

# PathAway Map Manager

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## Getting Started

Use the PathAway Map Manager to prepare maps for use in PathAway on your Palm Handheld. To prepare a map follow these steps:

### Preparing Maps for Import

Before running Map Manager you need to ensure the map image will be supported. To do this, ensure the map is in either Jpeg or BMP format. For fastest import and optimal color conversion, it is best that the map has a color depth of 16-bit (65535 colors). You can use an Image Editor to save the map in this format if it's not in this format already. If you are not going to save the map using a Projection Calibration method, you will need to ensure the map is not skewed in any way (latitude lines need to be horizontal, and longitude lines need to be vertical)/ If your map is skewed, you will need to rotate the map in your image editor beforehand so the lat/lon lines are perfectly horizontal/vertical.

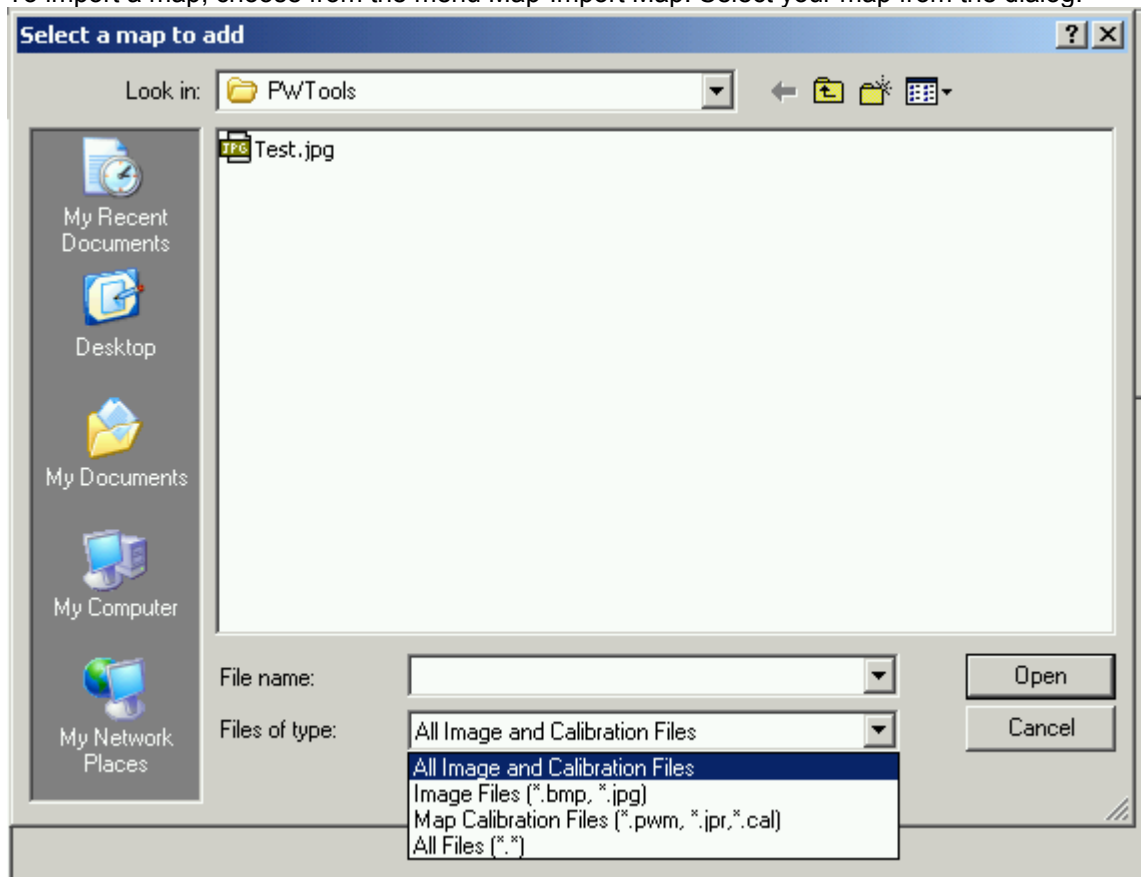
#### Pre-Calibrated Maps:

If you have maps in JPR format, Pathaway can import the map calibration settings as by selecting the .jpr file instead of the image file. The image file must reside in the same folder as the jpr file..

### Import Map Using PathAway Map Manager

Run the Map Manager.

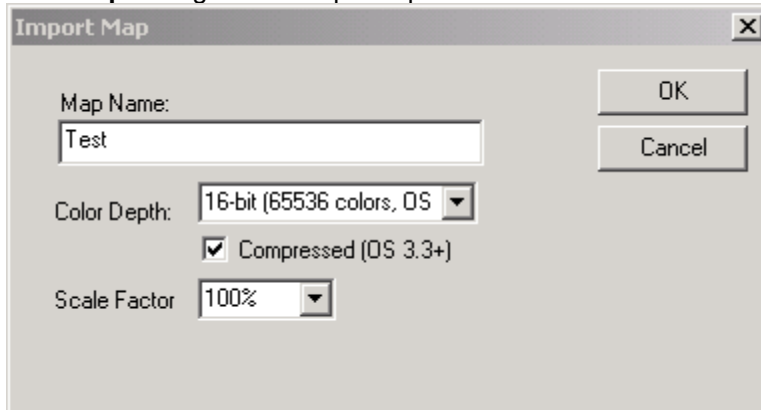
To import a map, choose from the menu Map-Import Map. Select your map from the dialog.



Your map must be in .bmp or .jpg format. If your map is not in this format, you can use an image editing program such as Adobe PhotoShop, PhotoSuite, Ulead Image Studio, or Microsoft Image Editor to convert the map to a .bmp or .Jpg format.

If your map has been pre-calibrated, it's calibration file can be loaded instead of the image file. PathAway currently supports JPR calibration file format, as well as PathAway's own PWM or CAL format.

Select **Open** to go to the Import Options Screen.



The Import Map options prompt for the information necessary to create a viewable map in PathAway.

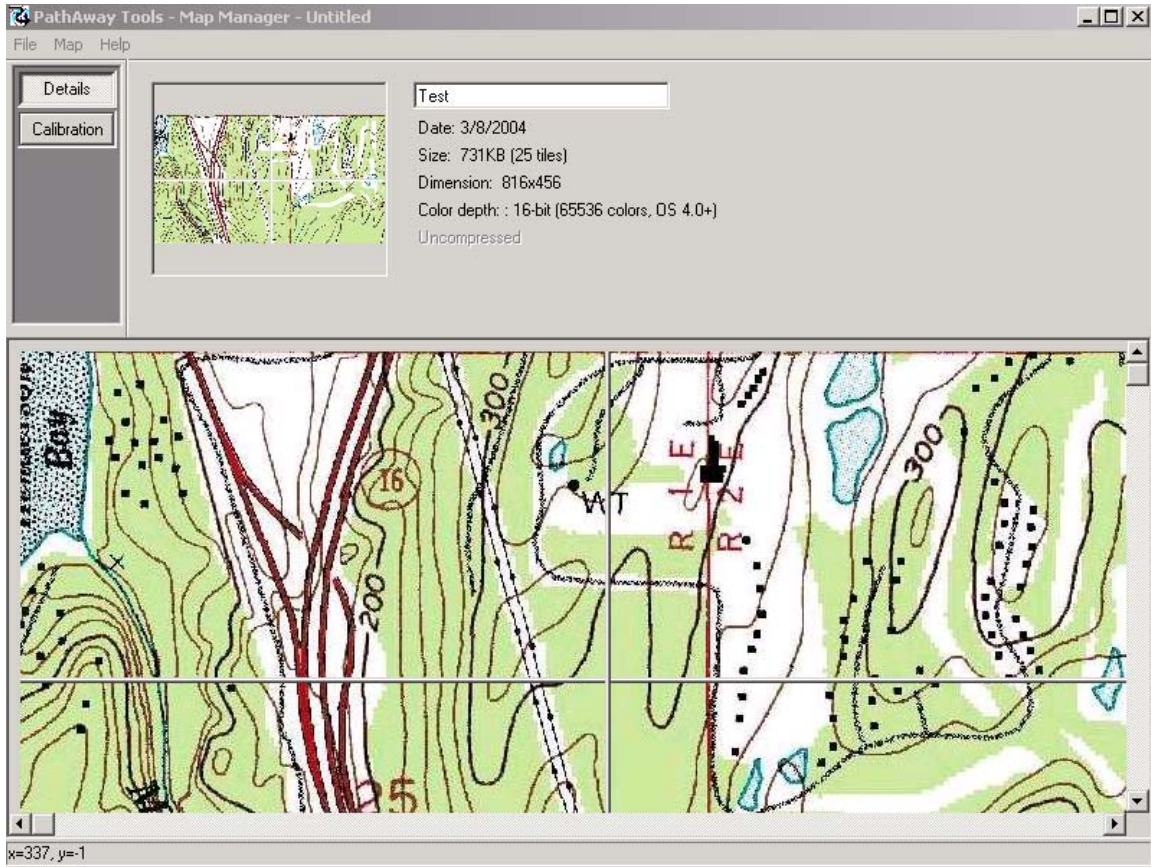
**Map Name:** The map a name will appear in the Options->Maps List when you transfer the Map onto your Handheld. Ensure this name is unique across all the maps you send to your Handheld.

**Color Depth:** The color depth must not be greater than the maximum capability of your Handheld. Check you device specs for maximum number of colors or color depth. Most devices support color depths that are equal to or less than the maximum available on the device. I.e. if Handheld device supports up to 256 colors, then, 4-bit gray-scale maps will work. The lower the color depth you choose, the fewer the number of colors that can be used to represent your map. If you choose a depth too low, the map may lose clarity. Note, if the map looks poor after Importing, you can choose "**Resample Original**" from the **Map** menu to choose a higher color depth. A higher color depth will ensure an image appears as good as the original, however, higher color depths require more memory space, so you'll need to balance between the quality of the image and the space required. In General, 8-bit maps in Compressed format provide clear enough quality, and generate a reasonably small sized file. If you choose a color depth such as 8-bit and 4-bit, then for optimal color conversion, you can use the PathAway color Palette in your image editor before generating your map. The color palette files are called PW4BitColor.pal, and PW8BitColor.pal, and are stored in the Map Manager installation folder (Usually "Program Files\PathAway GPS 3").

**Compressed:** Choose this option to create the smallest possible size image. The compressed format is non-lossy so it will not compress as much as a JPEG file. Compressed maps are recommended and performance reduction for decompression is almost unnoticeable.

**Scale Factor:** This option allows you to reduce the resolution of the map for better viewing on the smaller screen, or for reducing file size. You can also create multiple scales of the same map and, in Pathaway on the Handheld, zoom in and out between them (although this scaling maps on the fly is supported in PathAway).

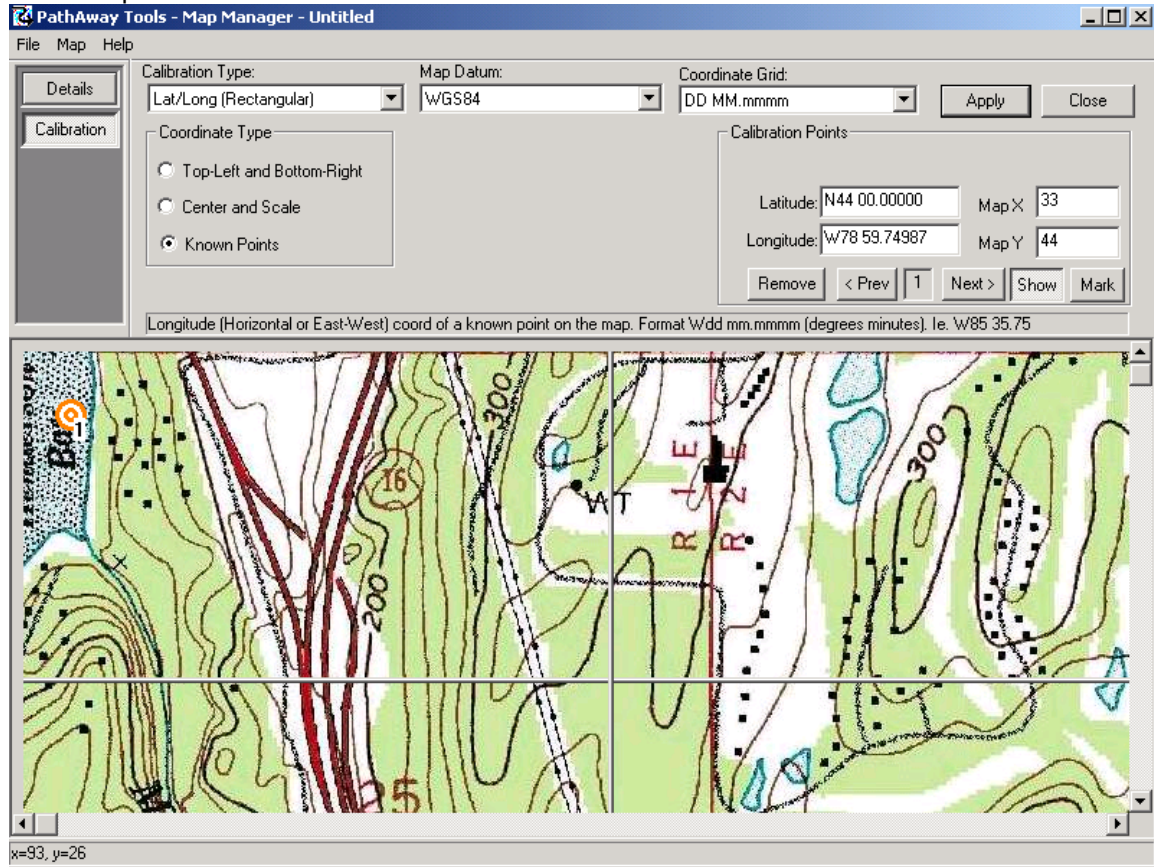
Once you're happy with the Map Options select OK. The Map Manager will convert the image into the format necessary to display in PathAway. When you import a map it is immediately converted to PathAway's internal format, so the View after Import should resemble the view that will appear in PathAway. Once the map has been converted, the Main Map Manager screen will be displayed.



You can calibrate the map to its geographical longitude and latitude coordinates at this time, or Save the Map for later calibration in PathAway on your Handheld. If you don't know the exact coordinates of your map, you can capture points using your GPS and Calibrate using these points. (See the Calibrating Maps section of the main PathAway manual). Note, Location information may be extracted from the import file such as a .JPR file. In this case you need only Verify the Calibration parameters.

## Calibrating Map.

In order to use PathAway for GPS navigation, you must first “Calibrate” the map to it’s geographical boundaries. To Calibrate the map in Map Manager, select the “**Calibration**” Button on the Top Panel Window.



### Calibration Type:

PathAway supports 3 different types of Calibration Methods:

- 1) Maps with rectangular Longitude/Latitude lines,
- 2) Projected Maps such as Lambert Conformal Conic and,
- 3) 3x3 Maps calibrated using Touratech-QV

### Datum:

PathAway supports the most common Map transformation datums in use today. Select the source Datum format for your map. If unknown, select WGS84, which is the default and also the internal storage format of PathAway data. This will provide optimal performance in PathAway.

### Coordinate Grid:

You can select the required coordinate grid depending on the format of the geographic data you have for the map. The Grid formats currently supported are as follows:

### Latitude/Longitude Coordinates

The geographical coordinates are specified vertical distance from the equator known as latitude, and horizontal distance from the Central meridian over Greenwich England, known as longitude.

Latitude coordinates north of the equator are prefixed by 'N' or a positive number. Coordinates in the southern hemisphere are prefixed by 'S' or negative numbers. These coordinates are entered in one of three available formats:

Degrees-minutes:

N45 30.500, W79 30.500

\* must be a space between degrees and minutes.

Degrees-minutes-seconds:

N45 30 30.0, W79 30 30

\* must be a space between degrees, minutes, and seconds.

Decimal degrees:

45.505, -79.505 or

N45.505 W79.505

\* Latitude positive values specify Northern Hemisphere.

\* Longitude positive values specify Eastern Hemisphere.

### **UTM Coordinates**

Universal Transverse Mercator (UTM) coordinates define two dimensional, horizontal, positions. The sixty UTM zone numbers designate 6 degree wide longitudinal strips extending from 80 degrees South latitude to 84 degrees North latitude. UTM zone characters are letters which designate 8 degree zones extending north and south from the equator. Beginning at 80° south and proceeding northward, twenty bands are lettered C through X, omitting I and O. These bands are all 8° wide except for band X which is 12° wide (between 72-84 N). There are some zones that are of different size. See the Map Projections manual for more info on UTM.

Grid Zone:

Format: <Zone Number><Zone Letter Designator>

Example: 17T, meaning Zone Number 17, Designator T.

Northing:

Northing or vertical value specified in Metres within the Grid Zone.

Example: 5001954

Easting:

Easting or horizontal value specified in Metres within the Grid Zone.

Example: 0603881

### **OSGB Coordinates**

Ordinal Survey of Great Britain (OSGB) coordinates define two dimensional, horizontal, positions within the area of Great Britain.

Grid Zone:

Format: <Two Letter Letter Designator>

Example: ST

Northing:

Northing or vertical value specified in Metres within the Grid Zone.

Example: 02115

Easting:

Easting or horizontal value specified in Metres within the Grid Zone.

Example: 17353

**Calibration Type - Lat/Long (Rectangular):**

This method of calibration is the simplest and provides the fastest performance in PathAway, since it requires no complex geometric transformations.

**Coordinate Type:**

Depending on the information you have available about the map, you can calibrate the map in one of 3 ways:

- 1) By Top-Left and Bottom Right Geographic coordinates
- 2) By the Map Center Geographic Coordinate, and width and height of the map.
- 3) By a number of known geographic points on the map.

**1. Top-Left and Bottom-Right**

Calibration Type:  Map Datum:  Coordinate Grid:

Coordinate Type

Top-Left and Bottom-Right

Center and Scale


Known Points

Latitude (N/S) TL:  Latitude (N/S) BR:

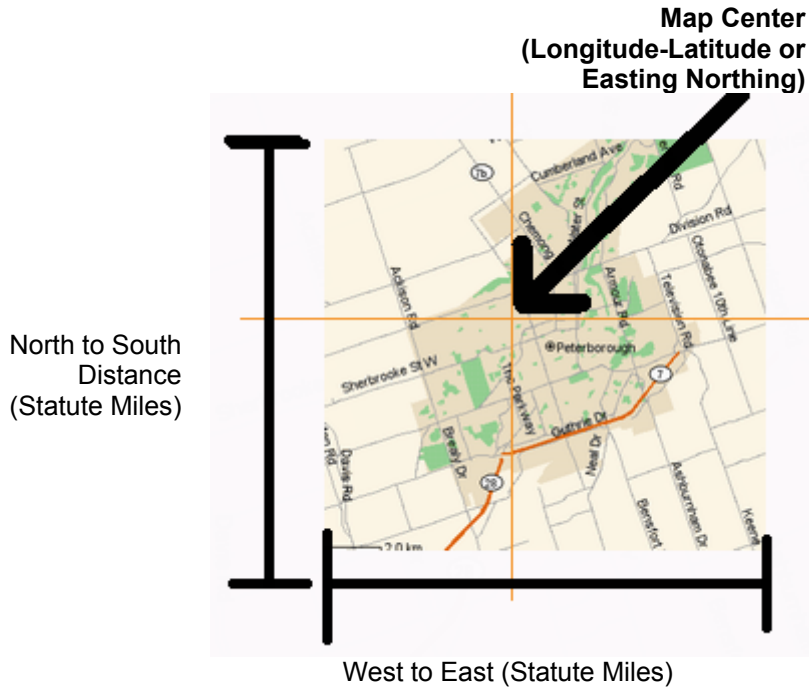
Longitude (E/W) TL:  Longitude (E/W) BR:

Latitude (Vertical or North-South) coord at the bottom-right corner of the map. Format Ndd mm.mmmm. (degrees minutes). I.e. N45 30.75

This method requires you to know the geographic coordinates of the top-left (North-West) and the bottom right (South-East) corners of the map. These coordinates must reside on the exact edges of the map image.

Top-Left	North (Latitude or Northing)	
West (Longitude or Easting)		East (Longitude or Easting)
	South (Latitude or Northing)	
		Bottom-Right

2) By the map center coordinates, and the total distance covered by the map.



Total distance is in statute miles. To convert from nautical miles to statute miles, multiply nautical miles by 1.151. For Kilometers to Miles, multiply kilometers by 0.621

Calibration Type:	Map Datum:	Coordinate Grid:	Apply	Close
Lat/Long (Rectangular)	WGS84	DD MM.mmmm		
Coordinate Type				
<input type="radio"/> Top-Left and Bottom-Right				
<input checked="" type="radio"/> Center and Scale				
<input type="radio"/> Known Points				
Latitude (N/S) Center:	N43 30.00000	North/South Miles:	69.0600000	
Longitude (E/W) Center:	W78 30.00000	East/West Miles:	49.6773013	
Latitude (N/S) Center:				

**3. By a number of known geographic points on the map.**

This method is useful if there are a number of locations on the map that you know the exact geographic coordinates of. You can enter the position of up to 9 known points. The extents of the map will be determined by analyzing these points. For best results the points should be as far away from each other as possible, as and diagonally opposed to each other as well.



Calibration Type:  Map Datum:  Coordinate Grid:

Coordinate Type

Top-Left and Bottom-Right

Center and Scale

Known Points

Calibration Points

Latitude:  Map X:

Longitude:  Map Y:

Longitude (Horizontal or East-West) coord of a known point on the map. Format \ddd mm.mmmm (degrees minutes). I.e. W85 35.75

When you're done, save the map by selecting **File-Save Map As**. You will be prompted to save it with a .prc extension. You can also send the map directly to your Handheld. For Palm OS Handhelds, select **File->Send Map to HotSync**. Then, simply press the HotSync button to install the map on the Palm Powered™ device. For Windows Mobile, choose **File->Send Map to Windows Mobile Device**.

**Show:** Use the “Show” button state, to have the map automatically re-center to the position of the new point when activated.

**Mark:** Use the “Mark” button state to capture the point on the map by clicking it's location. Each time point you click on a point on the map, the new calibration point will be set to that location.

**< Prev:** Go to the previous Known point.

**Next >:** Go to the next known point.

For importing pre-calibrated maps, PathAway Map manager supports .jpr calibration, .cal format, and Pathaway's own PWM format. See the Advanced Map Converter manual for details on these formats.

### Calibration Type – Projection

Map projections are attempts to portray the surface of the earth or a portion of the earth on a flat surface. Some distortions of conformality, distance, direction, scale, and area always result from this process. Some projections minimize distortions in some of these properties at the expense of maximizing errors in others. Some projection are attempts to only moderately distort all of these properties.

PathAway supports the most popular Map Projections, such as Lambert Conformal Conic and, Transverse Mercator.

Calibration Type:  Map Datum:  Coordinate Grid:

Projection:

Projection Parameters

lon\_0  lat\_1  x\_0

lat\_0  lat\_2  y\_0

Calibration Points

Latitude:  Map X:

Longitude:  Map Y:

Select the type of Map Projection.

Each projection requires a special set of parameters to be input. See the Map Projections manual for detailed information on each Projection type and required parameters.

General description of parameters is as follows:

Lat\_0: Latitude of false origin

Lon\_0: Longitude of false origin, or central meridian

Lat\_1: Latitude of first standard parallel.

Lat\_2: Latitude of second standard parallel

X\_0: Easting of false origin

Y\_0: Northing of false origin

## Calibration Special Cases

### OSGB Maps

Most OSGB maps have horizontal and vertical OSGB Grid lines. PathAway Rectangular Calibration requires Longitude/Latitude lines to be horizontal/vertical. If this is the case for your OSGB map, you will need to either rotate the map so the Long/Lat lines are rectangular, or you will need to use a Projected map to Calibrate correctly. To calibrate OSGB maps such as this you can use the following projection parameters:

Calibration Type: Projection  
Datum: OSGB  
Projection: Transverse Mercator  
lon\_0: W2.000  
lat\_0: N49.00  
x\_0: 400000  
y\_0: -100000

Use at least 2 known points for the calibration points.

## ***Map Manager Menu Options***

### File Menu

**Import New Map:** Import a new map to convert to PathAway format. Map may be a raw bitmap or contain calibration information.

**Open PathAway Map:** Open a previously saved Map from a file. The map must be stored on your computer or network. PathAway maps have a .prc extension.

**Save PathAway Map:** Saves any changes to the current PathAway Map. If the map has not yet been saved, the Save As Dialog will be presented. Note, Saving the map, only saves to your PC. It does not copy the map to the handheld device. You can save the map to your PC if you require a special procedure for transfer to the handheld, such as Sending the map to an expansion card on the device, or using a proprietary device synchronization program.

**Save PathAway Map As...:** Brings up a File Save As dialog. Saves any changes to the current PathAway Map to a new Map File. Note, Saving the map, only saves to your PC. It does not copy the map to the handheld device.

**Send Map to PalmOS via HotSync:** Saves the map, and sends it to HotSync to be transferred to your Palm Powered™ Handheld. HotSync must be installed, and at least one Palm User name must be created.

**Send Map to Windows Mobile Device...:** Saves the map, and sends it to Directly to your Windows Mobile Handheld. ActiveSync must be installed, and connected to the Handheld before transfer.

**Exit:** Exits the program.

### Map Menu

**Map Details...:** Launches the Map Details Panel. Same as Details Button on left of panel.

**Map Calibration...:** Launches the Map Calibration Panel. Same as Details Button on left of panel.

**Change color depth:** Change the color depth of the map. Ensure your handheld device supports the specified color depth. Reducing color depth may degrade the quality of the map.

**Compressed:** Use a compressed format for the map. Compressing the map makes it take up smaller memory on the device, but may make it slower for viewing because it will need to be decompressed first.

**Resample Original...:** From an Existing PathAway map, this option allows you to reimport the map bitmap and retain all of the calibration information.

### Help Menu

Provides Help and About PathAway information.