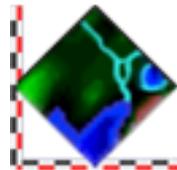


# CodeTopo

*v 3.0.2 - Mutatis mutandis*

# User Guide





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Attention, some screenshot are from the French version of CodeTopo. The French texts are obviously translated in the English version of the software.

# Introduction

## CodeTopo and automatic drawing

CodeTopo is a software designed to automatically draw graphics from lists of points that represent Cartesian coordinates. It will interest especially those who work with Topographics data obtained using tacheometers or GPS systems. In professional environment, or even for personal use, CodeTopo will save time on the elaboration of drawings. No need to trace, manually, the outline of objects by linking each of their points.

Indeed, from a sequence of points localized in X and Y, CodeTopo will determine the element of graphic to which they belong (a road, a building, or a trench, for example). Then, it will generate the path of this object, as well as all the objects contained in the same list of points.

CodeTopo allows to create vector drawings very quickly. These drawings are saved as PDF files, and could be edited with most of the design software such as AutoCAD™, Canvas™, CorelDraw™, or Illustrator™ for example.

## Installation and system requirements

CodeTopo can be installed on any computer equipped with the following systems: Mac Os X ; Windows 95 / 98 / NT / 2000 / Me / XP ; or Linux.(under some reserves).

When the file is downloaded from the web site, it is compacted. Before you can use CodeTopo, You'll need to uncompress it with an utility that manages the ".zip" file format.

## Presentation of the software

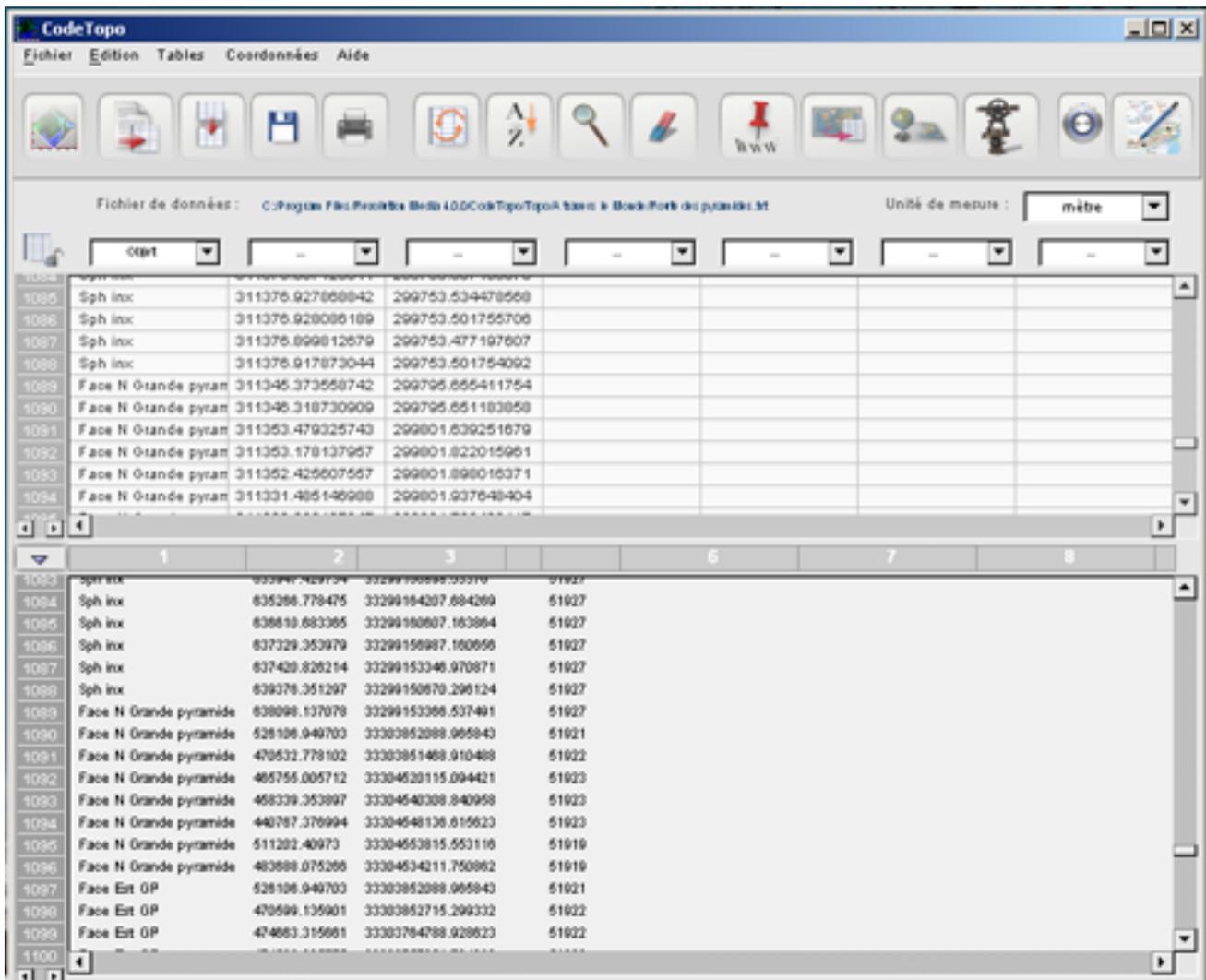
The main window of CodeTopo is divided into three parts. The menubar and the toolbar, form the upper part, and provide quick access to all functions of the software.

Below, there is a table (or field) that will receive the data imported from an external file. This table is itself surmounted by popup menus that allow to define: the measurement system in activity, and distribute information from table 1 to table2. Finally, in the lower part of the main window, the second table is used to hold the result of the changes made from the data of table 1.

Data can be entered directly by the user in the one or the other of the fields. But CodeTopo will crate graphics only from the data of Table !

The file containing the original data is never affected by the operations realised in CodeTopo. To save changes made on the imported data it is necessary to export them by using the button or the menu provided for that purpose (see below).

The interface of CodeTopo was designed to be as clear and intuitive as possible. By placing the cursor over the buttons at the top of the main window, you will get a brief explanation of the role of these elements.



The main window of CodeTopo, here for the Windows system

# 1 - import and organize data in CodeTopo

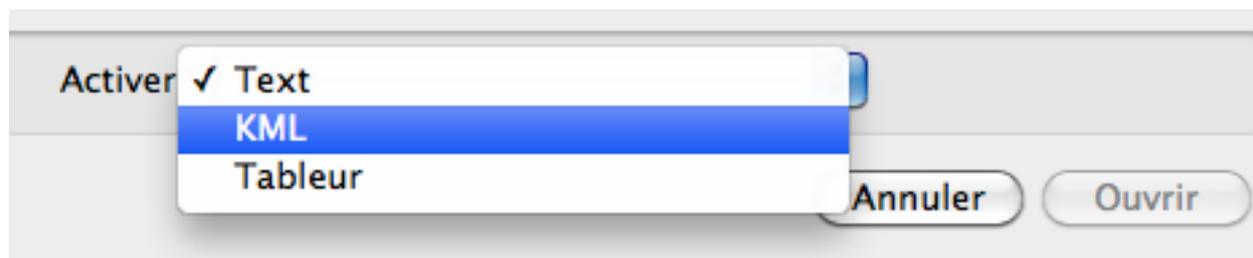
## 1.1 - Import data from external file

The first step is to write, in CodeTopo, the data that will be drawn. Typically, it is Topographics or Cartographics coordinates obtained using equipment such as tacheometers or GPS systems. CodeTopo does not import data directly from these devices and they must therefore have been beforehand recorded on a physical support accessible to the user, such as a hard disk or a USB key.

To import data from an existing file, we select the menu item "Import ..." from the "File" menu, or we click on the button:



A dialog box appears that allows to select the file to import. CodeTopo treats "text only" (ASCII), "kml" (Google Earth™), or "Spreadsheet" (Excel or OpenOffice™, for example) files. These different formats are available at the bottom of the window to access files.



The imported data are stored in the table 1. Importing data also erase the contents of the table n° 2 if it is not empty, but with the consent of the user.



### **Important to know !!**

To work correctly CodeTopo requires that the data are imported from a file in which the values are separated, rather, by tabs and in which the decimal separator is a point (".").

If the data of the original file are separated by characters like the comma (",") or semicolon (";"), these characters are automatically transformed into tabs during import.

In addition, when importing data that the decimal separator is a comma, the software will automatically convert commas in points. Therefore beware to the fact that: if the definitions also contain commas or semicolons, these characters will be converted into signs "point".



## Very important, read the next chapter !!

### 1.2 - Identify et present the data

During the execution of automatic drawing, CodeTopo will consider as belonging to the same object all the lines in the table n° 2 which follow each other, and whose definition (the contents of the first column) is identical.

For example, the following lines:

```
House 1 646340.276 6892722.516
House 1 646347.030 6892689.308
House 1 646344.037 6892689.390
House 1 646344.718 6892691.441
```

will be considered as a single object, the "House 1", while the lines

```
House 1 646340.276 6892722.516
House 2 646347.030 6892689.308
House 3 646344.037 6892689.390
House 4 646344.718 6892691.441
```

will be considered as four different objects sharing the same type ([click here](#) for an illustration of this principle).

Therefore, once the data have been imported, it is necessary to clearly identify (thanks to popup menus which lie above the columns of the table n° 1) those that correspond to :

- the definition of objects = column 1 of table 2;
- the X axis = column 2 of table 2;
- and the Y axis = column 3 of Table 2.

	X	Y	Z	Objet
9901	570801.883	68798.721	107.389	TR2
9902	570804.390	68800.498	107.416	TR2
9903	570804.798	68820.121	108.735	M110
9904	570804.036	68825.342	108.592	M110
9905	570805.798	68835.883	108.192	M1102
9906	570802.998	68851.211	108.601	TR2
9907	570802.075	68847.000	108.095	TR2
9908	570800.465	68847.279	108.049	TR2
TR2				
TR2				
M1100				
M1101				
M1102				

If the imported data are already in the order indicated above, it is possible to transfer them directly from the table n° 1 to table n° 2 by selecting the menu item "transferred ..." of Menu "tables ", or by using the next button:



The transfer is particularly useful for large lists with thousands of points data and when no change are necessary between the moment these data are imported and when they are drawn. Before the transfer, in order to avoid a crushing unintentional data, a confirmation will be requested.

Before starting the process of automatic drawing, it is imperative to verify data contained in the field 2. The columns of X and Y axis **must not contain negative values or outliers**, like empty cells or "0" for example. If CodeTopo detects outliers of data, it will interrupt the automatic creative process. If it does not detect, the risk is to get an unreadable graphic output!

Finally, for a correct execution of the automatic drawing, **the first line of table 2 does not contain the definition of the columns**. If such a line appears in the beginning of the list, CodeTopo will offer to automatically remove it.

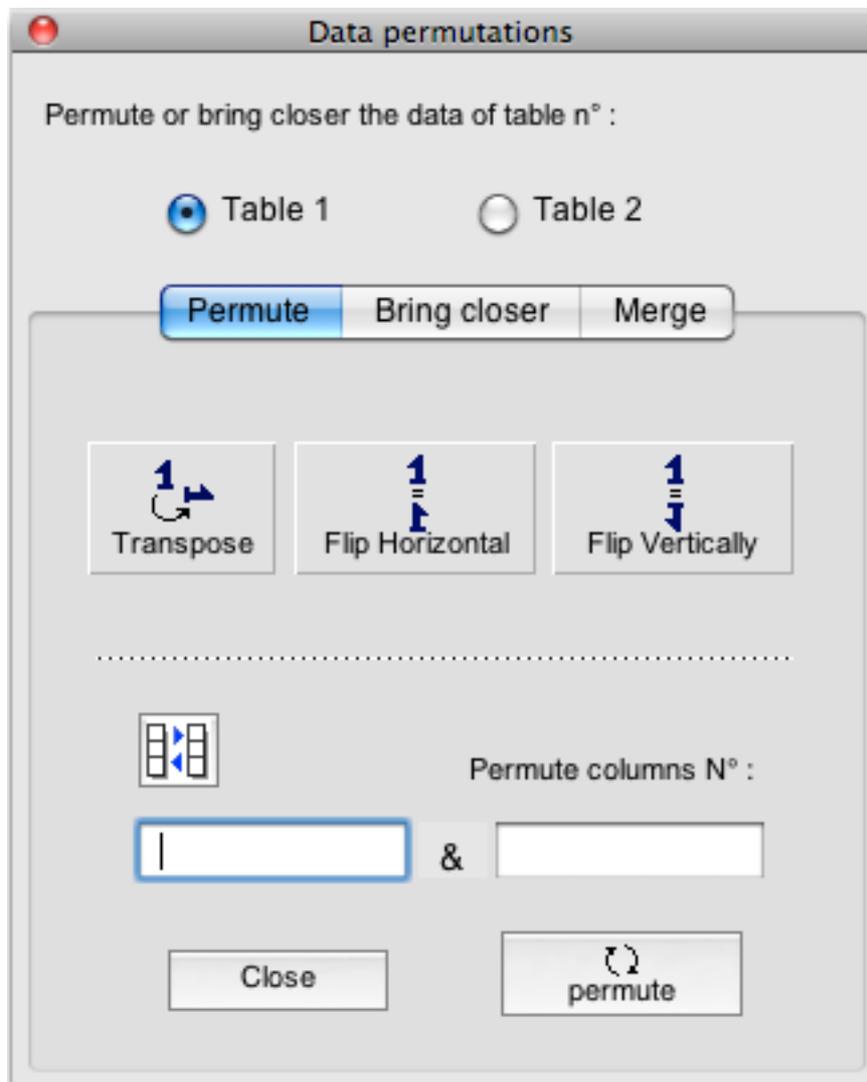
**Note:** altitudes (Z axis) are not taken into consideration in CodeTopo. However, their presence in the list of items not disturb the automatic drawing.

### 1.3 - Reorganize the data

In order to improve the automatic process of drawing, it is possible to reorganize the data imported in table 1, or those already transferred in Table 2. Functions: permute, bring closer, merge, which are available via the "Permutations" window, are there to facilitate this work.

You can access this window, and these functions by clicking the button below, or by selecting the corresponding menu items in the Menu "Tables".





The window to permute or bring closer the data

The permutation of the data consists in exchanging the place of columns or lines within the table of data. So, if you wish that the legend of points does not corresponds to the definition of a type (" house 1 ", for example), but corresponds to the height of each of the points, it is enough to permute the column n° 1 with the column which contains the altitudes.

ex : [ 1 | 2 | 3 | 4 | 5 ]    =>    [ 4 | 2 | 3 | 1 | 5 ]

The rapprochement of the data allows to group together coordinates that belong to the same objects, but were dispersed during their recording. Indeed, **if the lines with coordinates of points which belong to the same object do not follow each other in the table n° 2, CodeTopo cannot connect these points between them during the automatic drawing.**

Take the case of a limit of parcel, for example. We will bring close the lines that belong to this limit by inscribing "parcel" in the field of the permutation window dedicated to this purpose. By clicking the "Bring closer" button, we will gather all rows in the table 2 that contain "Parcel" in their definition of object.

List of data in their original order		
Parcelle 1	59695.55	12876.14
Parcelle 1	59695.84	12876.11
Parcelle 1	59696.28	12876.34
Parcelle 1	59696.93	12876.29
Maison	59689.76	12863.62
Maison	59689.96	12865.95
Maison	59690.72	12866.92
Maison	59692.44	12866.12
Parcelle 1	59696.75	12876.17
Parcelle 1	59696.98	12875.88

List of gathered data		
Parcelle 1	59695.55	12876.14
Parcelle 1	59695.84	12876.11
Parcelle 1	59696.28	12876.34
Parcelle 1	59696.93	12876.29
Parcelle 1	59696.75	12876.17
Parcelle 1	59696.98	12875.88
Maison	59689.76	12863.62
Maison	59689.96	12865.95
Maison	59690.72	12866.92
Maison	59692.44	12866.12

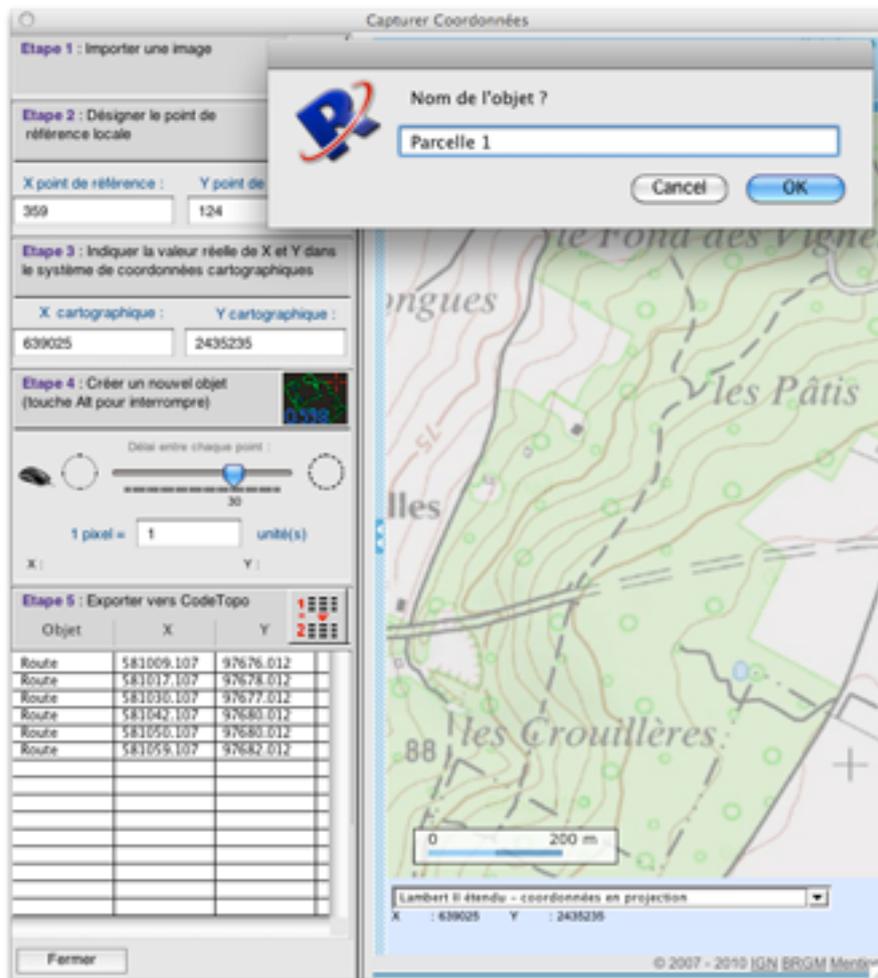
The merge of columns allows to replace several columns by a single column while preserving their content. The contents of the merged columns can be: either appends, or adds.

Merge example by appending the content of three columns :  $[ 1 \ | \ 2 \ | \ 3 ] \Rightarrow [ 123 ]$

Merge example by adding the contents of three columns :  $[ 1 \ | \ 2 \ | \ 3 ] \Rightarrow [ 6 ]$

## 1.4 - Capture coordinates from bitmap picture

It is possible to recover Cartesian coordinates otherwise than importing them from an external file. Indeed CodeTopo provides a way to create these coordinates through the "Capture coordinates" window. We can access this window by selecting the menu item "Capture from a picture..." of Menu "Data", or by clicking on the button:

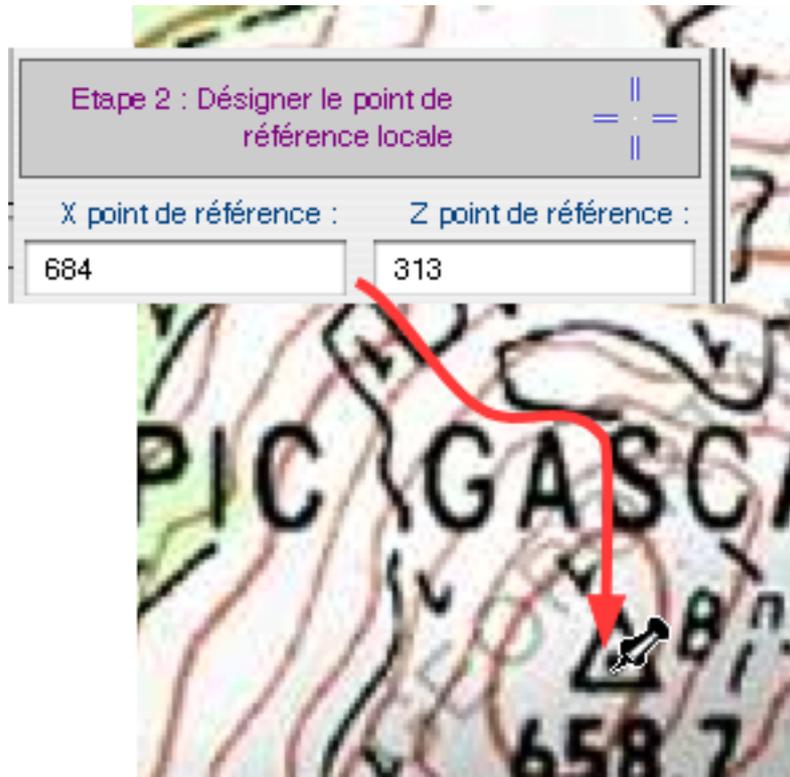


The capture coordinates window

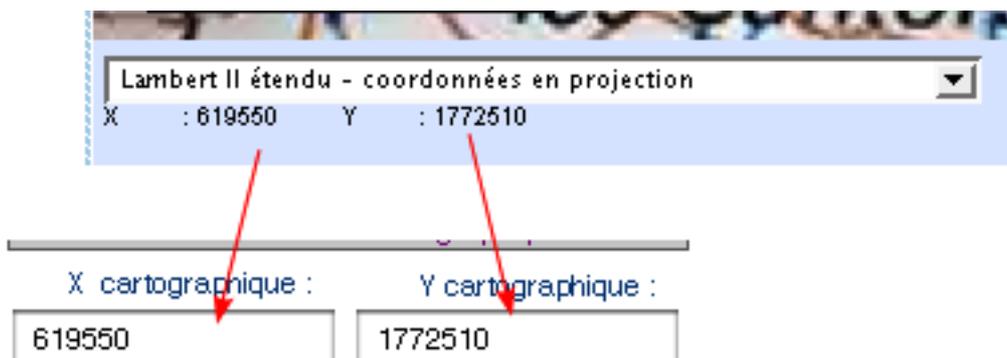
In this window, are imported by clicking the button below the image that we want to vectorize. It can be a scanned document, an Internet document, etc., but the images must be formatted as : GIF, JPEG, PNG, BMP, XWD, XBM, XPM, PBM, PGM, PPM, or PICT format.



We indicate, thanks to the cross cursor and by clicking with the mouse, a point of this map which will serve as local reference with regard to the active window...



... then we introduce the real values of this point in the original mapping system.



We choose the delay between the automatic capture of each point during the recording of a new object, and while the mouse button is down. The higher is this number, the lower will be the number of captured points.



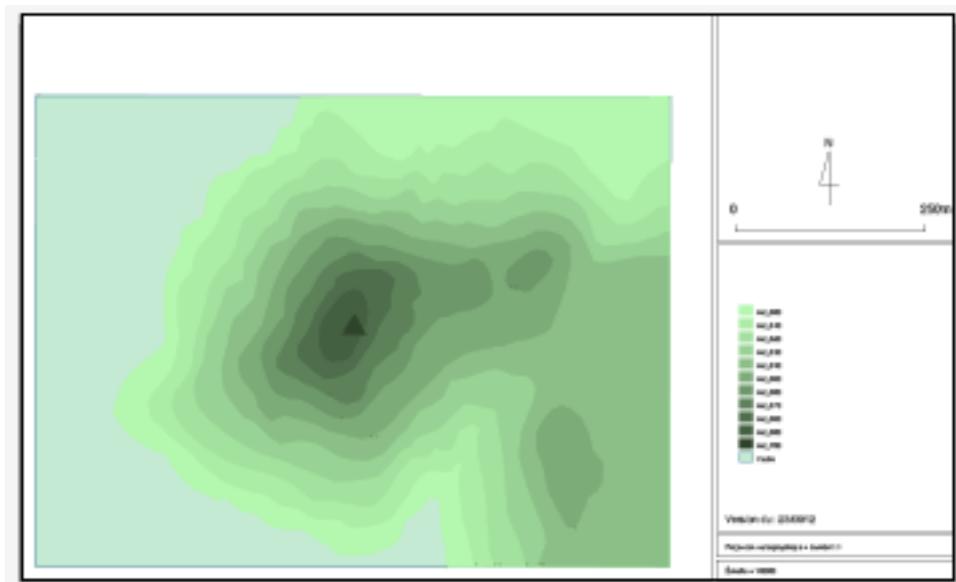
The recording of a new object begins by clicking on the next button :

It will be asked to choose a name for the object, and then we click as often as necessary on the imported image, by following the shape of the element that we wish to vectorize (It is also possible to let the mouse button down and to follow the outline of an object).



By clicking on the image, the real coordinates are automatically written in the field situated at the bottom left of the window. **To stop the recording of an object, press the "alt" button ("option" on Mac keyboard).**

Finally, when we have the coordinates of all the interesting elements, we transfer them in the field n°2 of the main window of CodeTopo by using the button provided for that purpose :



An example of vectorized drawing obtained from a scanned image

## 2 - Modify and save data

### 2.1 - Edit et modify the data

In addition to the changes affecting the automatic drawing of data, CodeTopo integrates several functions that allow working on the edition of the data themselves.

To manually edit the data, it must be ensured that the tables are unlocked. The button below allows to lock or unlock the tables :



#### List of functions edition



[menu item " Erase..." of Menu "Edition" ]

Delete the contents of the tables of data. If nécessaire, the action of this command will affect simultaneously the contents of both fields. To avoid unintentional overwriting of data, confirmation is requested.



[menu item " Find..." of Menu "Tables" ]

open a window to find and replace a suite of characters, a word or another value. The search window can also replace all the elements of a column according, or not, on the value of each of these elements. Changes made through the search window may affect both the data in Table 1 and the data contained in table 2.



[menu item " Sort..." of Menu "Tables" ]

Sorts lines of the data table n°1 according to the values of one of its columns / headings.

Finally, the menu item **"Merge lines..."** of Menu **"Tables"** Allows to combine, in a single line, several lines beforehand selected, while adding the values contained in each of the columns which compose these lines (if these columns contain only numeric values, of course).

example : two lines are selected (here in blue) and are grouped together to obtain (in red) the sum of the columns 2 and 3.

[	Coffer	1	3000	+			
[	Coffer	1	12000	=	Coffer	2	15000
	Stool	1	6000		Stool	1	6000
	Vase	1	1000		Vase	1	1000

the grouping can be pursued by adding "Coffer" and "Stool"

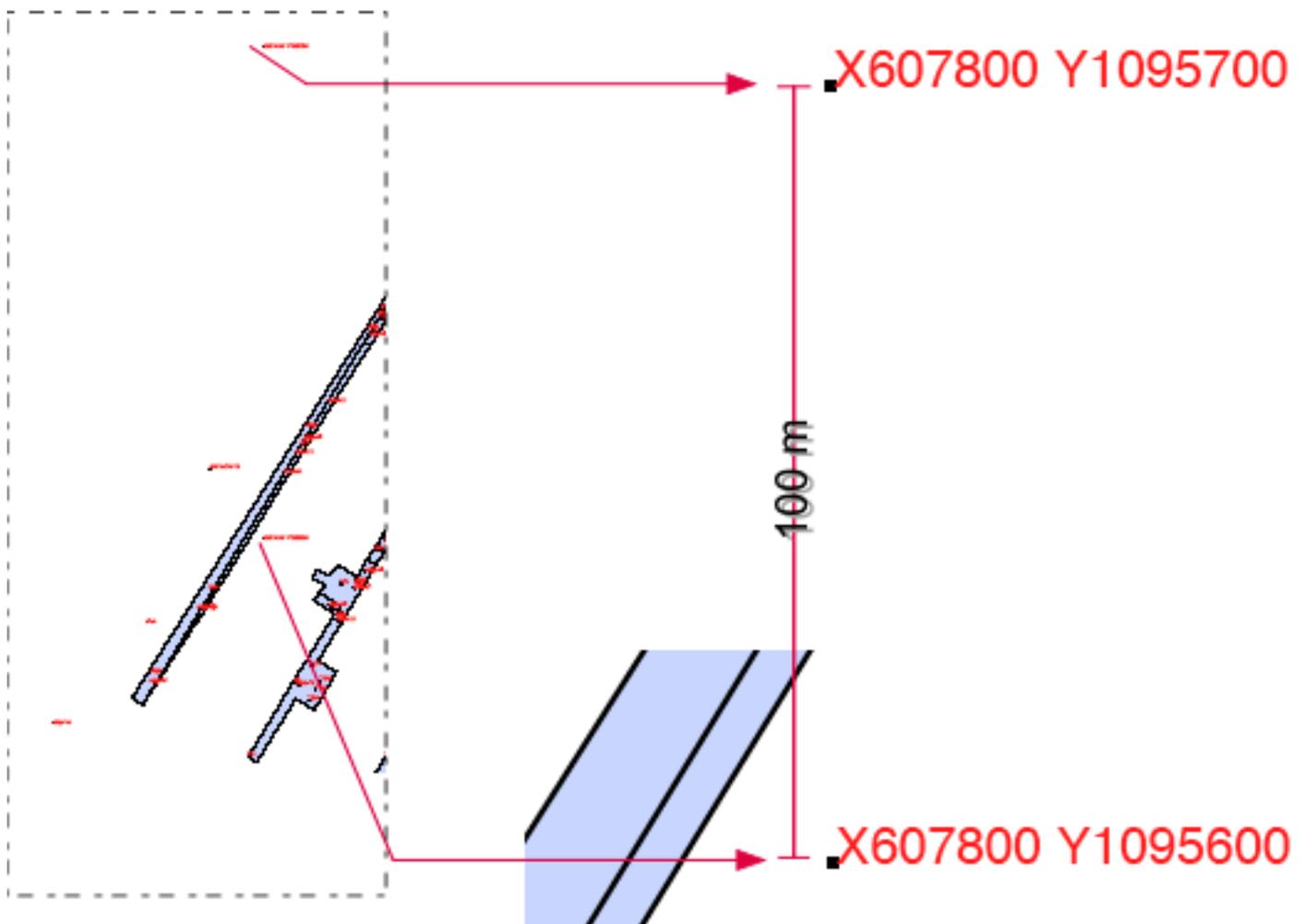
[	Coffer	2	15000	+			
[	Stool	1	6000	=	Stool	3	21000
	Vase	1	1000				

Note : this command works even when the object definitions are not identical. In this case, the definition of the aggregated lines will be the value of the definition which is located in the last one of the selected lines ("stool" in our second example).

## 2.2 - Incorporate data to readjust a graphic with other pictures

In CodeTopo, it is possible to add automatically a peripheral grid (carroyage) around the plan. If you ther is no need of peripheral grid but if we wish nevertheless to be able to easily locate a map (in a cartographic system, for example) or to facilitate the calculation of the scale of a map, we can introduce two "whole" values in the columns of points. We will give, as definition of these values, a title which will correspond to the value of X and Y (put side by side) as shown in the next example :

Definition of objects	X axis	Y axis
fdHangar	607723.806	1095717.984
fdHangar	607726.86	1095722.877
X 607800 Y 1095700	607800	1095700
X 607800 Y 1095600	607800	1095600



extract of a plan

reference points for the calculation of the scale, or readjustment of the map

## 2.3 - Convert geographic coordinates in cartographic coordinates

Numerous tools are available on Internet which allow to convert coordinates between different geographical and / or cartographic systems. However, some of these tools only authorize the transformation of a single point at once, or are only available for the Windows system.

That's why CodeTopo contains a module of coordinates conversion which can be accessed by selecting the menu item "Convert ..." of the "Data" menu or by clicking on the button:



This module allows to convert automatically all the coordinates present in the field n°1 and to transfer them in the field n°2. For that purpose, geographics data of table 1 must be expressed: either in decimal degrees, or in sexagesimal degrees.

The first case present a particular interest to those who work with coordinates of points associated with the WGS84 geodesic system (such as users of GPS, for example). The data to be converted must be present in the form:

code	Longitude	Latitude	Altitude
Point 1	1.1390274101	29.9757323377	0

Cartographic system used for conversion is the UTM projection system, so the result of the conversion will be :

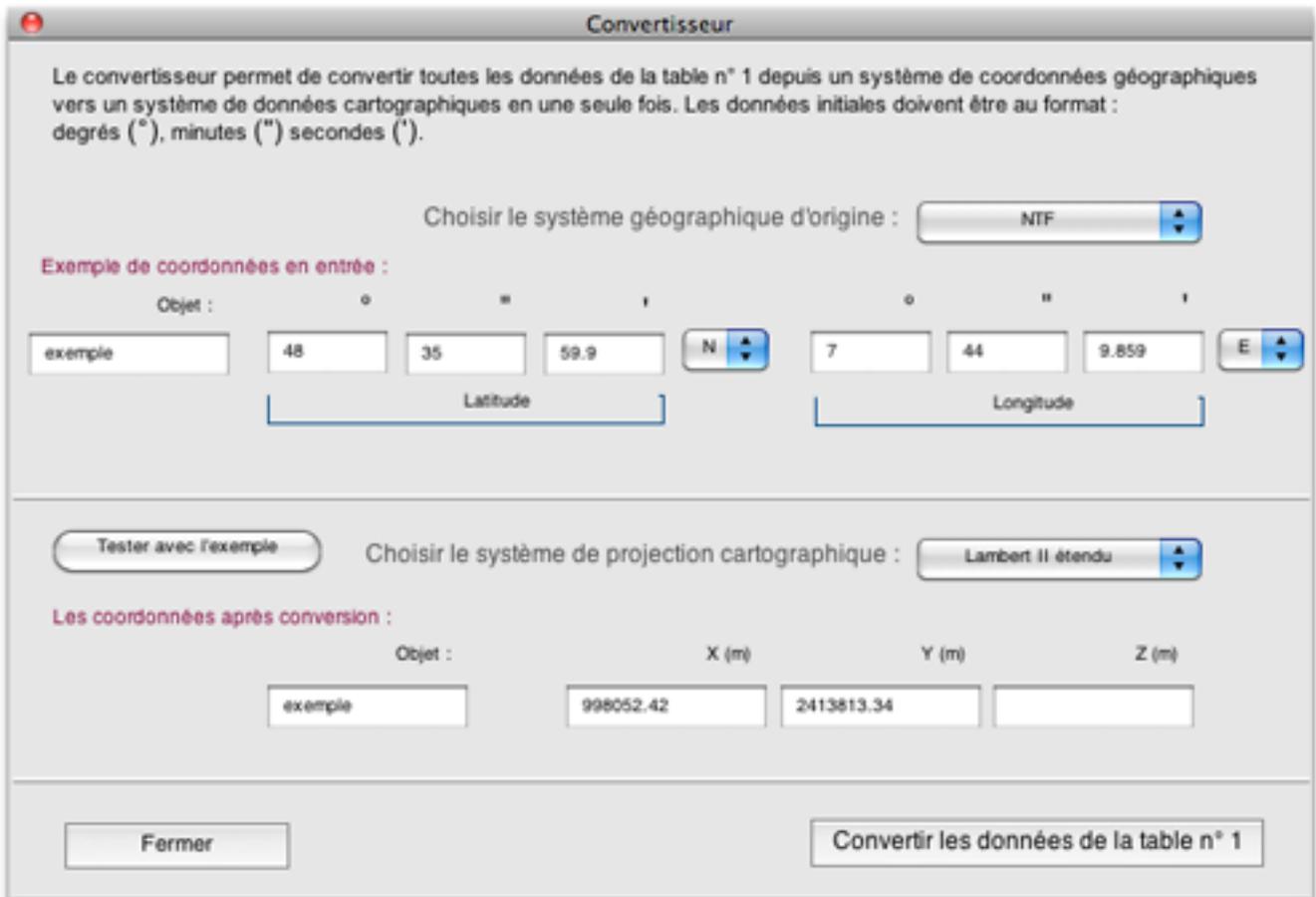
Code	X	Y	alti	UTM zone
Point 1	320453.9210	3317553.4766	0	36

If the geographic data are expressed in sexagesimal degrees, they have to appear in the following way :

(1) Definition	(2) degrees	(3) minutes	(4) seconds	(5) direction
	(6) degrees	(7) minutes	(8) seconds	(9) direction

ex :	code	°	"	'	dir	°	"	'	dir
ex :	Point 1	45	66	41	N	42	32	34	E

Attention, for the moment the possibilities of conversion are still limited, and concern essentially the French system of cartographic projection (Lambert).



The module of coordinates conversion (here in the french version).

## 2.4 - Save the modifications

Once the changes made, it is possible to print them via the corresponding menu item of the "File" menu, or by clicking on the button:



It is possible also to save these changes by exporting the contents of the table data n°1 or 2, to a "Text only" file format which may, if necessary, be imported. This is done using the menu item "Export ..." from the "File" menu, or by clicking the following button:



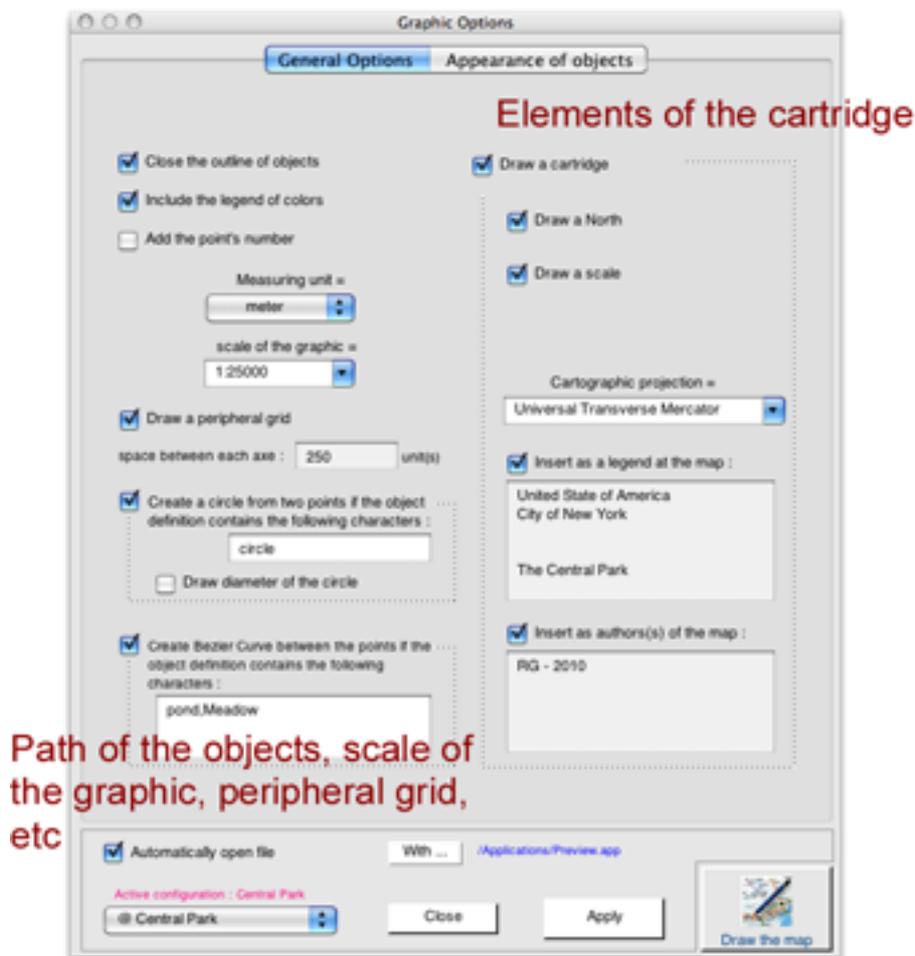
## 3 - Define options of the graphic

### 3.1 - Define general options

One of the main steps in CodeTopo is to define the graphic options. You can access these options by selecting the menu item "Graph options..." of menu "Data", or by clicking the following button:



The options window allows to define, through two tabs, options such as the mode of representation of objects, the color of the text or of the path of objects, the presence of a legend, the presence of a peripheral grid, etc.

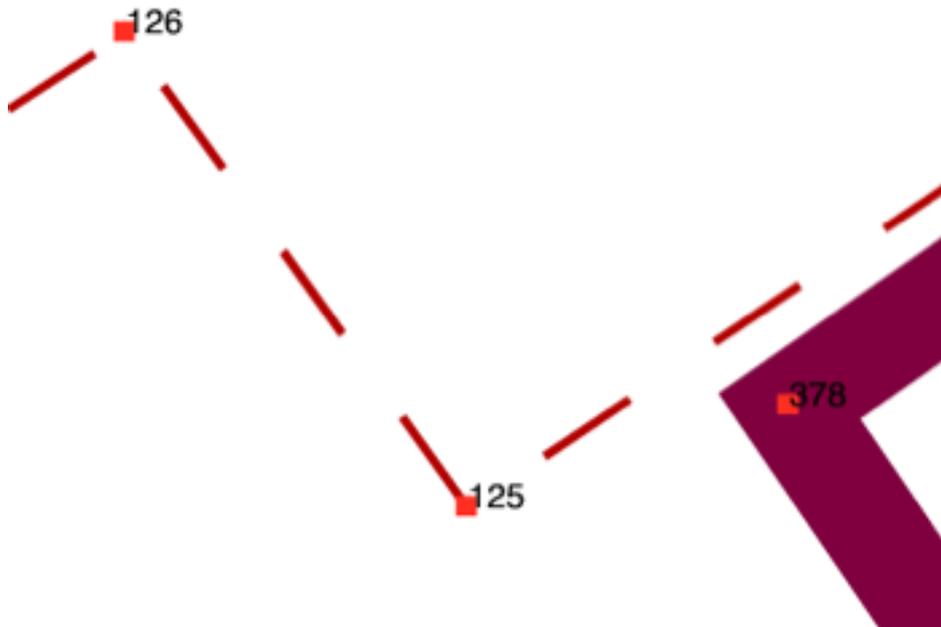


La fenêtre des options : les options generales

In the first tab (General Options), you will configure CodeTopo to generate automatically: cartridge, orientation, scale, or to incorporate informations such as the title of the graphic, the author's name, etc.

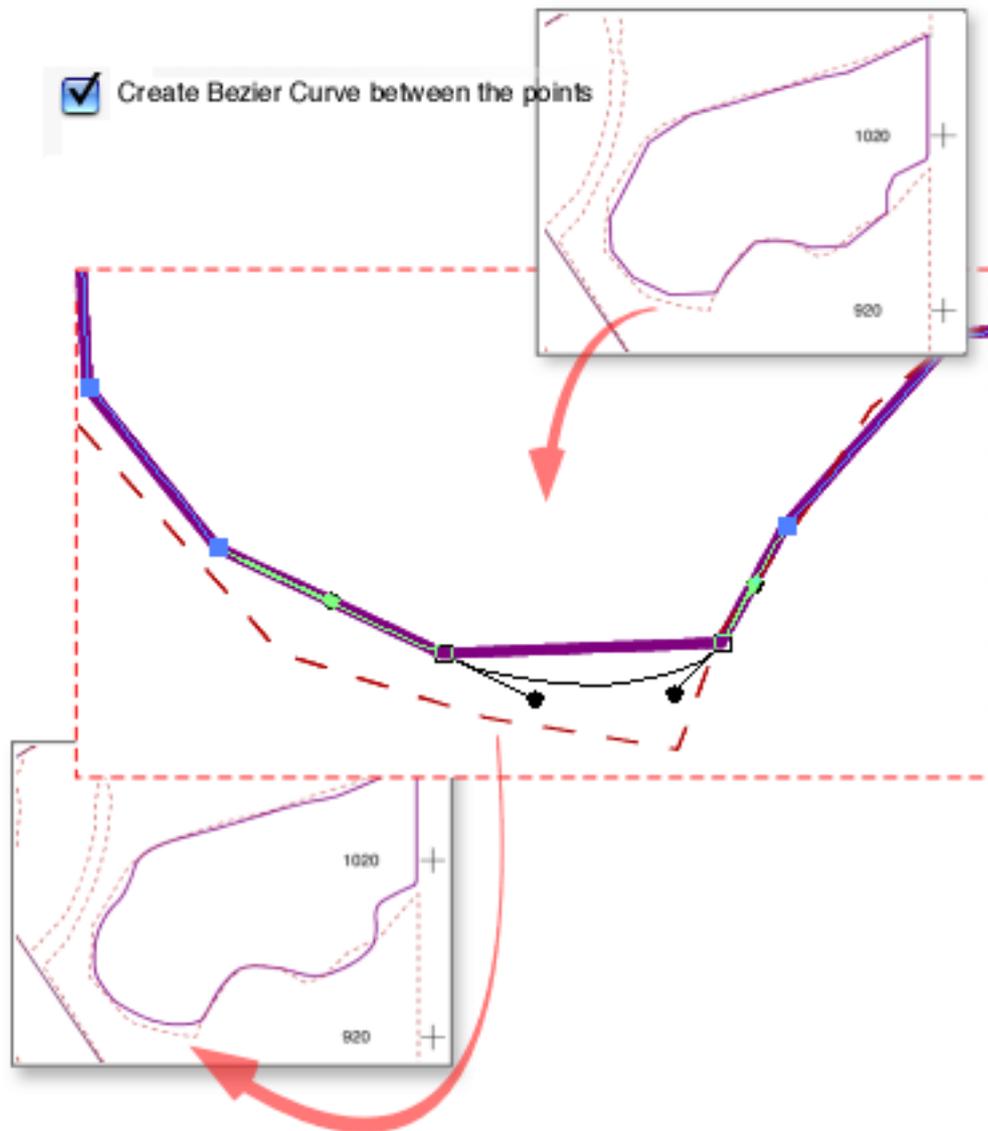
It must be specified that length of the drawn scale is always equal to 5 cm (142 pixels). The drop-down menu associated with this function allows, on the other hand, to define the unit of measure in use and indicates CodeTopo the scale at which the graphic should be drawn.

CodeTopo offers several options in this tab designed to facilitate and accelerate the elaboration of a graphic. Thus, at the request of the user, it can draw Cartesian coordinates of each point of an object as a small square accompanied by its sequence number in the list of points.



one option of the drawing : the addition of numbered points

It may also automatically draw the perimeter of a circle from two points which are designated as belonging to the same objet. Finally, by way of "ultimate sophistication", it could connect the points of the outline not with simple lines, but with Bezier curves.



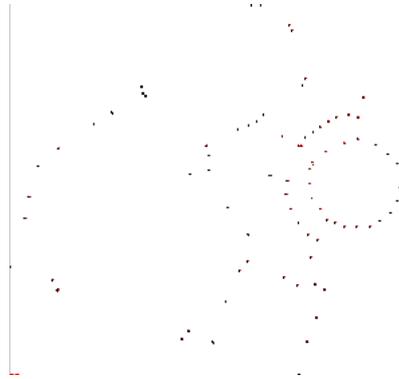
Transformation and smoothing of the outline of an object using Bézier curves.

When we define the graphic options, we should not forget to indicate, using the checkbox, if the outline of objects must be closed or not. In the first case, CodeTopo creates a polygon from the points that belong to the same object \* and fills the polygon with the color that has possibly been associated with this type of objects (see below). In the second case, CodeTopo simply connects each of the points of the lines belonging to the same object.

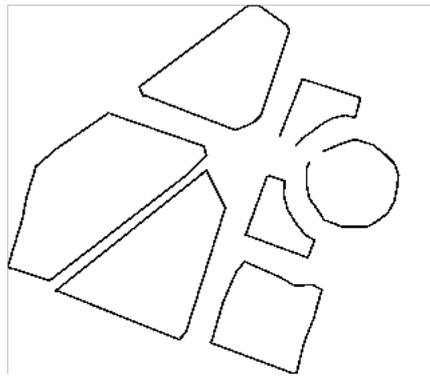
By default, the button : "Close the outline of objects" is checked. In that case, the drawing of outline of each object defined in the options window can be disabled, individually.

**CAUTION**, when the button "Close the outline of objects" is not checked, this option will be applied to all objects of the graphic.

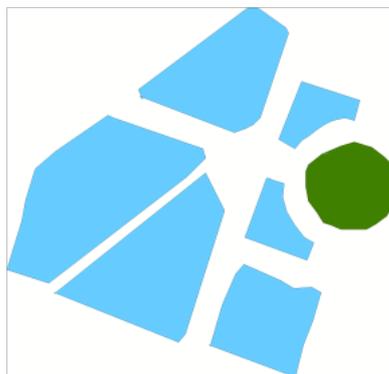
\* REMEMBER : CodeTopo considers as belonging to the same object of a graphic all adjacent lines of table n° 2 whose definition (contents of the first column) is identical. An object defined by a single line of the table 2 will be considered as an isolated point and will be drawn in this way (see example below).



Cloud of points. Drawing realized when each point has a different definition (code).



Drawing realized when checkbox "Close the outline of objects" is not checked. In this sample, *CodeTopo* has identified seven objects.



Drawing realized when checkbox "Close the outline of objects" is checked.

## 3.2 - Define options for the appearance of objects

In the second tab of the "Options" window (Appearance of objects), we can find a series of popup menus - under the guise of small black triangles (▼) - that allow to associate a definition of object with attributes (colors of fill and outline, for example). This association is realized without the need to inscribe these definitions manually.

Indeed, the types of objects accessible via the popup menus reflect the content of the column selected by the user using the menu located above the fields of definition.

For example, in the list below, the contents of the column 5 ("Other criteria") will determine the attributes for the objects "House."

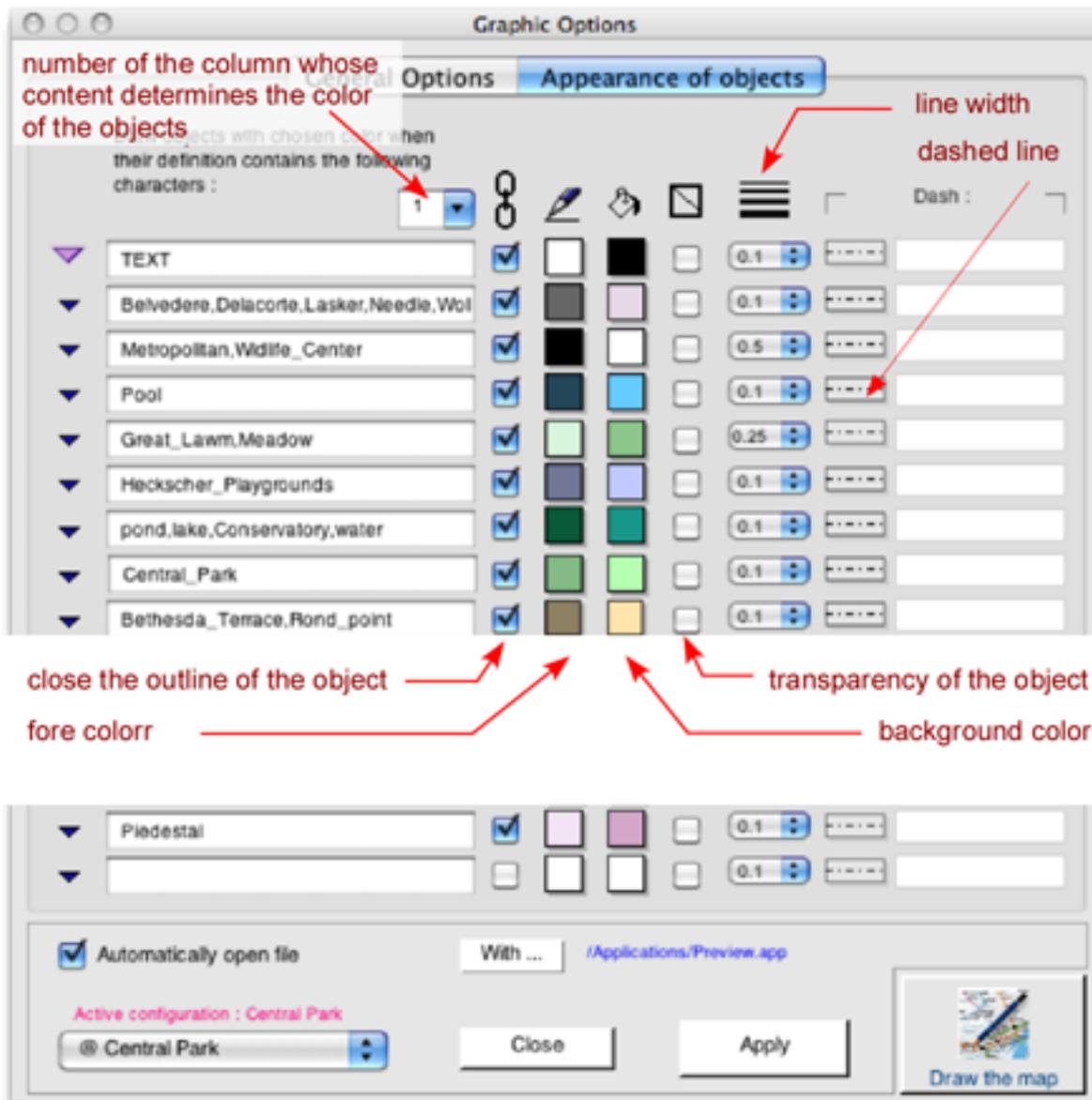
Code	X	Y	Z	Other criteria
House 1	646340.276	6892722.516	0	group 1
House 1	646347.030	6892689.308	0	group 1
House 2	646344.037	6892689.390	0	group 2
House 2	646344.718	6892691.441	0	group 2

Attention! the popup menus are active only when the user has selected a column number and, of course, if the corresponding column of Table 2 is not empty.

Several types of objects can share the same attributes. It is sufficient for that to include them in the same field of definition, separated with a comma. To enter multiple definitions in a single field using one of popup menus, simply select the items on this menu by holding the Shift key.

To duplicate the color of a button to other buttons of this tab, we just click on it while holding down the Shiftkey, then we drag the pointer over the buttons which we want to assign the same color.

During the automatic drawing, an object whose color has not been defined will be drawn with the default color (pale blue).



The options window : definition of object attributes.

### 3.3 - Save preferences of the graphic

When all options are set, it is possible to save the configuration using the drop-down menu located at the bottom of the "Options" window.

Configurations are saved in an external preferences file, placed in the same folder as CodeTopo. Configurations can be recalled or modified with the same menu.



## 4 - Draw graphic

Once the data has been verified and possibly re-arranged, it remains only to click on the "Draw the map" button or choose the corresponding menu item in the Menu "Data".



If no options has been set for the graphic, CodeTopo will automatically redirected the user to the options window. Otherwise, a dialog box will ask to choose the name of the file, as well as its location on the disk. Drawing will be saved as PDF.

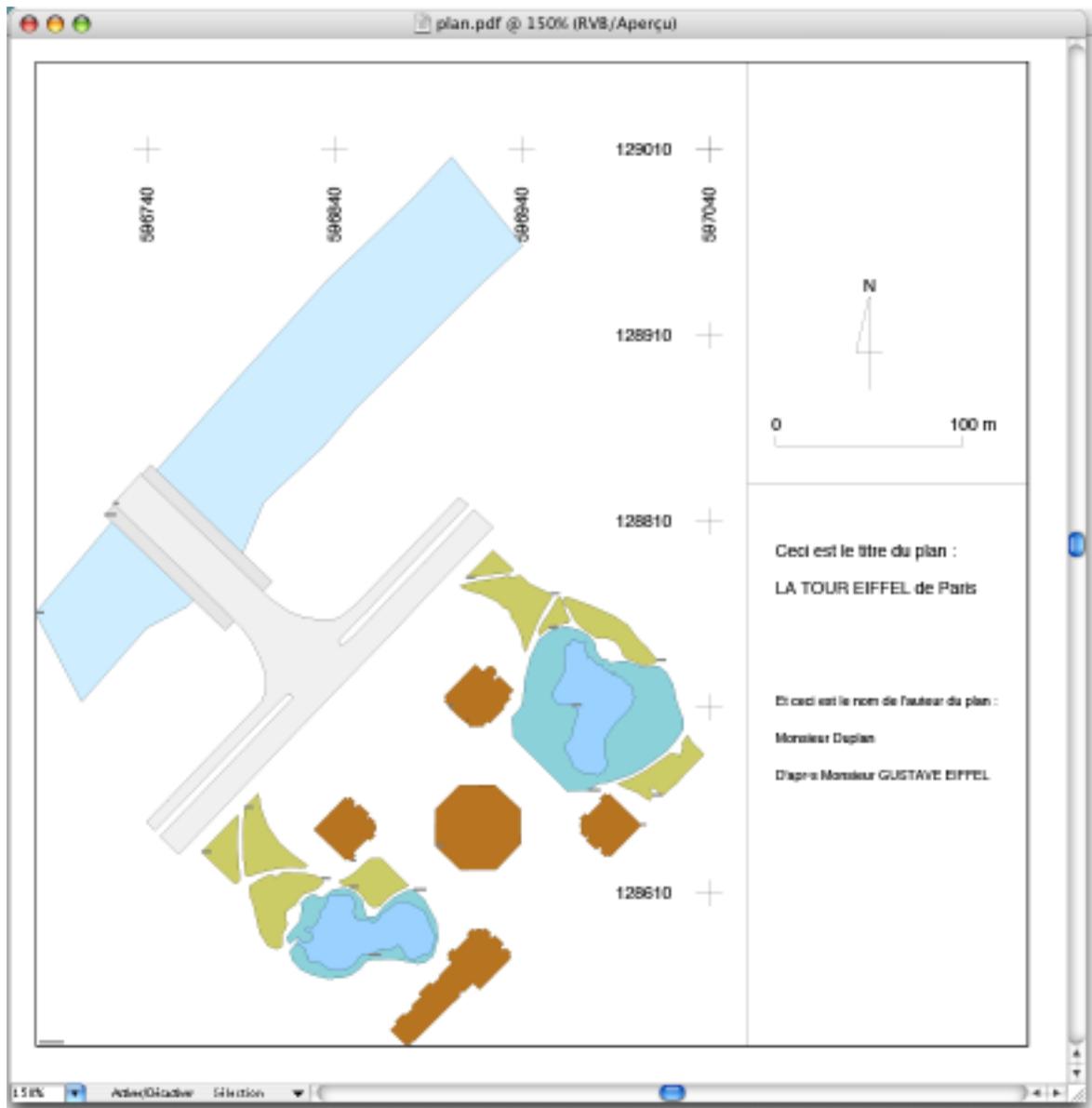
Before drawing the chart, CodeTopo performs data verification. If it detects "suspicious" coordinates, it will notify and will offer to suspend the execution of the drawing. It's possible to ignore the warning and continue with this step by simply clicking on the button "Continue" on the dialog box that appeared.

Once the graph is drawn and stored on the disk, it is possible to automatically open it with the application of his choice. Simply hilite the relevant box in the options window and choose the default application (attention : Some applications do not respond to this command, or do not recognize the PDF format).

If, after the whole process, the map is not properly designed, it is necessary to check carefully the data of table 2, and then restart the automatic drawing procedure. In general, failures of the drawing come from the presence of incorrect coordinates.

Drawing a map with CodeTopo is very fast. For example, the realization of a map from a list of more than 32,000 points was tested with a Windows XP computer, equipped with an Intel "Pentium 4 " (2.8 GHz, and 1 GB of RAM).

The 32,371 points were processed in 366 seconds or a little over six minutes, generating a PDF file of about 1.7 MB.



An example of a plan realized in a few fractions of a second by CodeTopo and from Cartesian coordinates.

# 5 - Calculations and research of informations from coordinates

## 5.1 - Calculate

Beyond the creation of automatic drawing, CodeTopo offers some functions associated to the treatment of the Cartesian coordinates points. It allows to calculate area, perimeter and centroid of objects whose points are selected.

These calculations are realized in a window which is accessed by selecting the menu item "Calculate ..." of Menu "Data", or by clicking the following button:



It will be possible also to calculate the distance between two points of the list, or the distance of all objects in a graphic over one of them.

Calculate the distance between two points :  
(paste or drag data int the followind fields)

	Object :	X	Y
Point A :			
Point B :			

Calculate the distance meter

Calculations based on data from the :  Table 1  Table 2

Calculate distances to the object ...

Calculate the selection

Calculate all objets  Alphabetical sort of the results

<input checked="" type="checkbox"/> Calculate area	1316.804	meter <sup>2</sup>
<input checked="" type="checkbox"/> Calculate perimeter	219.588	meter
<input checked="" type="checkbox"/> Calculate centroid	596905.944	128568.724 meter

PREVISUALISATION

If the sides of the object are secant (crossed polygon), then the calculation of the area and perimeter will be false.  
Depending on the coordinate system, the image may be reversed vertically during the preview.

Close

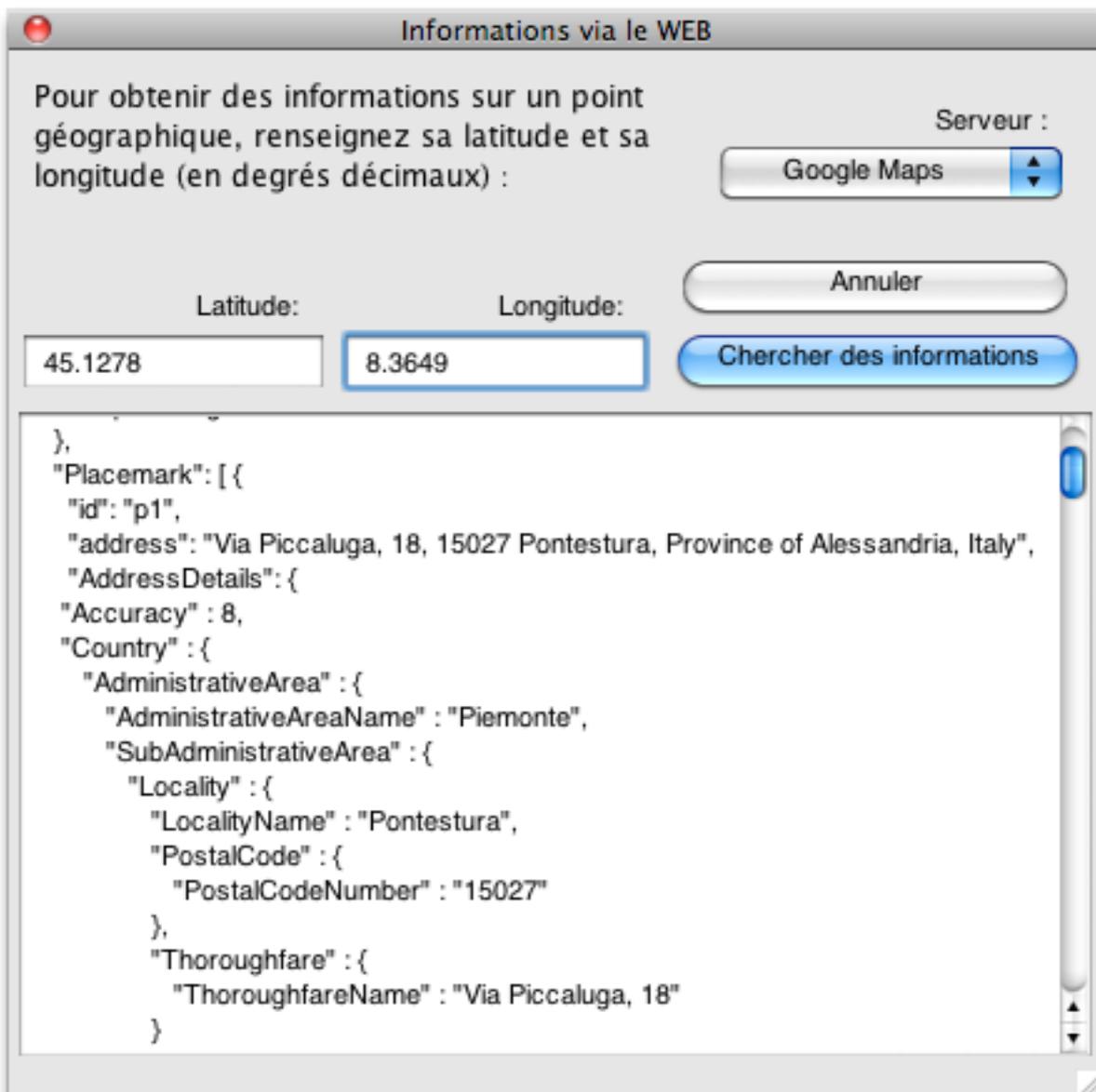
## 5.2 - Search for information via Internet

Another feature introduced in version 3 of CodeTopo is the possibility of obtaining informations on a coordinates soliciting other providers such as Google, for example.

You can access this window by selecting the menu item "Locate via the WEB ..." of Menu "Data", or by clicking on the button:



Note: This function is considered as being in testing phase.



Informations via le WEB

Pour obtenir des informations sur un point géographique, renseignez sa latitude et sa longitude (en degrés décimaux) :

Serveur :  
Google Maps

Latitude: 45.1278 Longitude: 8.3649

Annuler

Chercher des informations

```
{
  "Placemark": [ {
    "id": "p1",
    "address": "Via Piccaluga, 18, 15027 Pontestura, Province of Alessandria, Italy",
    "AddressDetails": {
      "Accuracy" : 8,
      "Country" : {
        "AdministrativeArea" : {
          "AdministrativeAreaName" : "Piemonte",
          "SubAdministrativeArea" : {
            "Locality" : {
              "LocalityName" : "Pontestura",
              "PostalCode" : {
                "PostalCodeNumber" : "15027"
              },
              "Thoroughfare" : {
                "ThoroughfareName" : "Via Piccaluga, 18"
              }
            }
          }
        }
      }
    }
  } ]
}
```

Search informations on coordinates via Internet (here in the french version)

## 6 - Problems and solutions

This section describes problems that can be encountered, and help to determine the cause of those problems.

**I do not succeed in importing the data, or the imported data contain strange characters.**

R - Verify that the file is registered in "Text" format : it has to contain no typographic enrichment, no elaborated layout, etc.

**I have imported the data from a "Text only" file format, but when I press on the button "Draw the plan", *CodeTopo* says that there is nothing to draw !**

R - It is necessary to transfer the imported datas from table n°1 to the table n°2.

It is possible to do it by clicking the "transfer" button (see above) if columns are already sorted in the following order : definition of the object ; X axis ; Y axis. It is possible also to do it by indicating, by means of pop-up menus over the field n°1, the column which corresponds to the definition of objects ("object"), the one that corresponds to the X axis and the one that corresponds to the Y axis.

**I draw a map with *CodeTopo*, but when I open the PDF document, the page is empty.**

R - Verify the nature of the data. It is likely that one (or some) number (s) contains one (or some) incompatible character (s) with the good execution of the script. The case of the sign "," as decimal separator was already evoked. Remind yourselves that the value of numbers must to be not negative.

R2 - If the size of the document is very big, it is possible that the objects of the plan are showed at a very small scale. In your drawing software, choose the menu command : "Select all", to see if the document is not empty. If a selection appears, zoom until you can identify the objects.

R3 - All the software does not manage the documents of very big dimension. In Adobe Illustrator, for example, the maximal size of the illustrations cannot exceed 16383 x16383 pixels. In a software such as: "AutoCad", on the contrary, it seems than there is no limit.

**I succeed in obtaining a cloud of points, but no outline was closed in the drawn objects.**

R - Make sure the button "Close the outline of objects "is hilited. If the answer is "yes", it means that all the coordinates of the list have a different definition / nomenclature.

**I chose an application to open automatically saved files, but once opened, the application does not open the saved maps.**

R - some applications will launch, but refuse to open a file by script. Open the file by choosing "Open..." from the "File" menu of these applications

## 7 - What's new in version 3.0 ?

Version 3.0 is a major update of CodeTopo

- Significant change of the elements of the main window interface ; add the numbering of the lines and columns, and adding menu items to call the new functions of the software. A popup menu allow, in particular, to adjust automatically the width of columns depending on the width of the content.
- For the drawing, the color of objects can be henceforth associated with another column that the the one that contains legend of the points.
- It is possible now to define the scale at which the graphics will be designed.
- Modification of the interface in the window dedicated to graphic options. These changes accompany the addition of new features.
- Adding functions to realize calculations (area, perimeter, etc.) directly from the list of Cartesian coordinates.
- The outline of objects can be previewed in an external window before drawing.
- Conversion of coordinates expressed in decimal degrees in the WGS84 geodetic datum into cartographic coordinates in the UTM mapping system.
- Combination of several functions dedicated to the treatment of lines and columns of data in one external window.
- Modification of the interface of the window to open and import files.
- Other bug fixes and minor additions.
- CodeTopo henceforth is distributed under shareware license including individual users.

## 8 - CodeTopo software : Licence to use

CodeTopo is distributed as shareware.

As part of the evaluation: installation, copying and use are free for one month, without any other requirement that a registration.

After a trial period of one month, the use of the software is subject to the purchase of a license and the registration of the user with the software author.

The user is authorized to make as many copies of the software it deems necessary, and remains responsible for the physical safety of these copies. At the end of the trial period of one month, if he wishes to continue to use this software, he must purchase a license for each copy of CodeTopo that will be installed.

The software is provided as is without warranty. The author can not be held liable for damages of any nature whatsoever suffered by the user or third parties arising directly or indirectly from its use, including loss of data, or any financial loss resulting from its use or inability to use, and this even if the author has been advised of the possibility of such damages.

This software is protected in France by the Code of Intellectual Property and abroad by international conventions on copyright.

It is forbidden to translate, to adapt, to arrange, to modify the software as well as the documentation which is associated with it, even when these acts are necessary to allow the use of the software according to its destination. In application of the article L 122-6-1 of the code of the intellectual property, the author reserves the right to correct the errors, the particular modalities to which will be subjected acts being this defined before.

The reproduction of the code of the software or the translation of the shape of this code are forbidden even when they are indispensable to obtain the information necessary for the interoperability of the software with the other software.

By using this software, you make a commitment to respect copyright, and to watch that the other users respect them themselves.

## 9 - Register its copy and search for updates

The menu item "Information, the" Help "menu, or the button below, to allow information to get to the current version of CodeTopo, as well as a first aid succinctly. Permettenr They also to access the registration form software, search for new versions of CodeTopo, or contact the software author.



The registration of CodeTopo is required for professionals and for individual users, after a trial period of the software of one month (see License).

The easiest way to acquire a license number is to go to the information window and click on the "Save" tab of this window. Then we click on the "Get a license number ..." button.

In the Registration window (see below), after having complete the various fields of information, we finish the registration by clicking on the "Submit Form" button. CodeTopo opens the emailer of the user to send the form to the author of the software. This procedure requires, of course, the presence of a software managing email on the user's computer.

A screenshot of the CodeTopo 2.0 Registration window. The window title is "CodeTopo 2.0" and it has a sub-title "Aide" and "Registration". It contains several form fields: "Utilisation à titre personnel" (unchecked) and "Utilisation à titre professionnel ou commercial" (checked); "Société:" (text field); "Nom:" (text field); "Prénom:" (text field); "Adresse:" (text field); "Code postal:" (text field); "Ville:" (text field); "Pays:" (dropdown menu); "Courriel (e-mail):" (text field); "Téléphone:" (text field); "Je passe commande de:" (text field) and "licences de CodeTopo" (dropdown menu) with "VF" selected; "au coût unitaire de:" (text field) with "25 €" selected; "Montant total de la commande:" (text field); "TVA, 0% applicable, art. 292 à la CGI."; three radio buttons for payment methods: "Je souhaite payer par chèque (France seulement)", "Je souhaite payer par virement bancaire (zone euro)", and "Je souhaite payer avec PayPal-arnail (Monde entier)" (selected); and three buttons at the bottom: "Fermer", "Annuler", and "Soumettre le formulaire...". A red arrow points from the registration icon in the top right corner of the window to the "Prénom:" field.

The cost of the license for each copy of CodeTopo is : € 5 ou \$ 7.5, for personal use, and € 35 (or \$ 49.99) for professional ou commercial use.

It is possible to pay the amount for the number of required licenses :

- By bank check, for holders of a French bank account ;
- By transfer between accounts, if the user has a bank account in the Euro area ;
- By Paypal-mail, in worldwide.

The registration allows the author to know the users of its software and to make it evolve. It also allows the user to be kept informed of such developments and receive update of the software.

## 10 - Contact the author

In case of problems during the use of this software, to provide a translation of this document into another language, to report errors or simply leave a comment (etc), contact the author at the following email address:

[rg75@free.fr](mailto:rg75@free.fr)