

Application Note : Handling of maps in RoadTracer Pro

1) Cartography concepts

In order to be exploitable a map should mention its projection type and referencing to a theoretical model (typically called « datum ») against which other maps can be referenced.

eg: Lambert Conical Conform projection and WGS84 datum.

A map can be constituted of an assembly of several tiled sub-maps.

2) Maps manager

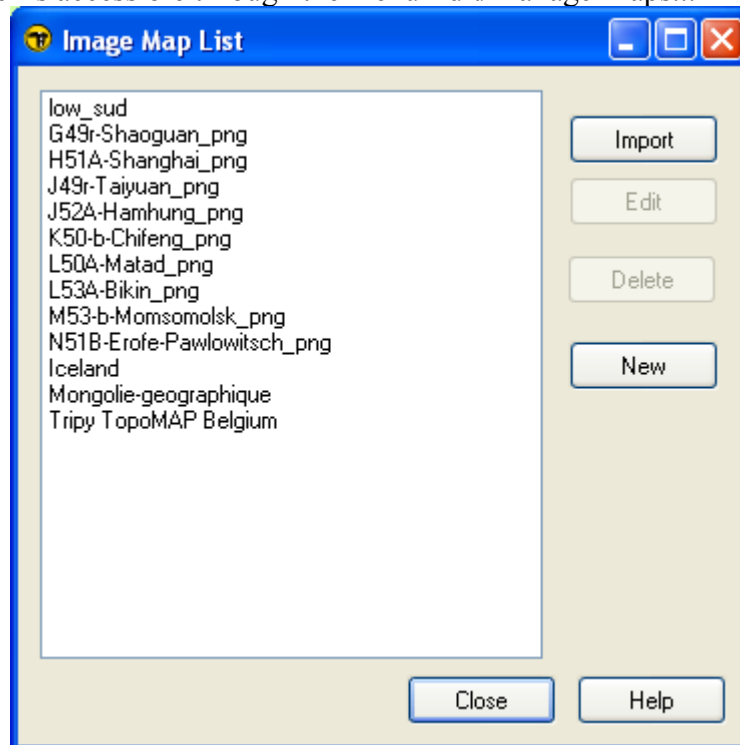
By default, TripY RoadTracer Pro comes with the Tele-Atlas™ road maps. National Geographical Institute (NGI) maps of Belgium and France are available as options.

To use third party maps, the following imports are possible:

1. digitization of a printed map
2. insertion of an already digitized third party map

In both cases, a minimum set of information about the source map is necessary (projection type, datum and some geo-referenced points).

The map manager is accessible through the menu Edit/Manage Maps...



2.1) Digitization of a printed map

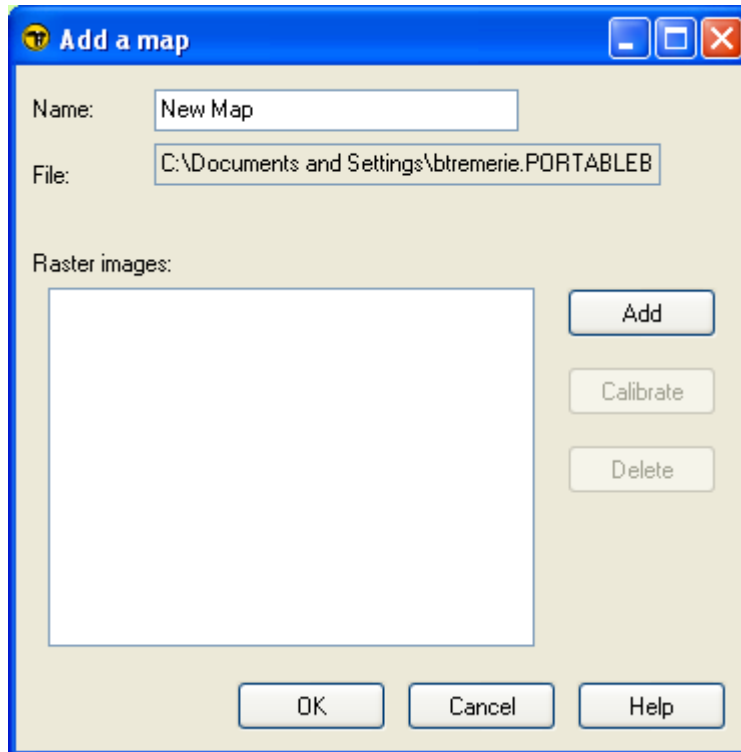
Recommended: For the sake of precision one should use maps with a scale finer or equal to 1/100 000.

Make sure that the digitization was as orthogonal as possible along the maps sides with a resolution between 150 dpi et 300 dpi.

2.2) Create a map in RoadTracer

- Select « New » and choose the name and location of the new map destination files. By default in the \ProgramFiles\RoadTracer\Maps directory. Select « Import » to add a map (or group of maps) coming from a third party application.

- Add the map's constituting tiles considering a correct and complete coverage of the territory.



Depending on the source, the files will be:

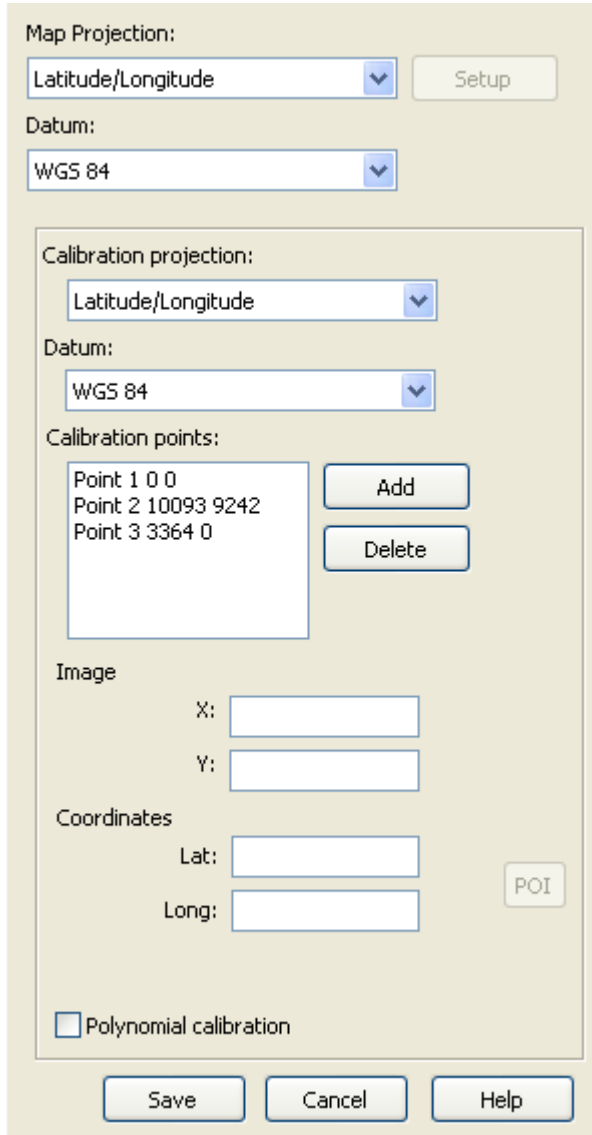
- | | |
|------------------------------|--------------------|
| - .map & .bmp/.jpg/.png/.tif | OZI Explorer® |
| - .cal & .tif/.png | Tourateq Quo Vadis |
| - .tl2 or .tl3 & .tif | IGN |
| - .tfw & .tif/.png | |
| - .bmp/.jpg/.png/.tif | paper map scans |

2.3) Tiles calibration :

Most of third party map files contain the necessary calibration information and the manual calibration here described is not necessary.

For the.tfw files it is however necessary to confirm the projection and datum information.

For digitized paper maps, it is further necessary to confirm the position of calibration points.



One should for each tile, precise the projection type and datum.

RoadTracer Pro handles the following projections:

- Lambert conical conform,
- Lambert conical conform 1 parallel,
- Mercator,
- Transverse Mercator,
- UTM,
- Belgian Lambert 72 & 2005,
- French Extended Lambert zones I, II, III, IV, large field,
- French Lambert 93,
- Morrokan Lambert zones I, II, III, IV,

It also contains the definition of 157 datum (ellipsoid + translation & rotation definitions).

One should define similar parameters for each of the calibration points in addition to the point's coordinates.

A minimum of 3 calibration points are necessary. For each point one should know its coordinates as well as its position of the map image.

For a maximum precision, it is recommended to use at least 7 calibration points. They should not be placed along a single straight line.

The 'Polynomial calibration' box provides a better calibration precision.

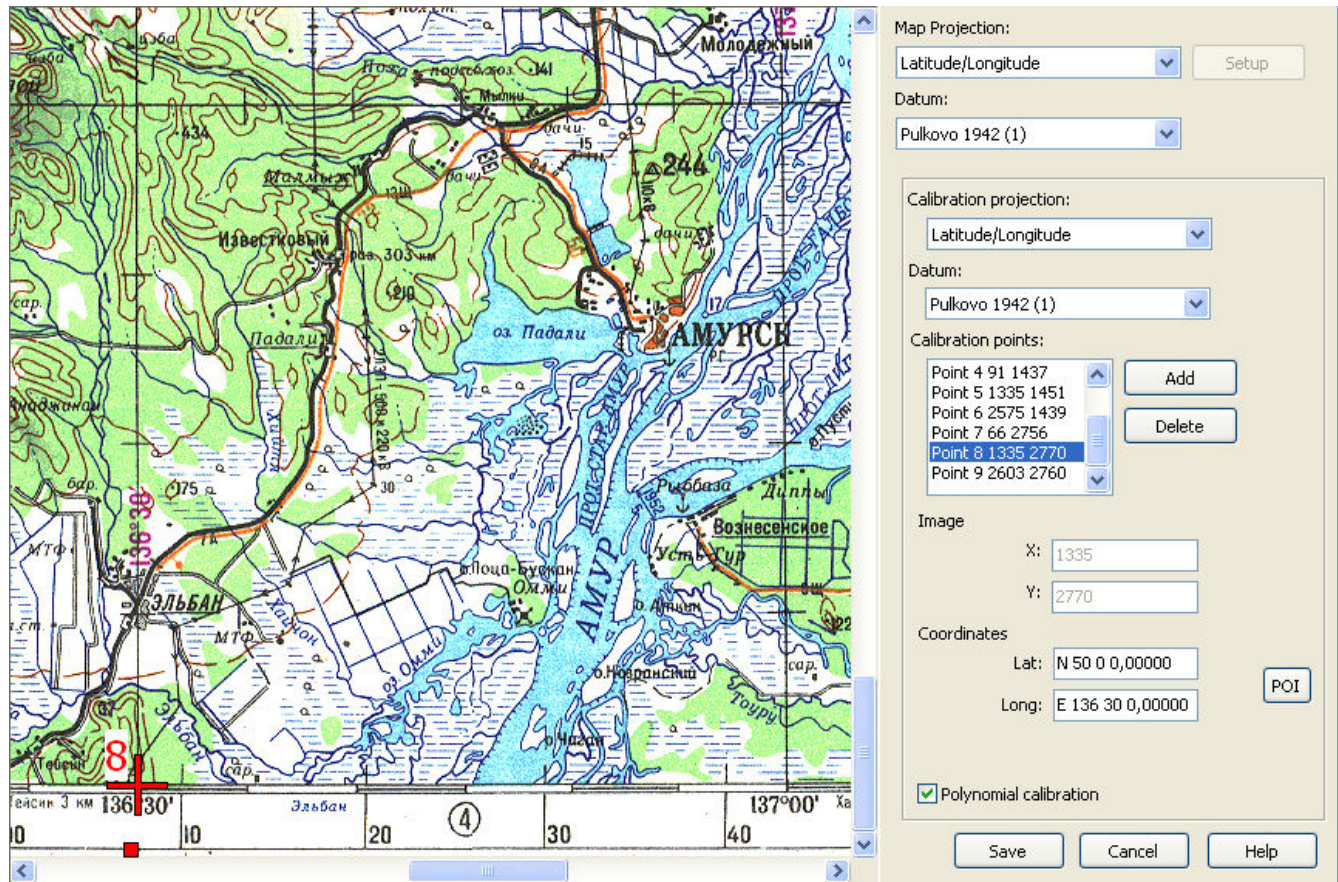
The software warns the user if the points or parameters are inconsistent.

For each calibration point:

- press the 'Add' button to create a calibration point
- point on the map where this point is located
- introduce the geographical coordinates (longitude, latitude, for the for the UTM coordinates specify

also zone and hemisphere). The POI button allows you to use the position of an existing POI.

If necessary, use the 'Delete' button to remove a calibration point.



The 'Setup' button allows the introduction of some projection parameters

This window allows the specification of the Lambert Conformal Conic, Lambert Conformal Conic 1SP & Transverse Mercator projections.

Latitudes and longitudes are expressed in degrees (not grades nor radians).

Some parameters are shaded depending on the projection type.

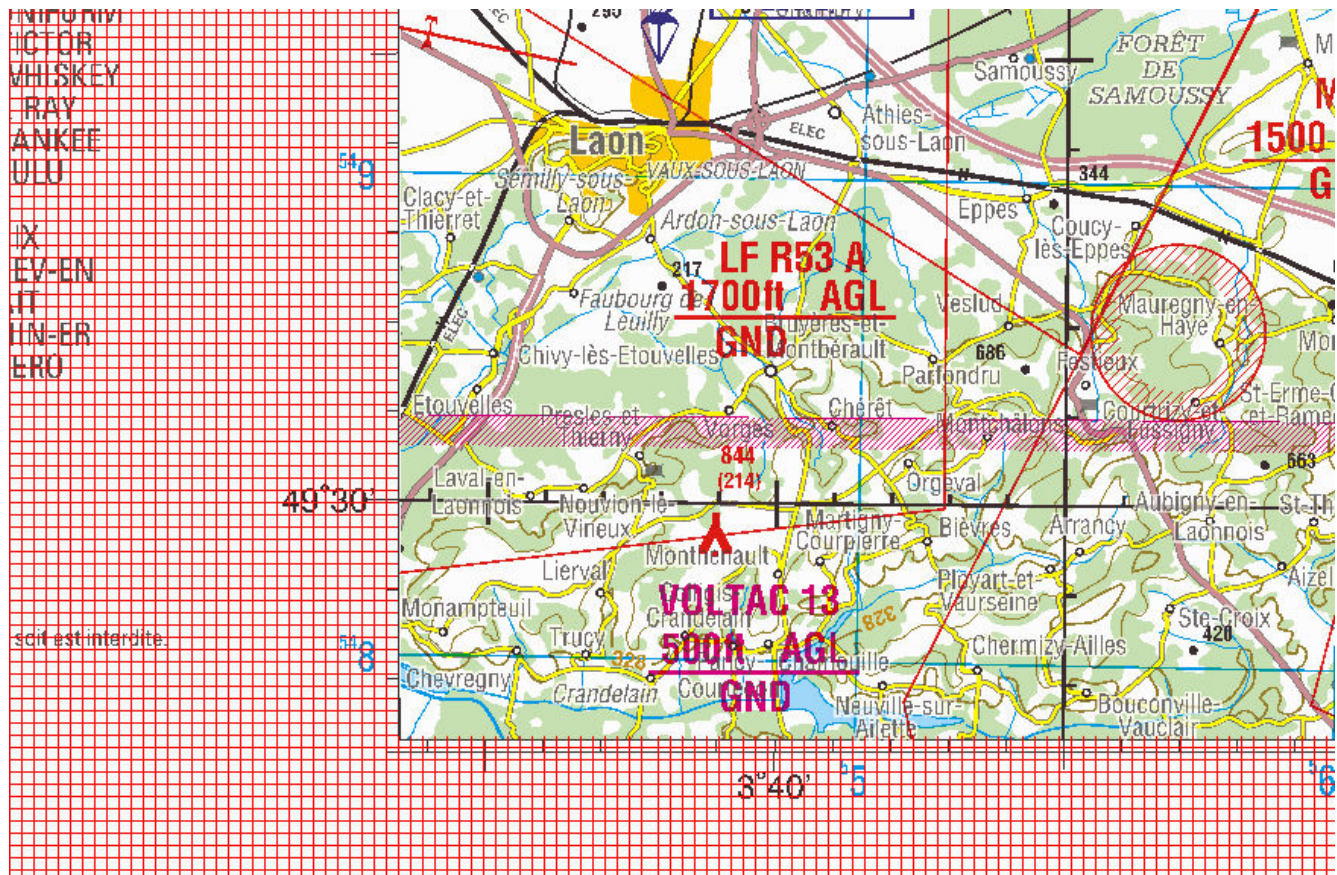
For example the Moroccan Lambert projection requires the following parameters:

- projection type: Lambert Conformal Conical 1SP
- origine latitude N 33.3
- origine longitude W 5.4
- scale factor: 0.99962577
- East offset: 500000
- North offset: 300000

Coordinates are given in degrees (DDMMSS,decimal fractions, DD MM,decimal fractions or

DD,decimal fractions)

It is possible to mask the map sides by means of the red handles located in the middle of each image sides. Move the handles inside the map to mask a portion with hashed shades.



2.4) The TRipY RoadTracer destination files show extensions .tmf et .tti.

Once so created, this new map can be used by means of the map selection button here below :

