

# MapDekode

V5.2.x

Reference

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If you find an error, something is not clear formulated, you miss something or you can't read my english,  
send me a e-mail: <mailto:mapdecode@gmx.net>

**Peter**

# Content

<b>General .....</b>	<b>5</b>
<i>Limitations .....</i>	<i>6</i>
<i>Language support .....</i>	<i>6</i>
<b>Diagram.....</b>	<b>7</b>
<b>1 Create a DBX from data .....</b>	<b>8</b>
1a Create a DBX for a <u>detail</u> map from Ozi data files .....	8
1b Create the DBX for the <u>general</u> map from Ozi data files.....	8
1c Create a DBX for a <u>detail</u> or <u>general</u> map with GPS-Trackmaker®.....	8
<b>2 Create a IMG map from a DBX.....</b>	<b>8</b>
2a Create a IMG for a <u>detail</u> map from a DBX.....	8
2b Create the IMG for the <u>general</u> map from a DBX .....	9
2c Create a IMG for a <u>detail</u> map from Ozi data files.....	9
2d Create the IMG for the <u>general</u> map from Ozi data files.....	9
2e <u>Detail</u> maps with POI's .....	9
<b>3 Create the DBX for the <u>general</u> map from the <u>detail</u> DBX automatic.....</b>	<b>10</b>
<b>4 Create/Add the find-city.txt from the <u>general</u> or <u>detail</u> DBX.....</b>	<b>10</b>
<b>5 Edit the find-city.txt .....</b>	<b>10</b>
<b>6 Create the project file TDB and register the project.....</b>	<b>11</b>
Show all registered projects: .....	11
New project:.....	11
Delete a project in the registry: .....	12
Add a detail map to a project: .....	12
Update a project file *.TDB: .....	12
Update only the registry entries: .....	12
Search a IMG number or name in the project file *.TDB: .....	12
Output of the map list in a text file.....	12
<b>7 Load a new project in Mapsource©.....</b>	<b>12</b>
<b>8 Load detail maps in the GPS .....</b>	<b>12</b>
<b>9 Create a DBX from an IMG .....</b>	<b>13</b>
9a Create a DBX form an <u>detail</u> IMG.....	13
9b Create a DBX from an <u>general</u> IMG.....	13

<b>10 Create the OZI data files from a DBX.....</b>	<b>13</b>
<b>11 Create the PCX5 data files from a DBX.....</b>	<b>13</b>
<b>12 Command line interface.....</b>	<b>14</b>
<b>13 Tips and tricks / known Problems.....</b>	<b>15</b>
<b>Appendix .....</b>	<b>16</b>
<i>A1 Description of the OZI data files .....</i>	<i>16</i>
<b>Points</b> .....	16
<b>Cities</b> .....	16
<b>Lines</b> .....	16
<b>Areas</b> .....	17
<b>Special areas for TRE2 definition</b> .....	18
<i>A2 Description of the DBX Database .....</i>	<i>18</i>
Section <b>[DEF]</b> .....	19
Section <b>[Punkte]</b> .....	19
POI's .....	20
Section <b>[Orte]</b> .....	20
Section <b>[Linien]</b> .....	20
Section <b>[Flaechen]</b> .....	21
<i>A3 Description of the control file <b>AUTOGENMAP.DAT</b> .....</i>	<i>21</i>
<i>A4 Description of the file <b>FIND-CITY.TXT</b> .....</i>	<i>23</i>
<i>A5 Description of the file <b>POI.TXT</b> .....</i>	<i>24</i>
<i>A6 Listing of the Point <b>(POI)</b> and City types .....</i>	<i>25</i>
<i>A7 Listing of the Line types.....</i>	<i>29</i>
<i>A8 Listing of the Area types .....</i>	<i>29</i>
<i>A9 Character set for labels .....</i>	<i>30</i>
<i>A10 Special characters for roads .....</i>	<i>30</i>
<i>A11 Special Codes for labels in MapDecode .....</i>	<i>30</i>
<i>A12 Picture how the GPSIII+ display the areas .....</i>	<i>31</i>
<i>A13 Picture how the GPSIII+ display the cities .....</i>	<i>32</i>
<i>A14 Picture how the GPSIII+ display the lines .....</i>	<i>32</i>
<i>A15 Picture how the GPSV display the areas and lines .....</i>	<i>33</i>
<i>A16 Picture how the GPSV display the cities .....</i>	<i>33</i>
<i>A17 Picture how the GPSV display points.....</i>	<i>34</i>

## General

Each project (**R&R-v3 and MG-v3 and ...**) in MapSource contain several files:

- the content file **project.TDB**: this file contain the project number and name, the copyright info, an entry for the general map, and an entry for each detail map (with the map name/number, and the size of each map section TRE, LBL, RGN [,NET]).

- the general (overview) map **general.IMG**: this map contain some map elements (points, cities, lines and areas) in a simple form (not very accurate), the definition area for the detail maps (to select a detail map in MapSource for download to the GPS) and a list of the cities for the find function in MapSource.

- one or more detail maps **detail.IMG**: this map contain all map elements in three or more different accuracy's (zones), e.g. in zone 0 the best, in zone 1 the middle and in zone 2 the lowest accuracy.  
R&R and MG's use: for detail map zone 0,1,2,83[,84] and for the general map zone 2,3,4,85,86[,87].

!Only the detail maps are for the GPS unit usable!

The zones 8x include no data (map elements) and are only for organisation.

The zone 2 from the detail map (highest zone with lowest accuracy) have the same accuracy as the zone 2 from the general map (lowest zone with best accuracy for the general map).

World maps use zone 1,2,3,4,5,86 for the detail maps and zone 2,3,4,5,86 for the general map.

- the **keys** in the Windows **registry**: the name and location of the product content file, the name and location of the general map and the location of the detail maps (all detail maps must be in the same folder).

e.g. **14**=project number for R&R Germany:

HKLM\Software\Garmin\MapSource\Products\14\TDB

"C:\Gps\MapSource\RR\_Germany.tdb"

HKLM\Software\Garmin\MapSource\Products\14\Bmap

"C:\Gps\MapSource\RR\_Germany.img"

HKLM\Software\Garmin\MapSource\Products\14\Loc

"F:\Germany\RR\_Germany"

**MapDekode** use a database for storing the map elements (\*.DBX). The name of this database **must** be **eight** characters, for **detail** maps eight **digits** (**12345678.DBX**) and for the **general** map eight **letters** and/or **digits** (**abcdefgh.DBX**)!

The name of the map is the same as the name of the database (**12345678.DBX** -> **12345678.IMG**).

For later added functions MapDekode use extra files, the file **FIND-CITY.TXT** for the find city function in MapSource and the file **POI.TXT** to add poi's to a detail map.

If you create the map elements in GPS-Trackmaker®, you can save this direct as MapDekode database and create from this database the map (\*.IMG). With GTM no file POI.txt is needed.

The second method to create a database is to use OZI data (\*.plt and \*.wpt) and the POI.TXT as input.

You can also create a database with a third party program or with a text editor by hand, but be careful!

After creating the detail maps from the detail databases, you can create the general map manually (in the same way as the detail maps but with the other max-zone values), or you can create the database for the general map automatic from the detail \*.DBX (by using the control file **AUTOGENMAP.DAT**, a sample you can find in the sample-project in the SETUP files).

If you have all detail maps and the general map, move they in a new folder, create the project content file (\*.TDB) and register the project in the Windows registry.

Later when you change detail maps, you must update the project content file, because the size of the map sections (TRE, LBL, RGN) is different. If not, you get errors in MapSource when you try to download these maps to the GPS!

After registration, you can start MapSource and select your new project.

**All coordinates in all files are in datum WGS84 and in decimal degrees.**

## **Limitations**

MapDekode support only the creation of the IMG format R&R version 3 with the zones 0,1,2,83,84 for the detail maps and zones 2,3,4,85,86 for the general map. The used map sections are TRE (organization of the map), LBL (all texts and labels) and RGN (the map data); the NET section (used in MG with street numbers) is not supported.

MapDekode **can not** read BlueChart or CitySelect because parts of this maps are encrypt.

With the parameter "lowest zone number" (default=0) set to 1 you can create detail maps which fit better to the existing World maps (then you have zone 1,2,3,84,85 for detail and zone 3,4,5,86,87 for a general map). If you use 1 as lowest zone number, don't forget to use the max-zone values 1, 2, 3 (not 0, 1, 2) in the detail maps, and 3, 4, 5 in the general map.

The best resolution of a position is defined by the zone factor ZF (best is ZF=18 means 2,4 meter).

A better accuracy is not possible with **MapSource**.

The reason: Garmin store the coordinates as three byte hex,  $+180^\circ = 0x7FFFFFFF$  and  $-180^\circ = 0x80000000$  but the LSB (the lowest byte) is removed, so the smallest step is  $0x100 \Rightarrow 0,0000214577^\circ \Rightarrow 2,384m$ .

The default ZF for the best zone in a R&R detail map is 17 (4,8 meter) and 11 (305 meter) in the general maps.

The expansion of the maps depends on the zone factor ZF: ZF=18 means a maximum expansion of  $\pm 0,7^\circ$  for east-west and north-south, a ZF=17 means  $\pm 1,4^\circ$  and a ZF=11 means  $\pm 90^\circ$ .

You must consider this before you start a new project, which size of the detail maps with which accuracy you need.

The largest file size of a \*.IMG created with MapDekode depends on the used block size: 512 byte block size gives a maximum of 1 Mbytes of a \*.IMG, 1024 for 2 Mbytes and 2048 of 4 Mbytes. Don't create larger IMG's than 1MB (better 500kB), because MapDekode use a simpler method to create the IMG's than Garmin (not so fast to display).

## **Language support**

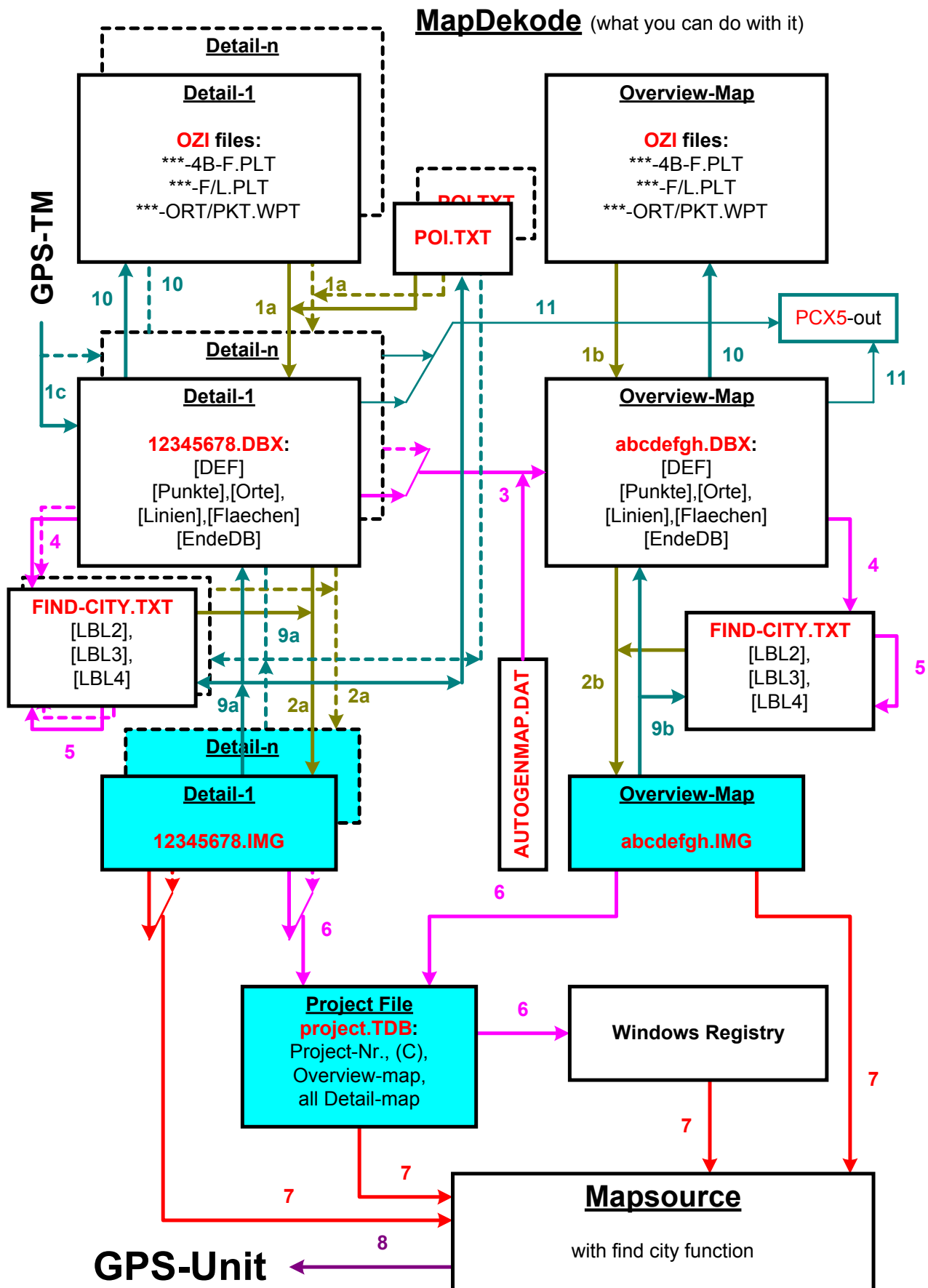
Select the language file in the menu **OPTION**. For German select "NONE" and restart MapDekode.

For each MapDekode version you need the adequate version of the msgtext\_xx.dat.

If you edit the file, don't change the order or the number of the rows, change only the text.

New is the support of UNICODE in the msgtext\_xx.dat (sample: msgtext\_en\_U.dat).

## Diagram



The numbers in the diagram show the number of the paragraph which describes this function.

# 1 Create a DBX from data

## 1a Create a DBX for a detail map from Ozi data files

Create all Ozi data files in one directory. The minimum is the \*-4B-F.plt with the background area of the map. The other Ozi data files (\*-L.plt, \*-F.plt, \*-ort.wpt, \*-pkt.wpt) can also be in a sub directory of the DBX directory.

Select in MapDecode: "[Database / Create DB from &Ozi \\*.wpt/\\*.plt](#)", then select the path and name of the detail database (**12345678.DBX** must **eight** digits).

If a file **POI.TXT** exist in the folder of the detail \*.DBX, the POI's will include in the DBX.

NOTE: if a point in \*-pkt.wpt have the prefix "POI:" in the label, this point will be ignored (e.g. 2A012\$**POI**:Mike), this is a rest from: [10 Create the OZI data files from a DBX](#).

The database will create in the same directory as the Ozi files are.

Use for each detail map a new directory.

## 1b Create the DBX for the general map from Ozi data files

Create all Ozi data files in one directory. The minimum is the \*-4B-F.plt with the background area of the map and for each detail map the reference area (type 4A).

The other Ozi data files (\*-L.plt, \*-F.plt, \*-ort.wpt, \*-pkt.wpt) can also be in a sub directory of the DBX directory.

Select in MapDecode: "[Database / Create DB from &Ozi \\*.wpt/\\*.plt](#)", then select the path and name of the general database (**abcdefgh.DBX** must **eight** letters/digits).

The database will create in the same directory as the Ozi files are.

Use for the general map a new directory.

## 1c Create a DBX for a detail or general map with GPS-Trackmaker®

Create the map elements in GPS-Trackmaker® (points, lines, areas) and save as MapDecode database (\*.DBX).

A description how you do this in GPS-Trackmaker® you can find at:

[http://www.gpstm.com/eng/decode\\_eng.htm](http://www.gpstm.com/eng/decode_eng.htm) written by: Odilon Ferreira Junior

# 2 Create a IMG map from a DBX

## 2a Create a IMG for a detail map from a DBX

Select in MapDecode: "[Map create / Detail-map from DB \(\\*.DBX -> \\*.img\)](#)", in the parameter window set your parameters and then select the path and name of a detail database (**12345678.DBX** must **eight** digits).

If a file **FIND-CITY.TXT** exist in the folder of the detail \*.DBX, the find function will include (for the GPS).

### Params for IMG construction:

**use old DBn:** default OFF, use this parameter only if you wish **no** automatic creation of the databases for the single zones (with OFF, MapDecode create the files \*.DB0, \*.DB1 and \*.DB2 from the \*.DBX and then from these three files the map \*.IMG).

If you wish to manipulate the \*.DB0/1/2 manually (if you like other attributes in the single zones as MapDecode generate automatic) set to ON, then MapDecode use the existing \*.DB0/1/2.

With ON, no changes from the DBX will be included!

**optimize lines:** default ON, reduce the number of points in the polygons (lines, areas) in all zones except in the most detail zone.

**block size:** default 512 byte, if you create maps greater than 1 Mbytes increase it.

**zone factor:** default 17, set the accuracy in the most detail zone and the maximum expansion of the map (17 mean a accuracy of 4,8 meter and a map size of +/- 1,4°). If you need a greater detail map use a lower ZF with a lower accuracy.



**lowest zone number:** default 0, set the zone number of the most detail zone; use 0 for R&R and 1 for World.

If you use the function "auto create a overview DBX from detail DBX" (function 3 in the diagram), **all** detail maps in this project must have the same lowest zone number!

**transparent map:**

this makes the map transparent, like a POI map. The map is always on top (see [13 Tips and tricks](#) )

The IMG will create in the same directory as the DBX.

## **2b Create the IMG for the general map from a DBX**

Select in MapDecode: "Map create / Overview-map from DB (\*.DBX -> \*.img)", in the parameter window set your parameters and then select the path and name of the general database (**abcdefgh.DBX** must **eight** letters/digits).

If a file **FIND-CITY.TXT** exist in the folder of the general \*.DBX, the find function will include (for MapSource).

### **Params for IMG construction:**

**use old DBn:** default OFF, use this parameter only if you wish **no** automatic creation of the databases for the single zones (with OFF, MapDecode create the files \*.DB2, \*.DB3 and \*.DB4 from the \*.DBX and then from these three files the map \*.IMG).

If you wish to manipulate the \*.DB2/3/4 manually (if you like other attributes in the single zones as MapDecode generate automatic) set to ON, then MapDecode use the existing \*.DB2/3/4.

**optimize lines:** default ON, reduce the number of points in the polygons (lines, areas) in all zones except in the most detail zone.

**block size:** default 1024 byte, if you create maps greater than 2 Mbytes increase it.

**zone factor:** default 11, set the accuracy in the most detail zone and the maximum expansion of the map (11 mean a accuracy of 305 meter and a map size of +/- 90°). If you need a greater general map use a lower ZF with a lower accuracy.

**lowest zone number:** default 2, set the zone number of the most detail zone; use 2 for R&R and 3 for World.

The IMG will create in the same directory as the DBX.

## **2c Create a IMG for a detail map from Ozi data files**

Select in MapDecode: "Map create / Detail-map from Ozi (\*.wpt/\*.plt -> \*.img)"

Same as function 1a + 2a.

## **2d Create the IMG for the general map from Ozi data files**

Select in MapDecode: "Map create / Overview-map from Ozi (\*.wpt/\*.plt -> \*.img)"

Same as function 1b + 2b.

## **2e Detail maps with POI's**

If you want to add additional information to a point (e.g. address, city, zip code, phone number) you must create a file **POI.TXT** in the same folder as the detail \*.DBX with all the information you like, and a **FIND-CITY.TXT** to see the city in the POI properties (function 4 for the detail map).

The POI range is 0x2900 – 0x303F and 0x6400 – 0x663f. But R&R-v4, MG-v3/4/5?, CS-v4/5 use only the range 0x2900 – 0x303F.

Worldmap use for airports 0x59xx, not 0x2F04. With a GPS-III+ you can see all Points and POI's in the "Nearest" menu (from 0x0100 – 0x663f).

A GPS-V show in the find POI menu only 0x2900 – 0x303F and 0x6400 – 0x663f! So if you load a Worldmap on a GPS-V, you can't "find" the airports. And if you point to a POI from 0x6400 – 0x663f on the GPS-V map, you can't see the POI information (like address, zip,...). Only in the find menu.

I don't know how other GPS units handle the POI range. If you have new information, please tell me.

If you define a POI in the **POI.TXT** you need no entry for this POI in the \*.pkt.wpt.

After creating the **POI.TXT**, create the detail DBX (function 1a) and then the map (function 2a).

If you create the DBX with GPS-TM or by hand, you need in [Punkte] a entry with a special label for each POI, but no file **POI.TXT**. (see [http://www.gpstm.com/eng/dekode\\_eng.htm](http://www.gpstm.com/eng/dekode_eng.htm))

### 3 Create the DBX for the general map from the detail DBX automatic

Select in MapDekode: "Database / auto create a overview DBX from detail DBX" and select the path and name of the general database (**abcdefgh.DBX** must **eight** letters/digits).

In the folder of the general \*.DBX MapDekode need the control file **AUTOGENMAP.DAT** (see [A3 Description of the control file AUTOGENMAP.DAT](#)).

After this, you can use function **2b** to create a general \*.IMG from the DBX without source data.

### 4 Create/Add the find-city.txt from the general or detail DBX

Select in MapDekode: "Find city / Create/Extend find-city.txt" and select the path and name of the database (must **eight** letters/digits).

MapDekode create a new **FIND-CITY.TXT** (if no exist) from the \*.DBX, or add all (new) cities, which are in the \*.DBX but not in the existing **FIND-CITY.TXT**, to the **FIND-CITY.TXT**. If you change the name of an existing city, you must correct the **FIND-CITY.TXT** or delete the old and create a new.

All new cities in the **FIND-CITY.TXT** have no link to a region, but a link to the default country (the name of the map from the DBX). If you like the links: new-city – region – country , not the default new-city – default-country , you must edit the **FIND-CITY.TXT** with function **5** or create the **FIND-CITY.TXT** by hand.

### 5 Edit the find-city.txt

Select in MapDekode: "Find city / Edit find-city.txt" and select the path and name of the **FIND-CITY.TXT**.

Now you see a window with three lists, left the city list, right above the regions and right below the countries. Look at the colors to see which buttons are for which list.

In the city list you see all cities and after the ";" the linked region or country.

Click on a city and you see in the region (after the ";" is the country number) and country list the linked values.

To edit a region or country, click on the button [E] and change the text. After changing the text click on [OK]. Lower and upper case makes no difference.

For regions and countries you can use the control character "[1D]" to separate the full name from the short form (e.g.: Germany[1D]BRD ). The short form is optional.

Use only characters from Appendix [A9 Character set for labels](#).

You can **not** edit the city names. If you like this, change the name in the source data (OZI or GPS-Trackmaker) and create a new general \*.DBX and then a new **FIND-CITY.TXT**.

The city names in the general \*.DBX and in the **FIND-CITY.TXT** **must be the same**. If you have two cities with the same name, change one of the names (e.g. add a number or a "\_" or the region), because MapDekode "see" only the first of this two equal cities and you can't search for the second in MapSource.

To add a region or country click on [+] and enter the name and click on [OK].

If you add a region, select the country which you will link to the new region before you enter the new region.

To change a link from **region1 – country1**, select the region1 (the linked country1 is shown), select the other country2, click on the [E] for the region and click on [OK] without changing the region name.

Now you see the new link **region1 – country2**.

To change a link from **city1 – region1** to **city1 – region2**, select the city1 (the linked region1 is shown), select the region2 and click [update]. Now you see the new link **city1 – region2**.

To change a link from **city1 – region1** to **city1 – country1** (no region), select the city1 (the linked region1 is shown), select the "?" in the region list (the "?" in the country list is shown), select the country1 and click [update]. Now you see the new link **city1 – country1**.

To change a link from **city1 – country1** (default for new automatic added cities) to **city1 – region1** (add region link), select the city1 (the linked country1 is shown), select the region1 and click [update].  
Now you see the new link **city1 – region1**.

With this simple **FIND-CITY.TXT** editor you can not delete one of the cities / regions / countries.

After all your changes click on [Save]. Now a new **FIND-CITY.TXT** was written. If you click [Cancel] you lost all your changes.

To stop an region/country name edit, don't use the [Cancel] button! Click on one of the [E] or [+] again (the text is now restored) and then [OK] without change the name.

If you create or edit the **FIND-CITY.TXT** manually, be careful with **unresolved links** (a city or region points on a not existing region or country).

## 6 Create the project file TDB and register the project

Select in MapDecode: "[Project](#)".

### **Show all registered projects:**

If the field "project number" is empty or "\*" press [enter] or [CTRL]+R or select "[Registry / Reg-info of project](#)".  
You get a list of all projects (only R&R/MG version 3; no version 4, CS, BC).  
First column in the list is the project number, second the TDB path and name.

To see the registry entries of on project, double click on a project in the list (you see the TDB name now in the field "Name of TDB" and the project number in the field "Projectnr").

Press [CTRL]+R or select "[Registry / Reg-info of project](#)".

The three fields are the three registry keys.

To load the content file of the project (\*.TDB) press [CTRL]+O or select "[TDB / Load TDB from file](#)".

The fields: **Projectnr**: the project number (1 to 999)

**Project version**: 203 means map data version 2.03 (increase every time you change the map data)

**Version of TDB format**: the map and TDB format version (MapDecode can create only version 3)

**text for MapSource help**(three times): this text you can see in the MapSource product-info help

**Project name**: Project name in MapSource (for selection)

**Title in MS-Help**: in the MapSource product-info help

**Name of TDB**: full name and path of the TDB file (registry key)

**Overviewmap**: full name and path of the general map \*.IMG file (registry key)

**Path \*.img's**: path of all the detail maps (registry key)

**in the list**: one line for the general map and one line for each detail map.

For detail maps you see in the first column the IMG number, then the country number, the four boundary values and the map name.

### **New project:**

Supply the fields **Projectnr**, **Project version**, **text for MapSource help**(three times), **Project name**, **Title in MS-Help**, **Name of TDB**, **Overviewmap**, **Path \*.img's**, and add all used detail maps with [CTRL]+A or "[Maplist / add Map to list](#)" to the list (you can select up to 100 detail maps at one time; **don't add the general map to the list**).

Now press [CTRL]+S or select "[TDB / Save TDB and make Reg-entry](#)". If the TDB already exist, you get a question to overwrite it. If the project is already registered, you get a question to overwrite the registry entries.

### **Change a project number:**

Enter the old project number, display the registry info (with [CTRL]+R), load the TDB (with [CTRL]+O), change the project number and save it ([CTRL]+S) with overwrite, or create a new TDB with a new project number and delete the unused project number in the registry (see next point).

### **Delete a project in the registry:**

Enter the project number, display the registry info (with [CTRL]+R) to see if it exist, and delete it with [CTRL]+K or select "[Registry / delete project in registry](#)". Only the registry keys are deleted, no files.

**WARNING:** If you register a project, but later you move or delete one of the files of this project, you can't load MapSource !!! In such a case delete the project in the registry or correct the registry entries.

### **Add a detail map to a project:**

If you add a new detail map to your project, you must create a new general map with the reference area for the new detail map (or you create a new general DBX and IMG automatic with function **3** after extending the **AUTOGENMAP.DAT**) and add the detail map to the TDB.

Enter the project number, display the registry info (with [CTRL]+R), load the existing TDB ([CTRL]+O), add the new detail map with [CTRL]+A or "[Maplist / add Map to list](#)" to the list (you can select up to 100 detail maps at one time; **don't add the general map to the list**) and save the TDB with [CTRL]+S (overwrite the existing TDB, to overwrite the registry is not necessary).

### **Update a project file \*.TDB:**

If you have a updated/larger detail map in your project, you should update the TDB too. If you don't, you get errors in MapSource if you try to download such larger detail maps to the GPS unit.

#### Update only one detail map in the TDB:

Enter the project number, display the registry info (with [CTRL]+R), load the existing TDB ([CTRL]+O), select the detail map, which you want to update, in the list. Press [CTRL]+U or select "[TDB / change param of one IMG in TDB](#)". For the selected detail map the map section sizes are now changed.

To see this you must load the TDB again ([CTRL]+O).

#### Update all detail maps in the TDB:

Enter the project number, display the registry info (with [CTRL]+R), load the existing TDB ([CTRL]+O), press [CTRL]+S or select "[TDB / Save TDB and make Reg-entry](#)", overwrite the TDB. Now you have a new TDB.

### **Update only the registry entries:**

Enter the project number, display the registry info (with [CTRL]+R), load the existing TDB ([CTRL]+O), update the fields, press [CTRL]+S or select "[TDB / Save TDB and make Reg-entry](#)", **don't** overwrite the TDB, overwrite the registry.

This is necessary if you move one of the files (\*.TDB, general.IMG or detail.IMG's) to a new folder.

### **Search a IMG number or name in the project file \*.TDB:**

Load a TDB, enter a search string in the field below and press [CTRL]+F or select "[Maplist / Search line in list](#)". You can see only the first hit.

To load a map from the list, double click on the map name/line (the name will be copied in the main window to the field file name, the **Path \*.img's** must be set), close the project window and press [Load] in the main window.

### **Output of the map list in a text file**

Load a TDB, and press [CTRL]+L or select "[Maplist / Output map list](#)".

The file name is file.tdb -> file\_**TDB\_List.txt** (e.g. OLYMPUS1.tdb -> OLYMPUS1\_**TDB\_List.txt**)

## **7 Load a new project in Mapsource©**

Start MapSource (if you get errors and MapSource close, check the registration of the new project and the project files).

Select in MapSource: "[View / Region / project](#)" and select the zoom and area you like.

## **8 Load detail maps in the GPS**

Same as in all original MapSource projects. Don't use other programs than MapSource, because they don't check the IMG before download!

## 9 Create a DBX from an IMG

### 9a Create a DBX form an detail IMG

Select in MapDekode: "File / Open \*.img" or double click the file name field and select a detail \*.IMG.

After IMG loading is finished, select "Database / Create DB from \*.img" and select a folder. By default the IMG name is used for the DBX name.

If you set in the [OPTION – IMG->DBX](#) menu:

- "create FIND-CITY.txt from IMG", in the same folder as the DBX, MapDekode create a **FIND-CITY.TXT** from the detail map.
- "create POI.txt from IMG", in the same folder as the DBX, MapDekode create a **POI.TXT** from the detail map.
- "high in meter not feet", the high value in the lines 0x20-0x25, points 0x62yy/0x63yy and the cities 0x62/0x63 is in the DBX in meter

### 9b Create a DBX from an general IMG

Select in MapDekode: "File / Open \*.img" or double click the file name field and select a general \*.IMG.

After IMG loading is finished, select "Database / Create DB from \*.img" and select a folder. By default the IMG name is used for the DBX name.

If you set in the [OPTION – IMG->DBX](#) menu:

- "create FIND-CITY.txt from IMG", in the same folder as the DBX, MapDekode create a **FIND-CITY.TXT** from the general map.
- "create POI.txt from IMG", in the same folder as the DBX, MapDekode create a **POI.TXT** from the general map.
- "high in meter not feet", the high value in the lines 0x20-0x25, points 0x62yy/0x63yy and the cities 0x62/0x63 is in the DBX in meter

## 10 Create the OZI data files from a DBX

Select in MapDekode: " [Output / OZI Format / Lines or Areas or Cities or Points from DB](#)", select the database.

Lines: for each line type and label you get a Ozi \*.plt file with the name **12345678--type/label-TT-L.plt** (12345678: DBX and IMG name; Type/label: if the line have no label the type is used; TT: line type in hex; -L.plt: line marker)

e.g.: **26711682--Arterial\_Road-04-L.plt** (26711682: dbx name; Arterial\_Road: type; 04: line type in hex)

If you set in the [OPTION - DBX->Ozi - name](#) menu "**name2**" the name is:

**26711682--L04-Arterial\_Road-L.plt** (sorted by line/area type not by type/label)

All lines/areas with the same label and the same line type come in **one** file.

Areas: same as the lines, not \*-L.plt but \*-F.plt (F=Flächen in german)

A special area is the **\*-4B-F.plt**, this is the background of the map (type 75 = 0x4B).

Cities: all cities come in the file **12345678-oz-ort.wpt** (e.g.: 26711682-oz-ort.wpt)

Points: all points come in the file **12345678-oz-pkt.wpt** (e.g.: 26711682-oz-pkt.wpt)

POI's get the prefix "**POI:**" in the label (e.g. 2A012\$**POI:**Mike's)

If you need only the Ozi data from a smaller area than the whole map, set in the [OPTION - DBX->Ozi - Ozi output range](#) menu the boundary of the sub area. With this file you get only elements form this area in the Ozi files.

If you need only one type of points/cities, set in the [OPTION - DBX->Ozi - Ozi output type](#) menu the type and you get a file like "12345678—2A04-OZ-PKT.wpt" with only this type.

## 11 Create the PCX5 data files from a DBX

Select in MapDekode: "[Output / PCX5 Format / Lines or Areas or Cities or Points from DB](#)", select the database.

Lines: all lines come in the file **12345678-pcx5-li.trk** (e.g.: 26711682-pcx5-li.trk)

Areas: all areas come in the file **12345678-pcx5-fl.trk** (e.g.: 26711682-pcx5-fl.trk)

Cities: all cities come in the file **12345678-pcx5-or.trk** (e.g.: 26711682-pcx5-or.trk)

Points: all points come in the file **12345678-pcx5-pu.trk** (e.g.: 26711682-pcx5-pu.trk)

You can import these files in MapSource.

## 12 Command line interface

Some functions can be used in batch mode too: (you can use only one command for each call)

commands: **/DMO** path-ozii-data = create **detail** map from **ozii** data (need param /ND)  
**/GMO** path-ozii-data = create **general** map from **ozii** data (need param /NG)  
**/DMX** path+name-DBX = create **detail** map from **DBX**  
**/GMX** path+name-DBX = create **general** map from **DBX**  
**/FC** path+name-DBX = create **FIND-CITY.txt** from the DBX  
**/ACG** path+name-DBX = create **general DBX** from the detail DBX

parameter: **/ND** 12345678 = IMG number for detail map, from 1 to 99999999 (8 digits)  
**/NG** abcd1234 = IMG name for general map (8 characters)  
**/BK** nnn = blocksize, 512, 1024 or 2048 (default=512)  
**/ZF** nn = zone factor, 18 to 11 (default for detail=17, for general=11)  
**/ZN** nn = min zone number, 0 to 4 (default for detail=0, for general=2)  
for detail World map use: /zn 1  
**/TR** transparent map (no additional value)  
**/LG** autosave of the history to a file  
**/OSD** use sub folder for search ozii input data

e.g.

```
C:\Mapdekod\mapdekod.exe /dmo C:\Mapdekod\xx\kavala_83 /nd 26711683 /zn 1 /tr
```

```
C:\Mapdekod\mapdekod.exe /dmx C:\Mapdekod\xx\xanti_82\26711682.DBX /zf 18 /bk 512
```



## 13 Tips and tricks / known Problems

To **delete** the **status line** in the main window, click with the mouse on it (e.g. to delete the last error).

To open a **history window for the status line**, double click on the status line.

You can save the history to the file "Status\_History.txt" in the folder of the DBX.

If you **use POI's** but **no Find-city.txt** in a detail map (e.g. to much work, or the default search function on your GPS don't work correct with the find-city function), you can't see the city names in the POI's.

In such a case write the city name with the zip code in the same string, not as city, in the POI.txt:

write "2a03,34.4,15.7,2,bar,5,street,,5623 city,555-7894" **not** "2a03,34.4,15.7,2,bar,5,street,city,5623,555-7894".

Then you don't need the find-city.txt to see the city name in the POI.

In elements with **"height" in the label** (e.g. line 0x20 to 0x25 or point 0x62nn/0x63nn) use only digits, no characters because newer MapSource versions bring errors (except "m", see next point).

Use only **full** numbers, no decimal points (e.g. 147 not 146.8)!!!

Since version 4.10.4 you can use **meter values** too, MapDekode convert it for you in feet.

This works for: **lines** Type=0x20 – 0x25; **points** Type=0x62xx and 0x63xx and **cities** Type=0x62 and 0x63.

Sample: Land contour L210\$200**m** ; High point 63012\$1483**M** ; High as city entry 632\$572**m** .

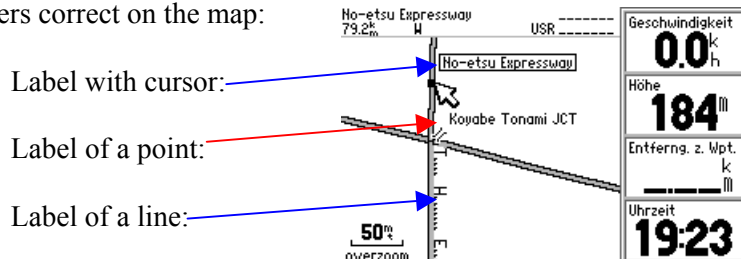
With the "**m**" or "**M**" MapDekode convert the number to feet.

If you try to run the **SETUP** to install MapDekode and get the error "**wrong command line parameter**", move the SETUP files in a folder with a short and simple name (e.g. C:\temp\) and try again.

Since SETUP 5.x.x (with VB6) often comes a message which say a **system DLL can not be overwritten**.

Ignore this and continue the Setup. I can't solve this, it's a problem of the setup1.exe of VB6.

If you use lower case letters in labels for lines or areas (e.g. R[1B]o[1B]a[1B]d -> Road), some GPS don't display the letters correct on the map:



Don't use lower case letter in lines or areas.

### Transparent maps:

with this option you can make maps transparent. This maps then always on top and transparent (like POI maps).

You can see and select all elements from both maps (test with GPS-V).

**List of all control files:** (in the **mapdekode.exe** folder)

no control files since 5.2.x, all functions are now in the **OPTION** menu.

## Appendix

### A1 Description of the OZI data files

If you use OZI data file as source file for the DBX they must have special names:

All lines: abc123-**L.PLT** , all areas: abc123-**F.PLT** , the background area: abc123-**4B-F.PLT**

All points: abc123-**PKT.WPT** , all cities: abc123-**ORT.WPT**

**POI**'s are in the file **POI.TXT**, this is no OZI data file !

abc123 is a valid Windows name, \*.PLT is a OZI track and \*.WPT is a OZI waypoint file.

### Points

You can have more than one point files abc123-**PKT.WPT**.

Format:

```
OziExplorer Waypoint File Version 1.1
```

```
WGS 84
```

```
Reserved 2
```

```
garmin
```

```
1,P580 ,40.638069,24.512879,33605.00000,70,1,6,0,65535,1B0F4$BLZ.(2)W.10S 13M 6SM,0,0,0,-777,6,0,17
2,P582 ,40.606465,24.774535,33605.00000,70,1,6,0,65535,1B0F3$ ,0,0,0,-777,6,0,17
3,3 ,41.142852,24.780216,37027.69659,15,1,6,0,65535,62011$3839 ,0,1,0,-777,6,0,17
.....
```

MapDekode use only the position and the comment filed (with the control information):

**1B0F4\$BLZ.(2)W.10S 13M 6SM**: **1B0F** = point type in hex (see [A6 Listing of the Point \(POI\) and City types](#)), **always four characters!**

**4** = max-zone (point is shown in zone 0 – 4 if available)

**\$** = mark

**BLZ.(2)W.10S 13M 6SM** = label shown in MapSource / on GPS

**1B0F3\$**: 1B0F = point type; 3 = max-zone; \$ = mark; **no label**, the point type is shown

**62011\$3839**: 6201 = point type; 1 = max-zone; \$ = mark; **special label** (for this point type) **height in feet** since v4.10.4 you can use meter: e.g. "62011\$1170m"

### Cities

You can have more than one city file abc123-**ORT.WPT**.

Format:

```
OziExplorer Waypoint File Version 1.1
```

```
WGS 84
```

```
Reserved 2
```

```
garmin
```

```
1,x1 ,40.826659,24.704939,36920.56266,15,1,6,0,65535,282$thassopoula ,0,0,0,-777,6,0,17
2,x-KAR2,40.906643,24.709988,33605.00000,15,1,6,0,65535,0D2$NEA KARIA ,0,0,0,-777,6,0,17
3,xANTI ,41.139279,24.887861,33605.00000,13,1,6,0,13158342,032$Xanti ,0,0,0,-777,6,0,17
.....
```

MapDekode use only the position and the comment filed (with the control information):

**282\$thassopoula**: **28** = city type in hex (see [A6 Listing of the Point \(POI\) and City types](#)), **always two characters!**

**2** = max-zone (city is shown in zone 0 – 2 if available)

**\$** = mark

**thassopoula** = label shown in MapSource / on GPS

**032\$Xanti**: 03 = city type; 2 = max-zone; \$ = mark; Xanti = label

### Lines

You can write all lines with the same line type and label in one Ozi abc123-**L.PLT**.

Format:



```
OziExplorer Track Point File Version 2.1
WGS 84
Altitude is in Feet
Reserved 3
0,3,255,L022$HwE-2,0,0,2,8421376
222
40.965440, 24.496120,1, -777,36659.5219560, 13-Mai-00, 12:31:36
40.964270, 24.502770,0, -777,36659.5220370, 13-Mai-00, 12:31:43
40.963980, 24.504380,0, -777,36659.5221181, 13-Mai-00, 12:31:51
40.963720, 24.505750,0, -777,36659.5221991, 13-Mai-00, 12:31:58
40.963170, 24.508900,1, -777,36659.5223958, 13-Mai-00, 12:32:14
40.962640, 24.511920,0, -777,36659.5225926, 13-Mai-00, 12:32:32
40.962370, 24.513380,0, -777,36659.5226968, 13-Mai-00, 12:32:41
40.961920, 24.515850,0, -777,36659.5228704, 13-Mai-00, 12:32:56
40.961710, 24.517600,0, -777,36659.5229861, 13-Mai-00, 12:33:05
.....
```

← start first line

← start second line

MapDecode use only the positions and the comment filed (with the control information):

**L022\$HwE-2**: L = line  
**02** = line type in hex (see [A7 Listing of the Line types](#)), **always two characters!**  
**2** = max-zone (line is shown in zone 0 – 2 if available)  
**\$** = mark  
**HwE-2** = label shown in MapSource / on GPS (see [A10 Special characters for roads](#))

## Areas

You can write all areas with the same area type and label in one Ozi abc123-F.PLT.

Format:

```
OziExplorer Track Point File Version 2.1
WGS 84
Altitude is in Feet
Reserved 3
0,1,12632256,F031$Potos,0,10,0,12632256
26
40.612161, 24.604066,1, -777,36921.5472388, 30-Jan-01, 13:08:01
40.611588, 24.604664,0, -777,36921.5472388, 30-Jan-01, 13:08:01
40.610672, 24.605036,0, -777,36921.5472388, 30-Jan-01, 13:08:01
40.609355, 24.606381,0, -777,36921.5472388, 30-Jan-01, 13:08:01
```

← start first area

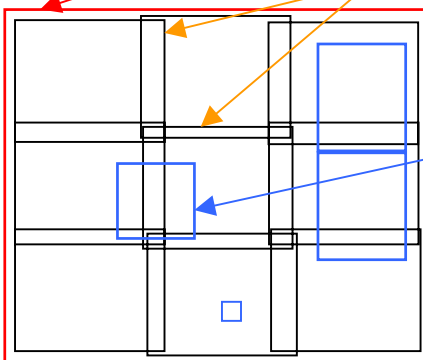
MapDecode use only the positions and the comment filed (with the control information):

**F031\$Potos**: F = area  
**03** = area type in hex (see [A8 Listing of the Area types](#)), **always two characters!**  
**1** = max-zone (area is shown in zone 0 – 1 if available)  
**\$** = mark  
**Potos** = label shown in MapSource / on GPS

**Attention:** Areas from type **0x4B** and **0x4A** must have the largest zone as **max-zone** (or use always 6).  
Areas from type **0x4A** (only for general maps) need a special label: **name-detail[1D]12345678**  
e.g.: **F4A6\$Drama[1D]16711684** where **Drama** is the detail map name and **16711684** is the detail  
IMG and DBX file name (16711684.DBX and 16711684.IMG). This is need to find the detail maps.

## Special areas for TRE2 definition

The lowest and the middle zone of each map is split in nine equal sub areas (TRE2 areas), in the highest zone the whole map is equal one TRE2 area. If you use more than this default of nine TRE2 areas, the display time on your GPS is shorter but the time to create the map will increase.



If you have in some areas of the map very much data (cities with much roads or points), it can speed up the display time on your GPS if you enclose this area with an extra TRE2 area.

Such an extra TRE2 area is a normal Ozi \*.plt within only one rectangle and with file name **TRE2-abc123.PLT** and the comment is "**TRE2-name**".

The maximum of TRE2 areas in MapDecode is 900.

MapDecode search for the TRE2-\*\*\*.plt files, store the areas in a table and check which elements fit in which TRE2 area.

First MapDecode check for the manual TRE2 areas (created by the user) and only the elements which don't fit in this areas come in the nine default areas.

After map creation you see files **TRE-x.PLT** which are the real used TRE2 areas.

## A2 Description of the DBX Database

The format of the DBX is the same for the detail and the general map. The main difference is the "maximum zone" number of the elements and the expansion of the map.

The area type **0x4A** (reference area of a detail map) must exist only in a general map! To create such an area manually copy the background area (if you use Ozi input data the \*-4B-F.plt) from the detail map to the folder of the general map and modify this file (type 0x4B -> 0x4A and write in the comment "F4A6\$name[1D]12345678").

You can edit this file with a normal text editor.

Format:

```
" [DEF] "  
"Name=", "16711682.img"  
"Text=", "Xanti"  
"Max Nord=", 41.24  
"Max Sued=", 40.82  
"Max Ost =", 25  
"Max West=", 24.5  
"  
" [Punkte] "  
"P0020 ", 490513516, 294202778, 25089, 1, "000053", "3402"  
"P0101$", 490700013, 290387511, 10755, 1, "400000", "POI0D00000$dionysos$#12$& -  
road-1$%Main City$!60123$@0234-79548-648$*"  
"P0070F", 488201249, 293737907, 12036, 2, "0000E5", "Airport"  
"P0102$", 490761823, 290953382, 11523, 1, "400035", "POI0D00001$cinema1$#road-4$% -  
Main City$!60123$@"  
"  
" [Orte] "  
"O0080 ", 487081014, 294741403, 40, 2, "00010C", "thassopoula"  
"O00802", 488035260, 294801640, 13, 2, "000115", "NEA KARIA"  
"O0110 ", 490810716, 296923747, 3, 2, "00011C", "Xanti"  
"  
" [Linien] "  
"L00001", 492023686, 293377929, 20, 2, "000493", "Railroad"  
"D00001", -64615, 22513  
"D00002", -51027, 31556
```

```

.....
"D00255",-34014,49643
"L00005",487256976,292296325,27,2,"000497","kavala-prinos"
"D00001",-248487,297845
"D00002",-20640,20520
""
"[Flaechen]"
"F00001",486997572,293803943,40,2,"000000",""
"D00001",415073,0
"D00002",0,17824
"D00003",7982,8900

.....
"D00255",0,8912
"F00004",487001569,292296385,75,3,"00011C","Xanti"
"D00001",5010795,0
"D00002",0,5965232
"D00003",-5010795,0
"[EndeDB]"

```

Only the strings are enclosed in "", all fields are separated with a comma.

### Section [DEF]

**Name=** String, the name of the **IMG/DBX** file (only comment)  
**Text=** String, the **map name**, used in MapSource  
**Max Nord=** Single, **boundary north** (in decimal degree)  
**Max Sued=** Single, **boundary south** (in decimal degree)  
**Max Ost =** Single, **boundary east** (in decimal degree)  
**Max West=** Single, **boundary west** (in decimal degree)

### Section [Punkte]

one line for each point (POI)

**P0020** String, **wpt name** (e.g. from OZI), six characters start with "P"  
you can have double name without problems

**490513516** Integer, **north/south** coordinate absolutely decimal  
North =  $490513516 / (2^{30}/90) = 41.11436795^\circ \text{ N}$        $(2^{30}/90)=11\ 930\ 464.71$   
Range from 1073741824 (0x40000000) =  $90^\circ \text{N}$  to -1073741824 (0xC0000000) =  $90^\circ \text{S}$

**294202778** Integer, **east/west** coordinate absolutely decimal  
East =  $294202778 / (2^{30}/90) = 24.65979198^\circ \text{ E}$   
Range from 2147483647 (0x7FFFFFFF) =  $180^\circ \text{E}$  to -2147483648 (0x80000000) =  $180^\circ \text{W}$

**25089** Integer, **point type** decimal (25089 = 0x6201 = altitude point, the label is the value in feet, don't use characters!) Range from 1 to 32767

**1** Integer, **maximum zone** decimal, you can see this point in zone 0 and 1 if you use the zones 0,1 and 2 by default. If you use lowest zone number = 1 (for World maps) when you create the IMG, you have the zones 1,2 and 3 and see this point only in zone 1.

In the DBX for the **general** map you must use 2,3 or 4 as maximum zone (3,4 or 5 for World).

The areas type **0x4B** (background) and **0x4A** (reference for detail maps) **must** have always the highest maximum zone (2 or 3 for detail and 4 or 5 for World), the best is you use for this areas in **all maps** always **6!**  
Range from 0 to 9

000053 String, label **offset**, only for MapDekode; If you create a DBX by hand use "FFFFFF"

3402 String, **label** of the point (in this case of point type = 0x6201 , 3402 is the altitude = 1037m)  
(for special characters see [A11 Special Codes for labels in MapDekode](#))

## POI's

POI's (point of interest) are normal point entries with a special label (**POI0D00000\$dionysos**...) and with extra information (facilities, like address, city, zip code, phone number).

**POI0D00000\$dionysos\$#12\$&road-1\$%Main City\$!60123\$@0234-79548-648\$\***

"POI" is a **marker**

"0D" is the **display style** of the address (see [A5 Description of the file POI.TXT](#))  
must be the same in all POI in this DBX

"00000" is the **poi number** (00000 = first POI, 00001 = second POI, ...)

"\$" is a **marker**

"dionysos\$#" is the **name** of the poi with his **end mark**

"12\$&" is the **house number** with his **end mark**

"road-1\$%" is the **street** name with his **end mark**

"Main City\$!" is the **city** with his **end mark**

"60123\$@" is **zip** code with his **end mark**

"0234-79548-648\$\*" is the **phone** number with his **end mark**

You must not use all fields (see second POI sample). The first field should be the name.

The order of the POI entries in the DBX isn't important, but important is the poi number and the name: they must be sorted first, by the first byte of the POI type (e.g. 2Axx), second by the name.

## Section [Orte]

one line for each city (for details see [Section \[Punkte\]](#))

000802 String, **wpt name** (e.g. from OZI), six characters start with "O" not zero  
you can have double name without problems

488035260 Integer, **north/ south** coordinate absolutely decimal = 40.90664294° N

294801640 Integer, **east/ west** coordinate absolutely decimal = 24.70998801° E

13 Integer, **city type** decimal, Range from 1 to 127

2 Integer, **maximum zone** decimal, you can see this city in zone 0,1 and 2

000115 String, label **offset**, only for MapDekode; If you create a DBX by hand use "FFFFFF"

**NEA KARIA** String, **label** of the city (for special characters see [A11 Special Codes for labels in MapDekode](#))

## Section [Linien]

one line for the first point of the polygon and one line for each delta point (1 up to 255)  
(for details see [Section \[Punkte\]](#))

L00001 String, **line** name, six characters start with "L"  
you can have double name without problems

492023686 Integer, **north/ south** coordinate absolutely decimal = 41.24094894° N

293377929 Integer, **east/ west** coordinate absolutely decimal = 24.59065394° E

20 Integer, **line type** decimal, Range from 1 to 63

2 Integer, **maximum zone** decimal, you can see this line in zone 0,1 and 2

000493 String, label **offset**, only for MapDekode; If you create a DBX by hand use "FFFFFF"

<b>Railroad</b>	String, <b>label</b> of the line (for special characters see <a href="#">A11 Special Codes for labels in MapDekode</a> ) For lines type 32 to 37 (0x20 to 0x25 = land / depth contour) this is the altitude in feet
<b>D00001</b>	String, <b>delta</b> point, six characters start with "D" from 1 to 255
<b>-64615</b>	Integer, <b>north/ south</b> coordinate relative decimal $\text{South} = -64615 / (2^{30}/90) = 0.005415966^{\circ}\text{S}$ Range depends on the used zone factor (maximum map size): e.g.: ZF = 17 is +/- 1.4° size So range is +/- 16702650 = +/- 1.4°
<b>22513</b>	Integer, <b>east/ west</b> coordinate relative decimal $\text{East} = 22513 / (2^{30}/90) = 0.002138474^{\circ}\text{E}$ Range depends on the used zone factor (maximum map size): e.g.: ZF = 17 is +/- 1.4° size So range is +/- 16702650 = +/- 1.4°

## Section [Flaechen]

one line for the first point of the polygon and one line for each delta point (1 up to 255)  
(for details see [Section \[Punkte\]](#))

<b>F00001</b>	String, <b>area</b> name, six characters start with "F" you can have double name without problems
<b>486997572</b>	Integer, <b>north/ south</b> coordinate absolutely decimal = 40.81966493° N
<b>293803943</b>	Integer, <b>east/ west</b> coordinate absolutely decimal = 24.62636202° E
<b>40</b>	Integer, <b>area type</b> decimal, Range from 1 to 127
<b>2</b>	Integer, <b>maximum zone</b> decimal, you can see this line in zone 0,1 and 2
<b>000000</b>	String, label <b>offset</b> , only for MapDekode; If you create a DBX by hand use "FFFFFFF"
<b>""</b>	String, <b>label</b> of the area (for special characters see <a href="#">A11 Special Codes for labels in MapDekode</a> )  For area type 75 (0x4B) this is the <b>map name</b>  For area type 74 (0x4A) this is the <b>reference</b> to the <b>detail</b> map: " <b>name-detail[1D]12345678</b> " and 12345678 is the detail map file name!
<b>D00001</b>	String, <b>delta</b> point, six characters start with "D" from 1 to 255
<b>415073</b>	Integer, <b>north/ south</b> coordinate relative decimal $\text{South} = 415073 / (2^{30}/90) = 0.034791016^{\circ}\text{N}$ Range depends on the used zone factor (maximum map size): e.g.: ZF = 17 is +/- 1.4° size So range is +/- 16702650 = +/- 1.4°
<b>0</b>	Integer, <b>east/ west</b> coordinate relative decimal $\text{East} = 0 / (2^{30}/90) = 0.0^{\circ}\text{E}$ Range depends on the used zone factor (maximum map size): e.g.: ZF = 17 is +/- 1.4° size So range is +/- 16702650 = +/- 1.4°

The minimum in a DBX database is the full section [DEF], the section [Flaechen] with the background (type 75) and the end mark [EndeDB].

## A3 Description of the control file AUTOGENMAP.DAT

If you want to use the function "Database / auto create a overview DBX from detail DBX" MapDekode need the file **AUTOGENMAP.DAT** in the same folder as the general DBX. You must create it by hand.

This file tells MapDecode which detail maps and which elements from this should be used for the new general DBX. A sample of the **AUTOGENMAP.DAT** file you can find in the sample project in the third SETUP file of MapDecode.

**Format:**

```
[DEF]
MINZONEU, 2
MINZONED, 0
NAME, Nord-ost-GR

[FILEIN]
C:\Mapdecode\Thassos\kavala_83\16711683.dbx
C:\Mapdecode\Thassos\drama_84\16711684.dbx
.....

[Punkte]
16FF, 1
17FF, 1
2F04, 2
.....

[Orte]
1, 2
2, 2
.....

[Linien]
1, 2
2, 2
.....

[Flaechen]
1, 2
2, 2
.....

[Ende]
```

In section **[DEF]**:

**MINZONEU** is the **lowest zone** number which you want to use for the **general** map (use 2 for R&R and 3 for World), range from 0 to 4. Use this value as **lowest zone** when you create the IMG.

**MINZONED** is the **lowest zone** number which you use in the **detail** maps (must be the same in all detail maps). For R&R use 0, for World 1. Use this value as **lowest zone** when you create the maps.

**NAME** this name is used as "TEXT" in the general DBX and as map name in the background area type 75 (0x4B) for the general DBX.

In section **[FILEIN]** there are the **full path and filenames** of all the used DBX from the **detail maps**.

In section **[Punkte]**, for each point type is a entry possible:

**16FF, 1** means: points from type 1600 – 16FF will used from the detail DBX and get the max-zone **3** in the general DBX (if you have **MINZONEU, 2** in the [DEF] ->  $2 + 1 = 3$ ).

**2F04, 2** means: points from type 2F04 will used from the detail DBX and get the max-zone **4** in the general DBX ( $2 + 2 = 4$ )

In section **[Orte]**, **[Linien]** and **[Flaechen]**, for each element type is a entry possible, same as in **[Punkte]**:

**2, 0** means: element type 2 will used DBX and get the max-zone **2** in the general DBX ( $2 + 0 = 2$ )

**Attention:** all element types are in HEX

**Attention:** MapDecode works as follows: 1.) read all [DEF] in all detail DBX and build the new [DEF] for the general DBX (new boundary, Text in the DBX = NAME from the **AUTOGENMAP.TXT**)  
2.) read point by point in the first detail DBX, check if the max-zone of the point is equal or greater as the largest zone from the detail map -> if not, read next point; if yes use this point and continue (if you use for the detail maps zone 0,1 and 2, then 0 is the lowest zone (**MINZONED**, 0 in [DEF] from the **AUTOGENMAP.TXT**) in the detail map and 2 is the largest zone. For a World detail 1 is the lowest and 3 is the highest zone).  
3.) check if for this point type exist an entry in the **AUTOGENMAP.TXT**, if not, read next point; if yes add the **MINZONU** and the **entry value** and write the point with the **new max-zone** to the general DBX.  
4.) do this for all elements in all detail DBX.

#### A4 Description of the file **FIND-CITY.TXT**

In the **FIND-CITY.TXT** you have the links between the cities [a region] and a country.  
MapDecode need these links to include the find city function in the general maps for MapSource.

You can also create and include such a file for the detail maps, then you can search on the GPS for these cities (test only with my GPSIII+).

You can edit this file with MapDecode or with a normal text editor.

Format:

##### [LBL2]

```
1,COUNTRY-A[1D]CTA
2,COUNTRY-B
```

##### [LBL3]

```
1,REGION1[1D]REG1,1
2,REGION3,2
3,REGION2[1D]REG2,1
```

##### [LBL4]

```
A_CITY1,2
B_CITY2,3
C_CITY4,C1
D_CITY5,1
E_CITY3,C2
```

In LBL2 you have all countries with their number.

In LBL3 you have all regions with their number and after the name the link to the country.

Regions and countries can have after the name and "[1D]" a short name form.

In LBL4 you have all cities, **alphabetic sorted**, with the link to a region or to a country.

**The spelling of the city names must be the same as in the DBX (and the source data).**

If you open the find window in MapSource you see (for this sample):

City	State	Country
-----		
A_City1	Region3	Country-B
B_City2	Reg2	CTA
C_City4		CTA
D_City5	Reg1	CTA
E_City3		Country-B

## A5 Description of the file **POI.TXT**

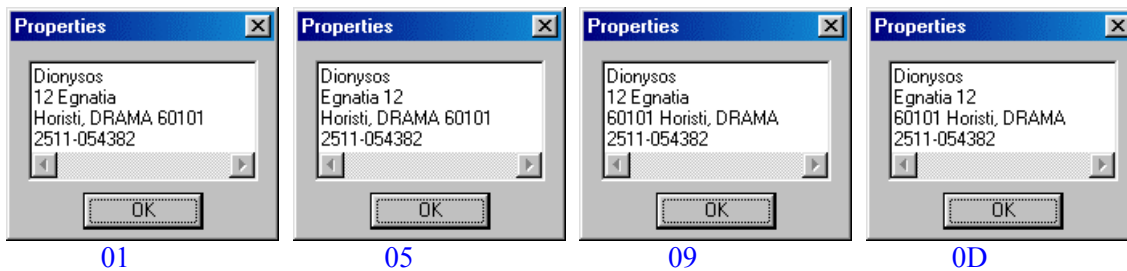
In the **POI.TXT** you can define all points with additional information. The file must be in the same folder as the corresponding detail DBX. You must create this file by hand. If you work with GTM you don't need this file, because you can include the POI's direct in GTM.

Format:

**[DEF]** , **0D**

```
2a01,41.1312,24.3412,1,dionysos,12,egnatia,HORISTI,60101,2511-054382
2b01,42.1234,24.5678,2,hotel xy,,,kavala,,511-28517
```

In [DEF] the display method is defined (**01**, **05**, **09** or **0D**). It decide the position of the house number and zip code.



This value is for all POI's in the detail map.

- 2a01** String, point type in hex (see [A6 Listing of the Point \(POI\) and City types](#)), **always four characters!**  
Only point type 29xx to 30xx and 64xx to 66xx are valid POI's (e.g. for "airport" use 2F04 not 590x).
- 41.1312** Single, north coordinate (decimal degree), same as in a Ozi source file
- 24.3412** Single, east coordinate (decimal degree), same as in a Ozi source file
- 1** Integer, max-zone (point is shown in zone 0 and 1 if available), same as in a DBX or Ozi source file
- dionysos** String, the label of the POI, normal label (see [A11 Special Codes for labels in MapDecode](#))
- 12** String, the house number, digits and letters allowed (e.g. 125A or 1A/3).  
some special house numbers:
- |                   |                   |
|-------------------|-------------------|
| 12- 3 → 12 # 3    | 12-43 → 12 FL 3   |
| 12-03 → 12 # 3    | 12-53 → 12 RM 3   |
| 12-13 → 12 APT 3  | 12-63 → 12 STE 3  |
| 12-23 → 12 BLDG 3 | 12-73 → 12 UNIT 3 |
| 12-33 → 12 DEPT 3 |                   |
- egnatia** String, street name (see [A11 Special Codes for labels in MapDecode](#))
- HORISTI** String, city, if not exist in the **FIND-CITY.TXT** you can't see it in the properties in MapSource. If defined in the **FIND-CITY.TXT** you see after the city name the region.
- 60101** String, zip code, digits and letters allowed.
- 2511-054382** String, phone number, only digits and "-" are allowed.

The label, the house number, the street name, the zip code and the phone number are optional.



## A6 Listing of the Point (POI) and City types

all values in Hex, for **cities** use only the **first byte** (e.g.: 0x06 not 0x0600)

From 0100 Up to 0600	large City name(Point, big)
From 0700 , 0800	medium City name(Point, middle)
From 0900 Up to 0E00	small City name (Point)
From 0C00 , 0F00	small Town name (Point)
From 1200 Up to 123F	Marine Service
From 1400 Up to 153F	Country name (no Point, big)
From 1E00 Up to 1E3F	State name (no Point, middle)
From 1F00 Up to 1F3F	County name (no Point, middle)
From 20xx	Exit (xx in Exit: 2^0=food; 2^1=fuel; 2^2=lodging; 2^3=truck stop; 2^4=medical)
From 21xx	Exit (with facilities)
From 22xx	Exit (Restroom)
From 23xx	Exit (Convenience Store)
From 24xx	Exit (Weight Station)
From 25xx	Exit (Tollbooth Booth)
From 26xx	Exit (Information)
From 27xx	Exit (small point)
From 2800 Up to 283F	Island name (no Point, small)
From 2900	Fire Station
From 2A00	Dining (Other)
From 2A01	Dining (American)
From 2A02	Dining (Asian)
From 2A03	Dining (Barbecue)
From 2A04	Dining (Chinese)
From 2A05	Dining (Deli/Bakery)
From 2A06	Dining (International)
From 2A07	Fast Food
From 2A08	Dining (Italian)
From 2A09	Dining (Mexican)
From 2A0A	Dining (Pizza)
From 2A0B	Dining (Sea Food)
From 2A0C	Dining (Steak/Grill)
From 2A0D	Dining (Bagel/Donut)
From 2A0E	Dining (Cafe/Diner)
From 2A0F	Dining (French)
From 2A10	Dining (German)
From 2A11	Dining (British Isles)
From 2A12	Specialty Food Products
From 2B00	Lodging (Other)
From 2B01	Hotel/Motel
From 2B02	Bed & Breakfast in
From 2B03	Camping/RV-Park
From 2B04	Resort
From 2C00	Attraction
From 2C01	Amusement Park
From 2C02	Museum/Historical
From 2C03	Libraries
From 2C04	Land Mark
From 2C05	School
From 2C06	Park
From 2C07	Zoo
From 2C08	Arena, Stadium(point)
From 2C09	Fair, Conference(point)
From 2C0A	Wine restaurant(point)
From 2C0B	Place of Worship
From 2C0C	Hot Spring
From 2D00	Entertainment
From 2D01	Theater
From 2D02	Bar
From 2D03	Movie
From 2D04	Casino
From 2D05	Golf
From 2D06	Skiing Center
From 2D07	Bowling
From 2D08	Ice/Sporting

From 2D09	<b>Swimming</b>
From 2D0A	<b>Sports (point)</b>
From 2D0B	<b>Public Sport Airport</b>
From 2E00	<b>Shopping</b>
From 2E01	<b>Department Store</b>
From 2E02	<b>Grocery</b>
From 2E03	<b>General Merchandiser</b>
From 2E04	<b>Shopping Center</b>
From 2E05	<b>Pharmacy</b>
From 2E06	<b>Convenience Store</b>
From 2E07	<b>Apparel</b>
From 2E08	<b>House &amp; Garden</b>
From 2E09	<b>Home Furnisher</b>
From 2E0A	<b>Specialty Retail</b>
From 2E0B	<b>Computer/Software</b>
From 2F00	<b>Generic Service</b>
From 2F01	<b>Fuel/Gas</b>
From 2F02	<b>Car Rental</b>
From 2F03	<b>Car Repair</b>
From 2F04	<b>Airport</b>
From 2F05	<b>Post Office</b>
From 2F06	<b>Bank</b>
From 2F07	<b>Car Dealer (point)</b>
From 2F08	<b>Bus Station</b>
From 2F09	<b>Marina</b>
From 2F0A	<b>Wrecker Service</b>
From 2F0B	<b>Parking</b>
From 2F0C	<b>Restroom/Tourist Information</b>
From 2F0D	<b>Automobile Club</b>
From 2F0E	<b>Car Wash</b>
From 2F0F	<b>"G" GARMIN Dealer</b>
From 2F10	<b>Personal Service</b>
From 2F11	<b>Business Service</b>
From 2F12	<b>Communications</b>
From 2F13	<b>Repair Service</b>
From 2F14	<b>Social Service</b>
From 2F15	<b>Utility</b>
From 2F16	<b>Truck Stop</b>
From 2F17	<b>Transit Service</b>
From 3000	<b>generic Emergency/Government</b>
From 3001	<b>Police Station</b>
From 3002	<b>Hospital</b>
From 3003	<b>Government (point)</b>
From 3004	<b>Justice</b>
From 3005	<b>Concert hall (point)</b>
From 3006	<b>Border Station (point)</b>
From 3007	<b>Government Office</b>
From 3008	<b>Fire Department</b>
From 4000 Up to 403F	<b>Golf</b>
From 4100 Up to 413F	<b>Fishing Spot</b>
From 4200 Up to 423F	<b>Wreck</b>
From 4300 Up to 433F	<b>Marina</b>
From 4400 Up to 443F	<b>Gas</b>
From 4500 Up to 453F	<b>Restaurant</b>
From 4600 Up to 463F	<b>Bar</b>
From 4700 Up to 473F	<b>Boat Ramp</b>
From 4800 Up to 483F	<b>Camping</b>
From 4900 Up to 493F	<b>Park</b>
From 4A00 Up to 4A3F	<b>Picnic Area</b>
From 4B00 Up to 4B3F	<b>First Aid</b>
From 4C00 Up to 4C3F	<b>Information</b>
From 4D00 Up to 4D3F	<b>Parking</b>
From 4E00 Up to 4E3F	<b>Restroom</b>
From 4F00 Up to 4F3F	<b>Shower</b>
From 5000 Up to 503F	<b>Drinking Water</b>
From 5100 Up to 513F	<b>Telephone</b>
From 5200 Up to 523F	<b>Scenic Area</b>
From 5300 Up to 533F	<b>Skiing</b>

From 5400	Up to 543F	Swimming
From 5500	Up to 553F	Dam
From 5600	Up to 563F	Controlled Area
From 5700	Up to 573F	Danger Area
From 5800	Up to 583F	restricted Area
From 5900		<b>Airport (Other)</b>
From 5901		large Airport
From 5902		medium Airport
From 5903		small Airport
From 5904		Heliport
From 5905	Up to 593F	Airport
From 5A00	Up to 5A3F	Mile Marker
From 5B00	Up to 5B3F	Bell
From 5C00	Up to 5C3F	Diving Area
From 5D00	Up to 5D3F	Daymark, Green Square
From 5E00	Up to 5E3F	Daymark, Red Triangle
From 5F00	Up to 5F3F	Point of Interest
From 6000	Up to 603F	Horn
From 6100	Up to 613F	House
From 62xx	Depth without point	in feet or meter (62012\$147m)
From 63xx	Height with point	in meter or feet (62012\$482)
From 6400		<b>Manmade Feature</b>
From 6401		Bridge
From 6402		Building
From 6403		Cemetery
From 6404		Church
From 6405		Civil
From 6406		Crossing
From 6407		Dam
From 6408		Hospital
From 6409		Levee
From 640A		Locale
From 640B		Military
From 640C		Mine
From 640D		Oil Field
From 640E		Park
From 640F		Post
From 6410		School
From 6411		Tower
From 6412		Trail
From 6413		Tunnel
From 6414		Drink water
From 6415		Ghost Town
From 6416		Subdivision
From 6500		<b>Water Feature</b>
From 6501		Arroyo
From 6502		Sand Bar
From 6503		Bay
From 6504		Bend
From 6505		Canal
From 6506		Channel
From 6507		Cove
From 6508		Falls
From 6509		Geyser
From 650A		Glacier
From 650B		Harbor
From 650C		Island
From 650D		Lake
From 650E		Rapids
From 650F		Reservoir
From 6510		Sea
From 6511		Spring
From 6512		Stream
From 6513		Swamp
From 6600		<b>Land Feature</b>
From 6601		Arch
From 6602		Area
From 6603		Basin

From 6604	<b>Beach</b>	
From 6605	<b>Bench</b>	
From 6606	<b>Cape</b>	
From 6607	<b>Cliff</b>	
From 6608	<b>Crater</b>	
From 6609	<b>Flat</b>	
From 660A	<b>Forest</b>	
From 660B	<b>Gap</b>	
From 660C	<b>Gut</b>	
From 660D	<b>Isthmus</b>	
From 660E	<b>Lava</b>	
From 660F	<b>Pillar</b>	
From 6610	<b>Plain</b>	
From 6611	<b>Range</b>	
From 6612	<b>Reserve</b>	
From 6613	<b>Ridge</b>	
From 6614	<b>Rock</b>	
From 6615	<b>Slope</b>	
From 6616	<b>Summit</b>	
From 6617	<b>Valley</b>	
From 6618	<b>Woods</b>	
From 6E00 Up to 6F3F	<b>Navaid</b>	
From 7000 Up to 703F	<b>Danger Area</b>	
From 7100 Up to 713F	<b>Navaid</b>	
'*****'		
'Nautical 1601 to 1D01		
From 1B01, 1A01, 1901, 1801, 1701, 1601	<b>Fog Horn</b>	
From 1B02, 1A02, 1902, 1802, 1702, 1602	<b>Radio Beacon</b>	
From 1B03, 1A03, 1903, 1803, 1703, 1603	<b>Racon</b>	
From 1B04, 1A04, 1904, 1804, 1704, 1604	<b>Daybeacon, red Triangle</b>	
From 1B05, 1A05, 1905, 1805, 1705, 1605	<b>Daybeacon, green Square</b>	
From 1B06, 1A06, 1906, 1806, 1706, 1606	<b>Daybeacon, white Diamond</b>	
From 1B07, 1A07, 1907, 1807, 1707, 1607	<b>unlit Navaid, white</b>	
From 1B08, 1A08, 1908, 1808, 1708, 1608	<b>unlit Navaid, red</b>	
From 1B09, 1A09, 1909, 1809, 1709, 1609	<b>unlit Navaid, green</b>	
From 1B0A, 1A0A, 190A, 180A, 170A, 160A	<b>unlit Navaid, black</b>	
From 1B0B, 1A0B, 190B, 180B, 170B, 160B	<b>unlit Navaid, yellow or amber</b>	
From 1B0C, 1A0C, 190C, 180C, 170C, 160C	<b>unlit Navaid, orange</b>	
From 1B0D, 1A0D, 190D, 180D, 170D, 160D	<b>unlit Navaid, multi colored</b>	
From 1B0E, 1A0E, 190E, 180E, 170E, 160E	<b>Navaid, unknown</b>	
From 1B0F, 1A0F, 190F, 180F, 170F, 160F	<b>lighted Navaid, white</b>	
From 1B10, 1A10, 1910, 1810, 1710, 1610	<b>lighted Navaid, red</b>	
From 1B11, 1A11, 1911, 1811, 1711, 1611	<b>lighted Navaid, green</b>	
From 1B12, 1A12, 1912, 1812, 1712, 1612	<b>lighted Navaid, yellow or amber</b>	
From 1B13, 1A13, 1913, 1813, 1713, 1613	<b>lighted Navaid, orange</b>	
From 1B14, 1A14, 1914, 1814, 1714, 1614	<b>lighted Navaid, violet</b>	
From 1B15, 1A15, 1915, 1815, 1715, 1615	<b>lighted Navaid, blue</b>	
From 1B16, 1A16, 1916, 1816, 1716, 1616	<b>lighted Navaid, multi colored</b>	
From 1C00	<b>unclassified Obstruction</b>	
From 1C01	<b>Wreck</b>	
From 1C02	<b>submerged Wreck, dangerous</b>	
From 1C03	<b>submerged Wreck, non-dangerous</b>	
From 1C04	<b>Wreck, cleared by Wire-drag</b>	
From 1C05	<b>Obstruction, visible at high Water</b>	
From 1C06	<b>Obstruction, awash</b>	
From 1C07	<b>Obstruction, submerged</b>	
From 1C08	<b>Obstruction, cleared by Wire-drag</b>	
From 1C09	<b>Rock, awash</b>	
From 1C0A	<b>Rock, submerged at low Water</b>	
From 1C0B	<b>Sounding</b>	
From 1C0C	<b>Airplane</b>	
(From 1Dxx	<b>Tide Prediction)</b>	not supported in MapDecode

## A7 Listing of the Line types

all values in Hex

01=**Major HWY** (blue [255] thickly)  
02=**Principal HWY** (red [255] thickly)  
03=**Principal HWY** (red [255] means)  
04=**Arterial Road** (black [0] means)  
05=**Arterial Road** (black [0] thinly)  
06=**Road** (gray [64] thinly)  
07=**Alley** (gray [64] thinly)  
08=09=**Ramp** (gray [128] thickly)  
0A=**Unpaved Road** (gray [64] thinly)  
0B=**Major HWY Connector** (gray [64] thickly)  
0C=**Roundabout** (black [0] thinly)  
14=**Railroad** (black [0] thinly)  
15=**Shoreline** (black [0] thinly)  
16=**Trail** (black [0] thinly)  
18=**Straem** (blue [63,152,255] thinly)  
19=**Time-Zone** (Boundary (black [192] means)  
1A=1B=**Ferry** (black [0] thinly)  
1C=**Political Boundary** (gray [192] means)  
1D=**Conty Boundary** (gray [192] means)  
1E=**Intl. Boundary** (gray [192] means)  
1F=**River** (blue [63,152,255] thinly)  
20=**Land Contour** (thinly) Height **in feet or meter (201\$200m)**  
21=**Land Contour** (means) Height ...  
22=**Land Contour** (thickly) Height ...  
23=**Depth Contour** (thinly) Depth ...  
24=**Depth Contour** (means) Depth ...  
25=**Depth Contour** (thickly) Depth **in meter or feet (251\$656)**  
26=**Intermittend River** (blue [63,152,255] thinly)  
27=**Airport Runway** (black [0] thinly)  
28=**Pipeline** (black [0] thinly)  
29=**Powerline** (black [0] thinly)  
2A=**Marine Boundary** (none line)  
2B=**Marine Hazard** (none line)

## A8 Listing of the Area types

all values in Hex

01=02=03=**City** (gray [230])  
04=**military** (white[255])  
05=**parking lot** (white[255])  
06=**parking garage** (white[255])  
07=**Airport** (white[255])  
08=**shopping center** (white[255])  
09=**marina** (white[255])  
0A=**University** (white[255])  
0B=**Hospital** (white[255])  
0C=**Industrial** (white[255])  
0D=**Reservation** (white[255])  
0E=**Airport Runway** (gray[128]) (not GPSIII+)  
14-16=**Nationalpark** (Gr)  
17=**city park** (Gr)  
18=**golf** (Gr)  
19=**sport** (Gr)  
1A=**Cemetary** (Gr)  
1E,1F,20=**State park** (Gr)  
28=**Ocean** (blue)  
29,3B,45=**blue-Unknown**  
32=**sea** (blue)  
3C-44=**Lake** (blue)  
41=**small Lake** (blue)  
46-49=**River** (blue)  
4A=**Definition area** for detail map, only in the general map available, in the  
text field: name-detail-map[1D]069nnnnn  
4B=**Backgroundarea**

4C=Intermittent River/sheet (blue)  
 4D=Glaciers (blue)  
 4E=Orchard  
 4F=Scrub  
 50=woods  
 51=wetland  
 52=Tundra  
 53=Flat  
 54=Area

## A9 Character set for labels







0 – 9 shown as 0 - 9

A – Z and a - z shown as A – Z

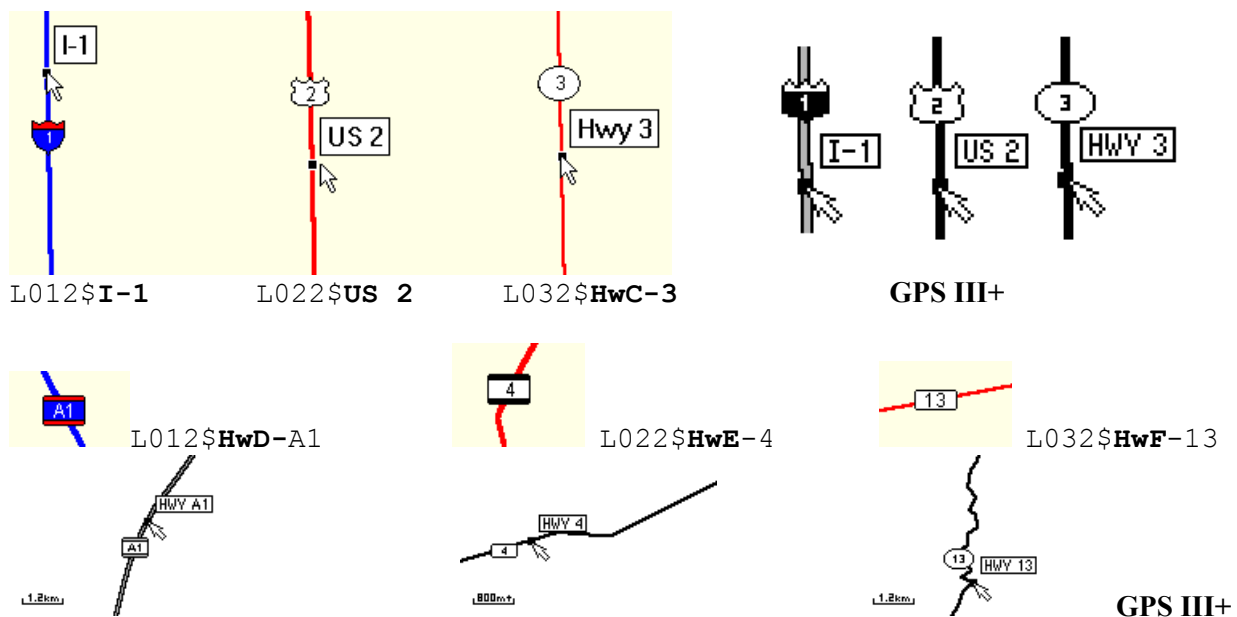
[1B]a – [1B]z shown as a - z

@ ! # \$ % & ' ( ) \* + , - . / : ; < = > ? [ \ ] ^ \_ shown as @ ! # \$ % & ' ( ) \* + , - . / : ; < = > ? [ \ ] ^ \_

## A10 Special characters for roads

"I-"	Interstate Highway	(name: only digits)	
"US "	US-Road	(name: only digits)	
"HwC-"	Highway character oval	(name: only digits)	
"HwD-"	Highway - big symbol	(name: letters and digits)	
"HwE-"	Main Road - middle symbol	(name: letters and digits)	
"HwF-"	Road - small symbol	(name: letters and digits)	

Next we see an example of how the label of a highway is visualized in the MapSource when the track has the following description:



## A11 Special Codes for labels in MapDekode

These special codes can be used anywhere in a label:

"[1B]n" n will displayed on the GPS as minuscule e.g. r[1B]i[1B]v[1B]e[1B]r -> **River**

">" code=**155** (0x9B) word separator, you see the **second** word e.g. Rue d'Italy -> **ITALY**

"<" code=**139** (0x8B) -||-, you see the first word e.g. BAHNHOF<STRASSE -> **BAHNHOF**

if you drag the cursor on the object you see **RUE D'ITALY / BAHNHOFSTRASSE**

">>" code=**187** (0xBB) -||-, you see the second word e.g. CALLE>>MAYOR -> **MAYOR**

"<<" code=**171** (0xAB) -||-, you see the first word e.g. ALTE<<STRASSE -> **ALTE**

if you drag the cursor on the object you see **CALLE MAYOR / ALTE STRASSE**

It depends also on the zoom level whether you see only a part of the name or the whole name.

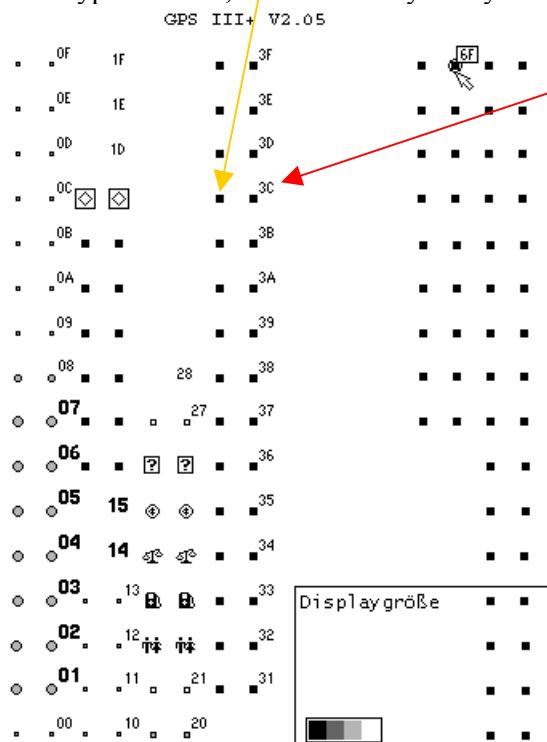
### ***A12 Picture how the GPSIII+ display the areas***

From type 00 to 7F, left in each field the shown type without a label and right the type as label.

UNKNOWN 00	UNKNOWN	PARK 20	UNKNOWN	LAKE 40	WOODS 50	UNKNOWN	UNKNOWN
CITY	UNKNOWN	UNKNOWN	UNKNOWN	SMALL LAKE 41	WETLAND 51		
CITY	UNKNOWN	UNKNOWN	OCEAN/SEA 32	LAKE 42	TUNDRA 52		
CITY	MAN-MADE AREA 13	UNKNOWN	UNKNOWN	LAKE 43	FLAT 53		
MILITARY BASE 04	PARK 14	UNKNOWN	UNKNOWN	LAKE 44	UNKNOWN		
PARKING LOT 05	PARK 15	UNKNOWN	UNKNOWN	UNKNOWN			
PARKING GARAGE 06	PARK 16	UNKNOWN	UNKNOWN	RIVER 46			
AIRPORT 07	PARK 17	UNKNOWN	UNKNOWN	RIVER 47			
SHOPPING CENTER 08	GOLF COURSE 18	OCEAN/SEA 28	UNKNOWN	RIVER 48			
MARINA 09	SPORTS COMPLEX 19	UNKNOWN	UNKNOWN	RIVER 49			
UNIVERSITY 0A	CEMETERY 1A	UNKNOWN	UNKNOWN	UNKNOWN			
HOSPITAL 0B	UNKNOWN	UNKNOWN	UNKNOWN				
INDUSTRIAL COMPLEX 0C	UNKNOWN	UNKNOWN	LAKE 3C	INTERMITTENT WATER 4C			
RESERVATION 0D	UNKNOWN	UNKNOWN	LAKE 3D	GLACIER 4D			
UNKNOWN	PARK 1E	UNKNOWN	LAKE 3E	ORCHARD 4E			
UNKNOWN	PARK 1F	UNKNOWN	LAKE 3F	SCRUB 4F			

### A13 Picture how the GPSIII+ display the cities

From type 00 to 7F, left in each city the symbol without a label and right the symbol with label.



Display size and gray scale of the GPSIII+

### A14 Picture how the GPSIII+ display the lines

From type 00 to 2B, left over land without a label and right over the sea with label.

#### Linientypen des GPS III+

Über Land	Über Wasser	Über Land	Über Wasser
Road 00		Trail 16	
Road 01		Unknown 17	
Road 02		Stream 18	
Road 03		Unknown 19	
Road 04		Ferry 1A	
Road 05		Ferry 1B	
Road 06		St/Prv Border 1C	
Road 07		County Border 1D	
Alley 08		Intl Border 1E	
Ramp 09		River 1F	
Ramp 0A		Contour Line 6 20	
Unpaved Road 0B		Contour Line 6 21	
Road 0C		Contour Line 7 22	
Roundabout 0D		Contour Line 7 23	
Unknown 0E		Contour Line 7 24	
Unknown 0F		Contour Line 8 25	
Unknown 10		Intermittent Stream 26	
Unknown 11		Runway 27	
Unknown 12		Pipeline 28	
Unknown 13		Powerline 29	
Railroad 14		Unknown 2A	
Unknown 15		Unknown 2B	

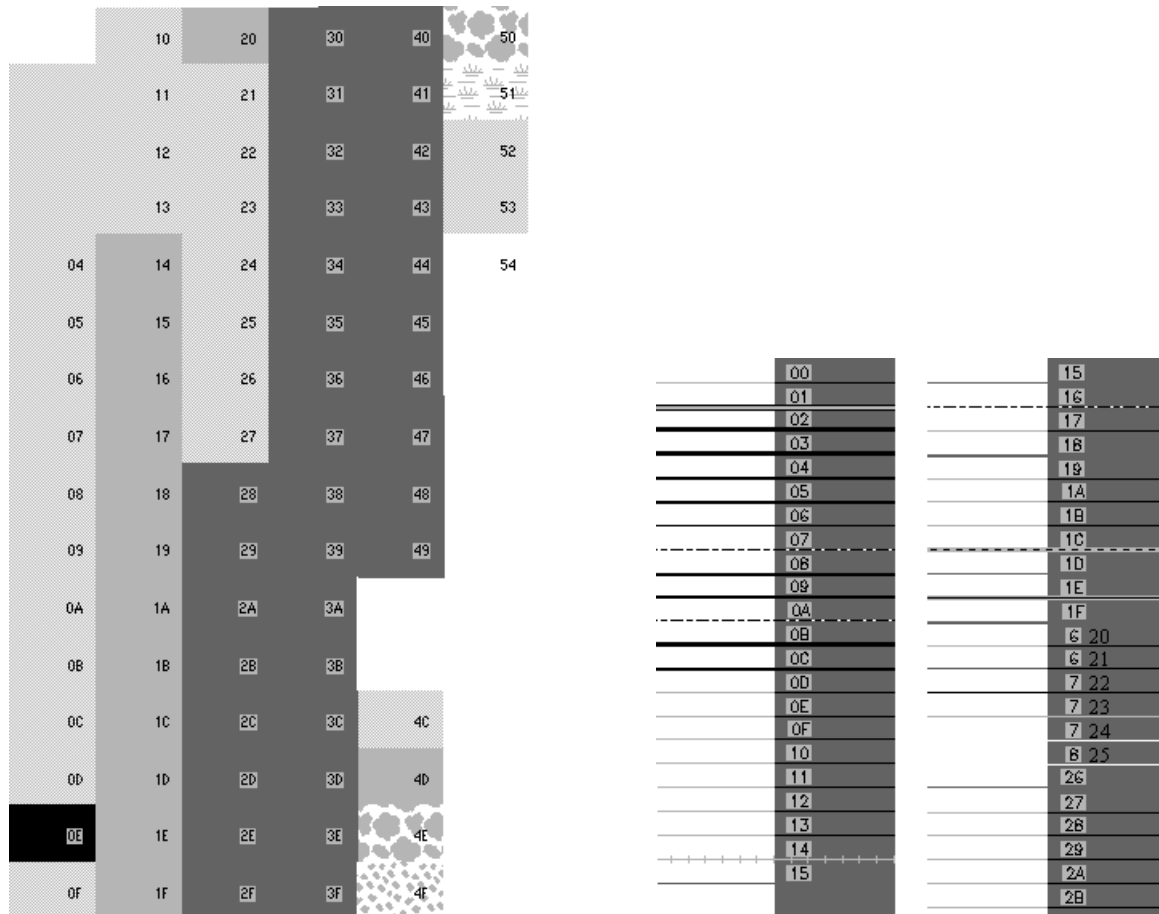
#### Graustufen:



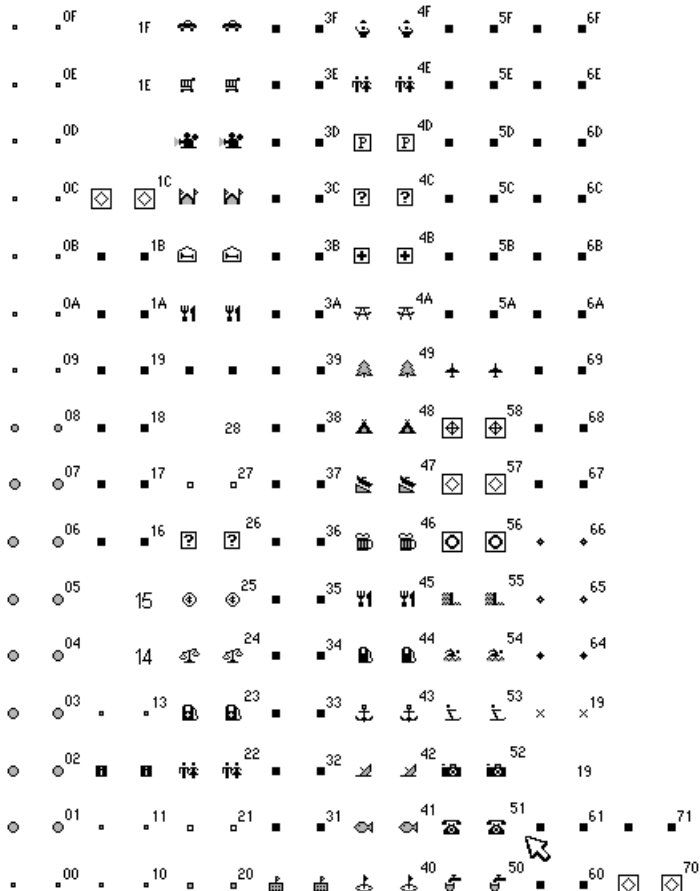
The line type 1A and 1B (ferry) you can't see over the sea ☹ this is a software bug in the GPSIII+. I have made a patch for the versions 2.05 and 2.06 (only GPSIII+) to show the ferry as railroad so that you can see it. If somebody need this patched version send me a e-mail.



## A15 Picture how the GPSV display the areas and lines



## A16 Picture how the GPSV display the cities



## A17 Picture how the GPSV display points

Points 16xx - 1Cxx Navaid's	Points 2Axx - 30xx = POI Range	Points 64xx - 66xx
1616  1716  1816  1916  1A16  1B16  1C16	xx17	6418  6518  6618
1615  1715  1815  1915  1A15  1B15  1C15	xx16	6417  6517  6617
1614  1714  1814  1914  1A14  1B14  1C14	xx15	6416  6516  6616
1613  1713  1813  1913  1A13  1B13  1C13	xx14	6415  6515  6615
1612  1712  1812  1912  1A12  1B12  1C12	xx13	6414  6514  6614
1611  1711  1811  1911  1A11  1B11  1C11	xx12	6413  6513  6613
1610  1710  1810  1910  1A10  1B10  1C10	xx11	6412  6512  6612
160F  170F  180F  190F  1A0F  1B0F  1C0F	xx10	6411  6511  6611
160E  170E  180E  190E  1A0E  1B0E  1C0E	xx0F	6410  6510  6610
160D  170D  180D  190D  1A0D  1B0D  1C0D	xx0E	640F  650F  660F
160C  170C  180C  190C  1A0C  1B0C  1C0C	xx0D	640E  650E  660E
160B  170B  180B  190B  1A0B  1B0B  1C0B	xx0C	640D  650D  660D
160A  170A  180A  190A  1A0A  1B0A  1C0A	xx0B	640C  650C  660C
1609  1709  1809  1909  1A09  1B09  1C09	xx0A	640B  650B  660B
1608  1708  1808  1908  1A08  1B08  1C08	xx09	640A  650A  660A
1607  1707  1807  1907  1A07  1B07  1C07	xx08	6409  6509  6609
1606  1706  1806  1906  1A06  1B06  1C06	xx07	6408  6508  6608
1605  1705  1805  1905  1A05  1B05  1C05	xx06	6407  6507  6607
1604  1704  1804  1904  1A04  1B04  1C04	xx05	6406  6506  6606
1603  1703  1803  1903  1A03  1B03  1C03	xx04	6405  6505  6605
1602  1702  1802  1902  1A02  1B02  1C02	xx03	6404  6504  6604
1601  1701  1801  1901  1A01  1B01  1C01	xx02	6403  6503  6603
1600  1700  1800  1900  1A00  1B00  1C00	xx01	6402  6502  6602
1600  1700  1800  1900  1A00  1B00  1C00	xx00	6401  6501  6601
	2A 2B 2C 2D 2E 2F 30	6400  6500  6600