

POIConverter 4.08 14 April 2008

Introduction

POIConverter will convert Points of Interest (waypoints) stored in the following formats to any of the other formats in the list. In addition route and track data conversions are available for the TomTom, Maptech, Garmin, GPS eXchange, Excel and OziExplorer formats. A command line mode is also supported.

- TomTom Itinerary files (*.itn)
- Maptech Marks files (*.mxf), Route files (*.rxf), Track files (*.txf)
- TomTom overlays (*.ov2, *.ovr)
- TomTom ASCII files (*.asc)
- Memory-Map CSV Waypoints (*.csv)
- Garmin Database files: Waypoints (*.gdb)
- Garmin PCX5 Waypoint files (*.wpt), Route files (*.rte), Track files (*.trk)
- GPS eXchange files (*.gpx)
- AutoRoute Pushpins (*.csv)
- Excel files (*.xls)
- OziExplorer Waypoint files (*.wpt), Route files (*.rte), Track files (*.plt)
- Google Earth Points files (*.kml)
- Elektrobit EBA Points files (*.csv)

Also the following formats can be read

- NMEA log files (*.pgl, *.txt, *.log, *.gps)
- MapSource waypoint, route and track data (*.txt) using decimal Lat/Long coordinates
- Microsoft Map files (*.axe, *.est, *.ptm) PushPin and route data
- Pocket Streets PushPin files (*.psp)

and the following formats can be written

- AutoRoute PushPins with Continental numbers (*.tab)
- Destinator 3 waypoint files (*.csv)
- Mapopolis waypoint files (*.mlp)
- Google Earth route and track files (*.kml)

The waypoint symbols are mapped to the set of 16 used by MapSource.

The external data entries are read into an internal data structure that is used to populate the records of the selected output format.

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Interactive mode

Firstly, use the Open button  to select an input file of the required type.

Secondly use the buttons (or Options menu) to configure the conversion.

Use the buttons  to set default parameters for the Garmin, Maptech, OziExplorer, TomTom, GPS eXchange and Elektrobot EBA conversions.

Use the Lat/Long or OSGB buttons, , to select the coordinate output format for TomTom ASCII files or Excel spreadsheets.

Use the Point, Route and Track buttons  to specify the type of data being read or output. *These buttons can be used to change the type of data to be output. For example, a sequence of points can be changed to a route by reading the data in as Points, then prior to output, selecting the Route button and saving to a file.*

Use the Append button  to read POI data from another file if you wish to join multiple sets.

Finally, use the Save button  to specify the format and name of the output file.

Debugging output will be written to the file *debug.txt* in the folder that contains the file *POIConverter.exe* if a file named *Debug.yes* exists in that folder. The file *Debug.no* can be renamed or a new file created.

Options

The *Maptech* menu option and button, , can be used to define defaults for the short name and symbol to be used for the marks created when converting from another format. The output record number will be appended to the short name prefix to create the short form name. For example the prefix PG9-W could be used as a prefix to identify the walks in the OS Pathfinder Guide number 9. The generated short names would then be PG9-W1, PG9-W2 etc.

The *Garmin* menu option and button, , can be used to define defaults for waypoint identifier, altitude, proximity and symbol number. The Date and Time fields will be set to those values current when the option dialog box is opened. The Date and Time fields will be left blank for tracks that have been converted from formats that do not support these entries. Ticking the *Replace existing waypoint IDNT* box will force new waypoint names to be output. These names will be created using the IDNT prefix followed by a unique number.

The *OziExplorer* menu option and button, , can be used to define defaults for altitude, proximity and symbol number. The Date and Time fields will be set to those values current when the option dialog box is opened.

The *TomTom* menu option and button, , can be used to select the internal field, ie Description, Comment or Name, which is to be used when creating names for POI, and the prefix to be used when forming a name for a POI that would otherwise be blank. The text used to form the POI names can be truncated in 3 ways; *At 32 characters*, *At 10 characters* but made unique by modifying the last few characters, *At first comma* in the text but with a maximum of 32 characters. The full length of 128 characters may not be visible in map view when using TomTom Navigator.

The *GPS eXchange* menu option and button, , can be used to change the style of the waypoint name written to the output file. Ticking the *Use uppercase letters only* box will convert any letter in the name to uppercase but will skip any other characters, including spaces. Ticking the *Make names unique* box will make the waypoint name unique by overwriting the trailing characters of the name with a number denoting the multiplicity of the name. The maximum number of characters in the name will be determined by the setting of the radio buttons *Maximum of 10 characters* and *Unlimited (maximum of 128)*.

The *EBA* menu option and button, , can be used to set defaults for the Elektrobite EBA and CSV2PSF output files. The *ISO ALPHA3 country code* list box can be used to enter or select a code to be used as the default for the EBA file CountryCode field. The three character code will be used in any record that has a blank CountryCode field. A few codes are accessible in the drop-down list and the full list of codes is available in Wikipedia http://en.wikipedia.org/wiki/ISO_3166-1_alpha-3

The *Type ID* list box can be used to enter or select a code to be used as the default for the EBA file Type field. The conversion programs PSFCreator and CSV2PSF require this to be a four digit integer but a four character string can be used to plant a marker in the file can subsequently be changed to a valid code using a text editor. A few codes and the marker, ID!?, are available in the drop-down list.

The *Sort records on Type field* check box can be used to request that the records in an EBA file be sorted into ascending order using the EBA Type field as the key. When output to a Google Earth Points file, records with the same Type code will be placed in the same folder. The Type code is used for the folder name.

The controls in the *Configuration file* group can be used to define the configuration file name and path and whether or not the file should be used. The current path is used as the default path for the -cfg argument when using batch mode.

The radio buttons in the *Output option* group can be used to select the output format of the Elektrobite CSV file. Fields additional to those defined in the Elektrobite standard are suppressed when files are created for use with the programs CSV2PSF and PSFCreator.

The radio buttons and check box in the *Address style* group are used to select an address style. This style will be used to create an address, from the EBA fields PostalCode etc, for use in Google Earth KML files when these are output. The address will be used to populate the KML <description> element for any points where the POIConverter comment field is empty.

The Lat/Long and OSGB buttons, , are used to select the format for the coordinates when data are saved to a TomTom ASCII file or Excel spreadsheet.

The Point, Route and Track buttons, , are used to specify the type of data being read into the program memory or output to file. The data type can be changed after a file has been read. This could be used to convert, say, a list of waypoints (POI) to a route.

The Track filter item in the Options menu can be used to reduce the number of points transferred from a track file into the program internal memory.

Command line mode

Double-click on the batch file (*.bat) in Windows Explorer or drag the file to the program shortcut to process the commands defined in it. When running in debug mode using drag-and-drop will produce a text file, debug.txt, in the program installation folder containing output for all the commands in the batch file. When run in batch mode the debug.txt file will contain output for just the last command in the batch file. *NB Only those records containing the arguments -f and -t are processed in drag-and-drop mode, all other records are ignored. The ignored records are marked * Ignored * in the debug output file.*

The format of a line in a batch file is

`pathpoiconverter -f fcode -t tcode -i infile -o outfile -idt itype -odt otype -cfg cfgfile`

where

path the path to the program executable, ie C:\Richard_Davies\ if the program was installed at the default location.

fcode file input type code

tcode file output type code

infile the name of the input file, eg tfile.asc, "tt file.asc"

outfile the name of the output file, eg "google earth.kml"

itype the type of data in the input file, one of **points**, **routes** and **tracks**

otype the type of data to be written to the output file, one of **points**, **routes** and **tracks**

cfgfile the name of the configuration file. The path to the configuration file can be set using the options available for EBA files in the Windows Graphical User Interface (GUI).

The supported code values for **points** data type are

Description	fcode	tcode
TomTom text	asc	asc
TomTom overlay	ov2, ovr	ov2, ovr
Maptech marks	mxf, maptech	mxf
Memory-Map csv	m-m	m-m
Garmin database type 2	gdb	gdb
Mapsource	txt, mapsource	-
GPS eXchange	gpx, gpsexchange	gpx, gpsexchange
Microsoft map	axe, est, ptm, msmap	-
AutoRoute csv	s&t, ar, csv	s&t, ar, csv, tab
Excel table	xls, excel	xls, excel
Pocket Streets	psp	-
OziExplorer	ozi	ozi
Garmin PCX5	pcx5	pcx5
Google Earth kml	kml, google	kml, google
Elektrobit EBA	eba	eba
Mapopolis	-	mlp, mapopolis
Destinator 3	-	d3, destinator3

The supported code values for **routes** data type are

Description	fcode	tcode
TomTom itinerary	itn, tomtom	itn, tomtom
Maptech	rxl, maptech	rxl, maptech
Garmin PCX5	pcx5	pcx5
MapSource txt	txt, mapsource	-
GPS eXchange	gpx, gpsexchange	gpx, gpsexchange
Microsoft map	axe, est, ptm, msmap	-
Excel table	xls, excel	xls, excel
OziExplorer	ozi	ozi
Google Earth kml	-	kml, google

The supported code values for **tracks** data type are

Description	fcode	tcode
NMEA	nmea	-
Maptech	txf, maptech	txf, maptech
Garmin PCX5	trk, pcx5	trk, pcx5
GPS eXchange	gpx, gpsexchange	gpx, gpsexchange
MapSource	txt, mapsource	txt, mapsource
Excel table	xls, excel	xls, excel
OziExplorer	ozi	ozi
Google Earth kml	-	kml, google

Symbols

POIConverter when changing formats uses the mapping shown in the following table. Any other symbols will be mapped to a Waypoint (symbol number 0). NB. Symbol numbers cannot be passed to AutoRoute by any of the POIConverter file formats. *The Memory-Map and OziExplorer symbol numbering is the same as that for MapSource.*

Map Source Number	Description	AutoRoute Number	Symbol	Maptech Number	Description
0	Waypoint	16		37	Dot
1	Residence	77		118	House
2	Gas Station	142		145	Fuel
3	Car	82		112	Car
4	Fishing Area	108		130	Fish
5	Boat Ramp	154		121	Boat
6	Marina	186		37	
7	Shipwreck	56		37	
8	Exit	129		37	
9	Skull and Crossbones	176		22	Skull
10	Flag	63		23	Flag
11	Campground	153		111	Camp
12	Circle with X	113		37	
13	Hunting Area	157		129	Deer
14	Medical Facility	119		138	First Aid
15	TracBack Point	162		37	

Latitude and Longitude values

When entering latitude and longitude values in TomTom ASC files and AutoRoute CSV files the values may be specified either as degrees and fractions of degrees, or in degrees, minutes and seconds. Both colons and single-quote/double-quote notation may be used for minutes and seconds. So, all the following values are accepted.

53.5
53.5000
53'30"00
53'30
53:30:0

In output files the latitude and longitude values are written as decimal degrees.

OSGB references

When entering OSGB36 references in TomTom ASC files, AutoRoute CSV files and Excel spreadsheets the value should be specified using the GB Ordnance Survey National Grid reference convention. The OS reference consists of a two-letter prefix followed by eastings and northings expressed as integers. The case of the prefix letters may be mixed. The total number of digits in eastings and northings combined must be even, with the same number of digits in the easting and northing. So, all of the following values are accepted.

SU 84 46
SU 840 460
SU 84000 46000
su840460

Destinator 3 files

The Comma Separated Value (CSV) records output for Destinator 3 have the following format

Name,*POIConverter vx.xx*,Longitude,Latitude

where *POIConverter vx.xx* is a text string and x.xx is the current version of the POIConverter program. The Destinator 3 documentation will give the procedure to be followed to import CSV data.

The mapping of the data fields is as follows

Internal	Destinator 3 waypoints
Latitude	Latitude
Longitude	Longitude
Date	
Time	
Altitude	
Name	
Description	Name
Comment	
Proximity	
Symbol	
Symbol text	
Route/Track name	
Colour	

Elektrobit EBA file options

The *ISO ALPHA3 country code* list box can be used to enter or select a code to be used as the default for the EBA file CountryCode field. The three character code will be used in any record that has a blank CountryCode field. A few codes are accessible in the drop-down list and the full list of codes is available in Wikipedia http://en.wikipedia.org/wiki/ISO_3166-1_alpha-3

The *Type ID* list box can be used to enter or select a code to be used as the default for the EBA file Type field. The conversion programs PSFCreator and CSV2PSF require this to be a four digit integer but a four character string can be used to plant a marker in the file can subsequently be changed to a valid code using a text editor. A few codes and the marker, ID!?, are available in the drop-down list.

The *Sort records on Type field* check box can be used to request that the records in an EBA file be sorted into ascending order using the EBA Type field as the key. When output to a Google Earth Points file, records with the same Type code will be placed in the same folder. The Type code is used for the folder name.

The controls in the *Configuration file* group can be used to define the configuration file name and path and whether or not the file should be used. The current path is used as the default path for the -cfg argument when using batch mode.

The radio buttons in the *Output option* group can be used to select the output format of the Elektrobit CSV file. Fields additional to those defined in the Elektrobit standard are suppressed when files are created for use with the programs CSV2PSF and PSFCreator.

The radio buttons and check box in the *Address style* group are used to select an address style. This style will be used to create an address, from the EBA fields PostalCode etc, for use in Google Earth KML files when these are output. The address will be used to populate the KML <description> element for any points where the POIConverter comment field is empty.

EBA configuration file

The EBA configuration file is used to map the EBA Type fields to text descriptions and to define names to be used for folders when Google Earth KML Points files are output.

The format of the configuraion file is a header record followed by a record for each of the Type IDs used in the Elektrobit EMA file (*.csv), eg

```
ID, folder, folderDesc, icon
9000, "Food & Drink", 9000, http://maps.google.com/mapfiles/kml/shapes/snack_bar.png
9002, "Friends & Family", 9002, http://maps.google.com/mapfiles/kml/shapes/info-i.png
9003, "Parking for walks", , http://maps.google.com/mapfiles/kml/shapes/hiker.png
```

The icon field contains the URL that is to be used to show the icon in Google Earth. The URLs can be found in the following way

1. Open Google Earth.

Click Add, Placemark ... and click on the Placemark icon to the right of the Name text box to display the available icons.

Click on an icon to reveal its URL and cut-and-paste it into the icon field of the EBA configuration file.

Repeat step 3 for any other icons that you want to use.

The Fortran 90 types and sizes of the fields are given in the table below

Field -	Field Type and Size (bytes)
ID -	CHARACTER(LEN=5)
folder -	CHARACTER(LEN=128)
folderDesc -	CHARACTER(LEN=128)
icon -	CHARACTER(LEN=128)

Elektrobit EBA Points Files

Point data can be read from and written to Elektrobit EBA files (*.csv). The button EBA file options can be used to select one of the three supported output file formats, ie Extended EBA, CSV2PSF and PSFCreator. The EBA file options button is used to select the output file format.

The mapping of the data fields is as follows

Internal	Elektrobit Point data
Latitude	Latitude
Longitude	Longitude
Date	file_date
Time	file_time
Altitude	
Name	
Description	Name
Comment	Address details *
Proximity	
Symbol	
Symbol description	"Waypoint"
Route/Track name	"Point data"
Colour	

The standard Elektrobit EBA file has the following format and a header record is optional

CountryCode;Type;Name;PostalCode;City;Street;HouseNumber;Longitude;Latitude;Telephone;NationalImportance;SourceID;ExtentionContentType;ExtentionContent

The internal structure of POIConverter has been extended to cover all of these fields. An Options dialog box can be used to set values for the CountryCode and Type fields when outputting an EBA file using data input from another format.

Additional fields can be used in an **Extended EBA** (XEBA) format. The names of the additional fields are defined in the file header. Up to 10 additional fields can be defined. The field names are limited to 24 characters and the corresponding data fields are limited to 128 characters. For example

CountryCode;Type;Name;PostalCode;City;Street;HouseNumber;Longitude;Latitude;Telephone;NationalImportance;SourceID;ExtentionContentType;ExtentionContent,description,dateVisited

The description field is special; it matches the Google Earth KML element <description> name and any data defined for this field will be visible in Google Earth. If the description is modified in Google Earth and saved to a KML file then the changed information will be output to any Extended EBA file created from the updated KML file.

CSV2PSF Points Files

Point data can be read from and written to a reduced form of the Elektrobit EBA format used by the program CSV2PSF (*.csv). The output file can be used as input to the CSV2PSF program to produce PSFOverlays for the Medion GoPal 2.x and Falk FN5 satnav systems. . The EBA file options button is used to select the output file format.

The mapping of the data fields is as follows

Internal	CSV2PSF Point data
Latitude	Latitude
Longitude	Longitude
Date	file_date
Time	file_time
Altitude	
Name	
Description	Name
Comment	Country specific details *
Proximity	
Symbol	
Symbol description	"Waypoint"
Route/Track name	"Point data"
Colour	

The CSV2PSF file has the following format and a header record is optional

CountryCode;Type;Name;PostalCode;City;Street;HouseNumber;Longitude;Latitude;Telephone;NationalImportance;SourceID

The internal structure of POIConverter has been extended to cover all of these fields. An Options dialog box can be used to set values for the CountryCode and Type fields when outputting an EBA file using data input from another format.

PSFCreator Points files

Point data can be read from and written to Elektrobit EBA formatted files used by the program PSFCreator (*.csv). The output file can be used as input to the PSFCreator program to produce PSFOverlays for the Medion GoPal 3.x, Falk FN6 and Blaupunkt Lucca 5.3 satnav systems. The EBA file options button is used to select the output file format.

The mapping of the data fields is as follows

Internal	Elektrobit Point data
Latitude	Latitude
Longitude	Longitude
Date	file_date
Time	file_time
Altitude	
Name	
Description	Name
Comment	Address details *
Proximity	
Symbol	
Symbol description	"Waypoint"
Route/Track name	"Point data"
Colour	

The Elektrobit EBA file has the following format and a header record is optional

CountryCode;Type;Name;PostalCode;City;Street;HouseNumber;Longitude;Latitude;Telephone;NationalImportance;SourceID;ExtentionContentType;ExtentionContent

The internal structure of POIConverter has been extended to cover all of these fields. An Options dialog box can be used to set values for the CountryCode and Type fields when outputting an EBA file using data input from another format.

Garmin Waypoint Files

Garmin PCX5 formatted Waypoint files can be imported into MapSource but not exported from it. Waypoint data can be exported as a Tab delimited text file (.txt) which can be read by this program for conversion to other formats. *MapSource v 6.5 supports the import and export of files in GPS eXchange format, but it does not support the proximity field.*

To import the PCX5 waypoint data into MapSource select the *Import...* item in the MapSource File menu and select the waypoint file (*.wpt) to be used. A dialog box giving three options relating to symbol selection will appear - select the second of these (16 symbols) and click the OK button. The imported data will always be sent to a new map so if any user data already exists in the open map then you will be prompted to save it.

The mapping of the data fields is as follows

Internal	Garmin PCX5 Waypoints
Latitude	Latitude*
Longitude	Longitude*
Date	Date
Time	Time
Altitude	Alt
Name	Idnt
Description	Description
Comment	
Proximity	Proximity
Symbol	Symbol number (0 - 15)
Symbol text	Waypoint, Residence etc
Route/Track name	"Point data"
Colour	

* Degree minute or Decimal degree input as defined in Header (H) record. Output in decimal degrees.

The waypoint names sent to the output file are made unique by adding a sequence number in the final character positions of the 6 character identifier. The Options menu item *Garmin*, or the button , can be used to select default values for the Waypoint IDNT prefix, Symbol, Altitude and Proximity. The *Waypoint IDNT prefix* value and a sequence number will be used to generate a waypoint IDNT for the output records if the *Replace existing waypoint IDNT* box is ticked.

Garmin Route Files

Garmin PCX5 formatted Route files can be imported into MapSource but not exported from it. *MapSource v 6.5 supports the import and export of files in GPS eXchange format.*

To import the PCX5 route data into MapSource select the *Import...* item in the MapSource File menu and select the waypoint file (*.rte) to be used. A dialog box giving three options relating to symbol selection will appear - select the second of these (16 symbols) and click the OK button. The imported data will always be sent to a new map so if any user data already exists in the open map then you will be prompted to save it.

The mapping of the data fields is as follows

Internal	Garmin PCX5 Routes
Latitude	Latitude*
Longitude	Longitude*
Date	Date
Time	Time
Altitude	Altitude
Name	Idnt
Description	Description
Comment	
Proximity	Proximity
Symbol	Symbol (0 - 15)
Symbol description	Waypoint, Residence etc
Route/Track name	Route name
Colour	

* Degree minute or decimal degree input as defined in Header (H) record. Output is in decimal degrees.

Garmin Track Files

Garmin PCX5 formatted Track files can be imported into MapSource but not exported from it. The Track filter Option can be used to reduce the number of points read from the file. *MapSource v 6.5 supports the import and export of files in GPS eXchange format.*

To import the PCX5 track data into MapSource select the *Import...* item in the MapSource File menu and select the waypoint file (*.trk) to be used. A dialog box giving three options relating to symbol selection will appear - select the second of these (16 symbols) and click the OK button. The imported data will always be sent to a new map so if any user data already exists in the open map then you will be prompted to save it.

The mapping of the data fields is as follows

Internal	Garmin PCX5 Tracks
Latitude	Latitude*
Longitude	Longitude*
Date	Date
Time	Time
Altitude	Altitude
Name	
Description	
Comment	
Proximity	
Symbol	
Symbol description	"Dot"
Route/Track name	"Track"nn
Colour	

* Degree minute or decimal degree input as defined in Header (H) record. Output is in decimal degrees.

Garmin Database files Waypoints

Waypoint data can be read from and written to Garmin GPS Database files (*.gdb). The Garmin MapSource program can be used to show the waypoint locations on a map.

The mapping of the data fields is as follows

Internal	Garmin GDB waypoint data
Latitude	Latitude
Longitude	Longitude
Date	Date*
Time	Time*
Altitude	Altitude
Name	Name
Description	Comment
Comment	
Proximity	Proximity
Symbol	Symbol number (0 - 15)
Symbol text	Waypoint, Residence etc
Route/Track name	"Point data"
Colour	

* The input file date and time are used if the timestamp is undefined.

Google Earth Points

Waypoint data can be read from and written to Google Earth files (*.kml).

The mapping of the data fields is as follows

Internal	Google Earth Point data
Latitude	<Point><coordinates>
Longitude	<Point><coordinates>
Date	<timePosition>*
Time	<timePosition>*
Altitude	
Name	
Description	<Placemark><name>
Comment	<Placemark><description>
Proximity	
Symbol	
Symbol description	"Waypoint"
Route/Track name	"Point data"
Colour	

* Read from a kml file but not used when writing.

The output file name is used for the Document <name>.

Google Earth Route Files

Route data can be written to a Google Earth file (*.kml).

The mapping of the data fields is as follows

Internal	Google Earth Routes
Latitude	<LineString><coordinates>
Longitude	<LineString><coordinates>
Date	
Time	
Altitude	<LineString><coordinates>
Name	
Description	
Comment	Snippet <description>
Proximity	
Symbol	
Symbol description	
Route/Track name	Folder and Placemark <name>
Colour	

The output file name is used for the Document <name>. Route/Track name, the length of the route and the first point Comment text are output to a Placemark Snippet positioned at the first point of the route.

Google Earth Track Files

Track data can be written to a Google Earth file (*.kml).

The mapping of the data fields is as follows

Internal	Google Earth Tracks
Latitude	<LineString><coordinates>
Longitude	<LineString><coordinates>
Date	
Time	
Altitude	<LineString><coordinates>
Name	
Description	
Comment	
Proximity	
Symbol	
Symbol description	
Route/Track name	Folder and Placemark <name> and <Snippet>
Colour	

The output file name is used for the Document <name>. The following information is written to the <description><table> of a Snippet that is attached to the first point of the track: Name, Length, Started, Finished, Maximum altitude, Minimum altitude, Average speed, Maximum speed.

GPS eXchange Files

GPX (the GPS eXchange Format) is a light-weight XML data format for the interchange of GPS data (waypoints, routes, and tracks) between applications and web services on the Internet. Waypoint, route and track data from GPS eXchange files (*.gpx) can be read and written by POIConverter. The Track filter Option can be used to reduce the number of points transferred from a file.

The mapping of the data fields is as follows

Internal	GPS eXchange
Latitude	<lat>*
Longitude	<lon>*
Date	<time>*
Time	<time>*
Altitude	<ele>*
Name	<name>*
Description	<desc>*
Comment	<cmt>*
Proximity	
Symbol	
Symbol text	<sym>*
Route/Track name	"Point data"#, <name>+
Colour	

* from <wpt>, <rtept> or <trkpt>

+ from <rte> or <trk>

for <wpt>

The Options menu item *GPS eXchange*, or the button , can be used to change the style of the waypoint name written to the output file.

The GPX tag <type> is used to define a Memory-Map category for the POI (Marks) when creating a GPX file. The output file name is used as the Marks Category name.

Mapopolis Maplet files

The Mapopolis utility program GPXToMaplet is run from within POIConverter to convert the GPX data written to an intermediate file, having the same name as the *.mlp file but with an extension gpx, to create the maplet file (*.mlp).

The mapping of the internal data fields to the intermediate GPX file is as follows

Internal	Mapopolis GPX waypoint data
Latitude	Lat=
Longitude	Lon=
Date	<time>*
Time	<time>*
Altitude	<ele>
Name	<name>
Description	<desc>
Comment	<cmt>
Proximity	
Symbol	
Symbol text	<sym> default "Waypoint"
Route/Track name	
Colour	

* a single item formatted as yyyy-mm-ddThh:mm:ssZ, eg 2004-01-05T19:16:10Z

If POIConverter is run in Debug mode then the intermediate GPX file is left in the same folder as the output file. GPXToMaplet can then be run separately to identify any data problems.

MapSource Files

Waypoints, routes and tracks can be exported from MapSource as Tab delimited text files (.txt) and read by this program for conversion to other formats. Use Garmin PCX5 formatted data to import waypoints, routes and tracks into MapSource. The Track filter Option can be used to reduce the number of points read from the file.

If the Description field is blank then the Name field will be copied to it when the file is read.

The mapping of the data fields is as follows

Internal	MapSource
Latitude	Position
Longitude	Position
Date	Date*
Time	Time*
Altitude	Altitude
Name	Name#+
Description	Description#+
Comment	
Proximity	Proximity#+
Symbol	
Symbol text	"Waypoint"#+
Route/Track name	"Point data"#+, Route name+, Track name*
Colour	

for waypoints

+ for routes * for tracks

Maptech Marks

Maptech Marks files (*.mxf) can be imported into and exported from Memory-Map Navigator.

Use the menu sequence *Overlay | Import...* and then select the appropriate file type in the Open dialog box to import a Marks file.

Use the menu sequence *Overlay | Export Visible...* and then select the Maptech Terrain Mark file type to export the visible Memory-Map Waypoints.

Memory-Map Navigator can be used to import/export waypoints to various handheld GPS systems, eg Garmin eTrex.

The mapping of the data fields is as follows

Internal	Maptech Marks
Latitude	Latitude
Longitude	Longitude
Date	<i>File date</i>
Time	<i>File time</i>
Altitude	
Name	Short name
Description	Full name
Comment	Comment
Proximity	
Symbol	Symbol number
Symbol text	Dot, House etc
Route/Track name	"Point data"
Colour	Colour value

The Options menu item *Maptech*, or the button , can be used to select a default symbol and short name prefix.

Maptech Route Files

Maptech Route files (*.rxf) can be imported into and exported from Memory-Map Navigator.

Use the menu sequence *Overlay | Import...* and then select the appropriate file type in the Open dialog box to import a Route file.

Use the menu sequence *Overlay | Export Visible...* and then select the Maptech Terrain Route file type to export the visible Memory-Map Routes.

The mapping of the data fields is as follows

Internal	Maptech Routes
Latitude	Latitude
Longitude	Longitude
Date	<i>File date</i>
Time	<i>File time</i>
Altitude	
Name	Short name
Description	Full name
Comment	Comment
Proximity	
Symbol	Waypoint symbol number
Symbol text	Dot etc
Route/Track name	Route name
Colour	Waypoint colour value

Maptech Track Files

Maptech Track files (*.txf) can be imported into and exported from Memory-Map Navigator. The Track filter Option can be used to reduce the number of track points read from the file.

Use the menu sequence *Overlay | Import...* and then select the appropriate file type in the Open dialog box to import a Track file.

Use the menu sequence *Overlay | Export Visible...* and then select the Maptech Terrain Track file type to export the visible Memory-Map Tracks.

The mapping of the data fields is as follows

Internal	Maptech Tracks
Latitude	Latitude
Longitude	Longitude
Date	<i>File date</i>
Time	<i>File time</i>
Altitude	
Name	
Description	
Comment	
Proximity	
Symbol	
Symbol text	"Dot"
Route/Track name	Track name
Colour	Track colour value

Memory-Map CSV Files

Memory-Map CSV files (*.csv) can be imported into and exported from Memory-Map Navigator.

Use the menu sequence *Overlay | Import...* and then select the CSV file type in the Open dialog box.

Use the menu sequence *Overlay | Export Visible...* and then select the CSV file type to export data for use with POIConverter.

Memory-Map Navigator can be used to import/export waypoints to various handheld GPS systems, eg Garmin eTrex.

The first record in the file is used to distinguish Memory-Map CSV files from AutoRoute Pushpin files.

The mapping of the data fields is as follows

Internal	Memory-Map CSV Waypoints
Latitude	Latitude
Longitude	Longitude
Date	
Time	
Altitude	
Name	Unique
Description	Name
Comment	Comment
Proximity	Radius
Symbol	Symbol number
Symbol text	Dot, House etc
Route/Track name	Category*
Colour	

* The output file name will be written to the Category field when creating a CSV file.

Microsoft AutoRoute PushPins

The POI data are transferred into AutoRoute using the *Import Data...* item on the File menu or the Import Data Wizard button. Select the TextFiles filter (*.txt;*.csv;*.tab;*.asc) and then the particular file that you want to import. The Wizard will then take you through the steps required to import the data. It is only necessary to use the Next and Finish buttons as all of the required field names are in the text file.

The default Pushpin icon can be changed using the Data Set item on the Format menu. Select a Pushpin and use the Show Information item on the Format menu or press the F8 key to display the information.

The first record in the file is used to distinguish Memory-Map CSV files from AutoRoute Pushpin files. Subsequent records should contain data fields in one of the two following formats:

Longitude, Latitude, "Name", "Information"
OS Grid Reference, "Name", "Information"
Eastings, Northings, "Name", "Information"

The mapping of the data fields is as follows

Internal	AutoRoute PushPins
Latitude	Latitude
Longitude	Longitude
Date	
Time	
Altitude	
Name	
Description	Name
Comment	Information*
Proximity	
Symbol	
Symbol text	"Waypoint"
Route/Track name	"Point data"
Colour	

* Optional

The order of the fields in the input file is determined from the information in the header record. The follow field names are accepted

latitude,longitude *or* os grid reference *or* eastings,northings
name
information

Microsoft Maps

The PushPin and Route data contained within an AutoRoute map file (*.axe), a Streets and Trips map file (*.est) or a MapPoint map file (*.ptm) are extracted by running James Sherring's program st2gpx from within POIConverter. st2gpx creates a GPS eXchange formatted file (*.gpx) which is then read to extract either the PushPin or Route information. The intermediate GPX file, st2gpx.tmp, is deleted afterwards unless the program is run in debug mode.

The mapping of the data fields is as follows

Internal	Microsoft Maps
Latitude	Latitude
Longitude	Longitude
Date	
Time	
Altitude	
Name	
Description	Name
Comment	Information
Proximity	
Symbol	
Symbol text	"Waypoint" or <sym>*, "Dot"#
Route/Track name	"Point data", File name#
Colour	

* <sym> element from intermediate GPX file. AR2004

for Routes

Microsoft Pocket Streets

To export Pushpin information from Microsoft AutoRoute it is necessary to select an area of the map that contains the Pushpin data by 'dragging' an area using the Select tool. Do not click in the area to zoom in on the selected region. When the bounding box is visible on the map use the *Export Maps for Pocket Streets...* item in the File menu and follow the instructions. This will create two files, a map file (.mps) and a Pushpin file (.psp). When the Pushpin file is opened in POIConverter the locations and details (name and the attached notes) are extracted.

The coordinates transferred to the psp file are incorrect (by a small but variable amount) when exported from versions of AutoRoute newer than AutuoRoute 2001.

Do not select too large an area of map as it will take a long time to export all of the street detail, and none of this is required for the Pushpin transfer.

The mapping of the data fields is as follows

Internal	Pocket Streets
Latitude	Latitude
Longitude	Longitude
Date	
Time	
Altitude	
Name	
Description	Name
Comment	Notes
Proximity	
Symbol	
Symbol text	"Waypoint"
Route/Track name	"Point data"
Colour	

Microsoft Excel Files

Waypoints, routes and tracks can be imported from and exported to Microsoft Excel spreadsheets (*.xls). The Excel data must be defined on a sheets with column headings exactly as below. Waypoint data must be on a sheet named Points, route data on Routes and track data on Tracks. More than one route or track can be defined on the same sheet. A new route or track will be assumed to have started when the entry in the "Route or Track name" column changes. The column names have been chosen to facilitate the import of data into AutoRoute.

The mapping of the data fields is as follows

Internal	Excel column heading
Latitude, Longitude	OS Grid Reference*
Latitude	Latitude*+
Longitude	Longitude*+
Date, Time	Date and Time
Altitude	Altitude
Name	Name 2*
Description	Name*
Comment	Information
Proximity	Proximity
Symbol	
Symbol description	Symbol name
Route/Track name	Route or Track name
Colour	Colour name

* These fields are recognized by the AutoRoute Import Wizard.

+ The coordinates can be specified as an OSGB Reference, in which case these fields should be left blank. The values in these fields will be used in preference to the OSGB value if both are defined.

NMEA Log files

Log files that contain NMEA formatted records can be imported into POIConverter. The Track filter Option can be used to reduce the number of track points read from the file. The file extensions PGL (TomTom Navigator), TXT (Zycast data loggers), LOG (Sony GPS-CS1), GPS (CoPilot Live 7) are supported.

The time, position coordinates, number of satellites used in fixing the position and altitude are extracted from \$GPGGA and/or \$GPRMC records. The satellite numbers from \$GPGSA records and the true course and speed over ground from \$GPVTG records.

The mapping of the data fields is as follows

Internal	NMEA Log Files
Latitude	Latitude
Longitude	Longitude
Date	<i>File date</i>
Time	Time
Altitude	Altitude
Name	
Description	Speed (mph/kph)*, True course*, Altitude (m)
Comment	Satellite numbers
Proximity	
Symbol	
Symbol description	"Dot"
Route/Track name	<i>File name</i>
Colour	

* If \$GPVTG records are present

OziExplorer Waypoint Files

OziExplorer waypoints defined in the WGS 84 datum can be input and output. The header record is examined to check that the data is in OziExplorer format as the WPT extension is also used for Garmin PCX5 waypoints.

The mapping of the data fields is as follows

Internal	OziExplorer Waypoints
Latitude	Latitude
Longitude	Longitude
Date	From TDateTime
Time	From TDateTime
Altitude	Alt
Name	Name
Description	Description
Comment	
Proximity	Proximity
Symbol	Symbol number (0 - 15)
Symbol text	Waypoint, Residence etc
Route/Track name	"Point data"
Colour	

The waypoint names sent to the output file are made unique. The Options menu item OziExplorer, or the button , can be used to select default values for the Waypoint Symbol, Altitude and Proximity.

OziExplorer Route Files

OziExplorer routes defined in the WGS 84 datum can be input and output. The header record is examined to check that the data is in OziExplorer format as the RTE extension is also used for Garmin PCX5 routes.

The mapping of the data fields is as follows

Internal	OziExplorer Routes
Latitude	Latitude
Longitude	Longitude
Date	From TDateTime
Time	From TDateTime
Altitude	
Name	Name from W record
Description	Description from W record
Comment	
Proximity	
Symbol	Symbol number (0 - 15)
Symbol text	Waypoint, Residence etc
Route/Track name	Description from R record
Colour	

Although all the waypoint details are stored with each route OziExplorer requires the waypoints to be loaded on the map before it will display the route. A waypoint file can be created from a route file within POIConverter. First, read the route file, then select the menu option *Points* or the  button and finally, save the data.

OziExplorer Track Files

OziExplorer tracks defined in the WGS 84 datum can be input and output. The header record is examined to check that the data is in OziExplorer format.

The mapping of the data fields is as follows

Internal	OziExplorer Tracks
Latitude	Latitude
Longitude	Longitude
Date	From TDateTime
Time	From TDateTime
Altitude	Alt
Name	
Description	
Comment	
Proximity	
Symbol	
Symbol text	"Dot"
Route/Track name	Description
Colour	

On input Date and Time values are extracted from field 5 (TDateTime). The text versions in fields 6 and 7 of the input record are not used.

TomTom output options

Current default settings group

The *Use for Name* list box can be used to specify which internal data field is to be used to form the POI name. The default is Description, other options are Name and Comment.

The *Blank name prefix* text box can be used to enter text that will be used to form a name for a POI that would otherwise be blank.

Name truncation group

The text used to form the POI name can be truncated in three ways

- At 32 characters
- At 10 characters (unique)
- At first comma (32 max)

Select the one that is most appropriate for the text that is being used. Names using more than 32 characters may not be readable in Map mode in TomTom Navigator.

TomTom ASCII data

An extended form of the TomTom ASCII file (*.asc) format can be read and written by this program. The position of a POI can be given either as a pair of values giving its longitude and latitude or as GB Ordnance Survey National Grid reference (OSGB36). Optionally, a description field can be given after the name text but the text will not be used when creating overlay files (*.ov2). *NB The longitude value must precede the latitude value.*

The extended format is as follows

Longitude, Latitude, "Name", "Description"
OSGB reference, "Name", "Description"

any line starting with a semi-colon will be treated as a comment and it will be ignored when the file is read.

The mapping of the data fields is as follows

Internal	TomTom ASCII
Latitude	Latitude
Longitude	Longitude
Date	
Time	
Altitude	
Name	
Description	Name
Comment	Description*
Proximity	
Symbol	
Symbol text	"Waypoint"
Route/Track name	"Point data"
Colour	

* Optional

The Options menu item *TomTom*, or the button , can be used to create a default style for the POI names when they are output.

TomTom overlays

Any TomTom overlay files, from Navigator and Route Planner, that are to be converted to another format must be transferred from the Pocket PC to the Windows PC running this program. Direct access of the Pocket PC files is not supported.

When saving as a Route Planner overlay it is necessary to specify the file extension (.ovr) as the default file extension is .ov2

The mapping of data fields is as follows

Internal	TomTom overlay
Latitude	Latitude
Longitude	Longitude
Date	<i>File date</i>
Time	<i>File time</i>
Altitude	
Name	
Description	Name
Comment	
Proximity	
Symbol	
Symbol text	"Waypoint"
Route/Track name	"Point data"
Colour	

Note: Route Planner overlays store the position coordinates in 10,000ths of a degree. Therefore, any coordinates read from an *ovr* file will show only 4 significant figures after the decimal point when output to text files.

The Options menu item *TomTom*, or the button , can be used to create a default style for the POI names when they are output.

TomTom Navigator 3 Itinerary Files

Itinerary files can be opened and saved using tap-and-hold in the Itinerary screen on the PocketPC. When creating a route using MapSource make sure that *Edit | Preferences... | Routing* is set to *Use Direct Routes* otherwise all of the intermediate turns will be output. TomTom Navigator does not require these intermediate details.

The locations of route points transferred from another mapping program may not be on a road in the TomTom map. The order and type of an itinerary entry can be changed on the TomTom unit.

The mapping of the data fields is as follows

Internal	TTN3 Itinerary
Latitude	Latitude
Longitude	Longitude
Date	<i>File date</i>
Time	<i>File time</i>
Altitude	
Name	Entry type*
Description	Name
Comment	
Proximity	
Symbol	
Symbol description	"Dot"
Route/Track name	<i>File name</i>
Colour	

* On input set to Waypoint (0 and 1), Destination (2), Visited (3) and Start (4), otherwise set to Undefined.

TomTom Navigator Log files

Log files (*.pgl) can be recorded by TomTom Navigator to show the track followed when navigating. Log files that contain NMEA formatted records can be imported into POIConverter. The Track filter Option can be used to reduce the number of track points read from the file.

The time, position coordinates, number of satellites used in fixing the position and altitude are extracted from \$GPGGA records. The satellite numbers from \$GPGSA records and the true course and speed over ground from \$GPVTG records.

The mapping of the data fields is as follows

Internal	TomTom Logs
Latitude	Latitude
Longitude	Longitude
Date	<i>File date</i>
Time	Time
Altitude	Altitude
Name	
Description	Speed (mph/kph)*, True course*, Altitude (m)
Comment	Satellite numbers
Proximity	
Symbol	
Symbol description	"Dot"
Route/Track name	<i>File name</i>
Colour	

* If \$GPVTG records are present

Internal data structure

The program uses a structure, with the following fields, to store the data read from the differently formatted input files. The Fortran 90 types and sizes of the fields are given in the table below

Field	Field Type and Size (bytes)
Latitude	REAL*4
Longitude	REAL*4
cLatitude	CHARACTER(LEN=16)
cLongitude	CHARACTER(LEN=16)
Date	CHARACTER(LEN=10)
Time	CHARACTER(LEN=8)
Altitude (m)	REAL*4
Name	CHARACTER(LEN=128)
Description	CHARACTER(LEN=256)
Comment	CHARACTER(LEN=256)
Proximity (m)	REAL*4
Symbol	INTEGER*4
Symbol text	CHARACTER(LEN=20)
Route/Track name	CHARACTER(LEN=64)
Colour	CHARACTER(LEN=6)
CountryCode	CHARACTER(LEN=3)
Type	CHARACTER(LEN=5)
PostalCode	CHARACTER(LEN=16)
City	CHARACTER(LEN=128)
Street	CHARACTER(LEN=128)
HouseNumber	CHARACTER(LEN=8)
Telephone	CHARACTER(LEN=32)
NationalImportance	CHARACTER(LEN=1)
SourceID	CHARACTER(LEN=8)
ExtentionContentType	CHARACTER(LEN=1)
ExtentionContent	CHARACTER(LEN=64)
XEBAdat(10)	CHARACTER(LEN=128)

The current limits are:

Number of records = 60,000

Number of Extended EBA fields = 10

History

4.08 12/4/2008 EBA configuration file added. Points output in KML format will be placed in folders: grouped using the Type field contents for EBA files and POI symbol name for non-EBA files.

4.07 6/4/2008 Warn if not a Garmin Type 2 GDB file. TomTom ITN file output changed to match Navcore 7 codes. Command line mode supported.

4.06 21/3/2008 EBA City and Street field sizes increased to 128. Error when writing a single point to KML file fixed.

4.05 9/3/2008 Storage limit checks added for EBA subroutines.

4.04 4/3/2008 Extended EBA format supported. Field types and sizes defined in the Help file.

4.03 29/02/2008 EBA address fields filled when KML files are read.

4.02 27/02/2008 Internal file structure extended to provide support for Elektrobite EBA CSV files. NMEA log files using only a carriage return character (Hex 0D) record terminator can now be read. Altitude value written to Google Earth Points files.

3.21 17/10/2007 Google Earth KML Points, Routes and Tracks output added. File filters for Open and Save written to Windows Registry.

3.20 29/08/2007 Code improvements to Maptech RXF file input.

3.19 18/06/2007 Option to filter NMEA data using PDOP value added. Default is to accept all entries.

3.18 23/10/2006

Proximity field added to GPX Options dialog box. Google Points data can be read from KML formatted files.

3.17 26/8/2006

POI (waypoints) can be written to and read from Garmin GPS database files (*.gdb). The GPX tag <type> is used to define a Memory-Map Marks category. The output file name is used as the category name. The code used to output GPX files containing multiple tracks has been corrected.

3.16 29/6/2006

The new Type 100 records in TomTom overlay files are ignored when the file is read.

3.15 5/2/2006

Header records of GPS eXchange output files modified for compatibility with Garmin MapSource. The disk drive letter is extracted from program path for use with qtXLS licence file. Eastings and Northings can be used in an AutoRoute CSV input file.

3.14 12/08/2005

GPS eXchange Options menu item and button added for waypoint name style. Microsoft Streets and Trips map file (*.est) support added. Longitude error corrected for locations in the USA read from a Pocket Streets file (*.psp).

3.13 12/07/2005

Waypoint output in Mapopolis Maplet format added. The error that prevented the default bitmap file, stored in the program folder, from being used for newly created TomTom overlays was corrected.

3.12 30/05/2005

Waypoint output in Destinator 3 CSV format added.

3.11 22/04/2005

Storage size increase to 40,000 points and MapPoint name added to file filter.

3.10 21/1/2005

Waypoints, Routes and Tracks in OziExplorer format (WGS 84 datum) can be input and output. The TomTom utility MakeOV2 is run to create TomTom overlay files as the previous internal code does not create Type 1 (Skipper) records. TomTom options added for POI name mapping, length and blank name prefix. GPX input routine modified to cope with large amounts of embedded text that should be ignored by POIConverter.

3.09 17/9/2004

Symbol mapping added for Memory-Map CSV data. Various bug fixes.

3.08 31/8/2004

Unique name algorithm changed to use only alpha characters.

3.07 20/8/2004

Waypoints stored in Memory-Map CSV files can be input and output. The path of the last used input folder is saved in the Windows Registry and it is used as the default folder when the program is restarted.

3.06 8/7/2004

The waypoint identifiers output to the Garmin WPT and RTE files are made unique. Storage limit check added in all read routines. The Garmin Option to replace the waypoint IDNT field on output now works correctly. Both NMEA \$GPRMC and \$GPVTG records used to extract course and speed data from TomTom Navigator Log files (*.pgl).

3.05 12/6/2004

The worksheet name and column names are checked prior to importing data from an Excel file.

3.04 6/6/2004

Limit on the number of POI increased to 15000 and missing limit checks added in AutoRoute and GPX subroutines.

3.03 29/5/2004

qtXLS library updated to 24/5/04 version. Error caused by blank Date/Time field in MapSource txt file track data has been corrected.

3.02 7/5/2004

When converting AutoRoute Map files the ST2GPX output is sent to the file st2gpx.tmp and is left in the input file folder after the run. ST2GPX will not produce an output file if the path to the program contains spaces. As a work-around, POIConverter now installs to the folder C:\Richard_Davies\POIConverter.

3.01 1/5/2004

Support for Excel spreadsheets reinstated but there are still some problems. Support added for TomTom Navigator 3 Itinerary files (*.itn) and NMEA Log files (*.pgl).

3.00 27/4/2004

Support for Excel spreadsheets disabled pending qtXLS library update. Identifier field deleted from internal structure. Garmin PCX5 coordinate output changed to decimal degrees. Decimal degree input support added.

2.02.1 20/4/2004

Support for Pocket Streets PushPin file (*.psp) input reinstated. ST2GPX updated to version 0.5.

2.01 30/3/04

Support for Pocket Streets PushPin file (*.psp) input removed. Comma separated value (*.csv) file input added.

2.00 21/3/04

Input and output of route and track data added for Maptech, Garmin PCX5 and GPX formatted data. Input of route and track data from MapSource text file added.

1.03 10/03/04

Pushpin names extracted from AutoRoute Map files, via the intermediate GPX files, passed to TomTom Navigator overlay Name field.

1.02 14/01/04

Pushpin data extracted from Microsoft AutoRoute Map files using James Sherring's st2gpx program. Reading and writing of GPX files supported. Garmin conversion uses the H IDNT record to determine field lengths on input.

1.01 07/07/03

Error in the transfer of Pocket Streets notes corrected.
TomTom Route Planner overlay (ovr) file support added.

1.00 23/06/03

Initial release.