------------------+
|                  View using ^,v, PgUp, PgDn, Home, End Keys                   |
|      F9-Print report                              <Esc> Return to Main Menu   |
+-------------------------------------------------------------------------------+
```

Detailed Route Report Screen

For convenience, the state-by-state mileage breakdownis listed at the bottom of the route report. Use the up and down arrow keys, **<PgUp>** (move up one screen), **<PgDn>** (move down one screen), **<Home>** (move to the top of the report), and **<End>** (move to the end of the report) keys to scroll through the report. Press the **<F9>** (Print) key to print the report.

Conventions used in the Route Report are:

$ -- marks the segment as a toll road.

For Direction of Travel:	**N**	North	**E**	East
	S	South	**W**	West

Additionally, Detailed Route reports for PC*MILER 53' Trailer and Twins routes may warn that a road is "Not Designated" if that road is necessary to reach an origin, destination or stop-off outside of the maximum access distance for that state. See section 1.4.7 for a full description and explanation of these warnings.

4.2 About Cost Estimation

PC*MILER calculates a total cost for each route generated. This cost estimate is determined by multiplying a dollar amount per mile ($/Mile) parameter by the number of miles; additionally, costs for stops can be entered by the user, and these will be added to the total cost estimate.

The cumulative cost appears, along with the total mileage and the time estimation, in the route entry screen after the route is generated. PC*MILER's default $/Mile parameter value is $1.36 per mile, and can be edited. Refer to sections 4.4 and 4.5 below to learn how to enter your own cost parameters.

4.3 About Time Estimation

PC*MILER calculates a time estimation for each route generated. The time estimate is computed by summing up the estimated time traveled on each road segment for the route plus an added stop-off time, if entered, for each stop along the route.

Each road segment falls into one of eight road classes and each road class has a different average speed parameter assigned to it. Spreading the estimated average speed over the various road classes allows you to get a more accurate estimate of the "total time" traveled based on the quality of road used. The parameters can be changed to reflect your own estimates (see sections 4.4 and 4.5 below).

NOTE: If you are attempting to increase the "Real World" accuracy of the PC*MILER time estimates, you should know that while PC*MILER time estimates are an accurate reflection of time spent driving, PC*MILER does not account for traffic congestion, stop lights, waiting time at toll booths and the like. For this reason, generally you will have to set speed limits lower than the default limits, using slower speeds for heavily developed states.

There are twelve road speed classes (six road types, with "urban" and "rural" classifications for each). Each class has an average road speed parameter assigned to it. Spreading the estimated average speed over the various road classes gets a more accurate estimate of the total time traveled based on the quality of the road used. See descriptions of road classes below.

PC*MILER ROAD CLASSIFICATIONS

Interstate Highways	• The primary function of these roads is to move high volumes of vehicular traffic over medium to long distances at high speeds • Can be accessed only via access ramps • Always have a barrier or median between opposing lanes of traffic • Multi-lane
Divided Highways	• These roads are major arteries that move heavy volumes of traffic at moderate speeds • Can be limited access in some areas but may also offer access from local roads • Usually have a barrier or median that prevents movement between lanes of opposing traffic • Medians may have crossovers that are part of the normal traffic pattern • Left turns are often restricted, both off of the highway and onto the highway • Multi-lane • Many but not all US highways are in this class
Primary Highways	• These roads move significant volumes of traffic at moderate speeds • Most state roads fall into this class
Secondary Roads	• These roads move moderate volumes of traffic over short to moderate distances • Serve to carry vehicles from local roads to higher class roads
Local Roads	• Function is to provide access to homes and properties
Ferries	• Ferry routes (boarding/exit time not included)

4.4 User-Defined Stop-Off Time and Stop-Off Cost

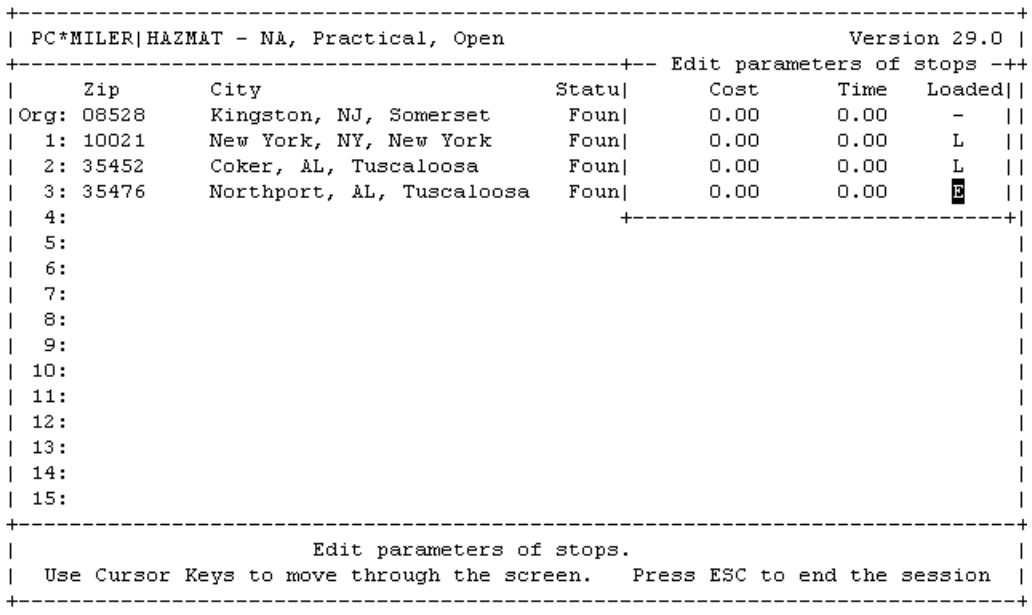
With PC*MILER, you can define a **stop-off time** estimate. This enables you to incorporate a time delay factor, associated with stopping at each point along the route, into the total time estimate.

For example, if you define the stop-off time estimate to be 1.0 hour, the total time estimate increases by 1 hour for each stop on a route. If there are nine stops along the route, the total time estimate (driving time plus delay time at each stop) would reflect a 9.0 hour increase (9 stop-offs x 1.0 hour/stop-off). The default stop-off time is 0 hours/stop. (To add a stop-off time, see section 4.5 below.)

PC*MILER also lets you define a **stop-off cost** estimate. This enables you to incorporate a cost factor, associated with stopping at each point along the route, into the total cost estimate for the trip. The default stop-off cost is $0/stop. (To add a stop-off cost, see section 4.5 below.)

Additionally, the stop-off time and cost can be set by the user **for individual stops**. Typing **<Alt-P>** invokes a screen containing one line for each stop on the stop list. Each line may be edited. Tab or space over the columns to the fields you wish to edit. You can use **<Shift-Tab>** to return to a previous edit field.

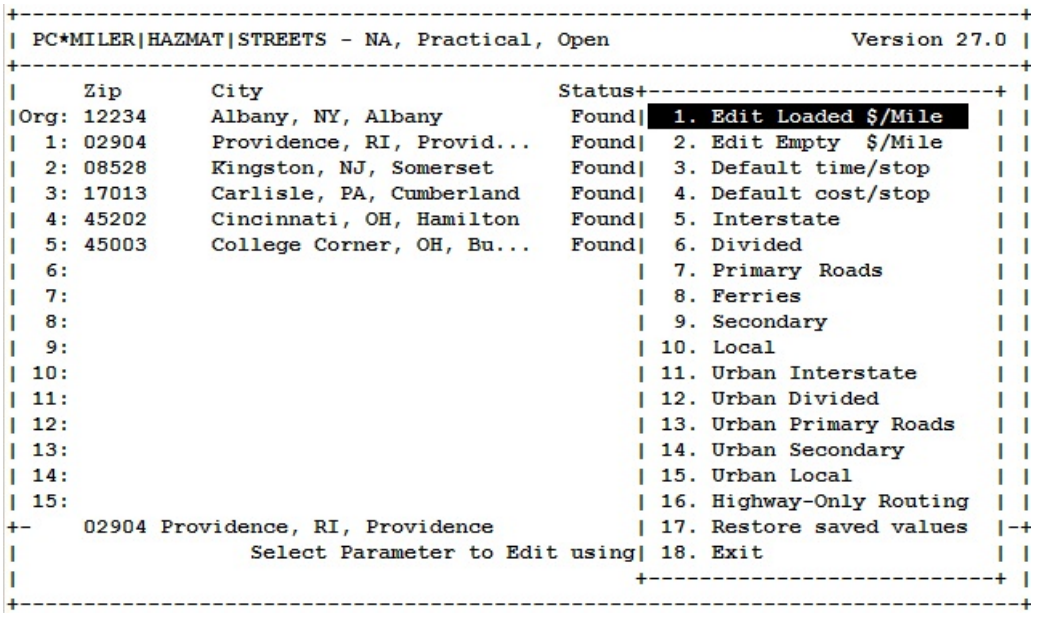
In this dialog, each leg of the trip is labeled "L" for loaded or "E" for empty to indicate either a loaded move or a backhaul. These designations may be edited. The price per mile for loaded and empty legs is set in the Parameter Menu (see section 4.5 below). The default value for both is **$1.36**. Edited time and cost values will be reflected in screen reports when you generate a route.



Editing Stop Parameters

4.5 Editing the Time and Cost Parameters

The time and cost parameters used to compute Total Cost and Total Time estimates are read in from a file and can be edited and saved using the Parameter Menu. To display this menu, press the **<Alt><F3>** keys.



Routing Parameters Menu Screen

Use the **<Up>** and **<Down>** arrow keys to scroll through the menu to the desired selection. Press **<Enter>** to edit the value of the selected parameter.

The options in the Parameter Menu are listed below. Average road speeds for each road category are set for individual states – see Step 2 below.

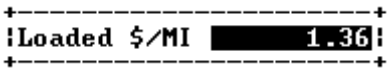
1. Cost per mile for Loaded legs (this cost will be applied against legs labeled "L" using **<Alt-P>**)
2. Cost per mile for Empty legs (this cost will be applied against legs labeled "E" using **<Alt-P>**)
3. Default hours per stop
4. Default cost per stop
5. Interstate highway speed (Freeways)
6. Divided highway speed
7. Primary highway speed
8. Ferries speed
9. Secondary highway speed

10. Local road speed
11. Urban Interstate hIghway speed
12. Urban Divided highway speed
13. Urban Primary Roads highway speed
14. Urban Secondary highway speed
15. Urban Local road speed
16. Highway-Only routing (for PC*MILER|Streets users – PC*MILER will route using an air distance from the center of the nearest highway road segment to the address or centroid, rather than routing on local streets.)
17. Restore saved values (Restores the most recently saved set of parameters from disk. Useful to return to "normal" mode after customizing parameters for a certain route.)
18. Exit

To edit a parameter, do the following:

STEP 1: Select the desired parameter

Highlight the desired parameter and press **<Enter>**. A prompt will appear showing the current value of the parameter, for example:



STEP 2: Type in the desired value

To change the value of the parameter, simply type over the current value, using the decimal key if required. Note that **average road speeds are by state**, therefore a two-letter state abbreviation must be entered before entering the speed (type the abbreviation then press **<Enter>**). Use the **<F3>** key to bring up a list of valid state/province abbreviations.

There is a range of acceptable values for each type of parameter:

- $/Mile value: maximum $100.00
- Time value: greater than or equal to 0, less than 100
- Time Estimate/Stop value: maximum 99
- Cost Estimate/Stop Value: maximum $10,000.00
- Speed: 1 to 100 miles per hour

STEP 3: Press **<Enter>**

Once the desired value has been typed in, press **<Enter>** to return to the Parameter Menu.

STEP 4: Select "Exit" to save or cancel your edits

After entering all desired changes to the parameters, arrow down and choose "Exit" or press <Esc> to return to the route entry screen. A prompt will ask if you want to save the current values. A reply of **<Y>** will **save** the edit parameters to disk as defaults. A reply of **<N>** will cancel the changes you made.

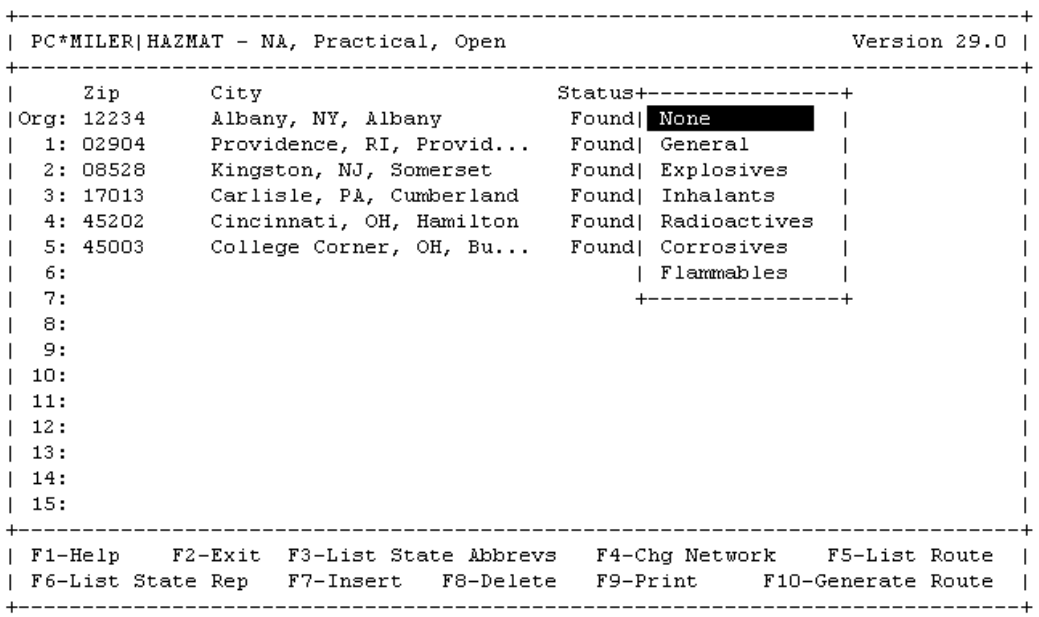
NOTE: It is recommended that the parameters be changed to reflect your own experience the first time you run PC*MILER.

4.6 Hazardous Material Routing

If you purchased the separate PC*MILER®|HazMat™ add-on data module, you can run Practical, Shortest, National Network and Toll Discouraged routes for various types of hazardous materials. To bring up the Hazardous Materials Routing options menu, press **<Alt-F7>**.

PC*MILER calculates routes for hazardous materials based on over thirty different road categories. PC*MILER route options for running a hazmat route include: **General**, **Explosives**, **Inhalants**, **Radioactives, Corrosives**, and **Flammables**. To calculate normal (non-hazmat) PC*MILER routes, select **None** (this is the default setting).

To select a hazmat routing option after pressing **<Alt-F7>**, use the arrow keys to scroll down the list, highlight your choice, then press **<Enter>**.



Hazardous Material Routing Options

Table 1 below shows U.S. DOT Hazmat classes and the corresponding PC*MILER route type.

Table 2 below shows how each PC*MILER hazmat route type handles each Department of Transportation (U.S. and Canada) hazmat road category.

NOTE: The "General" option should be used for any hazardous material that presents a danger during transportation and is not corrosive, explosive, flammable, inhalant, or radioactive. Common examples include: oxidizers (such as compressed oxygen tanks), combustible liquids (such as diesel fuel), and poisons (such as pesticides).

TABLE 1: U.S. DOT Hazmat Classes and Corresponding PC*MILER Hazmat Route Types

The table below shows how the wording used for PC*MILER hazmat routing options, which is derived from industry-standard placarded descriptions of hazardous materials, corresponds to the U.S. Department of Transportation Hazmat classifications.

U.S. DOT Hazmat Classes (corresponding PC*MILER routing options are **bolded**):
Class 1: Explosives – **Explosive**
Class 2: Compressed Gases 2.1: Flammable Gas – **Flammable** 2.2: Non-Flammable Compressed Gas – **General** 2.3: Poisonous Gas – **Inhalant**
Class 3: Flammable and Combustible Liquid – **Flammable**
Class 4: Flammable Solids 4.1: Flammable Solid – **Flammable** 4.2: Spontaneously Combustible Material – **Flammable** 4.3: Dangerous When Wet Material – **General**
Class 5: Oxidizers – **General**
Class 6: Poisons 6.1: (part) Inhalation Hazard – **Inhalant** 6.1: (balance) – **General** 6.2: Infectious Substance (Etiologic agent) ["Biohazard"] – **General**
Class 7: Radioactive Materials – **Radioactive**
Class 8: Corrosive Liquids – **Corrosive ("Caustic" in PC*MILER 22 and earlier)**
Class 9: Miscellaneous – **General**

TABLE 2: PC*MILER Hazardous Material Route Types and Road Categories

favor = routing will prefer these segments
no change = routing will not be altered in any way
avoid = routing will go around these segments whenever possible
discourage = a lesser degree of avoidance, used when a state or road authority allows hazmat only at certain times of day, with prior notification, by permit, or in limited quantities, and for tunnels not otherwise classified

#	Hazmat Routing Category	General	Corrosive	Explosives	Flammable	Inhalants	Radioactive	Detailed Route Report	Hazmat Map Legend
1	Alternate	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
2	Preferred	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
3	Designated	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
4	Prohibited	avoid	avoid	avoid	avoid	avoid	avoid	Prohibited	Prohibited
5	Restricted	discourage	discourage	discourage	discourage	discourage	discourage	Restricted	Restricted
6	Harmful to Water Prohibited	no change	no change	no change	no change	no change	no change	Harmful to Water Prohib.	Some Cmds Prohib
7	Explosive Designated	no change	no change	favor	no change	no change	no change		Desig Expl
8	Inhalant Designated	no change	no change	no change	no change	favor	no change		Desig Inhal
9	Explosive & Inhalant Designated	no change	no change	favor	no change	favor	no change		Desig/Pref/Alt
10	Tunnel	discourage	discourage	discourage	discourage	discourage	discourage	Tunnel	Restricted
11	Tunnel & Alternate	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
12	Tunnel & Preferred	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
13	Tunnel & Designated	favor	favor	favor	favor	favor	favor		Desig/Pref/Alt
14	Tunnel & Prohibited	avoid	avoid	avoid	avoid	avoid	avoid	Prohibited Tunnel	Prohibited
15	Tunnel & Restricted	discourage	discourage	avoid	avoid	avoid	avoid	Restricted Tunnel	Restricted
16	Tunnel & Large Explosive, Inhalant, and Flammable Prohibited	no change	no change	no change	no change	no change	no change	Many Cmds Prohib.	Some Cmds Prohib
17	Tunnel & Large Explosive and Inhalant Prohibited	no change	no change	no change	no change	no change	no change	Expl. & Inhal. Prohib.	Some Cmds Prohib
18	Caustic, Explosive, Flammable & Radioactive Prohibited	no change	avoid	avoid	avoid	no change	avoid	Many Cmds Prohib.	Some Cmds Prohib
19	Explosive Restricted	no change	no change	discourage	no change	no change	no change	Explosive Restricted	Restricted
20	Tunnel & Very Large Explosive Prohibited	no change	no change	no change	no change	no change	no change	Explosive Restricted	Some Cmds Prohib
21	Explosive & Flammable Prohibited	no change	no change	avoid	avoid	no change	no change	Expl. & Flam. Prohib.	Some Cmds Prohib
22	Radioactive Preferred	no change	no change	no change	no change	no change	favor		Desig Rad

#	Hazmat Routing Category	General	Corrosive	Explosives	Flammable	Inhalants	Radioactive	Detailed Route Report	Hazmat Map Legend
23	Radioactive Designated	no change	no change	no change	no change	no change	favor		Desig Rad
24	Radioactive Prohibited, Explosive Restricted	no change	no change	discourage	no change	no change	avoid	Rad. Prohib., Expl. Restr.	Some Cmds Prohib
25	Radioactive Prohibited	no change	no change	no change	no change	no change	avoid	Radioactive Prohibited	Some Cmds Prohib
26	Escort Needed	no change	no change	no change	no change	no change	no change	Escort	None
27	Explosive and Flammable & Harmful to Water Prohibited	no change	no change	avoid	avoid	no change	no change	Many Cmds Prohib.	Some Cmds Prohib
28	Explosives, Inhalant & Radioactive Designated	no change	no change	favor	no change	favor	favor		Desig/Pref/Alt
29	Radioactive & Explosive Designated	no change	no change	favor	no change	no change	favor		Desig/Pref/Alt
30	Radioactive & Explosive Prohibited	no change	no change	avoid	no change	no change	avoid	Rad. & Expl. Prohib.	Some Cmds Prohib
31	Radioactive & Explosive	no change	no change	discourage	no change	no change	discourage	Rad. & Expl. Restr.	Restricted

NOTE: U.S. hazardous material routing restriction/designation information taken from *The National Hazardous Materials Route Registry* provided by the Federal Motor Carrier Safety Administration (FMCSA); and various other state and federal sources. Canadian hazmat data derived from government and municipal sources in each Province and Territory, and includes hazmat restrictions for major Canadian bridges and tunnels.

4.6.1 Routing Multiple Hazmat Classes

For routing a single shipment containing multiple hazmat classes, the following procedures are suggested:

1. First, determine the weight of each commodity and check the U.S. DOT (PHMSA) rule to see if that combination is permissible and if so, which placard(s) are to be used.

2. Then, for each placard, look up the PC*MILER|Hazmat routing options in the table above.
   a. If all the placards correspond to one routing option, use that option.
   b. If the placards correspond to multiple routing options, then run the route for each option and:
      i. If all the routes are the same, that common route is the route to be used.
      ii. If the routes are different, then there may or may not exist a legal route for that combination of commodities for the specified origin/destination (this will occur only rarely).

4.7 Route Optimization

Route Optimization reorders up to a **maximum of 29 stops** to minimize the total distance (when using Shortest Route), the total time (when using Practical Route), total toll distance (when using Toll Discouraged Route), and distance off the National Network (when using the National Network).

NOTE: Changes made to trip parameters do not affect route optimization.

The system will allow you to review the sequenced route and make any necessary changes before generating distances and driving instructions. However, route optimization cannot be undone; that is, the original order of stops cannot be recovered. You may want to save the original order of the stops before optimizing (see section 4.11).

Two options are available when you optimize a route, both of which keep the origin location the same:

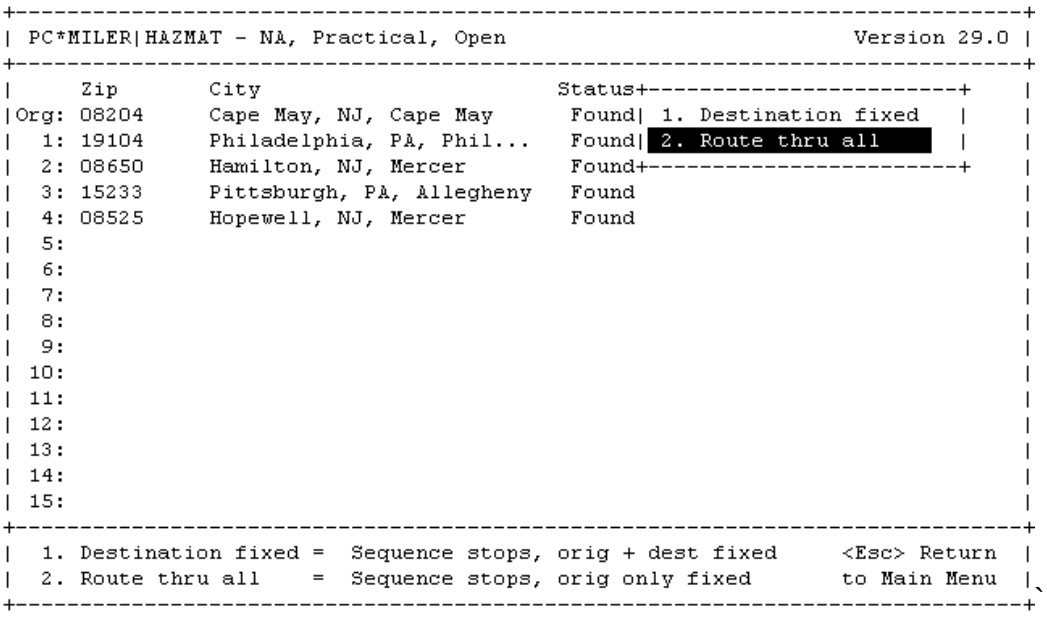
- **Destination Fixed**: Reorders stops, but keeps the same origin and the last stop as the destination.
- **Route Through All**: Keeping the same origin, allows PC*MILER to reorder all other stops on the list.

The steps for route optimization are:

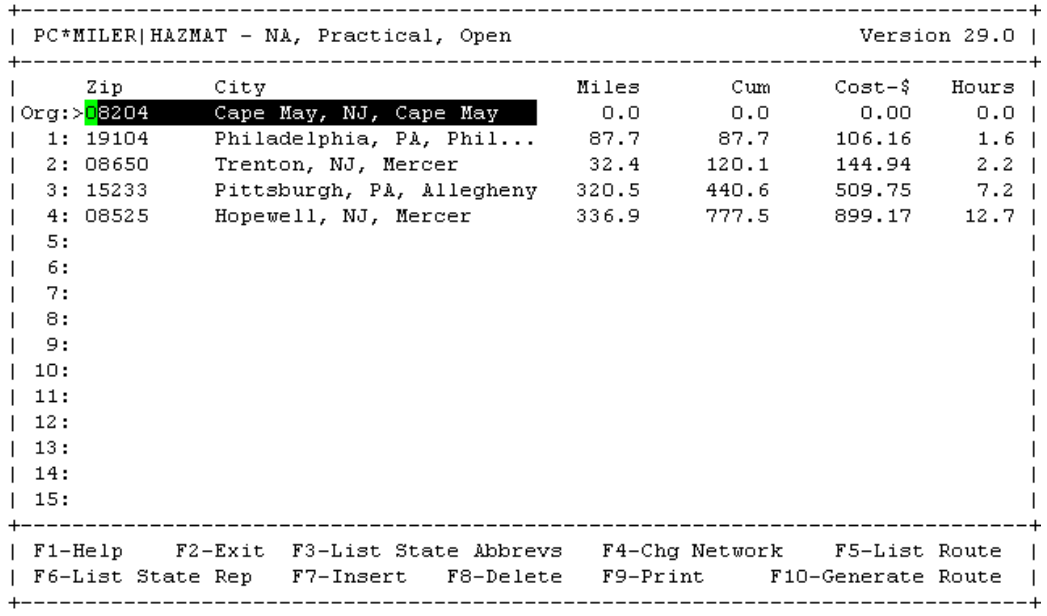
STEP 1: Enter an origin and up to a maximum of 29 stops.

STEP 2: Press the **<Alt><F10>** keys to initiate route sequencing.

STEP 3: Select an option: Use the arrow keys to highlight **Destination Fixed** or **Route Through All** then press **<Enter>**. Be patient, optimization may take a few seconds. Use the **<ESC>** key to exit the options menu without optimizing.



Route Optimization Options



Optimized Route Using "Route Through All"

4.8 Reversing the Order of Stops

Pressing **<Alt-F1>** will reverse the order of the stops that have been entered. This is especially useful when used in conjunction with route optimization (described in section 4.7 above).

4.9 Hub Distance Generator

With PC*MILER, you can generate mileage from one origin, defined as the "Hub", to up to 29 destinations as shown in the steps below.

STEP 1: Enter the Hub mileage mode by pressing the **<Alt><F6>** keys. Note that the first stop on the stop list is now identified as the "HUB" on your screen as a reminder that this is a hub route. If stops have already been added to the stop list, a Hub route will be generated immediately.

STEP 2: Enter the Origin (Hub) and up to 29 destinations as though they were stop-offs.

STEP 3: Press the **<F10>** key to generate distances.

To disable hub routing, use **<Alt><F6>** again.

The Detailed Route Report and State Mileage Summary Report are available for Hub routes. (See sections 4.1 and 3.12 for how to generate these reports.)

```
+-------------------------------------------------------------------------------+
| PC*MILER|HAZMAT - NA, Practical, Open                          Version 29.0 |
+-------------------------------------------------------------------------------+
|      Zip       City                        Miles     Cost-$   Hours          |
|HUB: 08204     Cape May, NJ, Cape May         0.0       0.00     0.0          |
|D 1: 19104     Philadelphia, PA, Phil...     87.7     106.16     1.6          |
|D 2: 08650     Trenton, NJ, Mercer          106.1     127.22     1.9          |
|D 3: 15233     Pittsburgh, PA, Allegheny    368.6     431.48     6.2          |
|D 4: 08525     Hopewell, NJ, Mercer         130.7     157.06     2.3          |
|D 5:>                                                                          |
|D 6:                                                                           |
|D 7:                                                                           |
|D 8:                                                                           |
|D 9:                                                                           |
|D10:                                                                           |
|D11:                                                                           |
|D12:                                                                           |
|D13:                                                                           |
|D14:                                                                           |
|D15:                                                                           |
+-------------------------------------------------------------------------------+
| F1-Help    F2-Exit  F3-List State Abbrevs   F4-Chg Network    F5-List Route  |
| F6-List State Rep   F7-Insert   F8-Delete   F9-Print     F10-Generate Route  |
+-------------------------------------------------------------------------------+
```

Generated Hub Route

4.10 Creating Custom Place Names

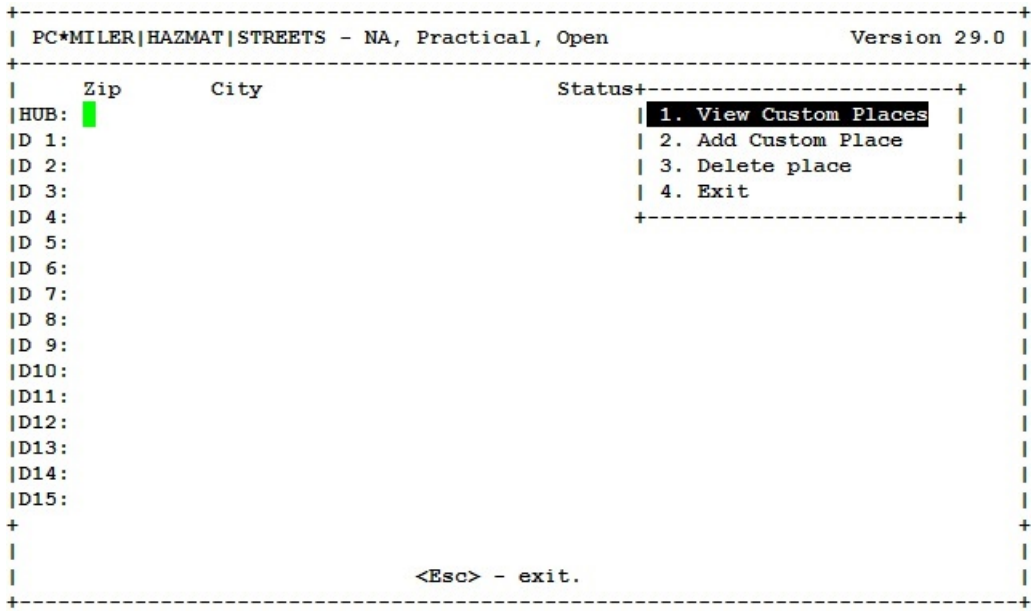
PC*MILER gives you the capability to assign your own names to existing locations in the PC*MILER database. When added to the stop list, a custom name will appear with an asterisk next to it. Custom Places can also be defined using latitude/longitude coordinates.

To view, add, or delete custom places, press the **<Alt-F2>** keys on your keyboard. To select an option in the options menu that appears, use the up and down arrow keys to highlight it and then press **<Enter>**.

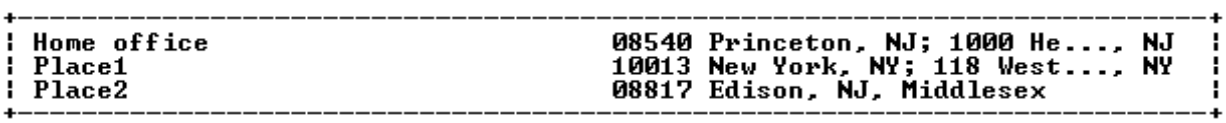
1. View Custom Places

This option enables you to view a list of all custom places that have previously been created and saved in the database.

NOTE: If more than 15 custom places are listed, use the down arrow key to scroll the list. Place names may not be edited.



Custom Place Options Menu



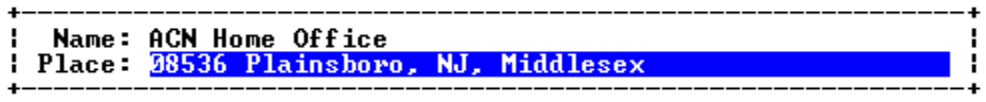
List of Custom Places in the Database

2. Add Custom Place

To add a new custom place name to the database, highlight "Add Custom Place" in the custom place options menu and press **<Enter>**.

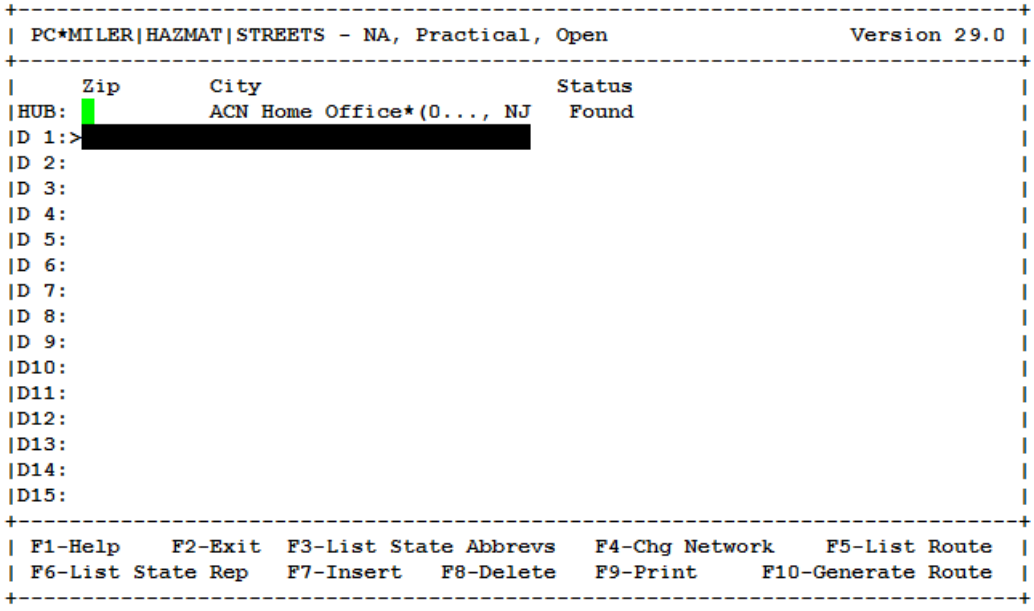
Type your custom name in the **Name** field that appears, then press **<Enter>** or the **<TAB>** key. In the **Place** field, type the proper name or ZIP code of the place:

Then press **<Enter>**. The place name as it appears in the PC*MILER database will then be returned:



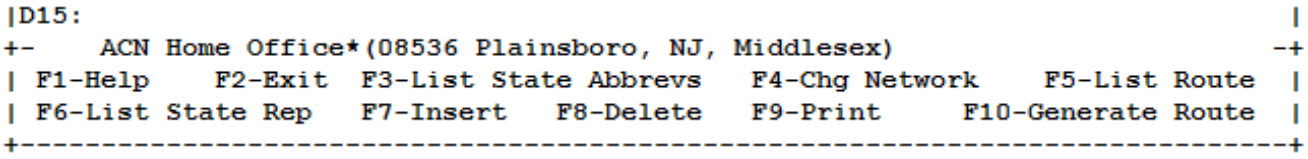
Press **<F10>** to add the new custom name and return to the custom place menu. Scroll down to "**4. Exit**" and press <Enter> when finished with the menu.

When you enter a custom name as a stop, it will appear on the stop list marked with an asterisk:



Custom Place Entered As a Stop

To determine the location of a custom place on the stop list without using the options menu, highlight the place. Its full name will appear at the bottom of your screen (above the program options), with location information in parentheses:



NOTE: A custom place can include an address if PC*MILER|Streets data is installed. At the end of the city name or ZIP code, type a semicolon (**;**) then the address.

Spelling help is available for custom place entry. If you are not sure of the proper name, type the first few letters (at least two) followed by an asterisk, a comma, and the state abbreviation (example: **ki, nj**). This will invoke a pick list of all possible matches in the PC*MILER database. In the pick list, use the up and down arrow keys to highlight a selection and press **<Enter>**.

NOTE: A word of caution on Custom Places and latitude/longitude points: The underlying PC*MILER highway network is broken up into component road segments. The place where two or more road segments join together is called a *node*.

When you use latitude/longitude points as stops within PC*MILER, coordinates you enter are translated to a point on the PC*MILER highway network. PC*MILER then connects this point via a straight "Air Distance" route to the nearest node, not to the nearest road segment. This routing is reported as "Local" on the Detailed Route Listing Report.

Thus you may define a custom place that is 1 mile south of the nearest PC*MILER road segment, but this point is actually 10 miles from the nearest Node. When you route to this custom place your total mileage will be 9 miles higher than you might expect. You may need to adjust your latitude/longitude coordinates to move the location of a custom place so that when you route to it, PC*MILER returns a mileage that matches the actual driving distance on your route.

Also, PC*MILER allows for the use of latitude/longitude points on off-shore islands. It is possible to create custom places up to 150 miles off shore and 150 miles past the last truck-usable road in northern Canada.

When creating custom places using latitude/longitude points you should always test your new places in the following manner:

1. Create the custom place.

2. Run a route with the new custom place as the origin and a nearby PC*MILER place as the destination.
3. Press the **<F5>** key to produce the detailed report, make sure that the 'Local' Distance in the first leg listed is reasonable.

If you would like a location permanently added to the PC*MILER database, contact ALK at pcmsupport@alk.com or (609) 683-0220 ext. 2.

3. Delete Place

To delete a custom place name, highlight "Delete Place" in the Custom Place Options menu and press **<Enter>**. Use the up and down arrows to highlight the name to delete, then press **<Enter>**.

4. Exit

To exit the Custom Place dialog, highlight "Exit" in the Custom Place Options menu and press **<Enter>**, or use the **<ESC>** key.

4.11 Saving and Retrieving Trips

With PC*MILER, you can save a list of points to a file for later retrieval. This is particularly useful for trips you run frequently.

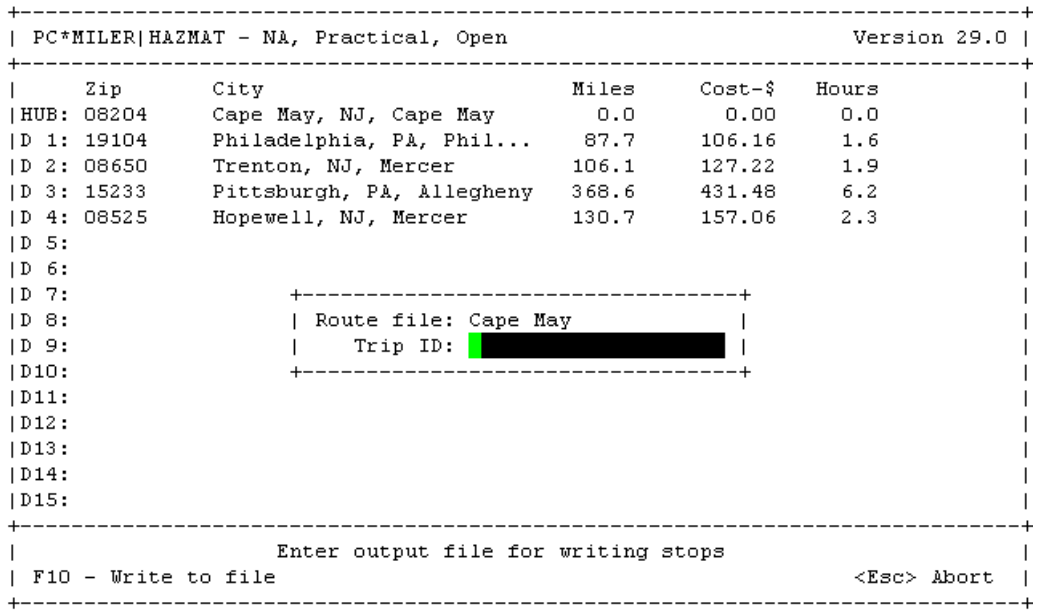
To save a route either before or after processing, enter your route in the route entry screen and press **<Alt><S>**. You will then be prompted for a file name. Valid file names can be up to eight characters in length. Spaces, periods and other punctuation marks are not valid characters.

Once you have entered a file name, PC*MILER will ask for a trip identifier. This optional memo field, which can be up to 20 characters in length, can be used to record a trip date, driver log number, driver name, or other reference. The notes you enter here will be displayed in the pick list of saved routes that you will use when you retrieve a route.

When the file name and trip ID fields are completed, press **<F10>** to save the file or **<ESC>** to abort. Files are saved to **../pcm290/na/options**. The following information is saved along with a route: route options, route parameters, individual stop and leg settings, and reports.

If the file name that you specified is an existing file, PC*MILER will ask you if you want to append the route to the existing file or overwrite the file. Highlight

your choice and press **<Enter>**. **Remember: the maximum number of stops allowed on a route is 29.**



Route Save Prompt

Note that appended files do not retain mileage, cost and time information. (The most common reason why users append files is in order to tally total mileage at some regular interval. This is done by retrieving one large file and running it using ALK's PC*MILER®|BatchPro™ module in conjunction with PC*MILER.)

To load a previously saved file, press **<Alt><L>**. This will bring up a pick list of all your saved trip files. The pick list will include any notes you entered in the memo field when you saved the route. Use the up and down arrow keys to scroll through the pick list and press **<Enter>** to load the file. Points will be loaded into the PC*MILER route entry screen in the same order in which they were originally saved. All the settings used to create it will be restored. If the route was run before it was saved, you do not need to rerun it in order to see reports.

NOTE: To be successfully retrieved, a trip file cannot have more than 30 stops including the origin. A maximum of 1000 routes can be saved using RouteSave (**<Alt><S>**). However, the actual number of files you can save is also limited by the amount of disk space available on your computer.

To delete trip files that are no longer needed, press **<Alt><D>** to bring up a pick list of all your saved files. Scroll through the list and press **<Enter>** to delete a file, or **<ESC>** to abort.

4.12 Printer Options

When you press **<Alt-O>**, the following printer options will appear:

1. Select Printer Port
2. Printer Lines per Page

Select Printer Port:

Choosing "Select Printer Port" enables you to designate the printer queue to which PC*MILER will send reports.

NOTE: An additional environment variable PCM_PRINTER=<*print spool name*> (all caps) can be set to ensure that all printouts will be directed to the selected device.

Printer Lines per Page:

"Printer Lines per Page" allows you to adjust the page layout of reports to accommodate different printers. Enter the desired number of lines per page in the dialog that appears, then press **<Enter>**.

Save current settings:

To save the settings you changed, choose "Save current settings" or press **<ESC>** and type "Y" at the prompt. To exit without saving changes, press **<ESC>** and type "Y".

5.0 TROUBLESHOOTING and TECHNICAL SUPPORT

Some of the technical support questions received by ALK Technologies are addressed below. Please read this chapter first before contacting us. Also see section 3.1.10 for help with an "**Error**" message during route entry.

If your question is not answered below, here is the contact information you need:

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

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

5.1 Commonly Encountered Problems

Below are some of the most common problems (P) encountered in PC*MILER and the suggested solutions (S).

P **Function keys don't work properly.**

S
1) Make sure that the terminal type set on your system and the terminal type set on your monitor are the same.
2) Make sure that you have definitions for the function keys in your terminal information file. See the technical support information in the Appendix for more details.
3) See section 2.9, *Alternate Keys for UNIX (AIX, Solaris, HP-UX or LINUX).*

P **"System File Missing. Execution Terminated " message appears during execution.**

S Make sure that the path for PC*MILER data files is set up correctly.

P **When I use PC*MILER, parts of the screen are missing. What is wrong?**

S Make sure that your terminal information mappings are set up correctly.

P **When I try to print a report using the <F9> key, the screen locks up.**

S Make sure that the printer name has been entered correctly. Then check to see whether the printer is off-line and/or if the plug or cable is incorrectly connected. Next, check that the printer is not out of paper. Finally, make sure that your printer is connected properly. You should look at the */tmp/pcmiler.info* file for errors.

P **Sometimes when I am using PC*MILER, I get strange mileage and/or cities and states are missing.**

S It is possible that something happened to the files on your hard disk during installation or after general use. Please try reinstalling PC*MILER. If the problem persists, please contact the ALK Technical Support Hotline.

P **"Unable to Create Temporary Files. Please Set Your TEMP Environment Variable" message appears when trying to enter PC*MILER.**

S Make sure that the TEMP environment variable is set to a directory that can be written to. For instance, if you are using a machine without a hard disk, set it to a network drive instead of the default #.

To do this, place the line **TEMP=<*a writeable disk and directory*> export TEMP** in your system login script if there isn't one there already. If the TEMP variable already exists, make sure that the directory that is designated by this variable exists.

P **How do I select a printer other than the default?**

S You have two options:

1) An environment variable can be set as follows:
   PCM_PRINTER=<*spool name or queue name*>

2) Start PC*MILER. Press **<Alt-A>**. Choose **select printer port** (number **2**) and enter the queue or spool name, then press **<Enter>**.

Now select startup settings (number **1**), press **<Enter>**, set **use local printer** to "yes", press **<Enter>**, press **<ESC>** twice. Choose "yes" for **save current settings to disk**.

P **How can I use a command other than "LP", and how do I supply additional command line arguments to the LP command?**

S The PCM_LP_COMMAND environment variable is included in PC*MILER. This environment variable can be used to override the default behavior when printing from PC*MILER. If the PCM_LP_COMMAND variable is set, PC*MILER will execute its contents instead of the **LP** command when printing is activated. It will be executed with a single parameter as the name of the temporary file to be printed. For example:

set PCM_LP_COMMAND=/usr/local/bin/my_print.sh

The contents of the **my_print.sh** file are:

```
#!/bin/sh
lp -o nobanner -c $1
```

PC*MILER will remove the temporary file as soon as your command terminates. Thus the **-c** option in the **lp** command line in the example above (it forces the spooler to copy the file instead of just linking).

5.2 Warning Messages

Warning messages that you may encounter while using PC*MILER are listed alphabetically below. These messages will appear near the bottom of the route entry screen. Pressing the <**ESC**> key will reset PC*MILER and allow you to continue.

Bad Records found in Input File

P The file that you are trying to load contains an invalid stop.

S Make sure that all stops listed in your input file exist in the PC*MILER database.

City Name Not Found

P PC*MILER can not locate the city name in the PC*MILER database.

S Check the spelling of the city name and reenter. If that does not work, type the first two letters of the city name and use the [*] (wild card character) to invoke the city helper. Scroll down the list until you find the city name. It is possible that a correctly spelled city name is spelled differently in PC*MILER's database of city points.

Invalid Stop in List - No Route Generated

P One of the stops in the sequence of stops does not have a "Found" label in the status column.

S All stops listed between the origin and the final stop must have a "Found" label next to them. Delete or correct the invalid stops. Delete those stops that are blank prior to regenerating the route.

Invalid ZIP Code-ZIP Code Not Found

P PC*MILER can not locate the entered ZIP code.

S Use the ZIP Code Helper by entering two or three digits and the [*] character to get a listing of those matching ZIP codes.

Longer Name/ZIP is Needed

P Not enough characters or digits were entered.

S At least two digits must be entered when entering in ZIP codes. At least two city characters, the [*] character, and two state characters must be used when entering city and state information. Re-enter the city and state information using more characters.

No Matching Names Found

P PC*MILER cannot locate any city names matching the city name abbreviation that you have entered.

S Invoke the spelling helper using fewer characters.

No Matching ZIPs Found

P PC*MILER could not locate any matching ZIP codes.

S Enter fewer digits for a larger listing of ZIP codes

No Selection Made

P No selection was made by the user after invoking the Spelling Helper or the ZIP Code Helper.

S Re-invoke the Spelling or ZIP Code Helper and press the **<Enter>** key or press the **<ESC>** key to continue.

Not enough stops to sequence

P The user does not have enough stops to sequence.

S There must be more than two stops entered to sequence.

State Not Found

P PC*MILER cannot locate the state abbreviation.

S PC*MILER assumes that the last two characters entered represent the state abbreviation. The state abbreviation entered is not a valid PC*MILER state abbreviation. Check the list of state abbreviations for the correct entry using the **<F3>** key.

Too many stops in input file

P Using RouteSave, you have created a file that has more than 29 stops. This could occur if too many trips are appended to the same file.

S Delete this file and create a new one with no more then 29 stops.

Two Characters are Required for City Helper

P Only one character besides the [*] character was entered for the city.

S Re-invoke the City Helper using at least two characters for the city name.

Unable to determine optimal sequence

P PC*MILER's route sequencing algorithm is unable to determine the optimal sequence of stops. The stops entered cannot be solved within the current memory (RAM) allocation for PC*MILER.

S Enter fewer stops and re-invoke Route Sequencing by pressing the **<Alt><F10>** keys.

Unable to open Output File(s) needed

P The user does not have the correct privileges on the network.

S Contact your System Administrator to have your privileges changed.

Unable to print: Printer is not ready

P The user is trying to print when there is a problem with the printer.

S Make sure the printer is connected properly and that it is on-line.

Unable to write options file

P The user does not have the correct privileges.

S Contact your System Administrator to have your privileges changed.

Dynamic linker : ./pcmiler : could not open libxerces-c1_3.so

P The user cannot run the PC*MILER interactive program from a command line.

S Do not directly run the PC*MILER execuble with a relative reference. During installation a Shell Script called "pcmiler" is written to /usr/bin. This script sets a library path variable to point to the top level of your PC*MILER installation and then runs the PC*MILER executable.

*PC*MILER|Connect Tester will not Run*

P PCMSTEST will not run gives **dynamic linker : ./pcmstest : could not open libpcmsrv.so Killed** error.

S You must set your library path environment variable to point to the top level of your PC*MILER installation before you can use PC*MILER|Connect (see platform-specific examples on next page).

AIX:
LIBPATH=/usr/../pcm290

HP:
SHLIB_PATH=/usr/../pcm290

No Route Found

P The user has entered a truck-restricted place. Could be an attempt to route between North America and Greenland, Puerto Rico, Bermuda, or Hawaii.

S Try entering an alternate ZIP code.

5.3 Database Support

The ALK North American Highway Network, the primary database used by PC*MILER products, undergoes constant revision. Revisions include (but are not limited to) addition of new roads; upgrades of improved sections of highway; and addition of new Key Cities.

ALK is dedicated to maintaining a highway network of the highest quality and welcomes user input and comments. If you encounter any problems related to mileage, routing or highway names, please print a copy of the route listing highlighting the problem (such as incorrect road name, mileage, city name, ZIP code) and send it to:

PC*MILER PRODUCTS DIVISION
ALK TECHNOLOGIES, INC.
457 North Harrison Street
Princeton, NJ 08540
FAX: (609) 683-0290

5.4 PC*MILER Updates

PC*MILER for UNIX updates are offered on an annual basis. Updates include minor revisions to the PC*MILER software, the addition of major new features, and updates to the North American Highway Network and Local Streets databases and various other databases used in route calculations. To order your update today, contact your PC*MILER dealer or ALK Technologies directly.

ALK Technologies, Inc.
457 North Harrison Street
Princeton, NJ 08540
PC*MILER SALES: 1-800-377-MILE
www.alk.com

6.0 ALK TECHNOLOGIES, INC.

ALK® Technologies, Inc., a Trimble® company headquartered in Princeton, NJ, was founded in 1979 as a transportation industry pioneer. ALK harnesses the power of information technology to enhance transportation and mobility, supporting competitive advantage and improved quality of life.

Today, ALK is a global leader in GeoLogistics® solutions and navigation software, focused on developing innovative solutions for transportation, logistics, mobile workforces and consumers. Product lines include award-winning CoPilot®, a leading source of GPS navigation software for fleets, mobile operators, hardware OEMs, systems integrators, professional drivers and consumers. ALK's PC*MILER® is widely recognized as a transportation industry standard for routing, mileage and mapping. ALK® Maps is a development platform designed for the transportation industry and provides commercial routing, geocoding and mapping visualization for enterprise applications.

For detailed product information, visit us at
www.alk.com or www.pcmiler.com.

APPENDICES:

Appendix A: Technical Notes

Appendix B: ALK's Interface Modules

Appendix C: Access Policies for the National Network

Appendix D: Detailed Instructions for Maintaining PC*MILER

Appendix E: Valid Entries for Street Addresses

Appendix F: PC*MILER Default Road Speeds – North America

Appendix A: Technical Notes

1. File Permissions

All PC*MILER data files reside in the **pcm290** directory. Your pcm290 directory will be created below a directory you specify at installation. Routes, trip/route options, and custom places are saved in the **../pcm290/na/options** directory. If the system administrator wishes to allow all or a group of users to be able to save routes, the above routes directory should be accessible to everybody or to a certain group. The majority of the data files should be writable only by root (or bin). However, certain files containing configurable settings must be writable by everybody or by a certain group of users who are allowed to change the PC*MILER configuration.

The same goes for the *.*cfg* files and *synonym.tab*. Set the permissions according to your needs. These files store run-time settings.

The file *pcmiler.inf* **must** be writable by everybody or the program will not run.

2. Memory Allocation Strategy

PC*MILER allocates memory dynamically as its memory requirements increase. It is perfectly normal for the PC*MILER process to grow in size up to about 12 megabytes. Average memory consumption is about 4 megabytes per PC*MILER process. PC*MILER won't release the memory back to the operating system until it exits. That's why it is important to have adequate swap space (virtual memory, paging space) if you plan to have many users run PC*MILER simultaneously.

If you must run PC*MILER on a low-end machine with little RAM and swap space, you may have to limit the user memory quotas in order to prevent PC*MILER from growing above a certain limit. Expect a decrease in performance if you choose this option. Consult your operating system manual for further instructions.

Memory is not shared between separate PC*MILER processes. Each process maintains its own database cache in memory and might grow quite large.

Appendix B: ALK's Interface Modules: PC*MILER®|BatchPro™, PCMServe™, and PC*MILER®|Connect

PC*MILER®|BatchPro™

PC*MILER|BatchPro gives you the power and flexibility to handle tasks involving the processing of large volumes of Origin/Destination records. You do not need to enter them into PC*MILER and run routes one by one. A large ASCII database of O/D records, created using an electronic spreadsheet program, text file editor, or any other program, can be processed automatically using PC*MILER|BatchPro.

Once input and format files are created, PC*MILER|BatchPro can operate. You can issue the "run" command from the shell prompt or, in situations where PC*MILER is integrated with other software programs, the command can be issued by 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. Where PC*MILER is integrated with other software programs, the output files can be read, interpreted, and used by the host program to satisfy its internal mileage requirements.

PC*MILER|BatchPro memory requirements are the same as for PC*MILER plus an additional 500 K of storage space.

Platforms: LAN, RS/6000, Sun Sparc, HP-9000.

PCMServe™

(Not available for Linux) PCMServe is a legacy "client/server" application. The "server" program runs constantly, ready to answer a mileage question asked by the "client" application. Software that frequently asks for a single mileage rather than occasionally asking for a larger set of mileage will perform better with PCMServe than with PC*MILER|BatchPro, because PCMServe avoids the overhead of repeatedly restarting PC*MILER|BatchPro. PCMServe easily handles multiple clients, responding to each mileage request on a first-come, first-serve basis.

PCMServe memory requirements are the same as for PC*MILER plus an additional 4 MB of storage space.

Platforms: LAN, RS/6000, Sun Sparc, HP-9000.

NOTE: PC*MILER|BatchPro and PCMServe require PC*MILER.

PC*MILER®|Connect

PC*MILER|Connect, ALK's Distance and Routing Shared Library, is the only integration tool which lets you interface the full range of PC*MILER-UNIX routes, mileage and reports with your transportation and logistics management software. Use PC*MILER|Connect in multi-threaded environments such as those supported by Solaris and AIX.

PCM|Connect memory requirements are the same as for PC*MILER plus an additional 4 MB of storage space.

Platforms: LAN, RS/6000, Sun Sparc, HP-9000.

NOTE: PC*MILER|Connect requires PC*MILER.

Appendix C: Access Policies from National Network Routes to Terminals and Services

Reasonable Access Defined

Reasonable access is the deviation allowed between the specified truck network and any allowable stops. A stop is typically defined as a place of loading or unloading, or facilities for food, fuel, repairsand rest. In all cases, local signs and warnings prohibiting truck access or providing an applicable restriction take precedence over reasonable access rules. In some states the deviation allowed from the National Network or 53 Foot Designated Truck Network may vary depending on the roads used to get to the stop. If this is the case, we have differentiated between reasonable access from the truck route and on a state highway versus local roads.

For detailed information about pre-approved routes, contact the individual states.

PC*MILER Designated Road Categories

In the PC*MILER database, roads designated for 102" wide, 53' long trailers or twin 28' long trailers are coded in three ways:

- **National Network** – These are the original roads designated by the states and approved by FHWA circa 1990, or (rarely) changes submitted by the states to FHWA post-1990. FHWA requires that the states allow at least 1 mile access distance to/from these roads, but the states are free to specify a longer access distance if they wish. Many states (especially in the west) have size limits for their entire state that equal or exceed this size of equipment in both width and length. In PC*MILER, these roads are considered to have "unlimited" access distance. Some states in the east restrict this equipment to designated roads, but allow unlimited access "by the shortest and/or most direct route" (or similar language), and roads in these states also have "unlimited" access distance.

- **State Oversize** – This category includes additional roads designated by the states since 1990, or which they have not submitted to FHWA for approval since 1990, to which the same access distance applies as to the National network in that state.

- **Oversize Access** – This category includes additional roads designated by the states to which a different (shorter, often zero) access distance applies. Usually these are county highways or local streets that lead all the way from the National Network and/or State Oversize network to the entrance to an industrial park, truck terminal, distribution center, factory, warehouse, etc.

Users will receive a "Not Designated" warning in the Detailed Route report if National Network and 53' Trailers or Twins are checked in Route Options, and

a. the route uses a road that is not designated National Network, State Oversize, or Oversize Access to go between roads that are designated National Network, State Oversize, or Oversize Access, OR

b. the route uses a road that is not designated National Network, State Oversize, or Oversize Access to access an origin, destination, or stop further than the distances specified in the regulations.

Allowable Distance by Jurisdiction

The table below shows the allowable distance (in miles) on truck access roads in North American jurisdictions, by PC*MILER road category as described above. Columns in the table are:

Column 1 - Jurisdiction abbreviation
Column 2 - Jurisdiction FIPS code
Column 3 - Access miles from National Network on US and State numbered highways
Column 4 - Access miles from National Network on all other roads
Column 5 - Access miles from State Oversize on US and State numbered highways
Column 6 - Access miles from State Oversize on all other roads
Column 7 - Access miles from Oversize Access

NOTE: "Unlimited access" in this table is as defined in the description of PC*MILER designated road categories above.

Jurisdiction Abbrev.	**FIPS**	**3 - From Nat'l Netw on US & State Highways**	**4 - From Nat'l Netw on other roads**	**5 - From State Oversize on US & State Highways**	**6 – From State Oversize on other roads**	**7 – From Oversize Access**
AL	1	1	1	1	1	0
AK	2	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
AZ	4	1	1	1	1	0
AR	5	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CA	6	1	1	1	1	0
CO	8	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CT	9	1	1	1	1	0
DE	10	1	1	1	1	0
DC	11	1	1	1	1	0
FL	12	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
GA	13	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
HI	15	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
ID	16	1	1	1	1	0
IL	17	5	1	5	1	0

Jurisdiction Abbrev.	FIPS	3 - From Nat'l Netw on US & State Highways	4 - From Nat'l Netw on other roads	5 - From State Oversize on US & State Highways	6 – From State Oversize on other roads	7 – From Oversize Access
IN	18	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
IA	19	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
KS	20	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
KY	21	5	1	5	1	0
LA	22	10	10	10	10	0
ME	23	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MD	24	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MA	25	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MI	26	5	1	5	1	0
MN	27	1	1	1	1	0
MS	28	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MO	29	10	10	10	10	0
MT	30	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NE	31	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NV	32	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NH	33	1	1	1	1	0
NJ	34	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NM	35	20	20	20	20	0
NY	36	1	1	1	1	0
NC	37	3	3	3	3	0
ND	38	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
OH	39	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
OK	40	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
OR	41	1	1	1	1	0
PA	42	1	1	1	1	0
RI	44	1	1	1	1	0
SC	45	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SD	46	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TN	47	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TX	48	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
UT	49	1	1	1	1	0
VT	50	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
VA	51	1	1	1	1	0
WA	53	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
WV	54	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
WI	55	15	15	15	15	0
WY	56	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
PR	72	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0

Jurisdiction Abbrev.	FIPS	3 - From Nat'l Netw on US & State Highways	4 - From Nat'l Netw on other roads	5 - From State Oversize on US & State Highways	6 – From State Oversize on other roads	7 – From Oversize Access
NU	80	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
YT	81	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NT	82	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
BC	83	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
AB	84	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SK	85	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MB	86	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
ON	87	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
QC	88	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NB	89	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
PE	90	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NS	91	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NL	92	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
EM	93	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
BD	130	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
GL	131	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
BH	132	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CS	133	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
ES	134	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
GT	135	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
HO	136	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NU	137	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
PM	138	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
AG	139	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
BJ	140	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
BS	141	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CP	142	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CH	143	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CI	144	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CU	145	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
CL	146	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
DF	147	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
DG	148	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
GR	149	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
GJ	150	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
HG	151	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
JA	152	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
MH	154	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0

Jurisdiction Abbrev.	FIPS	3 - From Nat'l Netw on US & State Highways	4 - From Nat'l Netw on other roads	5 - From State Oversize on US & State Highways	6 – From State Oversize on other roads	7 – From Oversize Access
MR	155	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NA	156	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NX	157	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
OA	158	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
PU	159	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
QA	160	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
QR	161	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SI	162	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SL	163	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SO	164	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TA	165	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TM	166	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TL	167	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
VZ	168	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
YC	169	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
ZT	170	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
ACT	200	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NSW	201	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
NT	202	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
QLD	203	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
SA	204	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
TAS	205	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
VIC	206	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0
WA	207	Unlimited access	Unlimited access	Unlimited access	Unlimited access	0

Appendix D: Detailed Instructions for Maintaining PC*MILER

PC* MILER does not require much in the way of ongoing maintenance. There are a few files used by PC*MILER to store your custom trip and custom place options that should be backed up. Custom trip options are saved in the **/usr/../pcm290/na/options** directory. Saved trips are also kept in this directory. Custom places are saved in the ../pcm290/na/options/user_places/user directory.

Backing Up Custom Place and Saved Trip Files

To back up these files, you need to first determine the exact location of your PC*MILER installation. You can do this by examining the **pcmiler** startup script located in **/usr/bin**. From a command prompt type:

cd<space>**/usr/bin** <Enter>
cat pcmiler <Enter>

A line something like this will be returned:

LD_LIBRARY_PATH=/usr/local/pcm290 /usr/local/pcm290/pcmiler $*

The location of your PC*MILER installation is found after the = sign.

In the **../pcm290/na/options** directory you will see these critical files: **/usertrip.dat** and **/userstop.dat**. These files contain all of your trip options (e.g. routing type and road speeds).

Saved trips are kept in two, or at times, three files:
*.in files contain the stops
*.mil files contain the distance and route information
*.opt files contain options

Custom places are stored in the **../pcm290/na/options/user_places/user** directory in the following files:

poi.ccp	poi.nms	poi.ylu
poi.clu	poi.plu	poi.ynm
poi.cnm	poi.pnm	version.dat
poi.gnf	poi.set	
poi.gnx	poi.slu	
poi.inf	poi.snm	
poi.loc	poi.typ2	

NOTE: Reinstalling PC*MILER Version 29 will cause the loss of any saved custom route options.

Overwriting of custom trip options only occurs during reinstallations of the same PC*MILER version. For instance, installing Version 29 to replace Version 28 will not affect custom settings. They will only be overwritten if you install Version 29 on top of a previous installation of Version 29.

If you need to reinstall PC*MILER Version 29 and would like to save the changes you have made to your trip options, make a backup copy of **../pmw290/na/options/usertrip.dat** and **userstop.dat** as follows:

Assuming your PC*MILER is installed in **/usr/local/pcm290**, from a command prompt type:

cd<space>**/usr/ local/pcm290/na/options** <Enter>

To save route options, type:

mv<space>**usertrip.dat**<space>**usertrip.custom**
mv<space>/**userstop.dat**<space>**userstop.custom**

To save custom places:

cd<space>**/usr/ local/pcm290/na/options/user_places/user**<Enter>

mv<space>**Poi.ccp**<space>**Poi.ccp.custom**
mv<space>**Poi.clu**<space>**Poi.clu.custom**
mv<space>**Poi.cnm**<space>**Poi.cnm.custom**
mv<space>**Poi.gnf**<space>**Poi.gnf.custom**
mv<space>**Poi.gnx**<space>**Poi.gnx.custom**
mv<space>**Poi.inf**<space>**Poi.inf.custom**
mv<space>**Poi.loc**<space>**Poi.loc.custom**
mv<space>**Poi.nms**<space>**Poi.nms.custom**
mv<space>**Poi.plu**<space>**Poi.plu.custom**
mv<space>**Poi.pnm**<space>**Poi.pnm.custom**
mv<space>**Poi.set**<space>**Poi.set.custom**
mv<space>**Poi.slu**<space>**Poi.slu.custom**
mv<space>**Poi.snm**<space>**Poi.snm.custom**
mv<space>**Poi.typ2**<space>**Poi.typ2.custom**
mv<space>**Poi.ylu**<space>**Poi.ylu.custom**
mv<space>**Poi.ynm**<space>**Poi.ynm.custom**
mv<space>**version.dat**<space>**version.dat**

To restore your saved copies, first rename your new files:

Assuming your PC*MILER is installed in **/usr/local/pcm290**, from a command prompt type:

cd<space>**/usr/ local/pcm290/na/options** <Enter>
mv<space>**usertrip.dat**<space>**usertrip.old**
mv<space>**userstop.dat**<space>**userstop.old**
And for Custom Places:

cd<space>**/usr/ local/pcm290/na/options/user_places/user** <Enter>

mv<space>**Poi.ccp**<space>**Poi.ccp.old**
mv<space>**Poi.clu**<space>**Poi.clu.old**
mv<space>**Poi.cnm**<space>**Poi.cnm.old**
mv<space>**Poi.gnf**<space>**Poi.gnf.old**
mv<space>**Poi.gnx**<space>**Poi.gnx.old**
mv<space>**Poi.inf**<space>**Poi.inf.old**
mv<space>**Poi.loc**<space>**Poi.loc.old**
mv<space>**Poi.nms**<space>**Poi.nms old**
mv<space>**Poi.plu**<space>**Poi.plu.old**
mv<space>**Poi.pnm**<space>**Poi.pnm.old**
mv<space>**Poi.set**<space>**Poi.set.old**
mv<space>**Poi.slu**<space>**Poi.slu.old**
mv<space>**Poi.snm**<space>**Poi.snm.old**
mv<space>**Poi.typ2**<space>**Poi.typ2.old**
mv<space>**Poi.ylu**<space>**Poi.ylu.old**
mv<space>**Poi.ynm**<space>**Poi.ynm.old**
mv<space>**version.dat**<space>**version.dat.old**

Then restore your backups:

cd<space>**/usr/ local/pcm290/na/options** <Enter>

mv<space>**usertrip.custom**<space>**usertrip.dat**
mv<space>**userstop.custom**<space>**userstop.dat**

cd<space>**/usr/ local/pcm290/na/options/user_places/user** <Enter>

mv<space>**Poi.ccp.custom**<space>**Poi.ccp.old**
mv<space>**Poi.clu.custom** <space>**Poi.clu.old**
mv<space>**Poi.cnm.custom** <space>**Poi.cnm.old**
mv<space>**Poi.gnf.custom** <space>**Poi.gnf.old**
mv<space>**Poi.gnx.custom** <space>**Poi.gnx.old**
mv<space>**Poi.inf.custom** <space>**Poi.inf.old**
mv<space>**Poi.loc.custom** <space>**Poi.loc.old**
mv<space>**Poi.nms.custom** <space>**Poi.nms old**
mv<space>**Poi.plu.custom** <space>**Poi.plu.old**
mv<space>**Poi.pnm.custom** <space>**Poi.pnm.old**
mv<space>**Poi.set.custom** <space>**Poi.set.old**
mv<space>**Poi.slu.custom** <space>**Poi.slu.old**
mv<space>**Poi.snm.custom** <space>**Poi.snm.old**
mv<space>**Poi.typ2.custom** <space>**Poi.typ2.old**
mv<space>**Poi.ylu.custom** <space>**Poi.ylu.old**
mv<space>**Poi.ynm.custom** <space>**Poi.ynm.old**
mv<space>**version.dat.custom** <space>**version.dat.old**

Appendix E: Valid Entries for Street Addresses

For PC*MILER|Streets users, valid directional and street type abbreviations for street address entry are listed below. Spelling out the whole word is also acceptable. Capitalization is not necessary.

Directional Synonyms for Address Entry – Prefix or Suffix

Full Spelling	Valid in PC*MILER
EAST	E
EAST	E.
NORTH	N
NORTH	N.
NORTH	NO
NORTH	NO.
NORTHEAST	N-E
NORTHEAST	N.E
NORTHEAST	N.E.
NORTHEAST	NE
NORTHEAST	NE.
NORTHEAST	NORTH-EAST
NORTHWEST	N-W
NORTHWEST	N.W
NORTHWEST.	N.W.
NORTHWEST	NORTH-WEST
NORTHWEST	NW
NORTHWEST	NW.
SOUTH	S
SOUTH	S.
SOUTH	SO
SOUTH	SO.
SOUTHEAST	S-E
SOUTHEAST	S.E
SOUTHEAST	S.E.
SOUTHEAST	SE
SOUTHEAST	SE.
SOUTHEAST	SOUTH-EAST
SOUTHWEST	S-W
SOUTHWEST	S.W
SOUTHWEST	S.W.
SOUTHWEST	SOUTH-WEST
SOUTHWEST	SW
SOUTHWEST	SW.
WEST	W
WEST	W.

Synonyms for Street Types

Full Spelling	Valid in PC*MILER
ALLEY	AL
ALLEY	AL.
ALLEY	ALL
ALLEY	ALL.
ALLEY	ALY
ALLEY	ALY.
ARCADE	ARC
ARCADE	ARC.
AVENUE	AV
AVENUE	AV.
AVENUE	AVDA
AVENUE	AVDA.
AVENUE	AVE
AVENUE	AVE.
AVENUE	AVEN
AVENUE	AVEN.
AVENUE	AVENIDA
AVENUE	AVENIDA.
AVENUE DES	AV DES
AVENUE DES	AV DES.
BASSIN	BAS
BASSIN	BAS.
BASSINS	BAS
BASSINS	BAS.
BEACH	BCH
BEACH	BCH.
BEND	BND
BEND	BND.
BERGE	BER
BERGE	BER.
BLUFFS	BLFS
BLUFFS	BLFS.
BOUCLE	BCLE
BOUCLE	BCLE.
BOULEVARD	BD
BOULEVARD	BD.
BOULEVARD	BL
BOULEVARD	BL.
BOULEVARD	BLVD
BOULEVARD	BLVD.
BOULEVARD	BOUL
BOULEVARD	BOUL.
BRIDGE	BRDG
BRIDGE	BRDG.
BRIDGE	BRG
BRIDGE	BRG.
BROOK	BRK
BROOK	BRK.
BROOKS	BRKS
BROOKS	BRKS.
BUTTE	BUT
BUTTE	BUT.
BYPASS	BYP
BYPASS	BYP.
CALE	CAL
CALE	CAL.
CAPE	CPE
CAPE	CPE.
CARREFOUR	CAR
CARREFOUR	CAR.
CARRIERE	CARE
CARRIERE	CARE.
CAUSEWAY	CAUSE
CAUSEWAY	CAUSE.
CAUSEWAY	CSWY
CAUSEWAY	CSWY.
CAVEE	CAV
CAVEE	CAV.
CENTER	CNTR
CENTER	CNTR.
CENTER	CTR
CENTER	CTR.
CHATEAU	CHA
CHATEAU	CHA.
CHEMIN	CH
CHEMIN	CH.
CHEMIN	CHE
CHEMIN	CHE.
CHEMINEMENT	CHEM
CHEMINEMENT	CHEM.
CIRCLE	CIR
CIRCLE	CIR.
CIRCLE	CIRC
CIRCLE	CIRC.
CIRCLES	CIRS
CIRCLES	CIRS.
CLIFFS	CLFS
CLIFFS	CLFS.
CITE	CIT
CITE	CIT.
CLOS	CL
CLOS	CL.
COLONEL	COL
COLONEL	COL.
COMMON	CMN
COMMON	CMN.
COMMONS	CMN
COMMONS	CMN.
COMMONS	CMNS
COMMONS	CMNS.

CORNER	COR
CORNER	COR.
CORNERS	CORS
CORNERS	CORS.
CONTOUR	CTR
CORNICHE	CORN
COTE	COT
COUR	C
COUR	CR
COURS	CRS
COURT	CRT
COURT	CRT.
COURT	CT
COURT	CT.
COURTS	CTS
COURTS	CTS.
COVE	CV
COVE	CV.
COVES	CVS
COVES	CVS.
CREEK	CRK
CREEK	CRK.
CRESCENT	CRES
CRESCENT	CRES.
CRESCENT	CRESC
CRESCENT	CRESC.
CRESCENT	CRESNT
CREST	CRST
CREST	CRST.
CROSSING	CRSG
CROSSING	CRSG.
CROSSING	XING
CROSSING	XING.
CROSSROADS	XRDS
CROSSROADS	XRDS.
DESCENTE	DESC
DRIVE	DR
DRIVE	DR.
DRIVE	DRV
DRIVE	DRV.
DRIVES	DRS
DRIVES	DRS.
ENCLAVE	ENC
ENCLOS	ENC
ESPACE	ESP
ESPLANADE	ESP
ESTATE	EST
ESTATE	EST.
ESTATES	ESTS
ESTATES	ESTS.
EXPRESSWAY	EXPR
EXPRESSWAY	EXPR.
EXPRESSWAY	EXPY
EXPRESSWAY	EXPY.
EXPRESSWAY	EXWY
EXPRESSWAY	EXWY.
EXTENSION	EXT
EXTENSION	EXT.
EXTENSIONS	EXTS
EXTENSIONS	EXTS.
FALLS	FLS
FALLS	FLS.
FARM-TO-MARKET	F-M
FARM-TO-MARKET	FM
FARM-TO-MARKET	FM.
FAUBOURG	FAUB
FAUBOURG	FAUB.
FIELD	FLD
FIELD	FLD.
FIELDS	FLDS
FIELDS	FLDS.
FLATS	FLTS
FLATS	FLTS.
FORKS	FRKS
FORKS	FRKS.
FORUM	FORM
FREEWAY	FRWY
FREEWAY	FRWY.
FREEWAY	FWY
FREEWAY	FWY.
GLEN	GLN
GLEN	GLN.
GRAND BOULEVARD	GBD
GRAND BOULEVARD	GBLVD
GREEN	GRN
GREEN	GRN.
GREENS	GRNS
GREENS	GRNS.
GROVE	GRV
GROVE	GRV.
GROVES	GRVS
GROVES	GRVS.
GRANDE RUE	GR
GRIMPETTE	GRP
GRIMPETTE	GRP.
HARBOR	HBR
HAVEN	HVN
HAVEN	HVN.
HEIGHTS	HTS
HIGHWAY	HWY
HIGHWAY	HWY.
HIGHWAY	HY
HIGHWAY	HY.
HIGHWAY	HIWAY

HIGHWAY	HIWAY.
HILL	HL
HILLS	HLS
HILLS	HLS.
HOLLOW	HOLW
HOLLOW	HOLW.
IMMEUBLE	IMM
IMMEUBLE	IMM.
IMPASSE	IMP
IMPASSE	IMP.
ISLAND	IS
ISLAND	IS.
JARDIN	J
KEY	KY
KEY	KY.
KEYS	KYS
KEYS	KYS.
KNOLL	KNL
KNOLL	KNL.
KNOLLS	KNLS
KNOLLS	KNLS.
LAKES	LKS
LAKES	LKS.
LAND	LAND
LAND	LAND.
LANDING	LNDG
LANDING	LNDG.
LANE	LA
LANE	LA.
LANE	LN
LANE	LN.
LEVEE	LEV
LIEU DIT	L-D
LIEU DIT	LD
LIEU DIT	LIEU
LIEU-DIT	L-D
LIEU-DIT	LD
LIEU-DIT	LIEU
LIGHTS	LGTS
LIGHTS	LGTS.
LOCKS	LCKS
LOCKS	LCKS.
LOOP	LP
LOOP	LP.
LOTISSEMENT	LOT
LOTISSEMENT	LOT.
MALL	ML
MALL	ML.
MANOR	MNR
MANOR	MNR.
MANORS	MNRS
MANORS	MNRS.
MEADOW	MDW
MEADOW	MDW.
MEADOWS	MDWS
MEADOWS	MDWS.
MILLS	MLS
MILLS	MLS.
MOTORWAY	MRWY
MOTORWAY	MRWY.
MOTORWAY	MTRWY
MOTORWAY	MTRWY.
MOTORWAY	MTWY
MOTORWAY	MTWY.
MOUNT	MT
MOUNT	MT.
OVERPASS	OPAS
OVERPASS	OPAS.
OVERPASS	OVER
OVERPASS	OVER.
OVERPASS	OVPS
OVERPASS	OVPS.
OVERPASS	OVRPS
OVERPASS	OVRPS.
PARK	PK
PARK	PK.
PARK	PRK
PARK	PRK.
PARKWAY	PKY
PARKWAY	PKY.
PARKWAY	PKW
PARKWAY	PKW.
PARKWAY	PKWY
PARKWAY	PKWY.
PARKWAY	PKWAY
PARKWAY	PKWAY.
PARKWAY	PRKWY
PARKWAY	PRKWY.
PARVIS	PAR
PASEO	PSO
PASS	PS
PASS	PS.
PASSAGE	PASS
PATH	PTH
PATH	PTH.
PETITE AVENUE	PTA
PETITE IMPASSE	PTI
PETITE ROUTE	PRT
PETITE RUE	PTR
PIKE	PKE
PIKE	PKE.
PINE	PNE
PINE	PNE.
PINES	PNES

PINES	PNES.
PLACE	PL
PLACE	PL.
PLACE	PLA
PLACE	PLA.
PLACE	PLAC
PLACE	PLAC.
PLACE	PLC
PLACE	PLC.
PLAINS	PLNS
PLAINS	PLNS.
PLAZA	PLZ
PLAZA	PLZ.
POINT	PNT
POINT	PNT.
POINT	PT
POINT	PT.
POINTS	PTS
POINTS	PTS.
PORTE	PTE
POURTOUR	POUR
POURTOUR	POUR.
PRAIRIE	PR
PRAIRIE	PR.
PROMENADE	PROM
QUAI	Q
QUAI	Q.
QUARTIER	QUA
RACCOURCI	RAC
RACCOURCI	RAC.
RAMP	RMP
RAMP	RMP.
RAMPE	RPE
RAPIDS	RPDS
RAPIDS	RPDS.
REMPART	REM
RESIDENCE	RES
RESIDENCE	RES.
RIDGE	RDG
RIDGE	RDG.
RIDGES	RDGS
RIDGES	RDGS.
ROAD	RD
ROAD	RD.
ROADS	RDS
ROADS	RDS.
ROCADE	ROC
ROCADE	ROC.
ROND POINT	ROND
ROND POINT	RP
ROND POINT	RP.
ROND-POINT	ROND
ROND-POINT	RP
ROND-POINT	RP.
ROTONDE	ROT
ROTONDE	RTD
ROUTE	RTE
RUE	R
RUE	R.
RUE DE	RUE
SENTIER	SENT
SENTIER	SENT.
SHOALS	SHLS
SHOALS	SHLS.
SHORES	SHRS
SHORES	SHRS.
SKYWAY	SKWY
SKYWAY	SKWY.
SPRINGS	SPGS
SPRINGS	SPGS.
SQUARE	SQ
SQUARE	SQ.
SQUARE	SQR
SQUARE	SQR.
SQUARES	SQS
SQUARES	SQS.
STRASSE	STR
STRASSE	STR.
STREET	ST
STREET	ST.
STREET	STR
STREET	STR.
STREETS	STS
STREETS	STS.
TERRACE	TER
TERRACE	TER.
TERRACE	TERR
TERRACE	TERR.
TERRACE	TRC
TERRACE	TRC.
TERRASSE	TER
TERTRE	TRT
THROUGHWAY	THRUWAY
THROUGHWAY	THWY
THROUGHWAY	THWY.
TOUR	TR
TOUR	TR.
TRACK	TRAK
TRACK	TRAK.
TRAFFICWAY	TFCWY
TRAFFICWAY	TFCWY.
TRAFFICWAY	TFWY
TRAFFICWAY	TFWY.
TRAFFICWAY	TRFY

TRAFFICWAY	TRFY.
TRAFFICWAY	TRWY
TRAFFICWAY	TRWY.
TRAIL	TRL
TRAIL	TRL.
TRAILER	TRLR
TRAILER	TRLR.
TRAVERSE	TRA
TUNNEL	TUN
TUNNEL	TUN.
TUNNEL	TUNL
TUNNEL	TUNL.
TUNNEL	TUNN
TUNNEL	TUNN.
TURNPIKE	TPK
TURNPIKE	TPK.
TURNPIKE	TPKE
TURNPIKE	TPKE.
UNDERPASS	UNP
UNDERPASS	UNP.
UNDERPASS	UNPS
UNDERPASS	UNPS.
UNDERPASS	UNRPS
UNDERPASS	UNRPS.
UNDERPASS	UPAS
UNDERPASS	UPAS.
VENELLE	VEN
VIEILLE ROUTE	VRTE
VIEUX CHEMIN	VCHE
VIEW	VW
VIEW	VW.
VIEWS	VWS
VIEWS	VWS.
VILLAGE	VGE
VILLAGE	VLG
VILLAGE	VLG.
VILLAGES	VLGS
VILLAGES	VLGS.
VOIE	V
WAY	WY
WAY	WY.
WAYS	WAYS
WAYS	WAYS.
WELLS	WLS
WELLS	WLS.
ZONE ARTISANALE	ZA
ZONE D'ACTIVITE	Z.A.
ZONE D'ACTIVITE	ZA.
ZONE INDUSTRIELLE	Z.I
ZONE INDUSTRIELLE	Z.I.
ZONE INDUSTRIELLE	ZI

Appendix F: PC*MILER Default Average Road Speeds – North America

North America State	Abrev.	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Alberta	AB	62	62	62	43	56	37	43	37	31	25	21	21
Aguascalientes	AG	68	62	56	43	49	37	43	31	31	25	23	23
Alaska	AK	65	55	55	40	45	35	45	35	30	25	17	17
Alabama	AL	68	60	55	40	45	35	45	35	30	25	15	15
Arkansas	AR	65	55	55	40	45	35	45	35	35	25	15	15
Arizona	AZ	68	60	60	40	50	35	45	35	35	25	15	15
British Columbia	BC	68	62	62	37	56	37	43	37	31	25	21	21
Bermuda	BD	56	49	49	43	43	37	31	31	25	25	21	21
Belize	BH	62	56	56	43	49	37	37	31	31	25	21	21
Baja California	BJ	68	62	56	43	49	37	43	31	31	25	23	23
Baja California Sur	BS	68	62	56	43	49	37	43	31	31	25	23	23
California	CA	55	55	55	40	45	30	40	30	30	25	16	16
Chiapas	CH	68	62	56	43	49	37	43	31	31	25	23	23
Chihuahua	CI	68	62	56	43	49	37	43	31	31	25	23	23
Colima	CL	68	62	56	43	49	37	43	31	31	25	23	23
Colorado	CO	68	60	60	40	50	35	45	35	35	25	15	15
Campeche	CP	68	62	56	43	49	37	43	31	31	25	23	23
Costa Rica	CS	56	49	49	43	43	37	31	31	25	25	21	21
Connecticut	CT	65	55	55	40	45	30	35	30	25	25	13	13
Coahuila de Zaragoza	CU	68	62	56	43	49	37	43	31	31	25	23	23
Dist. of Columbia	DC	55	50	45	40	40	35	35	30	25	25	13	13
Delaware	DE	65	55	55	40	45	30	35	30	25	25	13	13
Distrito Federal	DF	62	62	43	43	37	37	31	31	25	25	23	23

North America State	Abrev.	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Durango	DG	68	62	56	43	49	37	43	31	31	25	23	23
Mexico (Estado)	EM	68	62	56	43	49	37	43	31	31	25	23	23
El Salvador	ES	62	56	56	43	49	37	37	31	31	25	21	21
Florida	FL	68	60	55	40	45	35	45	35	30	25	13	13
Georgia	GA	68	60	55	40	45	35	40	30	30	25	13	13
Guanajuato	GJ	68	62	56	43	49	37	43	31	31	25	23	23
Greenland	GL	45	45	45	35	35	35	35	25	25	20	13	13
Guerrero	GR	68	62	56	43	49	37	43	31	31	25	23	23
Guatemala	GT	62	56	56	43	49	37	37	31	31	25	21	21
Hidalgo	HG	68	62	56	43	49	37	43	31	31	25	23	23
Hawaii	HI	60	50	45	35	35	35	25	25	25	25	13	13
Honduras	HO	62	56	56	43	49	37	37	31	31	25	21	21
Iowa	IA	68	55	60	40	45	35	45	35	35	25	15	15
Idaho	ID	65	60	60	40	50	35	45	35	35	25	15	15
Illinois	IL	65	55	55	40	45	35	45	35	35	25	15	15
Indiana	IN	65	55	55	40	45	35	40	30	30	25	15	15
Jalisco	JA	68	62	56	43	49	37	43	31	31	25	23	23
Kansas	KS	68	60	60	40	50	35	45	35	35	25	15	15
Kentucky	KY	65	60	55	40	45	35	40	30	30	25	15	15
Louisiana	LA	68	60	55	40	45	35	45	35	35	25	15	15
Massachusetts	MA	65	60	55	40	45	30	35	30	25	25	13	13
Manitoba	MB	68	62	62	43	56	37	43	37	31	25	21	21
Maryland	MD	65	60	55	40	45	30	35	30	25	25	13	13
Maine	ME	65	60	60	40	45	35	45	35	30	25	13	13
Michoacan de Ocampo	MH	68	62	56	43	49	37	43	31	31	25	23	23
Michigan	MI	60	55	55	40	45	35	40	30	30	25	18	18

North America State	Abrev.	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Minnesota	MN	68	60	60	40	45	35	45	35	35	25	15	15
Missouri	MO	68	60	60	40	45	35	45	35	35	25	15	15
Morelos	MR	68	62	56	43	49	37	43	31	31	25	23	23
Mississippi	MS	68	60	55	40	45	35	45	35	30	25	15	15
Montana	MT	65	60	60	40	50	35	45	35	35	25	15	15
Nayarit	NA	68	62	56	43	49	37	43	31	31	25	23	23
New Brunswick	NB	62	62	56	43	56	37	43	31	31	25	21	21
North Carolina	NC	68	60	55	40	45	35	40	30	30	25	13	13
North Dakota	ND	68	60	60	40	50	35	45	35	35	25	15	15
Nebraska	NE	68	60	60	40	50	35	45	35	35	25	15	15
New Hampshire	NH	65	60	55	40	45	35	45	35	30	25	13	13
Nicaragua	NI	62	56	56	43	49	37	37	31	31	25	21	21
New Jersey	NJ	65	55	55	40	45	30	35	30	25	25	13	13
Newfoundland & Labrador	NL	62	62	62	43	56	37	43	31	31	25	21	21
New Mexico	NM	68	60	60	40	50	35	45	35	35	25	15	15
Nova Scotia	NS	62	62	62	43	56	37	43	31	31	25	21	21
Northwest Territory	NT	56	56	56	43	56	37	43	31	31	25	21	21
Nunavut	NU	56	56	56	43	43	37	43	31	31	25	21	21
Nevada	NV	68	60	60	40	50	35	45	35	35	25	15	15
Nuevo Leon	NX	68	62	56	43	49	37	43	31	31	25	23	23
New York	NY	65	60	55	40	45	30	35	30	25	25	13	13
Oaxaca	OA	68	62	56	43	49	37	43	31	31	25	23	23
Ohio	OH	65	60	55	40	45	35	40	30	30	25	15	15
Oklahoma	OK	68	60	60	40	50	35	45	35	35	25	15	15
Ontario	ON	62	62	62	43	49	37	43	31	31	25	21	21
Oregon	OR	55	55	50	40	45	35	40	30	30	25	16	16

North America State	Abrev.	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Pennsylvania	PA	65	55	55	40	45	30	35	30	25	25	13	13
Prince Edward Island	PE	62	62	56	43	56	37	49	37	31	25	21	21
Panama	PM	62	56	56	43	49	37	37	31	31	25	21	21
Puerto Rico	PR	65	55	45	40	45	30	30	30	30	25	15	15
Puebla	PU	68	62	56	43	49	37	43	31	31	25	23	23
Queretaro Arteaga	QA	68	62	56	43	49	37	43	31	31	25	23	23
Quebec	QC	62	62	56	37	56	37	49	37	31	25	21	21
Quintana Roo	QR	68	62	56	43	49	37	43	31	31	25	23	23
Rhode Island	RI	65	55	55	40	45	30	35	30	25	25	13	13
South Carolina	SC	68	60	55	40	45	35	40	30	30	25	13	13
South Dakota	SD	68	60	60	40	50	35	45	35	35	25	15	15
Sinaloa	SI	68	62	56	43	49	37	43	31	31	25	23	23
Saskatchewan	SK	62	62	62	43	56	37	43	37	31	25	21	21
San Luis Potosi	SL	68	62	56	43	49	37	43	31	31	25	23	23
Sonora	SO	68	62	56	43	49	37	43	31	31	25	23	23
Tabasco	TA	68	62	56	43	49	37	43	31	31	25	23	23
Tlaxcala	TL	68	62	56	43	49	37	43	31	31	25	23	23
Tamaulipas	TM	68	62	56	43	49	37	43	31	31	25	23	23
Tennessee	TN	68	60	55	40	45	35	40	30	30	25	15	15
Texas	TX	68	60	60	40	50	35	45	35	35	25	15	15
Utah	UT	68	60	60	40	50	35	45	35	35	25	15	15
Virginia	VA	65	60	55	40	45	30	40	30	30	25	13	13
Vermont	VT	65	55	55	40	45	35	45	35	30	25	15	15
Veracruz	VZ	68	62	56	43	49	37	43	31	31	25	23	23
Washington	WA	60	60	55	40	45	30	35	30	30	25	16	16
Wisconsin	WI	65	60	60	40	45	35	45	35	35	25	18	18

North America State	Abrev.	Interstate Highway		Divided Highway		Primary Highway		Secondary Highway		Local		Ferries	
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
West Virginia	WV	68	55	55	40	45	35	35	30	30	25	15	15
Wyoming	WY	68	60	60	40	50	35	45	35	35	25	15	15
Yucatan	YC	68	62	56	43	49	37	43	31	31	25	23	23
Yukon Territory	YT	56	56	56	43	56	37	49	37	31	25	21	21
Zacatecas	ZT	68	62	56	43	49	37	43	31	31	25	23	23

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