

## Create Map File From MapInfo Step By Step Procedure



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**ISSUE/AMENDMENT STATUS**

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## 1.0 Introduction

This document provides step by step procedure on how data is converted to the map format used by Pocket Streets China from original MapInfo data format.

## 1.1 Purpose

This document provides the brief introduction on how data is converted to Pocket Streets China map file format from MapInfo map files. The document serves as a guide to data process engineers to create map files used in Pocket Streets China from it's original MapInfo map files.

## 1.2 Scope

This document covers only the procedure of data converting. The detailed data format and the implementation of Pocket Streets China, MIF Parser, and Data Converter are out the scope of this document.

## 1.3 Definitions, Acronyms and Abbreviations

Acronyms	Full Description
2D	2 dimensional
3D	3 dimensional
AGPS	Assistant GPS
BREW	Binary Runtime Environment for Wireless
GDI	Graphical Device Interface
GIS	Geographic Information System
GPS	Global Positioning System
J2ME	Java 2 <sup>nd</sup> Micro Edition
NMEA	National Marine Electronics Association
PDA	Personal digital assistant
POI	Point of Interest
WINCE	Windows Compact Edition

## 1.4 References

Ref No.	Document Name
1.	Microsoft Pocket Streets <a href="http://www.microsoft.com/windowsmobile/downloads/pocketstreets/default.mspx">http://www.microsoft.com/windowsmobile/downloads/pocketstreets/default.mspx</a>
2.	Sun J2ME website <a href="http://java.sun.com/javame/">http://java.sun.com/javame/</a>
3.	Qualcomm BREW website <a href="http://brew.qualcomm.com/brew/en/">http://brew.qualcomm.com/brew/en/</a>
4.	Pocket Streets China Design document

### 1.5 Overview

Standalone GPS software requires electronic maps. Geographical data can be collected manually with a GPS receiver, but it'd much easier converting data from commercial Map software.

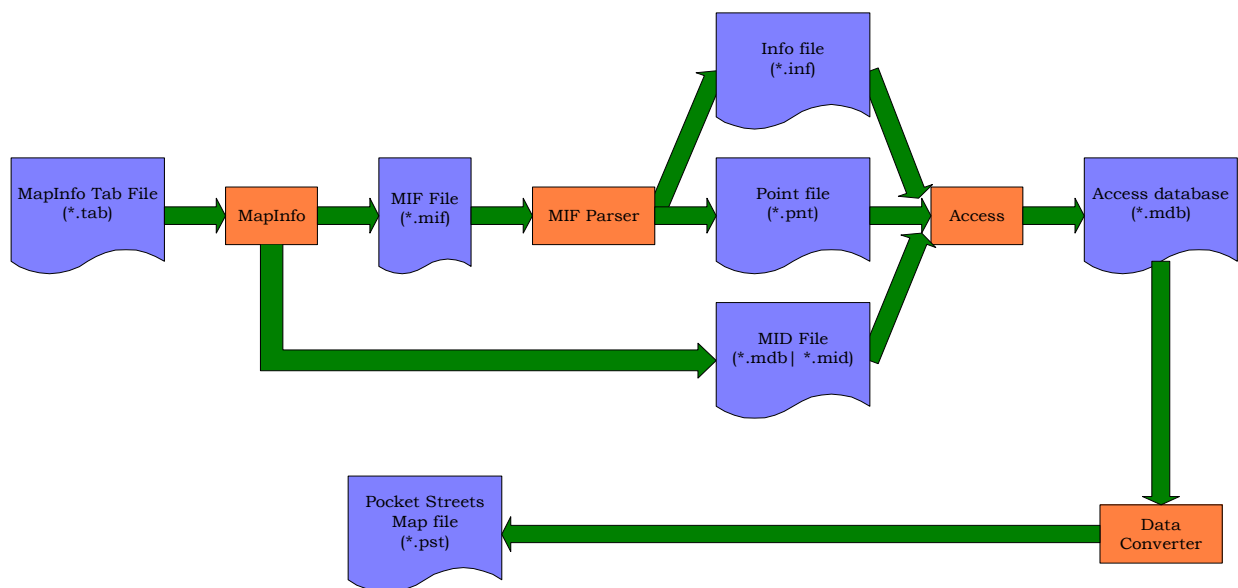
MapInfo can export its map information to MIF/MID interchange format, where MIF file defines map objects in text format.

```

...
Point 118.769325 32.036118
  Symbol (33,16767072,8)
...
Pline 2
118.651627 31.917446
118.651532 31.917395
  Pen (1,77,0)
...
Region 1
5
118.783142 32.039326
118.783508 32.040707
118.782578 32.040859
118.782387 32.039459
118.783142 32.039326
  Pen (1,2,8421504)
  Brush (5,12632256,16777215)
  Center 118.782947 32.040092
    
```

Objects in map can be abstracted to three types:

- **Point** (like landmark, point of interest etc)
- **Poly-line** (like road, railway etc)
- **Polygon** (like lake, park, mountain etc)



## 2.0 MapInfo Data Interchange Format

MapInfo Professional Interchange Format (MIF) is an ASCII file format that can fully describe a MapInfo Professional database. Both graphic and tabular data are exported into MIF files. The graphic data is in a file with a “.mif” extension, and the tabular data is in a file with a “.mid” extension.

MapInfo Professional Interchange Format files can be translated into other formats with other programs.

Menu→Table→Export



Data Interchange  
Format

This versatile format allows generic data to be attached to a variety of graphical items. Since it is ASCII, it is editable, relatively easy to generate, and works on all platforms supported by MapInfo. Perhaps the best way to understand the MapInfo Interchange Format (MIF) is to study the sample file at the end of this appendix in conjunction with the explanation of the file format. You can also create samples of your own by exporting files to MIF and then examining those files in a text editor. MapInfo data is in two files — the graphics reside in a .MIF file and textual data is contained in a .MID file. The textual data is delimited data, with one row per record and Carriage Return, Carriage Return plus Line Feed, or Line Feed between lines. The MIF file has two areas — the file header area and the data section. Information on how to create MapInfo tables is in the header; the graphical object definitions are in the data section.

### 3.0 MIF Parser

The MIF Parser is a program used to parse MIF file (\*.mif). It creates 2 separate files as the output.

.inf → For Polyline or Region, it gives line width, center position etc

.pnt → gives the longitude, Latitude information about the map object.

Note: currently the MIF parser only support parses those MIF files contains only one Map object type. i.e. (Point, Pline, Region).

#### 3.1 Point

For example:

Point 118.743195 32.035275

Symbol (33,32896,8)

MIF Parser only create .pnt file for Point Map object, the .inf will be empty

MapInfo_ID	Longitude	Latitude
1	118.743195	32.035275

#### 3.2 Pline

For example:

Pline 2

118.6387139 32.16829895

118.660675 32.165916

Pen (1,63,16711680)

Inf

MapInfo_ID	width	Color
1	1	16711680

Pnt

MapInfo_ID	PointIndex	Latitude	Longitude
1	1	32.16829895	118.6387139
1	2	32.165916	118.660675

#### 3.3 Region

For example

Region 1

5

118.783142 32.039326

118.783508 32.040707  
 118.782578 32.040859  
 118.782387 32.039459  
 118.783142 32.039326  
 Pen (1,2,8421504)  
 Brush (5,12632256,16777215)  
 Center 118.782947 32.040092

Info

MapInfo_ID	Foreground Color	Background Color	Longitude Center	Latitude Center
1	12632256	16777215	118.782947	32.040092

Pnt

MapInfo_ID	PointIndex	Latitude	Longitude
1	1	32.039326	118.783142
1	2	32.040707	118.783508
1	3	32.040859	118.782578
1	4	32.039459	118.782387
1	5	32.039326	118.783142

#### 4.0 Convert into Microsoft Access database

For the convenient of later processing, it'd better convert all the data parsed by MIFParser into a Microsoft access database (\*.mdb) file.

MapInfo can export tabular data into

File→Save Copy As

Select “Save as Type (Microsoft access database \*.tab)

MapInfo will store the tabular data in a Microsoft access file.

#### 4.1 Table definitions

Currently, the map is divided into 6 layers. From the top to the bottoms, they are

POI (Point of Interest)

NODE (intersection between roads, used to calculate the route)

RAILWAY

ROAD

LANDUSE

BLOCK

Block

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
Name	Text	
Type	Long	
PinYin	Text	

Block\_Geo

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
PointIndex	Long	
Latitude	Double	
Longitude	Double	

Block\_Index

Field Name	Type	Description
AREA_ID	long	Primary key
MAPINFO_ID	Long	Primary key

Block\_Info

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
ForegroundColor	Long	
BackgroundColor	Long	
Latitude	Double	
Longitude	Double	
X1	Double	
Y1	Double	
X2	Double	
Y2	Double	

Landuse

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
Name	Text	
Type	Long	
PinYin	Text	

Landuse\_Geo

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
PointIndex	Long	
Latitude	Double	
Longitude	Double	

Landuse\_Index

Field Name	Type	Description
AREA_ID	long	Primary key
MAPINFO_ID	Long	Primary key

Landuse\_Info

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
ForegroundColor	Long	
BackgroundColor	Long	
Latitude	Double	
Longitude	Double	
X1	Double	
Y1	Double	
X2	Double	
Y2	Double	

Node

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
Node_ID	Long	
Height	Int	
Type	Int	
Node1	Long	
Ruler1	Text	
Node2	Long	
Ruler2	Text	
Node3	Long	
Ruler3	Text	
Node4	Long	
Ruler4	Text	
Node5	Long	

Ruler5	Text	
Node6	Long	
Ruler6	Text	
Node7	Long	
Ruler7	Text	
Node8	Long	
Ruler8	Text	

Node\_Geo

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
PointIndex	Long	
Latitude	Double	
Longitude	Double	

Node\_Index

Field Name	Type	Description
AREA_ID	long	Primary key
MAPINFO_ID	Long	Primary key

Node\_Info

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
SymbolType	Long	
X1	Double	
Y1	Double	
X2	Double	
Y2	Double	

POI

Field Name	Type	Description
MAPINFO_ID	Long	Primary key

Name	Text	
PopName	Text	
Entrance	Int	
Class	Text	
District	Text	
TelePhone	Text	
ServeTime	Text	
Address	Text	
IsParking	Text	
PinYin	Text	

POI\_Geo

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
PointIndex	Long	
Latitude	Double	
Longitude	Double	

POI\_Index

Field Name	Type	Description
AREA_ID	long	Primary key
MAPINFO_ID	Long	Primary key

POI\_Info

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
SymbolType	Long	
X1	Double	
Y1	Double	
X2	Double	
Y2	Double	

Railway

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
Name	Text	
Type	Long	
Extention	Bool	
PinYin	Text	

Railway\_Geo

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
PointIndex	Long	
Latitude	Double	
Longitude	Double	

Railway\_Index

Field Name	Type	Description
AREA_ID	long	Primary key
MAPINFO_ID	Long	Primary key

Railway\_Info

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
LineWidth	Long	
LineColor	Long	
X1	Double	
Y1	Double	
X2	Double	
Y2	Double	

Road

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
Road_ID	long	
FNODE	long	
TNODE	long	
Name	Text	
PopName	Text	
PinYin	Text	

Road\_Geo

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
PointIndex	Long	
Latitude	Double	
Longitude	Double	

Road\_Index

Field Name	Type	Description
AREA_ID	long	Primary key
MAPINFO_ID	Long	Primary key

Road\_Info

Field Name	Type	Description
MAPINFO_ID	Long	Primary key
LineWidth	Long	
LineColor	Long	
X1	Double	
Y1	Double	
X2	Double	
Y2	Double	

### 5.0 Map Format

The final map date format is defined as below.

Block	Length	Description	Memo
Header	32	Version	POCKET STREETS VER 1.0
	8	Name index offset	
	8	R-tree index offset	
	8	POI offset	
	8	Node offset	
	8	Railway offset	
	8	Road offset	
	8	Landuse offset	
	8	Block offset	
	8	POI Geo offset	
	8	Node Geo offset	
	8	Railway Geo offset	
	8	Road Geo offset	
	8	Landuse Geo offset	
	8	Block Geo offset	
	8	Node-Road offset	
	32	Map Bound	
	16	Map Rows & Cols	
	16	Map Origin x,j	
	8	Map Steps	
4K-224	Reserved	0	
Name Index	xxx	nX ( 120)	
R tree index	xxx	n X ( 300 )	
Gen Info		POI Info	
		Node Info	
		Railway Info	
		Road Info	
		Landuse Info	
		Block Info	
Geo Info		Geo data	8 X n (Long , Lati ) pair
Node-Road		Node Road relation	21 X n (N1N2R)

POI

Name index	Int	4
Class	Int	4
Longitude	Double	4

Road

Name index	Int	4
FNODE	Int	4
TNODE	Int	4

	Latitude	Double	4		Length	Double	8
	Level	Int	4		Line Width	Int	4
			20		Line Color	Int	4
Node					Geo Index	Int	4
	Node1/Lengh	Int	4+4		Geo Length	Int	4
	Node2	Int	4+4		Level	Int	4
	Node3	Int	4+4				40
	Node4	Int	4+4	Block			
	Node5	Int	4+4		Name index	Int	4
	Node6	Int	4+4		Type	Int	4
	Node7	Int	4+4		FillColor	Int	4
	Node8	Int	4+4		Longitude	Double	4
	Longitude	Double	4		Latitude	Double	4
	Latitude	Double	4		Geo Index	Int	4
			72		Geo Length	Int	4
Railway					Level	Int	4
	Name index	Int	4				32
	Line Width	Int	4	Landuse			
	Line Color	Int	4		Name index	Int	4
	Geo Index	Int	4		Type	Int	4
	Geo Length	Int	4		FillColor	Int	4
	Level	Int	4		Longitude	Double	4
			24		Latitude	Double	4
					Geo Index	Int	4
					Geo Length	Int	4
					Level	Int	4
							32