



Justin Link

Software Manual

Version 1.2

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PREFACE

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Preface

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About this Manual

Symbols and Typographic Conventions

This Manual uses the following text conventions:

Example	Description.
<i>About</i>	Titles of dialog windows/boxes, names of menu options.

Screen Captures

This Manual includes sample screen captures. Your actual screen can look slightly different from the sample screen due to the receiver you have connected, operating system used and settings you have specified. This is normal and not a cause for concern.

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INTRODUCTION

1. Justin Link Software

Justin Link software is based on the post-processing software Justin and it is designed for data exchange between PC and TRIUMPH-VS/LS and Victor. Justin Link, like Justin, has all GIS-based tool for viewing, editing and output data, and user-friendly interface makes it easy to work with different kinds of information: vector and raster maps, field data, etc.

The main function of the program is to convert the information in different formats (with a possibility of editing this information) and import/export from/to different devices, for example, TRIUMPH-VS/LS. GNSS data processing, network adjustment and creation of local coordinate systems Justin Link does not support, but for projects created via Justin software, you can view the results of the post-processing and adjustment of geodetic networks.

2. System Requirements

Before installing and running Justin Link, be sure that, your computer satisfies the following requirements:

- Operating System:
 - Windows XP with Service Pack 2 (SP2) or higher
 - Windows XP 64-bit with Service Pack 2 (SP2) or higher
 - Windows 7, 8 32-bit
 - Windows 7, 8 64-bit
- Memory:
 - Windows XP, 7 32-bit – 1 megabytes (MB) - 4 MB
 - Windows XP, 7, 8 64-bit – 4 - 8 MB
- Hard Drive Space:
 - Windows XP, 7 32-bit – 100 GB
 - Windows XP, 7 64-bit – 200 GB
- Display:
 - Super VGA (1280 x 800) or higher-resolution monitor with 256 colors
- Peripherals:
 - Modem or Internet connection (optional)
 - Microsoft Mouse, Microsoft IntelliMouse, or compatible pointing device

GENERAL DESCRIPTION

1. Main window

Main window appears after program started. The program window elements are menu items, buttons, map and project pane:

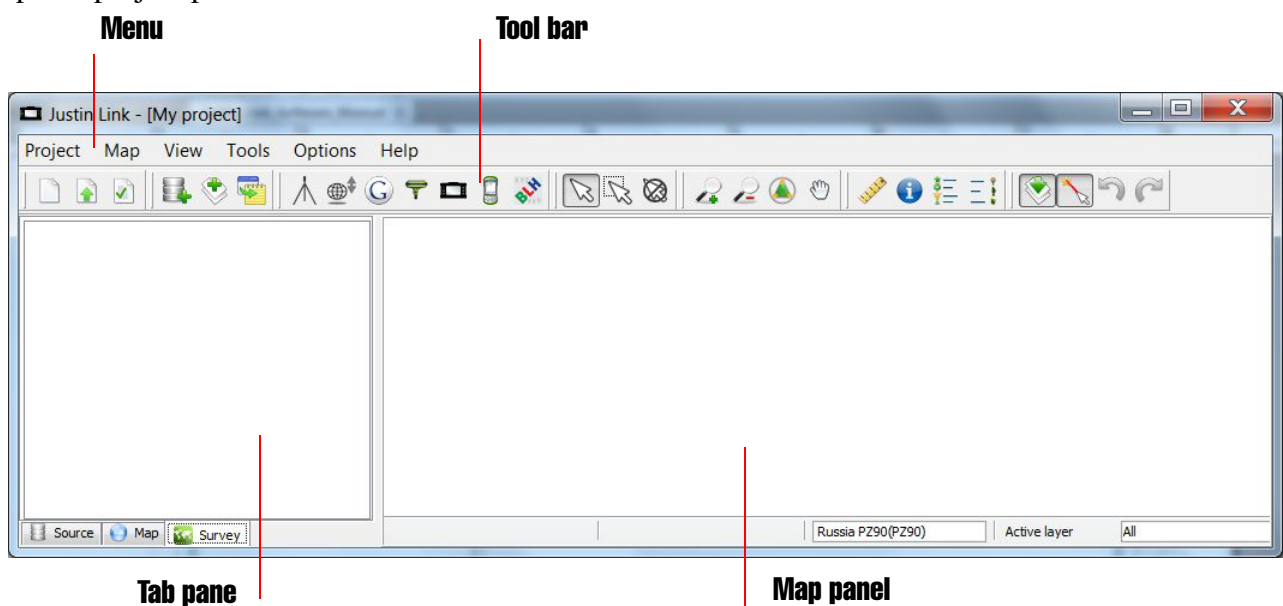


Figure 1. Main window

General Description

Main window

1.1. Main Menu

Click on the menu item, to call items list. The items of main menu are the following:

- *Project*. Use this item to open and close projects, to import and export files, to view project properties and start export layers to many popular GIS/CAD format and view project in *Google Earth*.

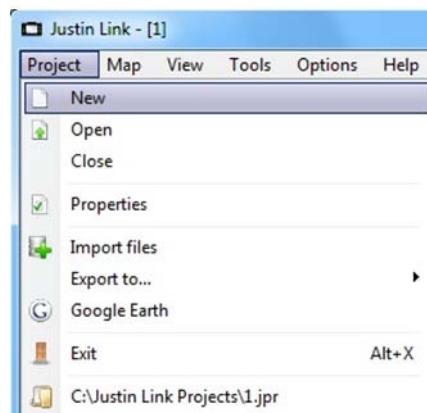


Figure 2. Project

- *Map*. This item contents tools you need to work with the map: distance measuring, panning, centering, zooming, etc.

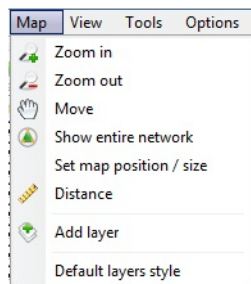


Figure 3. Map

- *Set map position/ size* menu item opens the window, where window size, zoom, and the center map coordinates in the specified coordinate system can be set.

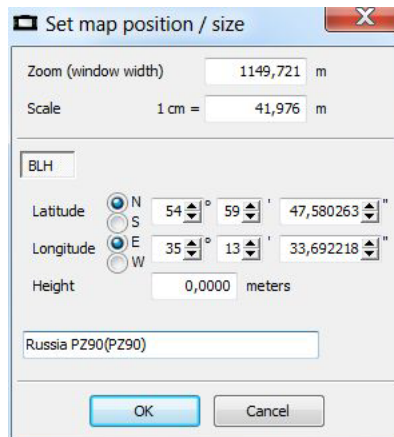


Figure 4. Set map position/size

- *Default layer styles* menu item cancels the style entered by the operator, and restores the default style for all layers except the dynamic and added layers.
- *View*. This menu item is designed to hide or make visible the basic elements of the window and set of panes. Panes become visible when the box next to the appropriate item is checked. The full description of the functions of menu items see in appropriate sections below.

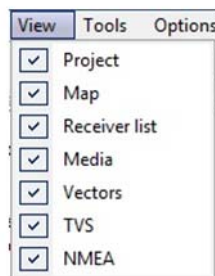


Figure 5. View

- *Tools*. Georeferencing of register raster image. The full description of Justin Link functions see in appropriate sections below.

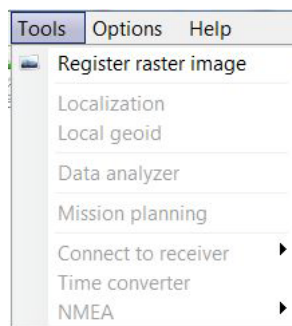


Figure 6. Tools

General Description

Main window

- *Options*. This menu item is designed to setup the various program parameters, operate coordinate systems and datums, manage reference points database and antenna database management. More detailed description see in “Application” on page 45.

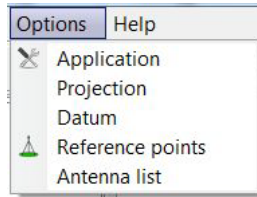


Figure 7. Options

- *Help*. Opens the Justin Link *About* window with the software version

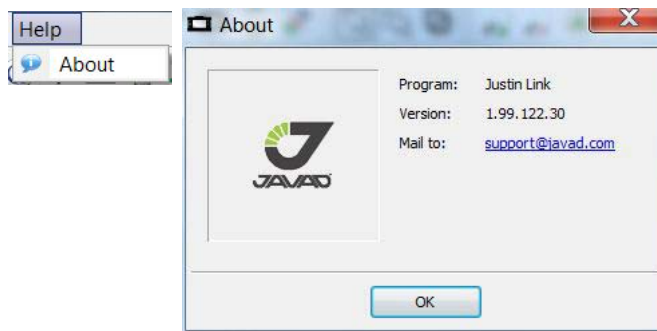


Figure 8. Help

- *Windows*. This item is invisible by the first start of the program. It appears when hidden windows involve by operations. To make these windows visible, select the *Windows* menu item and point the window you want to see.

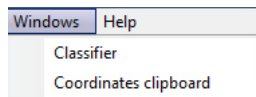


Figure 9. Windows

1.2. Toolbar

The toolbar consists of many buttons, through which the user can access the following program functions:



- Create new project.



- Open a project.



- Open the project properties dialog window.



- Import files into a project.



- Add layer to map.



- Open the report dialog.



- Reference points manager.



- Coordinates calculator.



- Export layers into Google Earth.



- Link with TRIUMPH-VS/LS in a dialog.



- Link with Tracy in a dialog.



- Select on the map by pointer. Allows selecting an object.



- Select on the map by rectangle. Allows multi-selecting objects in the specified rectangle area.



- Cancel selection.



- Zoom in the map.



- Zoom out the map.



- Show entire network. Display entire network in the *Map* pane.



- Changes the cursor shape and allows moving the map views.



- Allows changing the cursor to a crosshair and measuring a distance in a project units. The distance displays in the Status bar.



- Open *Coordinates clipboard* window.



- Legend.



- Classifier (see “Classifier” on page 35).

General Description

Legend



- Multilayer select (all layers became selectable).



- Snapping mode.



- Undo. Restores last Map View



- Redo (is active after Undo  was clicked).


1.3. Map

The *Map* menu allows the user to operate with the map.

1.4. Tab pane

Tab pane has the following tabs: *Data*, *Map* and *Survey*. It displays accordingly the information for these tabs.

2. Legend

For convenience work with various types of data for all types the unique conditional symbol is assigned. To see the symbols (legend), click the button .



The *Legend* window with reference information will appear:

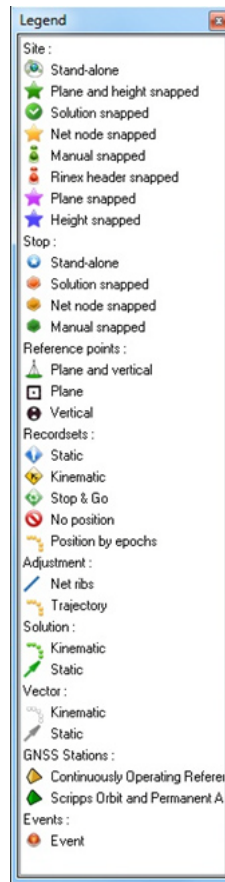





















Figure 10. Legend

Below is the description of all items of the *Legend* window:

- Site (a particular place on the earth's surface, a point).
 - Stand-alone. The site which coordinates are not entered by the operator and are calculated as standalone. The coordinates of such point are two opportunities: a) if the flag *Compute coordinates* is unchecked, the raw receiver coordinates in the recorded file for each epoch are averaged, and b) if the flag is set, the post-processed coordinates are averaged.
 - Plane and height snapped. The point with inherited from 3D reference point position.
 - Plane snapped. The point with inherited from plane reference point position.
 - Height snapped. The point with inherited from height reference point position.
 - Solution snapped. Coordinates of the point comes from the end of solution.
 - Net node snapped. Coordinates of the point comes from adjustment.
 - Manual snapped - a point with the manually entered coordinates.
 - RINEX header snapped - a point with the coordinates taken from the header of RINEX file.

General Description

Legend

- Stop is a point which position is calculated as epochs average position of kinematic position.
 -  – Stand-alone. Stop position is calculated with receiver data.
 -  – Solution snapped. Solution snapped Stop has post-processed position.
 -  – Net node snapped. Adjusted Stop gets coordinates as a result of adjustment of kinematic postprocessed solutions (multiple bases).
 -  – Manual snapping. Manually entered coordinates of Stop.
- Reference point (a point with the fixed coordinates in defined coordinate system for the purpose of providing geodetic reference for other coordinates calculation).
 -  – Plane and height. 3D fixed point.
 -  – Plane. 2D fixed point.
 -  – Vertical. Height fixed point.
- Recordsets (sets of raw GNSS data).
 -  – Static. Recordset related to “Criterion for static”. Two recordsets with time overlap data generate “Vectors”.
 -  – Kinematic. Kinematic recordset is a not Static one.
 -  – Stop&Go. Kinematic recordset with markers pointed.
 -  – No position. Recordset has no ephemeris data or standalone solution is not accessible.
- Solution. (Data post-processed solution for vector)
 -  – Kinematic. Kinematic data post-processed solution.
- Adjustment (Adjustment generated objects).
 -  – Net edges. Net nodes are results of static solutions adjustment.
 -  – Trajectory. It is a result of kinematic data adjustment in multiple base mode.
- Vector
 -  – Kinematic. Kinematic trajectory is a track or epoch by epoch positions (Just in calculated or coming with raw GNSS data).
 -  – Static. Static vector is an object created for two static recordsets with overlapped time..
- GNSS Stations. Permanent operating stations delivering GNSS data.
 -  – Continuously Operating Reference Station (CORS).
 -  – Scripps Orbit and Permanent Array Center (SOPAC).
 -  – Event or time marker is a point created for non epochs instant time moment

3. Source

The *Source* tab is used to display a list of data imported into the project and raw data management: picking, thinning, jps and RINEX conversion. After tab activation it becomes accessible object tree:

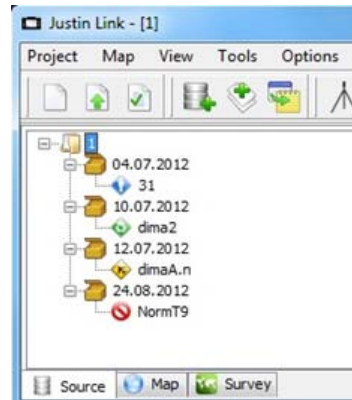



Figure 11. Data and objects tree

The general node is the name of the project. Its subnodes are groups that are created by the selected method of sorting the data. The data may be sorted by days or by receivers. This tab displays a sample of imported raw GNSS data that are named Recordsets.

There are three types of Recordsets in Justin Link:

-  – Static
-  – Kinematic
-  – Stop&Go
- * - others recordsets

Recordsets for which it is impossible to calculate the position are marked .

By right-clicking on the project name, the following control will be accessible:

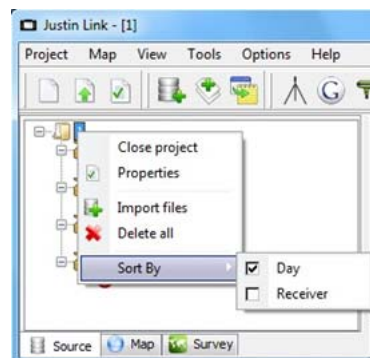


Figure 12. Right-click menu

- Close the project.
- Open *Project properties*.

General Description

Source

- Import files into the project.
- Delete all data from the project
- Sort the Recordsets by date or by receiver.

By right-clicking on the name of the next level node, corresponding to the creation date of files, you can get access to the following:

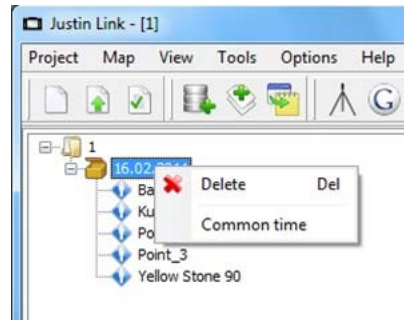


Figure 13. Right button menu

- Removing all data from the project (all data with the measurements started this day).
- View common observation time for all files started this day:

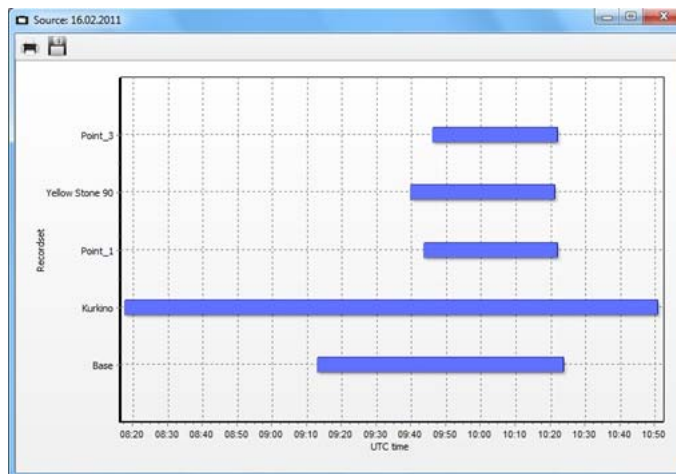


Figure 14. Common time chart

By right-clicking on the name of the next level node with Recordset item, you can get access to the following:

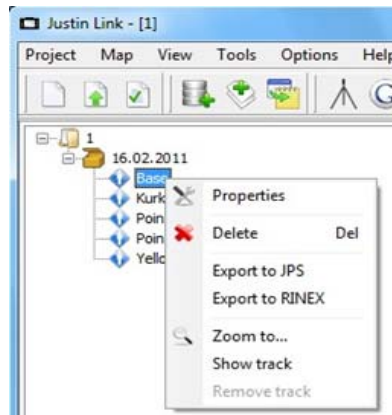


Figure 15. Right button menu for recordset

- Open properties for each Recordset;
- Delete recordset;
- Export to JPS;
- Export to RINEX (see “Export recordset to RINEX” on page 21);
- Zoom the map area with the coordinates of selected Recordset;
- Show track on a map (see “Show track” on page 22);
- Remove track.

Recordset properties

By clicking on the *Properties* menu item, appears *Recordset properties* window for selected recordset:

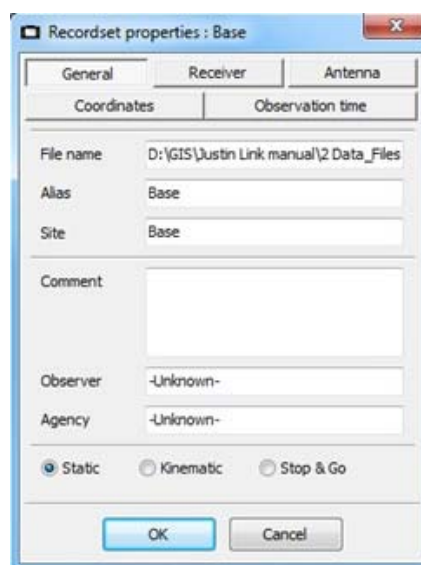


Figure 16. Recordset properties. General tab


General Description

Source

- The *General* tab of this window provides an overview of the Recordset properties and allows changing the type: Statics, Kinematic and Stop&Go. Here one is able to add comment and put down an alias that is label which appears on the map.
- The *Receiver* tab contains information about the receiver and the minimum number of satellites for one epoch during the session.



Figure 17. Recordset properties. General

- The *Antenna* tab shows information about antenna type, height and offsets. Here you can change the type of antenna or get additional information about antennas, clicking the button , which opens the window with antenna properties:

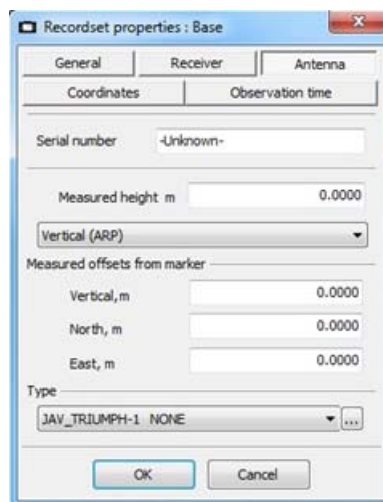


Figure 18. Recordset properties. Antenna

- The *Coordinates* tab contains averaged coordinates, calculated for all epochs of the Recordset (excluding the most unreliable, which are rejected). The coordinates can be in any of Coordinate Systems valid for the project: geocentric, ellipsoidal or grid.

The screenshot shows the 'Recordset properties : Base' dialog box with the 'Coordinates' tab selected. The 'General' tab is also visible. The 'Coordinates' section has three sub-tabs: 'XYZ', 'BLH', and 'Grid'. The 'XYZ' sub-tab is active, showing the following values: Latitude (N) 55° 47' 30.280538", Longitude (E) 37° 31' 34.828492", and Height 176.8153 meters. A dropdown menu at the bottom shows 'Russia PZ90(PZ90)'. The 'OK' and 'Cancel' buttons are at the bottom right.

Figure 19. Recordset properties. Coordinates

- The *Observation time* tab shows the start and final epochs time of the recordset, recording interval and the number of epochs in the recordset:

The screenshot shows the 'Recordset properties : Base' dialog box with the 'Observation time' tab selected. The 'General' tab is also visible. The 'Observation time' section shows the following values: Begin time 16.02.2011 09:13:00, End time 16.02.2011 10:24:05, Interval 1.000 sec, and Epochs 4266. The 'OK' and 'Cancel' buttons are at the bottom right.

Figure 20. Recordset properties. Observation time

Export recordset to RINEX

The *Export to RINEX* menu item allows exporting the recordset to RINEX format, selecting satellites and type of measurement, which should be excluded from the file and will be rejected. The invalid satellites

General Description

Source

should be marked with red and the observations unmarked. Additionally, the start time and final time, and recording interval can be set. Clicking *Ok* button runs the export:

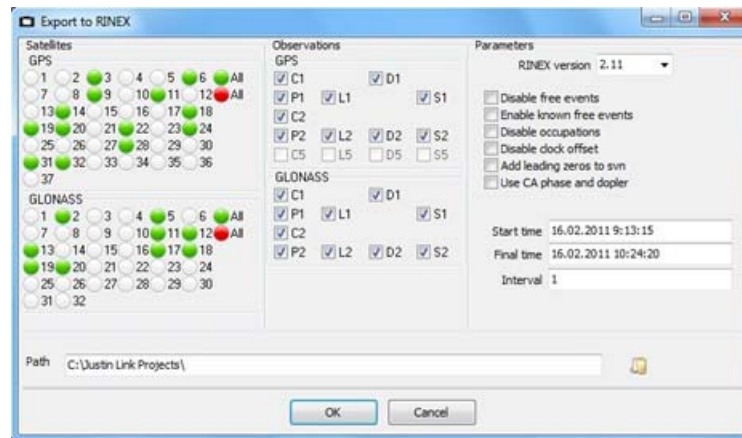


Figure 21. Export to RINEX

Show track

This menu item shows the epoch by epoch positions:

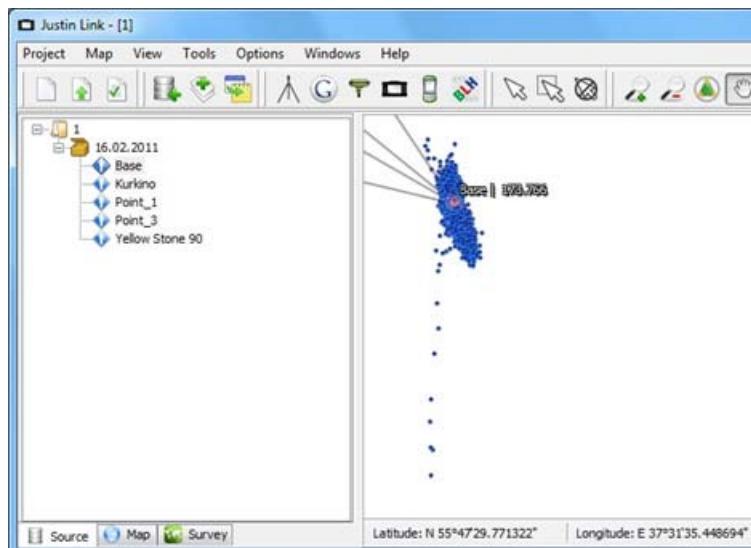


Figure 22. Show track

4. Map

The *Map* tab has two general nodes. In the *Project* group there are eleven permanent layers as well as dynamics layers, created by user. The *Added layers* group includes all involved into the project layers through option “Add Layer”.

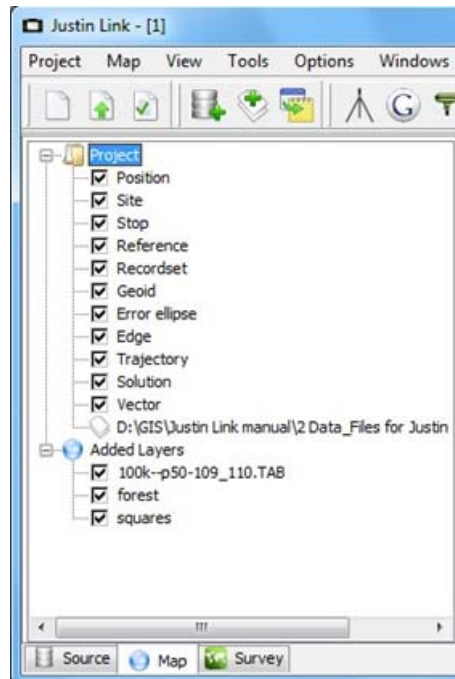


Figure 23. Map tab

Permanent layers are the following (see description of the objects in “Legend” on page 14):




- *Site* - set of point objects which contains Recordset. A Several Recordsets can be assigned to many Recordsets related Tolerance criteria.
- *Stop* - set of point objects related to tagged time interval in kinematic data.
- *Reference* – set of reference points.
- *Recordset* - Special layer for show/remove track Recordset option.
- *Geoid* - Geoid boundary.
- *Error ellipse* used to view adjustment statistics.
- *Edge* - set of line objects to view adjustment data.
- *Trajectory* - points for adjusted kinematic solution.
- *Solution* - static (lines) and kinematic (collection of points) processed results.
- *Vector* - candidate for postprocessing: lines for static data and tracks for kinematic data.
- *Position* - real time positions which comes from receiver or based on Justin real time solutions (cloud computation).

Dynamic layers are sets of the following objects: points, polylines, polygons, used for data import and export. Added layers can be either raster (aerial/space images, scanned map copies) or vector maps.

General Description

Map

Layers can be made visible or hidden, depending on check box next to the layer title. Option can be activated with double clicking.

Layers, with  icon can be made visible/hidden by clicking on this icon. If the icon is white , the layer is visible. If the icon is gray , the layer is hidden.

For the *Added layers* there is an order of drawing. The bottom layer in the list is drawn first. Next is second from the bottom and consistently to the first layer in the list. To move a layer in the list up/down, put the cursor on the layer item, and drag it with the mouse

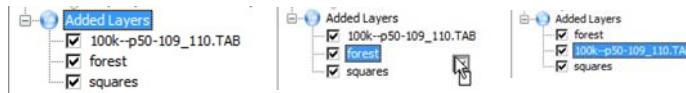


Figure 24. Added layer arrangement

Both groups, *Project* and *Added layers* have functions for working with layers in the group. To access these features, should put the cursor on the group name and press the right mouse button (and then, if necessary, select any item in the dialog box.)

For *Project* group all layers can be made visible at once; empty and dynamic layers can be deleted optionally:

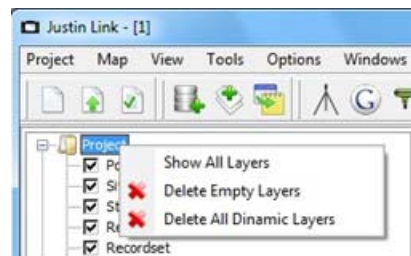


Figure 25. Right button menu. Project

For *Added layers* group all layers can be removed, new layers can be added, and the layers with the following information can be added:

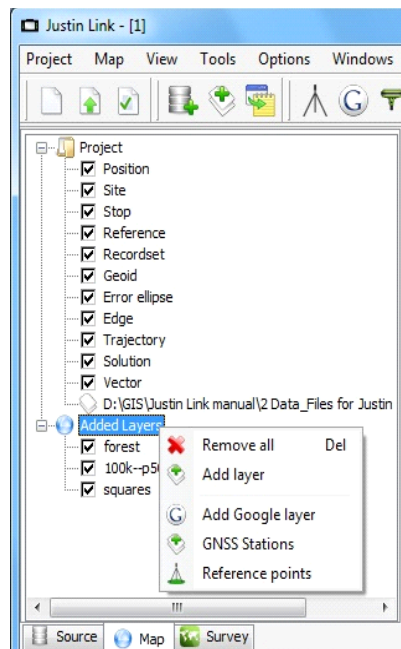


Figure 26. Right button menu. Added layers

1. *Add Google layer* - Space image of the area, related the size of Map Pane. Every time you click an item Justin Link makes a Google Map snapshot according Map Window size and a position. After panning or zooming Map Window force Refresh option to get new image. If an error occurred while downloading the image, it will not shown on the map. In this case, you

General Description

Map

need to re-call function *Add Google layer* or right-click on the *Google map* layer name and clicking *Refresh*.

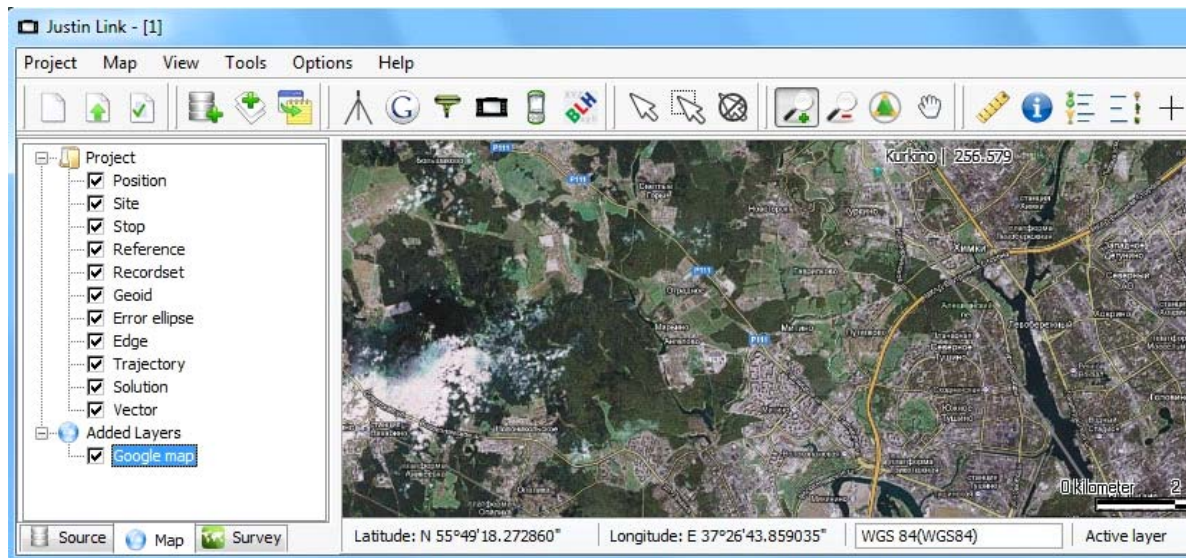


Figure 27. Google map

2. *GNSS Stations* -  - Continuously Operating Reference Station (CORS),  - Scripps Orbit and Permanent Array Center (SOPAC).

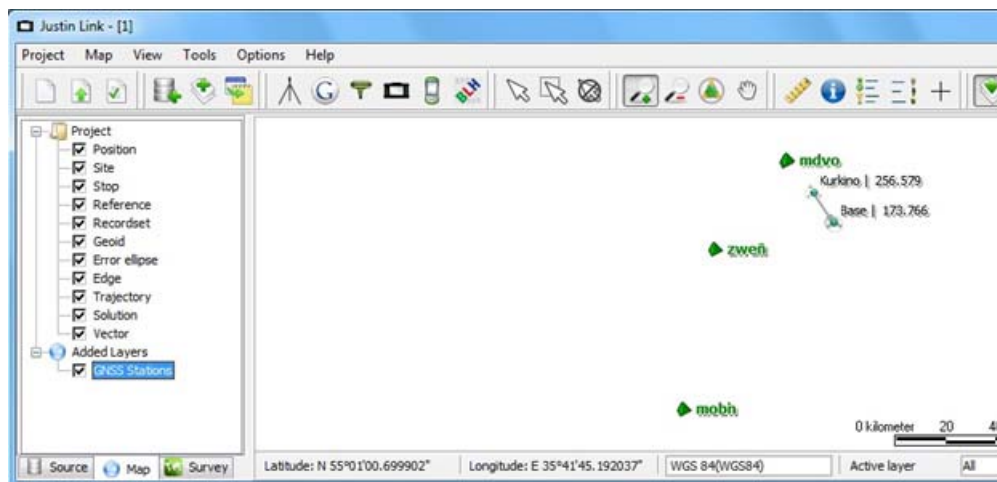


Figure 28. CORS

3. *Reference points* - reference points available for use in the program (view of all program reference points accessible via Reference Points Manager):

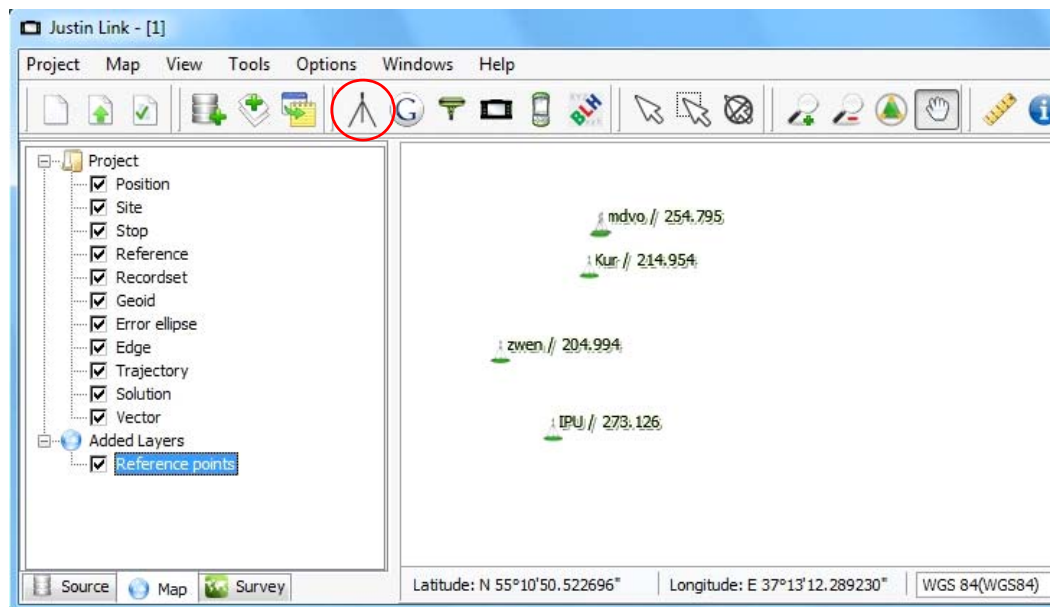


Figure 29. Reference points

To get access to a list of options assigned to the layer click it and inspect a list. Layers properties differ depending on layer type. There three main types of layers in Justin Link - permanent, dynamic, and added. Permanent layers are generated automatically for a new project. Dynamic layers are created for survey objects and vector maps which are imported from Tracy software, TRIUMPH-VS/LS application and from files.

Below is description of layer properties:

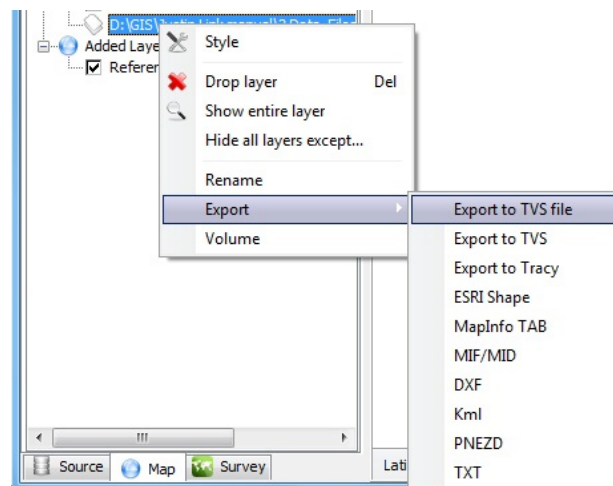


Figure 30. Right button menu for layers

- *Style* (available for all layers). Opens the *Layer style* for vector layers and *Raster style* window for images.

General Description

Map

- *Show entire layer* (available for all layers except the error ellipses layer) scales and displays all items within the selected layer of the map.
- *Hide all layers except...* (for all layers) hides all layers except the selected layer.
- *Blunder style* (for layer edge) displays the *Layer style* window for blunder.
- *Only fixed* (for layer *Solution*). If selected, only fixed kinematic solutions will be displayed. If not selected, all the solutions are shown.
- *Drop layer* (for all layers except the permanent) removes the selected layer.
- *Rename* (for dynamic layers). Used to change the layer's name. To call this function, double-click on the layer name.
- *Export* (for dynamic layers) activates export functions for the selected layer, opens dialog window with exchange formats.
- *Volume* (for dynamic layers) displays a minimum volume covering all points in a layer (convex) in cubic meters.
- *Georeferencing* (for raster layers) activates the *Georeferencing* control panel for raster image.
- *TVS Background* (for raster layers) saves raster image to TRIUMPH-VS/LS Background format (*. *Sqitedb*). This menu item opens *Save as* window, in which you should select the folder and type the name of raster file:

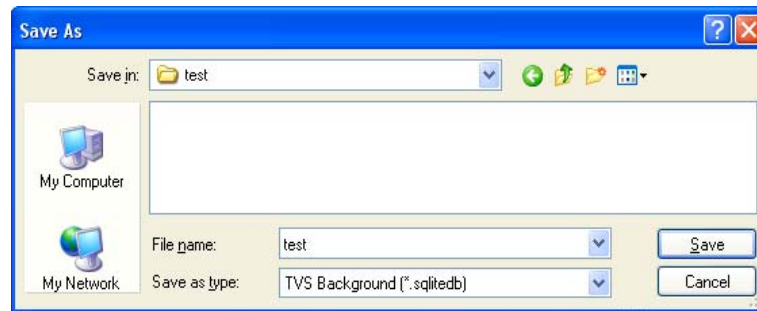


Figure 31. Save As window

- *Refresh* (for *Google map* item): refreshes raster image for the new position of the map.

4.1. Style settings

For vector layers, *Layer style* window view varies.

- In the *Style* tab, you can customize the properties (font, color, etc.) of the objects displayed on the map.

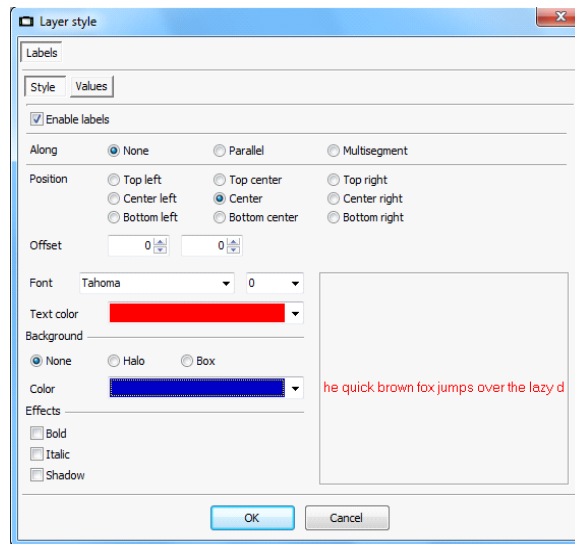



Figure 32. Layer style

Check *Enable labels* to show text data on the map.

In *Values* tab can be defined a set of labels for an object on the map. Select on the left the parameter and click arrow button  to move/remove an items. You can ordered labels on the map with up and down arrows.

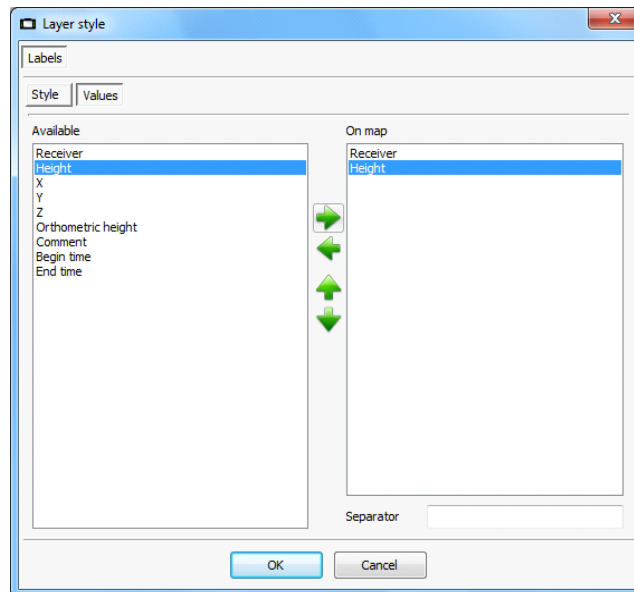


Figure 33. Layer style values

General Description

Map

- In the *Separator* field the separator between shown on the map labels can be specified. Click *Ok* to accept new label style, or *Cancel* to return to the previous configuration.
- In the *Objects* tab color and other parameters of the shown on the map object are specified:

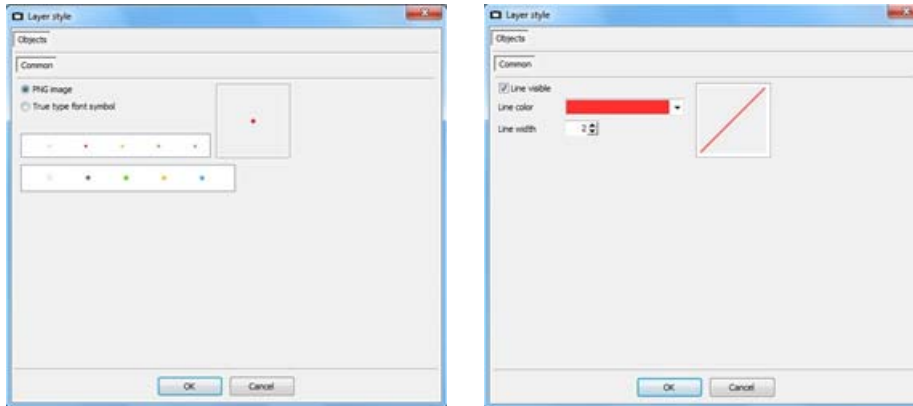


Figure 34. Objects tab

- For raster layers, the style window is called *Raster style*:

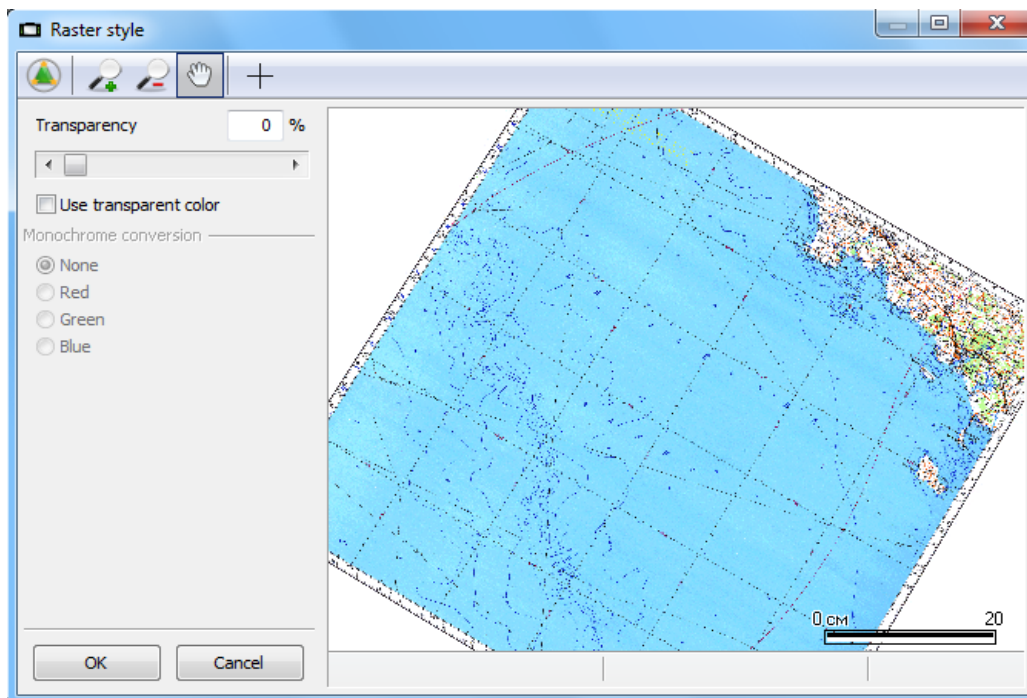


Figure 35. Raster style

The color transparency of raster image can be customized.

5. Survey

The *Survey* tab includes the following object tree:

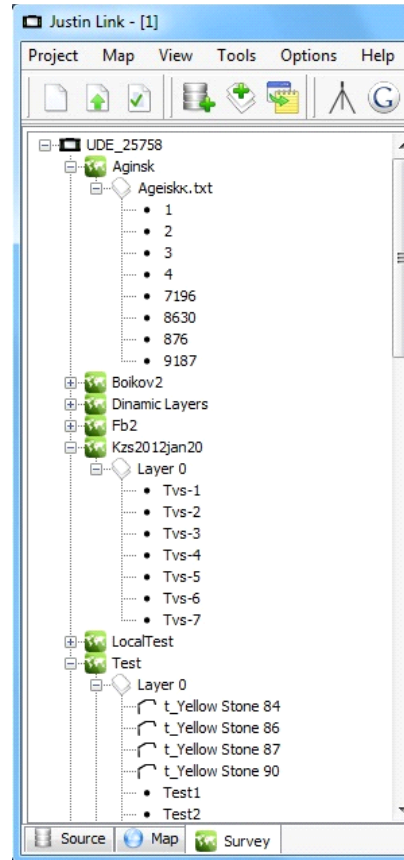


Figure 36. Survey tab

The main nodes are:

- -Receiver
- - Work - Folder

The sub node is *Map* - . It has the following sub nodes:

- Layers with the following objects:
 - point ,
 - polyline ,
 - parcel ,

Each item of the tree can be visible or hidden. To make the object visible or hide it, double click on the appropriate icon.


If the icon is active (), the layer is visible.

Otherwise icon is gray (), the layer is hidden.

General Description

Survey

All objects in the *Survey* tab have the same set of functions applicable to them (exception is *Work*, which does not have item *Properties*). The object functions can be opened by right button clicking and selecting from the list of items.

- *Properties* (unaccessible for  *Work*). Opens the *Property* window (see. “Property” on page 32).
- *Style*. Opens *Layer style* window (see “Style settings” on page 29).
- *Delete*. Deletes selected object.
- *Zoom*. Shows all objects on the map.
- *Google Speech*. Recognition audio information with the *Google Speech Recognition* service (see “Audio information recognition” on page 37).
- *Associated*. Denied repetition of Google Speech Recognition preserve against to update the field.
- *Associate by*. Indicates correspondence between items and Classifier (see “Classifier” on page 35).
- *View table*. Opens the *TVS* table (see “TVS Table” on page 43) for selected objects.
- *Export*. Opens *Export* window (see “Exporting data to exchange formats” on page 78).

5.1. Property

To see object properties right-click on the highlighted object and select *Property* menu item:

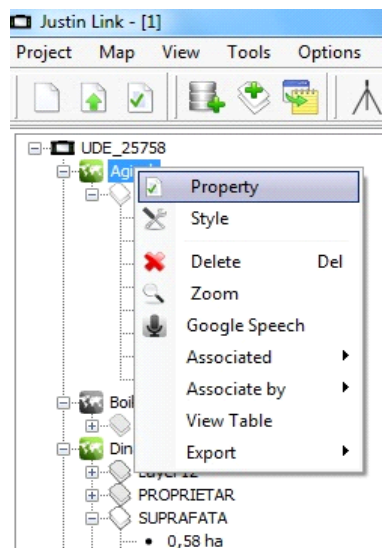


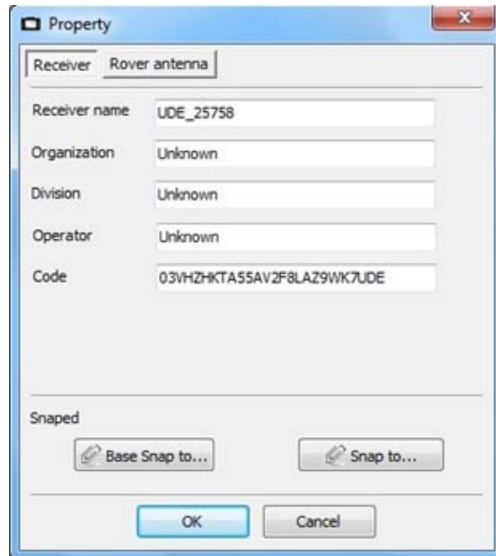


Figure 37. Right button menu. Property

Depending on the object type the *Property* window's view varies:

Receiver  - Dialog for metadata, point snapping, offsets, antenna

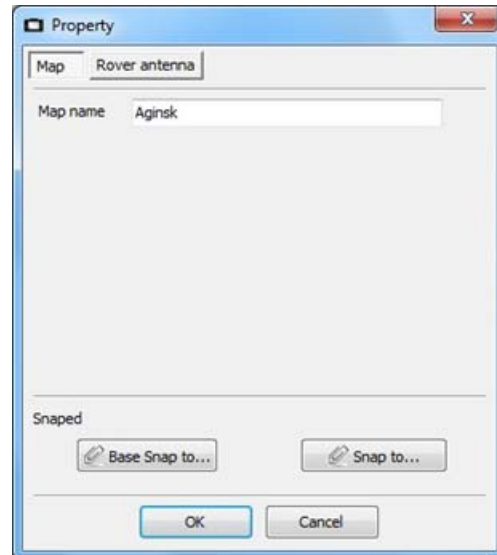
Map  - Dialog for operation in group with snapping, antenna properties, offsets



The 'Property' window for a Receiver object has two tabs: 'Receiver' and 'Rover antenna'. The 'Receiver' tab is active. It contains the following fields:

- Receiver name: UDE_25758
- Organization: Unknown
- Division: Unknown
- Operator: Unknown
- Code: 03VHZHKT55AV2F8LAZ9WK7UDE

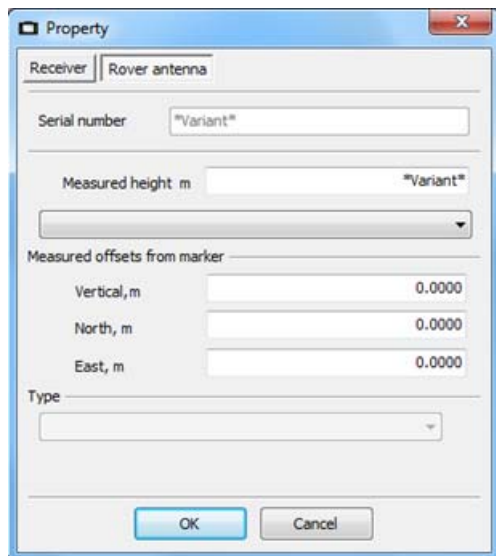
Below these fields is a 'Snapped' section with two buttons: 'Base Snap to...' and 'Snap to...'. At the bottom are 'OK' and 'Cancel' buttons.



The 'Property' window for a Map object has two tabs: 'Map' and 'Rover antenna'. The 'Map' tab is active. It contains the following fields:

- Map name: Aginsk

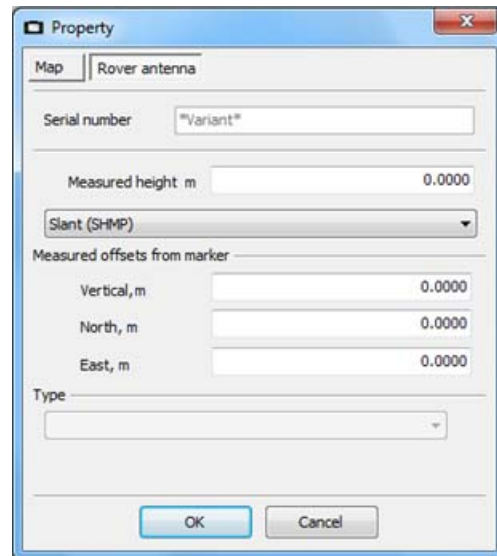
Below this field is a 'Snapped' section with two buttons: 'Base Snap to...' and 'Snap to...'. At the bottom are 'OK' and 'Cancel' buttons.



The 'Property' window for a Receiver object has two tabs: 'Receiver' and 'Rover antenna'. The 'Receiver' tab is active. It contains the following fields:

- Serial number: *Variant*
- Measured height m: *Variant*
- Measured offsets from marker:
 - Vertical, m: 0.0000
 - North, m: 0.0000
 - East, m: 0.0000
- Type: (dropdown menu)

At the bottom are 'OK' and 'Cancel' buttons.



The 'Property' window for a Map object has two tabs: 'Map' and 'Rover antenna'. The 'Map' tab is active. It contains the following fields:

- Serial number: *Variant*
- Measured height m: 0.0000
- Slant (SHMP): (dropdown menu)
- Measured offsets from marker:
 - Vertical, m: 0.0000
 - North, m: 0.0000
 - East, m: 0.0000
- Type: (dropdown menu)

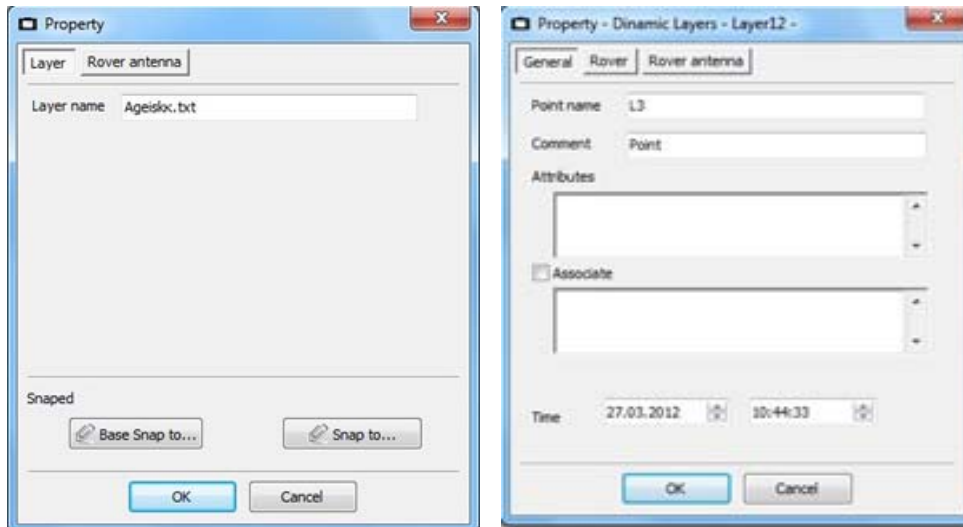
At the bottom are 'OK' and 'Cancel' buttons.

General Description

Survey

Layer  - Group operation with a layer

Object  or  - Single operation with selected object

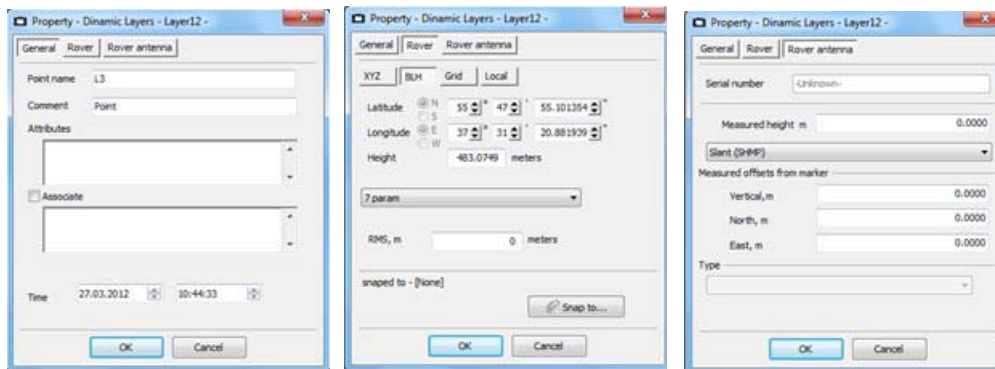


In the edit fields of the *Properties* window you can change the data, click OK to accept and save the changes, or *Cancel* to cancel editing

For points • there are additional tabs in the *Property* window: *Master* and *Rover*.

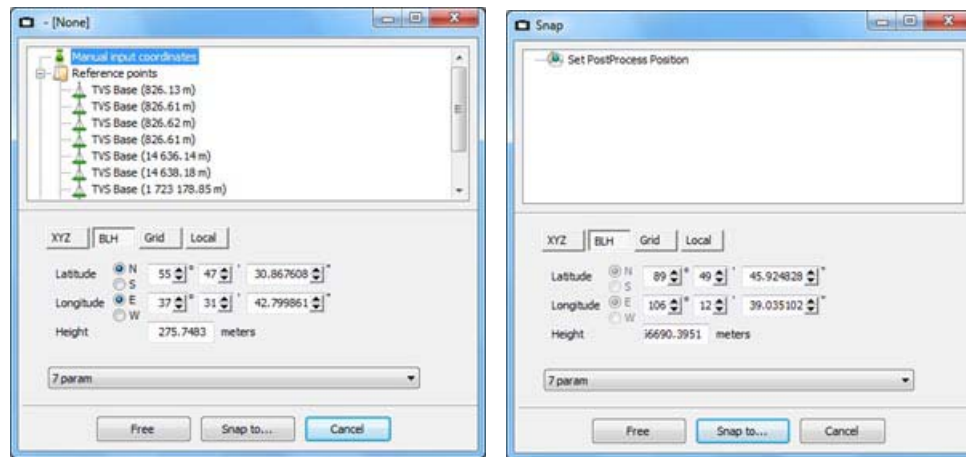
In the *Master* tab are displayed the coordinates of base point, according which Rover coordinates were calculated.

The *Rover* tab displays the coordinates of the object. In both boxes next to the active window there are strings with information about the item to which the object is snapped (otherwise [None] will be shown).



The coordinates can be shown in geocentric, ellipsoidal, grid or local systems. To select a particular system, select the appropriate tab. A check mark *Associate* indicates that this object will be used to re-call the function *Google Speech* and *Associate*.


For the windows above, there is another category of tabs. *Snap base to...* and *Snap to...*. Clicking on them opens the window *[None]*:



So there are some opportunities to set point position - get from receiver, snap to some objects, manual input and postprocessing. You can modify alone point position with *Snap to..Base snap to..*. Option affects to all points referred to the base. Every survey point position are calculated in RTK or static postprocessing relative some base coordinates.

To implement the inverse operation, click *Free*, base coordinate point or object will have the value that they had before snapping. To cancel all changes and close the *[None]* window, click *Cancel*.

5.2. Classifier

Classifier - is a customer structured table of defined style. Object attributes are - scale, number, code, description, symbol. To activate the classifiers table, click *Classifier* icon .

Classifier manager appears:

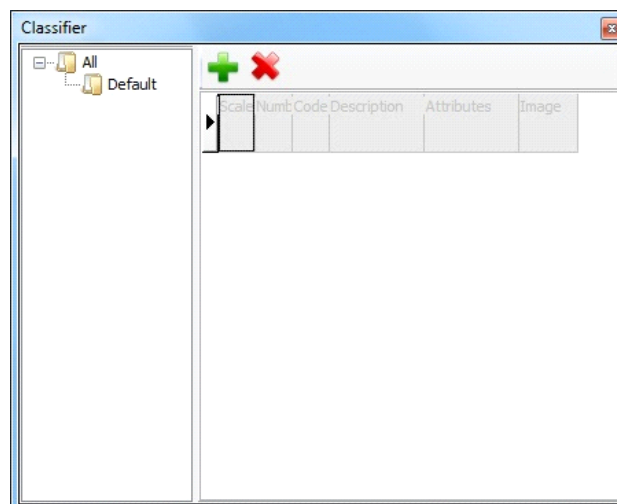


Figure 38. Classifier

General Description

Survey

To add the row and new classifier, click , to delete selected row, click .

Focus on one of the table fields and add appropriate information (scale, code, description). To input a symbol double click to the appropriate field, select the picture file and click *Open*. The classifiers table will be completed:

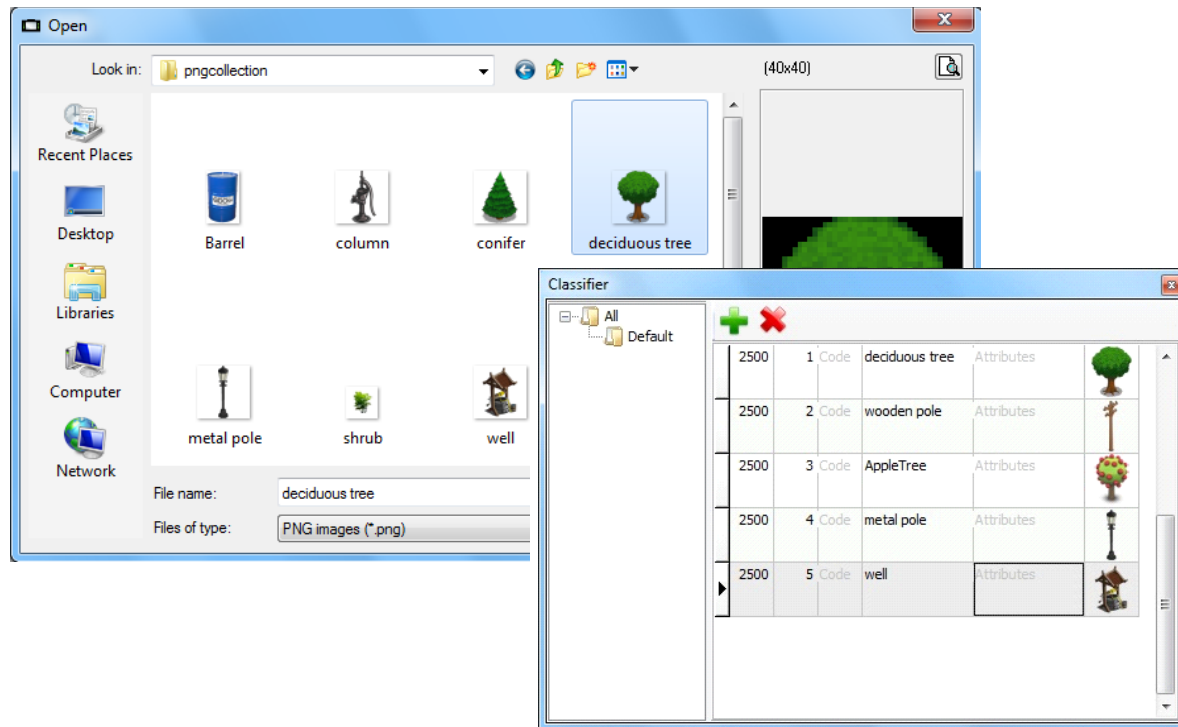



Figure 39. Classifiers table

To recall the classifier click  and *Classifier* window appears with all inserted information.

5.3. Audio information recognition

After having imported objects with audio data, this information could be recognizing using *Google Speech* option.

To put on the map an attributes data from *Classifier*, select the layer and call right button menu, then select *Style* menu item:

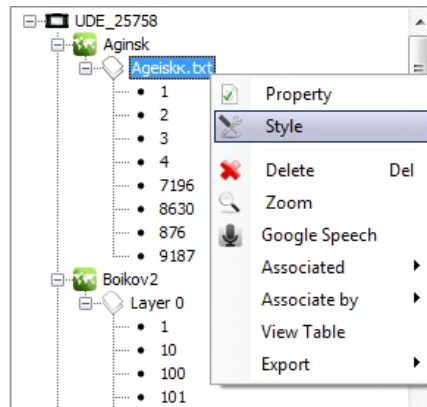



Figure 40. Style

Focus on the values you wish to be shown on the map, e.g. *Recognized audio*, and click . The *Recognized audio* item appears on the right, and the special symbols on the map will have appropriate label.

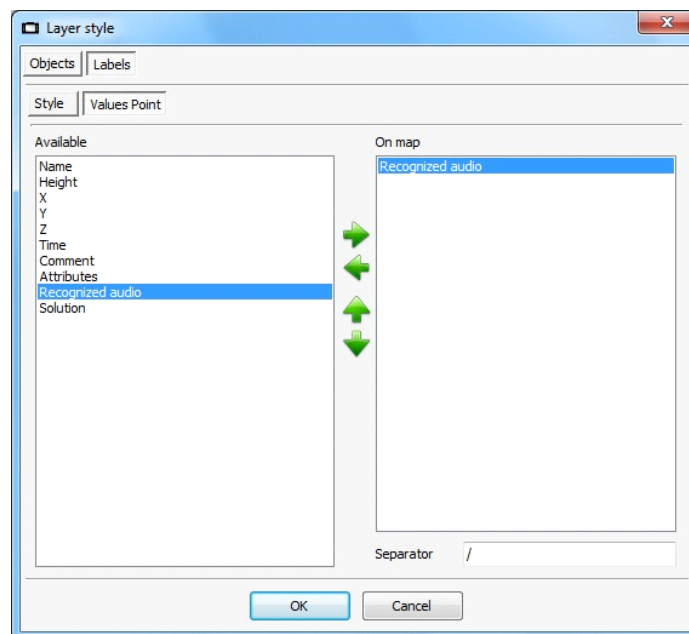


Figure 41. Layer style

General Description

Survey

To recognize audio click with right button on the layer name and select *Google Speech* menu item. The progress bar will show the status of recognition:

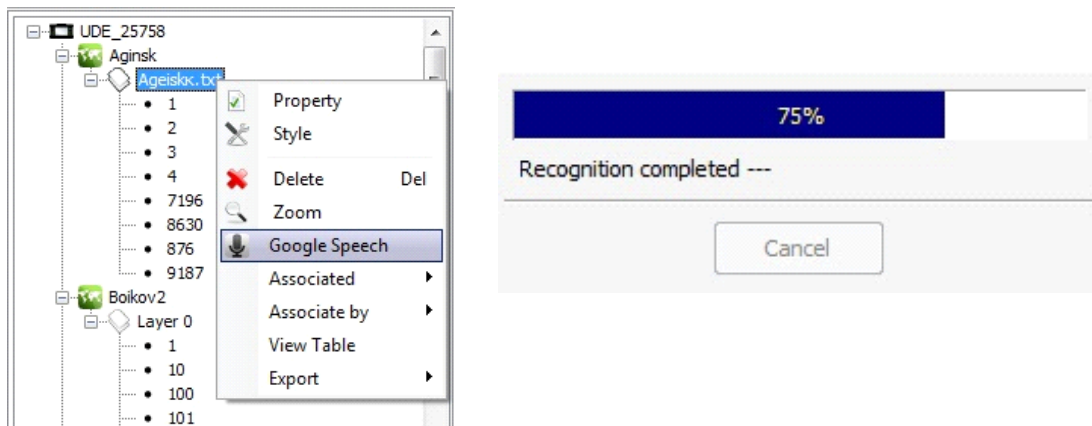
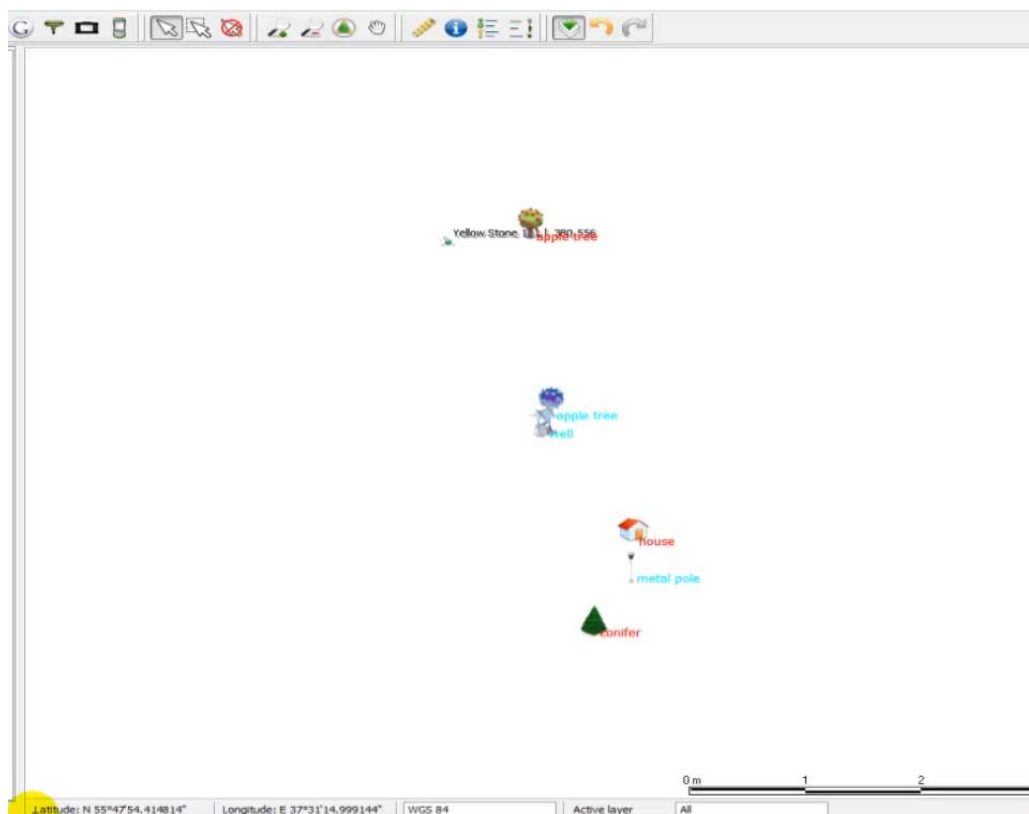


Figure 42. Google Speech

Classifier symbol will remove on the map last ones:



6. Project Properties

This dialog appears after clicking *Project Property* or *New Project* options.

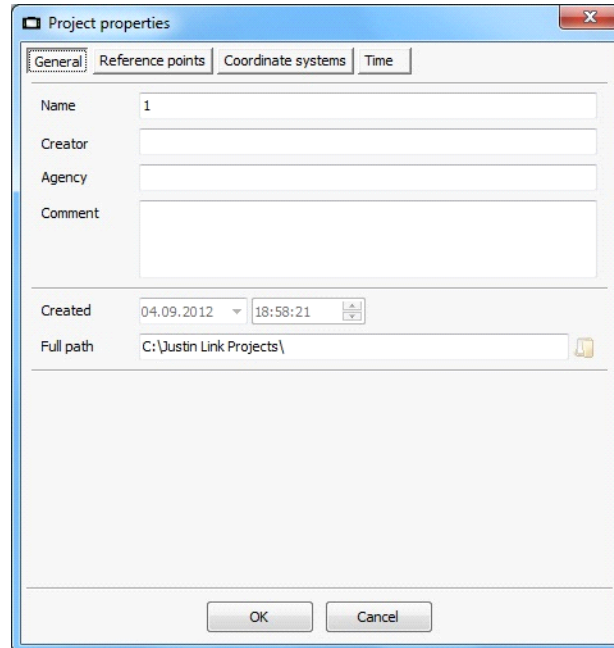



Figure 43. Project properties

There are four tabs in this dialog:

- *General*:
 - *Name* - project name.
 - *Creator* and *Agency* – creator's/agency name which will be used in reports (can be empty).
 - *Comments* – any comment to the project (can be empty).
 - *Created* – the date the project was created (filled automatically).
 - *Full path* – destination folder where the project is stored. All files created during the operation with the project will be saved in that folder. To see path click the *Browse* button .
- *Reference points* tab is designed for adding reference points to the project.
- *Coordinate Systems* tab is designed for adding to the project coordinate systems.
- *Time* tab allows selecting time format for the project. The following formats are:
 - *GPS*, Global Positioning System time, is the atomic time scale implemented by the atomic clocks in the GPS ground control stations and the GPS satellites themselves. GPS time was zero at 0h 6-Jan-1980 and since it is not perturbed by leap seconds GPS is now ahead of UTC by 15 seconds.
 - GPS time in format *dd/mm/yyyy hh:mm:ss.sss*, e.g.: 04/05/2012 11:06:24.567
 - GPS time in week's format *www/sss.sss* (number of the GPS week/seconds from the week beginning), e.g.: 1686/471984.234
 - GPS time in seconds: 1020 164 784.567
 - *UTC*, Coordinated Universal Time.

General Description

View

- *Local time* in the format dd/mm/yyyy hh:mm:ss.ss, e.g.: 04/05/2012 11:06:24.567. The local time zone is selected from the list. Local time differs from UTC by time zone offset.

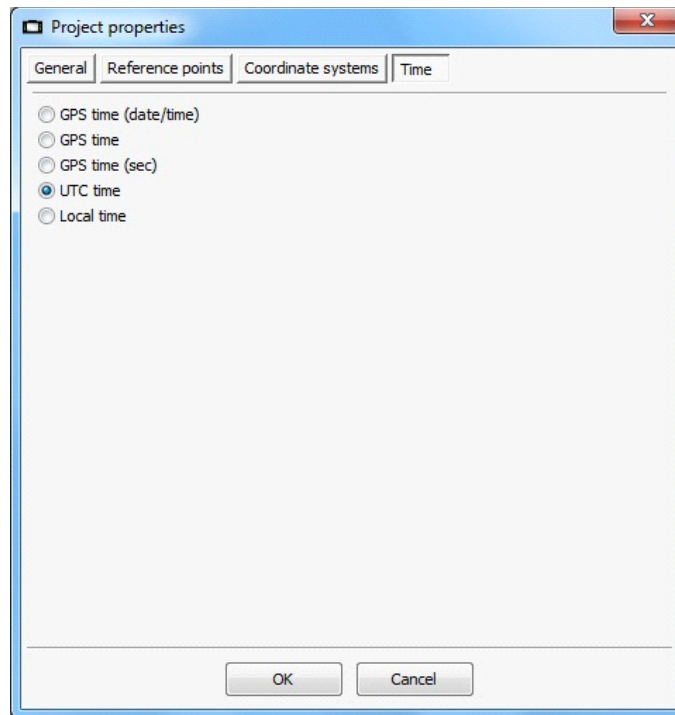


Figure 44. Project properties. Time tab

7. View

The list of *View* menu includes two permanent active items and some additional ones. Permanent items are Project and Map. They hide/make visible main left/right program pane.

The next items add a new pane to Map window.

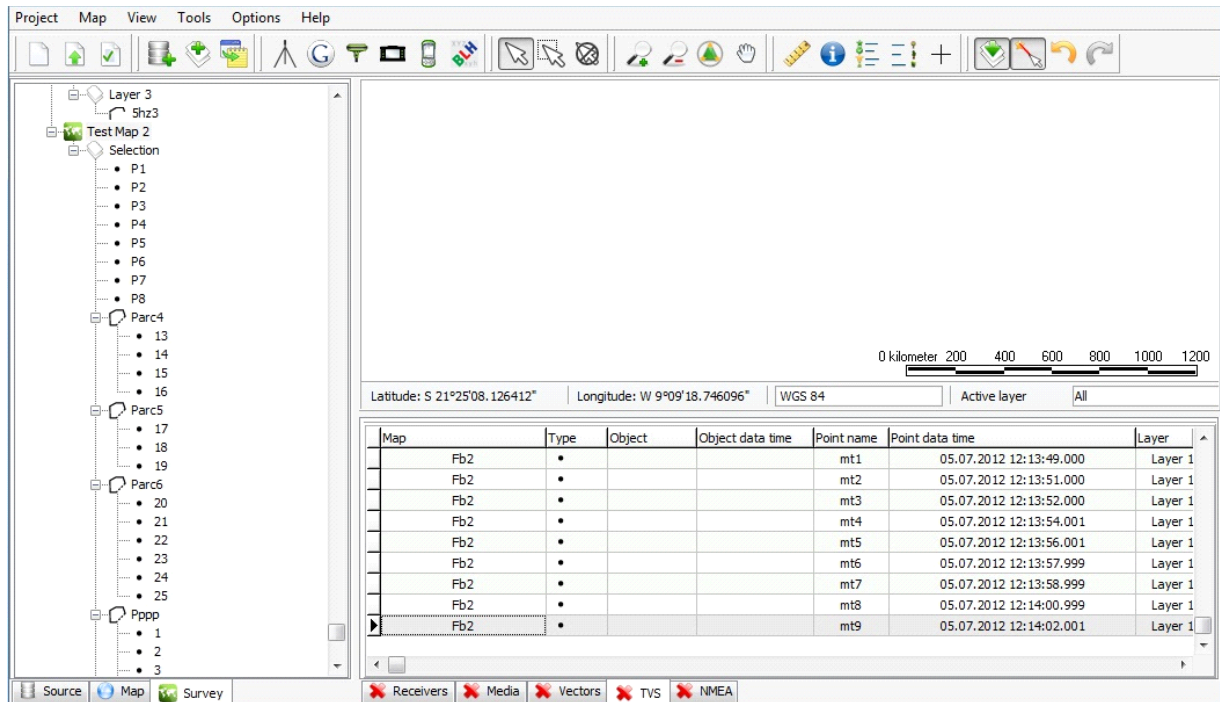


Figure 45. View

- *Receiver list* – opens the *Receivers* tab with the list of the receivers.

Receiver	Number	Serial	Firmware version	Rover
TR_VS	03VHZHKT A55AV2F8	25758	3.3.1b4 May,06,2011	<input checked="" type="checkbox"/>
TRIUMPH1	3VVZWHQY5PK3S3V		3.2.5 Jan,26,2011	<input type="checkbox"/>

☒ Receivers

Figure 46. Receivers

The *Receiver* table shows type, serial number and firmware version of receivers. Here receiver could be marked as a rover either, to prevent vector generation between rovers.

- *Media* – opens the *Media* tab, for the purpose of playing of audio information.

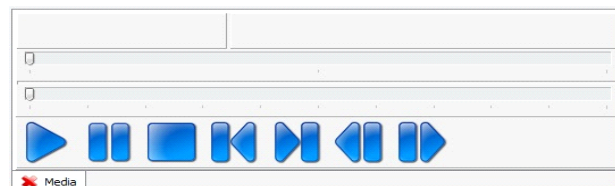


Figure 47. Media

General Description

View

- *Vectors* – opens the tab with the vector information. The check mark *Enable* allows making the selected vector visible or invisible on the map.

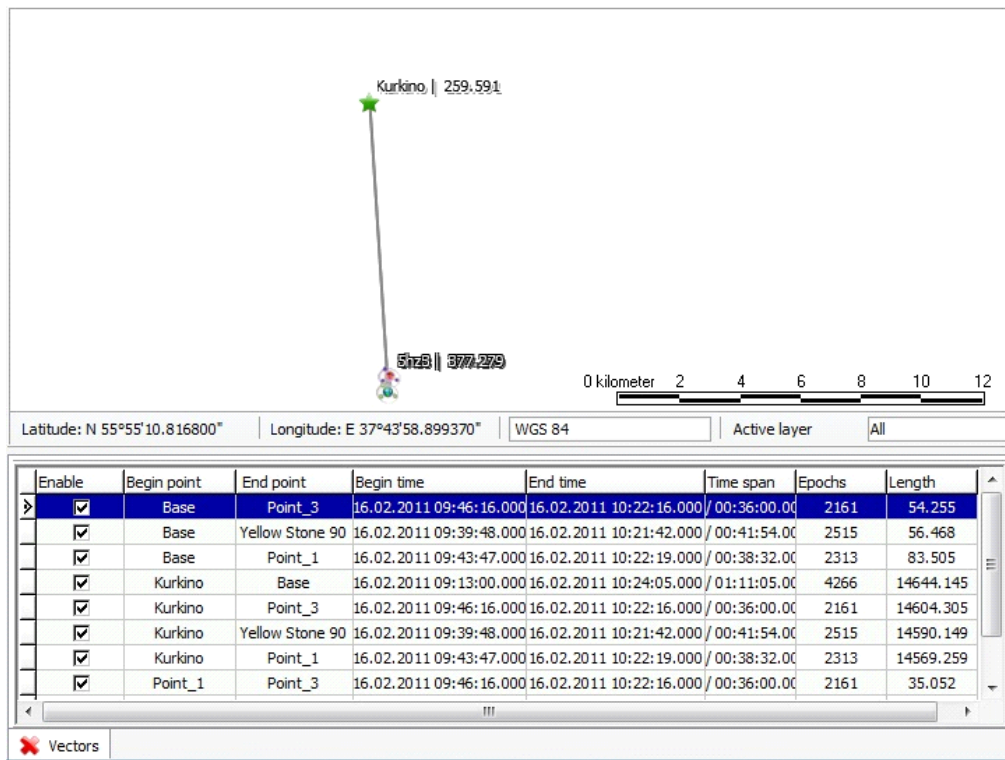


Figure 48. Vectors

- *TVS* – opens *TVS* tab with the information about *Survey* tab's objects (see detailed description in "TVS Table" on page 43).
- *NMEA* – opens the *NMEA* tab, where can be displayed the graph for the data of the appropriate dynamic layer. For the other layer type such graph are not available.

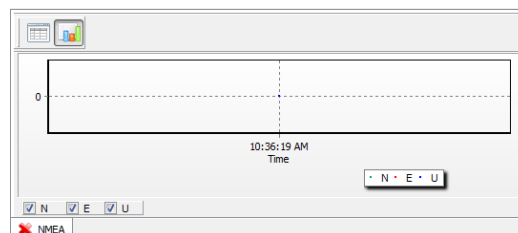


Figure 49. NMEA

7.1. TVS Table

The *TVS* table contains the information about the *Survey* tab's objects.

Map	Type	Object	Object data time	Point name	Point data time	Layer	Associated	Recognized audio	Comment
Test Map 2	•			T6	13.01.2012 14:29:57.000	Selection	<input type="checkbox"/>		
Test Map 2	•			P2	13.01.2012 14:29:56.999	Selection	<input type="checkbox"/>		
Test Map 2	•			P1	13.01.2012 14:29:57.000	Selection	<input type="checkbox"/>		
Test Map 2	•			P3	13.01.2012 14:29:57.999	Selection	<input type="checkbox"/>		
Test Map 2	•			P4	13.01.2012 14:29:58.001	Selection	<input type="checkbox"/>		
Test Map 2	•	Parc4	.01.2012 14:29:59.9	13	13.01.2012 14:29:59.001	Selection	<input type="checkbox"/>		
Test Map 2	•	Pppp2	.01.2012 14:29:59.0	7	13.01.2012 14:29:59.000	Selection	<input type="checkbox"/>		
Test Map 2	•	Pppp2	.01.2012 14:29:59.0	Reteg0	13.01.2012 14:29:59.000	Selection	<input type="checkbox"/>		
Test Map 2	•	Pppp2	.01.2012 14:29:59.0	6	13.01.2012 14:29:59.001	Selection	<input type="checkbox"/>		
Test Map 2	•	Parc4	.01.2012 14:29:59.9	15	13.01.2012 14:30:00.000	Selection	<input type="checkbox"/>		
Test Map 2	•	Parc4	.01.2012 14:29:59.9	16	13.01.2012 14:29:59.999	Selection	<input type="checkbox"/>		
Test Map 2	•	Pppp3	.01.2012 14:30:02.0	8	13.01.2012 14:30:00.000	Selection	<input type="checkbox"/>		

Attributes	Solution	Style	Coordinate system	JPS	Med	Pictures	snaped to	Latitude,°	Longitude,°	Height, meters	Base Snaped to	Latitude,°
	Ismeretlen	•						55.791699487	37.526455297	173.2286		
	Ismeretlen	•						55.791929146	37.526864668	172.8866		
	Ismeretlen	•						55.791943226	37.526740733	172.8073		
	Ismeretlen	•						55.791913629	37.526993964	172.9844		
	Ismeretlen	•						55.791897964	37.527124984	173.1521		
	Ismeretlen	•						55.791792017	37.526931674	174.6214		
	Ismeretlen	•						55.791786140	37.526978898	173.9694		
	Ismeretlen	•						55.791822652	37.526942052	173.8159		
	Ismeretlen	•						55.791791843	37.526927901	173.8978		
	Ismeretlen	•						55.791819618	37.526998044	173.8791		
	Ismeretlen	•						55.791824482	37.526945327	174.3863		
	Ismeretlen	•						55.791781879	37.527008373	172.8300		

Latitude,°	Longitude,°	Height, meters	Base Snaped to	Latitude,°	Longitude,°	Height, meters	Agency	Project	Creator	Receiver	Receiver ID
55.791699487	37.526455297	173.2286					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791929146	37.526864668	172.8866					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791943226	37.526740733	172.8073					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791913629	37.526993964	172.9844					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791897964	37.527124984	173.1521					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791792017	37.526931674	174.6214					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791786140	37.526978898	173.9694					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791822652	37.526942052	173.8159					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791791843	37.526927901	173.8978					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791819618	37.526998044	173.8791					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791824482	37.526945327	174.3863					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W
55.791781879	37.527008373	172.8300					Unknown	Unknown	Unknown	UDE_25758	-KTA55AV2F8LAZ9W

Figure 50. TVS

Double click on table item performs the following functions:

- *Map* – opens the window with map properties.
- *Object and Object data time* – opens the object properties window.
- *Point name, Point data time, Comments, Attributes* – opens the window with properties of the point.
- *Layer* – opens the layer properties.

General Description

View

- *Associated* – enables/disables *Google Speech* and *Associated with* functions.
- *Recognized audio* – starts *Google Speech* (see “Survey” on page 31).
- *Style* – opens layer style window.
- *Sounds* – opens the window with audio information.
- *Images* – shows the images.
- *Company, Project, Receiver, Receiver ID* – opens project properties.
- *Type* – Opens the *Info* window, with the text information about object.

When you right-click on the cell *JPS*, *Sounds* and *Images* the standard Windows menu for the files will appear.

To sort the table, click the right mouse button on the column header. To align the column width press and hold *Alt* key and left-click on any location within the column. Use the *Shift* and *Ctrl* keys, to select multiple rows in the table. The following menu will appear:

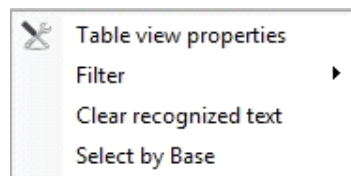


Figure 51. Menu

- *Table view properties* - opens the properties window.
- *Filter* - enables filter to display/hide the following parameters:
 - *Receiver* - hides all objects of receivers that do not belong to the receivers of selected objects.
 - *Map* – hides all objects of maps that do not belong to the maps of selected objects.
 - *Layer* – hides all objects of layers that do not belong to the layers of selected objects.
 - *Point* – hides all objects that do not belong to the selected objects.
 - *Clear* – clears the filter to display all objects of the Survey tab.
- *Clear recognized text* - removes the recognized text for selected object(s).
- *Select by Base* - selects all points belonging to the same base station.

8. Application

8.1. Options

General functions and options, are arranged in special menu item *Options*. To open the *Options* window, click *Application* ► *Options*.

Common

The *Common* tab allows specifying the main parameters and functions of the project:

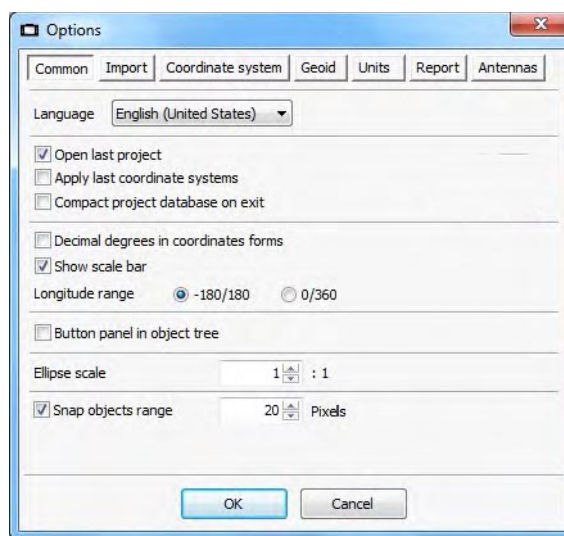


Figure 52. Common tab

- *Language* - select the interface language from the list of available languages.
- *Open last project* - last project will be opened automatically after Justin Link starts.
- *Compact project database on exit* - Maximum size of Justins project is limited, you should compact project to avoid data lost if your project size is close to 2 GB. To reduce the database size and project size as well, compact the database at time.
- *Decimal degrees in coordinates forms* - the degrees in the coordinate forms will be shown in decimal values, otherwise in degrees, minutes, and seconds.
- *Show scale bar* - activates/hides scale bar.
- *Longitude range* - switches longitude format.

General Description

Application

- *Panel button in object tree* - activates new control for the layers; this menu item duplicates the right button menu.

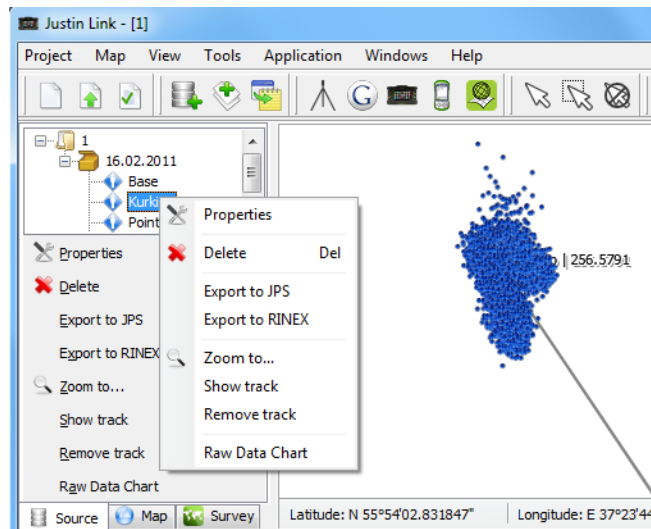



Figure 53. Button panel activated

- *Ellipse scale* - the scale of the ellipses of error can be set.
- *Snap objects range* - supplies the function of the point *Snap*  (switches on/off snapping to point objects). When the mode of object is activated a red line joints cursor and object.

Import

In this tab the parameters of GNSS file import can be specified:

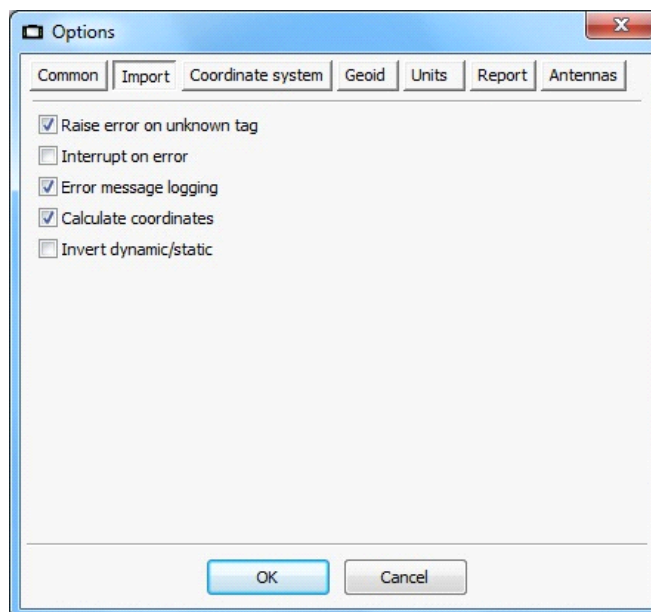


Figure 54. Import tab

- *Raise error on unknown tag* - adds warning to ImportLog.txt file.

- *Interrupt (import) on error.* - stops import on error.
- *Error message logging* - creates ImportLog.txt file in a project folder.
- *Calculate coordinates* - recalculates receiver epoch coordinates
- *Invert dynamic/static* - fix field operator fault in Stop&Go mode survey Surveyer starts Static observation with Dynamic mode..

Coordinate system

See detailed description in “Project coordinate systems” on page 75.

Units

In the *Units* tab the metric units used in project can be selected. Select the units from the list.

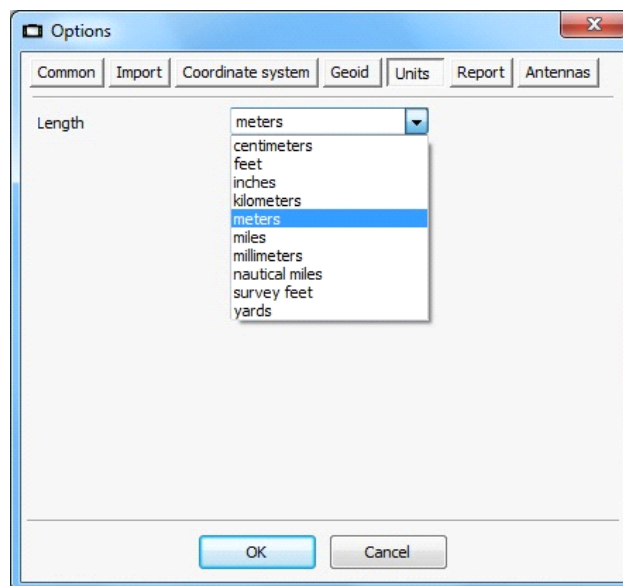


Figure 55. Units tab

General Description

Application

Report

In the *Report* tab the parameters of report can be specified the report format and type:

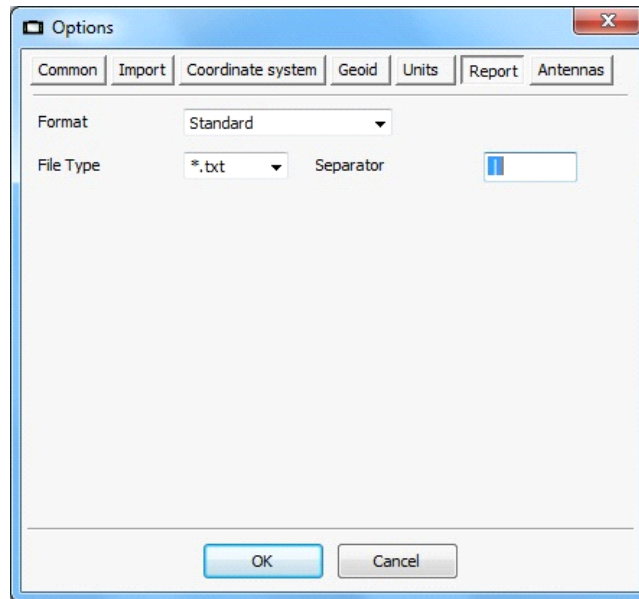


Figure 56. Report tab

- *Format* - report format can be selected from the drop-down list box. The format can be standard or special for selected country.

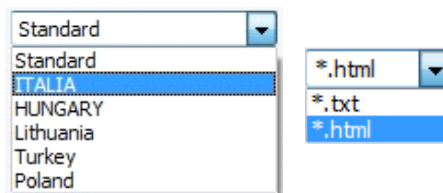


Figure 57. Report format and type

- *File type* (*.txt or *.html).
- *Separator* - the separator is specified in the edit field.

Antennas

In the *Antennas* tab the type of antenna calibration is specified.

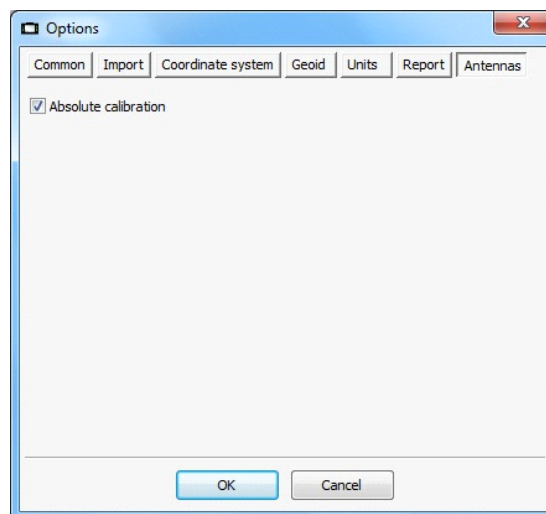


Figure 58. Antennas

It can be absolute calibration (by default), or relative.

8.2. Reference points

Detailed description see in “Reference points” on page 53.

8.3. Antenna list

To add a new antenna to the antenna database, click *Options ► Antenna list*.

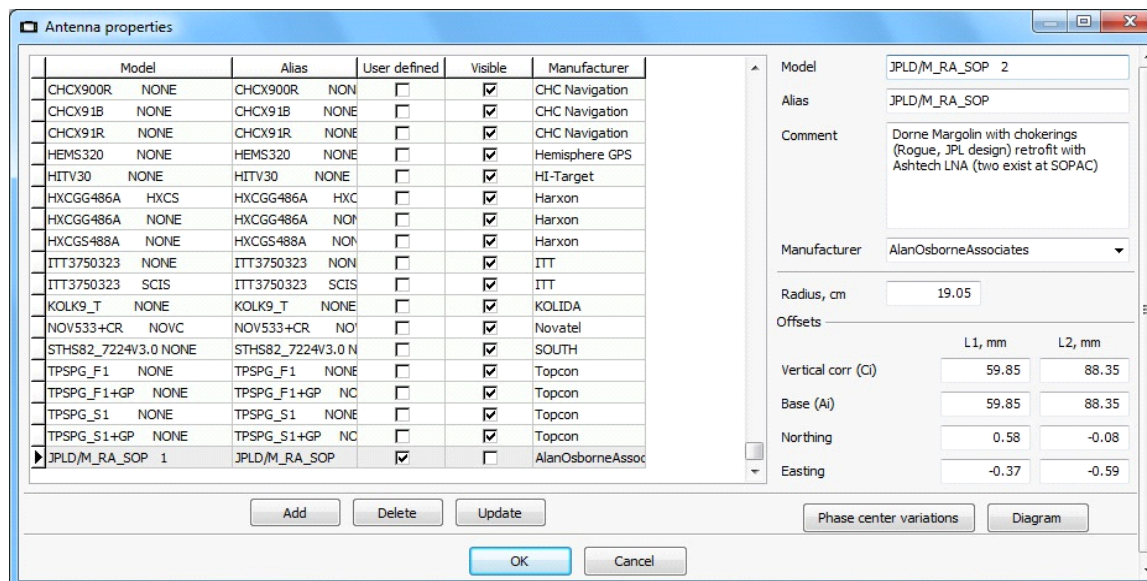


Figure 59. Antenna properties

In the *Antenna properties* window the information about the antennas is presented. Select the antenna from the list and its specification will be shown on the right.

To add new antenna to the list, enter the antenna name to the *Model* row. Then click *Add* and add antenna properties. New added antenna is marked in the list as user defined.

To delete user defined antenna from the list, select the antenna and click *Delete*. To update antenna parameters (except name), click *Update*. The check mark *Visible* makes antenna visible/invisible in the antenna list in the *Recordset property* window. You can sort data in a table by right clicking field title.

Click *Diagram*, to see the antenna graph with description of the parameters, which should be entered for new antenna:

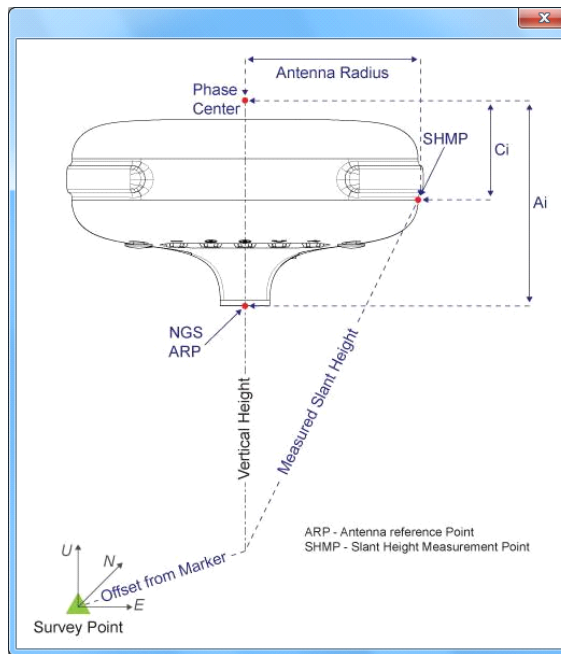


Figure 60. Antenna graph

9. Distance measurement

To measure the distance on the map use *Distance* tool. To activate it click *Map* ► *Distance*.

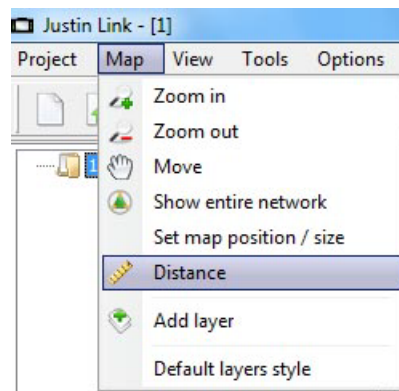



Figure 61. Distance


The cursor on the map will be shown as cross-hair with ruler: .

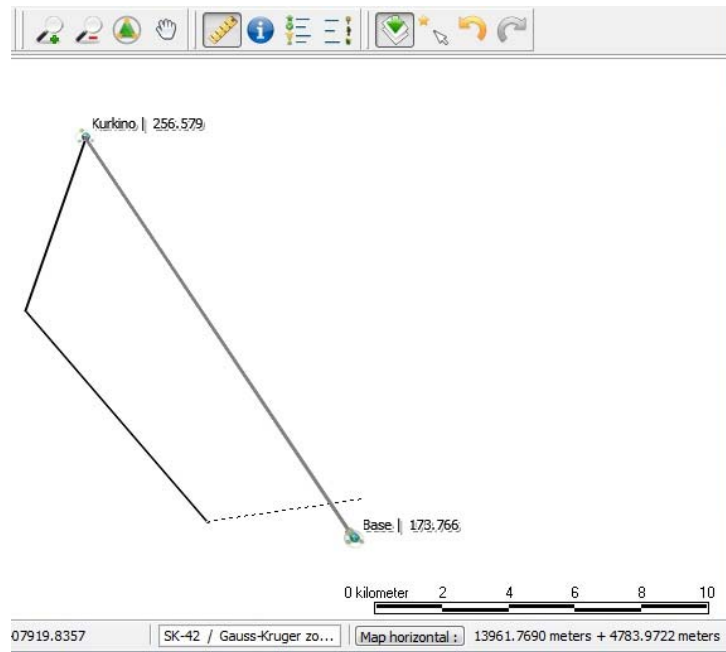
Select the desired point and click left mouse button, then select other point and click left mouse button again (if the distance of polyline is measured, repeat this procedure for all points).

There are two modes for distance measuring:

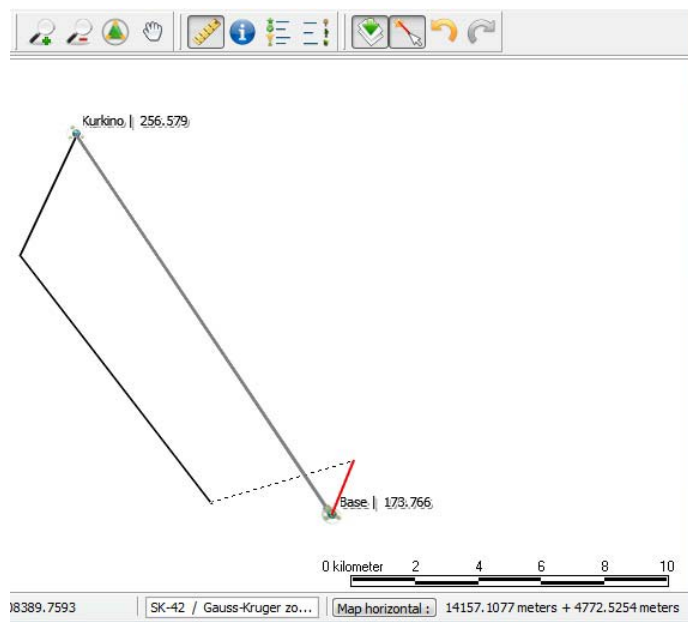
General Description

Distance measurement

1. *Free mode* – the point is selected on the map without snapping it to the object (the *Snap* button is inactive ):




2. *Mode with snapping* – the point can be snapped to the object (the *Snap* button is active ).



After the points are selected, in the status bar will shown two distances: one distance between fixed points (black line) and second between last selected point and cursor (dotted line). When the distance measuring is active four modes of the measuring type are available:

1. **Map horizontal :** - Horizontal distance in the map coordinate system.
2. **Map slope :** - Slope distance in the map coordinate system.

3. **Ellipsoidal :** - Arc length on the WGS84 ellipsoid.
4. **Distance:** - Slope distance.

Click the button with measuring type till desired type appears. To clear figures click right mouse button on the map. To quit the distance measuring mode, click  or click *Map ▶ Distance*.

10. Reference points

There are two reference points repository in Justin Link - program and project. Project property coordinate systems control allows to exchange reference points easily. Entire program database is under management of reference points module. Reference points attributes are coordinates, accuracy, coordinate system and a type of fixing (plan&height, plan, height). We do not edit reference point type in a project because position tolerance criterium depends on antenna height and offsets. Also we do not distinguish points by their altitude or by name and use plane tolerance only. This restriction prevents to avoid a conflict between program and project databases due to several types of fixing.

To add the reference points to the program database, perform the following:

1. Left click the reference points button  or click *Options ▶ Reference points*:

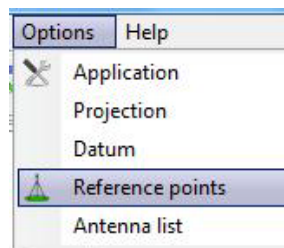


Figure 62. Options ▶ Reference points

General Description

Reference points

2. In the Reference points window activate the *Reference List* tab and highlight *Reference points*, then right-click and call the menu. Select *Add group*.

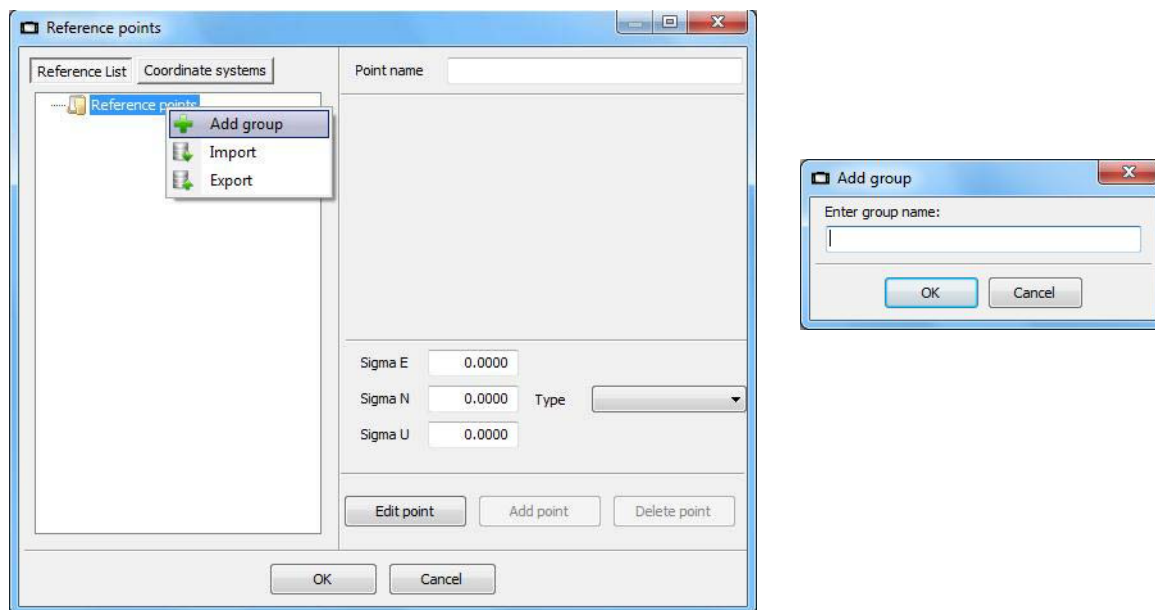


Figure 63. Add group

3. Enter the group name.
Groups are used to simplify the search and copy of the reference points according any criterion: area, coordinate system, etc.

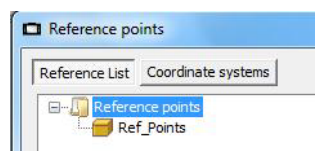


Figure 64. Group name

4. Select the group name and right-click to highlight it, then activate *Coordinate System* tab and select the needed coordinate system for the point. On the right pane appears the dialog box for the selected coordinate system:

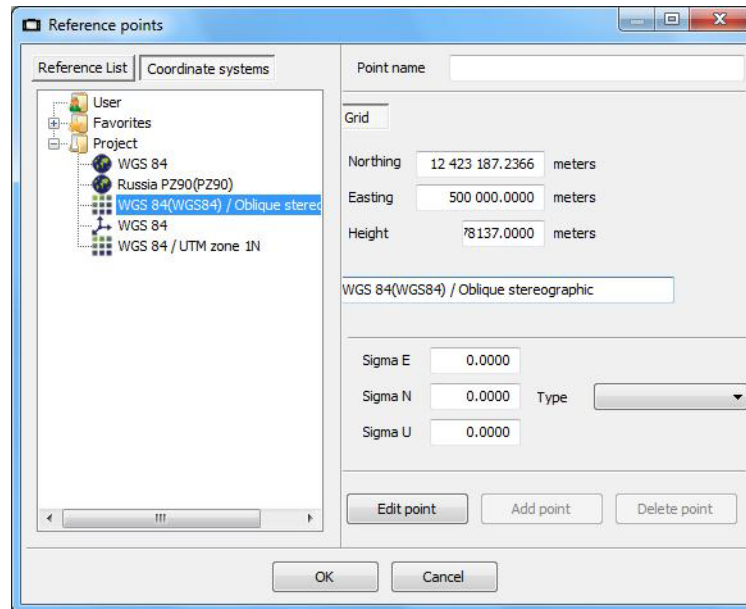


Figure 65. Select coordinate system

5. Click *Edit point* and enter point name, coordinates. Select the point type: plane, height, plane and height, enter coordinates's sigmas if needed and click *Add point*. The point will be added to the group, and its coordinates will be added to the program database.

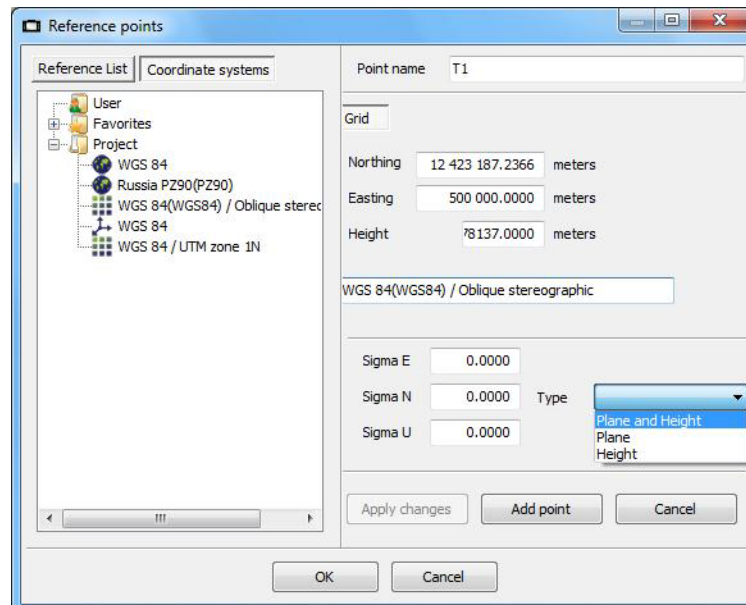


Figure 66. Edit coordinate system of the point

General Description

Reference points

6. Repeat steps above to add more points. The list of these points will be displayed in the group:

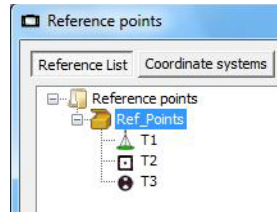





Figure 67. Group of the reference points

Depending of the type of referencing, all points will be marked with the following symbols:

-  - plane and height fixed;
-  - plane fixed;
-  - height fixed.

To manage the group of points use the right-click menu. The group can be renamed, deletes, the new points (*.jst, *.csv, *.txt (see “Import files to the project” on page 60 for the detailed format description) can be imported to the group; one or more points can be exported to the *.jst file.

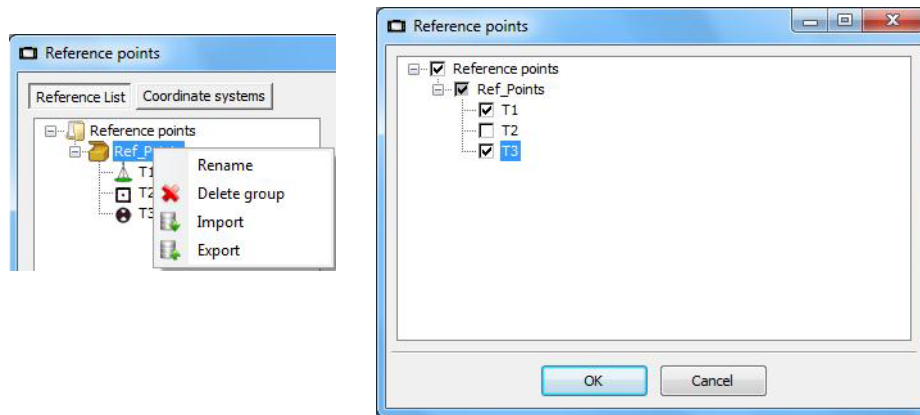


Figure 68. Right-click menu

The menu can be called by right-click on the point in the list. All operations will be applied to the selected point.

To rename the point and edit its coordinates and type, select the point in the group and on the right-click the *Edit point* button. Refresh the information by clicking appropriate button.

To delete the point, select it and click *Delete point*.

To save all changes click *OK* button in the *Reference points* window, otherwise all changes will be lost.

To move point into another group (if there are two and more groups), select the point and drag it:

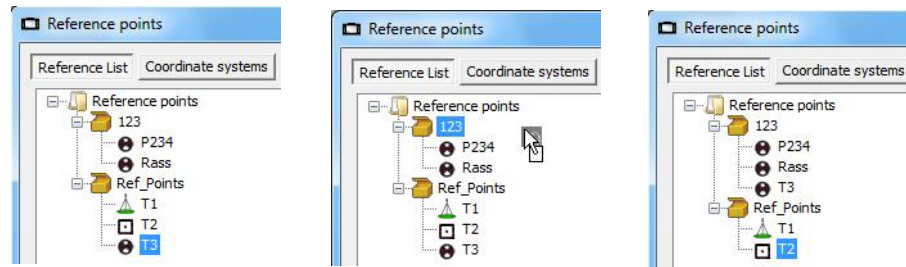




Figure 69. Drag and drop the point

The point will be removed from the initial group.

10.1. Swapping points between program database and project

To copy reference points to the project database, perform the following:

1. Click the  to create new project, or  to work with current project. Alternatively click *Project* ► *Properties*:

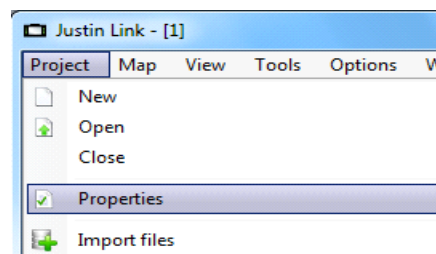



Figure 70. Project ► Properties

General Description

Reference points

2. Click *Reference points* button, select the group name and click , to copy it from the program to the project. The selected object will be copied to the project and its name appears in on the right in the *Project* folder.

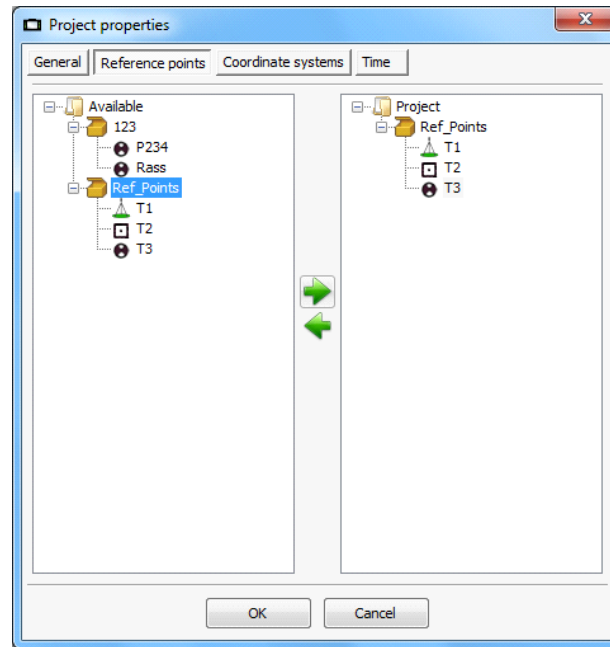



Figure 71. Adding referents

This operation is available for copying the reference points from program database, and vice versa from a project to the program database.

The reference points from the project can be copied to the program data base (*Available*), by clicking .

Alternatively, drag the object on the left and drop it on the right. The object will be copied.

For the objects in the left part of the window the following menu items are available: *Add group*, *Import* (of the point(s) in *.jst* , **.csv*, **.txt* formats or of the group), *Rename*, *Delete group*:

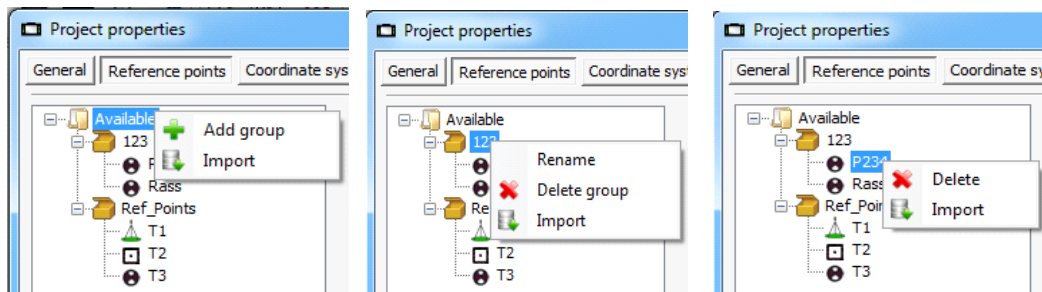


Figure 72. Right-click menu

For the objects on the right are available: *Import* (of the point(s) in *.jst* , **.csv*, **.txt* formats or of the group), *Delete group*, *Delete* (point):

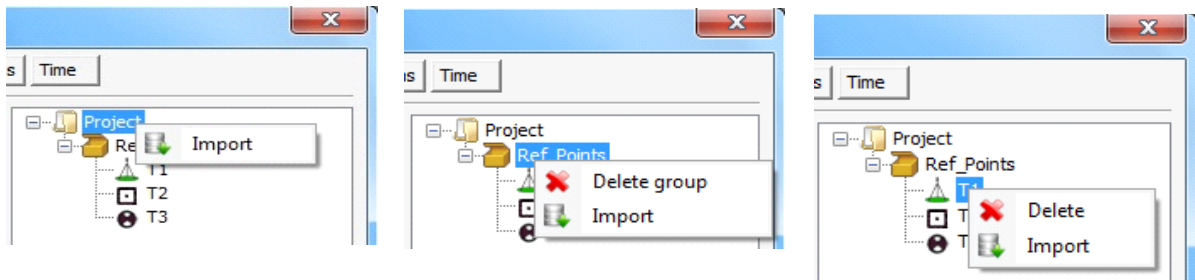


Figure 73. Right-click menu


To save all changes click *OK* button in the *Project properties* window, otherwise all changes will be lost.

11. Working with a project

A project is a database designed for GNSS and survey data management, exchange data and maps with JAVAD field software, export/import maps to GIS/CAD office applications, documents publishing. One project only can be opened by program simultaneously.

11.1. New project

To create new project perform the following:

1. Click  or click *Project* ► *New*:

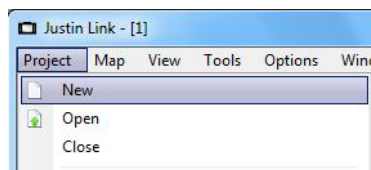


Figure 74. New project

General Description

Working with a project

2. Enter the details to the *Project properties* window (for the detailed description see “Project Properties” on page 39); in the *General* tab specify the full path to the project file:

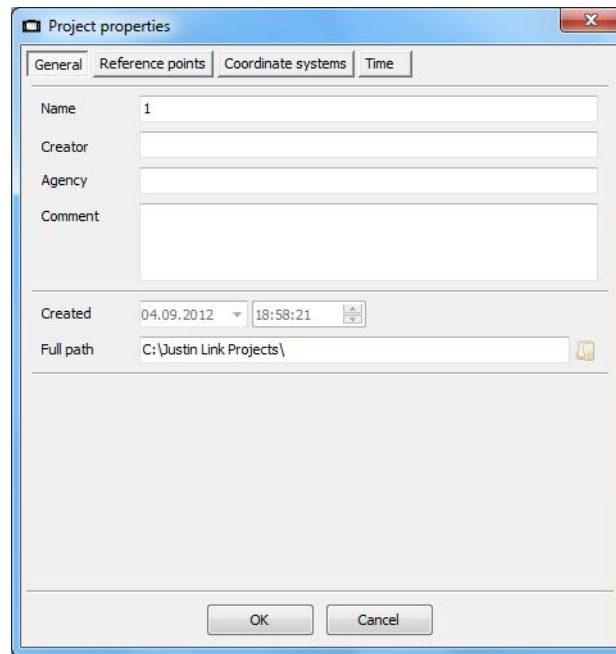



Figure 75. Project properties

In the *Coordinate systems* tab specify the coordinate systems. In the *Time* tab set the time system for the project.

3. To close the project without quitting the program click *Project* ► *Close*.

11.2. Import files to the project

To import files:

1. Click  button or click *Project* ► *Import files*:

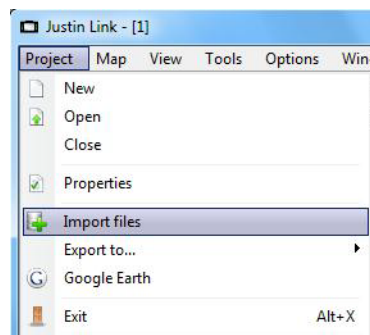


Figure 76. Import files

2. In the *Import files* dialog window select the file type and file(s) from the list. Click *Open*:

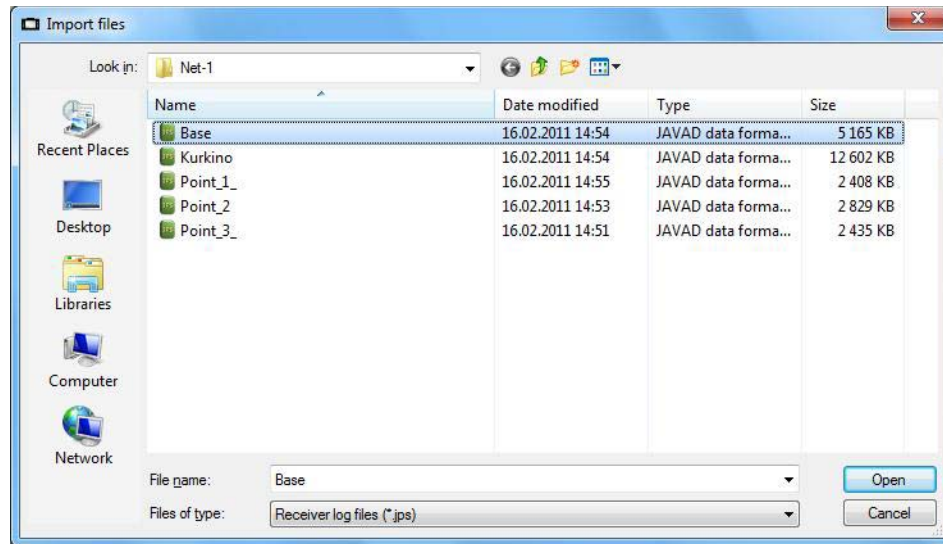



Figure 77. Specify files of types

- The following file formats can be imported to *Justin Link* :
 - *.jps – authorized JAVAD GNSS data;
 - *.txt, *.csv – coordinates text files;
 - *.tvs – TVS files
 - *.kml – Google Earth format
 - *.dxf – AutoCad format
 - *.db – TVS card format
 - *.tracyjob – Tracy format

Import of *.jps files

To import *.jps format files, select from the list: this type  (it can be associated with such icon), then click *Open*. The window with progress status appears. Authorized .jps files only could be imported To cancel import, click *Cancel*.

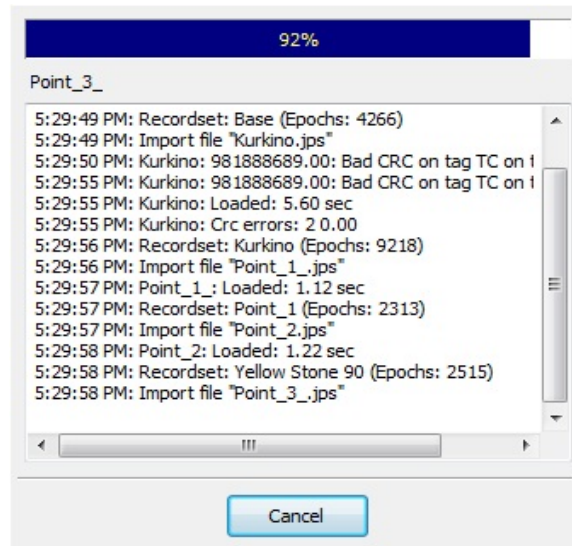


Figure 78. Import status

The imported files can be seen in the *Source* tab, as Recordsets and can be sorted by date or by receivers. Depending of standalone solution and epoch by epoch position tolerance recordsets fall into static and kinematic. Static Recordsets are linked to Points on the Map pane according default point tolerance criterium. Kinematic recordsets with special marker inside are treated as Stop&Go.

If recordset has no standalone postion (no ephemeris, bad raw data) than it is marked with a red circle.

Note: Note: All settings for import GNSS data files see on page 45.

◆ - static, ◆ - kinematic, ◆ Stop and Go, and ◆ - no position (for details see “Source” on page 17).

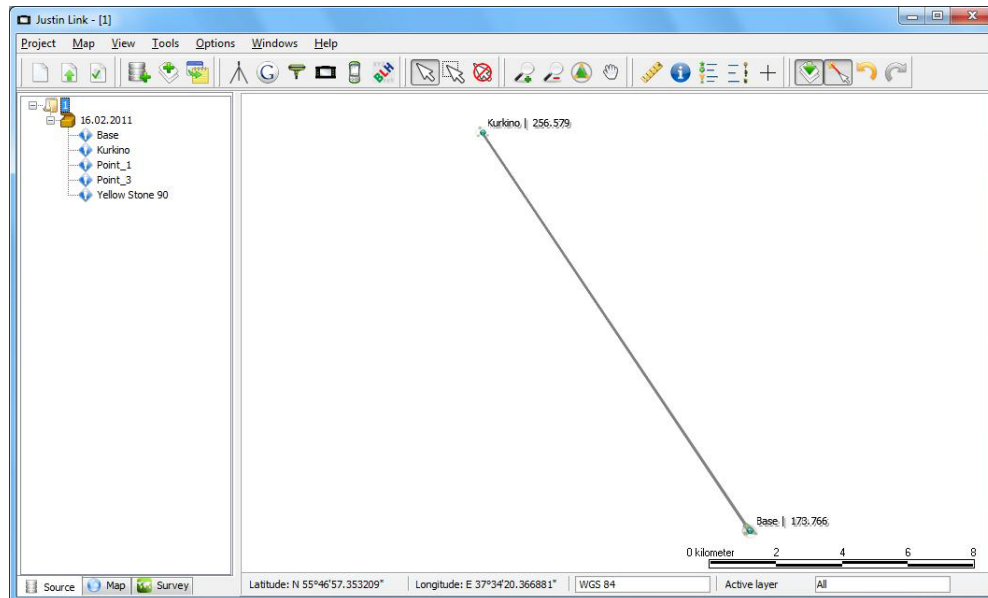



Figure 79. Imported GNSS data on the map

Import of *.tvs files

To import *.tvs format files, select from the list this type. It can be associated with  test.tvs icon, then click *Open*. The window with progress status appears. To cancel import, click *Cancel*.

TVS file format– it is special xml-structured exchange format designed for data transfer between TRIUMPH-VS/LS application and Justin Link. It describes objects geometry, attributes, structure of the coordinate system. After the retying *.tvs extension as *.kml, it can be viewed with *GoogleEarth*.

General Description

Working with a project

The imported survey objects can be seen in the *Survey* tab; on the right will be points, polylines and parcels on the map displayed:

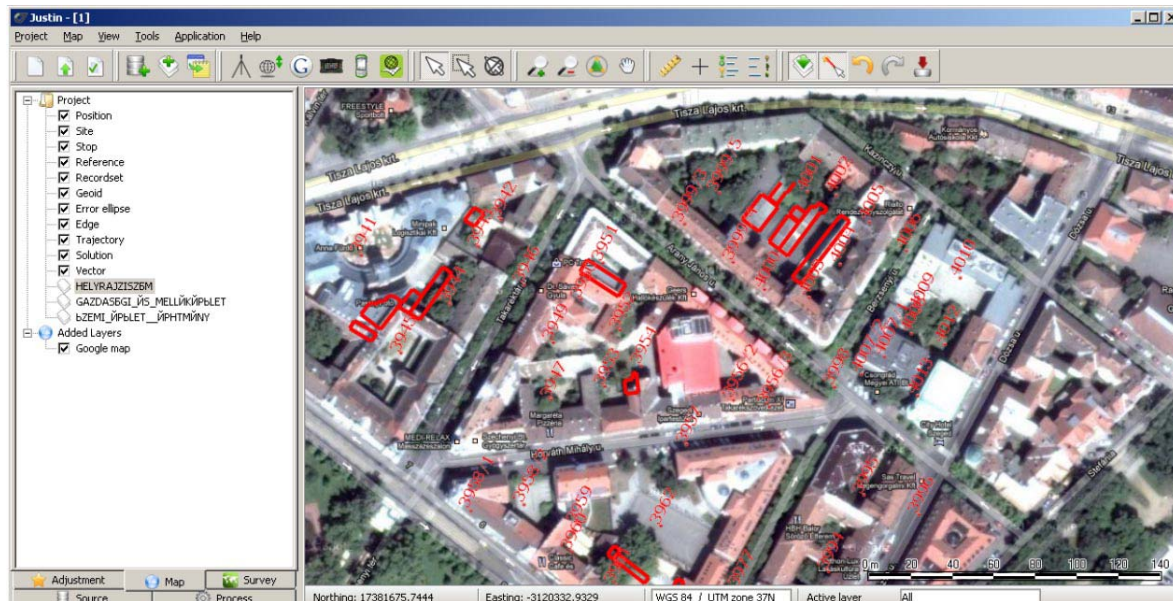


Figure 80. Imported data on the map

Import of *.kml files

To import files in *Google Earth* (*.kml) format, select the file(s) from the list: this type is displayed like *test.kml*, then click *Open*. The window with progress status appears. To cancel import, click *Cancel*.

Google Earth format – is *.kml file, which contents information about geometric objects and their attributes. The imported files can be seen in the *Survey* tab, in the folder; on the right will be points on the map displayed:

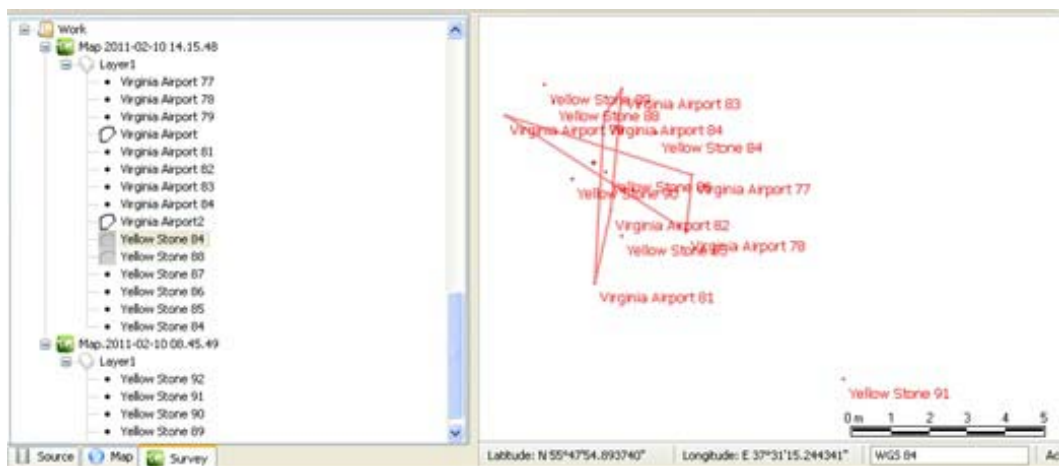



Figure 81. Imported data on the map

Import of *.dxf files

To import files in *AutoCad* format R12 (*.dxf) select the file(s) from the list: this type is displayed like test.dxf, then click *Open*. The window with progress status appears. To cancel import, click *Cancel*.

Exchange Format *DXF-files* (AutoDesk company's format for AutoCad) - a file format with the extension *.dxf, which contents geometry information. Before import the coordinate system should be selected in the window *Select the coordinate system*.

If you need to swap the axes (YX to XY), activate *Import XY* (lower left corner of the window). If you need to invert the coordinates system (i.e., X axe goes to the South, Y axes goes to the West), activate checkbox *Inverse*, then click OK.

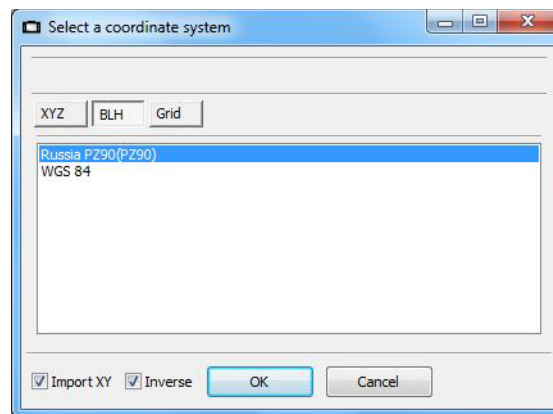



Figure 82. Select coordinate system


The imported files can be seen in the *Map* tab; on the right will be points on the map displayed.

Import of *.db files

To import NS3-files (TRIUMPH-VS/LS application database) select the file(s) from the list: this type is displayed like data.db), then click *Open*. The window with progress status appears. To cancel import, click *Cancel*.

The NS3-files - it is special exchange format between external device and NS3 software. It contains geometric objects, their attributes, structure and description of the coordinate system. The imported files can be seen in the *Survey* tab; on the right will be points on the map displayed.

Import of *.tracyjob files

To import files in the Tracy software format (*.tracyjob), select the file(s) from the list: this type is displayed like test.tracyjob), then click *Open*. The window with progress status appears. To cancel import, click *Cancel*.

TracyJob-files it is special exchange format of the project created using JAVAD GNSS Tracy software.

General Description

Working with a project


The imported files can be seen in the *Survey* tab; on the right will be points on the map displayed:



Figure 83. Survey data on the map

Import of text files (coordinates and comments)

Text data (coordinates and comments) can be imported to the project. To import text files perform the following:

Click the button  or click *Project* ► *File import*. Select the file from the list (*Coordinates*) and click *Open*. The window with progress status appears. To cancel import, click *Cancel*:

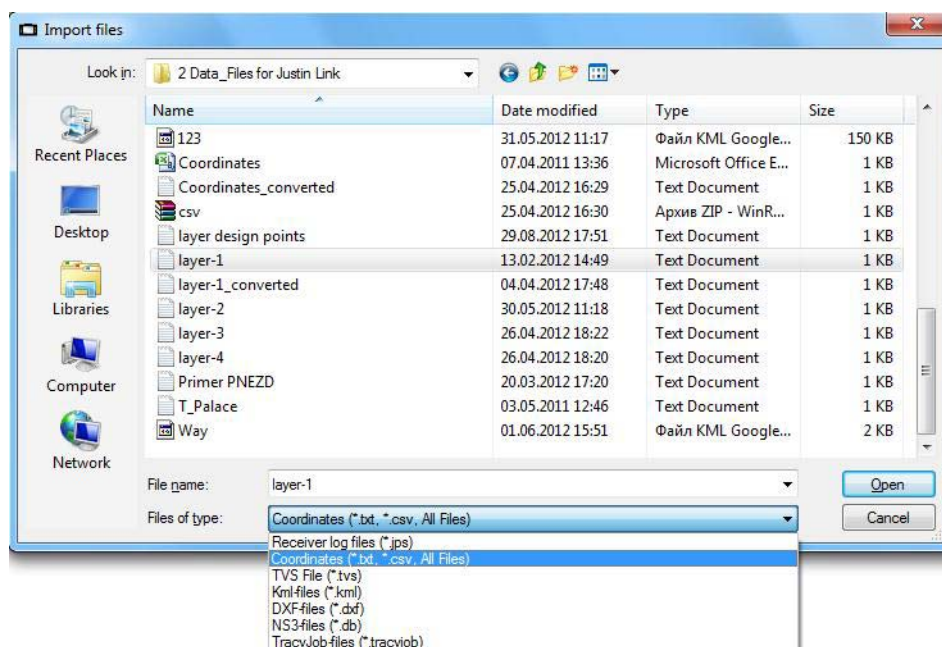


Figure 84. Text file import

Select the coordinate system:

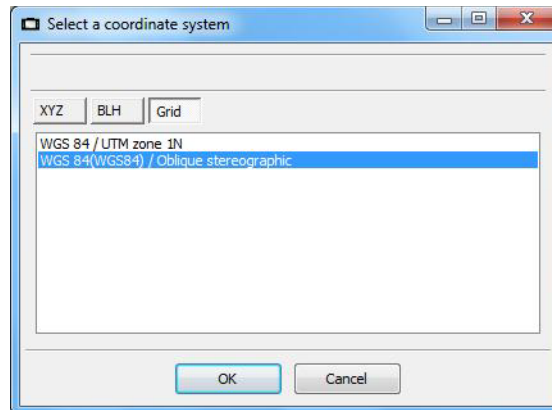


Figure 85. Select coordinate system

- *XYZ* – cartesian
- *BLH* – ellipsoid
- Grid – a cartesian coordinate system based on map projection and 7th parameters global to WGS84.
- Local - a cartesian coordinate system based on map projection and two datums - global and local (4+3 parameters).

Select the coordinate system from the list and click OK. *txt* data format template window will appear:

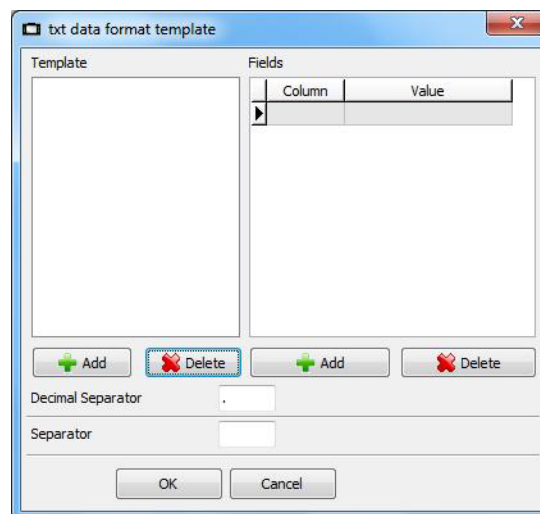


Figure 86. txt data format template

General Description

Working with a project

Depending on data order in lines create a template:

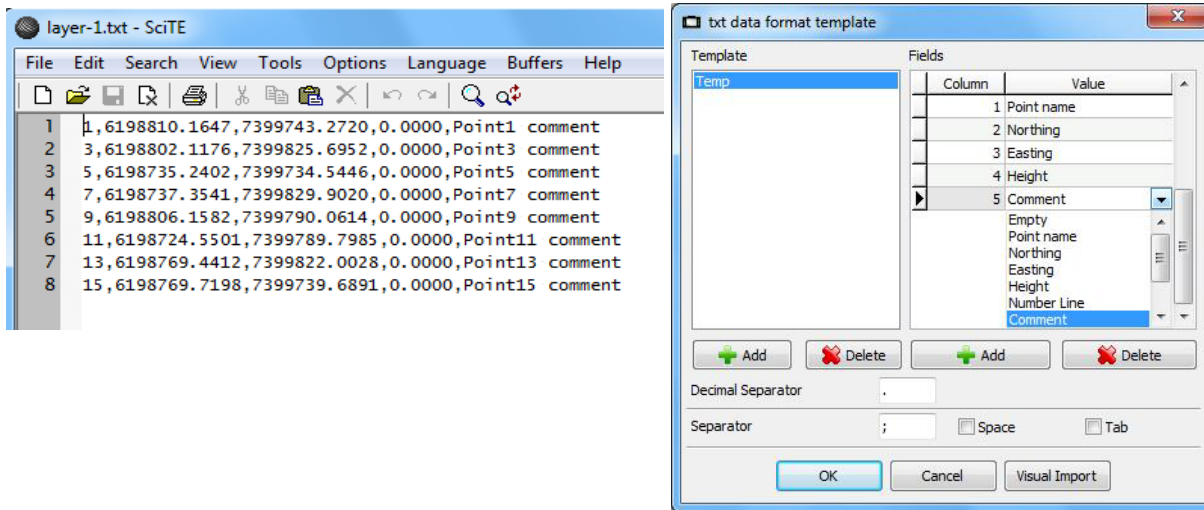


Figure 87. txt data format template window

To ignore the data from any column in the file, mark it as *Empty*. Comments and attributes will be merged if some columns are marked as *Comments* and *Attributes*.

Click *Add* and enter template name, click *Add* button on the right (in the *Fields* pane) as many times as fields should be added, then by clicking on each separate field choose the field name from the drop down list, and click *OK*:

If numeric values has been well recognized by *Justin Link*, and the points, which coordinates were imported, will appear on the screen; in the *Map* tab will be displayed initial file path and name:

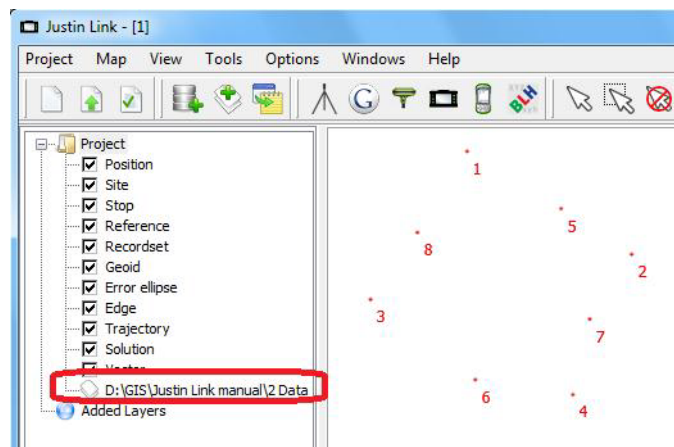


Figure 88. Initial file path and name

11.3. Template configuration

The *Txt data format configuration* window consists of two panes: *Template* and *Fields*. On the left (*Template*) there is a list of templates and buttons, which allow adding/deleting templates, on the right (*Fields*) there is a list of fields and add/delete buttons as well. The set of fields depends on importing data.

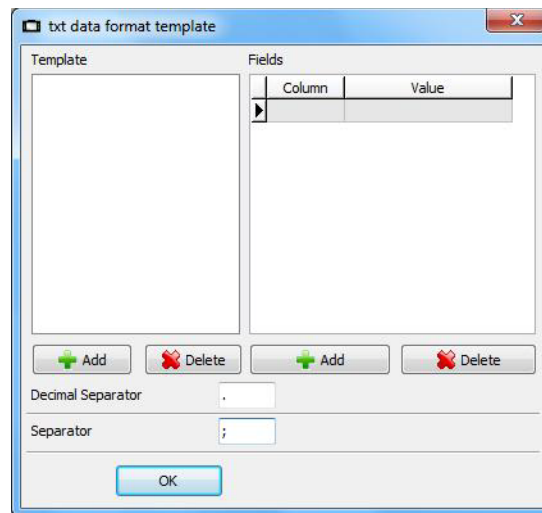


Figure 89. txt data format template window

To add new template click the *Add* button on the left. In the *New template* window enter template name and click *Ok*.

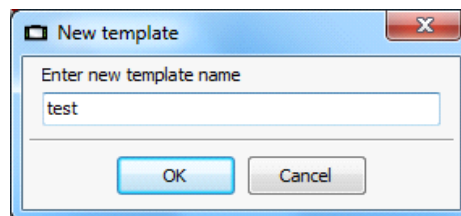


Figure 90. New template name

General Description

Working with a project

In the list of templates appears new line:

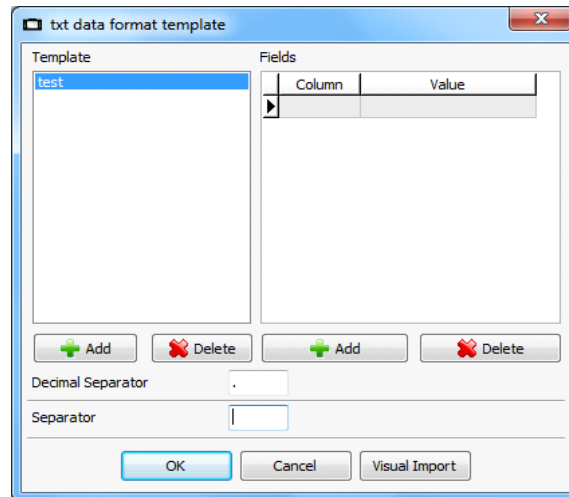



Figure 91. New template is added

To add a field to the template click *Add* button on the right. Empty columns will be added to Column list. Click *Value* cell. Using  select type from the list. Type a separator of parameters and a decimal separator. If you want to use space or tabulation as a separator, leave the field empty.

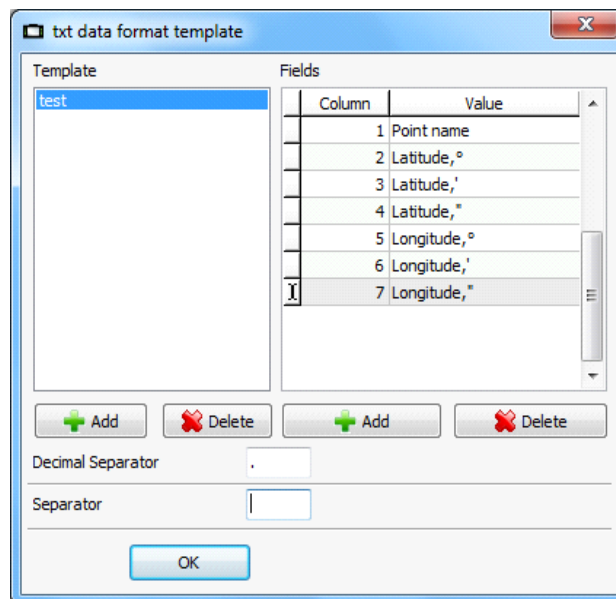


Figure 92. Fields of a template

Below are listed the parameters using for import:

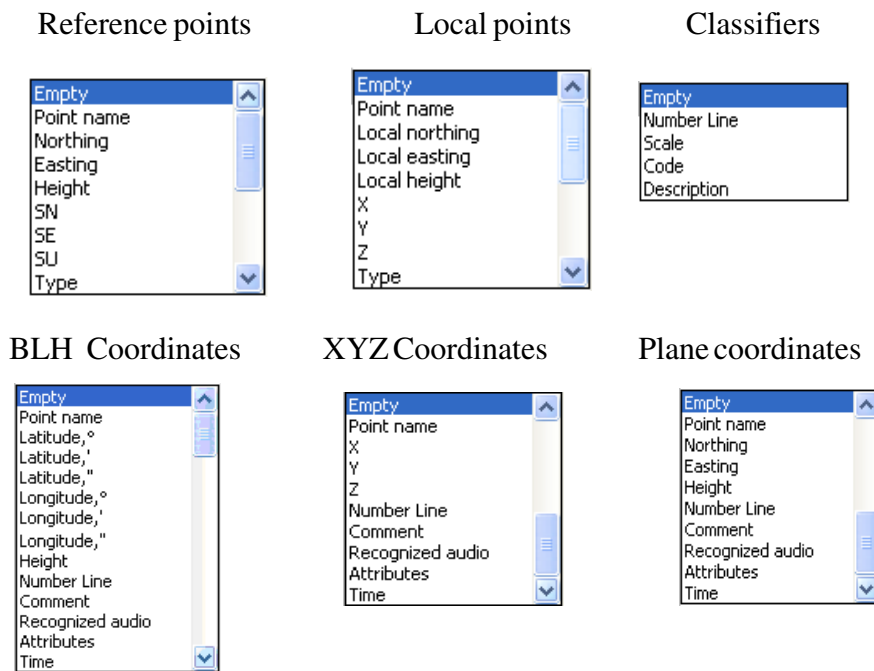


Figure 93. Parameters

To delete the template than focus on it and click the *Delete* button on the left. To delete the field, select it and click *Delete* button on the right.

If you suspect that imported file structure can be irregular, the visual import can be performed, the *Visual Import* window appears:

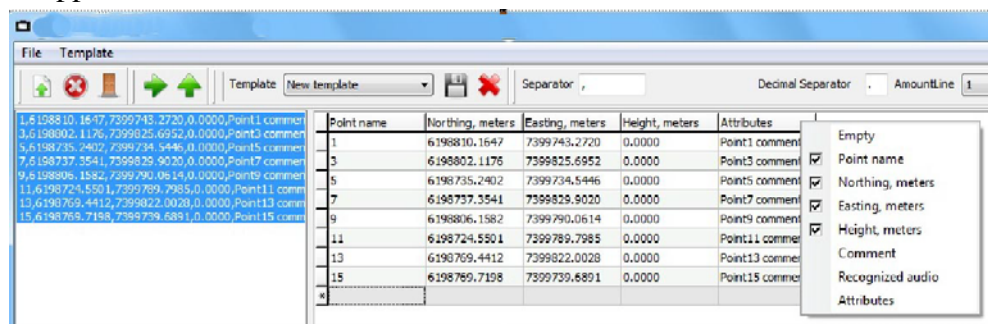


Figure 94. Visual import

This window consist of three work zones: tool bar (above), source text data on the left pane, and a table with recognized items on the right.

Tool bar has the following items (left to right): *Open file*, *Close file*, *Exit*, *Recognize (data)*, *Import*, *Template (list)*, *Save Template*, *Delete*, *Separator*, etc.

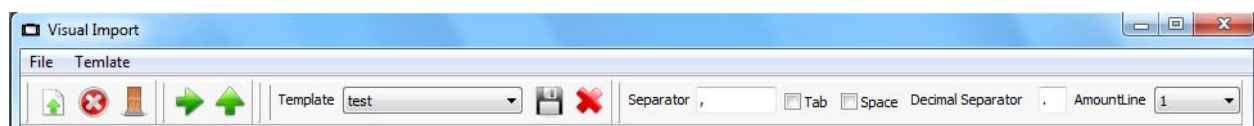


Figure 95. Tool bar

General Description

Working with a project

These buttons are duplicated with the menu items:

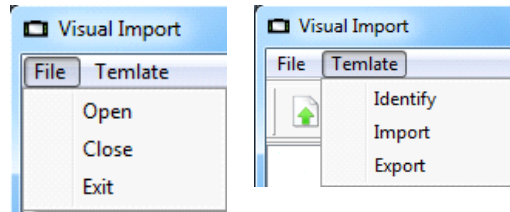


Figure 96. File and Template menu items

By opening the visual import window, on the left there is coordinates text file. It is possible to select the strings for import (All lines: press and hold *Alt+Shift*, or right-click and select the menu item *Select all*, select the strings by pressing *Ctrl*). The name of a template can be specified (in the *Template* window). If the template is not specified, set the separators, define the number of merged strings, and click the button



The selected lines will be duplicated to the right pane. If the template was specified, the columns will be arranged accordingly, otherwise every column will be marked as *Empty*, and you will be able to change the heading to any parameter from the drop-down list.

Use the right-click menu to operate with the objects:

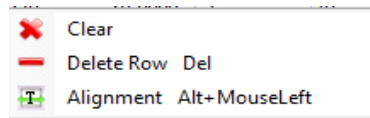



Figure 97. Right-click menu

- To delete the whole list of the data, right-click to call the menu and click *Clear*.
- To delete the row, click *Delete Row*.
- To align the columns click *Alignment*.

Click the import button , after all values are defined in the table. The coordinates will be imported to *Justin Link*, the points will appear on the map.

To save the template click .

To define the decimal digits and recalculate column value according a formula specified by customer, click on the column header and select *Format* or *Formula*:

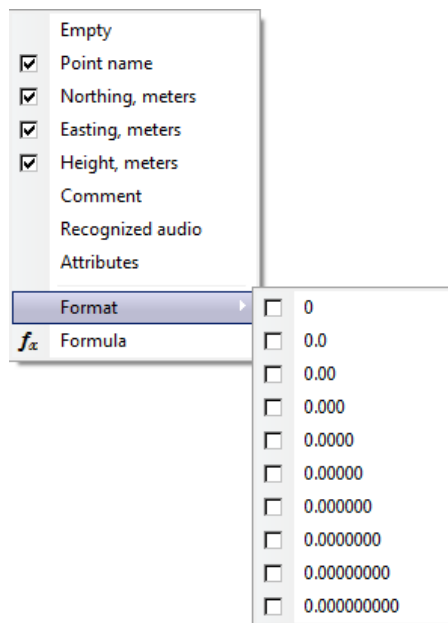


Figure 98. Format

If the *Formula* item was selected, the window *Enter the formula* appears. Enter the formula to the edit field. V - it is sell value in the selected column.

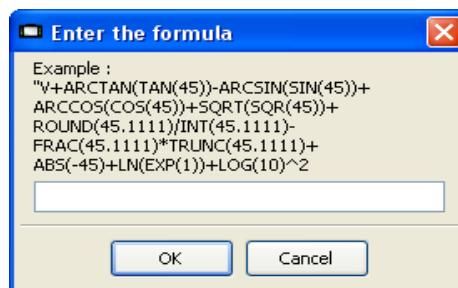


Figure 99. Enter the formula

If a template could not be applied to some strings, the next warnings will appear:

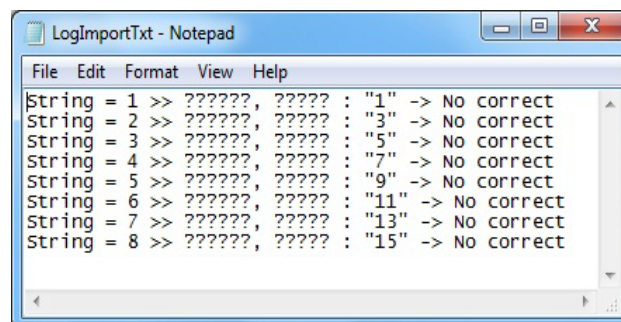


Figure 100. Incorrect data inserted

General Description

Working with a project

To ignore the data of some column in the file, it is necessary to mark it as *Empty*. *Comment* and *Attributes* types can be assigned to multiple columns, the contents of these columns will be merged.

You can switch between windows during visual import and perform other actions in the program. To display the previously hidden window of visual import, click *Windows* ► *Visual import*.

11.4. Export to file

To export data from the project to some format, click *Project* ► *Export to...* and select the file format:

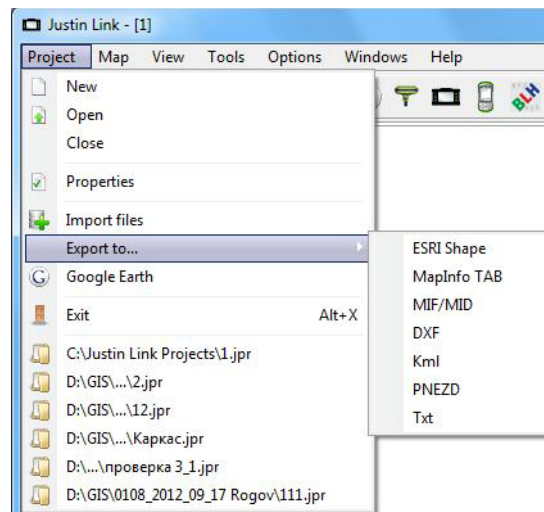


Figure 101. Export to...

Justin Link allows exporting to the following formats:

- *ESRI Shape* – ARCGIS
- *MapInfo Tab* – MapInfo
- *MIF/MID* – MapInfo
- *DXF* – AutoCad
- *Kml* – Google Earth
- *PNEZD* – text file
- *Txt* – text file.

11.5. Project coordinate systems

Click *Project properties* ► *Coordinate system*. Initially the list of coordinate systems in the project is empty. To add the items to the list, use the folder *Favorites*. Folder *Favorites* could be empty too if you run Justin Link for the first time.

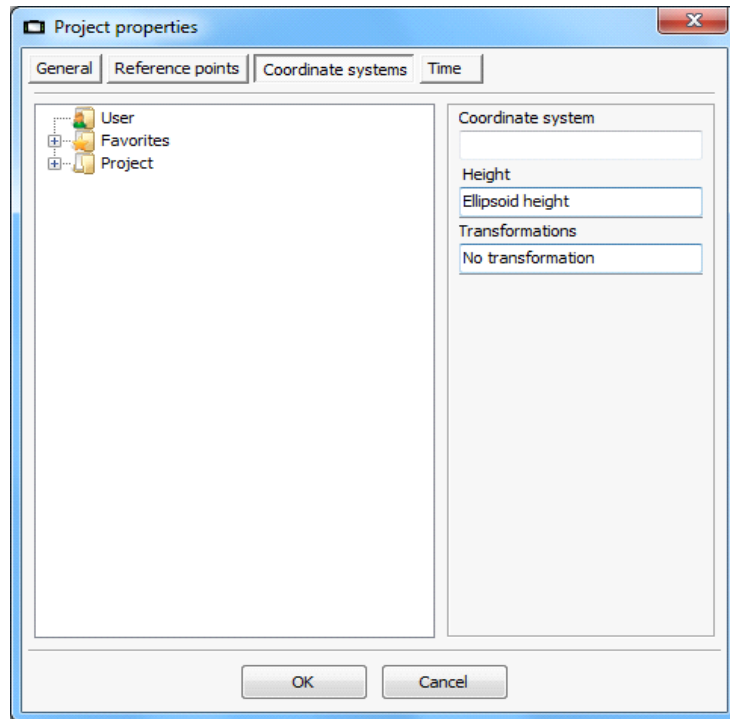


Figure 102. Project properties

To add the coordinate systems to the *Favorites* list, perform the following:

1. Click *Options* ► *Application*:

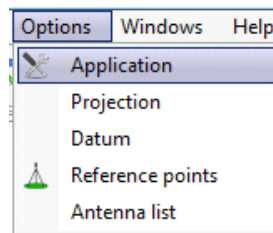



Figure 103. Options ► Application





2. In the *Options* window select *Coordinate system* tab. On the left there is coordinate systems tree. *Global* node is for worldwide coordinate systems; otherwise it is *Regional*, *User* node contains the customer's coordinate systems; *Favorites* node is for transferring coordinate systems to a project).

The coordinate system icon shows coordinate system type:

-  Geocentric
-  Geodetic

General Description

Working with a project

-  Cartesian plane
-  Local
-  Height
-  Geoid

On the right there is an information related to selected coordinate system. Switch to orthometric in Height field to apply geoid. Join plane coordinate system with vertical datum from the list of systems.

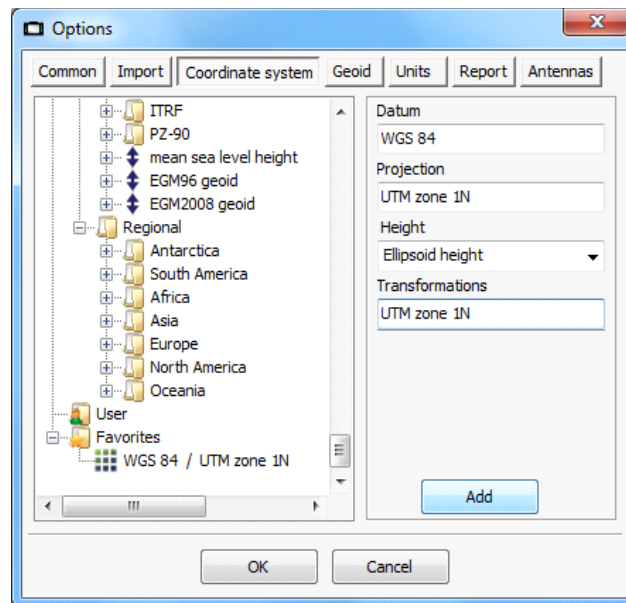


Figure 104. Coordinate system

Click *Add*, and the coordinate system will be added to the *Favorites*. Repeat this with all systems you would like to add to the *Favorites*, then click *OK*.

Using right-click menu, the folders can be added or deleted from the *Favorites*. The coordinate systems can be removed from the folder, imported to the *Justin Coordinate Systems* format (*.jcs) and exported to *.jcs. Info data pane could be hidden to free room for Coordinate System name inspecting:

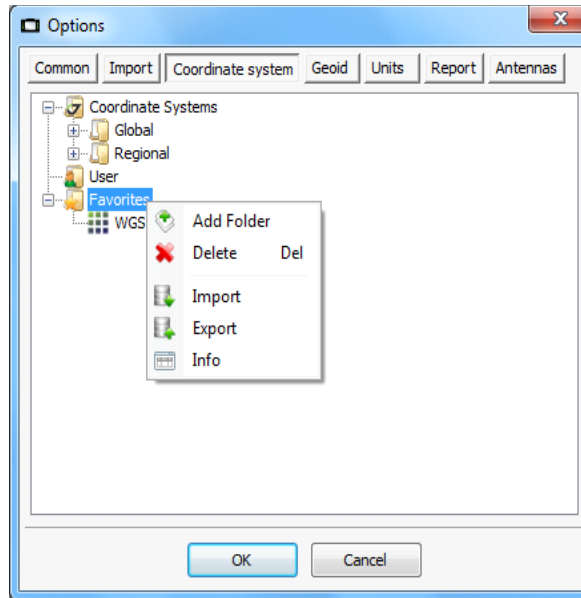



Figure 105. Right-click menu

When the *Favorites* list is complete, click  or *Project* ► *Project properties*. In the *Project properties* window click *Coordinate systems* tab. Select the coordinate system in the *Favorites* folder and drag it to the *Project* folder. Repeat this operation to add more coordinate systems.

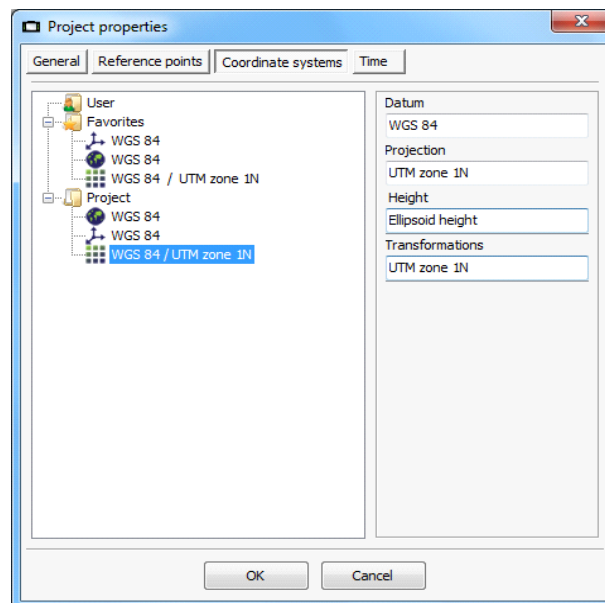


Figure 106. Project properties. Coordinate systems tab

General Description

Exporting data to exchange formats

To switch between project coordinate systems, right-click on the window with the list of available coordinate systems and select the needed one. The position coordinates values will be shown related to active coordinate system.

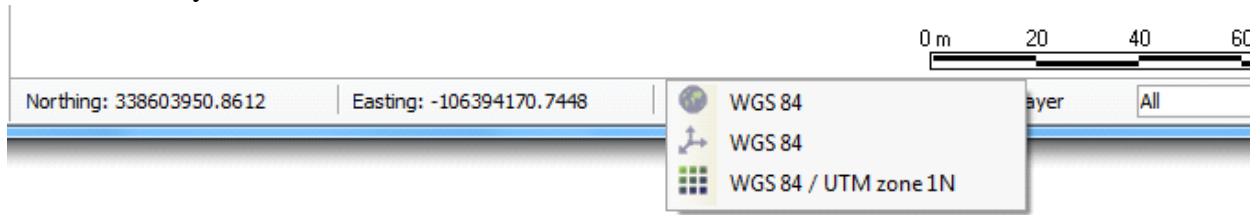


Figure 107. Coordinate system selection

12. Exporting data to exchange formats

Justin Link allows exporting project to many popular cartographic data to the exchange formats.

12.1. Export of the objects

Click *Project* ► *Export to...*, and then select the format the map data will be exported to:

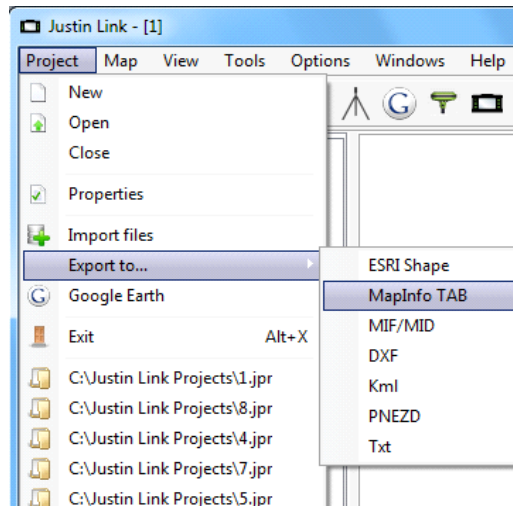


Figure 108. Project export

- *ESRI Shape* – ArcGIS
- *MapInfo Tab* – MapInfo
- *MIF/MID* – MapInfo
- *DXF* – AutoCad
- *Kml* – Google Earth
- *PNEZD* – text file, *Point Number, North, East, Elevation, Description*.
- *Txt* – text file.

To export a dynamic layer, select the layer in the *Map* tab, right-click and select *Export* menu item, and a format the layer will be exported to.

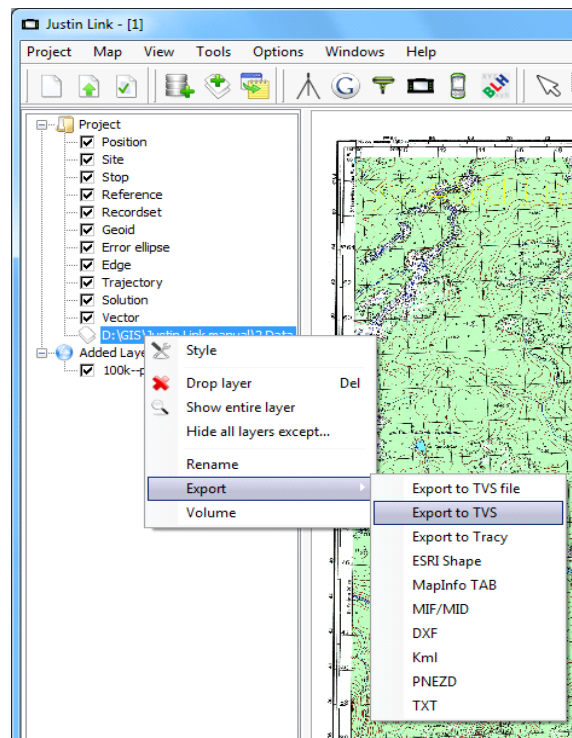


Figure 109. Export of dynamic layer

- *TVS file* - TRIUMPH-VS/LS - Justin Link exchange file format
- *TVS* - exports the layer to the device (for *NS3*)
- *Tracy* - exports the layer to the device (for *Tracy*)

General Description

Exporting data to exchange formats

To export survey points, switch to the *Survey* tab and right-click on the *Device* icon (📱), *Map* (🗺️), *Layer* (📁), or *Object* (point- •, polyline - —, polygon - 📐), then click *Export* menu item and select the format the points will be exported to:

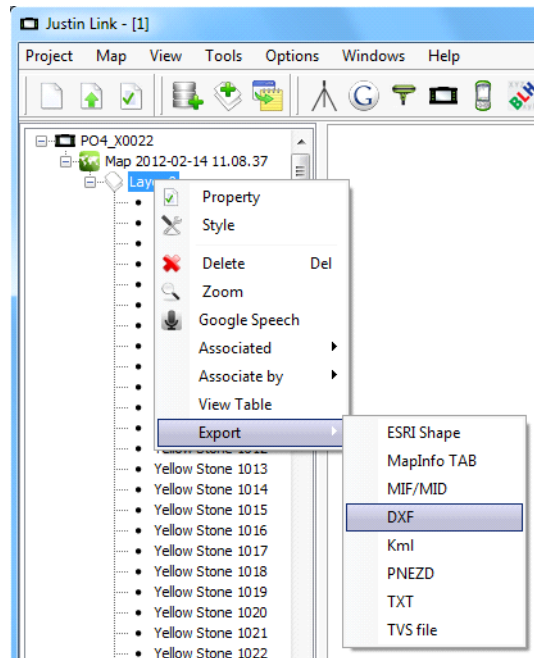




Figure 110. Export of the survey points

The formats are the same as described above.

To export object from the map, point on it using the tool  (*Select a point*) or several points using the tool , right-click to call menu, then click *Export* menu item and select the format the points will be exported to.

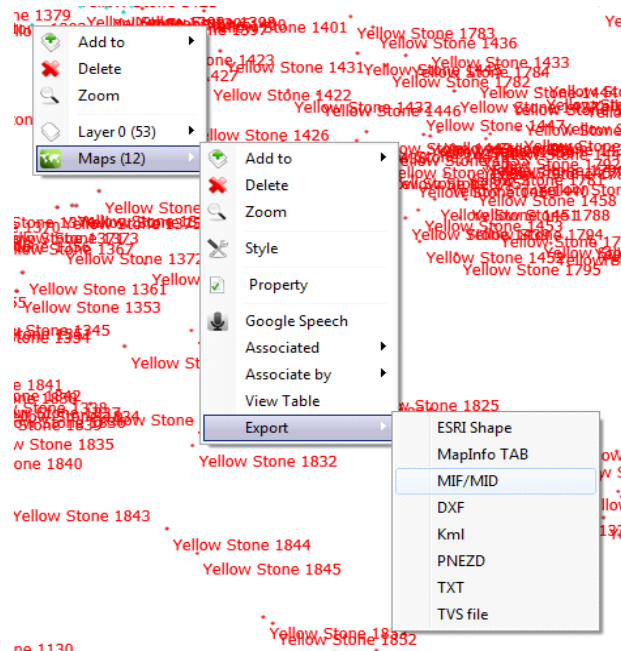


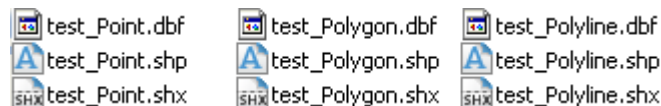
Figure 111. Export of the points from the map

The output formats are the same as described above.

12.2. Saving file in exchange formats

Save as ESRI Shape

ESRI Shape exchange format (ESRI developed vector data format) is a bunch of files with different extensions.



General Description

Exporting data to exchange formats

Select the needed *ESRI Shape* format, in the *Save As* window specify the path and file name and click *Save*. The *Select coordinate system* window appears. Select the coordinate system the point coordinates will be exported to:

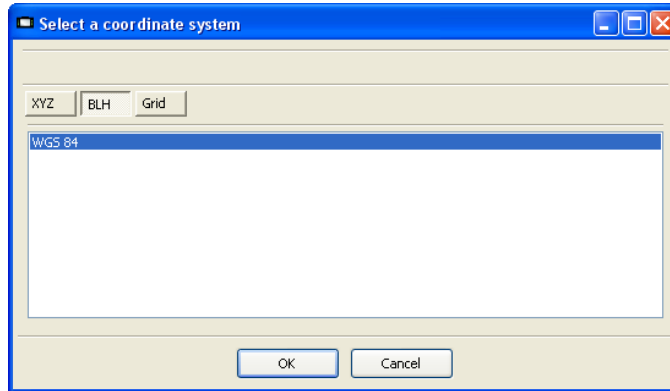


Figure 112. Select a coordinate system

Save as MapInfo TAB

MapInfo TAB format (Pitney Bowes's format for MapInfo products) is a format of a set of files with the same name but different extensions. *.*TAB* file contents associations between all files and file type information; *.*DAT* contents attribute information, *.*MAP* contents information about objects geometry. Object attributes will be exported.



Select the needed *MapInfo TAB* format, in the *Save As* window specify the path and file name and click *Save*. The *Select coordinate system* window appears. Select the coordinate system the point coordinates will be exported to. If the *Add Coordinate System Info* check mark won't be marked, the coordinate system information won't be added to the file. If the coordinate system info were added to the file (enabled), the coordinate system information will be stored in the *.*tab* file, and will be selected by default next *Justin Link* session.

Save as MIF/MID

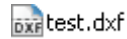
Another MapInfo *MIF/MID* exchange format it is a couple of txt files similar named but different extensions. *.*MIF* file contents information about geometric objects, *.*MID* contains attributes and association with *.*MIF* file. For each object its existing attribute information is exporting.



Select the *MIF/MID* format, in the *Save As* window specify the path and file name and click *Save*. The *Select coordinate system* window appears. Select the coordinate system the point coordinates will be exported to.

Save as DXF

DXF exchange format (*AutoDesk's* format R12 for *AutoCad*) it is *.*dxf* file, which contains the information about object geometry; the attributes are stored as geometric object *Text*. For each object is exported names of attribute information only.

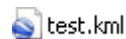


Select the *DXF* format, in the *Save As* window specify the path and file name and click *Save*. The *Select coordinate system* window appears. Select the coordinate system the point coordinates will be exported to.

Set the flag *Export XY*, to transpose coordinate axes. To invert coordinates, set the flag *Invert*.

Save as Kml

Kml exchange format (Google's format for GoogleEarth) it is *.*Kml* file which contains the information about geometric objects and attributes.



Select the *Kml* format, then in the *Save As* window specify the path and file name and click *Save*.

Save as PNEZD

PNEZD exchange format (*AutoDesk's* format for *AutoCad*) it is text file with the information about point objects. Each file string consist of the columns *PointNumber*, *North*, *East*, *Elevation*, *Description*.



Example: 1,55.798484281,37.520853817,377.6407,"Yyy1"
2,55.798480738,37.520859338,378.5889,"Yyy2"
3,55.798475886,37.520862463,378.5168,"Yyy3"

Select the *PNEZD* format, in the *Save As* window specify the path and file name and click *Save*. The *Select coordinate system* window appears. Select the coordinate system the point coordinates will be exported to.

Save as TXT

TXT exchange format it is a text file which is configured according a template. Each string contains point information. Fields are split by separator. By the export of linear objects, each vertex is exported as separate point.

Example: Yyy1|55.798484281|37.520853817|377.6407|1|comment1|Assoc1|Attrib1|
Yyy2|55.798480738|37.520859338|378.5889|2|comment2|Assoc2|Attrib2|
Yyy3|55.798475886|37.520862463|378.5168|3|comment3|Assoc3|Attrib3|

1,55.798484281,37.520853817,377.6407,"Yyy1"

General Description

Adding temporary layers to the project

2,55.798480738,37.520859338,378.5889,"Yyy2"

3,55.798475886,37.520862463,378.5168,"Yyy3"

Select the *TXT* format, in the *Save As* window specify the path and file name and click *Save*. *Coordinate system* dialog appears. Click *OK*. The new dialog *txt data format template* appears. Select/create a template, specify the separators and click *OK*.

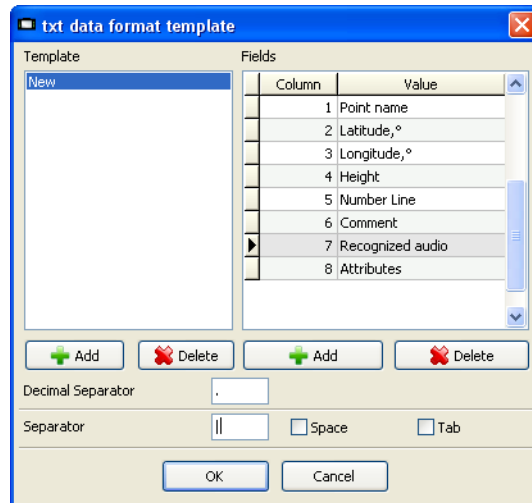
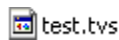


Figure 113. txt data format template

Save as TVS file

TVS file it is exchange format between TRIUMPH-VS/LS, Victor-VS and *Justin Link*. The **.tvs* file contains geometric objects, attributes and structure, information about coordinate system.



Select the *TVS file* format, in the *Save As* window specify the path and file name and click *Save*.

13. Adding temporary layers to the project

Justin Link temporary layers are available during the work session. Its will disappeared automatically when project is closed. Temporary layers are cartographic layer with the information imported from the following file formats:

- *Tab files* – **.tab*.
- *GeoTIFF files* – **.tif*.
- *Shape files* – **.shp*.
- *Ozi files* – **.map*.
- *MapInfo MIF files* – **.mif*.

To add temporary layer to the project, click the button , or click *Map* ► *Add layer*. Alternatively this menu item can be right-click called in the *Map* tab. Take in account that all third party vector/raster maps

use independent datum lists which could differ from JAVAD company Geo Database, so maps might be shifted, scaled or rotated related to survey data.

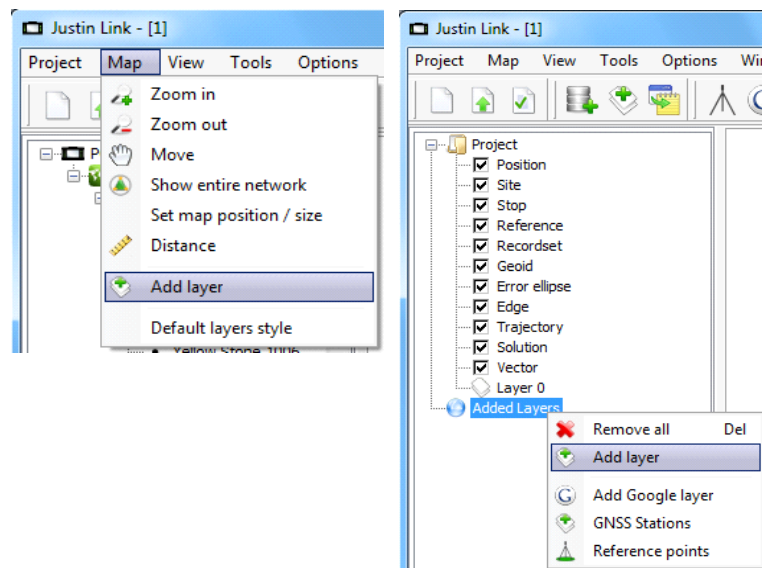


Figure 114. Add layer

Select the type and file. Click *OK*.

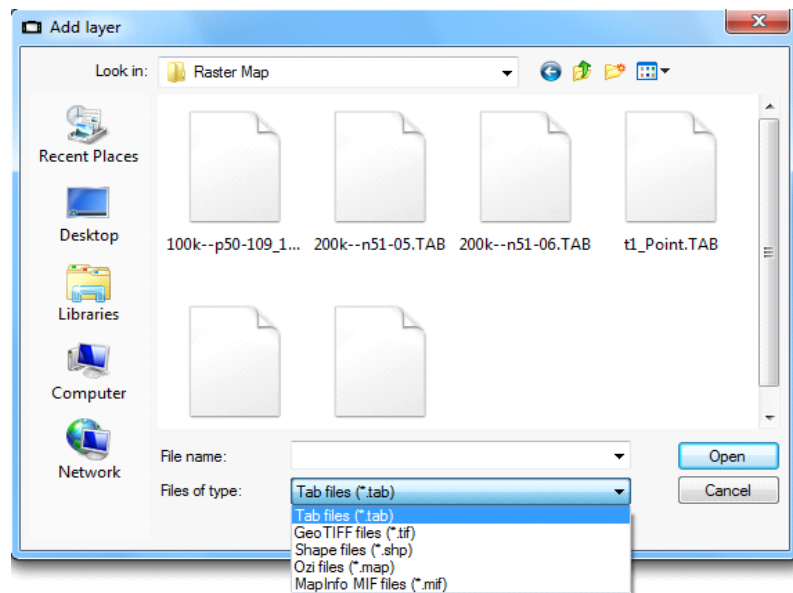


Figure 115. Add layer

The added layer will be either vector map or raster image.

General Description

Adding temporary layers to the project

13.1. Formats of temporary files

Tab files

This file format is described above on page 82.

After import of file in *Tab files* format to the layers list, the new layer will be added with the name equal to the file name. If the coordinate system has not been detected by the program (or it was not specified in the file), the *Select coordinate system* window appears. Select the coordinate system for the importing information. Click *OK*.

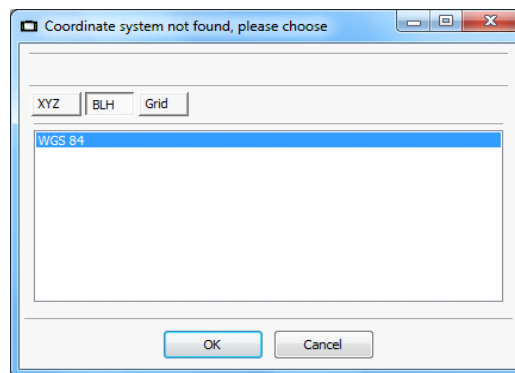


Figure 116. Select coordinate system

In the *Map* tab appears new layer with imported objects. There is no automatic zoom, so click *Show entire layer*.

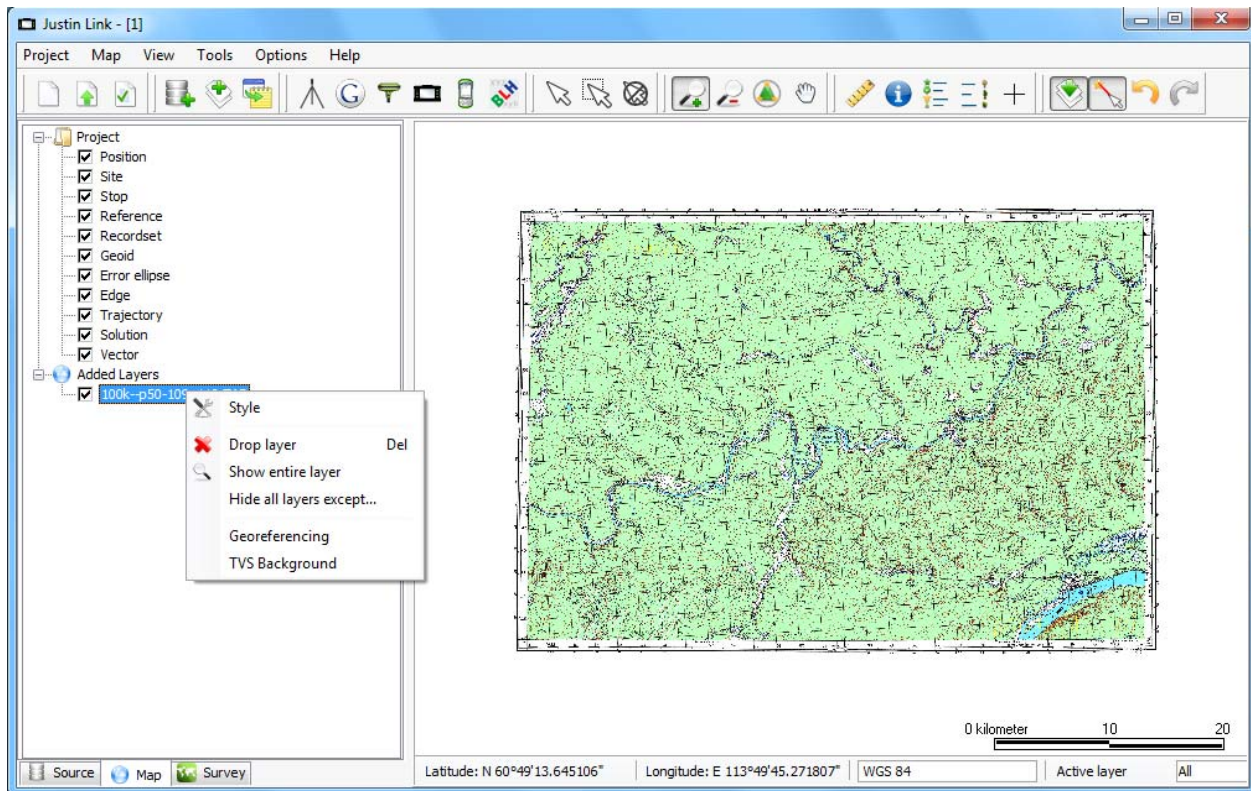


Figure 117. Show entire layer

GeoTIFF files

GeoTIFF is a georeferenced raster image. *TIFF format with compression* is not supported.

After import file in *GeoTIFF files* format the new layer will be added with the identical names. If the coordinate system has not been detected by the program (or it was not been specified in the file), the *Select coordinate system* window appears. Select the coordinate system for the importing information, then click *Ok*.

In the *Map* tab appears new layer with imported objects. For imported images there is no automatic zoom, click *Show entire layer*.

Shape files

After import file in *Shape files* format the new layer will be added with the identical names. If the coordinate system has not been detected by the program (or it was not specified in the file), the *Select coordinate system* window appears. Select the coordinate system for the importing information, then click *Ok*:

General Description

Adding temporary layers to the project

In the *Map* tab appears new layer. For imported images there is no automatic zoom, click *Show entire layer*.

Ozi files

After import of file in *Ozi files* format (OziExplorer software format of Des & Lorraine Newman company) to the layers list, the new layer will be added with the name similar with the file name. If the coordinate system has not been detected by the program (or it was not specified in the file), the *Select coordinate system* window appears. Select the coordinate system for the importing information, then click *OK*:

In the *Map* tab appears new layer with imported objects. There is no automatic zoom, click *Show entire layer*. for imported files, so click *Show entire layer*.

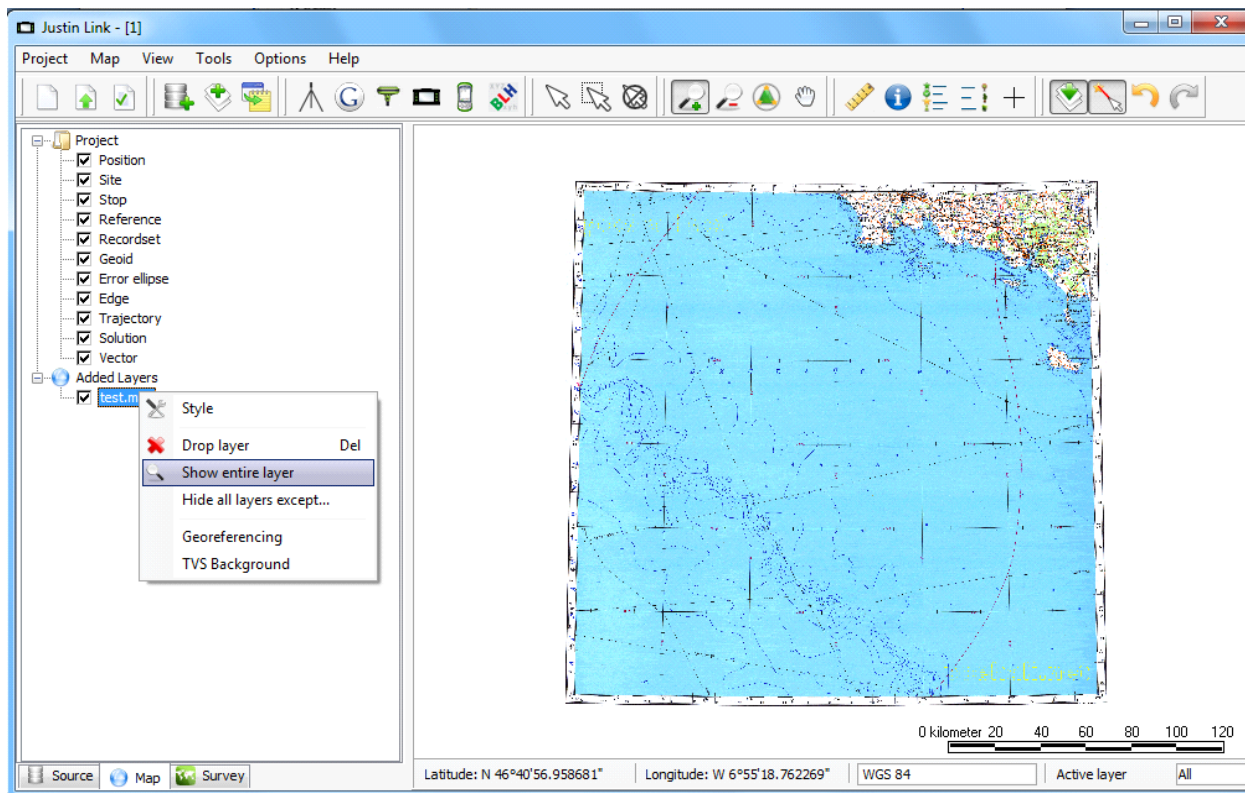


Figure 118. Show entire layer

MapInfo MIF files

After import of file in *MapInfo MIF files* format to the layers list, the new layer will be added with the identical names. If the coordinate system has not been detected by the program (or it was not specified in the file), the *Select coordinate system* window appears. Select the coordinate system for the importing information, then click *OK*.

In the *Map* tab appears new layer with imported objects. For imported images there is no automatic zoom, click *Show entire layer*.

14. Register a raster image

14.1. Import of a file without georeferencing

Raster registration is the process of scaling, rotating and positioning the image to match a particular size and geodetic location. To register a raster image, perform the following steps:

1. Click *Tools* ► *Register raster image*. The *Open* dialog window appears.
2. Select the format of raster image file in the *Files of type* drop-down list.

Note: Justin Link can read the following types of files: BMP, JPG, JPEG, PNG, GIF, TIFF, *.bmp 32-bit, and *.tiff with compression formats are not supported.

3. Select the desired file and click *Open*. Raster image immediately appears on the map window. By default it will covers about 75% of map. So you will make a registration process faster if a map have been centered on right position previously..

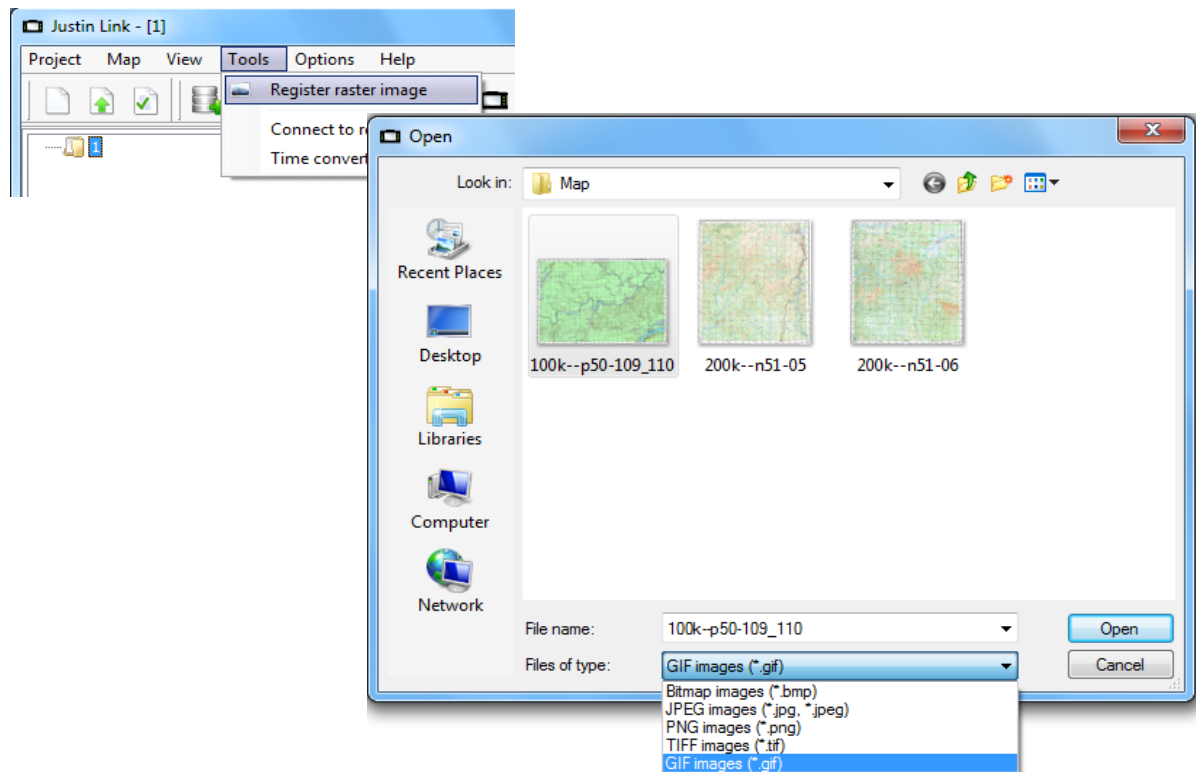


Figure 119. Supported

4. Enter coordinates of the points in pixels or in geodetic coordinate system in a registration form.

General Description

Register a raster image

5. Select the coordinate system available in the project.

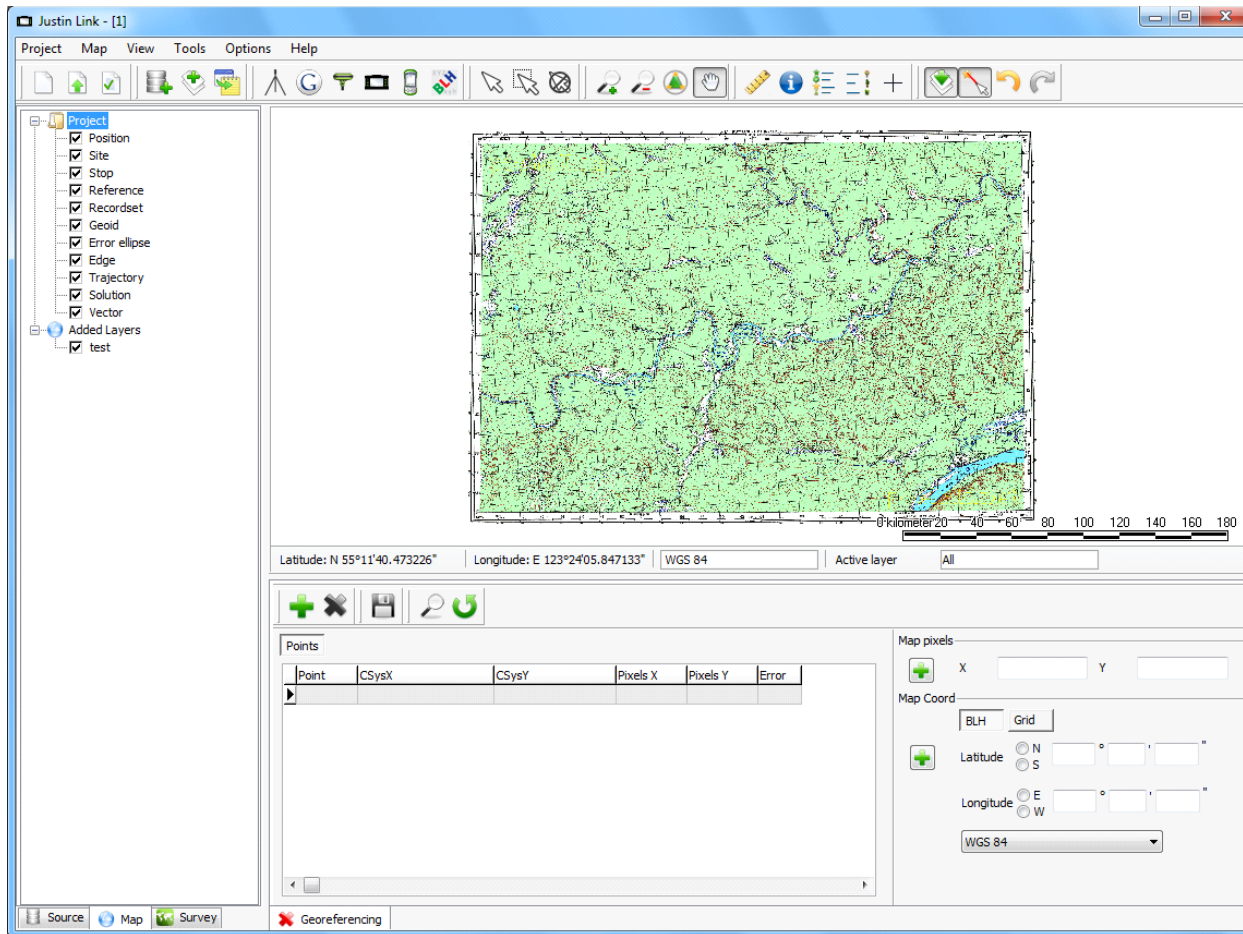




Figure 120. Raster image

The point coordinates can be entered in three ways.




First way


Zoom in the map area with the known position shape. Click  on the coordinate panel (on the left). The cursor will transform to cross-hair. Point on the position and double click.


The pointed position will be marked, and in the table new row appears. Coordinates are in screen pixels and in selected coordinate system. These coordinates could be corrected later.



Such way allows the user not inserting complete values, but editing only the last digits of the input. To finish point coordinates entering, right-click or click on the  button.

To edit the table highlight the needed row. On the right will be the parameters displayed. Change them using the following:

- Click *Map pixels* , or *Map Coord* , select the button on the map and edit the coordinates.
- Alternatively, the coordinates can be changed manually in the corresponding fields. After editing, click , to refresh the image.

The button  allows you to zoom the image corresponding to the selected position. In the *Scale* window select the zoom.

To save the image to *.Tab or *.Ozi files, click .

To delete the selected in the table point, use the button ; with the button  the table can be updated to display the calculated errors:

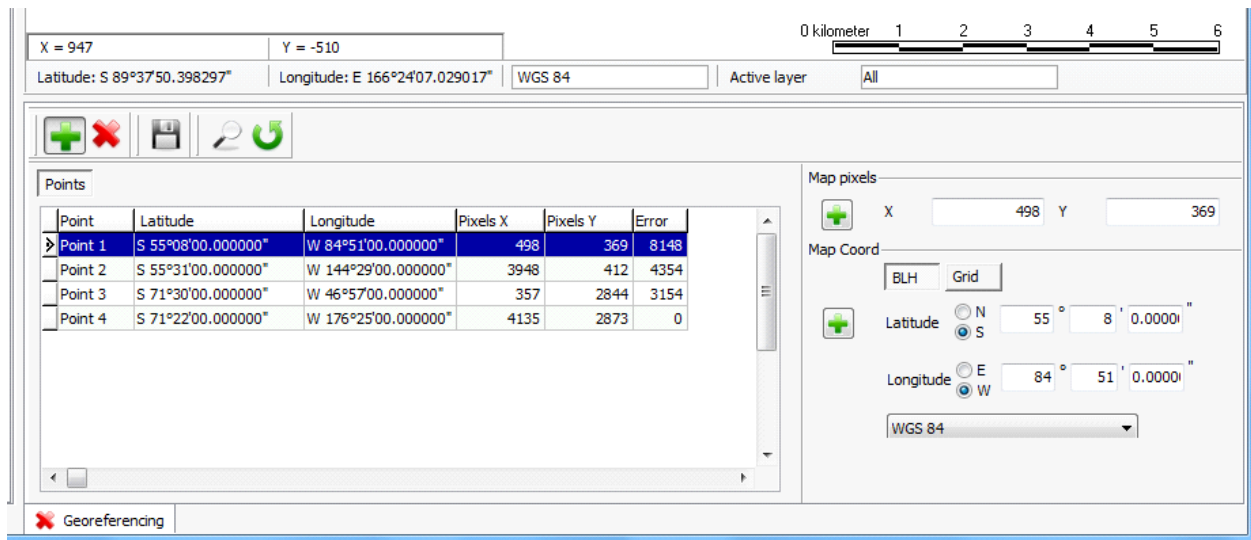



Figure 121. Table with the points' coordinates

Second way (optimal in combination with vector maps)

Switch to snapping mode with . While a point on an active vector layer is in a snapping range of cursor a distance between the point and cursor is shown like a red line..

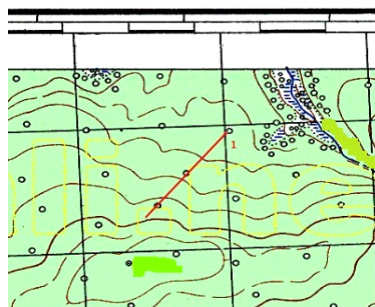


Figure 122. Red line between cursor and point

General Description

Register a raster image

Point with a cursor to some place on the raster image. The object on the active layer and pointed place will be connected with the blue line. New row with the cursor position coordinates in pixels appears in a registration table.

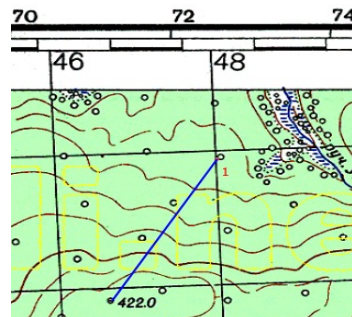


Figure 123. Blue line between cursor and point

Repeat the steps above with all needed points. The map on the screen will be displayed with the light blue lines, which fit on image to vector objects. The point coordinates can be edited if needed.

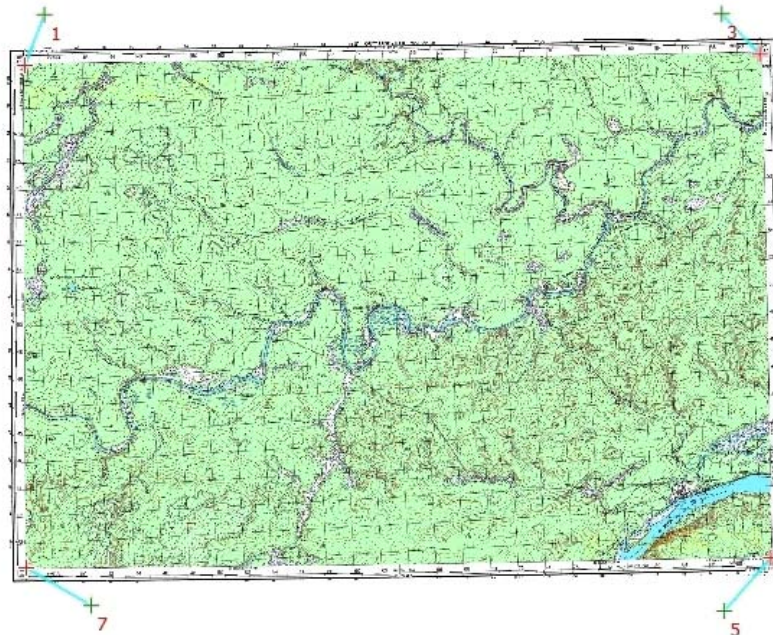


Figure 124. Light blue lines

To define snap object ranges, select *Options* ► *Application*, then in the *Options* window checkbox set *Snap objects range* in pixels:

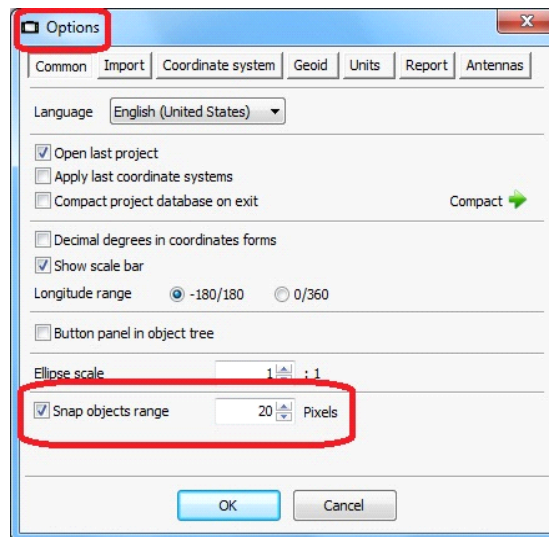



Figure 125. Snap objects range

One can easily create new vector layer for georeferencing. If the layer with the points for snapping was not created, it can be created manually:

Click the button  and select the needed points with the left click. Their coordinates will be added to the *Coordinates clipboard*. Later these coordinates can be edited in the table:

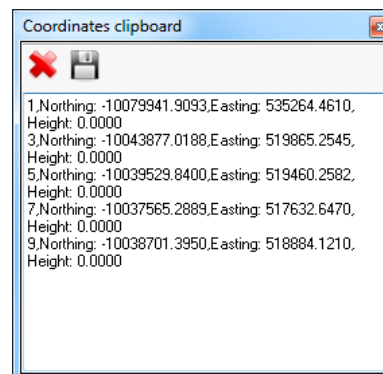


Figure 126. Coordinates clipboard

General Description

Register a raster image

To save the points' coordinates in a new layer, click :

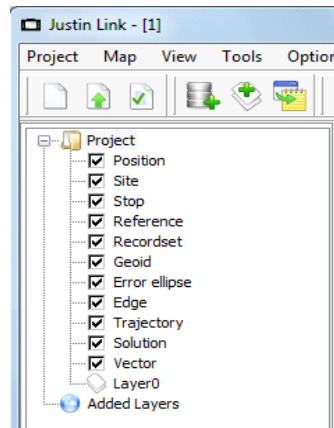




Figure 127. New Layer 0

As much layers can be added as needed. All layers elements can be visible, but in the calculations can be used only the elements of one layer (*Active*) or all elements of all layers (*Select all layers*).

To hide the layer, double click on the layer name, to make it visible, double click again.

With the button  the window *Coordinates clipboard* can be cleared from the inserted coordinates, and the points selected on the screen will be removed.

To save the inserted coordinates, click , the coordinates will be saved in *.tab file. Enter the file name and click *Save*:

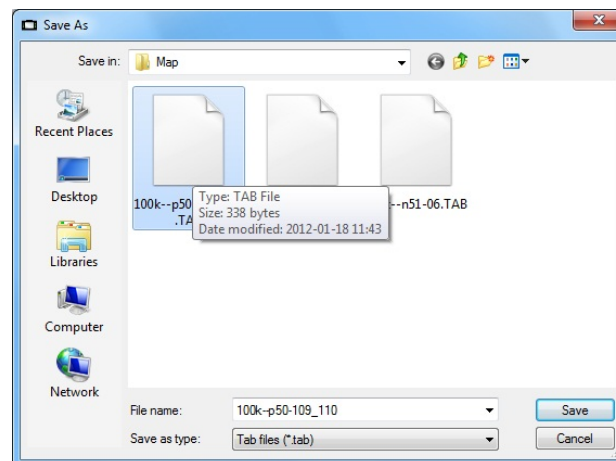


Figure 128. Save As window

The window *Select a coordinate system* appears. Select the coordinate system and click *OK*. If the *Add Coordinate System Info* option is not active, the coordinates system information won't added to the file

and *Justin Link* will ask about coordinate system next time. If this option was activated, the information about coordinate system will be added to the *TAB* file.

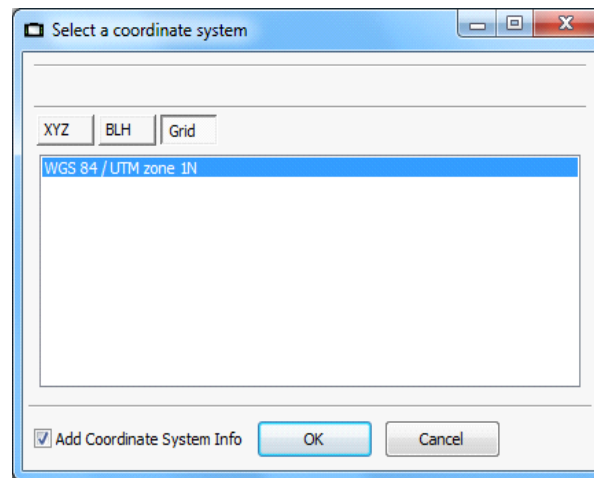


Figure 129. Select a coordinate system

Third way (fastest)

Zoom in the selected area of the map and point with the cursor the point with known coordinates, checking them in the status bar on the bottom of the window:

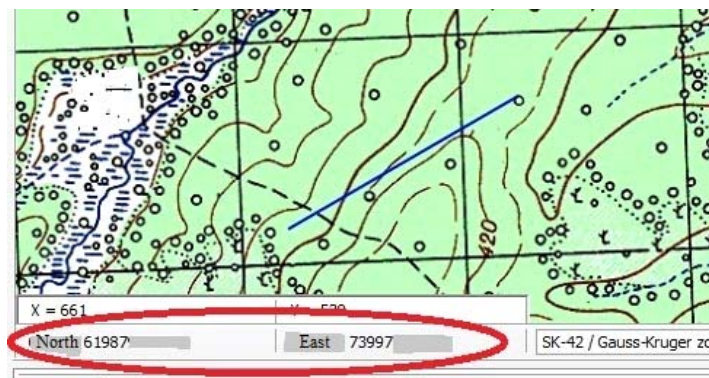


Figure 130. Selecting the point

When the cursor coordinates is close to known values (refer to status bar), right-click and move the cursor to the corresponding place on the image (blue line between points appears), right-click again. New row appears in the table. Edit this row if needed. Add more control points. The snapping will be shown by light blue lines.

General Description

Register a raster image

14.2. Import of the file with georeferencing

To import to *Justin Link* a raster image with georeferencing, select *Added layers*, right-click and select *Add layer*. Alternatively, click *Map* ► *All layer*.

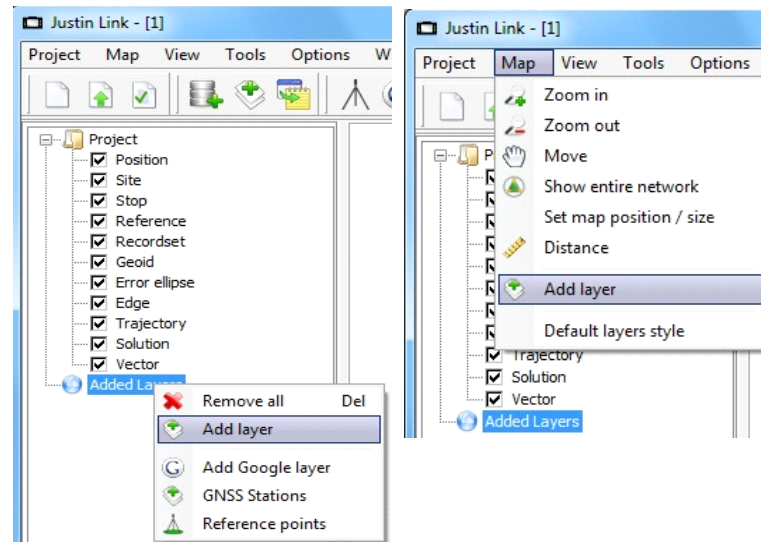


Figure 131. Add layer

Select the file and click *Open*. The following file formats are supported: Tab (*.tab), GeoTiff (*.tif) and Ozi (*.map). The files bmp 32-bit, tiff with compression are not supported.

If the coordinate system has not been defined when the layer was created, the system should be selected in the window *Coordinate system not found*:

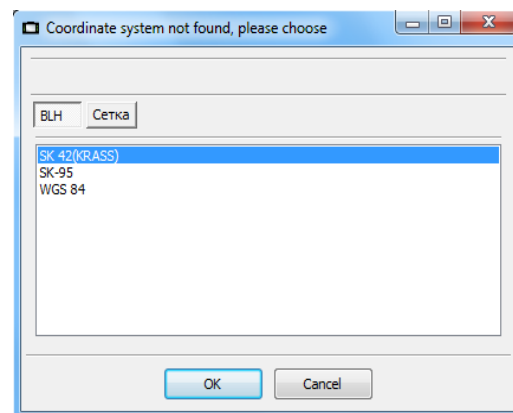


Figure 132. Coordinate system selection

After file has been imported, new layer appears in the *Map* tab (*Additional layers* node) and the image could appear on the screen.

If the image does not appear, select the layer and right-click to call menu. Select *Show entire layer* and then *Georeferencing*:

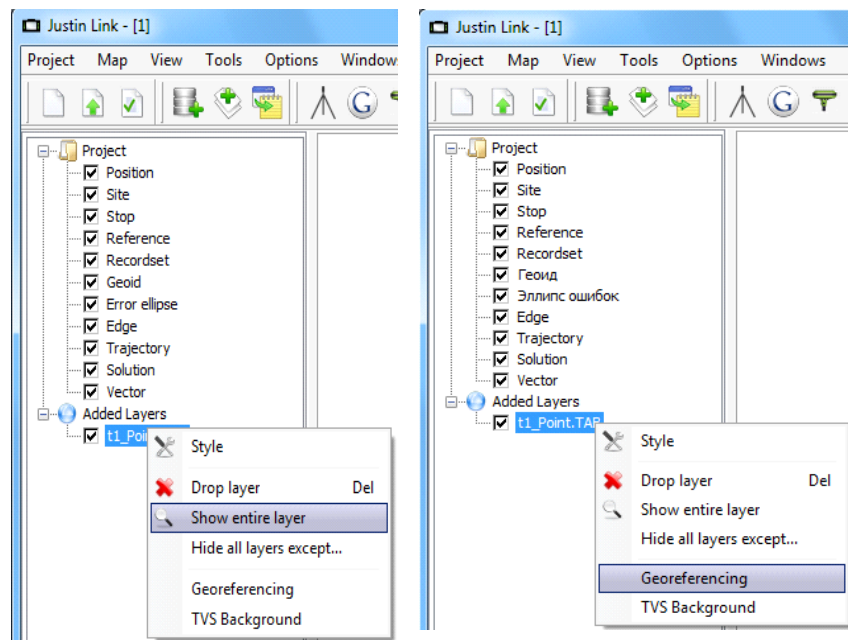


Figure 133. Show entire layer and Georeferencing menu items

The raster image and georeferencing panel will appear.

General Description

Register a raster image

The coordinates of the points can be edited, the additional points for georeferencing can be specified.:

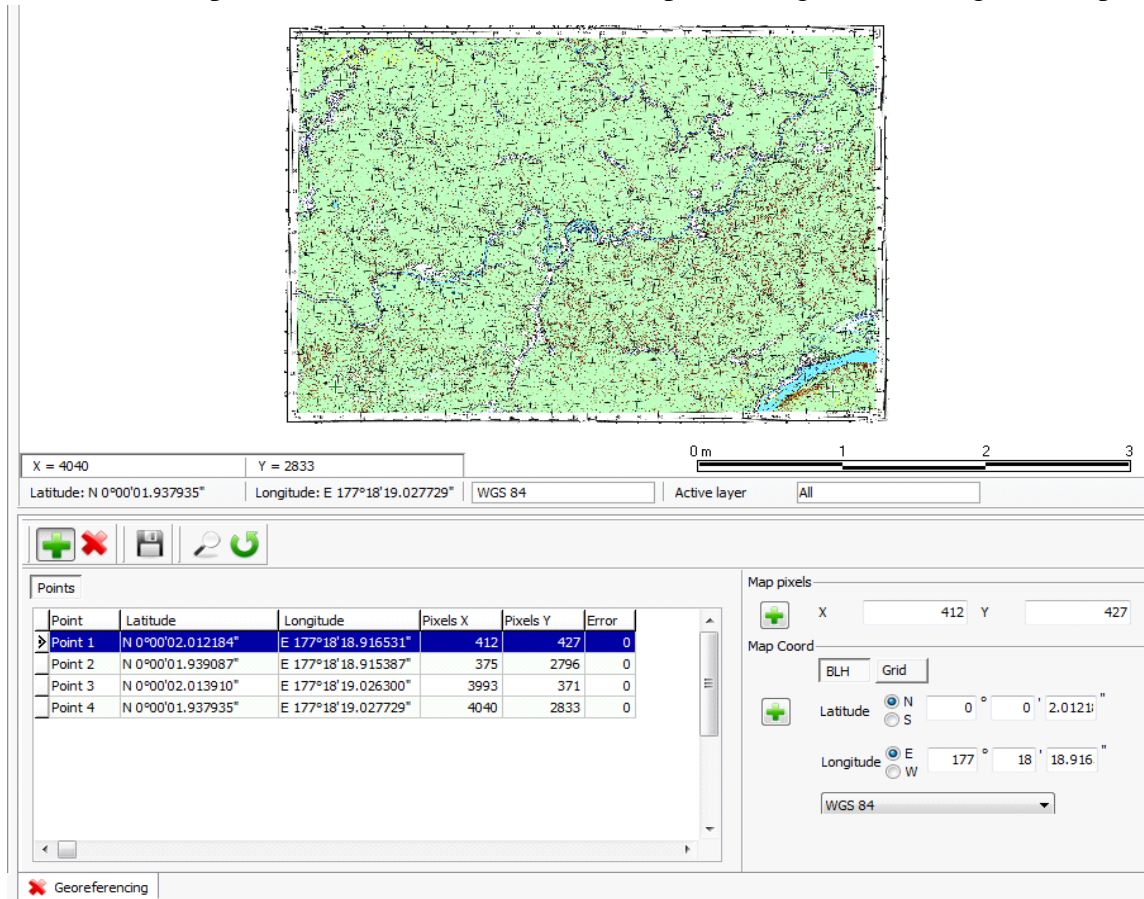


Figure 134. Raster image and Georeferencing panel

14.3. Import of Google map images

To import a Google raster image ensure that your computer has Internet access, right-click on the *Added layers* in the *Map* tab, and select *Add Google layer*:

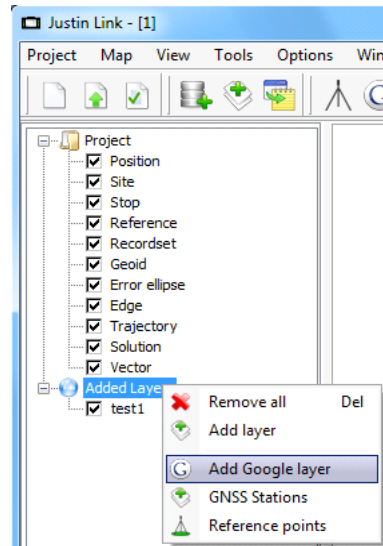


Figure 135. Add Google layer

New node *Google map* will appear in the *Added layers*.

14.4. Functions of added layers

There are six functions for raster layers. Google image has an additional *Refresh* function:

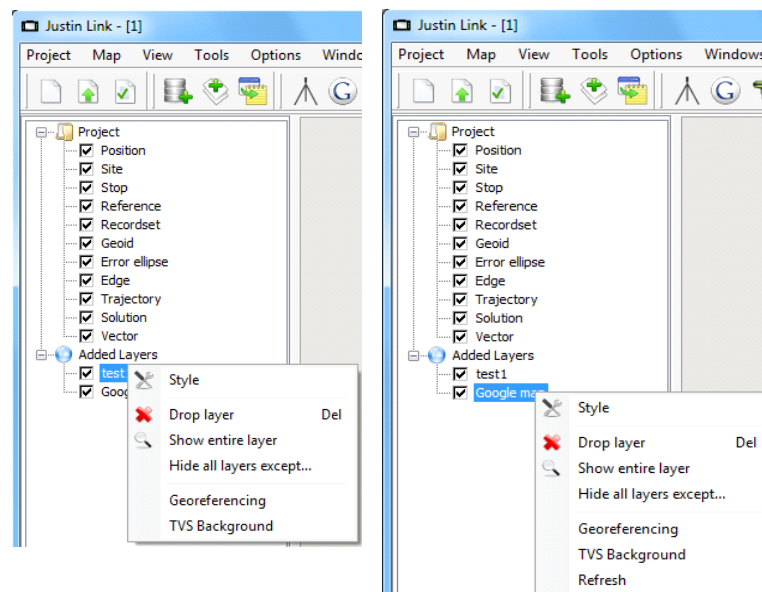


Figure 136. Added layers functions

General Description

Export of raster Image to TRIUMPH-VS/LS

- *Style*- opens the window with the raster image displaying style:

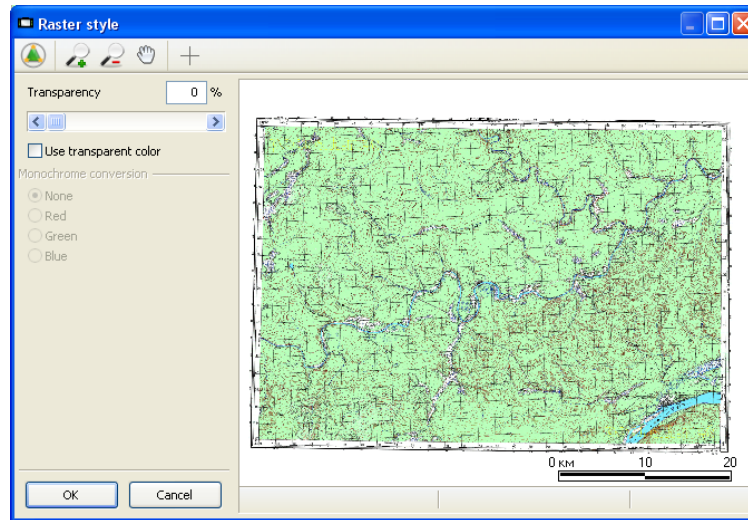






Figure 137. Raster style

To navigate through the *Raster style* window use the buttons:

-  - show whole picture
-  - zoom in
-  - zoom out
-  - scroll the image. The flag *Use transparent color* is designed to set the transparent color. Select it on the image and set the opacity in percent.
- *Drop layer* - deletes the layer from the program;
- *Show entire layer* - shows all points of the layer;
- *Hide all layers except ...* - hides all layers except selected one.
- *Georeferencing* - see and change the coordinates and save the changes or save them in the new file.
- *TVS Background* – saves the data to the *.sqlitedb (for *TVS* and *Tracy* background).
- *Refresh* – for *Google Maps* only.

Note: Standard path for TVS background: Internal memory: Triumph VS – \Mounted Volume\Release\BackgroundMaps; SD-card: Triumph VS – \Storage Card\VS Data\BackgroundMaps; Tracy: Victor –\Storage\Tracy_RTK Data\Jobs*.*; Victor VS – \Mounted Volume\Tracy_RTK Data\Jobs*.*

15. Export of raster Image to TRIUMPH-VS/LS

To export the raster image to TRIUMPH-VS/LS perform the following:

1. Right-click on the layers name in the *Map* tab, select the *TVS Background* menu item.

2. In the *Save As* window save the file in **.sqlitedb* format and click *Save* button:

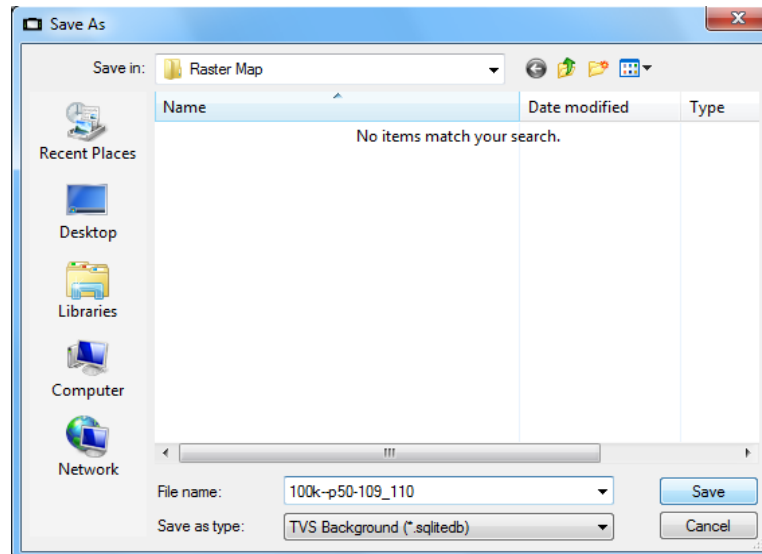


Figure 138. Save as window

The progress bar appears:

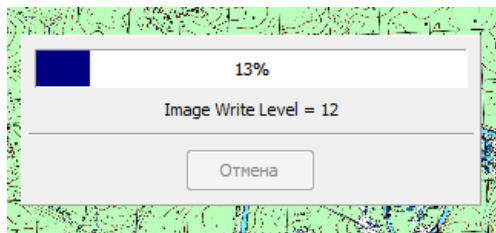


Figure 139. Progress bar

General Description

Export of raster Image to TRIUMPH-VS/LS

3. After file is saved, switch on TRIUMPH-VS, connect it to PC via USB cable and start *Mobile Device Centre*. Open the *File Manager* and select the folder according to the path specified in step above: \Mounted Volume\Release\BackgroundMaps; or \Storage Card\VS Data\BackgroundMaps



Figure 140. Windows mobile dialog window

4. On the PC open the folder containing the file for export, drag and drop it to the TVS window:

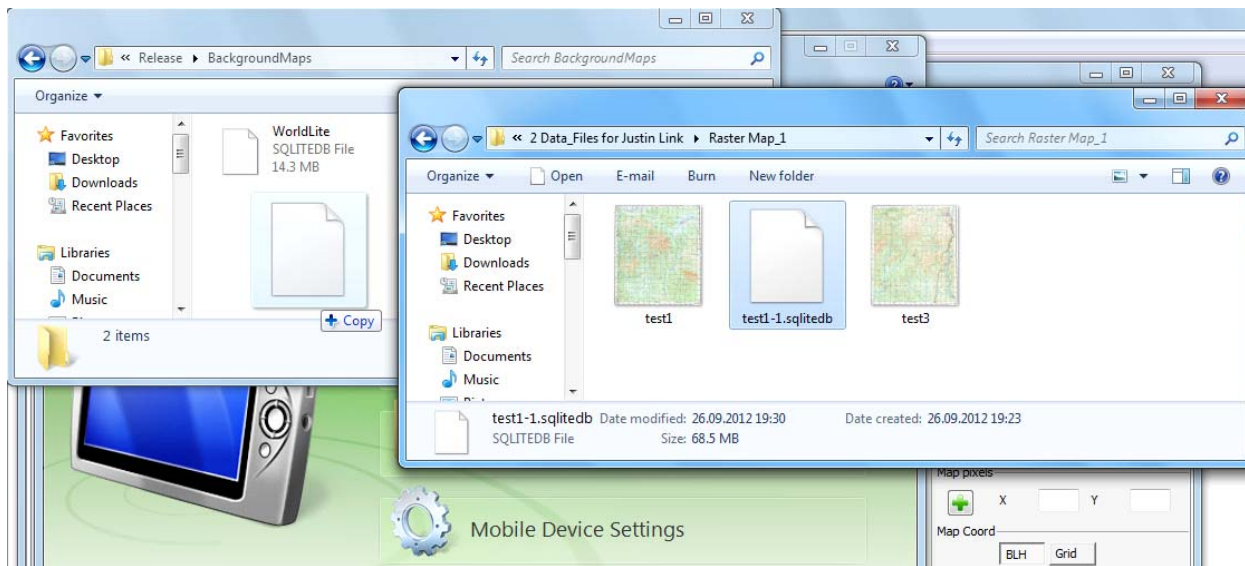


Figure 141. Export of the files

5. Since raster image export has been completed, it will be available in TRIUMPH-VS/LS as background map.

16. Data Import and Export to TRIUMPH-VS/LS and Tracy

Connect TRIUMPH-VS/LS or Victor to PC via USB port. Then in *Justin Link* click on the button , to connect to TRIUMPH-VS/LS, or  to connect to Tracy.

The list of the maps (projects) will appear in the *Triumph VS Link* window:

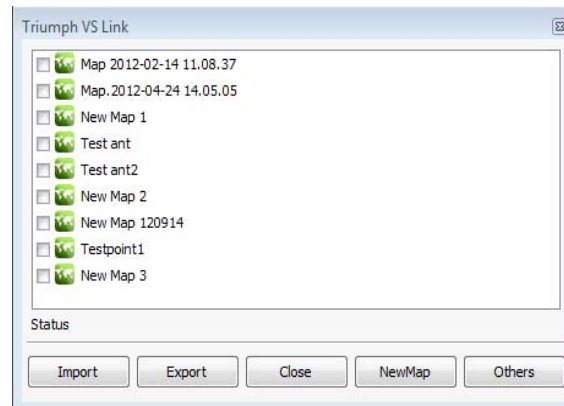

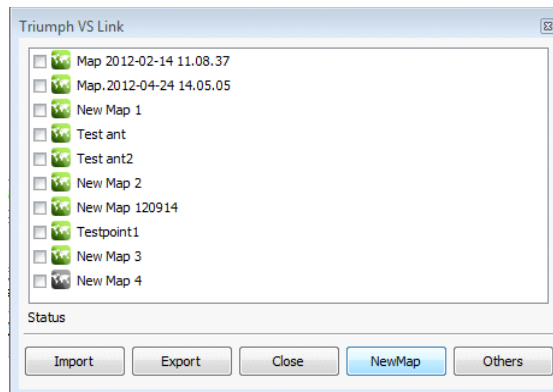


Figure 142. Triumph VS Link window

It is possible to do the following operations with the connected device:

- Creating new object *Map* .
- To create new map, click *New Map* button. New map (gray icon) appears in the list of the maps.

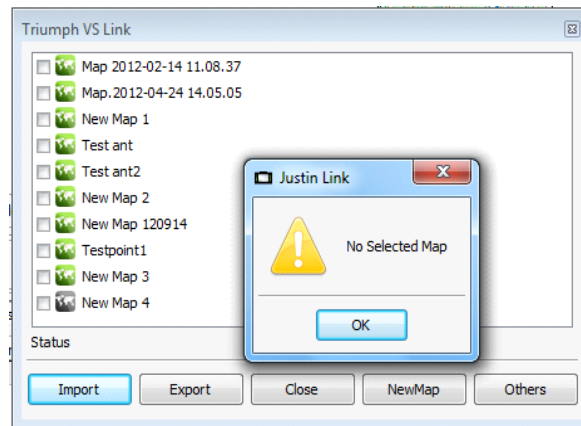



- To edit the map name double click on the map name.
- Select active map.

General Description

Data Import and Export to TRIUMPH-VS/LS and Tracy

- If there is no map selected the warning message appears:



- Import of the maps  to the *Justin Link*.
- Select the map you want to import and click *Import*. After import complete, the name of the map appears in the *Map* tab:

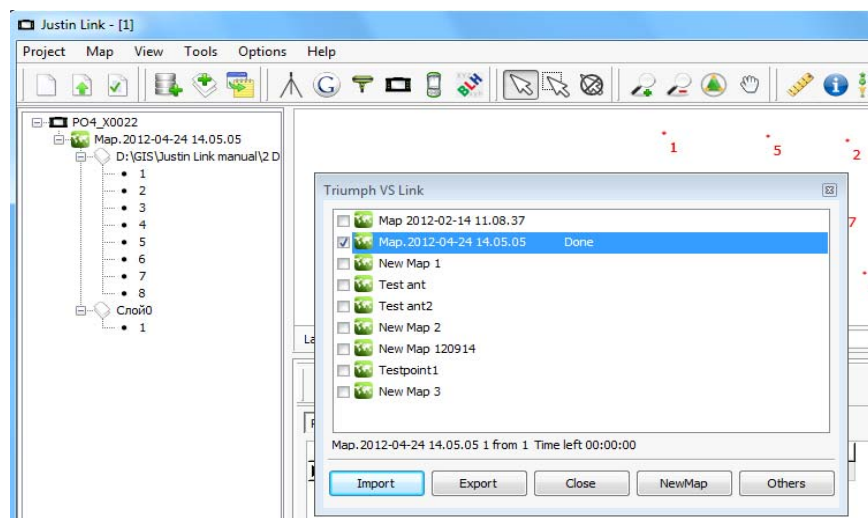


Figure 143. Import of the map

- Export of *TVS-files* (*.tvs) to devices.

- To export the *TVS-files*, select the map the data will be exported to, and click *Export*. In the *Open project* window select the *.tvs file and click *Open*:

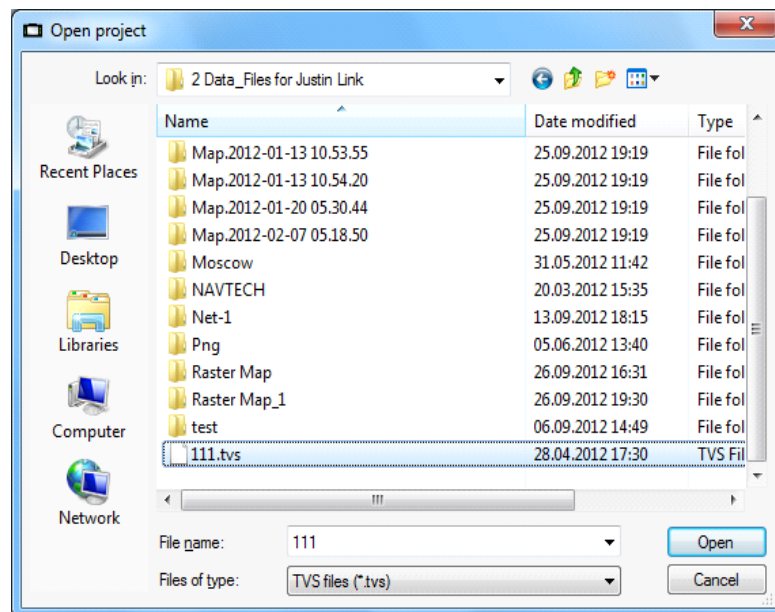


Figure 144. Open project window

- In the *Export to* window select the layer the data will be exported to:

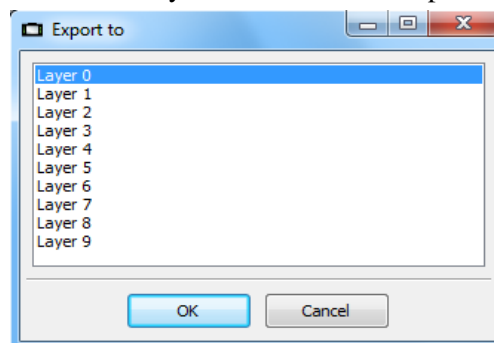


Figure 145. Export to dialog

General Description

Data Import and Export to TRIUMPH-VS/LS and Tracy

- In the *Triumph VS Link* window the message with the export confirmation appears:

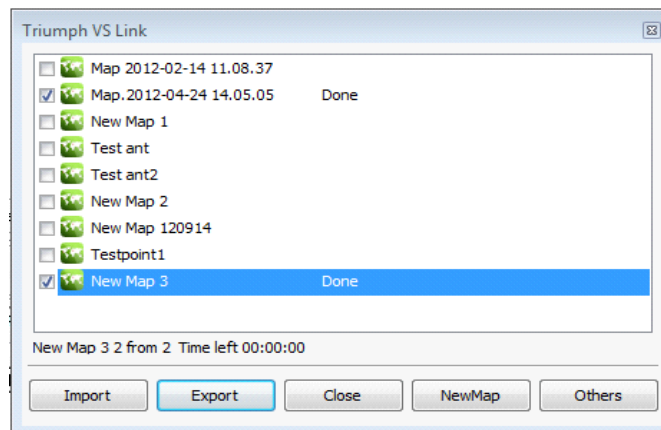


Figure 146. Export into map completed successfully

- Using the button *Others* it is possible to import database of the coordinate systems, export a data base of the coordinate systems, export a map file and control points from selected file type.
 - To import/export a database of coordinate systems, just select the corresponding menu item. If the map file (*NS3-files, *.db*) is importing, select data.db file:

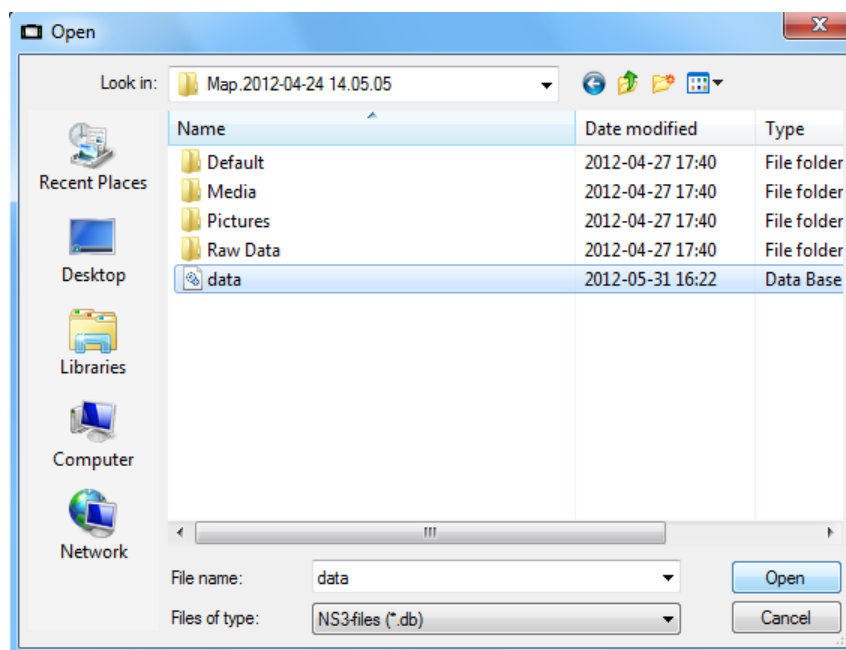
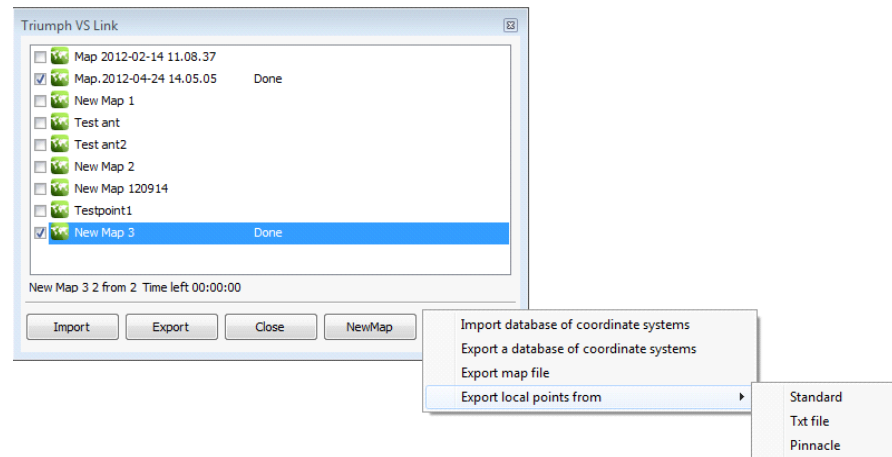


Figure 147. Selecting the file

- To import set of points to the TRIUMPH-VS/LS and *Tracy* for further localization:
 - Select a map from the list.

- Click the *Others* button and select the file type: standard, txt file, and Pinnacle format.



- Standard* - it is a comma separated text file with the *.csv file name extension. Each line corresponds to a single point. The set of parameters contained in the line may be different, only the first four parameters are mandatory: point name, local coordinates of the North, the local coordinates of the East, the local coordinates of the Height. There are additional required fields: WGS84 Longitude, WGS84 Latitude, WGS84 height, type (horizontal and vertical (0), plain (1), and height (2)). The parameters must be strictly in the order in which they are listed above. Below is an example of the standard format:

```
mt1;36094.78;27270.732;20.382;;;
mt2;35834.688;27455.556;49.157;43.0567672722222;131.899276672222;76.86;
mt3;35918.613;27647.965;46.839;43.0575247583333;131.901637286111;74.544;0
mt4;37034.724;28811.695;44.556;43.0675826388889;131.915908502778;72.298;1
mt5;37090.278;28698.282;23.553;43.0680816888889;131.914515369444;51.307;2
mt7;37452.265;28652.303;2.048;;;0
mt8;37216.638;28716.365;18.872;;;1
mt9;36434.262;26896.549;4.895;;;2
```

Figure 148. *.csv file

- Txt file* - A text file has no special order of the parameters, it should be the same for all rows of the file. As separators can be used different symbols. The export from the text file can be done in two ways: using template import or visual import. Create a template and define the column names. Specify parameters (see “Template configuration” on page 69). If the visual import is used, more complex structures can be imported (from the multiple files). Below is an example of the txt format:

```
mt1 56094,78 27270,752 20,582 45,0491064861111 151,897004174 48,105 0
mt2 54854,688 27444,446 49,147 45,0467672722222 151,899276672222 76,86 1
mt5 54918,615 27647,964 46,859 45,0474247485555 151,901657286111 74,444 2
mt4 57054,724 28811,694 44,446 45,0674826588889 151,914908402778 72,298 0
mt4 57090,278 28698,282 25,445 45,0680816888889 151,914414569444 41,507 1
mt6 57057,49 28864,65 40,61 45,0676089085555 151,916470719444 78,541 2
mt7 57442,264 28642,505 2,048 45,07155964 151,915946415889 29,8218 0
mt8 57216,658 28716,564 18,872 45,069219224 151,914754944446 46,656 1
mt9 56454,262 26896,449 4,894 45,0621479972222 151,8924044 52,62 2
```

Figure 149. *.txt file

General Description

Data Import and Export to TRIUMPH-VS/LS and Tracy

- *Pinnacle* format file is shown below:

```
Table calculator
Left pane :
Geodetic : WGS84
Unit name : Meters
Name Latitude Longitude Height,m
mt1 44°04'42.78444 141°44'49.21404 48.104
mt2 44°04'24.46218 141°44'47.49602 76.86
mt4 44°04'27.08914 141°44'04.89424 74.444
mt4 44°04'04.2974 141°44'47.27061 72.298
mt4 44°04'04.09408 141°44'42.24444 41.407
mt6 44°04'04.49207 141°44'49.64449 78.441
mt7 44°04'16.82274 141°44'40.20709 29.8218
mt8 44°04'09.18921 141°44'44.04944 46.646
mt9 44°04'44.76879 141°44'42.64944 42.62
-----
Right pane :
Local : SK Most
Unit name : Meters
Name Northing,m Easting,m Height,m
mt1 46094.78 27270.742 20.482
mt2 44844.688 27444.446 49.147
mt4 44918.614 27647.964 46.849
mt4 47044.724 28811.694 44.446
mt4 47090.278 28698.282 24.444
mt6 47047.49 28864.64 40.61
mt7 47442.264 28642.404 2.048
mt8 47216.648 28716.464 18.872
mt9 46444.262 26896.449 4.894
```

Figure 150. Pinnacle format file

Select the layers the coordinates of the points will be imported to (in local and WGS-84 coordinate system):

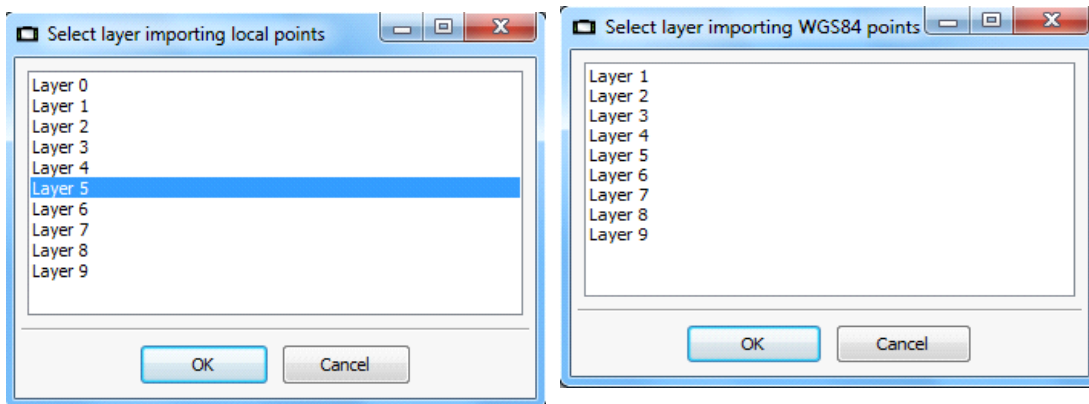
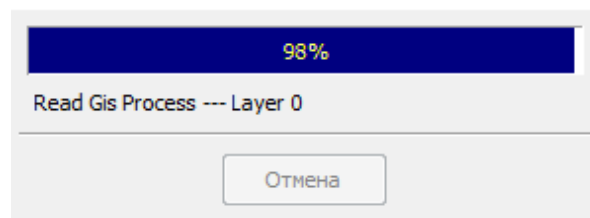


Figure 151. Select layer

After layer is selected, the import starts and progress and appears:



The window will close automatically. To closed *Triumph VS Link* window, click *Close*.

16.1. Dynamic layers export to TRIUMPH-VS/LS and Tracy

To export dynamics layers to *TRIUMPH-VS/LS* and *Tracy*, click right mouse button on the dynamic layer name in the project pane and select Export menu item, then *Export to TVS* or *Export to Tracy*:

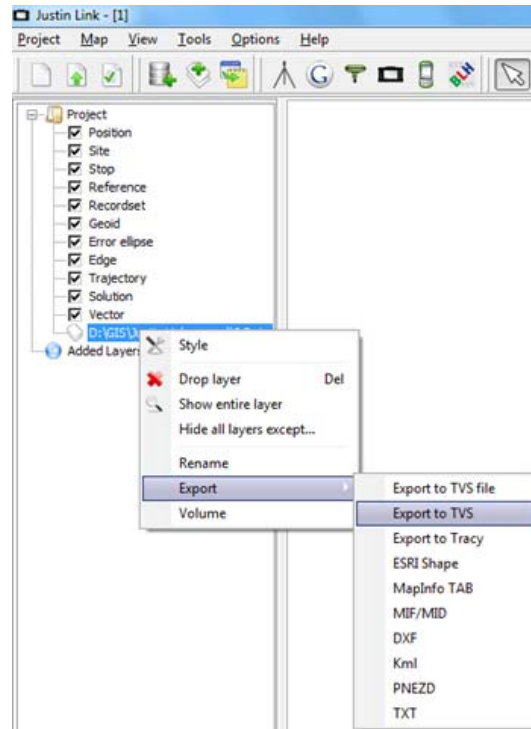


Figure 152. Dynamic layer export

The dialog *Triumph VS Link* with the list of the maps will appear:

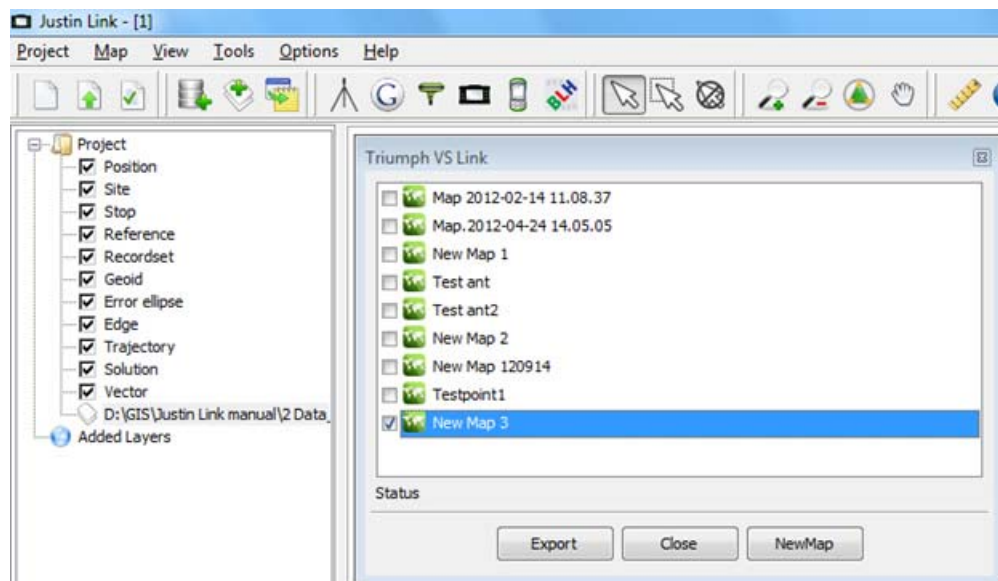


Figure 153. TRIUMPH-VS/LS Link


General Description

Report

Select a target map (or several maps) and click *Export*. If the information was transferred successfully, next to the map name will be shown *Done*.

17. Report

There are two types of format for reports in Justin Link. Click *Options* ► *Application* ► *Report* and select the format. It can be *.txt or *.html.

To generate a report, click  button on the tool bar and the *Report* window appears:

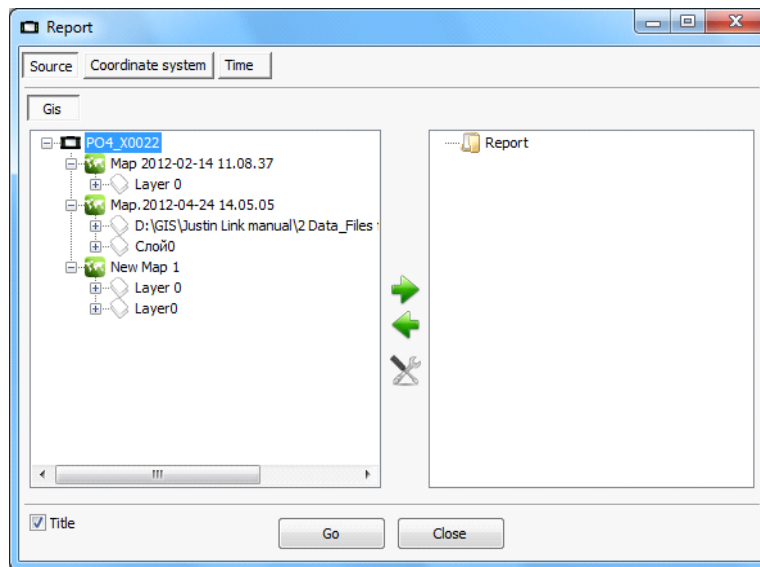





Figure 154. Report window

- *Source* tab: On the left there is the tree with items of the project. On the right there is the *Report* folder and mix set of the selected items.

At first, the *Report* window is empty. Select an object on the right and click . This item will appear on the right.

To delete the items from the report pane, select them and click .

To set the table parameters click  and the *Table parameters* window appears.

- In the *Coordinate system* tab the coordinate system for report is defined:

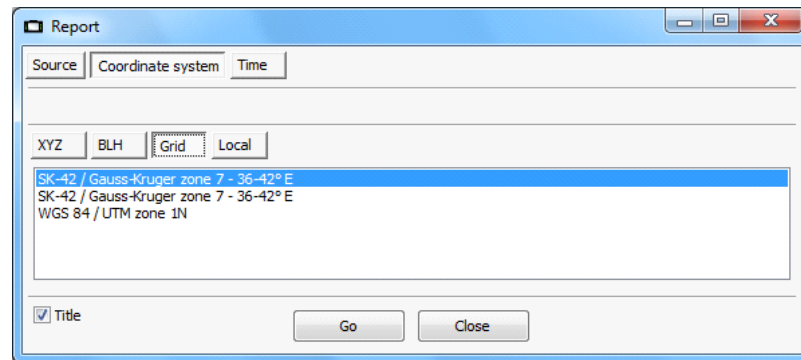


Figure 155. Coordinate system tab

- In the *Time* tab the time system can be set.

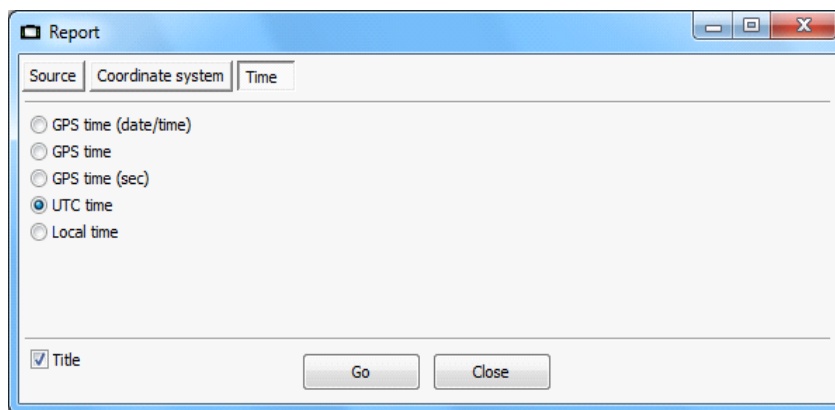
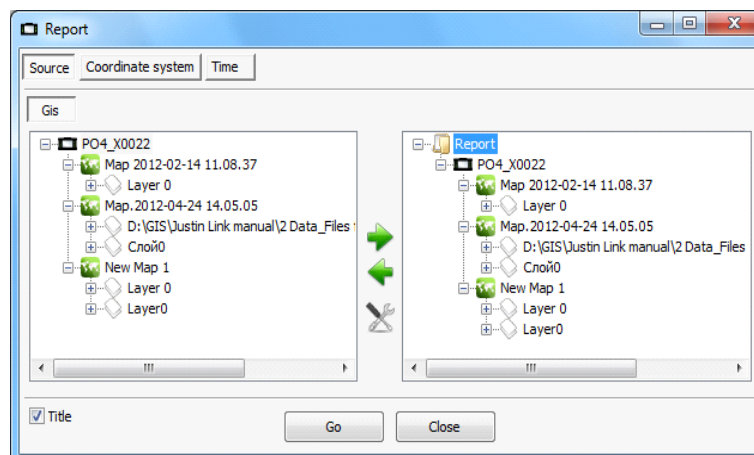


Figure 156. Time tab

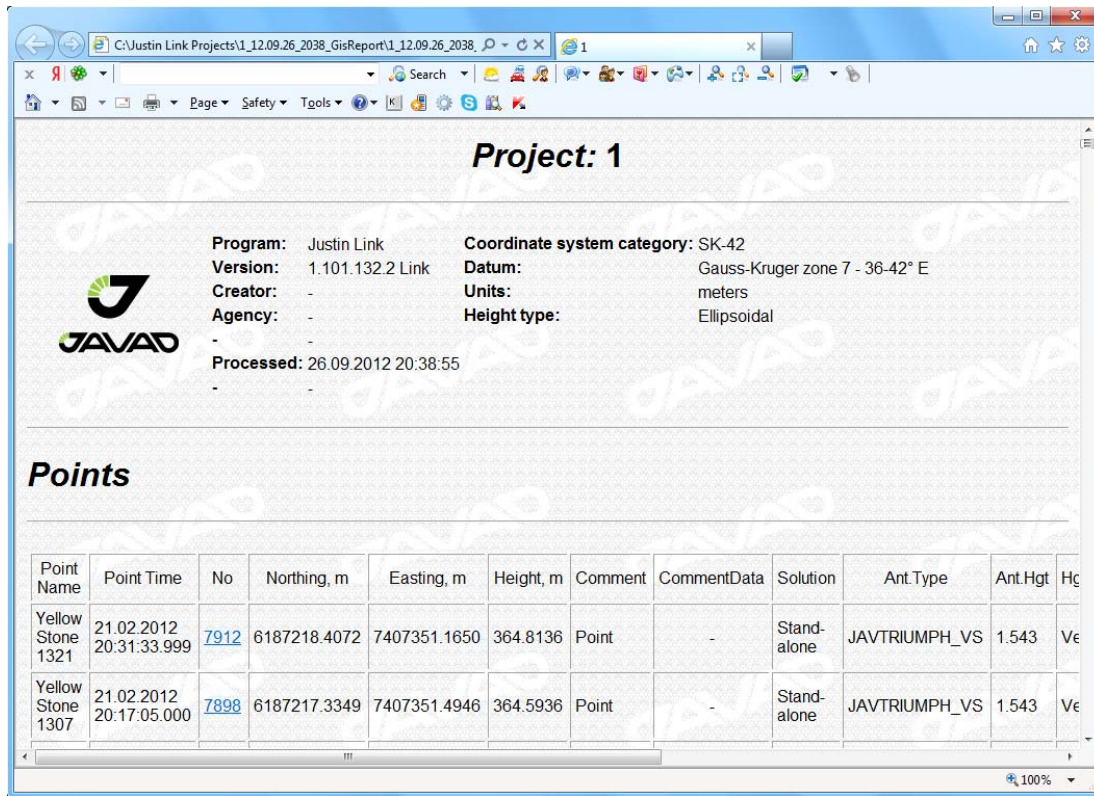
In the lower left corner of the *Report* window there is *Title* check mark. This means that the log file will have a JAVAD logo and title with the general information. If enabled, the file will be created without title. If the *.html format mode is active, the *Add map image* flag will be available and the map image will be added to the report.



General Description

Report

When report design is completed, click *Go* button and the report will be generated in *html* or *txt* format:



Project: 1

Program: Justin Link
Version: 1.101.132.2 Link
Creator: -
Agency: -
Processed: 26.09.2012 20:38:55

Coordinate system category: SK-42
Datum: Gauss-Kruger zone 7 - 36-42° E
Units: meters
Height type: Ellipsoidal

Points

Point Name	Point Time	No	Northing, m	Easting, m	Height, m	Comment	CommentData	Solution	Ant.Type	Ant.Hgt	Hc
Yellow Stone 1321	21.02.2012 20:31:33.999	7912	6187218.4072	7407351.1650	364.8136	Point	-	Stand-alone	JAVTRIUMPH_VS	1.543	Ve
Yellow Stone 1307	21.02.2012 20:17:05.000	7898	6187217.3349	7407351.4946	364.5936	Point	-	Stand-alone	JAVTRIUMPH_VS	1.543	Ve

Figure 157. Report in html format

1_12.09.26_2037_GisReport - Notepad

File Edit Format View Help

Program: Justin Link
Version: 1.101.132.2 Link
Creator:
Agency:
Project: 1
Processed: 26.09.2012 20:37:48

Coordinate system category: SK-42
Datum: Gauss-Kruger zone 7 - 36-42° E
Units: meters
Height type: Ellipsoidal

Map Map 2012-02-14 11.08.37

Layer 59

Points

Point Name	Point Time	No	Northing, m	Easting, m	Height, m
Yellow Stone 1321	21.02.2012 20:31:33.999	7912	6187218.4072	7407351.1650	364.8136
Yellow Stone 1307	21.02.2012 20:17:05.000	7898	6187217.3349	7407351.4946	364.5936
Yellow Stone 1334	21.02.2012 20:45:00.999	7925	6187219.4328	7407350.6690	365.7061
Yellow Stone 1333	21.02.2012 20:43:58.000	7924	6187219.7972	7407350.5042	365.6744
Yellow Stone 1332	21.02.2012 20:42:56.000	7923	6187219.1927	7407350.8803	365.5182
Yellow Stone 1331	21.02.2012 20:41:54.000	7922	6187218.6885	7407351.1576	365.5954
Yellow Stone 1330	21.02.2012 20:40:53.000	7921	6187218.8061	7407351.1442	365.7680
Yellow Stone 1329	21.02.2012 20:39:50.000	7920	6187218.9294	7407350.8542	365.4393
Yellow Stone 1328	21.02.2012 20:38:48.000	7919	6187218.9576	7407350.8723	365.2151

Figure 158. Report in txt format



900 Rock Avenue, San Jose, CA 95131 USA

Phone: +1(408)770-1770

Fax: +1(408)770-1799

www.javad.com

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