

# MapDekode User's Technical Manual

An creator of maps and projects for the  
MapSource of Garmin

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## **1.- Introduction**

These notes seek to explain the operation of the program MapDekode. As you will know, this program is good to edit and create maps of the MapSource of Garmin and it has been created in Austria and distributed later in Internet through some matters, especially the group of Mary's Sanders CrackSource, in its first versions and later on by means of the group of Yahoo MapSource\_UG. The version of the program MapDekode to which makes reference this manual is 4.4.4. The program includes different text files that allow to obtain the menus of user's interface in the German languages, English, French and Spanish. If somebody produce a text file (msgtext.dat) in a new language (by changing all text), or have corrections for the existing, please send it to the author (mapdekode@gmx.net).

The application has been developed under Visual Basic 6 and you can get the source code as well asking it to the author.

The first issue of this manual was wrote by a Spanish man, and now I'm doing the English translation putting here all the new changes the author has included that makes MapDekode much better for the final goal.

### **Other sources of information**

The other sources of information of the program MapDekode are included with the own program. Once installed, we can see in the installation directory the text files:

|                         |   |
|-------------------------|---|
| MapDekode-Docu.txt      | -> basic documentation of MapDekode (in English)          |
| MapDekode-Docu_de.txt   | -> basic documentation of MapDekode (in German)           |
| IMG-Docu-Bannesdorf.txt | -> Information of the detail Maps IMG (in German)         |
| TDB-Docu-Germany.txt    | -> Information has more than enough files TDB (in German) |

In the aforementioned address of the Yahoo Group, there are two complete projects of example: Thassos and Slzkmrgt. You'll get Thassos already included with the program as well.

### **Limitations and well-known problems of the program**

The program can only create MapSources of the type **Road & Recreations** (versions till December 2K1 year. We have not check yet with the newest versions), although it recognizes the WorldMap and the Metroguide and allows to see its contents. MapDekode doesn't work at all with neither of the City Navigator or City Select in the way to built up maps, but it will decompile the new Garmin maps.

The program works perfectly with all the versions of MapSource. Nevertheless, the versions of later MapSource at 3.06, carry out a comparison of the files that it will upload to the GPS unit with the

references of these sizes included in the corresponding TDB file. If this references don't coincide, the program MapSource gives an error message and it doesn't carry out the load from the maps to the GPS.

This generation process will be explained later on.

## **2.- General vision of the MapDekode**

To all the owners of a Garmin's GPS has happened us that in some occasion we have wanted to modify the information of the maps of the MapSource, either to correct the name of a city that is not well written, or to add the street where we live or even to remove spare information and to get maps that take less space. The program MapDekode comes to offer this and even more, because it allows us to create our own MapSources beginning from zero, for example, creating a Portugal MapSource or a Morocco MapSource. Another interesting possibility is to join in one alone the maps of two different MapSources, for example to add the rivers of MapSource WorldMap to the more detailed MapSource Sp R&R\_Spain. Hikers can even create favourite mountainous TOPO maps of their solid ones with information of bench marks and curved of level.

The only necessary tools for this are: the own program MapDekode that can be gotten, so much, gratuitously in Internet, any MapSource of Garmin and the program OziExplorer of edition of routes and Waypoints, available gratuitously in their version shareware in the original address [www.ozieplorer.com](http://www.ozieplorer.com). If what we want is to create our own MapSources we will need to have scanned geo-maps and gauged appropriately of the area that interests us.

Those people related with the computer science's world and the programming will understand the following definition easily: *"The MapDekode is a compiler of tracks files and waypoints from OziExplorer to a file IMG of map of the MapSource; the program can also work in inverse sense and to decompile IMG of map of the MapSource in the tracks and waypoint files of OziExplorer that compose it."*

Let us give an example. Let us suppose that I want to modify the name of a street of Valladolid of the MapSource R&R\_Spain and also to correct the incorrect position of the airport. The steps to continue, although they will be studied later on in depth, would be the following ones: to locate the file detail IMG that it contains the area of Valladolid in the MapSource Spain R&R, to take this file and to copy it in a working directory. By means of the MapDekode decompile in the files of OziExplorer that compose it. This will give a series of tracks files as a result (\*. PLT) with the highways, freeways, parks, lakes, rivers,... and other waypoints files (\*. WPT) with the cities, towns and points of interest. Arrived to this point, we can open these files with the OziExplorer. This program has a long series of tools that we won't comment here to be clearly exposed in the help of the own program that you/they will allow us to modify, to create or to erase anyone of the accidents of the previous land. In the example that occupies us we would limit ourselves to modify the Waypoint corresponding to the airport and the track corresponding to

the street, although we could make many but you sew, so many as the OziExplorer it allows us, for example to include our own waypoints of bars and favourite restaurants or to review a street map of the city creating a track for each street. Ended this process, we will keep the tracks files and as amended waypoints. Now it is the moment to use the MapDekode again, we will indicate the folder where they are located the files of OziExplorer that compose the map, as much the originals as the as amended ones or added by us, we will press a button and magically, after some working seconds, the MapDekode generates a new file IMG with the as amended map. Now it is enough to overwrite with this new IMG file the original of Garmin. Let us enter there in the MapSource and marvel of the marvels!! we will have all the modifications made to the map. This map can be loaded in the GPS in the habitual way. If we want to continue modifying characteristic to the map we only have modify the files of OziExplorer that are in the working folder again and when we have finished generate the file IMG again.

NOTE: if you decompile a original IMG to OziExplorer files, and generate from these Ozi files a new IMG without changing any file, the new IMG will be greater than the original one. The reason is, MapDekode use a simpler algorithms to create sub zones (in TRE) and to build the zoom level 1 and 2 from the data in zoom level 0 (DBX). The original algorithms from Garmin is not known. e.g.: original 06909937.img is 105 Kbytes, the new is 117 Kbytes. The maximum size of a new IMG is 1 Mbytes.

### **3.- Understanding Garmin's MapSource**

Before beginning MapDekode it is necessary "to know the enemy", that is to say to know something about of the MapSource of Garmin. I give of course that one has a basic knowledge of the program of Garmin to visualize, to load maps to the GPS, etc... If a normal installation of the MapSource has been made, we are with which it is necessary to introduce the CD every time that we enlarge a map. This is this way because each MapSource is composed of several files IMG, some are a general vision of the map and if that are copied to the hard disk during the installation. The detail files remain in the CD and for that reason it is necessary to introduce it in the unit when enlarging with the Zoom determined area. The first step to publish a MapSource is to copy those files from the CD to the hard disk and later to inform the MapSource of the new location of the detail files.

If we have accepted the default securities during the installation of the MapSource, the program will be installed in the directory `C:\Program Files\Garmin\MapSource`. In this location it will place default the general maps. This way, if we have installed the MapSource WorldMap we will see in this directory a called file `WorldMap.img` that is the General map and another called file `WorldMap.tdb` that is the project file. For the case of the MapSource Spain R&R the files will be `rr_spain.img` and `rr_spain.tdb`.

The file TDB contains general information about the map, such as its name, the parts that compose it, the size of the detailed maps and so on. You should note here that each time you add information to one of the originals detailed maps of Garmin, the size of this file increase depending the amount of information you add and the zoom factor you choose for this information. And the end of the modification, the new

size of the file doesn't match the size for the same IMG on the TDB file, so even you will be able to see your modifications with the MapSource viewer, you can't upload you new IMG to your GPS unit. To solve that, you have to remake the TDB, as we will see later on.

On the other hand the files IMG contains the real information of the map, highways, cities, lakes and rivers, points of interest, etc...

The detail maps also have extension IMG and, for the time being, they remain located in the CD-ROM. how does the MapSource know the location about each one of these three types of files: project file (TDB), file of general map (IMG) and files of detail maps (IMG)?, and it is more important how we can change it?

#### **4.- Working MapSource without the CD**

The answer is in the registration of Windows. We have to launch the utility of Windows of visualization of the registration of the system. For we press it the Button Beginning -> to Execute -> and we write in the window the word **regedit**. If we make this in a computer where this installed the MapSource, we will meet with a branch with similar information to the following one:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Garmin\MapSource\Products]
"InstallDir" = " C:\Program Files\Garmin\MapSource"

[HKEY_LOCAL_MACHINE\SOFTWARE\Garmin\MapSource\Products\30]
"Bmap" = " C:\Program Files \Garmin\MapSource\RR_Spain.img"
"Tdb" = " C:\Program Files\Garmin\MapSource\RR_Spain.tdb"
"Loc" = " D:\Spain\RR_Spain"

[HKEY_LOCAL_MACHINE\SOFTWARE\Garmin\MapSource\Products\5]
"Bmap" = " C:\Program Files \Garmin\MapSource\WorldMap.img"
"Tdb" = " C:\Program Files \Garmin\MapSource\WorldMap.tdb"
"Loc" = " D:\WorldMap\WorldMap"
```

how is this information interpreted? It is very simple, in this example we are seeing that we have installed two products MapSource. The MapSource 30 (that corresponds the Spain R&R) and the MapSource 5 (corresponding to the MapSource WorldMap). The number of the project is arbitrary. When we built up our own MapSources we will be able to use any project number, with the only caution of not using any already used number by Garmin (there is a list of the reserved numbers in the document TDB-Docu-Germany.txt). The really important thing is the three keys of the registration: Bmap, Tdb and Loc. Each one of them is the route and the name of the file of the general map, of the file of the project and the folder where the files of detail of the map are located. How it can it turns, the key Loc this pointing to a localization in the CD-ROM, that it is the reason that the program requests the CD every time that we enlarge a map.

To have installed the MapSource entirely in the hard disk, indispensable thing to be able to publish it with the MapDekode, we will copy the folder with the detail maps from the CD to a location decided by ourselves in the hard disk. In the rest of the examples of these instructions it was opted to place it like a folder of `C:\Program Files \Garmin\MapSource\`, that is to say that for the MapSource R&R\_Spain the folder `D:\Spain\RR_Spain` was copied entirely in the location of the hard disk `C:\Program Files \Garmin\MapSource\RR_Spain`. After this copy operation, it is necessary to inform the MapSource of the new location of the files. This gets it using again REGEDIT of Windows. This time, besides visualizing the branches of the previous registration we will modify the key LOC and we will change their value previous of

`D:\Spain\RR_Spain`

to

`C:\Program Files \Garmin\MapSource\RR_Spain`

Finished this operation, we can check that we can execute the program MapSource and that it is no longer necessary to introduce the CD-ROM when making zoom on a part of the map.

All the explanations that we will see next on the program MapDekode will go guided to modify a file of one of these three types: The file of the project (TDB), the general map (IMG) or one of the detail maps (IMG). We must always have very present the location of these files, as well as to make backup copies of the same ones if we believe it necessary.

A last note, the files copied from the CD-ROM have activated the attribute of read only, is advisable to remove them this attribute pressing the right button of the mouse, choosing estate and unmarking the read only stall. This way we will be able to modify them with the MapDekode.

## **5.- Working with the example of the MapDekode: Nord-Ost Griechenland-THASSOS**

Start the file **samples.exe** in the MapDekode folder to extract the sample. After the installation, you'll get the folder `\Samples\maps` which contains an example of a MapSource created entirely with the program. I consider interesting to explain how to put to work this example, so that we can visualize it with the program MapSource of Garmin and to load it in the GPS.

If we study the directory `\Samples\Maps` will see the four parts that composes it:

- Kavala
- Overview
- Thassos
- Xanti

Thassos is a small island of the Mediterranean that is also included MapSource WorldMap but that in this project it appears with a lot more details. The following are the files and their allocation:

The project's file is `\samples\maps\Thassos.tdb`

The overview or general map: `\samples\maps\Thassos1.img` ( the 1 are necessary because obligatorily it has to have a name of eight letters)

The files of the detail maps are `\samples\maps\16711681.img` ,  
`\samples\maps\16711682.img` and  
`\samples\maps\16711683.img`

In order to work with this example, it is necessary to put all this files in to the right folders, so copy the `Thassos1.img` and `Thassos.tdb` to the folder where MapSource is:

```
C:\Program Files\Garmin\MapSource
```

On the other hand the files corresponding to the detailed maps (`16711681.img`, `16711682.img` and `16711683.img`) must be copied in a new folder, let's see:

```
C:\Program Files\Garmin\MapSource\Thassos
```

Finished this relocation of the files how we put to work the MapSource Thassos?, because it is necessary to register it of one in these two ways, the form "manual" or to use the program MapDekode:

First possibility: to Register the project in a manual way. It is only necessary to introduce in the registration of Windows the securities of the corresponding routes. We will execute the REGEDIT and we will create the branch 100 (must correspond with the used project number in `thassos.tdb`) and the following keys in the registration, I backslide in that the suitable routes are so alone an example, because as we have seen we can use any location of our hard disk, but these they are those that I recommend:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Garmin\MapSource\Products\100]
"Tdb" = " C:\Program Files \Garmin\Mapsource\thassos.tdb"
"Bmap"=" C:\Program Files \Garmin\Mapsource\thassos1.img"
"Loc" = " C:\Program Files \Garmin\Mapsource\thassos"
```

making this, we indicate the MapSource that there is a new installed map. The 100 is the number of the project and the routes indicate it the location of the different files that will point to the real location in each case where it has been copied the files of the directory `\samples`. If now we pull up the MapSource of Garmin, we will see that the MapSource Thassos is already available and we will be able to explore it, as we see in Fig.1

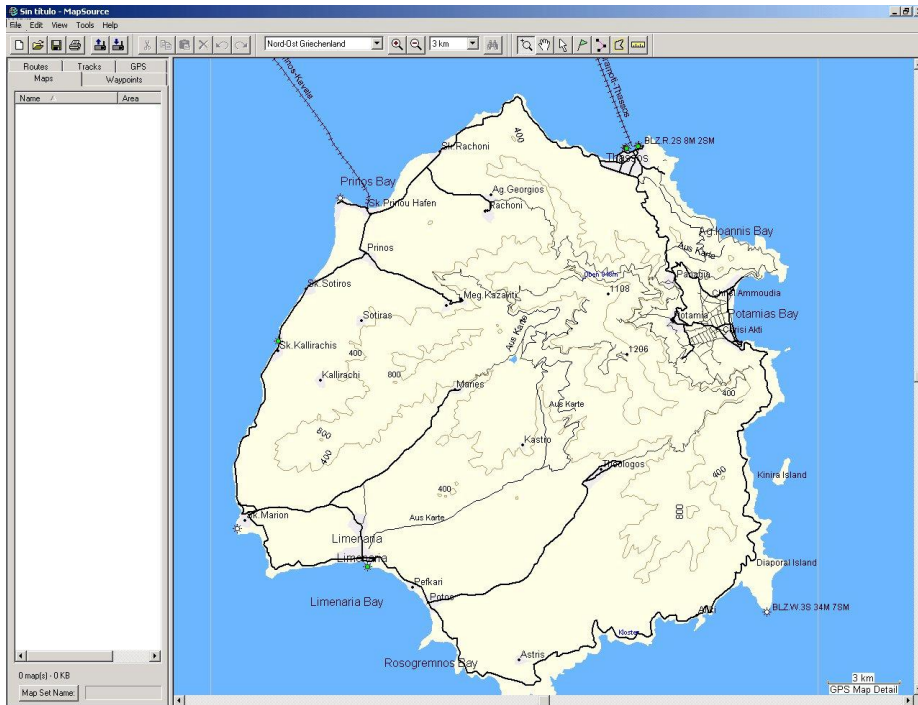


Fig.1

Second possibility: to Register the project with the program MapDekode. This is another method something quicker than the previous one. We pull up the program MapDekode and we choose the menu option Project. We get into the Project's User interface that makes it to spread the window of the project that allows us to create or to modify our own projects. In this particular case, and since the project already this created, we will load it making the following:

- Go to the "TDB" menu and write the whole complete route by hand on the "Name TDB" Window (or select it with double click in the field):

C:\Program Files\Garmin\Mapsource\thassos.tdb

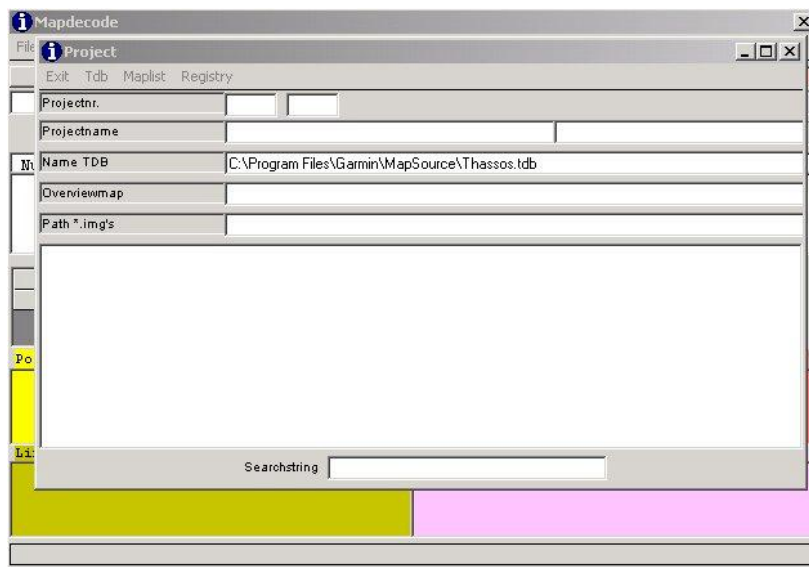


Fig.2



Fact this, either choose the TDB menu again and select "Load TDB from file" or press "CTRL +O". The file of the project will be loaded and it will show us numerous relative information to the same one, the most important is the list of the files IMG that compose it that appears in the inferior part. In this list we will check the maps that compose the project, their names, the files IMG that correspond them and the limits north, south, this and west of each one of them.

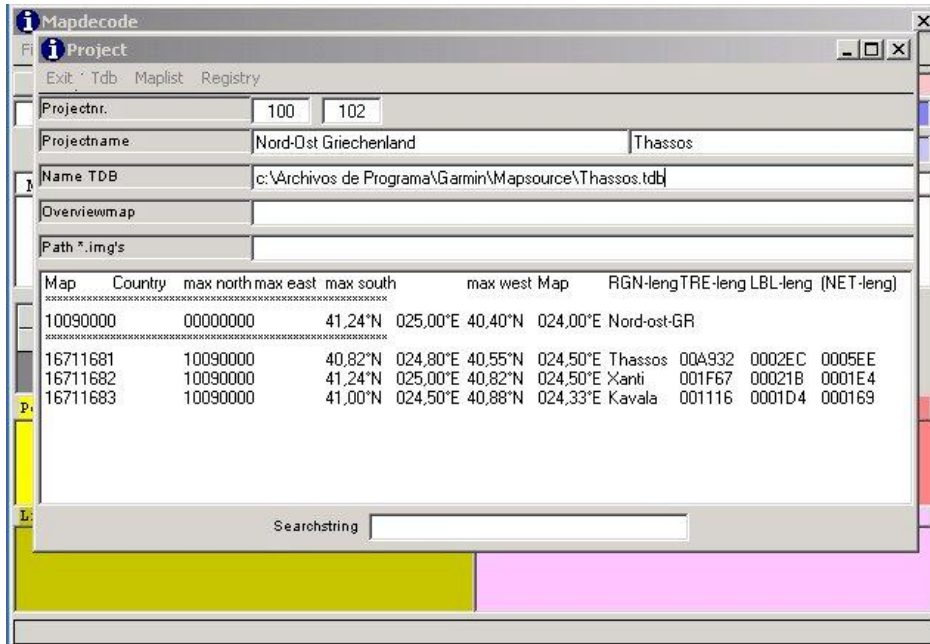


Fig.3

- We stuff the text box Overview-map with the route and the name of the general file of the map and the text box Path of \*.img's with the route where the files of detail map are stored, that is to say:  
`C:\Program Files\Garmin\Mapsource\thassos1.img`  
 and  
`C:\Program Files\Garmin\Mapsource\thassos`
- That makes next it is to either to select the TDB menu and choose "Save TDB and Make Registry" or press "CTRL + S". This button has two functions, on one hand it records the file physically TDB (in this case this doesn't serve us as anything, because the file already exists), for another it stores in the registration the whole relative information to the number of the project and the location of the files, and this if that interests us.

Now you can start MapSources to work with the new project.

## 6.- Getting the OZI files from the IMG

As we have commented, the MapDekode uses the philosophy of decomposing the MapSources in tracks files and waypoints to allow its edition by means of OziExplorer. When we want either to edit or modify one of the MapSource map, for example the R&R\_Spain, we have to extract all the tracks files and waypoints that compose it.

The method of extraction of tracks files and waypoints of a file IMG that I recommend is the following one:

1.- Copy the file IMG that we want to decompile to a working separate directory. This step is important if we don't want to have hundred of files scattered by the folders of the computer .

2.- Run MapDekode and open the IMG file that we have placed in the working folder: in the menu option choose File -> Open \*. IMG. Will see numerous information of the file on screen IMG that is not amendable, but only informative. As curiosity the superior square shows a list of all the geographical accidents included in that file IMG. For each object we see their name in the column LBL Text and their position inside the file in the column Offset.

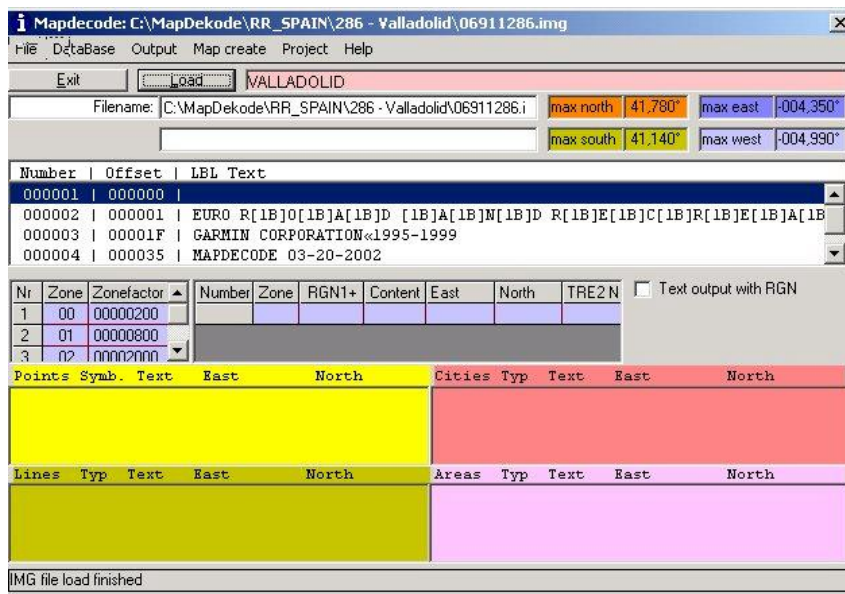


Fig.4

3.- Now, built up the internal working database DBX by means of the option of the menu Database -> Create DB from \*.img and choosing the folder where we have the file copied IMG. This database is exclusively for internal use of the program MapDekode, and note that MapDekode assign it the same name that to the file IMG with which are working, although the extension of the file is DBX.

4.- With the menu option Output -> Ozi Format -> Lines you'll get all lines tracks inside the map, just choosing the DBX database you got in the previous step.

5.- You have to get in the same way the files of areas, populations and points of interest by means of the options Areas, Cities and Points respectively.

**NOTE:** Once you have create OZI data files with lines, areas, Cities or Points from the DBX, don't do it again before you delete the old **\*.wpt/\*.plt** files (\*-L.plt of lines, \*-F.plt for areas, \*-ort.wpt for cities and \*-pkt.wpt for points)! If not, you enlarge the existing and then you have the elements (lines,...) two or more times in the **\*.wpt/\*.plt**

At the end of this process we will obtain in the working directory, besides the file IMG of which left initially, a series of intermediate files of databases of extension DBX, (DB0, DB1...) that they are only useful for internal calculations of the program and a series of files with extensions \*. wpt and \*. plt that contain waypoints and routes in format OziExplorer and with those that we can already work.

We must keep in mind that MapDekode can generate hundred or thousands of tracks files and waypoints starting from an only map file IMG. MapDekode assigns names to these files according to the following agreement: first it includes the name of the file IMG of which proceed, then it puts the label which we will see this track on the GPS, and last the type code.

e.g. 16711683--Arterial\_Road-04-L.plt for a line (sort by label) or

e.g. 16711683-oz-ort.wpt for cities

**NOTE:**

if you create a empty file with name "**name2**" in the MapDekode folder, then you get names as:

16711683--L04-Arterial\_Road-L.plt (sort by type) for lines and areas.

You can see example of all of this files on the correspondent folders that compose the Thassos example.

## **7.- Explanation of the files OziExplorer in that it breaks down a map IMG of the MapSource**

We already know that using MapDekode it is possible to decompose a map IMG of the MapSource in several files of OziExplorer. Let us see in detail how the structure of a map is stored in the files of OziExplorer that compose it for this way to be able to modify it to our pleasure and be able to built up our own maps.

Herein, for the realization of the proposed examples we will base ourselves on the example MapSource Nord-Ost Griechenland-Thassos that comes included in the file `samples.exe` of the MapDekode and where they are already decompiled the files that compose the IMG in the folders:

`\samples\maps\kavala`

\samples\maps\thassos  
\samples\maps\xanti

If we take the map file 1677681.img of the MapSource Thassos like example, we should note the content of the folder \samples\maps\thassos that contains the map decompiled in the files of OziExplorer that compose it:

|                       |                           |
|-----------------------|---------------------------|
| F-hintergrund-4B-F.pl | F-03-sk_rachoni-F.plt     |
| F-03-ag_georgios-F.pl | F-03-sk_potamias-F.pl     |
| F-03-astris-F.plt     | F-03-sk_panagias-F.pl     |
| F-03-kazaviti-F.plt   | F-03-theologos-F.plt      |
| F-03-kallirachi-F.plt | F-03-thassos-F.plt        |
| F-03-KASTRO-F.plt     | F-28-meer1-F.plt          |
| F-03-limenaria-F.plt  | F-41-see-maries-F.plt     |
| F-03-maries-03-F.plt  | L-04-Hauptstrasse-L.plt   |
| F-03-pefkari-F.plt    | L-06-Fahrstrassen-L.plt   |
| F-03-prinos-F.plt     | L-1B-keramoti-thassos.plt |
| F-03-potamia-F.plt    | L-1B-prinos-kavala-L.plt  |
| F-03-panagia-F.plt    | L-16-Klettern-L.plt       |
| F-03-Potos-F.plt      | L-16-Wanderweg-L.plt      |
| F-03-rachoni-F.plt    | L-18-Bach-L.plt           |
| F-03-sk_marion-F.plt  | L-19-aus_karte-L.plt      |
| F-03-sk_kallirachis-F | L-26-Wasserlauf-L.plt     |
| F-03-sk_sotiros-F.plt | Thassos-pkt.wpt           |
| F-03-sotiras-F.plt    | Thassos-ort.wpt           |
| F-03-sk_prinou-F.plt  | and much more             |

A first glance indicates us that there are two types of files of OziExplorer: tracks Files (\*. plt) and waypoints files (\*. wpt). Before continuing, I advise you to open the program OziExplorer, to load a blank map and to go opening each one of these files. For sure you surprise yourselves, because you will check that each one of the files plt or wpt of the folder belong together with certain geographical accident of the map: a highway, a railroad, a lake....

In fact anyone of these files you can classify in one of these groups that must know well if we aspire to create our own maps:

Files of lines: they have the format \* - L.plt and they store an only lineal topographical accident, a highway for example, street, river, frontier, curves of level.... (it understands each other that the symbol “\*” it represents any descriptive text that is wanted to write)

In one \* - L.plt all Track-Sections (pieces of the line) use the same label, so e.g. you can store all rivers with the label "River" and the same type code in one file.

Files of areas: they have the format \* - F.plt and they store an only superficial topographical accident, as a lake, a park, a sea..... (In one \* - F.plt all Track-Sections (pieces of the polygon) use the same label, ....

Populations' file: it has the format \* - ort.wpt. You can have as many files as you want with the only distinction in it name. This WPTs files can store a list of the geographical accidents of the map that are cities, towns or punctual entities in general that are identified simply by its name as ports, sources,...

File of points of interest: it has the format \* - pkt.wpt. You can have as many files as you want with the only distinction in it name. This WPTs files store a list of the points of interest of the map, that is to say classified points with some certain characteristics, for example a restaurant specifying if its specialty is the Chinese, Mexican food,....

File of definition of area of the detail map: it has the format \* -4B-F.plt .Will only be a file of this type in each folder and it defines the real area and the name of the map, inside which are developed the rest of the accidents of the map entirely, something like that as the "frontier" of that detail map.

File of definition of area of the general map: it has the format \* -4A-F.plt these files an IMG of a detail map never appears to the decompile, on the other hand we will find several files from this type after decompile an IMG that corresponds to a general map. That makes these files it is to define the areas in that it is divided the general map, existing a different area for each one of the detail IMG.

Logically all these files that I repeat that we can open up, to manipulate or even to create new with the program OziExplorer, they should complete some certain norms that we will see but it advances in other sections.

## **8.- How to compile files of maps IMG with the example THASSOS**

Well, we have already seen as a detail map IMG of the MapSource it can break down in several tracks files and waypoints of OziExplorer, now we will see how to generate the file again IMG from those tracks files and waypoints. If we review the folder of examples \samples\maps we will see that in turn it contains other four labelled folders: kavala, thassos, xanti and overview. The three first contain the OziExplorer's files that we need to create the detail maps 16711683.img, 16711681.img and 16711682.img respectively, while the last one has the files to create the general map thassos1.img and the project file thassos.tdb

To generate a file of detail map (IMG):

We will see like a file of detail map is generated starting from its files of OziExplorer.

With the browser of Windows we visualize the folder `samples\maps\Thassos` and we delete the file `16711681.img`, this step is not necessary but it will serve us as confirmation to see that at the end of the process we have generated it again. If you don't delete this file, be sure that the write protection of the file is not activated.

We pull up the MapDekode and choose the menu option `Map create -> Detail-map from Ozi (*.wpt/*.*.plt -> *.img)`; we have now the option to of choose the directory where they are located the files of OziExplorer that compose the detail map:

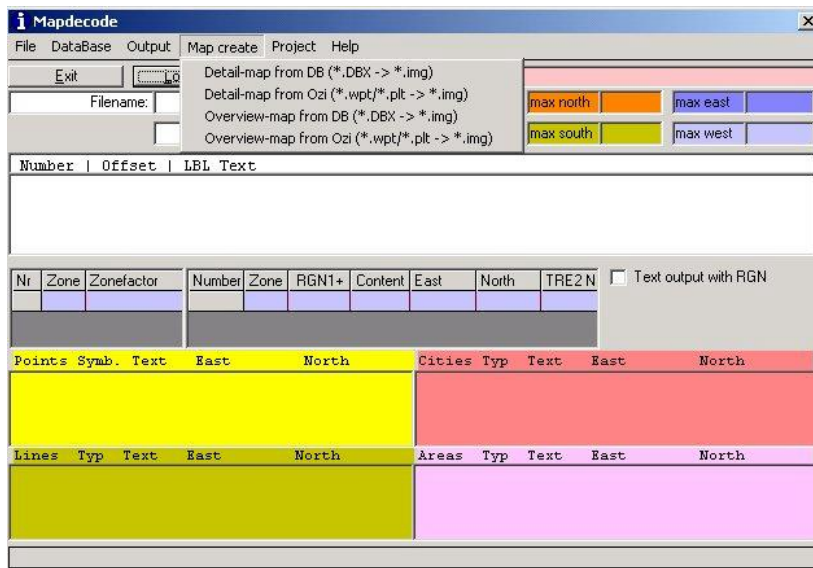


Fig.5

We will choose the folder `samples\maps\thassos`, and the file `16711681.dbx` in the window (if it doesn't exist we will write their name to create it again) and we will press the Open button. (That will be the case when we are creating a complete new map). We have just told to MapDekode that compiles all the files of OziExplorer that are in that folder (those that have extension PLT or WPT) and it create with them a file of detail map that it called `16711681.IMG`, using internally for their calculations the database file `16711681.dbx`. After a short time we will be informed that the process has concluded. If we use the browser of Windows we will check that a called file has appeared `16711681.img` that it contains the detail map, in the same way other files of extension dbx they have been generated, `db0`, `db1`,... that they don't have interest for us, since they are so simply intermediate files that MapDekode uses during the compilation of the map; we will ignore them. What interests us is the file of the detail map `16711681.img` that we should copy to already replace the existent in the location that hopes to find it the MapSource, that is to say in:

`C:\Program Files\Garmin\Mapsource\thassos\16711681.img`

## **9.- Generating an IMG general map**

The steps are similar to those of the previous case. In this occasion we will choose the menu option Map of the MapDekode and inside it Create you Overview-map from Ozi. (\*.wpt / \*.plt -> \*.img) the same as in the previous case we are presented a window in which we choose the folder where they are the files of OziExplorer that compose the general map, we will choose \samples\maps\overview and inside this folder we will choose the file thassos1.dbx, like in the previous case it can that the file doesn't exist, in that case we will write in name to create it again, next we press the button to Open up. After some seconds we will be able to check that the file of general map thassos1.img will have been generated as well as other intermediate files of extension dbx, db0, db1,... that they don't interest us then they are of internal use of the MapDekode.

**ATTENTION:** it is very important that the name of the IMG general map has 8 characters, for that reason the is added "1" at the end of the name. If this, the MapDekode is not completed it won't work correctly.

## **10.- Generating the TDB file**

We will explain here how to create or update this type of files. There are some comments about it.

First place, as we have told before, we need a TDB file for each new project or set of maps we built up. At the same time, last versions of the Garmin MapSource do a check of the size of all detailed maps that compose the project. The size of the detailed maps is one of the information's included on the TDB file. It is important to know that when we add some tracks or waypoints to an existing detailed map of Garmin, the file comes bigger, and the new size doesn't match the size existing on the TDB file. With difference in sizes, MapSource will work well in our PC, but we'll get an error when we try to upload the map into the GPS. That's mean that MapSource checks the size of the file when uploading and its stop if there is a difference. So, we should update the existing TDB file after adding information to an existing map.

Another important thing to know here is that all files that compose a Garmin set have a mask with the 0x96 number. MapDekode will not work properly updating a TDB file if we don't remove the mask before. So, to fix that, you can either use some batch processing to change the XOR mask of all files, or you can select **TDB -> change param of one IMG in TDB.**

After that, let's see how to proceed:

- We enter in the MapDekode and we choose the menu option Project. In the first place we stuff the stall **Projectnr**. The part of the left is for the number of project. We can put the number that we want whenever that number not this already used for another project. It is not advisable to use the reserved numbers for Garmin for their own products. There is a list of the well-known

numbers in the document TDB-Docu-Germany.txt. The stall of the right of the remote ProjectNumber is good to put the version of the map data and it seems simply informative. I always put 100.

- We must also stuff the stall **ProjectName** with the name of the project (we will write what seems us in the two text boxes, that of the right and that of the left). Other stall that we must stuff are Name TDB with the name and the location where we want to create the project file. We can use any project name, the extension of the file should be TDB.
- In the stalls **Overviewmap** and **Path \*.img's** will write (or select it by double click) the folder and the name that we have given to the general map respectively (IMG) and the route (only the route and without ending up in the inclined bar of directory) where they are the files of detail maps (IMG) (or select simply one of the detail map's by double click).

Arrived to this point, we will select **TDB -> Save TDB and make Reg-entry** or press "CTRL + S". MapDekode will carry out two different processes: in the first place it will generate the file TDB with the name that we have chosen, in second place it will create or it will modify the entrances in the registration of the system with the route and the name of the project file, the route and the name of the file of general map and the route of the files of detail maps.

**NOTE:** at this time you are not finished with the new project. You have got your project but it only has an overview map. There is no one of the detailed map included on it. Will see how to add some detail maps, in point 12.

## **11.- Loading a project in to MapDekode**

To make sure that everything has worked correctly, the best thing is to close the window Project and then to return and to open it again so that it appears blank. We stuff the stall **Projectnr** (it leaves left) with the number that we have assigned to the project and we select **Registry->Reg-info of project** or press "CTRL + R". When making this, the MapDekode examines the registration of the system and it will show in the window the routes of the three types of files: TDB (project file), Overview-Map (general Map) and Path of \*.img's (files of detail Maps).

As already this padded one the text box with the name and the location of the project file, alone we have to select **TDB->Load TDB from file** or press "CTRL + O" so that the project is loaded and its information shown on screen.

**NOTE:** to see all your installed projects, put "\*" in the ProjectNumber and select Reg-info of project, or press "CTRL + R" or press simply ENTER. Now you see a list of all installed projects with their TDB's.



With a double click on a line, you copy the ProjectNumber and the TDB name in the field ProjectName. "CTRL + R" and/or "CTRL + O" show the Reg-info and/or the TDB contents.

## 12.- Adding the detailed Maps

If we have followed the previous steps, we will have generated a project file TDB and we will have registered it in the system, in such a way that is already recognized by the MapSource of Garmin. Now lack to add to this project the detail files IMG that compose it. It is very simple, from the previous step with selecting **Map-> add Map to list** or press "CTRL + A" so it will shown a square of dialogue where we will choose the file IMG that we want to add to the project. It is possible to add as many detail files as let us want. In the same way we can eliminate the detail files that we don't want that they are included in the project, mark one line and select delete line in the list or press "CTRL + D" - we can see the files of particulars included in the project in the window of the inferior part of the window of the project:

| Map      | Country | max North | max East | max South | max West | Map      | RGN-leng    | TRE-leng | LBL-leng | (NET-leng) |
|----------|---------|-----------|----------|-----------|----------|----------|-------------|----------|----------|------------|
| 10090000 |         | 00000000  | 41,24°N  | 025,00°E  | 40,40°N  | 024,00°E | Nord-ost-GR |          |          |            |
| 16711681 |         | 10090000  | 40,82°N  | 024,80°E  | 40,55°N  | 024,50°E | Thassos     | 00975A   | 000188   | 000397     |
| 16711682 |         | 10090000  | 41,24°N  | 025,00°E  | 40,82°N  | 024,50°E | Xanti       | 00236B   | 000141   | 0001DA     |
| 16711683 |         | 10090000  | 41,00°N  | 024,50°E  | 40,88°N  | 024,33°E | Kavala      | 0015AC   | 000136   | 00015F     |

Fig.6

When we have finished, we will keep the modifications in the file of the project by select **TDB-> Save TDB and make Reg-Entry** or press "CTRL + S".

## 13.- OziExplorer's format line for a MapDekode's line

Each track that represents a line can have any name, color, aspect, etc... but it is obligatory that the description of the track has this format:

**LXXZ\$YYYYYYYYYYYYYYYYYYYY.....**

- **L** is a fixed letter that indicates that it is a line
- **XX** it is for example a code that identifies that type is the line, 1F it is a river, 20 a level curve, 01 a highway, 28 a pipeline.... (to see the list of possible codes in the document IMG-Docu-Bannesdorf.txt or in the appendix corresponding to the end of this document).
- **Z** is minimum zoom level to which will begin to the line it turns. For the **detail** maps it can be 0,1 or 2 being zero the level in which the GPS shows but it details and two the minimum details. This way, if we want that the topographical accident "on the way to the hermitage" it only appears when we enlarge an area a lot and it doesn't hinder us the general vision of the map we will put him a zoom level Z=0 and vice versa. In the special case of the **general** maps the zoom level can be 2,3 or 4.

- **YYYYYYYYYYYYYYYY...** it is the description of the line, it can contain spaces and up to 30 characters. As the MapSource it doesn't differ among uppercase and lower-cases don't care like it is written. There is a series of special characters that you/they can be written in the text and that they can be consulted in the corresponding appendix.

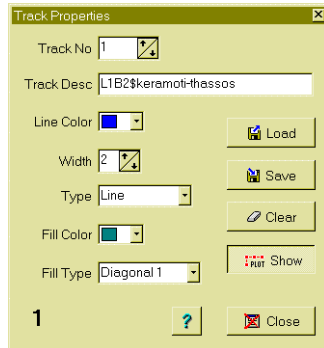


Fig.7

In the image we see the screen of estates of the track of the OziExplorer when the file opens up `\samples\thassos\L-1B-keramoti-thassos-L.plt`, like it can it turns it is a topographical accident of the type line and code 1B, that is to say a ferry. The minimum level of zoom is the 2, what means that it will always be seen, whichever it is the detail of the map. We can make any modification type to this track (I remit you to the help of the own OziExplorer for that), well be to eliminate points of the same one or to add him other new ones so that the road is longer, the track can be continuous (an only line) or I discontinue, with several separate tracts, to consult the help of the OziExplorer to see like one makes this. Once finished the modifications, we already record the file of the track and overwrite the existent one

`C:\Program Files\Garmin\MapSource\Thassos\L-1B-keramoti-thassos-L.plt`

If we generate the file IMG of detail map again, the modifications will be added that have carried out.

In the same way that we have modified a file of existent track, we can create one totally new to add to the map a new characteristic. The ideal thing would be to have a geo-map of the area of Thassos, to load it in the OziExplorer and to begin a new track reviewing, for example, the line of a river. If we don't have any map we can already load a track existent and to create the new one next to the old one. Once ended the track, we give it the description:

**L1F1\$IMAGINARY RIVER**

and we keep it with the name: `\samples\maps\thassos\river-L.plt`. If we generate the file IMG of detail map and we copy it to their correct location, we will see appear the new river in the MapSource of Garmin and we will be able to transfer it to the GPS. When pointing to the line, in the screen of the GPS the name that we have given him will appear: "Imaginary River", to notice that makes the GPS with the capitals and minuscule, it is limited to put in uppercase the first letter of each word and in minuscule the rest, independently we have introduced them of how us.

This way so simple, and little by little, we can go adding new lines to any detail map. There is a list of the XX codes of the different lines recognized by the MapDekode that is at the end of the document IMG-Docu-Bannesdorf.txt. or in the appendix corresponding to the end of this document.

#### 14.- OziExplorer format line for a MapDekode's zone

Basically, an area of the MapSource will be defined in the same way that like we saw that it was defined a line in the previous section. It will also be stored in a track, in this case it is convenient (although not indispensable) to activate for the track the type POLYGON that makes but white their visualization in the screen of the OziExplorer, next we see the aspect that has the track file \samples\maps\F-03-KASTRO-F.plt that is a city of the island of Thassos, once opened up in the OziExplorer:

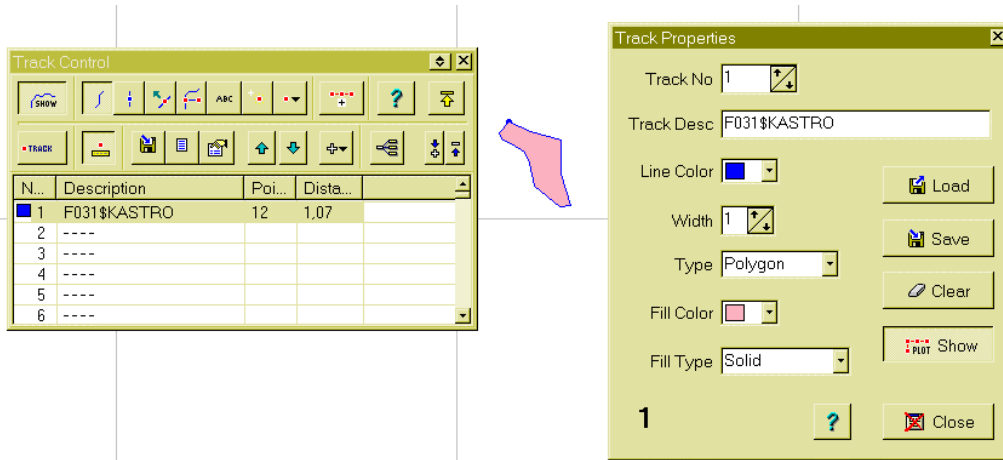


Fig. 8

The main difference is in that the description of the track should be adjusted to the format:

**FXXZ\$YYYYYYYYYYYYYYYYYYYY.....**

- **F** is a fixed letter that indicates that it is an area
- **XX** it is for example a code that identifies that type is the area, 03 it is a city, 07 an airport, 28 the ocean, 3C a lake.... (to see the list of possible codes in the document IMG-Docu-Bannesdorf.txt or in the appendix at the end of this document)
- **Z** is the level of minimum zoom to which will begin to the area it turns (it can be 0,1 or 2 in the **detail** maps and 2,3 or 4 in the **general** maps)
- **YYYYYYYYYYYYYYYY... it** is the description of the area, it can contain spaces and up to 30 characters. As the MapSource it doesn't differ among uppercase and lower-cases don't care like it is written.

How in the previous case, we can find a list of the types of areas recognized by the MapSource in the document IMG-Docu-Bannesdorf.txt or in the appendix corresponding to the end of this document. It is possible to modify this area file, or to create other new ones. When we generate the file IMG of detail map and we substitute it for the existent one, we will see appear this new area in our GPS.

### 15.- OziExplorer's format for a MapDekode's cities

Contrarily to the lines and the polygons that needed each a to be in a file of independent OziExplorer, all the "populations" (maybe the term is not very fortunate) meetings are contained in an only file of Waypoints, what makes them much more governable. When we load one of these files in the OziExplorer and we visualize the waypoints list we will observe something similar to the following:

| Num... | On... | Name | Latitude  | Longitude | Alt(...) | Sym... | Description          |
|--------|-------|------|-----------|-----------|----------|--------|----------------------|
| 1      | Yes   | O1   | 40 36,650 | 24 34,024 |          | 15     | 1e1\$limenaria bay   |
| 2      | Yes   | O2   | 40 35,278 | 24 36,519 |          | 15     | 1e1\$rosogremnos bay |
| 3      | Yes   | O3   | 40 34,510 | 24 37,932 |          | 15     | 1e1\$astris bay      |
| 4      | Yes   | O4   | 40 43,131 | 24 46,368 |          | 15     | 1e1\$potamias bay    |
| 5      | Yes   | O48  | 40 36,984 | 24 35,988 |          | 15     | 0D2\$PEFKARI         |
| 6      | Yes   | O49  | 40 43,416 | 24 37,452 |          | 15     | 0D2\$MEG.KAZAVITI    |
| 7      | Yes   | O50  | 40 43,302 | 24 36,975 |          | 15     | 0D2\$MIK.KAZAVITI    |
| 8      | Yes   | O51  | 40 44,495 | 24 34,592 |          | 15     | 0D2\$PRINOS          |
| 9      | Yes   | O52  | 40 42,770 | 24 45,749 |          | 15     | 281\$CHRISI AKTI     |
| 10     | Yes   | O53  | 40 43,592 | 24 45,875 |          | 15     | 281\$CHRISI AMMOUDIA |
| 11     | Yes   | O74  | 40 40,167 | 24 39,252 |          | 15     | 0D1\$KASTRO          |
| 12     | Yes   | O76  | 40 33,638 | 24 37,374 |          | 15     | 281\$Panagia island  |
| 13     | Yes   | O85  | 40 37,533 | 24 47,077 |          | 15     | 281\$Diaporal island |
| 14     | Yes   | O86  | 40 39,508 | 24 46,930 |          | 15     | 281\$Kinira island   |
| 15     | Yes   | O87  | 40 44,996 | 24 45,557 |          | 15     | 1e1\$ag.ioannis bay  |

Fig. 9

The only condition that you/they should complete these waypoints to be recognized by the MapDekode is to have a Description with this format:

**XXZ\$YYYYYYYYYYYYYYYYYY...**

- **XX** it is a code that identifies that type is the "population", for example 0D is a small town, 08 a medium population and 01 a big city. Other many codes that don't represent cities exist like for example 43 for ports, 44 for gas stations, 4F for sources,... (to see the list of possible codes in the document mssymbol.xls keeping in mind that they only serve the first two digits of the completed codes in XX, I eat the 40 of the 40XX for example in the golf field)
- **Z** is the level of minimum zoom to which will begin to the area it turns (it can be 0,1 or 2 in **detail** maps and 2,3 or 4 in **general** maps)
- **YYYYYYYYYYYYYYYYYY...** it is the population's description, it can contain spaces and up to 36 characters. As the MapSource it doesn't differ among uppercase and lower-cases don't care like it is written.

Next an example is shown of how the window of estates of the Waypoint would be visualized

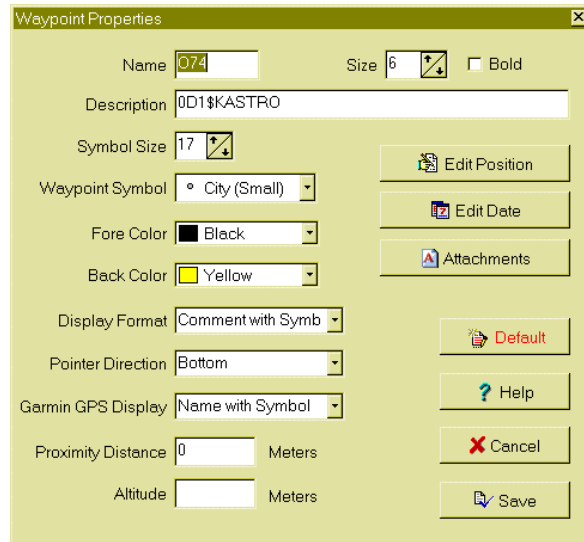


Fig. 10

It is perfectly possible to add, to modify or to eliminate waypoints of the list. Then to keep the waypoints file and generate the file IMG of the detail map again, when we replace the original file that the MapSource uses for this that we have generated we will be able to see as the modifications that we have carried out they appear in the map.

### **16.- OziExplorer's waypoints format for MapDekode's interest points**

All the points of interest are contained together in an only waypoints file, what makes them much more governable. The points of interest are places of the map that besides having a denomination, as it happens to the populations, they can be classified inside a category, for example: restaurants classified by the type of food that they serve, lighthouses classified by their colors, etc... When we load one of these files in the OziExplorer we can visualize a list of very similar waypoints to the previous one.

The only condition that you/they should complete these waypoints to be recognized by the MapDekode like points of interest is to have a Description with this format:

**XXXXZ\$YYYYYYYYYYYYYYYYYYYY.....**

- **XXXX** is for example a code that identifies that type is the point of interest, 2A01 it is an American restaurant, 2A02 are an Asian restaurant and they follow this way several types up to the 2A11 that it is a British restaurant. In the same way 2B01 indicate a hotel type motel, while the 2B02 in a hotel type bread&breakfast (to see the list of possible codes in the document mssymbol.xls keeping in mind that they are not good the code that you/they end up in XX, for

example for a prey 55XX it doesn't serve but 6407 if that serves. I have also included a list of the possible codes in an appendix at the end of this document)

- **Z** is the level of minimum zoom to which will begin to the area it turns (it can be 0,1 or 2 in the **detail** maps and 2,3 or 4 in the **general** map)
- **YYYYYYYYYYYYYY...** it is the description of the point of interest, it can contain spaces and up to 34 characters. As the MapSource it doesn't differ among uppercase and lower-cases don't care like it is written.

It is perfectly possible to add, to modify or to eliminate waypoints of the list. Then to keep the waypoints file and generate the file IMG of the detail map again, when we replace the original file that the MapSource uses for this that we have generated we will be able to see as the points of interest that we have modified they appear in the map.

As curiosity, to comment that it frequently happens that the point of interest appears in the MapSource without any icon, it is only visualized a blue point and the name of the point of the interest. Until it is not transferred the GPS you don't leave the corresponding symbol on screen.

#### **It structures of a file of track of OziExplorer for the File of definition of area of the detail map (Areas 4B) of the MapSource**

As we have already commented before, a file of definition of area of the detail map will only exist for each map of IMG it details. The function of this area is to define some limits to the map, of those which, in theory, none of the topographical accidents should be come out (you remain silent, rivers,...) defined for the same one.

In the practice this file is not more than a file with an area that we should create with OziExplorer in such a way that embraces the whole map that we will put in the detail map IMG and that it should have a description with this format:

|                   |
|-------------------|
| <b>F4BZ\$name</b> |
|-------------------|

- **F** is a fixed letter that indicates that it is an area
- **4B** are a code that identifies the area like definition of the area of the detail map
- **Z** is the level of minimum zoom to which will begin to the area it turns. Obligatorily debit side to be 2 (for **general** map 4)

To remember that the name with which we should keep the track file should have the form:

xxxxxxxxxxx-4B-F.plt

where the xxxxxxxxxxx can be a name of any longitude that I/we are happened.

In this example we see the area 4B corresponding to the map of detail kavala. As it can it turns it defines a rectangular area by means of four points, although the form and the one numbers of points it could be any other.

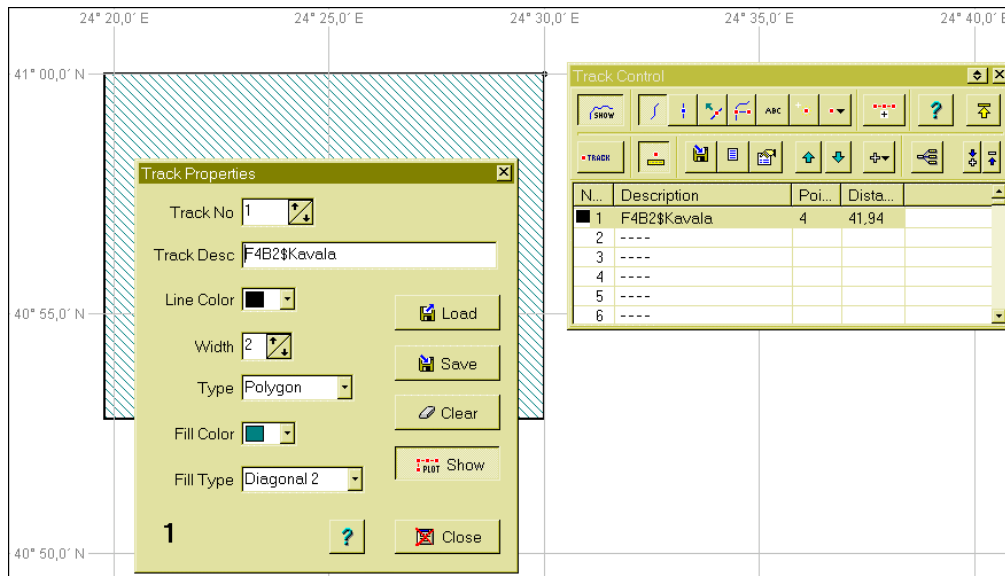


Fig. 11

**It structures of a file of track of OziExplorer for the File of definition of area of the general map (Areas 4A) of the MapSource**

Several files of definition of areas of the general map will exist, so many as detail maps they compose it. The function of this area is to define the limits of each one of the detail maps so that they put on makeup on the general map and later they can be selected to load them to the GPS. In the practice each one of these files is not more than a file with an area that we should create with OziExplorer in such a way that embraces the same area exactly that the area 4B of the detail map, but that it should have this description:

**F4AZ\$YYYY...YYYY[1D]99999999**

- **F** is a fixed letter that indicates that it is an area
- **4A** are a code that identifies the area like definition of the area of a detail map in the general map
- **Z** is the level of minimum zoom to which will begin to the area it turns, and it is obligatory that it has the value **4**.
- **YYYYYYYYYYYY...** it is the description of the area and it can be any text
- **[1D]** it is a fixed code of separation that should always be included.

- **99999999** are the number that identifies to the file IMG of detail map that it is together to this area. It is important that it always has 8 figures. This way, for example for the map of kavala detail 16711683.img would write the I number 16711683.

**The highest number of a detail map created by MapDekode is 16777215, and the greatest size is 1 Mbyte (1.048.576 Byte).**

To remember that the name with which we should keep the track file should have the form:

xxxxxxxxxxxx-4A-F.plt

where the xxxxxxxxxxxx can be a name of any longitude that I/we are happened.

The same as in the previous cases, before any doubt I recommend a glance to the example files that appear in the folder `\samples`.

A trick that we can use when we already have created the detail maps and let us want to create the files of areas of the general map it is to copy the files of area of the detail map (4B) and to rename them to transform them into files 4A in a new location.



## TUTORIAL

### Tutorial 1: to Modify the MapSource Spain R&R to add a street in Valladolid

Starting from we have installed in the folder `C:\Program Files\Garmin\MapSource\SpainRR`

- We have to locate which of the 187 files IMG of detail maps is the one that corresponds to the area of Valladolid. To do it, we enter in to MapDekode and we open the window of the project. We load the project Spain R&R writing the location of the project file in the box **Name TDB** `C:\Program Files\Garmin\MapSource\RR_Spain.tdb` and next we press the button **TDB->Load TDB from file**. This makes that the window is shown with the list of the maps detail IMG that they compose the project. We will look for until we find one it makes reference to Valladolid: the 06911286.img
- Let us create a working directory. It is a good idea to call it the same as the img, that is to say `C:\Program Files\Garmin\MapSource\SpainRR\06911286` inside this folder copies the file 06911286.IMG
- Now we have to decompile the detailed map of Valladolid in to the files of OziExplorer that compose it. Start MapDekode, load the IMG that we have copied by means of the menu option **File - > Open \*.img**, and we generate the database DBX by means of the menu option **Database - > Create DB from \*.img**. We generate the files of OziExplorer by means of the menu options **Output - > Ozi Format - > Lines, Areas, Cities, Points**. If we study the working folder, we will see the tracks files and waypoints that was composing it.
- We open the OziExplorer and we load a very calibrated map of the area that interests us, for example the leaf 372-I from the IGN to scale 1:25.000 (Valladolid)
- Using the tools of OziExplorer create a track with several points that it follows the street that interests us, for example the Paseo de Zorrilla. It is perfectly possible that the track is discontinuous, that is to say that it consists of several sections.
- We give to the track the following description L011\$PASEO DE ZORRILLA and we keep it in disk like track file with the following filename:  
`C:\Program Files\Garmin\MapSource\SpainRR\06911286\06911286-paseozorrilla-L.plt`
- We enter to the MapDekode and we generate the file again IMG of detail map. For we use it the menu **Map create - > Detailed map from Ozi \*.wpt /\*.plt ->\*.IMG**. In the dialogue square chooses the folder  
`C:\Program Files\Garmin\MapSource\SpainRR\06911286`  
and in the name of the file we write 06911286.dbx

- We copy the file 06911286.IMG that it has just been generated and we overwrite the existent one in C:\Program Files\Garmin\MapSource\SpainRR
- If we enter in the MapSource we will see appear the new street, if we overturn the GPS it will also appear in the screen of the unit.

Tutorial 2: to Modify the MapSource Spain R&R to add him the rivers of the MapSource WorldMap

We all will have checked that although the information contained in the Spain R&R is very accurate, there are not data like rivers, highways, populations,... that if they are included in the WorldMap. We will see as extracting of the WorldMap the information with respect to rivers, streams and channels and next we will modify the Spain R&R to add the rivers of the WorldMap in a concrete area. We choose for it the detail map IMG of the area of Valladolid.

We start from we have installed in the folder:

C:\Program Files\Garmin\MapSource\SpainRR , the Spain R&R of Garmin and in the folder C:\Program Files\Garmin\MapSource\WorldMap that has installed the MapSource WorldMap.

These are the steps to continue:

- Same step than in Tutorial 1.
- Let us create a working directory to decompile and then to compile the file of detail of Valladolid of the Spain R&R. It is a good idea to call it the same as the img, that is to say C:\Program files\Garmin\MapSource\SpainRR\06911286 and copy the file 06911286.IMG To this folder
- Now there is to decompile the file with the map of detail of Valladolid of the R&R in the files of OziExplorer that compose it. For we pull up it the MapDekode, the IMG that we have copied by means of the menu option **File - > Open .img**, we generate the database DBX by means of the menu option **Database - > Create DB from Ozi \*.wpt/\*.plt**; we generate the files of OziExplorer by means of the menu options **Output - > Ozi Format - > Lines, Areas, Cities, Points**. If we study the working folder, we will see the tracks files and waypoints in that was composing the map.
- Now we have to work with the WorldMap. We locate which of the 1.971 files IMG of maps of detail of the WorldMap corresponds to the area where Valladolid is. For we enter it to the MapDekode and we open the window of the project. We load the project WorldMap writing the location of the project file in the box **Name TDB**  
C:\Program Files\Garmin\MapSource\WorldMap.tdb  
and next we press the button **TDB->Load TDB from file**. This makes that the window is shown with the list of the maps detail IMG that they compose the project. We will look for until we find one it makes reference to Valladolid that, surprisingly, it turns out to be that of Africa of the North-Madrid: the 04306303.img (it is that it will be certain that that Africa begins in the Pyrenees)
- Let us crate a working directory. It is a good idea to call it the same as the img, that is to say C:\Program Files\Garmin\MapSource\WorldMap\04306303 inside this folder copies the file 04306303.IMG
- Now there is to decompile the file with the map of detail of Africa of the North-Madrid of the WorldMap in the files of OziExplorer that compose it. For we pull up it the MapDekode, loading the IMG that we have copied by means of the menu option **File - > Open \*.img**, and we

generate the database DBX by means of the menu option Database - > Create DB from \*.img ; we generate the files of OziExplorer by means of the menu options **Output - > Ozi Format - > Lines, Areas, Cities, Points**. If we study the working folder, we will see the 250 tracks files and waypoints in that was composing it.

- We locate the file of track of the WorldMap that contains the rivers. There is not trick for this, it is not but I remedy that to go opening them all by means of the OziExplorer and to see them on screen. Soon after we will find it, it is of:

C:\Program Files\Garmin\MapSource\WorldMap\04306303\04306303-00000018-L.plt

it is a giant file of almost 1Mb that contains the gewgaw of 15.000 track points. Surely that OziExplorer takes several seconds in loading it, but when it makes it you will fall turned: all the rivers of the Northwest quadrant of Spain included in the WorldMap will be in your screen.

- It interests us to only keep the rivers that you/they enter inside the area that we have decided: Valladolid of the Spain R&R, eliminating all the other ones. For we will use it the tools of selection of points that it has the OziExplorer. I won't extend on it, alone to point that it can be of great help to open up simultaneously and added to the rivers of the WorldMap the track file

C:\Program Files\Garmin\MapSource\SpainRR\06911286\06911286-0000004B-F.plt

that contains the definition of the area that embraces the map of detail of Valladolid of the R&R. This way we will be able to eliminate the track points that are outside of the area of the map that corresponds strictly Valladolid more easily.

- After eliminating the points of the track that are outside of the area of Valladolid, we keep the resulting track in a file inside the folder where the Spain R&R will be assembled, for example:

C:\Program Files\Garmin\MapSource\SpainRR\06911286\06911286-river-L.plt

- We enter to the MapDekode and we generate the file again IMG of detail map. For we use it the menu Map - > Create you map from Ozi \*.wpt / \*.plt in the dialogue square chooses the folder

C:\Program Files\Garmin\MapSource\SpainRR\06911286

and in the name of the file we write 06911286.dbx

- We copy the file 06911286.IMG that it has just been generated and overwrite the existent one in

C:\Program Files\Garmin\MapSource\SpainRR

- If we enter in the MapSource we will see appear the rivers inside the Spain R&R, if we overturn the GPS they will also appear in the screen of the unit.

Tutorial 3: to Create a new MapSource "Maps IGN" that gathers the maps from Spain to scale 1:50.000 of the National Geographical Institute

This tutorial is more ambitious than the previous ones. It proposes the creation of a completely new MapSource, instead of the simple modification of a product already existent. The idea is to introduce the complete cartography of Spain, divided in detail maps that they occupy a leaf exactly to scale 1:50.000 of the IGN. Each one of the detail maps will be numbered with the number of the leaf, adding zeros when necessary. For this example we will only introduce the Leaf 372 (Valladolid) of the IGN that in accordance with the nomenclature that we have agreed will correspond to the file of detail map 00000372.img

First part: we will Begin creating the detail map corresponding to the leaf 372 of the IGN, previously we will have to scan and to gauge this map.

- Let us create a directory where to store the MapSource "Maps IGN", following the agreement that I recommend in this document would be the folder:

C:\Program Files\Garmin\MapSource\MapasIGN

- Let us create as well a working directory where to assemble the leaf 372 of the map of Valladolid. It is a good idea to call it the same as the img, that is to say

C:\Program Files\Garmin\MapSource\MapasIGN\00000372

- We open the leaf 372 with the OziExplorer, in the first place we define the area 4B (area of the detail map), we make it drawing a type track Polygon that contains the four corners of the map. We give it the following description: F4B2\$HOJA 372 VALLADOLID and keep the track like:

C:\Program Files\Garmin\MapSource\MapasIGN\00000372\0000372-def-4B-F.pt1

- We continue with the OziExplorer and let us believe waypoints for the elements of the map of the type Town. To each one of them we put him an appropriate description including the codes of type of Town, name and zoom level. When we have finished we keep the file of Waypoint with the name:

C:\Program Files\Garmin\MapSource\MapasIGN\00000372\0000372-oz-ort.wpt

- We repeat the operation with the elements of the map that are points of interest, and we keep them in a file with the name:

C:\Program Files\Garmin\MapSource\MapasIGN\00000372\0000372-oz-pkt.wpt

- We continue working on the letter with the OziExplorer. For each lineal geographical accident of the type highway, river, railroad, frontier.... we go creating a separate track, we assign him a type and we keep it in a file. For example:

C:\Program Files\Garmin\MapSource\MapasIGN\00000372\0000372-train-L.pt1

- In the same way, we use the OziExplorer to define the geographical accidents that are areas: lakes, urban helmet of cities, parks,... For each one of them a separate track is believed and it stays in an independent file, for example:

```
C:\Program Files\Garmin\MapSource\MapasIGN\00000372\0000372-park Field Big-F.plt
```

- Once ended the map, we generate the file of detail map 00000372.img. For we pull up it the MapDekode and we use the menu Map - > Create you map from Ozi \*. wpt / \*. plt, in the dialogue square chooses the folder programa\Garmin\MapSource\MapasIGN\00000372 C:\Archivos and in the name of the file we write 00000372.dbx

- We copy the file detail IMG that we have just generated in their definitive location:

```
C:\Program Files\Garmin\MapSource\MapasIGN\00000372.IMG
```

### **Second Part:**

Let's go to work with the general map. It is a map with very few particulars, basically a general mark where they appear defined each one of the detail areas. We start, for example, from a scanned and geo-map of the Peninsula Iberica. It is not necessary that it has a lot of detail, we will have enough seeing clearly the coast line.

- Let us create a working directory where to assemble the general map. It is a good idea to give it a name that it indicates that it is, for example

```
C:\Program Files\Garmin\MapSource\MapasIGN\General
```

- We open the map of Spain with the OziExplorer, in the first place we define the area 4B (area of the detail map), we make it drawing a type track Polygon that contains among their four corners the complete map. To say it, it is this way the maximum size of the MapSource that we are building. We keep the track like:

```
C:\Program Files\Garmin\MapSource\MapasIGN\General\MapasIGN-def-4B-F.plt
```

- We continue working on the map of Spain with the OziExplorer. We go creating a track that travels the whole coast line, we assign him the type 1C (type international frontier) and we keep it in a file. For example:

```
C:\Program Files\Garmin\MapSource\MapasIGN\General\MapasIGN-coast-L.plt
```

- We can add how many you detail we want to the general map, but personally I say that it doesn't have much sense, is better to take pains in the detail maps and to leave a general but coarse map, with the line of the coast is enough

- It is necessary to create a track file with the definition of the area for the general map (area 4A) for each img of detail of the project. As we only have a detail map, we will only create the corresponding to the leaf 372. We open the leaf 372 with the OziExplorer, we draw a type track Polygon that contains the four corners of the map, him but resemblance possible to the area 4B that we believe previously. We give him the following description: F4A4\$HOJA 372 VALLADOLID[1D]00000372. We keep the track like:

C:\Program Files\Garmin\MapSource\MapasIGN\General\0000372-def-4A-F.plt

If it wants himself, it is possible to be saved work copying and modifying the file 00000327-def-4B.plt that we already have created.

- Now we generate the IMG of the general map. For we pull up it the MapDekode and we use the menu **Map Create-> overview map from Ozi \*. wpt / \*. plt**, in the dialogue square chooses the folder

C:\Program Files\Garmin\MapSource\MapasIGN\General

and in the name of the file we write MapasIGN.dbx. Single subtraction to copy the IMG of the general map in their definitive location:

C:\Program Files\Garmin\MapSource\MapasIGN\MapasIGN.img

### Third part:

Now we must create the project file and to add him the map of detail of Valladolid

- We enter in the MapDekode and we choose the menu option Project. The window of the project appears. In the first place we stuff the stall ProjectNumber. In the left part we put 40 and in the right 100. We can put the number that we want whenever that number not this already used for another project.

- In the stall Projectnr puts Maps IGN, to the left and the right .

- In the stall Name TDB we put

C:\Program Files\Garmin\MapSource\MapasIGN\MapasIGN.tdb

- In the stalls Overview-Map writes

C:\Program Files\Garmin\MapSource\MapasIGN\MapasIGN.img

- In the stall Path of \*. img's writes:

C:\Program Files\Garmin\MapSource\MapasIGN

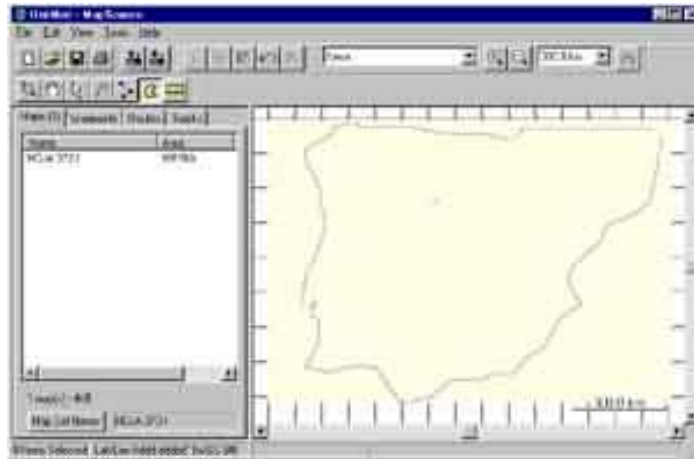
- We press the button TDB to generate the project file TDB and also to register it.

- Select the menu **Maplist->Add map to list** or “CTRL+ A” so that it is shown a square of dialogue where we will choose the file

C:\Program Files\Garmin\MapSource\MapasIGN\00000372.IMG

- We will keep the modifications in the file of the project using the menu **TDB -> Save TDB and make Reg-entry**.

- We have finished, if we enter in the MapSource we will see that we can choose the product Maps IGN I/we were shown the contour of the peninsula and making zoom will be able to select the map 372 to transfer it to the GPS





**Appendix A:** Codes of type of **line** of the MapDekode for tracks of OziExplorer

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=0A=Road (gray [64] thinly)  
07=Alley (gray [64] thinly)  
08=09=Ramp (gray [128] thickly)  
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=Stream (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=County Boundary (gray [192] means)  
1E=Intl. Boundary (gray [192] means)  
1F=River (blue [63,152,255] thinly)  
20=Land Contour (thinly) Height in feet (e.g. L200\$2165 means 660 meter)  
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 feet (e.g. L251\$3281 means 1000 meter)  
26=Intermittent 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 (non line)  
2B=Marine Hazard (non line)

**Appendix B:** Codes of type of **area** of the MapDekode for tracks of OziExplorer

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=shoping 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=Definitionarea for detail card only in the general card available, in the text field:  
    name[1D]069nnnnn  
4B=Backgroundarea  
4C=Intermittent River/sheet (blue)  
4D=Glaciers (blue)  
4E=Orchard  
4F=Scrub  
50=woods  
51=wetland  
52=Tundra  
53=Flat

**Appendix C: Codes of points of interest and towns of the MapDekode for WayPoints of OziExplorer**

From 0100 Up to 0500 Cityname(Point,fat,big)  
 From 0600 Until 0A00, 0E00 Up to 1100 Cityname(Point,big)  
 From 0B00, 0C00, 0D00 Cityname(Point,small)  
 From 1400 Up to 153F Cityname(no Point,big)  
 From 1E00 Up to 1E3F Cityname(no Point,middle)  
 From 210F Exit(Service)  
 From 2000 Up to 213F, 2700 Up to 273F Exit  
 From 2200 Up to 223F Exit(Restroom)  
 From 2300 Up to 233F Exit(Convenience Store)  
 From 2400 Up to 243F Exit(Weight Station)  
 From 2500 Up to 253F Exit(Tollbooth Booth)  
 From 2600 Up to 263F Exit(Information)  
 From 2800 Up to 283F Cityname(no Point,small)  
 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 2B00 Hotel(Other)  
 From 2B01 Hotel/Motel  
 From 2B02 Bed&Breakfast in  
 From 2B03 Camping/RV-Park  
 From 2B04 Resort  
 From 2C01 Amusement Park  
 From 2C02 Museum/History  
 From 2C03 Libraries  
 From 2C04 Land Mark  
 From 2C05 School  
 From 2C06 Park  
 From 2C07 Zoo  
 From 2C08 Sportpark, Stadium,(point)  
 From 2C09 Fair, Conference(point)  
 From 2C0A Wine restaurant(point)  
 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 Swimming  
 From 2D0A Sports(point)  
 From 2D0B Sailing Airport  
 From 2E01 Department Store  
 From 2E02 Grocery  
 From 2E03 General Merchandiser  
 From 2E04 Shopping Center  
 From 2E05 Pharmacy  
 From 2E06 Convinience Store  
 From 2F00 generic service  
 From 2F01 Fuel/Gas  
 From 2F02 Car Rental  
 From 2F03 Car Repair  
 From 2F04 Airport  
 From 2F05 Post Office  
 From 2F06 Bank  
 From 2F07 Car Dealer(point)  
 From 2F08 Bus Station  
 From 2F09 Marina  
 From 2F0A Wrecker Service  
 From 2F0B Parking  
 From 2F0C Restroom  
 From 2F0D Automobile Club  
 From 2F0E Car Wash  
 From 3000 generic emergency/government  
 From 3001 Police Station  
 From 3002 Hospital  
 From 3003 Government(point)  
 From 3004 Justice  
 From 3005 Concert hall(point)  
 From 3006 Border Station(point)  
 From 4000 Up to 403F Golf  
 From 4100 Up to 413F Fish  
 From 4200 Up to 423F Wreck  
 From 4300 Up to 433F Marina  
 From 4400 Up to 443F Gas  
 From 4500 Up to 453F Restaurant  
 From 4600 Up to 463F Bar  
 From 4700 Up to 473F Boat Ramp  
 From 4800 Up to 483F Camping  
 From 4900 Up to 493F Park  
 From 4A00 Up to 4A3F Picnic Area  
 From 4B00 Up to 4B3F Hospital  
 From 4C00 Up to 4C3F Information  
 From 4D00 Up to 4D3F Parking  
 From 4E00 Up to 4E3F Restroom

From 4F00 Up to 4F3F Shower  
From 5000 Up to 503F Drinking Water  
From 5100 Up to 513F Telephone  
From 5200 Up to 523F Scenic Area  
From 5300 Up to 533F Skiing  
From 5400 Up to 543F Swimming  
From 5500 Up to 553F Dam  
From 5700 Up to 573F Danger Area  
From 5800 Up to 583F restricted Area  
From 5901 large Airport  
From 5902 medium Airport  
From 5903 small Airport  
From 5904 Heliport  
From 5905 Up to 593F Airport  
From 5D00 Up to 5D3F Daymark,Green Square  
From 5E00 Up to 5E3F Daymark,Red Triangle  
From 6201 Height without point in feet (e.g. 62010\$2165 means 660 meter)  
From 6301 Height with point in feet (e.g. 63010\$787 means 240 meter)  
From 6400 ?  
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 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 Harbour  
 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 6601 Arch  
 From 6602 Area  
 From 6603 Basin  
 From 6604 Beach  
 From 6605 Bench  
 From 6606 Cape  
 From 6607 Cliff  
 From 6608 Crater  
 From 6609 Flat  
 From 660A Forest  
 From 660B Gap  
 From 660C Gut  
 From 660D Isthmus  
 From 660E Lava  
 From 660F Pillar  
 From 6610 Plain  
 From 6611 Range  
 From 6612 Reserve  
 From 6613 Ridge  
 From 6614 Rock  
 From 6615 Slope  
 From 6616 Summit  
 From 6617 Valley  
 From 6618 Woods

!\*\*\*\*\*

'Nautical 1601 to 1D01

|   |                               |
|---|-------------------------------|
| From 1B01, 1A01, 1901, 1801, 1701, 1601 | Fog Horn                      |
| From 1B02, 1A02, 1902, 1802, 1702, 1602 | Radio Beacon                  |
| From 1B03, 1A03, 1903, 1803, 1703, 1603 | Racon                         |
| From 1B04, 1A04, 1904, 1804, 1704, 1604 | Daybeacon,red Triangle        |
| From 1B05, 1A05, 1905, 1805, 1705, 1605 | Daybeacon,green Square        |
| From 1B06, 1A06, 1906, 1806, 1706, 1606 | Daybeacon,white Diamond       |
| From 1B07, 1A07, 1907, 1807, 1707, 1607 | unlit Navaid, white           |
| From 1B08, 1A08, 1908, 1808, 1708, 1608 | unlit Navaid, red             |
| From 1B09, 1A09, 1909, 1809, 1709, 1609 | unlit Navaid, green           |
| From 1B0A, 1A0A, 190A, 180A, 170A, 160A | unlit Navaid, black           |
| From 1B0B, 1A0B, 190B, 180B, 170B, 160B | unlit Navaid, yellow or amber |
| From 1B0C, 1A0C, 190C, 180C, 170C, 160C | unlit Navaid, orange          |
| From 1B0D, 1A0D, 190D, 180D, 170D, 160D | unlit Navaid, multi colored   |
| From 1B0E, 1A0E, 190E, 180E, 170E, 160E | Navaid,unknown                |
| From 1B0F, 1A0F, 190F, 180F, 170F, 160F | lighted Navaid, white         |
| From 1B10, 1A10, 1910, 1810, 1710, 1610 | lighted Navaid, red           |

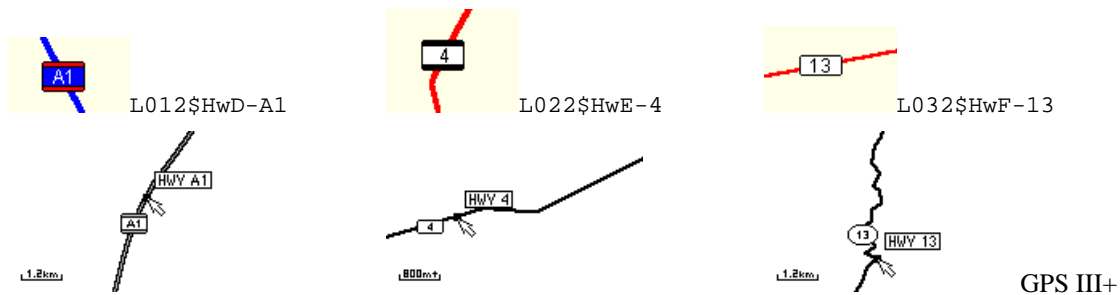
|   |                                   |
|---|-----------------------------------|
| From 1B11, 1A11, 1911, 1811, 1711, 1611 | lighted Navaid, green             |
| From 1B12, 1A12, 1912, 1812, 1712, 1612 | lighted Navaid, yellow or amber   |
| From 1B13, 1A13, 1913, 1813, 1713, 1613 | lighted Navaid, orange            |
| From 1B14, 1A14, 1914, 1814, 1714, 1614 | lighted Navaid, violet            |
| From 1B15, 1A15, 1915, 1815, 1715, 1615 | lighted Navaid, blue              |
| From 1B16, 1A16, 1916, 1816, 1716, 1616 | lighted Navaid, multi colored     |
| From 1C00                               | unclassified Obstruction          |
| From 1C01                               | Wreck                             |
| From 1C02                               | submerged Wreck, dangerous        |
| From 1C03                               | submerged Wreck, non-dangerous    |
| From 1C04                               | Wreck,cleared by Wire-drag        |
| From 1C05                               | Obstruction,visible at high Water |
| From 1C06                               | Obstruction, awash                |
| From 1C07                               | Obstruction, submerged            |
| From 1C08                               | Obstruction,cleared by Wire-drag  |
| From 1C09                               | Rock, awash                       |
| From 1C0A                               | Rock, submerged at low Water      |
| From 1C0B                               | Sounding                          |
| From 1D01                               | Tide Prediction                   |

### Appendix D: special Codes for lines of the MapDekode

These special codes are introduced at the beginning of the description of a track of OziExplorer that represents a highway of the map and they are not really visualized but rather they are interpreted by the MapDekode like an indication of the format with which should be shown the label of the highway that puts on next on screen. As it seems, the style of these labels this fact thinking more in the American roads than in the Europeans but some can be used without problems. The following codes exist:

- "I-" Interstate
- "US " US-Road
- "HwC-" Highway character oval
- "HwD-" Highway small character
- "HwE-" Highway big character
- "HwF-" Highway small character

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



### Appendix E: special Codes for labels of the 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**

### Appendix F: character set

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