PC★MILER® 29
Spreadsheets

Technology Beyond Miles

alk
A TRIMBLE COMPANY

PC*MILER® Product Line
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b) For ninety (90) days from date of purchase, the software media on which ALK provides PC*MILER to you will function substantially free of errors and defects. ALK will replace defective media during the warranty period at no charge to you unless the defect is the result of accident, abuse, or misapplication of the product.

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b) If you materially breach any terms, conditions, use limitations, payment obligations, or any other terms of this Agreement.

c) Upon expiration of any written supplemental license agreement between you and ALK of which this license is a part.

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22. <u>Date</u>: This EULA was last updated on June 4, 2015. Visit www.pcmiler.com for regular updates.

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Getting Started

PC*MILER|Spreadsheets is a high performance engine for generating point-to-point distances and drive times which can be easily integrated with Microsoft® Excel®. It allows spreadsheet users to easily access PC*MILER® distance information from within their spreadsheet program.

With PC*MILER|Spreadsheets you can:

- Benefit from the flexibility of the application. This powerful product gives you the ability to customize PC*MILER for your own needs.

- Build a database and let spreadsheet functions summarize and analyze your data, including price quotes, cost analysis, driver pay, operations analysis, lane analysis, and bill auditing.

- Create new spreadsheet applications.

- Calculate distances instantly within your spreadsheet (no need to copy and paste).

- Optimize lane analyses and perform modal comparisons.

1.1 Requirements

PC*MILER|Spreadsheets requires a base installation of PC*MILER. For a complete list of PC*MILER platforms and requirements, refer to the PC*MILER *User's Guide* (see *Accessing PC*MILER Product User's Guides,* section 1.5).

Additionally, the Spreadsheets application requires:

- 3 MB extra free space on your hard disk
- Microsoft Excel 97 or higher already installed and working

Optional:

- PC*MILER|Streets for street-level detail in the U.S. and Canada
- PC*MILER|Hazmat for hazardous material detail in the U.S. and Canada
- PC*MILER|Tolls for toll cost calculations in the U.S. and Canada
- PC*MILER|Worldwide for routing in regions outside of North America (Africa, Asia, Europe, Middle East, Oceania, and South America)
- Canadian Postal Codes for access to related data
- Standard Point Location Codes (SPLC) for access to related data

1.2 Installation

PC*MILER|Spreadsheets is a PC*MILER add-on product that can be installed when you install PC*MILER or at a later time. To install Spreadsheets along with PC*MILER, you simply make sure that "**PC*MILER|Spreadsheets**" is checked on the list of PC*MILER components when you are prompted during the installation process.

If you are adding Spreadsheets at a later time, refer to the printed *Getting Started Guide* that came with your purchase of PC*MILER, or the PC*MILER *User's Guide* that was included with the PC*MILER installation (see *Accessing PC*MILER Product User's Guides,* section 1.5).

1.3 The DEMO.xls Sample Workbooks

The PC*MILER|Spreadsheets installation contains sample workbooks of all PC*MILER|Spreadsheets functions. They are a useful reference when you are learning how to use the application. These files are located in the Excel folder in the PCMILER29 folder of your PC*MILER installation. Use these workbooks as a starting point, and then further customize each workbook for your own needs.

Sample workbooks are available in the …\ALK Technologies\PCMILER29\ EXCEL ... folder:

- DEMO_NA.xls – includes functions specific to general PC*MILER use

- DEMO_NA_Tolls.xls – includes functions specific to PC*MILER|Tolls *(PC*MILER|Tolls must be installed)*

- DEMO_WW.xls – includes functions specific to PC*MILER|Worldwide *(PC*MILER|Worldwide must be installed)*

When you open one of these files, the first thing you'll see is an introduction to PC*MILER|Spreadsheets with instructions for setup and using the demo file. To go to the sample function applications, click on any other tab in the workbook. Function-specific instructions are under the spreadsheet in each tab. Any cell that displays "#NAME?" can be activated to reveal the formula in the cell, just double-click it and press **<Enter>**.

IMPORTANT: Make a backup copy of each sample workbook before making any changes to preserve the file's original contents, layout and formatting.

1.4 Technical Support

ALK Technologies offers one year of free unlimited technical support to all registered users of PC*MILER.   If you have any questions about PC*MILER|Spreadsheets or problems with the software that cannot be resolved using this *User's Guide*, contact our staff:

Phone: 1.800.377.6453, ext. 2 or 1.609.683.0220, ext 2
Fax: 609.252.8108
Email: pcmsupport@alk.com
Web Site: www.pcmiler.com
Hours: 9:00am – 5:00pm EST, Mon-Fri

When calling, ask for "PC*MILER Technical Support".   Please be sure to have your PC*MILER|Spreadsheets Product Key Code, version number, Windows version number, and hardware configuration information (manufacturer, speed, and monitor type) available before your call.   Please include this information in your message if you are contacting us by email.

1.5 Accessing User Guides for PC*MILER Products

NOTE: You must have Adobe Acrobat Reader on your computer to properly view a PC*MILER product's user guide.   If you do not have this program installed already, a free copy can be downloaded from www.adobe.com.

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

To view the user guide for any PC*MILER product without first opening an application, click the Windows **Start** button > **All Programs** (or the equivalent on your system) > **PCMILER 29** > *User Guides* and select one of the .pdf files from the sub-menu.

To search for a keyword or phrase in a user guide, use Adobe Reader's **Find** option in the Edit menu or on the tool bar.

All user guides can also be accessed at www.pcmiler.com/support.

1.6 Redistribution of PC*MILER|Spreadsheets

Purchasing PC*MILER|Spreadsheets does not entitle you to redistribute any portions of this product. You may NOT redistribute ALK's highway database, source code, interface definitions, or the PC*MILER|Spreadsheets Add-In or DLL.

Your clients must purchase additional versions of the PC*MILER engine and database directly from ALK. ALK Technologies' sales representatives can be reached at **1-800-377-MILE**.

1.7 Licensing

Unless you buy additional licenses, only one copy of Excel at a time can attach to the highway database. You can connect more client applications by purchasing additional database licenses from ALK (multi-user licenses). If you plan to connect many users to a network version of the PC*MILER database, ALK has attractive pricing for LAN versions.

1.8 New and Recent Enhancements in Version 29

New features and enhancements in Version 29 include:

- **ENHANCED!...**Three toll discount programs have been discontinued in Version 29 to reflect recent Toll Road Authority updates. No new discount programs were added. *(PC*MILER/Tolls must be purchased and installed to calculate toll costs.)*

New features and enhancements in Version 28 include:

- **NEW!...**The ability to use latitude/longitude points combined with street addresses. See section 3.7. *(PC*MILER/Streets must be purchased and installed to use street addresses.)*

- **ENHANCED!...**The PC*MILER|Spreadsheets application's memory consumption has been reduced.

- **ENHANCED!...**The NEXUS toll discount program has been discontinued. *(PC*MILER/Tolls must be purchased and installed to calculate toll costs).*

Enabling and Disabling the Excel Add-In

PC*MILER|Spreadsheets is an Add-In for Excel Version 5.0 or greater. To complete the installation you must enable the Add-In manually from within Excel, or configure Excel to automatically load the Add-In each time you open the program.

2.1 To Enable the Add-In Manually

For Microsoft Office 2003 (or older):

1. Open Excel.

2. In the top tool bar menu, select **Tools** > **Add-Ins…** > **Browse**.

3. Navigate to the folder where PC*MILER is installed and go to the **Excel folder.** The default location of the Excel folder is …\ALK Technologies\ PCMILER29\Excel.

4. In the …\Excel folder, click on the **Pcmsrv32.xla** file then click **OK**.

5. In the Add-Ins dialog box, "PC*MILER|Spreadsheets" will appear in the list of products with a check next to it. This confirms that the Add-In is activated.

6. Click **OK** to continue. The setup is now complete.

The PC*MILER|Spreadsheets functions are now ready to be used and will be available every time you start Excel.

For Microsoft Office 2007 and 2010:

1. Open Excel.

2. Click on the **Microsoft symbol** in the upper left-hand corner of the screen (Excel 2007), or click on the **File** menu (Excel 2010).

3. In the list that opens, click on the **Excel Options** button at the bottom (Excel 2007) or the **Options** menu option (Excel 2010).

4. In the dialog box that opens, in the left-hand column menu click on **Add-Ins**.

5. In the right-hand side of the dialog box, there's a drop down menu next to **Manage**. Select **Excel Add-Ins** if it is not already selected, then click the **Go** button to continue.

6. In the Add-Ins dialog box that opens, click **Browse** and navigate to the folder where PC*MILER is installed and go to the **Excel folder** (the default location is C:\ALK Technologies\PCMILER29\Excel).

7. In the …\Excel folder, click on the **Pcmsrv32.xla** file, then click **OK**.

8. In the Add-Ins dialog box, "PC*MILER|Spreadsheets" will appear in the list of products with a check next to it. This confirms that the Add-In is activated.

9. Click **OK** to continue.

The remaining steps below are necessary only if you wish to turn off security warning messages for this spreadsheet.

10. Click on the **Microsoft symbol** in the upper left-hand corner of the screen.

11. In the list that opens, at the bottom click on the **Excel Options** button.

12. In the dialog box that opens, in the left-hand column menu listing click on **Trust Center**. Then click on the **Trust Center Settings** button on the right.

13. Click on **Trusted Locations** in the left-hand column menu.

14. Check if the location of the Excel folder from Step 6 is in the list of trusted locations; if not, click **Add New Location…** .

15. Click **Browse…** and navigate to the location of the Excel folder.

16. Select "**Subfolders of this location are also trusted**", then click **OK**.

17. In the Trust Center, check "**Allow Trusted Locations on my network**", then click **OK**. The setup is now complete.

The PC*MILER|Spreadsheets functions are now ready to be used and will be available every time you start Excel.

2.2 To Enable Autoloading of PC*MILER|Spreadsheets

To have PC*MILER|Spreadsheets functions available without the manual Add-In process, copy the file **pcmsrv32.xla** from the Excel folder in your PC*MILER installation to the Excel startup folder on your computer. The startup folder is called **XLSTART** and is located in the folder where Microsoft® Excel is installed.

For more information, see Excel Help under the search item "Startup folder".

2.3 To Disable the Add-In Manually

1. Start Excel.

2. **For Microsoft Office 2003:**

   Under the **Tools** menu, choose **Add-Ins**, then remove the check next to "**PC*MILER|Spreadsheets**" and click **OK**.

   For Microsoft Office 2007:

   Click the Microsoft Office button , click **Excel Options**, and then click **Add-Ins**. In the **Manage** pick list at the bottom of the window that opens, select **Excel Add-Ins** if it is not already selected. Then click "**Go…**" and remove the check next to "**PC*MILER| Spreadsheets**", and click **OK**.

   For Microsoft Office 2010:

   Click **File** then **Options** to open the Excel Options dialog. On the left, click **Add-Ins**. In the **Manage** pick list at the bottom of the window that opens, select **Excel Add-Ins** if it is not already selected. Then click "**Go…**" and remove the check next to "**PC*MILER| Spreadsheets**", and click **OK**.

The PC*MILER|Spreadsheets functions are now removed. They will not be available the next time you start Excel.

2.4 To Disable Autoloading of PC*MILER|Spreadsheets

Remove the file **pcmsrv32.xla** from the Excel **XLSTART** folder.

Using PC*MILER|Spreadsheets

There are two ways to use PC*MILER|Spreadsheets formulas in Excel: either type them directly into a cell or use the Insert Function option. All formulas will accept strings for city name, and either strings or integers for ZIP codes.

IMPORTANT NOTE: Leading zeros are significant in numeric postal codes in many countries, for example in the USA, "504" is a 3-digit ZIP code centroid in central Wisconsin, whereas "00504" is a 5-digit ZIP code in Holtsville, New York. For that reason, **we recommend that you always enter or import numeric postal codes as text strings** (format cells as "Text" – see section 3.1 below). If you do enter or import a postal code as an integer, be aware that Microsoft Excel will strip off leading zeros before that number gets to PC*MILER, for example if you enter the formula =miles(00504,504), PC*MILER will see that as =miles(504,504). In contrast, =miles("00504",504) will return the distance from the 5-digit ZIP code "00504" in Holtsville, New York to the 3-digit ZIP code area "504" in southeast Wisconsin.

3.1 How to Format Cells and Enter a Formula

- All city/state entries in Excel MUST contain a comma between the city name and state/country abbreviation, and – if you are using PC*MILER|Streets – all street addresses MUST be separated from the preceding place name by a semicolon. Example: **new york, ny;118 broadway**.

NOTE: For help with formatting street-level addresses in Spreadsheets, we provide a workbook with examples in the Excel folder of your PC*MILER installation folder (usually C:\ALK Technologies\PCMILER29\EXCEL). Look in the "Other Formulas" tab of the DEMO_NA.xls file.

- **Columns must be formatted correctly** so they can be read. This is especially important when importing postal codes – if your columns are not properly formatted, the default spreadsheet format ("General") will cause the first zero to be dropped from postal codes that begin with zero. Also, columns containing calculated distances should be formatted so the desired number of decimal places appears. To format columns:

    1. Highlight a column you wish to format.

    2. Right-click the column and select "**Format Cells…**".

    3. In the **Number** tab under **Category**, highlight "**Number**", "**Text**", "**Currency**", or "**Special > Zip Code**", depending on the type of data

the cells will contain. **NOTE:** All Number and Zip Code formatting accepts text too.

4. Set the options you want for each category; for example, the number of decimal places in the Number format. Click **OK** when done.

5. Repeat for all columns that you will be using.

- To add a formula to a cell using the Excel **Insert Function** option (note that functions can also be entered manually in the formula bar):

    1. Select a cell, then select the **Insert > Function** menu command (for Microsoft Office 2007, **Formulas** tab **> Insert Function**) or click the *fx* speed button above the column headers.

f_x	
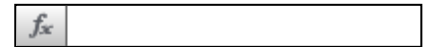
       IMPORTANT: Select a formula from the **User Defined** function category. All PC*MILER|Spreadsheets functions available through the Add-In are listed in this category.
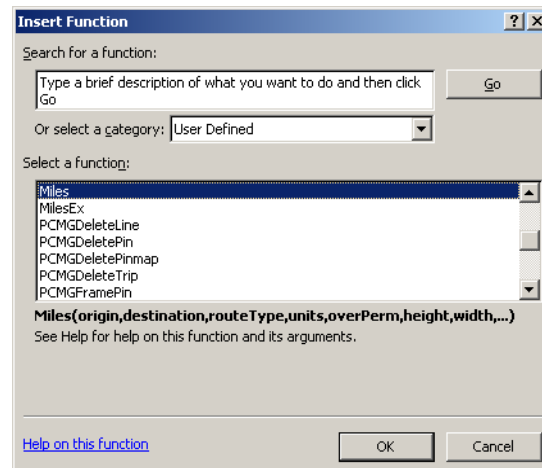
    2. Enter cell references or other data in the Function Arguments window, click **OK** when done. **IMPORTANT:** Options need quotes – for example, **"prac"** as in the screenshot below.
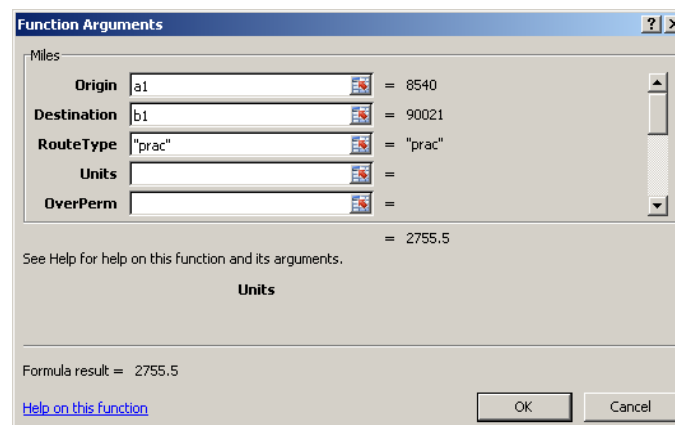
3.2 Time-Saving Tips

If you need to copy and paste columns with a large number of calculated values into another worksheet or Excel file, use the Paste Special functionality to avoid waiting for values to recalculate:

1. Select the columns you want to copy.

2. Right click on the selection and choose "Copy".

3. Right click again and choose "Paste Special".

4. In the Paste Special dialog, select **Values** and click **OK**.
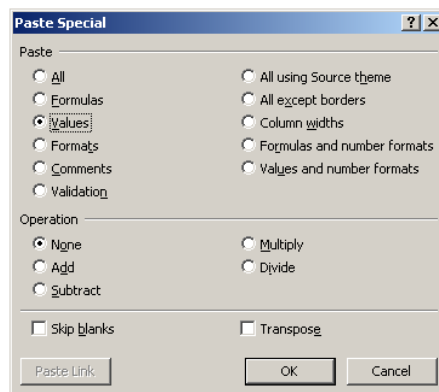
5. Paste the selection into another worksheet or Excel file. The calculated values will be pasted without the underlying formulas.

DID YOU KNOW? If you are new to Excel, you may not know that the contents of one or more cells can be copied into multiple cells with one click of the mouse.

SPLC191600005   Click here and drag

Formulas or values can be copied by selecting a cell or group of cells, then clicking on the square in the bottom right corner of your selection and dragging down or across the target column(s) or row(s).

3.3 Getting the Miles Between Two Points

The prototype for the **Miles** function is:

```
=Miles (origin, destination [, routing type])
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

Miles returns the driving distance from the origin to the destination. The origin and destination may be designated as a city with a state abbreviation (e.g. Paris, TX), a postal code, or a custom place created in PC*MILER. Any place name or postal code in the PC*MILER database may be used. Three-digit U.S. ZIP codes representing centralized areas are now acceptable. Canadian Postal Code and SPLC add-on modules are also available – see section 3.6 on entering SPLC locations.

Locations can also be entered as latitude/longitude points (see section 3.7, *Entering Latitude/Longitude Points as Stops*).

If you are using PC*MILER|Streets, a street address may be added, separated from the place name by a semicolon (e.g. "**kingston, nj; 16 laurel avenue**") – see NOTES below for PC*MILER|Streets users.   Beginning in Version 28, latitude/longitude points can be combined with street addresses - see section 3.7.

Miles returns **-1** if the origin, destination, or routing type is not valid.

Setting a routing type is optional. Available route types correspond to those in PC*MILER (see the PC*MILER *User's Guide* or Help for descriptions). The default value is Practical. Options are: **Prac** (Practical), **Short** (Shortest), **Natl** (National Network), **Toll** (Toll Discouraged), **53Foot** (53 Foot Trailer or Twins – see Note below), and **Air** (Air Distance). Route type entry is <u>not</u> case sensitive (e.g. "TOLL" or "Toll" is valid).

NOTE: The default routing type is determined by the setting in PC*MILER (*Route* menu > *Default Options* > *General* tab) or in the PCMSERVE.INI file. Combination routing types (for example, Shortest and 53 Foot, or shortest and Toll Discouraged) can be accessed in Spreadsheets by 1) using "Ex" functions – see section 3.18, or 2) changing the default routing type in PC*MILER or in the PCMSERVE.INI. See section 3.13, *Route Options and Default Settings,* for more on routing options and section 3.12, *Vehicle Dimension Options.*

The PC*MILER database contains several thousand cities and towns that share the same name. For instance, in Pennsylvania there are two towns named "Hamlin". If there are multiple instances of the city name you enter, the **Miles** function will match to the first instance of the city name it finds as it searches the

database. For this reason, you may want to enter postal codes for the origin and destination rather than city names whenever possible.

To see the full PC*MILER spelling and the postal code for a place name, you can use the **CityName** or **FullName** function described in this manual.

Duplicate cities or towns that do not have a postal code assigned by the Postal Service are differentiated by the names of the counties in which they are located. The county name appears as part of the city name (e.g. Fairview, PA, Jefferson). For more information about how PC*MILER handles duplicate or multiple city names, see the *Duplicate City Names* section in your *PC*MILER User's Guide*.

NOTE: PC*MILER does NOT offer state centroid distances, you cannot get the distance from a central point in one state to a central point in another state. If states are referenced for the origin and destination in the Miles function and mileage is returned, it means that PC*MILER found locations in the database that had state names; for example, "Michigan, ND". In general it is recommended to use the **=CityName** function if stop validation is needed.

NOTES for PC*MILER|Streets Users: When stops are city names or postal codes, by default "Highway Only" routing is used. This routing uses an air distance from the midpoint of the highway segment that is nearest to the destination postal code or city/state. Routes to stops that include a street-level address are calculated to the highway-level road that is closest to the address.

If "-1" is returned, or the miles that are returned do not match those generated in PC*MILER, try changing this option so that your route stays on local roads for as long as possible as it approaches a destination (PC*MILER will use local streets between the nearest highway segment and the stop).

To change the default for this option, in the PCMSERVE.INI file (see *Appendix B*) set [Options] UseStreets=TRUE. Also see section 3.13 for more about defaults, including order of precedence.

To see an example of formatting street-level addresses into the format acceptable by PC*MILER|Spreadsheets, please see the **Other Formulas** tab of the DEMO_NA.xls workbook.

MILES Function Examples:

Origin	Destination	Formula
08540	12345	=miles(A2,B2, "prac")
H3B 1A2	Toronto, ON;797 Yonge St.	=miles(A3,B3, "prac")
Ankeny, IA;200 East 1st St.	Omaha, NE;1600 Douglas St.	=miles(A4,B4, "short")
SPLC401167000	SPLC600143000	=miles(A5,B5, "short")
Beverly Hills, CA	Medford, OR;48 Myers Court	=miles(A6,B6,"53Foot")
Savannah, GA;25 Johnson Ct.	08528	=miles(A7,B7, "natl")
38.962955N,79.058204W,WV	39.618763N,98.094130W,KS	=miles(A8,B8, "natl")

| El Paso, TX | Cancun, QR | =miles(A9,B9, "toll") |
| H3B 1A2 | Moncton, NB | =miles(A10,B10"air") |

Example of Practical miles using cell references:
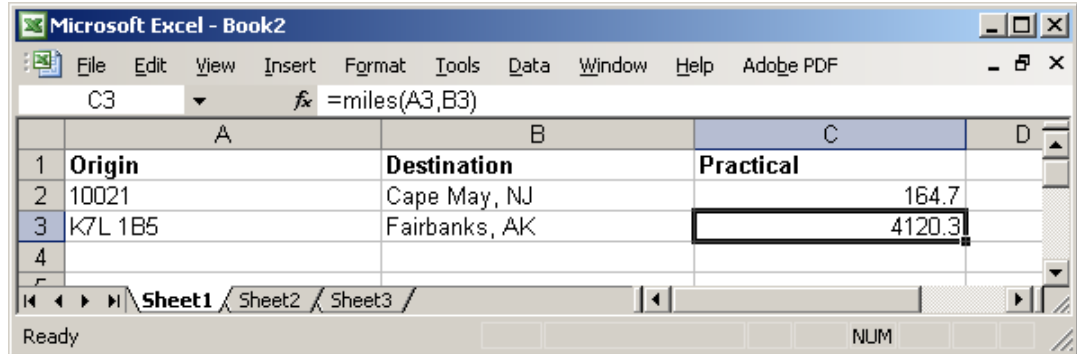
Example of Shortest miles using cell references:
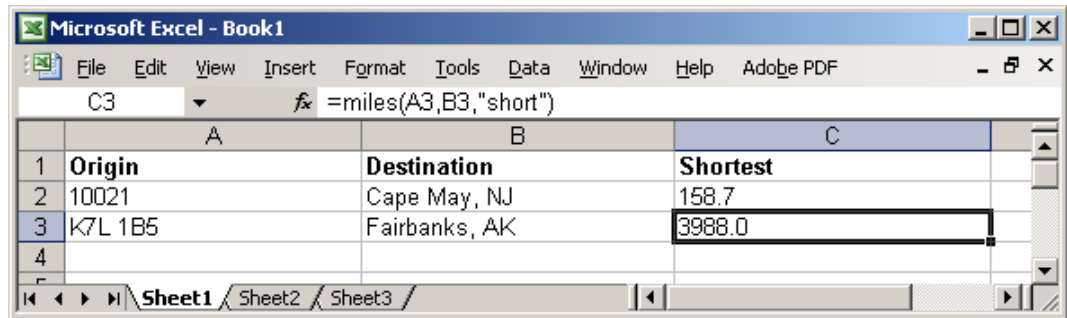
Example of Air miles using cell references and street addresses:
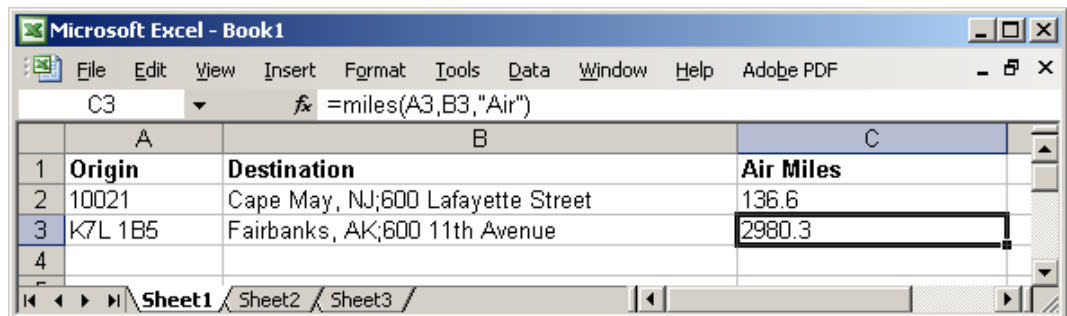
Example of Practical miles with place names entered directly into the formula:
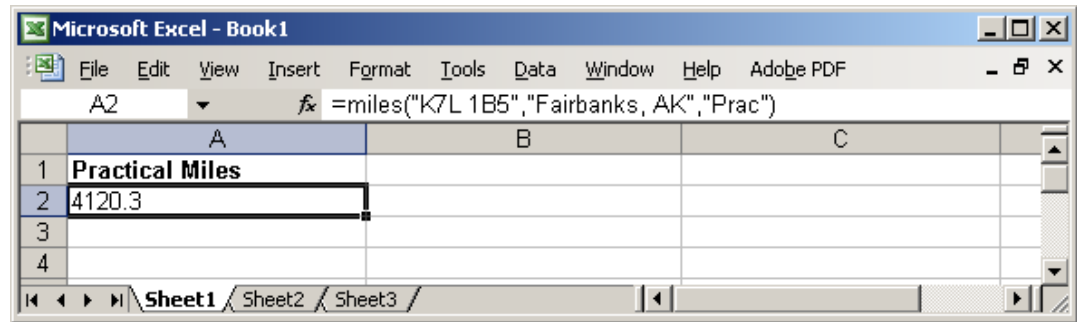
> **NOTE:** Notice in the above example that quotes are needed around the Canadian postal code "K7L 1B5" due to the space after "L". Spaces must be entered where they exist in postal codes and quotes must be used when entering a formula manually.

3.4 Using Mexican Postal Codes

> **NOTE:** See section 3.13 on the order of precedence between settings in PC*MILER, the PCMSERVE.INI file and options set directly in Spreadsheets.

Mexican Postal Codes are now accessible in the database. Since U.S. ZIP Codes and Mexican Postal Codes share a similar naming convention, to ensure that the entered ZIP/Postal Code matches the desired location, there are settings available for the PCMSERVE.INI (see *Appendix B*), and function prototypes in PC*MILER|Connect. The PCMSERVE.INI settings are:

```
UseUSPostCodes=True/False
UseMexPostCodes=True/False
```

To add these setting options, do the following:

1. Open PCMSERVE.INI (this file can be found in your Windows or WINNT folder) using Notepad, Wordpad, or another text editor.

2. Find the [OPTIONS] section.

3. Under [OPTIONS] add the above lines (see below for valid combinations).

4. Save and exit PCMSERVE.INI.

The possible setting combinations are:

- UseUSPostCodes=False and UseMexPostCodes=False – Defaults to the U.S. ZIP with no routing to Mexican postal codes

- UseUSPostCodes=True and UseMexPostCodes=False – Same as above

- UseUSPostCodes=True and UseMexPostCodes=True – Defaults to the U.S. ZIP, must pass an Estados code to get Mexican location (e.g. "50510,EM")

- UseUSPostCodes=False and UseMexPostCodes=True – Only Mexican postal codes are available, in the U.S. only city-state pairs will get U.S. location (e.g. "Chico, CA")

3.5 Changing the "NL" Setting

To accommodate the use of the "NL" abbreviation to conform to ISO 2-Character abbreviation standards, PC*MILER|Spreadsheets users can now choose whether to set NL to geocode to Newfoundland and Labrador locations in Canada <u>or</u> to Nuevo Leon locations in Mexico. In PC*MILER, this setting is defaulted to *Use NL for Newfoundland and Labrador*. If *NL for Newfoundland and Labrador* is the active option and you try to enter a Nuevo Leon location as an origin or destination, you will receive a -1 error message as the formula result.

For Spreadsheets, this setting can be adjusted in the PCMSERVE.INI file as follows (this adjustment takes precedence over settings in PC*MILER, see section 3.13 on order of precedence):

1. Open PCMSERVE.INI (this file can be found in your Windows or WINNT folder) using Notepad, Wordpad, or another text editor.
2. Find the [OPTIONS] section.
3. Under [OPTIONS] add this line: `UseNLAbbrevInMX=True`
4. Save and exit PCMSERVE.INI.
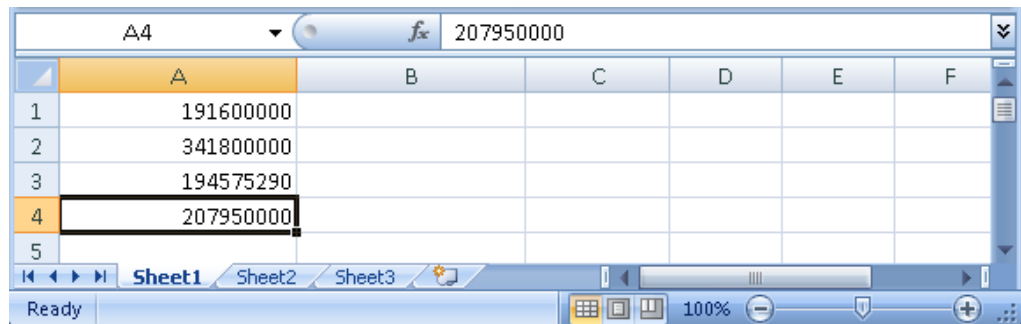
To reset back to the default choice, change =True to =False or delete the whole line and save your changes.

NOTE: If you are using PC*MILER|Connect, an API is available to make this setting change. The API takes precedence over the setting in the INI file, which takes precedence over the PC*MILER user interface.

3.6 Entering SPLCs as Stops

(North America only – SPLC data must be installed) To use SPLCs when entering origins/destinations, each number needs to be preceded by "**SPLC**", e.g. "**SPLC191690000**". To add this text to a list of SPLC numbers, use the CONCATENATE formula as described in the steps below:
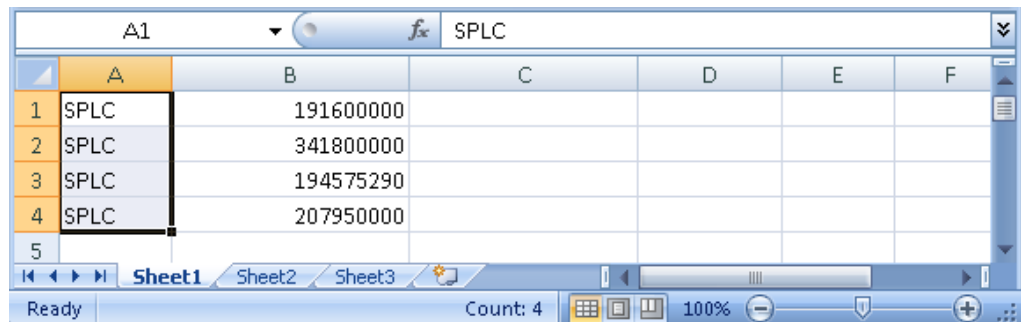
1. To begin, all origin SPLC numbers should be listed in one column (column A in this example).

2. Insert a new column to the left of column A.

3. In the new column, add "SPLC" to each row that has a SPLC in it. To do this quickly, type "SPLC" in cell A1, then click and drag the bottom right corner of the cell down the column (the cursor will become a plus sign). Let go when all target cells are populated with "SPLC".

4. Select a third column to the right (column C in this example) and make sure the cells are formatted as "**General**" or "**Number**".

5. In cell C1, manually enter the following formula:
   =CONCATENATE(A1,B1)

6. Copy the formula down the remainder of the column as in Step 3.
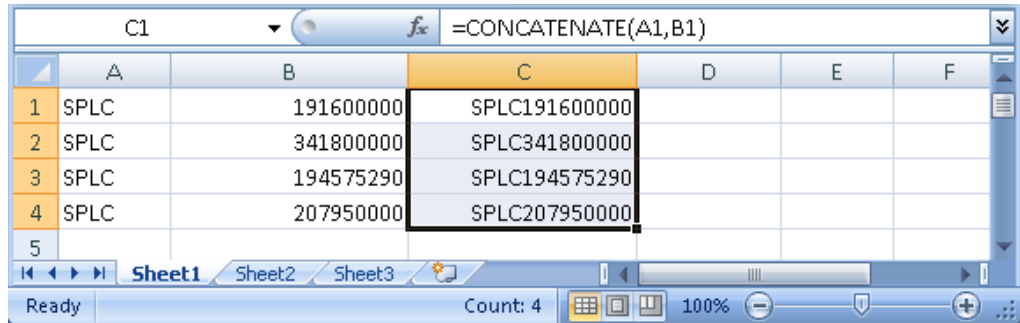
7. With the third column selected, right click and select "**Copy**".

8. With the column still highlighted, right click and select "**Paste Special**".

9. In the dialog that opens, select **Values** and hit **OK**.
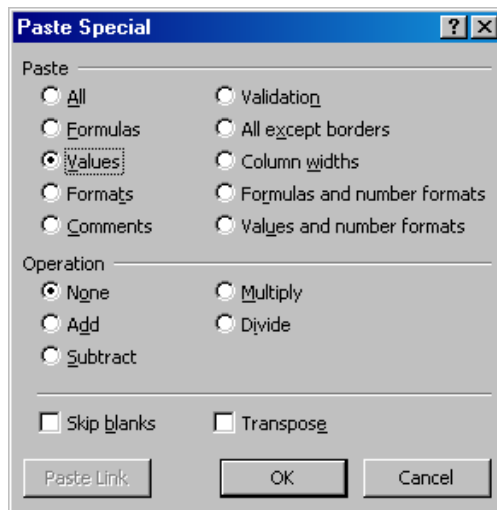
10. Delete the first two columns. Your SPLC list is now correctly formatted.
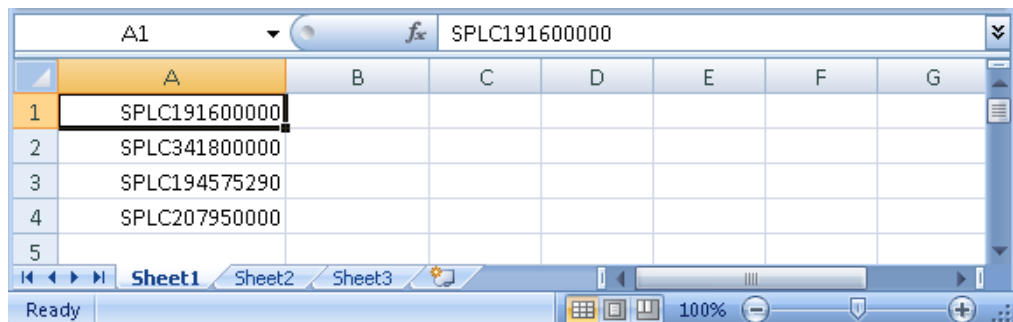
11. For the destination SPLC, follow steps 1-10 starting with column B instead of A.

12. When you have origin and destination columns set up, enter one of the PC*MILER calculation functions in the third column. Adjust the cell alignment and insert a header row if desired.

3.7 Entering Latitude/Longitude Points as Stops

PC*MILER|Spreadsheets enables you to enter latitude/longitude points as stops on a route. These points can be entered in *degrees minutes seconds* format or *decimal degrees* (e.g. **0401750N,0742131W** or **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 8 characters representing a decimal number with up to 3 decimal places. 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* .

Examples:

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

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

NOTE: To see an example of converting latitude/longitude coordinates from degrees minutes seconds to decimal degrees, please see the **Other Formulas** tab of the DEMO_NA.xls workbook.

Beginning in Version 28, you can also use latitude/longitude points combined with street addresses for more precise geocoding and directions. The lat/long is added before the address, followed by a semicolon. An example is:

40.211670N,74.703480W;1200 Kuser Road

This new functionality will geocode the lat/long to the nearest point on the particular street in the address, rather than to the nearest street in the direction of travel, as would be the case for a lat/long by itself. If the lat/long is more than .5 miles from the street in the address, an error message will be returned.

Here is a comparison of the results using the lat/long in the example cited above, with and without an address:

3.8 Worldwide Countries and European Postal Codes

(For PC*MILER/Worldwide users) With PC*MILER|Worldwide data installed and the correct region specified (see section 3.13), you may specify a country outside North America using its FIPS two-letter abbreviation (for example, 'Paris, FR') or a postal code (for example, '46001 sp'). For a list of state and country abbreviations by region, please see *Appendix A*.

To use another format for the country abbreviation (ISO2, ISO3, GENC2, or GENC3) you will need to either change the format in PC*MILER or add a line to the PCMSERVE.INI file in the OPTIONS section (see *Appendix B*) as in the example below. An INI setting takes precedence over a setting in PC*MILER.

```
[OPTIONS]
CountryAbbrevType=ISO2
```

When you are using European postal codes as stops, you need to enter a country abbreviation to avoid being routed to the wrong country in cases where the same postal code exists in more than one country. Enter the postal code, a comma or space, and the correct two-letter country abbreviation; e.g. "**46001 sp**" or "**46001,sp**" for Valencia, Spain.

Canadian and Mexican locations are specified using a province or estado abbreviation after the city name. Canadian postal codes are available as an add-on.

NOTE: Postal codes are accessible in other regions, though not all states/countries within that region have data available in PC*MILER.

3.9 Changing the Region

(PC*MILER/Worldwide only) The prototype for the **SetDefaultRegion** function is:

```
=SetDefaultRegion(regionName)
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

To enter location data for regions outside North America, there are two ways to select a region. One way is to use the global SetDefaultRegion function in any cell of your worksheet. After a region is set using this function, all cells in the worksheet <u>except those that already contain calculations</u> will be affected. In other words, all cells that don't contain PC*MILER function calculations already will only process locations that are within the indicated world region. This function

takes precedence over the equivalent setting in the PCMSERVE.INI file (see below) and the PC*MILER user interface.

regionName is a string and valid values are as follows: NA (North America – this is the default), SA (South America), Europe, Africa, Asia, ME (Middle East), or Oceania.

Alternatively, you can edit the PCMSERVE.INI file and change the region default from there. This setting takes precedence over the Route Options setting in PC*MILER – the PC*MILER UI region setting is active only in the absence of the SetDefaultRegion setting in Spreadsheets or the Region setting in the INI file. Here are the steps to take to edit the PCMSERVE.INI file:

1. Find the PCMSERVE.INI file in your Windows or WINNT folder, and open it using Notepad or another text editor.

2. Find this line:

    [Default]
    Region=NA

    (If it is only "Region=" with no value, the default value "NA" is active.)

3. Type another region after "=". See choices for regionName above.

4. Save and close the file.

5. You must **close and reopen Excel** for the region change to take effect.

3.10 Switching the Data Set

The data set that PC*MILER|Spreadsheets uses to calculate routes can be changed using the PC*MILER user interface. To do this, open PC*MILER then select the Map tab > Utilities group > *Change Data Set* > and choose a map data version from the menu. For PC*MILER (North America only), possible options in the drop-down include the base version dataset as well as any mid-year versions* that have been released since the base version, including PC*MILER|Streets U.S. and Canadian street-level data if installed. If PC*MILER|Energy has been purchased and installed, that dataset will also appear in the menu.
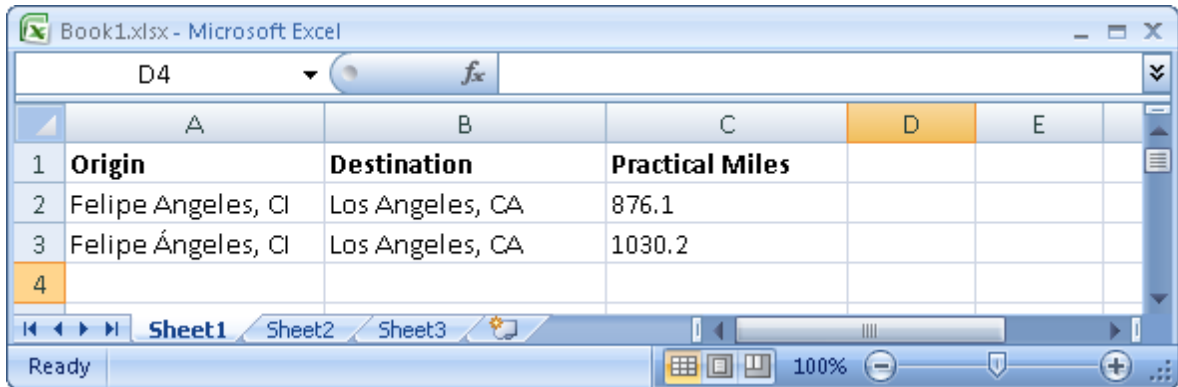
* *Only Annual Update Program (AUP) customers receive mid-year data releases.*

For PC*MILER|Worldwide users, local street address data is available in the U.S. and Canada, and in many countries in worldwide regions outside North America. Each module may be purchased separately or in combination with other data sets.

PC*MILER|Spreadsheets must be restarted to activate the new data set. The correct data set must be activated before you enter an address. Remember that the correct region must also be selected (see section 3.9 above).
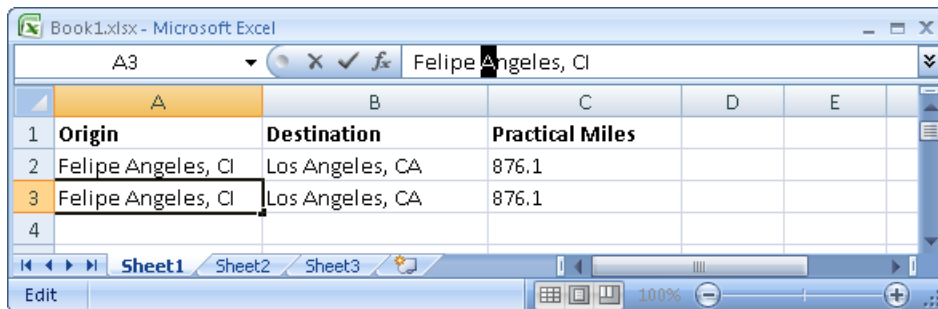
3.11 Entering Location Names That Contain Accents

Some PC*MILER location names include one or more accented letters. An example of two locations that have the same name but are differentiated by an accented letter is Felipe Angeles, CI in Mexico. The mileage difference shown below illustrates how important an accented letter can be in a location name:

1. To enter an accented letter, first type the location name in the cell and then, in the formula bar, select the letter that will be replaced ("A" in this example):

2. Now select the Excel **Insert** menu (not shown above) **> Symbol** (in Microsoft Office 2007 or 2010, after clicking "Insert", look for the Omega sign to the far right in the tool bar) to open the Symbol window:
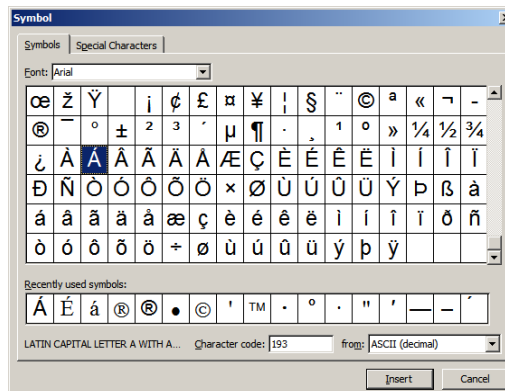
3. Select the letter that you want (in this example, "Á") and click **Insert**. When you are finished, click **Cancel** to close the Symbol window.

NOTE: To search for an accented letter in a different font, make a selection from the **Font** pick list at the top of the Symbol window.

3.12 Vehicle Dimension Options

The same vehicle dimension route settings that the PC*MILER user interface and other PC*MILER interface modules have access to are now accessible in PC*MILER|Spreadsheets.   See the *PC*MILER User's Guide* for more information on vehicle dimensions.

The functions *=Miles, =MilesEX, =Tolls, =TollsEx, =DiscountedTolls,* and *=DiscountedTollsEx* have been updated to include the eight additional optional parameters that are listed below. If these fields are left blank, the default settings will be used.

Parameters	English Inputs		Metric Inputs	
	Default Settings	Acceptable Values	Default Settings	Acceptable Values
Units	0 (ENGLISH)	0/1	1	0/1
OverPerm	0 (False - i.e. not oversized)	0/1	0	0/1
Height	162 (inches)	> 0 - 162	4.11 (meters)	> 0 - 4.11
Width	96 (inches)	96, 102	2.44 (meters)	2.44, 2.59
Length	48 (feet)	> 0	14.63 (meters)	> 0
Weight	80000 lbs.	1000 - 132000	36290 kg.	454 - 60000
Axle	5	2 - 14	5	2 - 14
LCV	0 (False)	0/1	0	0/1

The vehicle dimension options enable you to generate routes based on custom vehicle dimensions. Building on the foundation of PC*MILER's previously existing routing database and routing options, users can now generate routing that conforms to the requirements of a vehicle's height, length, width and weight.

If a vehicle weight and/or height is entered, PC*MILER route calculations will take into account restrictions on roads and bridges to ensure that the vehicle's weight/height is below the restriction(s).

Vehicle weight, length and width information is checked against the threshold at which a truck becomes "oversized" and appropriate routing is generated.

Below is a sample function (=Miles) that includes vehicle dimension options:
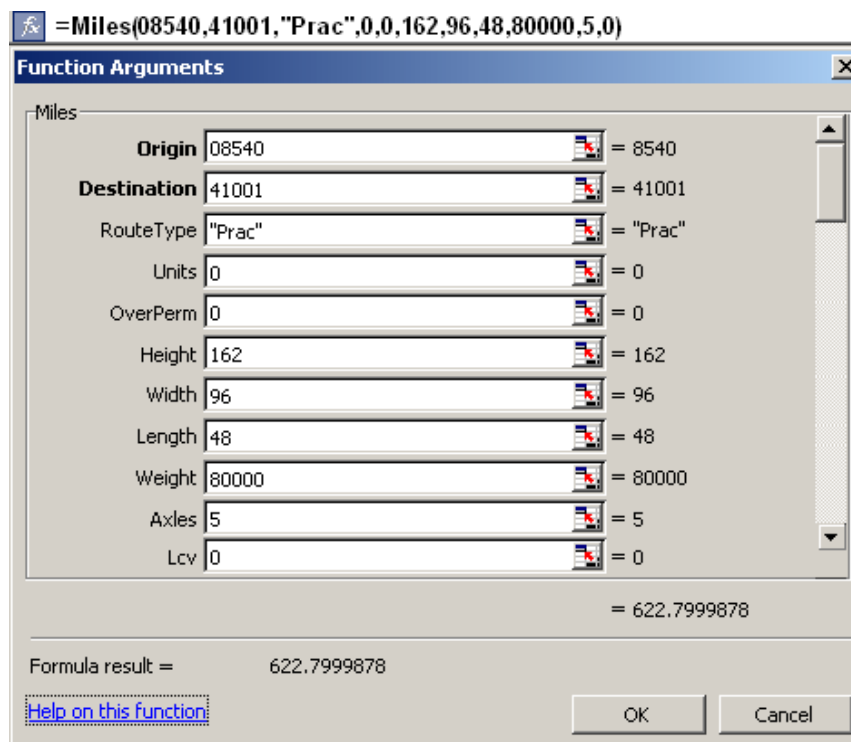
3.13 Route Options and Default Settings

Default routing options that can be edited in the PCMSERVE.INI file include the **route type**, the **unit of distance** used in calculations (miles vs. kilometers), **borders open/closed**, the **order of states/countries** in the state/country summary report (alphabetical vs. travel order), and several others. See *Appendix B* for details about the PCMSERVE.INI. Keep reading below for additional important information on setting options.

Options may also be set in the Default Options dialog in PC*MILER. The order of precedence for route option settings is as follows:

1. Options that are set directly in Spreadsheets prevail over the default options set in PC*MILER and the INI file.

2. Options set in PCMSERVE.INI prevail over those set in PC*MILER.

3. Options set in PC*MILER as defaults take effect only in the absence of settings 1 and 2.

3.14 Getting State/Country Distances with Toll Costs

The State/Country report lists toll, toll-free, ferry, and total distances by state/country. If the PC*MILER|Tolls add-on module is installed with PC*MILER, the last column on the right in this report will also provide toll fees for each leg of a trip and the total toll amount for the whole trip.

The steps to access this report vary depending on the version of Excel you are using. With Excel open, follow the instructions below for your version:

Excel 2003:

Select an empty cell, then select **PC*MILER State/Country Rpt…** from the Excel **Insert** menu.

Excel 2007 or **2010:**

Go to the Excel **Add-Ins** tab and click on **PC*MILER State/Country Rpt**.

In the State/Country dialog box, enter a city name and state abbreviation or postal code for the origin and destination. Select a **Routing type** if desired (the default is Practical), then click **OK**. (For more on setting the route type, see section 3.3, *Getting the Miles Between Two Points*.)
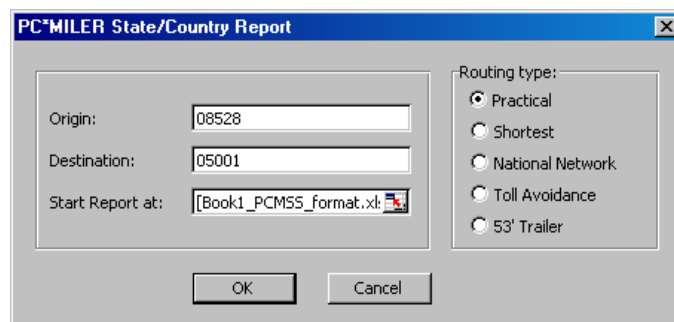
To have states or countries in the report listed in the order driven rather than alphabetically, change the default option in PC*MILER (*Route* menu > *Default Options* > *General Options* tab).

You can also change the state/country order default using the PCMSERVE.INI file. See *Appendix B* for more information about the PCMSERVE.INI.

Distances (and tolls, if the PC*MILER|Tolls add-on is installed) will be returned as in the example shown below (the generated report will use as many cells as needed in your spreadsheet).

State/Country	Total	Toll	Free	Ferry	Toll($)
CA	204.6	6.1	198.6	0	11.25
IA	305.3	0	305.3	0	0
IL	162.9	6.8	156.1	0	3
IN	151.5	135.4	16.1	0	29.95
NE	453.9	0	453.9	0	0
NJ	69.2	0	69.2	0	0
NV	410.1	0	410.1	0	0
OH	236.1	217.8	18.3	0	29
PA	310.4	0.1	310.3	0	16.25
UT	193.2	0	193.2	0	0
WY	401.4	0	401.4	0	0
US	2898.6	366.2	2532.4	0	89.45
TOTAL	2898.6	366.2	2532.4	0	89.45

3.15 Getting the Drive Time Between Two Points

The prototype for the **DriveTime** function is:

```
=DriveTime(origin, destination [, routing type])
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

DriveTime returns the driving time (in minutes) from the origin to the destination calculated using the PC*MILER database. The origin and destination may be designated as a city/state abbreviation (e.g. Paris, TX), a five-digit postal code (Canadian Postal Code and SPLC add-on modules are also available).

Any place name, postal code, or SPLC in the PC*MILER database may be used. You may also enter a latitude/longitude, or a custom place name created in PC*MILER. If you are using PC*MILER|Streets, a street address may be added, separated from the place name by a semicolon; for example, "**kingston, nj; 16 laurel avenue**".

NOTE: To see an example of formatting street-level addresses into the format acceptable by PC*MILER|Spreadsheets, please see the **Other Formulas** tab of the DEMO_NA.xls workbook.

Any place name, postal code, or SPLC in the PC*MILER database may be used. You may also enter a latitude/longitude, or a custom place name created in PC*MILER. If you are using PC*MILER|Streets, a street address may be added, separated from the place name by a semicolon; for example, "**kingston, nj; 16 laurel avenue**".

NOTE: To see an example of formatting street-level addresses into the format acceptable by PC*MILER|Spreadsheets, please see the **Other Formulas** tab of the DEMO_NA.xls workbook.

DriveTime returns **-1** if the origin, destination, or routing type is not valid. Below is an example of the Shortest drive time using cell references. Time is in minutes, see "Hint" below for conversion.

The routing type is optional and corresponds to the five PC*MILER routing types – see the PC*MILER *User's Guide* or Help for descriptions of the different routing types – or an Air distance that is unique to PC*MILER|Spreadsheets. Options are: **Prac** (Practical), **Short** (Shortest), **Natl** (National Network), **Toll** (Toll Discouraged), **53Foot** (53-Foot Trailer or Twins Routing), and **Air** (Air Distance). The default value is **Prac**. If **Air** is specified, the drive time will be 0. Route type input is not case sensitive (e.g. "SHORT" and "Short" are both valid).

Note that to display drive times as "days hours:minutes" in Excel, you must first convert minutes to days by dividing by 24*60 in the DriveTime formula. For example:

=DriveTime (A2,B2)/(24*60)

Then highlight the cells whose format you want to change, and select the "Cells..." command in the **Format** menu.

In the **Number** tab, choose the "Custom" category then choose the applicable format or manually enter **d** <space> **hh:mm** and click **OK**.

Example in days/hours/minutes:

Origin	Destination	Formula	RESULT (d hh:mm)
90210	19027	=drivetime(A2,B2,"prac")/(24*60)	1 20:18

NOTE for PC*MILER|Streets Users: When stops are city names or postal codes, by default "Highway Only" routing is used. This default can be changed in the PCMSERVE.INI file (see *Appendix B*). See the note for Streets users in section 3.3, *Getting the Miles Between Two Points*.
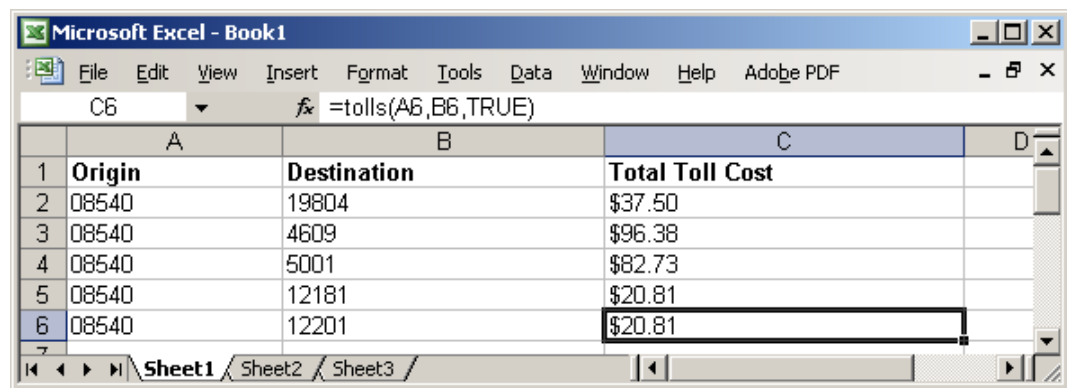
3.16 Getting Toll Data

(*In North America Only*) If the PC*MILER|Tolls add-on module is installed with PC*MILER, Spreadsheets will include two functions that calculate accurate, up-to-date toll charges in the U.S. and Canada. A sample spreadsheet using the Tolls functions is included in the EXCEL directory of the PC*MILER|Spreadsheets installation, the DEMO_NA_TOLL.xls file.

The **Tolls** function works in the same way as the Miles function, with an extra parameter to indicate if discounted tolls should be used. The prototype is:

```
=Tolls (origin,destination,discount [,routeType])
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

Tolls returns the total toll amount (in dollars) from the origin to the destination. If *discount* is set to FALSE, all cash tolls will be used. If set to TRUE, discount programs that are activated in PC*MILER (**Route Options** dialog > **Tolls** tab) will be used where they apply in computing tolls. *RouteType* is an optional parameter that defaults to "Practical". (See section 3.3 for route type examples.)

The **DiscountedTolls** function returns the portion of the tolls for the trip attributable to the specified discount program. If *discountProgram* is set to "Cash", it returns the cash portion; if set to "EZPass" it returns the EZPass portion, etc. The prototype is:

```
=DiscountedTolls (origin,destination,discountProgram
      [,state][,routeType])
```

Currently supported values for *discountProgram* are:

Discount Program	Valid In		Discount Program	Valid In
407 ETR Transponder	ON Canada		I-Pass	IL
A25 Transponder	QC Canada		K-Tag	KS
A30 EXPRESS Transponder	QC Canada		Laredo Trade Tag	TX
BreezeBy	OR		LeeWay	FL
Cruise Card	GA		MACPASS	NS Canada
Downbeach Express Pass	NJ		NC Quick Pass	NC
E-Pass	TX		NEXPRESS TOLL	MI ON Canada
E-Pass Canada	NS Canada		Palmetto Pass (PAL PASS)	SC
ExpressPass	NY, ON Canada		Peach Pass	GA
EXpressToll	CO		PikePass	OK
EZ Tag	TX		Quickpass	BC Canada
EZPass	DE, IL, IN, ME, MD, MA, NH, NJ, NY, NC, OH, PA, RI, VA, WV		StraitPASS	PEI Canada
EZPass-NJ	NJ		SunPass	FL
EZPass-WV	WV		TollTag	LA, TX
FasTrak	CA		TReO	BC Canada
GeauxPass	LA		TxTag	TX
Good To Go	WA		Wabash Pass	IN
GO-PASS	CO			

SPECIAL NOTE: The "EZPass-WV" or "EZPass-NJ" options apply to those who purchased the EZPass service in West Virginia or New Jersey.

The following discount programs have been discontinued in the database:

Discontinued Program	State	Versions Available	Version Discontinued	Reason
C-Pass	FL		29	Adopted SunPass
FAST LANE	MA and all EZPass facilities		29	Only EZPass is used now
Smart Tag	VA		29	Only EZPass is used now
NEXUS	NY, ON	27	28	Discontinued
I-Zoom	IN	21-26	27	Replaced by EZPass
B-Pass	NB	17-25	26	Toll discontinued
M-Tag	MD	17-23	24	Replaced by EZPass
NH Tokens	NH	17, 18	19	Replaced by EZPass
O-Pass	FL	21-23	24	Absorbed into SunPass
Ready Toll	OH	17, 18	19	There is no discount associated with this program, it's simply a "debit card" used to pay tolls
Transpass	ME	17- 23	24	Replaced by EZPass

The *discountProgram* values must be spelled as shown in the **Route Options** dialog > **Tolls** tab in the PC*MILER application. (Spaces and dashes must be entered exactly as they appear there, but case does not matter (e.g. "E-Pass" or "e-pass" are both acceptable). If a state is specified, only the tolls in that state are returned. If the state is missing or an empty string, all states are included. In the example below, the toll costs in New Jersey using EZPass are calculated.
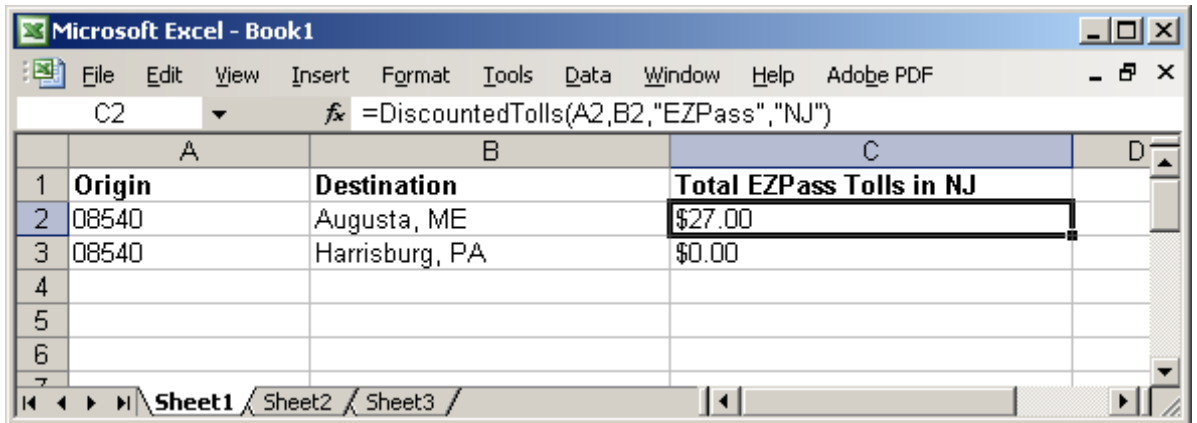
NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

> **NOTE:** To get toll costs by state for a whole route, use the State/Country Report described in section 3.14.

> **NOTE:** There are no settings available in PC*MILER|Spreadsheets to calculate time-based toll costs. The reported toll costs are at the highest rate, or the peak rate for the route.

3.17 Calculating Air Distance

PC*MILER|Spreadsheets is now able to calculate the straight line or "Air" distance between two points. "**Air**" is a sixth route type option for the **Miles** routing function, in addition to **Short**, **Prac**, **Natl**, **Toll**, and **53Foot**.

For the Air distance, points are specified the same way as in other PC*MILER|Spreadsheets distance calculations, as either city/state, five digit U.S. ZIP [Canadian Postal Code and SPLC add-on modules are also available], or latitude/longitude. This is an example of Air distance using cell references:
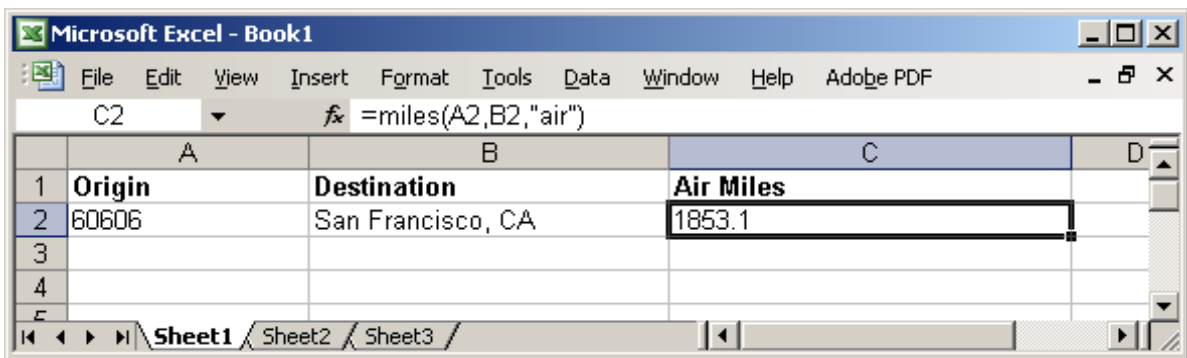
3.18 Ex Functions for Combination Route Types

Four 'Ex' functions have been added to PC*MILER|Spreadsheets to make using combination route types easier (for example, Shortest with Toll-Discouraged routing).

```
=MilesEx(origin, destination [, routing type])

=DriveTimeEx(origin, destination [, routing type])

=TollsEx(origin,destination,discount [,routing Type])**

=DiscountedTollsEx(origin,destination,discountProgram
[,state][,routing Type])**
```

** These functions are only available if the PC*MILER|Tolls add-on module is installed.

Previous to Version 20, to use combined route types in Spreadsheets the CalcType setting had to be altered in the pcmserve.ini file (see *Appendix B*). This still works and is the only way to set the default route type across functions.

However, the Ex functions shown above now provide the ability to use any of the combination route type parameters listed below:

- **prac|toll** (Practical and Toll Discouraged)
- **prac|53foot** (Practical and 53-Foot Trailer or Twins)
- **prac|natl** (Practical and National Network)
- **prac|toll|53foot** (Practical, Toll Discouraged, 53-Foot Trailer or Twins)
- **prac|toll|natl** (Practical, Toll Discouraged, National Network)
- **short|toll** (Shortest and Toll Discouraged)
- **short|53foot** (Shortest and 53-Foot Trailer or Twins)
- **short|natl** (Shortest and National Network)
- **short|toll|53foot** (Shortest, Toll Discouraged, 53-Foot Trailer or Twins)
- **short|toll|natl** (Shortest, Toll Discouraged, National Network)

The pipe symbol (|) is created by holding down the **Shift** key and the backslash key (\ ) on your keyboard at the same time.

Examples:

Origin	Destination	Formula
08540	02205	=MilesEx(A2,B2, "prac|toll")
08540	02205	=DriveTimeEx(A3,B3,"prac|toll")/(24*60)
08540	02205	=TollsEx(A4,B4,TRUE, "prac|toll")
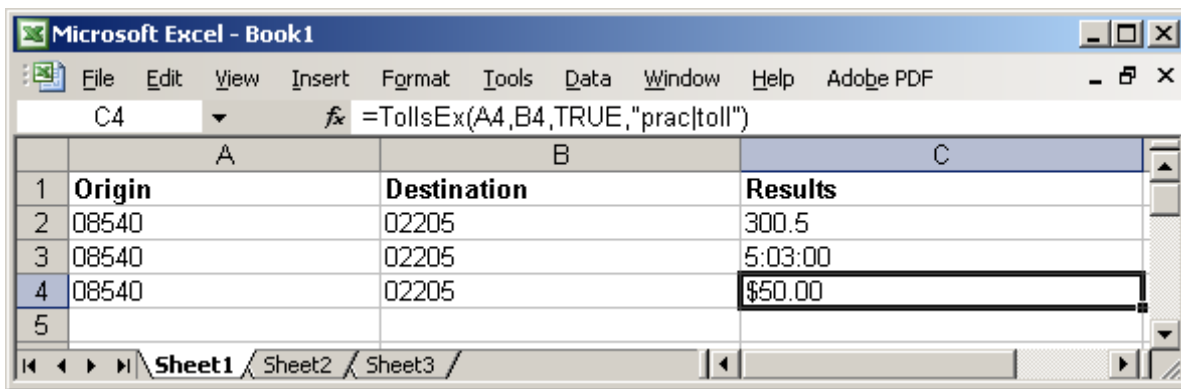
NOTE: Sample workbooks using these functions are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

3.19 Getting the City Name from a ZIP/Postal Code

The prototype for the **CityName** function is:

```
=CityName(ZIPCode)
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

CityName returns the city name and state or country abbreviation corresponding to the given postal code. (Canadian Postal Codes, SPLC, and 3-digit U.S. ZIP codes representing centralized areas are now valid with this function, as are international postal codes if you are a PC*MILER|Worldwide customer.) **CityName** returns **-1** if the postal code you entered is invalid.
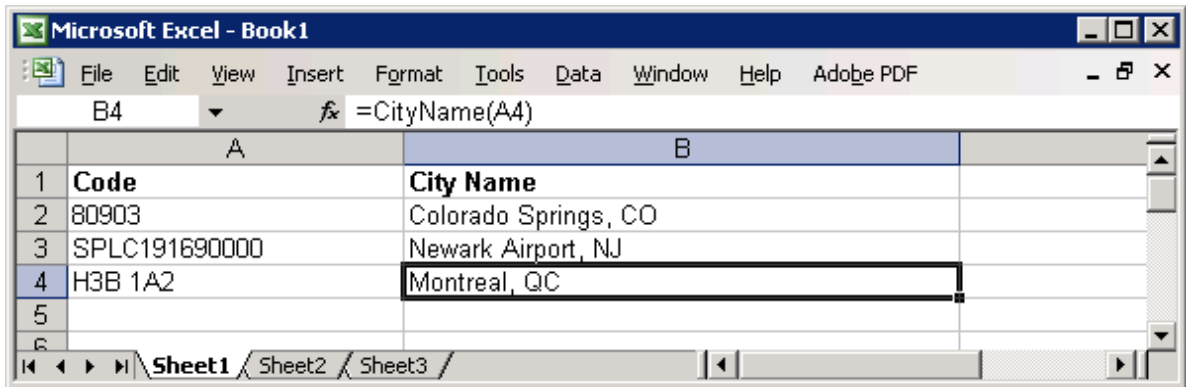
CityName Function Examples:

Input	Formula	RESULT
80903	=cityname(A2)	Colorado Springs, CO
SPLC191690000	=cityname(A3)	Newark Airport, NJ
H3B 1A2	=cityname(A4)	Montreal, QC

3.20 Getting the ZIP/Postal Code from a City Name

The prototype for the **ZIPCode** function is:

```
=ZIPCode(City,State)
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL.

ZIPCode returns the postal code corresponding to a place name. The place name is a city with a state or country abbreviation (e.g. Austin, TX or Sion, FR). Any place in the PC*MILER database may be used, with the exception of Canadian place names. **ZIPCode** returns a **-1** if the place name you entered is invalid.

The ZIPCode function can be used to test if a given number is a valid postal code. For example, the following Excel command will return **TRUE** if cell B2 contains a valid postal code and **FALSE** if it does not:

<p align="center">=NOT (EXACT(-1,ZIPCode(B2)))</p>
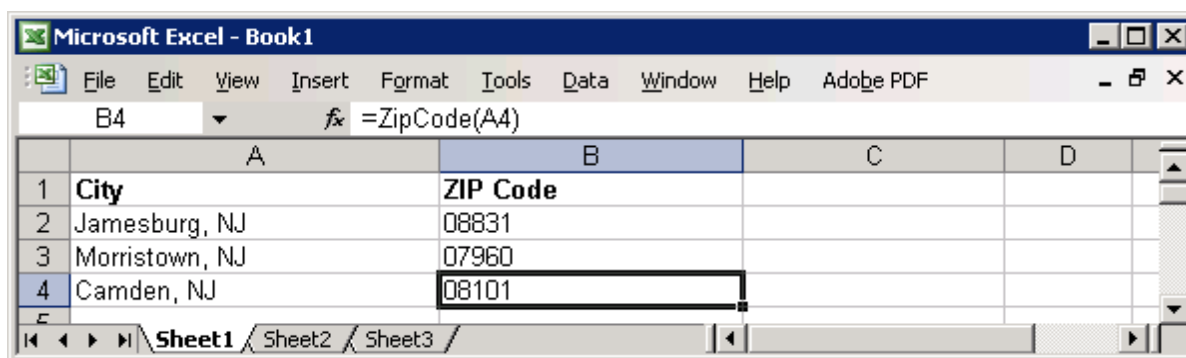
Neither postal codes outside of the U.S. nor SPLC's can be derived from this function. However, Canadian and Worldwide codes can be found using the Location Lookup dialog. The steps to access the Location Lookup vary depending on the version of Excel you are using:

Excel 2003:

In Excel 2003, select **Insert** menu > **PC*MILER Location Lookup**…, then enter a city/state (example: 'Montreal, QC' – see below) and click **Lookup**. Make a selection from the pick list.

Excel 2007 or **2010:**

Click the **Add-Ins** tab and select **PC*MILER Location Lookup…**, then enter a city/state (example: 'Montreal, QC' – see below) and click **Lookup**. Make a selection from the pick list.

3.21 Getting the Full ZIP/Postal Code and City Name

The prototype for the **FullName** function is:

```
=FullName(ZIPCodeOrCityState)
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

FullName returns the postal or SPLC code, city/state abbreviation, and county name corresponding to the given location. Any place name, postal code, or SPLC in the PC*MILER database may be used (Canadian Postal Codes included in PC*MILER, and international postal codes are additionally available for PC*MILER|Worldwide customers). **FullName** returns **-1** if the PC*MILER place you entered is invalid.

HINT: If a Canadian city, Canadian postal code, or SPLC is entered in the function, it will return the city/state without a code.
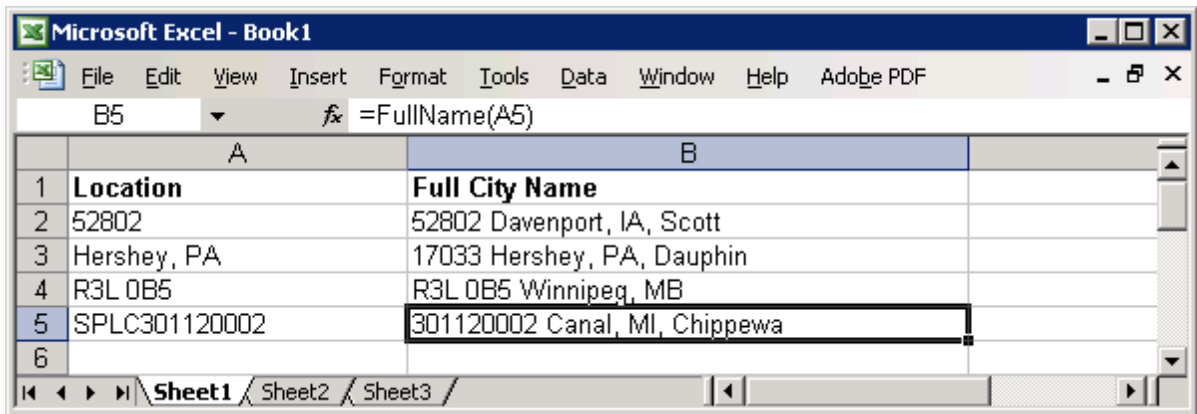
FullName Function Examples:

Location	Formula	RESULT
52802	=fullname(A2)	52802 Davenport, IA, Scott
Hershey, PA	=fullname(A3)	17033 Hershey, PA, Dauphin
R3L 0B5	=fullname(A4)	R3L 0B5 Winnipeg, MB
SPLC301120002	=fullname(A5)	301120002 Canal, MI, Chippewa
Paris, FR	=fullname(A5)	Paris, FR, Paris

3.22 Getting the City Name/State/County from a Location

The prototype for the **CityNameWithCounty** function is:

```
=CityNameWithCounty(placeName)
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

The function **CityNameWithCounty** takes a PC*MILER location (city-state, postal code, six-digit Canadian Postal Code, PC*MILER|Worldwide international postal code, SPLC, PC*MILER custom name) and returns the city name with state and county. Any place name, postal code, or SPLC in the PC*MILER or database may be used. Returns **-1** if the PC*MILER place you entered is invalid.
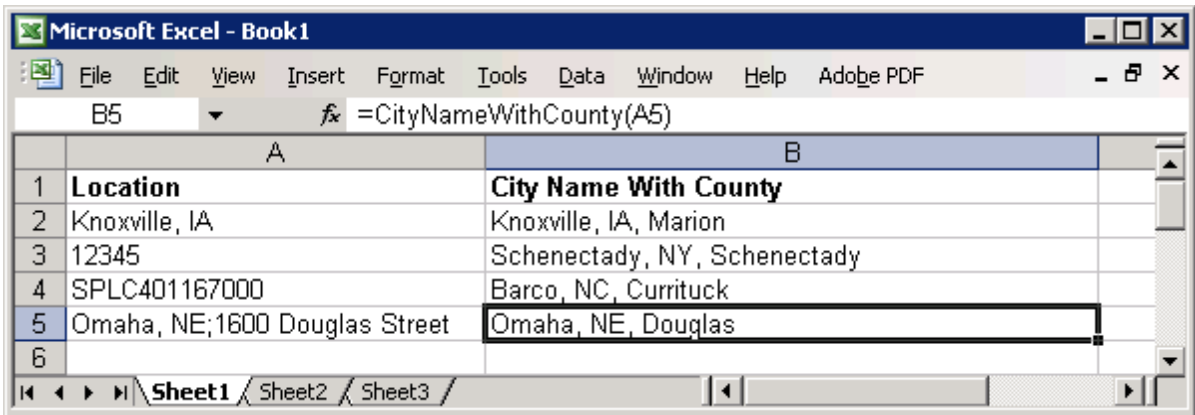
CityNameWithCounty Function Examples:

Location	Formula	RESULT
Knoxville, IA	=citynamewithcounty(A2)	Knoxville, IA, Marion
12345	=citynamewithcounty(A3)	General Electric, NY, Schenectady
SPLC401167000	=citynamewithcounty(A4)	Barco, NC, Currituck
Omaha, NE;1600 Douglas St.	=citynamewithcounty(A5)	Omaha, NE, Douglas

3.23 Getting Latitude/Longitude Points from a Location

The prototype for the **CityToLatLong** function is:

```
=CityToLatLong(CityStateOrZipcode)
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

The function **CityToLatLong** takes a PC*MILER location (city-state, postal code, SPLC, truck stop, PC*MILER custom name) and returns the latitude/longitude of a point central to the location in degrees, minutes, seconds format (**dddmmssN,dddmmssW**). **CityToLatLong** returns **-1** if the PC*MILER place name you entered is invalid.
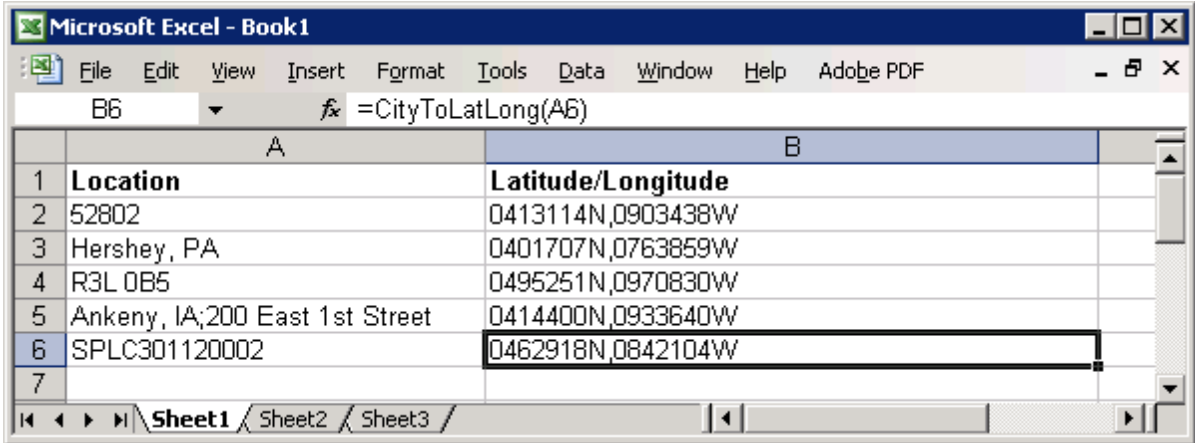
CityToLatLong Function Examples:

Location	Formula	RESULT
52802	=citytolatlong(A2)	0413114N,090438W
Hershey, PA	=citytolatlong(A3)	0401707N,0763859W
R3L 0B5	=citytolatlong(A4)	0495251N,0970830W
Ankeny, IA;200 East 1st St.	=citytolatlong(A5)	0414400N,0933640W
SPLC301120002	=citytolatlong(A6)	0462918N,0842104W

IMPORTANT NOTE for PC*MILER|Worldwide Users: The appropriate region must be set in PC*MILER to match the input locations. Also, when entering abbreviations for countries outside North America (for example, Paris, FR), the format must match the setting in PC*MILER (Tools menu > *Country Abbreviations*) – either FIPS 2-character, FIPS 3-character, or ISO 2-character.

3.24 Getting a Place Name from Lat/Long Points

The prototype for the **LatLongToCity** function is:

```
=LatLongToCity(LatLong)
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

The function **LatLongToCity** takes a latitude/longitude (degrees, minutes, seconds or decimal degrees format) and returns the miles from the PC*MILER place name at the closest end of the closest road segment. This may be either a city-state or a road intersection. This function connects latitude/longitudes to the highway network as if you were routing to or from the latitude/longitude. **LatLongToCity** returns a **-1** if the lat/long format is invalid or is more than 200 miles from a road in the PC*MILER highway network.

The **CityToLatLong** and **LatLongToCity** functions may be, but are not necessarily reversible, because not all PC*MILER place names are located at the end points of road segments.
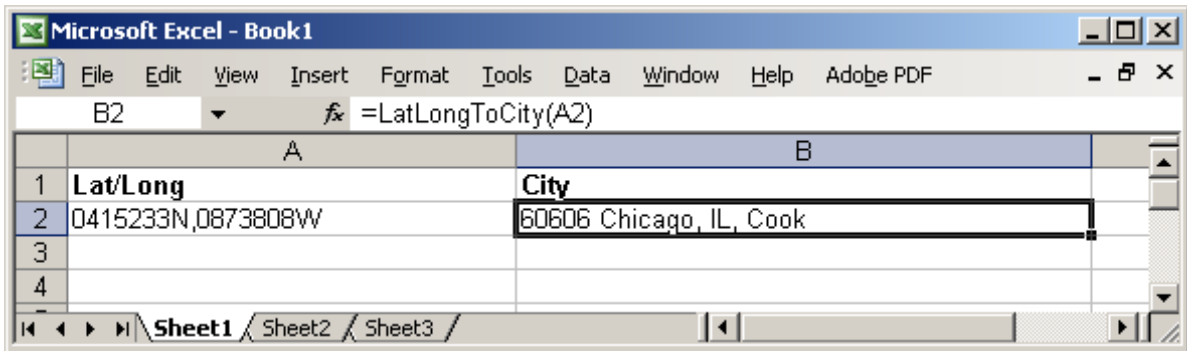
LatLongToCity Function Examples:

Location	Formula	RESULT
0401707N,0763859W	=latlongtocity (A2)	0.0 PA State Univ-Hershey Medical, PA, Dauphin
0495255N,0970818W	=latlongtocity (A3)	0.1 E Winnipeg, MB
0462918N,0842104W	=latlongtocity (A4)	0.0 Canal, MI, Chippewa
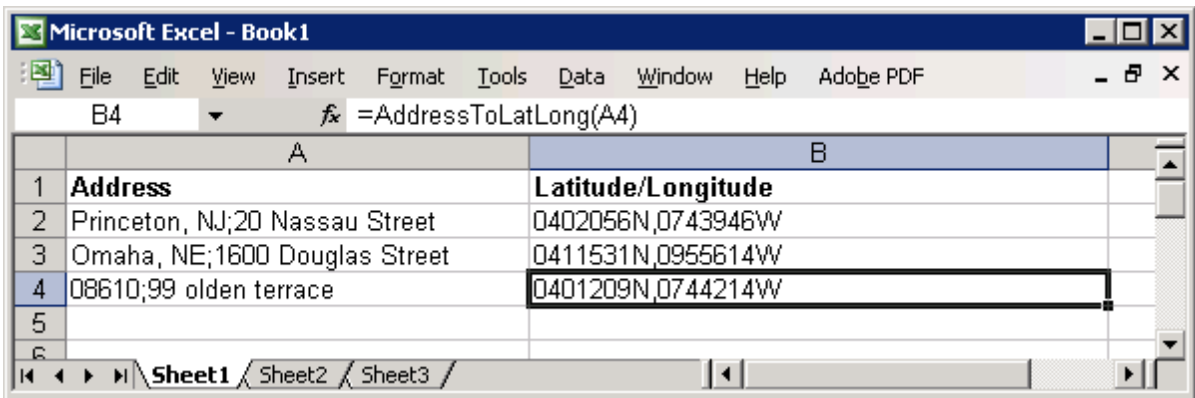
IMPORTANT NOTE for PC*MILER|Worldwide Users: The lat/longs entered must match the region set in PC*MILER. In North America, city returns will include state, province, or estado but not country. In all other regions, the city and country will be returned, with the country abbreviation being a FIPS 2-character, ISO 2-character, or FIPS 3-character, depending on the setting in PC*MILER (Tools menu > *Country Abbreviations*).

3.25 Getting Latitude/Longitude Points from an Address

```
=AddressToLatLong(Address)
```

NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

*(In North America with PC*MILER/Streets only)* This function takes a PC*MILER|Streets address and returns the latitude/longitude in degrees, minutes, seconds format **(dddmmssN,dddmmssW)**. **AddressToLatLong** returns **-1** if the place name you entered is invalid. The function may be, but is not necessarily reversible. For a decimal format return, see *Appendix B* on the PCMSERVE.INI.

3.26 Getting an Address from Latitude/Longitude Points

```
=LatLongToAddress(LatLong)
```

*(In North America with PC*MILER/Streets only)* This function takes a latitude/longitude (degrees, minutes, seconds or decimal degrees format) and returns the address. This function connects latitude/longitudes to the highway network as if you were routing to or from the latitude/longitude. **LatLongToAddress** returns a **-1** if the lat/long format is invalid or is more than 200 miles from a road in the PC*MILER|Streets highway network. The function may be, but is not necessarily reversible.

NOTE: The output of this function has been enhanced so that, for roads that have both a street name and a route number, the route number will be returned in parentheses after the street name.

For example, in Version 29 and higher:
=latlongtoaddress(addresstolatlong("Princeton, NJ; 245 Nassau Street")) returns
08540 Princeton, NJ, Mercer; 245 Nassau Street (NJ-27).
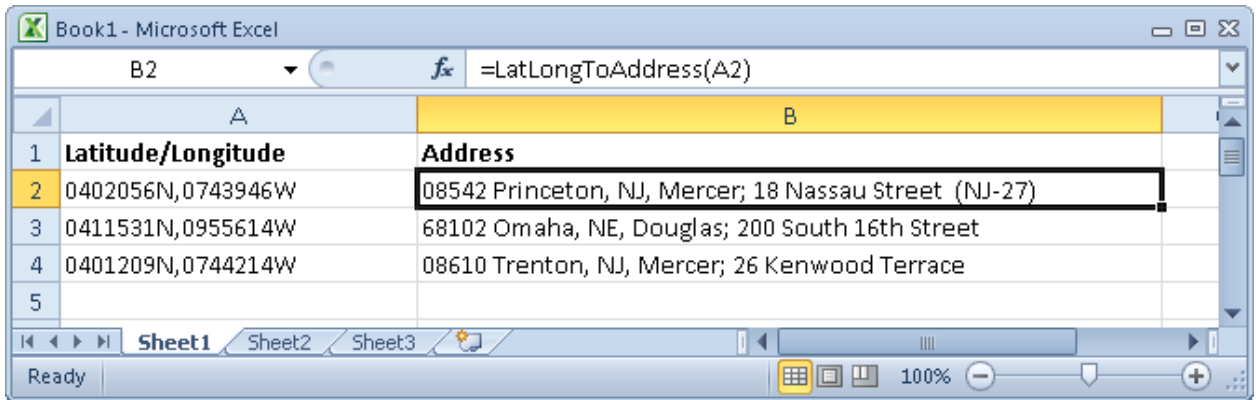
NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

3.27 Multi-Stop Routes

A good way to calculate a multi-stop route is to put all stops along the route, including the origin and destination, in the same column:
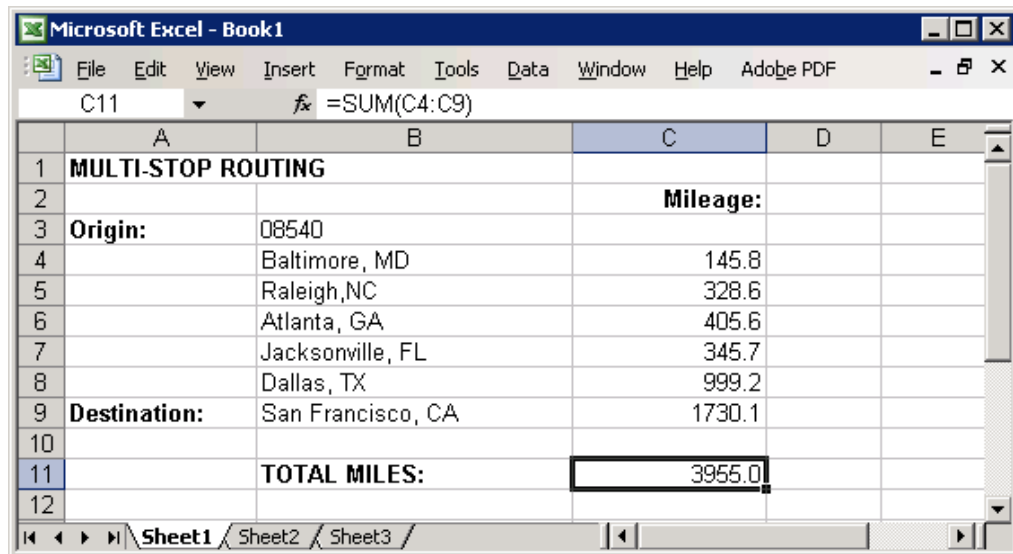
In the example above, the origin is in cell B3, the first stop is in B4, second stop in B5, etc. The Miles formula was entered in cell C4 to get the mileage from 08540 to Baltimore, MD; i.e. =Miles(B3,B4). This formula was then dragged

from C4 down the length of the stop list to obtain leg mileages. (To replicate a formula down a column, click and hold the small square in the bottom right corner of the cell that contains the formula and drag down over the other cells in the column. See Excel Help for more about this and other Excel spreadsheet capabilities.) For more examples, see the "Demo*.xls" files in the Excel folder of your PC*MILER installation.

Total mileage was added at the bottom using the Excel function =SUM(C4:C9) to add up all miles in the "Mileage" column.

3.28 Hub Routes

Using the same principle as for multi-stop routing above, Hub mileage (mileage from one "hub" location to multiple destinations) can be derived by entering the hub location at the top of a column and placing multiple destinations under it in the same column.

Simply set the origin in the =Miles formula in each cell to the stop at the top of the list; in the example below, to get miles from 08540 to Atlanta,GA, cell C6 contains the formula =Miles(B3,B6).
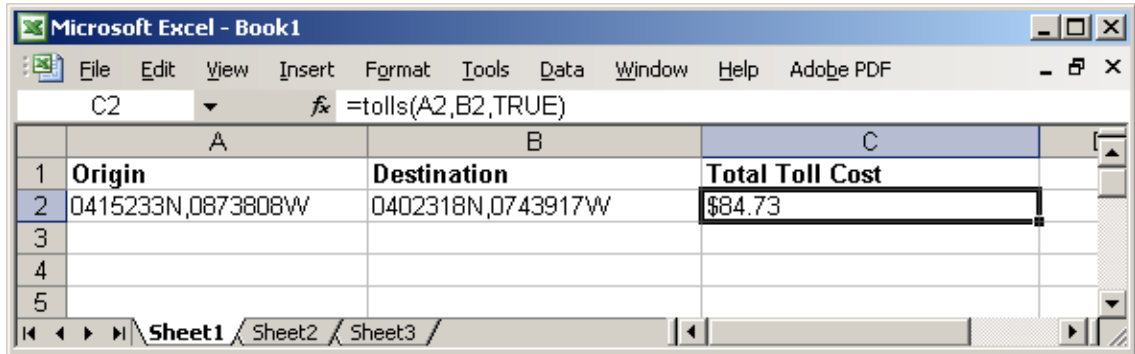
NOTE: Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

3.29 Getting Toll Data from Lat/Longs

If PC*MILER|Tolls was purchased and installed, toll data can be calculated in PC*MILER|Spreadsheets using latitude/longitude points.

In the example below, the *Discount* parameter is set to TRUE so that discount programs that are activated in PC*MILER (**Options** dialog > **Tolls** tab) will be used where they apply in toll calculations. The *RouteType* optional parameter is missing and therefore defaults to Practical routing. See section 3.16 for more on the Tolls function.

> **NOTE:** Sample workbooks using this function are in the Excel folder of your PC*MILER installation, usually in C:\ALK Technologies\PCMILER29\EXCEL. See section 1.3 for a description of the provided workbooks.

3.30 Using the Avoid/Favor/Override Roads Option

If the "Custom" option is turned on in the PCMSERVE.INI file (see below), PC*MILER|Spreadsheets will use the avoid/favor/override road settings created in PC*MILER. Note that favoring a road does not absolutely guarantee that it will be used (see the PC*MILER *User's Guide* or Help for a description of avoiding, favoring, and overriding roads).

This option can also be set by changing the CustomRoute setting to TRUE in the PCMSERVE.INI file located in your Windows or Windows NT folder. The default is FALSE. See *Appendix B* for more about the .INI file.

```
=CustomRoute=TRUE
```

3.31 Using Hazardous Materials Compliant Routing

(North America only)   If the separate PC*MILER|HazMat add-on module has been purchased, PC*MILER|Spreadsheets can calculate routes that are hazardous material compliant for various types of hazardous material. See the PC*MILER *User's Guide* or Help for a description of the following available PC*MILER hazmat route types:

- In North America: *None, General*, Explosive, Inhalant, Radioactive, Corrosive,* or *Flammable.* * "General" = "Other" in the PC*MILER UI.
- In Europe and Oceania (*PC*MILER|Worldwide must be installed)*: *None, General, Explosive, Flammable, HarmfultoWater*

The hazardous material routing type can be set as the default in the PCMSERVE.INI file (HazRoute setting).   See *Appendix B* for more about the .INI file.

'Run-time error 1004'

If you get the error "Run-time error '1004': Programmatic access to Visual Basic Project is not trusted", follow these steps (or equivalent steps in your version of Excel – the steps below are for Excel 10):

1. Select File > *Options.*
2. Select Trust Center > *Trust Center Settings.*
3. Select *Macro Settings.*
4. Check "Trust access to the VBA project object model".

Postal Codes with Leading Zeroes

If you enter a postal code with a leading zero (e.g. 08540) Excel may interpret it as a number and remove the leading zero. To correct this problem, either type an apostrophe in front of the postal code (e.g. '08540) or format the field as text ("Text" category of the "Format Cells" command).

NOTE: In North America, the database also includes 3-digit U.S. ZIP Codes.

Converting Minutes to Hour:Minute Format

The **DriveTime** function returns the drive time between two points in minutes, but sometimes it is convenient to see the time in hour:minute format. To display drive times as "days hours:minutes" in Excel, you must first convert minutes to days by dividing by 24*60. For example:

=DriveTime (A2,B2)/(24*60)

'The INI File Was Not Found' Error

When loading the Add-In for the first time, this error may sometimes appear. Exit and re-enter Excel.

'Sub or Function Not Defined' Error

When making calls to PC*MILER|Spreadsheets from a macro sheet, you may see this error message. To fix the problem, from the **Tools** menu select **References** and make sure that **pcmsrv.xla** is checked on.

'-1' Error

This error occurs when the user enters a location (postal code or a city/state place name) that is not a valid PC*MILER location.

> **NOTE:** If you add or change custom locations in PC*MILER using "Import Custom Places" or "Manage Custom Places," Excel will not recognize those changes until you exit PC*MILER to save the changes on disk, as well as shut down Excel and restart it.

This error can also occur if the Add-In was not able to correctly load the PC*MILER database.

'Cannot Find VBAEN.OLB' Error

> **NOTE:** We <u>do not support</u> making modifications to this file. Please make a backup copy before making any changes

Excel will attempt to access this file when it tries to load the Add-In. First, make sure that the file **vbaen.olb** exists. It should be either in the Windows folder or the SYSTEM sub-folder inside the Windows folder. If the file does not exist, you must re-install Windows.

If the file exists, then the problem is in the Windows Registration File (**reg.dat**). The location of **vbaen.olb** is saved in the **reg.dat**. Make sure the path to this file in the **reg.dat** points to the correct location. You can run **REGEDIT /V** to view/edit the **reg.dat**.

Look for the key "**TypeLib**". Look for the **Win17** selection. Under this section should be a complete path to the **vbaen.olb**. Ensure the full path is correct.

Problems Using Custom Routing From PC*MILER

If you have problems using custom routing that you created in PC*MILER, set the value of the following item in the PCMSERVE.INI file to TRUE. The PCMSERVE.INI file is located in your Windows or Winnt directory.

CustomRoute = TRUE

Jurisdictions in the United States, Canada, and Mexico

States/Provinces in the United States & Canada

(For country abbreviations in North America, see "North America" in the Country Codes section of this appendix)

AL	Alabama
AK	Alaska
AB	Alberta
AZ	Arizona
AR	Arkansas
BC	British Columbia
CA	California
CO	Colorado
CT	Connecticut
DE	Delaware
DC	Dist. of Columbia
FL	Florida
GA	Georgia
ID	Idaho
IL	Illinois
IN	Indiana
IA	Iowa
KS	Kansas
KY	Kentucky
LA	Louisiana
ME	Maine
MB	Manitoba
MD	Maryland
MA	Massachusetts
MI	Michigan
MN	Minnesota
MS	Mississippi
MO	Missouri
MT	Montana

NE	Nebraska
NV	Nevada
NB	New Brunswick
NH	New Hampshire
NJ	New Jersey
NM	New Mexico
NY	New York
NL	Newfoundland & Labrador
NC	North Carolina
ND	North Dakota
NT	Northwest Territory
NS	Nova Scotia
NU*	Nunavut
OH	Ohio
OK	Oklahoma
ON	Ontario
OR	Oregon
PA	Pennsylvania
PE	Prince Edward Island
QC	Quebec
RI	Rhode Island
SK	Saskatchewan
SC	South Carolina
SD	South Dakota
TN	Tennessee
TX	Texas
UT	Utah
VT	Vermont
VA	Virginia
WA	Washington
WV	West Virginia
WI	Wisconsin
WY	Wyoming
YT	Yukon Territory

* The same FIPS code, NU, is used for Nicaragua and the province of Nunavut, Canada in the PC*MILER database.

Mexican Estados

AG	Aguascalientes
BJ	Baja California
BS	Baja California Sur
CP	Campeche
CH	Chiapas
CI	Chihuahua
CU	Coahuila de Zaragoza
CL	Colima
DF	Distrito Federal
DG	Durango
GJ	Guanajuato
GR	Guerrero
HG	Hidalgo
JA	Jalisco
EM	Mexico (Estado)
MH	Michoacan de Ocampo
MR	Morelos
NA	Nayarit
NX *	Nuevo Leon
OA	Oaxaca
PU	Puebla
QA	Queretaro Arteaga
QR	Quintana Roo
SL	San Luis Potosi
SI	Sinaloa
SO	Sonora
TA	Tabasco
TM	Tamaulipas
TL	Tlaxcala
VZ	Veracruz
YC	Yucatan
ZT	Zacatecas

* Please note that by default, "NX" is used for Nuevo Leon because the province of
Newfoundland and Labrador in Canada already utilizes "NL" in the database. However, there
is an option that sets "NL" as the abbreviation for Nuevo Leon: in the File application menu,
select *Application Settings...* . In the *NL Abbreviation* drop-down, select *Use for Nuevo Leon*
and click **Save**.

Country Codes For All Worldwide Regions

Africa

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Algeria	AG	DZ	DZA	DZ	DZA
Angola	AO	AO	AGO	AO	AGO
Benin	BN	BJ	BEN	BJ	BEN
Botswana	BC	BW	BWA	BW	BWA
Burkina Faso	UV	BF	BFA	BF	BFA
Burundi	BY	BI	BDI	BI	BDI
Cameroon	CM	CM	CMR	CM	CMR
Cape Verde	CV	CV	CPV	CV	CPV
Central African Republic	CT	CF	CAF	CF	CAF
Chad	CD	TD	TCD	TD	TCD
Comoros	CN	KM	COM	KM	COM
Congo Democratic Republic (Kinshasa)	CG	CG	COD	CD	COD
Congo, Republic of the (Brazzaville)	CF	CD	COG	CG	COG
Djibouti	DJ	DJ	DJI	DJ	DJI
Egypt	EG	EG	EGY	EG	EGY
Equatorial Guinea	EK	GQ	GNQ	GQ	GNQ
Eritrea	ER	ER	ERI	ER	ERI
Ethiopia	ET	ET	ETH	ET	ETH
Gabon	GB	GA	GAB	GA	GAB
Gambia	GA	GM	GMB	GM	GMB
Ghana	GH	GH	GHA	GH	GHA
Guinea	GV	GN	GIN	GN	GIN
Guinea-Bissau	PU	GW	GNB	GW	GNB
Ivory Coast (Côte d'Ivoire)	IV	CI	CIV	CI	CIV
Kenya	KE	KE	KEN	KE	KEN
Lesotho	LT	LS	LSO	LS	LSO
Liberia	LI	LR	LBR	LR	LBR
Libya	LY	LY	LBY	LY	LBY
Madagascar	MA	MG	MDG	MG	MDG
Malawi	MI	MW	MWI	MW	MWI
Mali	ML	ML	MLI	ML	MLI
Mauritania	MR	MR	MRT	MR	MRT
Mauritius	MP	MU	MUS	MU	MUS
Mayotte	MF	YT	MYT	YT	MYT
Morocco	MO	MA	MAR	MA	MAR
Mozambique	MZ	MZ	MOZ	MZ	MOZ
Namibia	WA	NA	NAM	NA	NAM
Niger	NG	NE	NER	NE	NER
Nigeria	NI	NG	NGA	NG	NGA

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Reunion	RE	RE	REU	RE	REU
Rwanda	RW	RW	RWA	RW	RWA
Saint Helena	SH	SH	SHN	SH	SHN
Sao Tome and Principe	TP	ST	STP	ST	STP
Senegal	SG	SN	SEN	SN	SEN
Seychelles	SE	SC	SYC	SC	SYC
Sierra Leone	SL	SL	SLE	SL	SLE
Somalia	SO	SO	SOM	SO	SOM
South Africa	SF	ZA	ZAF	ZA	ZAF
South Sudan	OD	SD	SDW	SS	SSD
Sudan	SU	SD	SDN	SD	SDN
Swaziland	WZ	SZ	SWZ	SZ	SWZ
Tanzania	TZ	TZ	TZA	TZ	TZA
Togo	TO	TG	TGO	TG	TGO
Tunisia	TS	TN	TUN	TN	TUN
Uganda	UG	UG	UGA	UG	UGA
Western Sahara	WI	EH	ESH	EH	ESH
Zambia	ZA	ZM	ZMB	ZM	ZMB
Zimbabwe	ZI	ZW	ZWE	ZW	ZWE

Asia

	FIPS	ISO2	ISO3	GENC2	GENC3
Bangladesh	BG	BD	BGD	BD	BGD
Bhutan	BT	BT	BTN	BT	BTN
British Indian Ocean Territory	IO	--	--	--	--
Brunei	BX	BN	BRN	BN	BRN
Burma (Myanmar)	BM	MM	MMR	MM	MMR
Cambodia	CB	KH	KHM	KH	KHM
China	CH	CN	CHN	CN	CHN
Guam	GQ	GU	GUM	GU	GUM
Hong Kong	HK	HK	HKG	HK	HKG
India	IN	IN	IND	IN	IND
Indonesia	ID	ID	IDN	ID	IDN
Japan	JA	JP	JPN	JP	JPN
Korea, North	KN	KP	PRK	KP	PRK
Korea, South	KS	KR	KOR	KR	KOR
Laos	LA	LA	LAO	LA	LAO
Macao	MC	MO	MAC	MO	MAC
Malaysia	MY	MY	MYS	MY	MYS
Maldives	MV	MV	MDV	MV	MDV
Mongolia	MG	MN	MNG	MN	MNG
Nepal	NP	NP	NPL	NP	NPL
Northern Mariana Islands	CQ	MP	MNP	MP	MNP

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Pakistan	PK	PK	PAK	PK	PAK
Palau	PS	PW	PLW	PW	PLW
Papua New Guinea	PP	PG	PNG	PG	PNG
Philippines	RP	PH	PHL	PH	PHL
Singapore	SN	SG	SGP	SG	SGP
Solomon Islands	BP	SB	SLB	SB	SLB
Sri Lanka	CE	LK	LKA	LK	LKA
Taiwan	TW	TW	TWN	TW	TWN
Thailand	TH	TH	THA	TH	THA
Timor-Leste	TT	--	TMP	TL	TMP
Vietnam	VM	VN	VNM	VN	VNM

Europe

	FIPS	ISO2	ISO3	GENC2	GENC3
Akrotiri	AX	--	--	QZ	XQZ
Albania	AL	AL	ALB	AL	ALB
Armenia	AM	AM	ARM	AM	ARM
Andorra	AN	AND	AND	AD	AND
Austria	AU	A	AUT	AT	AUT
Azerbaijan	AJ	AZ	AZE	AZ	AZE
Belarus	BO	BY	BLR	BY	BLR
Belgium	BE	B	BEL	BE	BEL
Bosnia and Herzegovina	BK	BIH	BIH	BA	BIH
Bulgaria	BU	BG	BGR	BG	BGR
Croatia	HR	HR	HRV	HR	HRV
Cyprus	CY	CY	CYP	CY	CYP
Czech Republic	EZ	CZ	CZE	CZ	CZE
Denmark	DA	DK	DNK	DK	DNK
Dhekelia	DX	--	--	XD	XXD
Estonia	EN	EST	EST	EE	EST
Faroe Islands	FO	FO	FRO	FO	FRO
Finland	FI	FIN	FIN	FI	FIN
France	FR	FR	FRA	FR	FRA
Georgia	GG	GE	GEO	GE	GEO
Germany	GM	D	DEU	DE	DEU
Gibraltar	GI	GI	GIB	GI	GIB
Greece	GR	GR	GRC	GR	GRC
Guernsey	GK	--	--	GG	GGY
Hungary	HU	H	HUN	HU	HUN
Iceland	IC	IS	ISL	IS	ISL
Ireland	EI	IE	IRL	IE	IRL
Isle of Man	IM	--	IMN	IM	IMN
Italy	IT	I	ITA	IT	ITA

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Jersey	JE	--	--	JE	JEY
Kazakhstan	KZ	KZ	KAZ	KZ	KAZ
Kosovo	KV	--	XKS	XK	XKS
Kyrgyzstan	KG	KGZ	KGZ	KG	KGZ
Latvia	LG	LV	LVA	LV	LVA
Liechtenstein	LS	FL	LIE	LI	LIE
Lithuania	LH	LT	LTU	LT	LTU
Luxembourg	LU	L	LUX	LU	LUX
Macedonia	MK	MK	MKD	MK	MKD
Malta	MT	M	MLT	MT	MLT
Moldova	MD	MD	MDA	MD	MDA
Monaco	MN	MC	MCO	MC	MCO
Montenegro	MJ	MNE	MNE	ME	MNE
Netherlands	NL	NL	NLD	NL	NLD
Norway	NO	N	NOR	NO	NOR
Poland	PL	PL	POL	PL	POL
Portugal	PO	P	PRT	PT	PRT
Romania	RO	RO	ROU	RO	ROU
Russia	RS	RUS	RUS	RU	RUS
San Marino	SM	RSM	SMR	SM	SMR
Serbia	RI	SRB	SRB	RS	SRB
Slovakia	LO	SK	SVK	SK	SVK
Slovenia	SI	SLO	SVN	SI	SVN
Spain	SP	E	ESP	ES	ESP
Svalbard and Jan Mayen Islands	SV	SJ	SJM	XR	XSV
Sweden	SW	S	SWE	SE	SWE
Switzerland	SZ	CH	CHE	CH	CHE
Tajikistan	TI	TJ	TJK	TJ	TJK
Turkey	TU	TR	TUR	TR	TUR
Turkmenistan	TX	TM	TKM	TM	TKM
Ukraine	UP	UA	UKR	UA	UKR
United Kingdom	UK	GB	GBR	GB	GBR
Uzbekistan	UZ	UZ	UZB	UZ	UZB
Vatican City	VT	V	VAT	VA	VAT

Middle East

	FIPS	ISO2	ISO3	GENC2	GENC3
Afghanistan	AF	AF	AFG	AF	AFG
Bahrain	BA	BH	BHR	BH	BHR
Gaza Strip	GZ	--	XGZ	XG	XGZ
Iran	IR	IR	IRN	IR	IRN
Iraq	IZ	IQ	IRQ	IQ	IRQ
Israel	IS	IL	ISR	IL	ISR

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Jordan	JO	JO	JOR	JO	JOR
Kuwait	KU	KW	KWT	KW	KWT
Lebanon	LE	LB	LBN	LB	LBN
Oman	MU	OM	OMN	OM	OMN
Palestinian Territory	--	PS	PSE	PS	PSE
Qatar	QA	QA	QAT	QA	QAT
Saudi Arabia	SA	SA	SAU	SA	SAU
Syria	SY	SY	SYR	SY	SYR
United Arab Emirates	AE	AE	ARE	AE	ARE
West Bank	WE	--	XWB	XW	XWB
Yemen	YM	YE	YEM	YE	YEM

North America

Canada	CA	CA	CAN	CA	CAN
Greenland	GL	GL	GRL	GL	GRL
Mexico	MX	MX	MEX	MX	MEX
Puerto Rico*	PR*	PR	PRI	PR	PRI
Saint Pierre and Miquelon	SB	PM	SPM	PM	SPM
United States	US	US	USA	US	USA
Virgin Islands, U.S.	VI	VI	VIR	VI	VIR

* Note: "PR" for Puerto Rico is a USPS code, not a FIPS code.

Oceania

American Samoa	AQ	AS	ASM	AS	ASM
Australia	AS	AU	AUS	AU	AUS
Cook Islands	CW	CK	COK	CK	COK
Fiji	FJ	FJ	FJI	FJ	FJI
French Polynesia	FP	PF	PYF	PJ	PYF
French Southern and Antarctic Islands	FS	TF	ATF	TF	ATF
Kiribati	KR	KI	KIR	KI	KIR
Marshall Islands	RM	MH	MHL	MH	MHL
Micronesia, Federated States of	FM	FM	FSM	FM	FSM
Midway Island	MQ	UM	--	QM	XMW
Nauru	NR	NR	NRU	NR	NRU
New Caledonia	NC	NC	NCL	NC	NCL
New Zealand	NZ	NZ	NZL	NZ	NZL
Niue	NE	NU	NIU	NU	NIU
Norfolk Island	NF	NF	NFK	NF	NFK
Pitcairn Islands	PC	PN	PCN	PN	PCN
Samoa (Western Samoa)	WS	WS	WSM	WS	WSM

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Tokelau	TL	TK	TKL	TK	TKL
Tonga	TN	TO	TON	TO	TON
Tuvalu	TV	TV	TUV	TV	TUV
Vanuatu	NH	VU	VUT	VU	VUT
Wake Island	WQ	WQ	XWK	QW	XWK
Wallis and Futuna	WF	WF	WLF	WF	WLF

South America

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Anguilla	AV	AI	AIA	AI	AIA
Antigua and Barbuda	AC	AG	ATG	AG	ATG
Argentina	AR	AR	ARG	AR	ARG
Aruba	AA	AW	ABW	AW	ABW
Bahamas	BF	BS	BHS	BS	BHS
Barbados	BB	BB	BRB	BB	BRB
Belize	BH	BZ	BLZ	BZ	BLZ
Bermuda	BD	BM	BMU	BM	BMU
Bolivia	BL	BO	BOL	BO	BOL
Bonaire, Sint Eustatius, Saba	--	--	--	BQ	BES
Brazil	BR	BR	BRA	BR	BRA
Caribbean Netherlands	NT	AN	BES	BQ	BES
Cayman Islands	CJ	KY	CYM	KY	CYM
Chile	CI	CL	CHL	CL	CHL
Colombia	CO	CO	COL	CO	COL
Costa Rica	CS	CR	CRI	CR	CRI
Cuba	CU	CU	CUB	CU	CUB
Curacao	UC	--	--	CUW	CUW
Dominica	DO	DM	DMA	DM	DMA
Dominican Republic	DR	DO	DOM	DO	DOM
Ecuador	EC	EC	ECU	EC	ECU
El Salvador	ES	SV	SLV	SV	SLV
Falkland Islands (Islas Malvinas)	FK	FK	FLK	FK	FLK
French Guiana	FG	GF	GUF	GF	GUF
Grenada	GJ	GD	GRD	GD	GRD
Guadeloupe	GP	GP	GLP	GP	GLP
Guantanamo Bay	--	--	--	A2	AX2
Guatemala	GT	GT	GTM	GT	GTM
Guyana	GY	GY	GUY	GY	GUY
Haiti	HA	HT	HTI	HT	HTI
Honduras	HO	HN	HND	HN	HND
Jamaica	JM	JM	JAM	JM	JAM
Martinique	MB	MQ	MTQ	MQ	MTQ
Montserrat	MH	MS	MSR	MS	MSR

COUNTRY NAME	FIPS	ISO2	ISO3	GENC2	GENC3
Nicaragua*	NU*	NI	NIC	NI	NIC
Panama	PM	PA	PAN	PA	PAN
Paraguay	PA	PY	PRY	PY	PRY
Peru	PE	PE	PER	PE	PER
Saint Barthalemy	TB	--	BLM	BL	BLM
Saint Kitts and Nevis Islands	SC	KN	KNA	KN	KNA
Saint Lucia	ST	LC	LCA	LC	LCA
Saint Martin	RN	--	MAF	MF	MAF
Saint Vincent and the Grenadines	VC	VC	VCT	VC	VCT
Sint Maarten	NN	--	SXM	SX	SXM
Suriname	NS	SR	SUR	SR	SUR
Trinidad and Tobago	TD	TT	TTO	TT	TTO
Turks and Caicos Islands	TK	TC	TCA	TC	TCA
Uruguay	UY	UY	URY	UY	URY
Venezuela	VE	VE	VEN	VE	VEN
Virgin Islands, British	VG	VG	VGB	VG	VGB

* The same FIPS code, NU, is used for Nicaragua and the province of Nunavut, Canada in the PC*MILER database.

Official Sources

FIPS Country Codes:
http://geonames.nga.mil/ggmagaz/geonames4.asp and
http://www.state.gov/s/inr/rls/4250.htm

ISO2 Country Codes:
http://www.iso.org/iso/country_codes/iso_3166_code_lists/english_country_names_and_code_elements.htm and
http://www.iso.org/iso/english_country_names_and_code_elements#s

ISO 3 Country Codes:
http://unstats.un.org/unsd/methods/m49/m49alpha.htm

GENC2 and GENC3 Country Codes (Geopolitical Entities, Names and Codes):
Issued by the National Geospatial-Intelligence Agency
https://www1.nga.mil/Pages/default.aspx

You can modify the PCMSERVE.INI file to set default trip options so that these options are active each time you use PC*MILER|Spreadsheets. The INI file is in your Windows or Windows NT folder, and can be opened using Notepad, Wordpad, or another text editor.

Note that trip options can also be set using the PC*MILER|Spreadsheets Excel functions or in the PC*MILER user interface. See section 3.13, *Route Options and Default Settings,* for the order of precedence between route options set in the PC*MILER user interface, those set using Spreadsheets functions, and those set using the PCMSERVE.INI.

Settings in the INI that can be added or edited are listed below. If you open the INI file, you won't see all of these settings in it. If any key doesn't have a value or is not found in the INI file, it assumes the default value or the value set in the PC*MILER user interface.

IMPORTANT NOTE: Excel must be closed and reopened for INI file setting changes to take effect.

KEY	Valid Values	Description
[Engine]		
ShowEngine=	0 1	Should Connect automatically start the engine (1) or not (0). Default = 0
[Logging]		
Enable=	0 1	Should log files be generated (1) or not (0). Default = 0
File=		Path/file name of log file.
Append=	0 1	Append to old file (1) or write over (0). Default = 0
DisplayTime=	0 1	When DisplayTime = 1, date/time are shown on each line in the log file. Default = 0

[Defaults]

CalcType=	Practical Shortest National AvoidToll Air FiftyThree	Set the default routing type: most Practical, Shortest by distance, favor National Network highways, avoid tolls, Air (straight line), or 53' Trailer. Default = Practical **Note:** Toll-Discouraged, National, and 53' routing are all based on Practical miles. **Note Also:** When 53' Trailer routing is selected, the National Network is automatically included – but not necessarily vice versa.
Units=	Miles Kilometers	What unit of measure should distance be shown in. Default = Miles
ChangeDest=	TRUE FALSE	When optimizing the route, should the trip's destination be optimized also (T). Default = False
Borders=	TRUE FALSE	Should the engine try to keep routes within the United States (F), or can they cross and recross the borders at will (T). Default = True
HubMode=	TRUE FALSE	Calculate the routes from the origin to each stop (T), not through each stop (F). Default = False
AlphaOrder=	TRUE FALSE	List the states in the State Report in alphabetical order (T) or in the order driven (F). Default = True
FerryMiles=	TRUE FALSE	Use ferry distances in mileage and cost calculations (T), or don't use (F). Default = True

LightVehicle=	TRUE <u>FALSE</u>	Should the DLL use Light Vehicle routing (*available if Streets data is installed with PC*MILER – see the PC*MILER User's Guide for more on routing types*). Default = False
MAPPING	TRUE <u>FALSE</u>	(AS/400 parameter) Default = False
EXPMAP	TRUE <u>FALSE</u>	(AS/400 parameter) Default = False

[Options]

CustomRoute=	TRUE <u>FALSE</u>	Should PC*MILER|Connect use Custom routing. Default = False
HazRoute= *(only with the PC*MILER|Hazmat add-on)*	<u>None</u> General* Explosive Inhalant Radioactive Corrosive Flammable HarmfultoWater	Hazardous material routing types for **North America** are: none (hazmat routing disabled), general, explosive, inhalant, radioactive, corrosive, or flammable. For **Europe or Oceania**, hazmat route types are: none, general, explosive, flammable, or harmful to water. Default (all regions) = None ***NOTE:** "General" = "Other" in the PC*MILER UI, they are the same route type and algorithm.
PartialCityMatch=	TRUE <u>FALSE</u>	Enables the return of a city match on a partial match of 28 characters. Default = False
HistoricalRoadSpeeds=	TRUE <u>FALSE</u>	Toggles activation of traffic data for use in time-based routing. Equivalent to the "Traffic Enabled" option in PC*MILER. Default = False
TranslateAlias=	TRUE <u>FALSE</u>	This setting pertains to geocoding in PC*MILER|FuelTax. It changes "*" and "()" in a custom place name to a "Zip-City-State;

Address" format.

UseUSPost Codes=	TRUE FALSE	When set to TRUE, if a 5-digit postal code might be a U.S. or a Mexican code, the U.S. code will be used. Default = True *(see note below)*
UseMexPos tCodes=	TRUE FALSE	When set to TRUE, if a 5-digit postal code might be a U.S. or a Mexican code, the Mexican code will be used. Default = False **NOTE:** If UseUSPostCodes and UseMexPostCodes are both FALSE, or are not in the INI, the default U.S. code will be used.
UseStreets= *(only if Streets data is installed with PC*MILER)*	TRUE FALSE	Should street-level (T) or highway-only (F) routing be used when stops are city names or postal codes. Default = False
UseNLAbbrevInMX	TRUE FALSE	When set to TRUE, the "NL" abbreviation geocodes to Nuevo Leon in Mexico.
CountryAbbrevType=	FIPS ISO2 ISO3 GENC2 GENC3	For PC*MILER|Worldwide, this option sets the country code format that will be accepted when using city name/country abbreviations as locations in regions other than North America. Default = FIPS

[ConnectOptions]

LatLonFormatDecim al=	TRUE FALSE	Pertains to the function PCMSAddressToLatLong(), causing the function to return lat/longs in decimal degrees (e.g. 40.348848N,74.662703W). When this line is not included in the .INI or is included but =FALSE, the function returns degrees, minutes, seconds (e.g.

0402056N,0743946W).
Default = False (Note: when this
line is not present, default = false)

AvoidFavorAutoSave=	TRUE FALSE	(PC*MILER|Connect) This option can be set to TRUE to autosave avoids/favors on shutdown. Default = False (Note: when this line is not present, default = false)
GeofenceAutoSave=	TRUE FALSE	(PC*MILER|Connect) This option can be set to TRUE to autosave geofence data on shutdown. Default = True (Note: when this line is not present, default = false)

[MappingOptions]

AvoidFavorAutoSave=	TRUE FALSE	(PC*MILER|Mapping) This option can be set to TRUE to autosave avoids/favors on shutdown. Default = False (Note: when this line is not present, default = false)
GeofenceAutoSave=	TRUE FALSE	(PC*MILER|Mapping) This option can be set to TRUE to autosave geofence data on shutdown. Default = True (Note: when this line is not present, default = false)

[Defaults]

Region=	NA SA Africa Asia Europe ME Oceania	Region default is NA (North America). Other regions available with PC*MILER|Worldwide.
ProductName=	PC*MILER	
ProductVersion=	29	Current version of PC*MILER.
DLLPath=	Usually C:\ALK Technologies\ PCMILER29\app	Path to the current installation of PC*MILER.