Justin

Software Quick Reference Guide

Version 1.0

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PREFACE

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About this Guide

Symbols and Typographic Conventions

This Guide uses the following text conventions:

Example	Description.
Port	Titles of dialog windows/boxes, names of menu options.

Screen Captures

This Guide 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.

Technical Support

Occasionally, Justin users encounter problems during installation or use of the program. Should you have any problems with Justin Software, please contact JAVAD GNSS Support (support@javad.com).

INTRODUCTION

The quick reference guide is designed to provide the quickest way to get started using Justin.

The guide is organized as follows:

- Creating a project and importing data
- Viewing, editing and processing data using the Project and Map window.
- Adjusting a network.
- Creating reports.

1.1. System Requirements

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

- PC-compatible computer
- Processor: Pentium IV or higher
- Installed Open GL drivers
- 2 GB available hard drive space
- 512 MB of RAM (minimum) or 1024 MB (recommended)
- Microsoft Windows XP, Vista

GETTING STARTED

This chapter describes how to create a project, create the Fiducial Points Database, and import raw data files into a project.

2.1. Understanding Elements of the Main Window

When you start Justin the *Main* window appears (Figure 2-1). This window includes the following components: the *Menu* and *Tool* bar, the *Project* and *Map* panes, which are the largest parts of the window, and the *Status* bar.

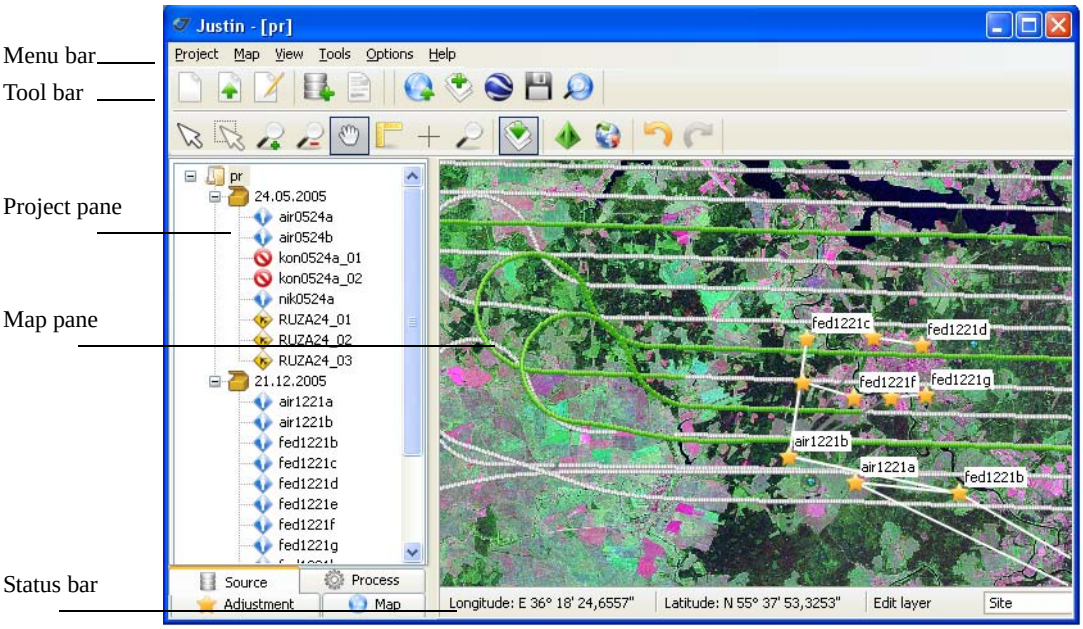

Figure 2-1. Main window

2.1.1. Menu and Tool Bar

The *Menu* bar (Figure 2-2) extends across the top of the *Main* window and contains six menu titles through which the user can access the program functions. By hovering the mouse pointer over a menu title and then clicking the left mouse button will cause the menu to drop down, displaying a list of menu items. Position your pointing device on the desired menu item, then click and release the left mouse button and that function is invoked.

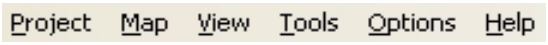

Figure 2-2. Menu bar

The *Tool* bar (Figure 2-3) consists of many buttons, through which the user can access the program functions.

Figure 2-3. Tool bar

2.1.2. Project and Map Panes

The *Project* and *Map* panes are depicted in Figure 2-4. The *Project* pane (on the left) is designed to display data structure. The *Map* pane (on the right) is a cartographic window.

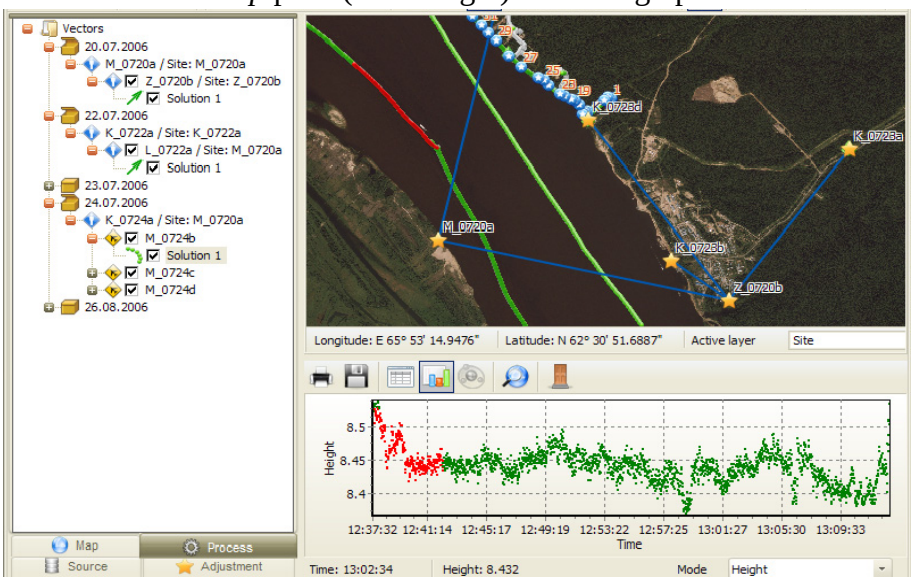

Figure 2-4. Project and Map panes

2.1.3. Status Bar

The *Status* bar provides auxiliary information while using Justin.

2.2. Creating a New Project

If you run Justin for the first time the *Project* and *Map* panes will be empty. In this case, you should create a new project. To create a new project it is necessary to define the project's name, scenario, and other settings in the *Project properties* dialog window. The sections below are organized according to tabs of the dialog window.

2.2.1. Defining General Properties

To define a project name and location follow the next steps:

1. Click *New* on the *Project* menu or on the *Tool* bar. A *Project Properties* dialog appears (Figure 2-5).

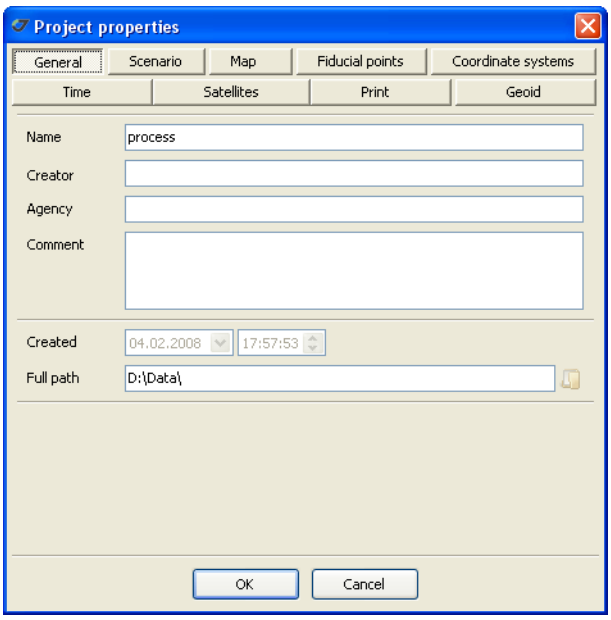

Figure 2-5. Project properties. General tab

2. Enter the project name in the *Name* field.

3. Enter the location for the project in the *Full path* field or click  to navigate to the location where the project will be stored. Justin creates a file with the `.jpr` file extension.
4. Enter creator's name and comment in the *Creator* and *Comment* field respectively, if needed.

Note: The *Name* and *Full path* fields are mandatory to fill in.

5. Click *OK* to save changes and close the dialog window.

2.2.2. Defining Scenario

Importing data files into the project generates some recordsets according to Scenario. You should set up Scenario before importing data files.

1. Select *Properties* from the *Project* menu item or click button  . The *Project properties* dialog window appears.
2. Click the *Scenario* tab (Figure 2-6).

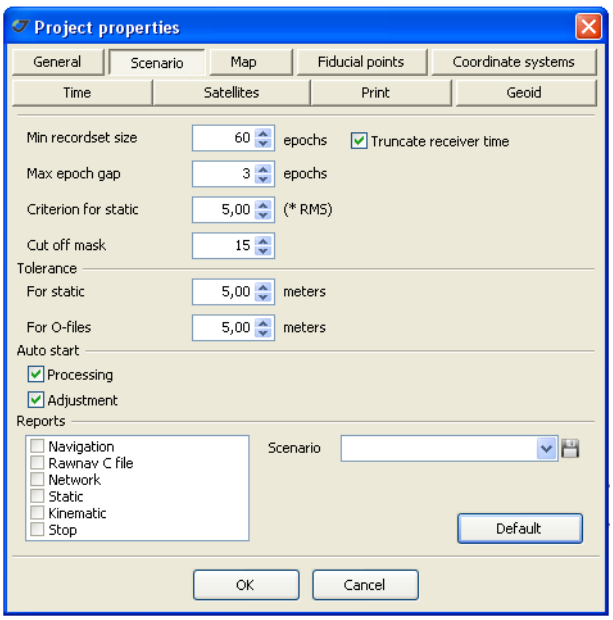

Figure 2-6. Scenario tab

3. Select the *Truncate receiver time* check box to truncate the receiver time and reduce the corresponding raw data measurements to the nearest whole epoch.

Note: This procedure is normally applied to Trimble's raw data files where reference times are whole epochs originally given in "float" (not whole epochs).

Figure 2-7. Truncate receiver time check box

4. Enter the number of epochs in the *Min recordset size* field (Figure 2-8). If the recordset has epochs less than the Min recordset size, the recordset is not included in the project.

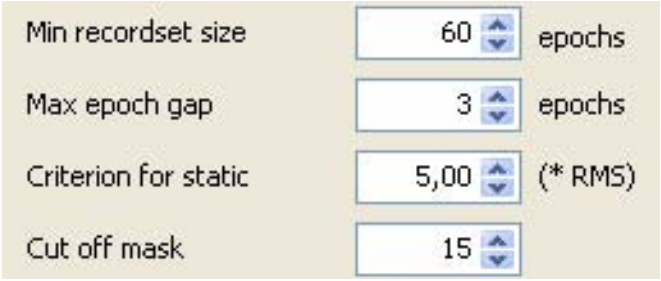

Figure 2-8. Scenario tab settings

5. Enter the maximum number of epochs in the *Max epochs gap* field (Figure 2-8). If the max epoch gap exceeds the set value, a recordset will be splitted.
6. Enter a value in the *Criterion for static* field, to separate Static and Kinematic recordsets by navigational solution (Figure 2-8).
7. Enter a value of the *Cut off mask*. It determines the lower limit of the satellite elevation to be used for navigational solution. By default, it is 15° (Figure 2-8).
8. Enter the value of *Tolerance for static* (Figure 2-9). This criterion is used to set relation between recordsets and sites. If a distance from navigational solution to an existing site exceeds the criterion*RMS, a new site is created.

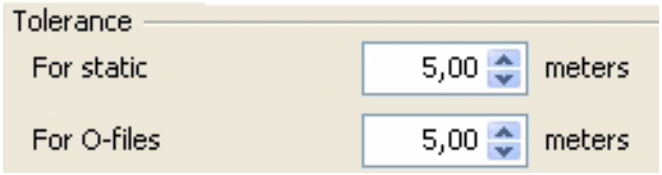

Figure 2-9. Tolerance field settings

9. Select the *Processing* check box (Figure 2-10). The vector processing will start automatically after data import.

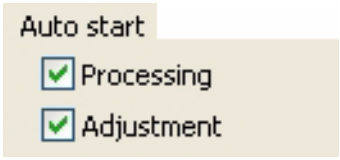

Figure 2-10. Auto-start field settings

10. Select the *Adjustment* check box. The program starts the network adjustment automatically.
11. In the *Reports* box select one or more check boxes of the report forms to obtain the corresponding report. Justin creates the report `.txt` file automatically.

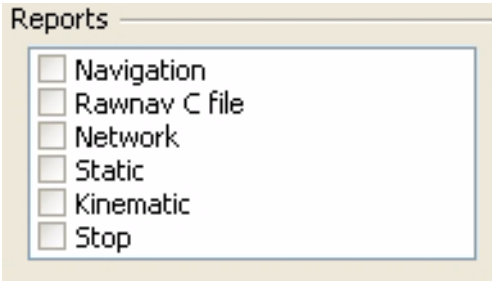

Figure 2-11. Reports form selecting

Note: Click the *Default* button, to retain default settings.

It is possible to save scenario settings for using them in another created new project. Follow the next steps to save new scenario:

1. Click  to enter the scenario name (Figure 2-12):

Figure 2-12. Scenario drop-down list box

2. In the *New scenario* dialog window type the scenario name and click *OK*. The scenario will be added to the list. It is possible to apply to the current project one of the saved scenarios selecting it from the *Scenario* drop-down list box (Figure 2-13):

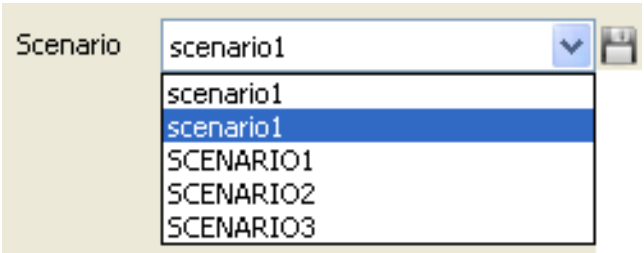

Figure 2-13. Saved scenarios

3. To save changes click *OK*.

2.2.3. Selecting Coordinate Systems

It is possible to select the coordinate systems in Justin database to copy it in the current project. To select a coordinate system follow the next steps:

1. Select *Properties* item from the *Project* menu or click button . The *Project properties* dialog window appears.

2. Click the *Coordinate systems* tab in the *Project properties* dialog window (Figure 2-14):

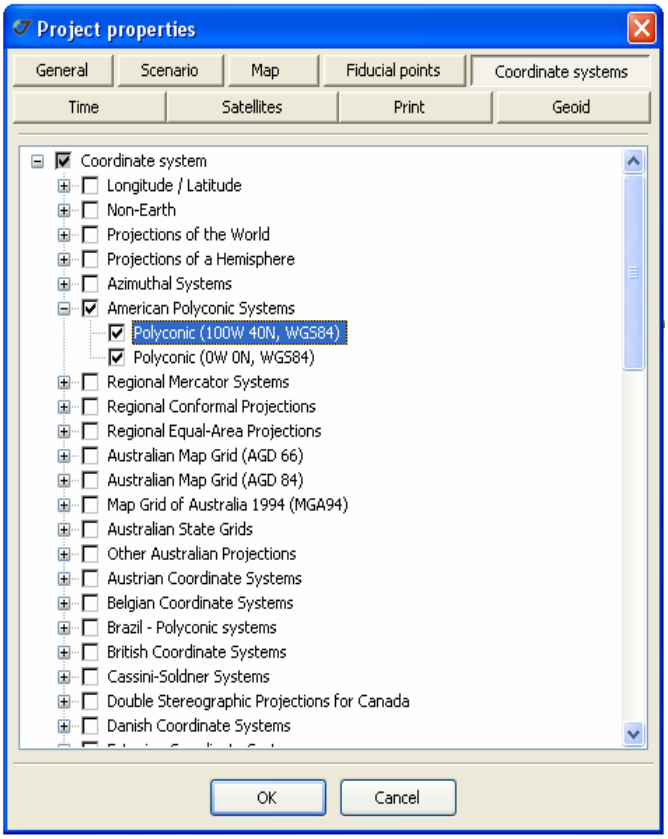

Figure 2-14. Coordinate systems tab

3. Click ⊞ to open the list of available coordinate systems.
4. Select the coordinate system you want to use in project.

Note: WGS-84, Non-Earth, Oblique Stereographic systems are set by default.

5. Click *OK* to save changes and close the dialog window.

2.2.4. Setting the Coordinate System for the Map Pane

It is possible to set the coordinate system for the *Map* pane and display it in the status bar. To set the coordinate system follow the next steps:

1. Select *Properties* item from the *Project* menu or click button . The *Project properties* dialog window appears.

2. Click the *Map* tab (Figure 2-15).

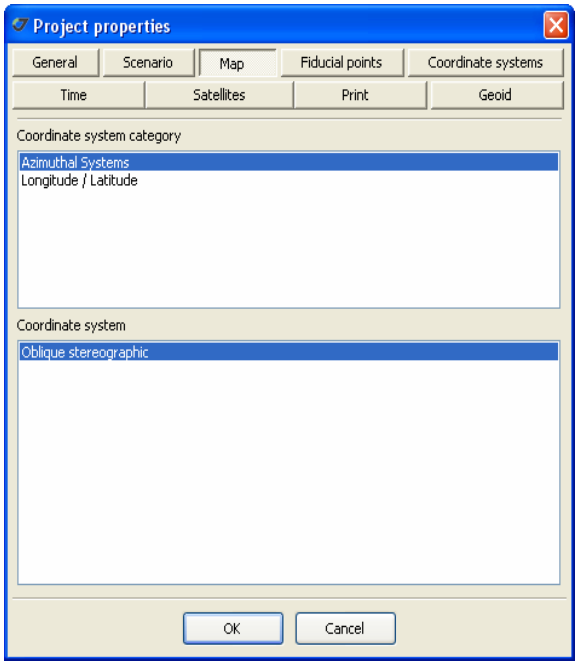

Figure 2-15. Map tab

3. In the *Coordinate system category* highlight the desired category of a coordinate system.
4. In the *Coordinate system* highlight the desired coordinate system.
5. Click *OK* to save changes and close the dialog window.

2.2.5. Setting Geoid Models

Justin operates with global and local geoid models. It is possible to set the geoid model for the project in the Geoid list and import new geoid models.

Note: The EGM96 (Earth Geoid Model) is set by default.

To set the geoid model follow the next steps:

1. Select *Properties* item from the *Project* menu or click button . The *Project properties* dialog window appears.

2. Click the *Geoid* tab (Figure 2-16).

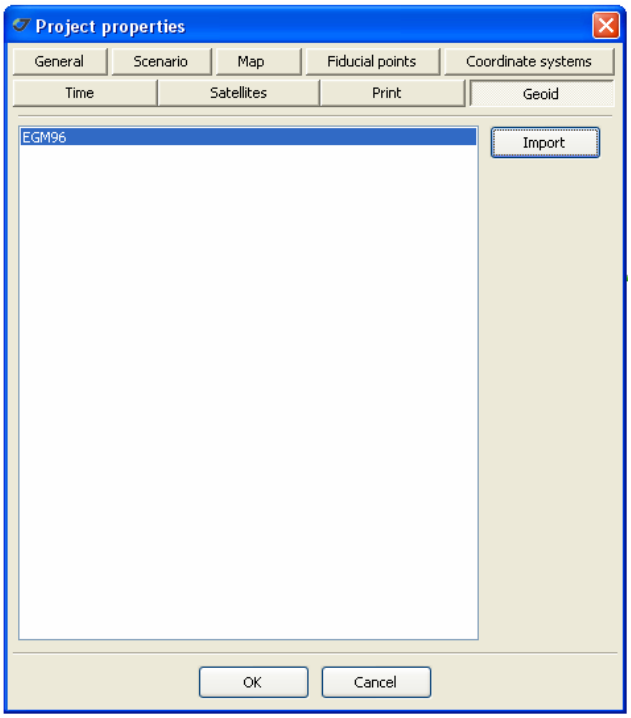

Figure 2-16. Geoid tab

3. Highlight the necessary geoid model from the list.
4. If there is no necessary geoid in the list, click the *Import* button. In the *Open* dialog window navigate to the geoid model file location and click *Open*. The new model will be added to the list.
5. Click *OK* to save changes and close the dialog window.

2.2.6. Loading Fiducial Points

Justin allows creating a Fiducial Points Database in interactive mode. See “Creating a Fiducial Points Database” on page 25 for detailed information.

To load fiducial points from the database to the project follow the next steps:

1. Select *Properties* item from the *Project* menu or click button . The *Project properties* dialog window appears.

2. Click the *Fiducial points* tab (Figure 2-17).

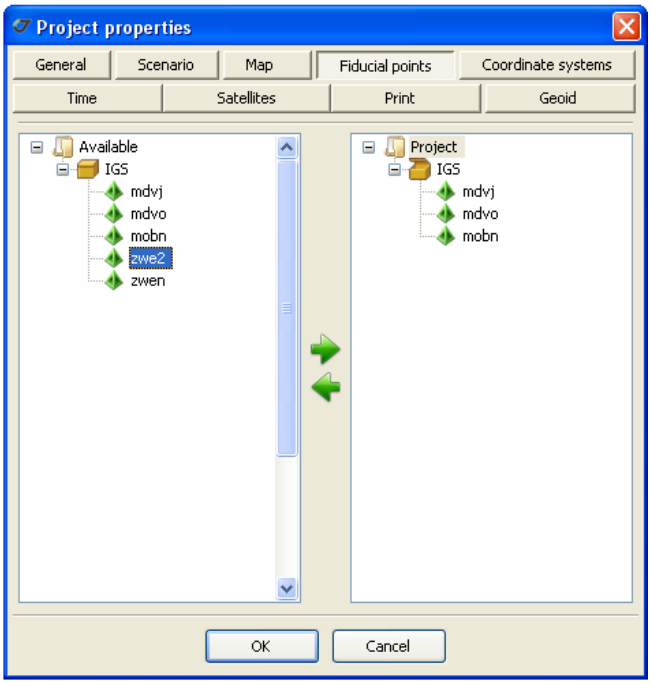

Figure 2-17. Fiducial points tab

3. From the *Available* list, select a group/point you want to copy to the project.
4. Click  or drag and drop the selected group/point into the *Project* list. The group/point appears in the *Project* list.
5. Click *OK* to save changes and close the window.

2.2.7. Including/Excluding Satellites

Justin allows excluding satellites from computations. The green and red buttons designate enabled and disabled satellites respectively (Figure 2-18).

1. Select *Properties* item from the *Project* menu or click button  . The *Project properties* dialog window appears.
2. Click the *Satellites* tab. It displays used in the project satellites.

3. Click a green/red satellite button to exclude/include the satellite.

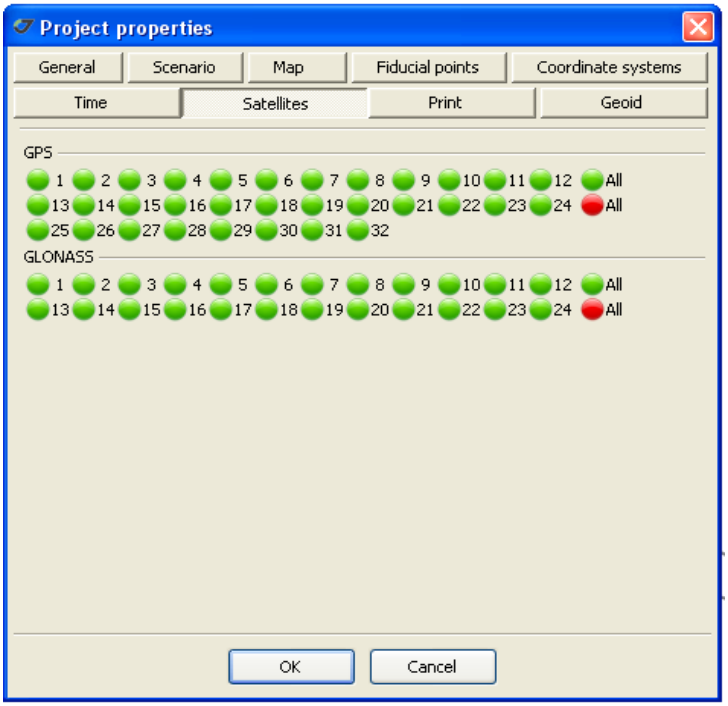

Figure 2-18. Satellites tab

4. Click *OK* to save changes and close the window.

2.3. Creating a Fiducial Points Database

Create a Fiducial Points database before using fiducial points in your project. Justin allows adding fiducial points to the Justin database and edit them. The Fiducial Points database is available for any Justin projects.

2.3.1. Adding Fiducial Point Coordinates

To add a fiducial point into the Database follow the next steps:

1. Click  on the Toolbar. The *Fiducial Points* dialog window opens.

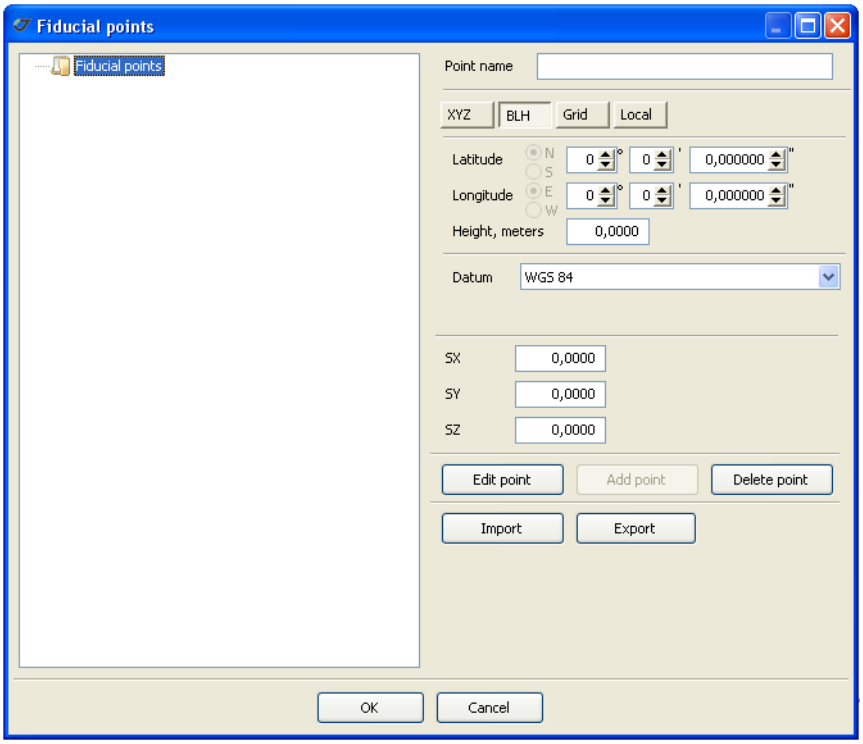

Figure 2-19. Fiducial points dialog window

2. To add a new group right-click the *Fiducial points* node and click *Add group*.

Figure 2-20. Adding a new group

3. The *Add group* dialog windows opens allowing the user to enter a new group name.

4. Click *OK*. The new group appears as a sub-node.
5. Select the group you want the point will be stored.
6. Click *Edit point* button.
7. Enter a point name in the *Point name* field (Figure 2-21).

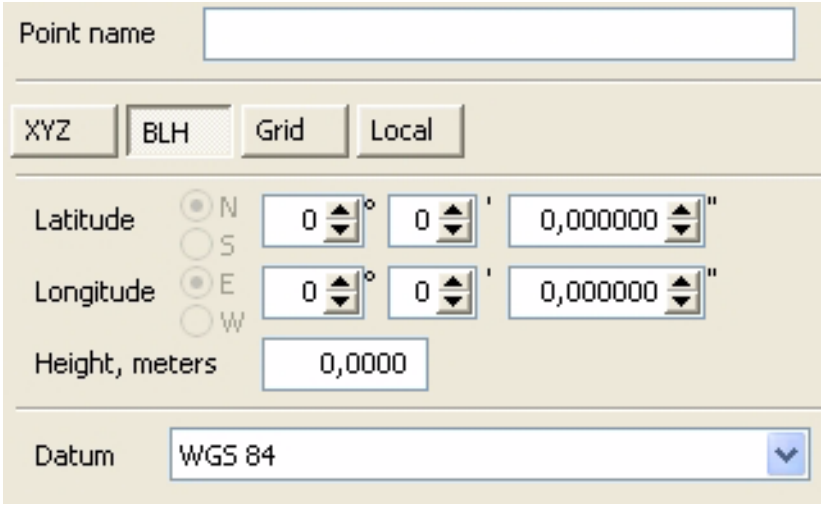

Figure 2-21. Fiducial point parameters

8. Enter the point coordinates.
9. Select the desired coordinate system.
10. Click *Add point* button, the new point appears at the appropriate level.
11. Repeat the steps 5-10 for each point you want to add to the database.
12. Click *OK* to apply changes to the database and close the dialog window.

2.3.2. Editing Fiducial Point

To edit a point's name, coordinates, and Sigmas follow the next steps:

1. Click . The *Fiducial Points* dialog window opens.
2. Select the point you want to edit.
3. Press *Edit point* button.
4. Type the new name, coordinates and Sigmas.
5. Press *Apply changes* button to set and save the changes to the current point.
6. Press *Cancel* button to exit the edit mode.

2.3.3. Deleting a Fiducial Point from the Database

To delete the point from the database:

1. Click . The *Fiducial Points* dialog window opens.
2. Select the desired point.
3. Click the *Delete* button.
4. Click *OK* to apply changes and close the dialog window. Or click *Cancel* to close the dialog window without saving changes.

2.3.4. Deleting a Group of Fiducial Points from the Database

To delete a group of points from the database:

1. Click . The *Fiducial Points* dialog window opens.
2. Right-click the desired group.
3. Select *Delete group* in the pop-up menu.

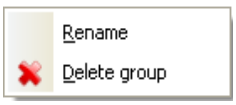

Figure 2-22. Delete group

4. Click *OK* to apply changes and close the dialog window. Or click *Cancel* to close the dialog window without saving changes.

2.3.5. Export and Import Buttons

It is recommended to use the *Export/Import* buttons when it is necessary to transfer the fiducial points database from one PC to another.

To export fiducial points from the current project to a `.jst` file follow the next steps:

1. Click to open the *Fiducial Points* dialog window (see Figure 2-19 on page 25).

2. Press the *Export* button. A *Reference points* dialog window opens.

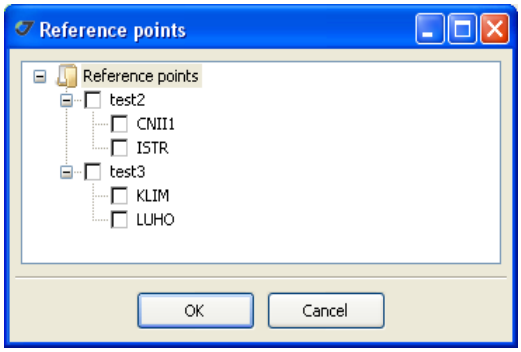

Figure 2-23. Reference points dialog window

3. Select the desired group/point check box to insert the points into a `.jst` file.
4. Click *OK*. The *Save as* dialog window opens. Enter a file name and location.
5. Click *OK*.

To import the `.jst` file to the project,

1. Click  on the Toolbar to open the *Fiducial Points* dialog window.
2. Click the *Import* button.
3. In the *Open* dialog window navigate to the `.jst` file you want to import.
4. Click *OK* to add the fiducial points to the database.

2.4. Setting Application Options

Justin Application Options are intended to provide two main tasks:

- Supporting Windows regional and language settings.
- Customizing Justin environment.

It is possible to change Justin's options according user personal preferences. Use the *Options* dialog window to set up the custom options. These settings will be system defaults for every project until you change them.

To change options follow the next steps:

1. Select the *Application* item from the *Options* menu. The *Options* dialog window appears.
2. Click the *Common* Tab.

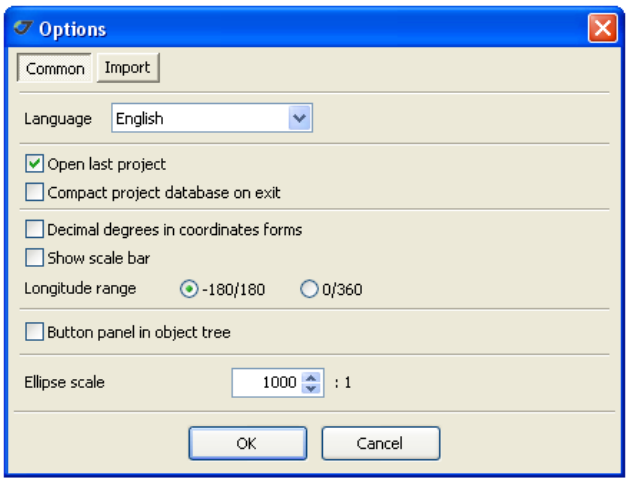

Figure 2-24. Common tab

3. In the *Language* drop-down list box select the language. English is set by default.
4. Enable the following options:
   - *Open last project* to open the last saved project when starting.
   - *Compact project database on exit* to compact the project database when exit. It might be useful in some cases to save disk space and optimize a project.
   - *Decimal degrees in coordinates form* to display coordinates in the decimal degrees format.
   - *Show scale bar* to show a scale bar on a map.
   - *Longitude range* specifies the range of displaying longitude. It may be either from -180 to 180 or from 0 to 360 degrees.
   - *Button panel in object tree* to open the button panel in the *Project* pane.

5. Click *OK* to save the changes and close the window.

2.5. Importing Files

Justin allows importing raw data files from a PC hard disk to a project. It can be implemented in one of the following ways:

- Importing a file or multiple files;
- Importing the whole folder;
- Importing the data from an existing project.

Justin allows importing the following file formats:

- JPS, TPS binary files
- RINEX files
- SP3 files
- Ashtech O- and SNAP-files

Note: The successfully imported raw data files are saved in the project and might be deleted from PC's hard disc after importing.

2.5.1. Importing a File

To import a file to the project follow the next steps:

1. Click *Import files* item from the *Project* menu or  on the Toolbar. The *Import files* dialog window appears (Figure 2-25):

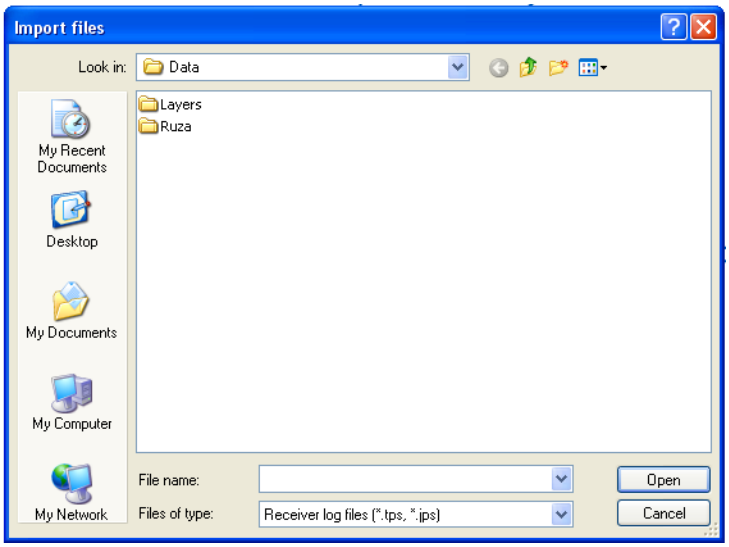

Figure 2-25. Import files dialog window

2. Select the type of file you want to import in the *Files of type* drop-down list.
3. Navigate to and select the desired file.

Note: To select multiple sequential files, press **Shift** and then use the **Up** and **Down** keys. To select nonsequential files press **Ctrl** and click the desired files.

4. Click *Open* to import the file to the current project.
5. In the *Import progress* window it will be shown the import progress, the name of the file being imported, and messages. It is possible to save the import status information into a file. See “Setting the Import Options” on page 34 for detailed information about this and other useful options.

To stop the import process click *Cancel* (Figure 2-26).

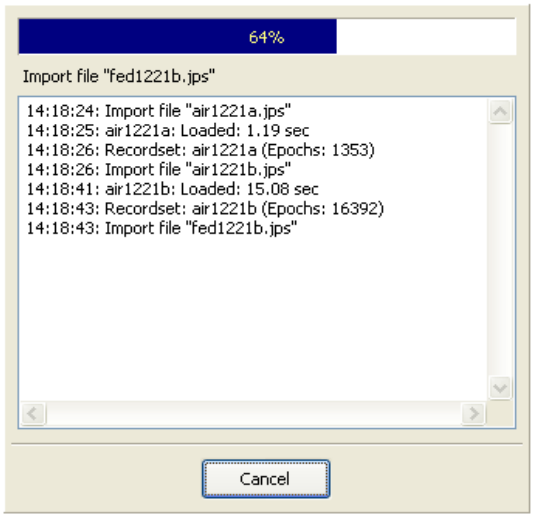

Figure 2-26. Import Progress window

6. If the import is successfully completed, the imported data will be shown in the *Source* tab of the *Project* pane and on the *Map* pane.

Note: Click the *Import log* item from the *Project* menu to open the `ImportLog.txt` file and see a detailed report about data import.

2.5.2. Importing a Folder with Raw Data

To import a folder to the project, follow the next steps:

1. Click *Import folder* item from the *Project* menu. The *Select path* dialog window.
2. Select the desired folder and click *OK*. It opens a window with the information about the import progress, the currently imported file, and errors.

Note: It is possible to import the .**O, .**G, .**N, and `.jps` files in the folder.

Note: If there are sub-folders in the imported folder, Justin runs through the sub-folders and extracts the required files to the project. During the importing data, Receiver IDs and time spans are tested due to avoid data duplication.

3. If the import is successfully completed, the imported data will be shown in the *Source* tab of the *Project* pane and on the *Map* pane.

2.5.3. Importing Data from a Project

To import data from a previously created project follow the next steps:

1. Click *Import from project* item from the *Project* menu. The *Open project* dialog window appears.
2. Select the desired file from the list.
3. Click *OK*.

2.5.4. Importing SNAP Files

To import SNAP files follow the next steps:

1. Click the *Source* tab in the *Project* pane.
2. Right-click the project name. In the pop-up menu (Figure 2-27) select *Import SNAP files*.

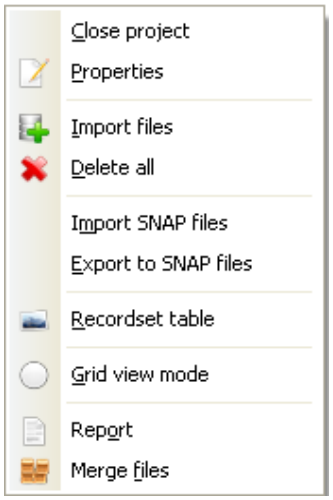

Figure 2-27. Import SNAP files

3. The *Select path* dialog window appears.

Note: This dialog window allows selecting a folder with a couple of SNAP files (station.dat and vector.dat).

4. Navigate to the desired folder and click *OK*.

2.5.5. Setting the Import Options

Use the *Options* dialog window to customize the *Import progress* window information:

1. Click the *Application* item from the *Options* menu.
2. Click the *Import* tab.

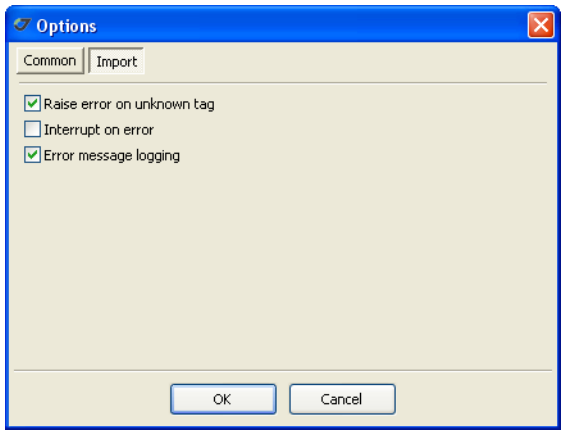

Figure 2-28. Options dialog window. Import tab

3. Enable the following options:

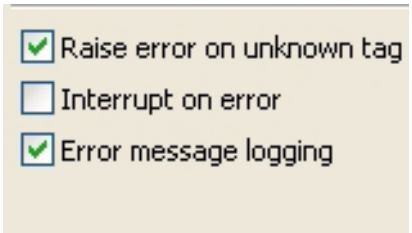

Figure 2-29. Import Options

- *Raise error on unknown tag* to display messages if any errors occur during importing a file.
- *Interrupt on error* to stop the import process if an error occurs.
- *Error message logging* to log the ImportLog.txt file.

4. Click *OK* to apply the changes.

Chapter 3

JUSTIN GIS FEATURES

This chapter describes how to manage the processed data using the Justin Map options and controls, and the basics of specific Justin GIS features.

3.1. Using a Toolbar and Map Menu

We recommend that you do not accomplishing any task on a map before you familiarize yourself with the operating elements and the map environment.

Some map menu items are duplicated in the tool bar. The following table summarizes the information on using the Justin toolbar and menu items.

Buttons	The Map Menu	Purpose
	Add layer	Add a layer to a map.
		Run Google Earth to display a network scheme on a map.
	Save	Save a map as a geoset.
	Show entire network	Display an entire network in the *Map* pane
		Select a point on a map.
	Zoom in	Zoom in the map image.
	Zoom out	Zoom out the map image.
	Move	Change the cursor to a hand and allows moving the map views.
	Distance	Change the cursor to a crosshair and allows measuring a distance between two points. The distance displays in the Status bar.
		Get coordinates from a map (it is used for georeferencing).

Buttons	The Map Menu	Purpose
		Open an additional pane on the left to display a map in a big scale.
		Make program layers accessible. It gives a result, if the  button is pressed.
		Previous map view.
		Next map view.

3.2. Using the Map Tab

Note: It is supposed that a project is open and the *Map* pane displays imported data files.

Justin allows performing the tasks on a map using the *Map* pane and the *Map* tab of the *Project* pane. The available actions are listed below. Detailed instructions are included under each bullet.

- Make a layer invisible.

Note: By default all layers are visible.

To hide a layer on the map, follow the next steps:

1. Click the *Map* tab in the *Project* pain.
2. Double-click the check box next to the layer, to clear the check box. The layer becomes invisible on the map.

- Make one layer visible. (Hide all the others.)

If you want to display one layer on the map and hide the others:

1. Click the *Map* tab in the *Project* pain.
2. Place the mouse cursor over the layer you want to display and click the right-mouse button.
3. In the pop-up menu select *Hide all layers except...*

- Change layer properties.

To change layer properties, follow the next steps:

1. Click the *Map* tab in the *Project* pain.
2. Place the mouse cursor over the layer and click the right-mouse button.
3. Select the desired option from the pop-up menu.

3.3. Using the Map Pane

It is possible to perform some tasks in the *Map* pane. The available actions are listed below. Detailed instructions are included under each bullet.

Note: It is supposed that a project is open and the *Map* pane is not empty.

- Zoom in and zoom out by using the mouse wheel.

- Run Google Earth and display the project on a map.

1. Make sure that Google Earth Version 4.0 or more is installed on your computer.
2. Click on the Toolbar. Justin runs Google Earth and displays the project location on the globe.

Note: If Google Earth displays a message and prompts you to update the version of Google Earth. Update it and click once more.

- Make a layer active.

To make a layer active, do the following steps:

1. Go to the Status bar.
2. Right-click within the *Edit layer* field.
3. Click the desired radio button in the pop-up menu (Figure 3-1). This layer becomes accessible on the map.

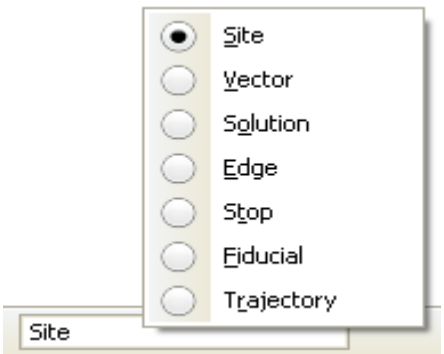

Figure 3-1. Edit layer pop-up menu

- Select an object.

To select an object, do the following steps:

1. Click  on the Tool bar. The mouse cursor changes to an arrow with which to select an object.
2. Place the arrow over the object and left-click the mouse button.

- Use an object's pop-up menu.

To open the object's pop-up menu, follow the next steps:

1. Select a desired object on the map.
2. Right-click the object.
3. Use the pop-up menu to accomplish your task.

Note: The options displayed on the pop-up menu vary depending on what you have selected. You will see different menus when you right-click on a vector or a site. See the Figure 3-2 for example.

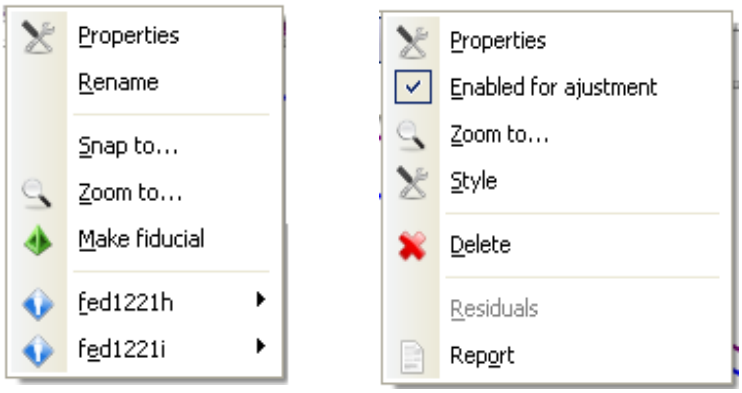

Figure 3-2. Site (on the left) and solution (on the right) pop-up menus

PROCESSING

4.1. Processing in Automatic Mode

Processing starts automatically after finishing the data files import. This option is set by default in the *Project properties* dialog window (see on page 18 how to set the automatic process).

When the file import is completed successfully (see “Importing Files” on page 30 how to import the raw data files), the *Batch process* window appears (Figure 4-1):

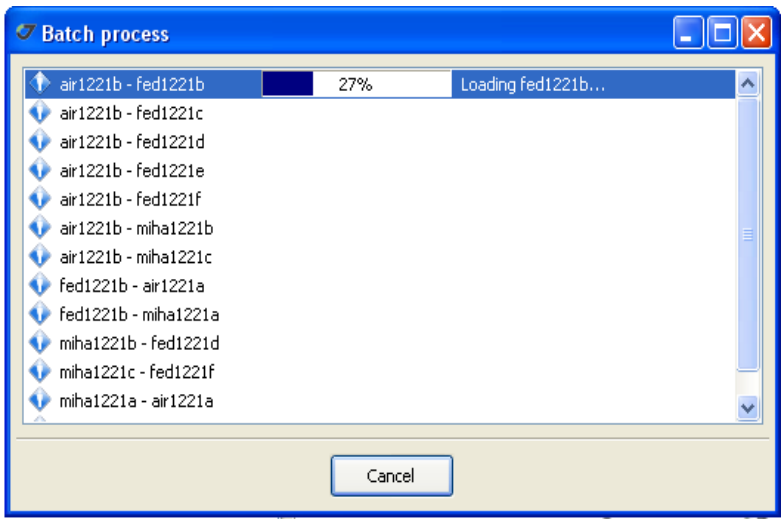

Figure 4-1. Batch process window

To stop the files processing, click *Cancel*.

When the *Batch process* window closes, click the *Process* tab of the *Project* pane, to see the computed vectors tree. It looks like this (Figure 4-2):

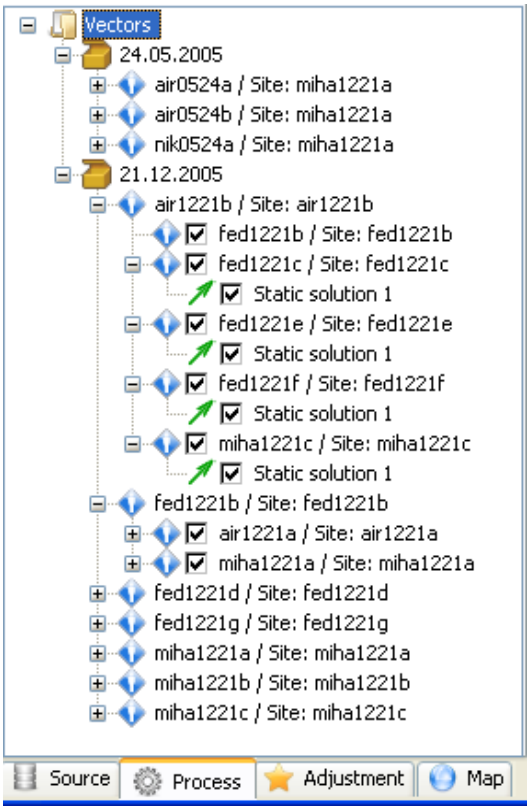

Figure 4-2. Project pane. Process tab

The vectors tree has the following structure:

- The first node is the data of raw data files creation;
- The second is the beginning point node (or base for kinematic). The beginning point node is expanded to show an end point node (or rover). If the vector has been processed, the end point node expands to reveal a solution.

To expand a level, double-click ⊞ next to desired level.

4.2. Single Vector Processing in Manual Mode

To process single vector in manual mode, follow the next steps:

1. Click the *Process* tab of the *Project* pane. Right-click the desired vector in the *Project* pane. Or right-click the desired vector on the *Map* pane. The pop-up menu opens (Figure 4-3):

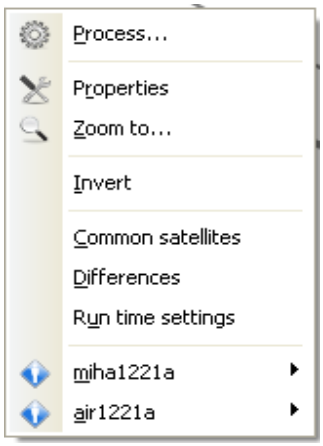

Figure 4-3. Vector pop-up menu

2. Select *Process*. The Processing progress bar appears.
3. In the *Project* pane, the ⊞ button appears next to the processed vector. Click the ⊞ button, to view the solution. In the *Map* pane, a new object appears in the Solution layer.

Note: You can define a solution displaying style in the *Map* pane. Use *Style* item from the solution's pop-up menu to set a line color.

4.3. Group of Vectors Processing in Manual Mode

If it is necessary to process more, than one vector follow the next steps:

1. Right-click one of the following nodes:
   - The *Vectors* node (*Project* pane, *Process* tab) to process all vectors contained in the current project.
   - The *Data* node (under the *Vectors* node) to process vectors measured on this date.
   - The *Beginning point* node to process vectors relating to the beginning point.
2. In the pop-up menu click *Process all*. The *Batch process* window appears.

4.4. Single Vector Processing in Interactive Mode

To process single vector in interactive mode, follow the next steps:

1. Right-click the desired vector in the *Project* pane. Or right-click the desired vector on the *Map* pane. The pop-up menu appears (Figure 4-4).

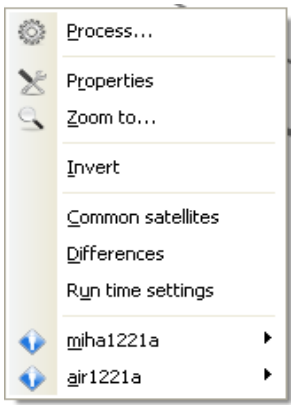

Figure 4-4. Vector pop-up menu

2. From the pop-up menu, select *Run time settings* it opens a new pane allowing the user to change the settings.

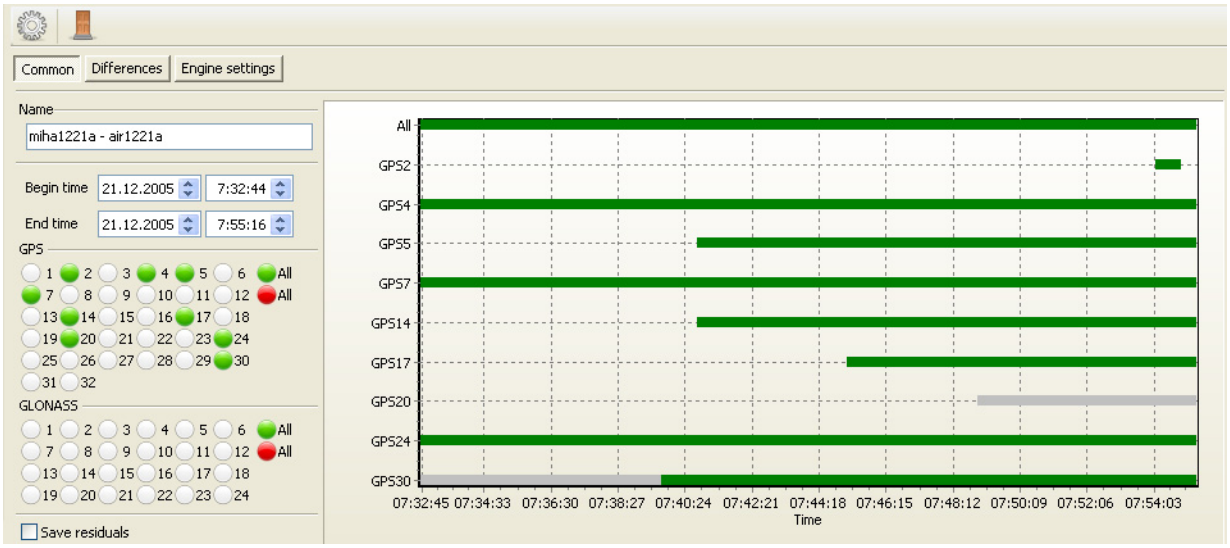

Figure 4-5. Run time settings Window

1. Change the settings as you need. Use the **Shift** and **Ctrl** keys to limit time intervals.
2. To run *Process*, click  .

4.5. Saving Residuals

Note: Process yields residuals as a result of subtraction observed and calculated double differenced carrier phase values.

Justin allows saving residuals using:

- *Process properties* dialog window.
- *Run time setting* window.

To save residuals using *Process properties* dialog window, follow the next steps:

1. Click the *Process* tab of the *Project* pane.
2. Right-click the *Vector* node.
3. On the pop-up menu click *Process properties* (Figure 4-6).

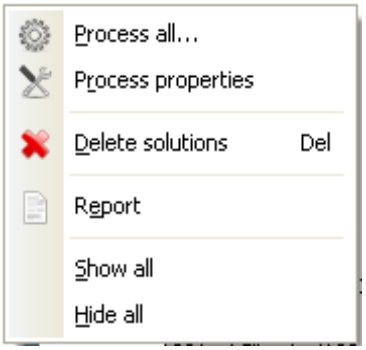

Figure 4-6. Vector node pop-up menu

4. On the *Process properties* dialog window select the *Save residuals* check box.
5. Click *OK*.

To save residuals using the *Run time setting* window, follow the next steps:

1. Select an unprocessed vector in the *Project* pane or *Map* pane.

2. Right-click the selected vector, to open the pop-up menu (Figure 4-7).

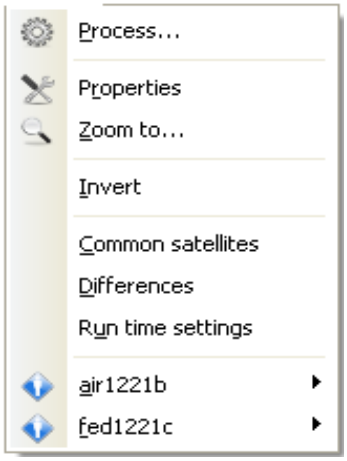

Figure 4-7. Vector pop-up menu

3. Select *Run time settings*. It opens the *Run time settings* window.
4. Select the *Save residuals* check box.
5. Click  .

Chapter 5

ADJUSTMENT

5.1. Running Adjustment Automatically

This method works when a project is open, but data files are not imported yet. In this case, do the following steps:

1. Select *Properties* item from the *Project* menu or click  on the toolbar. The *Project properties* dialog window opens.
2. Open the *Fiducial points* tab to copy the desired fiducial points from the Justin database to the project. It allows snapping sites to the fiducial points.
3. Select the *Scenario* tab.
4. Select the *Processing* and *Adjustment* check boxes.
5. Click *OK*. Justin implements the adjustment automatically when the file import has been completed successfully.
6. Select the *Adjustment* tab of the *Project* pane to check the adjustment process is over.

Justin uses the following adjustment parameters by default (see “Setting Adjustment Parameters” for detailed information about adjustment parameters):

- Mode: XYZ
- Blunders: Automatic
- Tau test
- Transformation: None
- Constraints: Fixed constraints.

5.2. Running Adjustment Manually

To adjust the network follow the next steps:

1. Open the *Adjustment* tab of the *Project* pane.
2. Right-click the *Network* node. The pop-up menu appears.

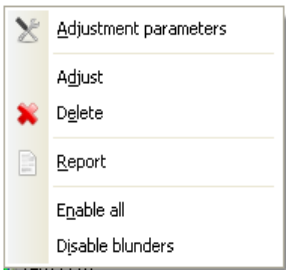

Figure 5-1. Network pop-up menu

3. Select *Adjustment parameters*, to change the adjustment parameters.
4. Select *Adjust*, to run the adjustment process.

5.2.1. Setting Adjustment Parameters

To set up the desired adjustment parameters follow the next steps:

1. Open the *Adjustment* tab of the *Project* pane.
2. Right-click the *Network* node.

3. In the pop-up menu select *Adjustment* parameters. The *Adjustment Parameters* dialog window appears (Figure 5-1).

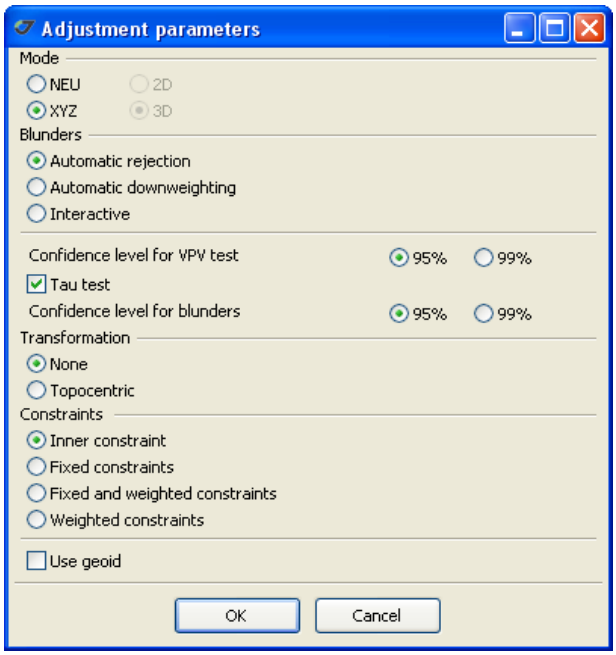

Figure 5-2. Adjustment parameters dialog window

4. Select the desired parameters as explained below:
   - In the *Mode* group select a coordinate system (either *NEU* or *XYZ*) in which Justin will adjust.

Note: To separate vertical errors select the *NEU* radio button. To mark blunders on the *Map* pane select *2D/3D*.

   - In the *Blunders* group select either *Automatic* or *Interactive*. *Automatic* is set by default.
   - Select a confidence level (either 95% or 99%) for the Chi-squares and the blunder detection tests.

Note: If the 95% confidence level is selected the more strict condition for rejecting blunders as the 99% confidence level are set. The 99% confidence level means that the probability is 0.99 and fewer blunders will be detected.

   - In the *Transformation* group select either *None* (no transformation parameters will be estimated) or *Topocentric* (transformation parameters will be determined). *None* is set by default.
   - In the *Constraints* group select one of the following:

- *Inner constraint* performs the adjustment of the given vector network based on only inner constraints of the network. It is used to detect blunders.
- *Fixed constraints* performs the adjustment based on control points, which will be treated as stiff points. The control points Sigmas will be ignored.
- *Fixed and weighted constraints* performs the adjustment, in which adjusted points accuracy depends on control points Sigmas.
- *Weighted constraints* solves the whole task of network adjustment (including control points coordinates).

- The *Use geoid* check box specifies whether the geoid model will be used to convert ellipsoidal and orthometric heights or no.

5. Click *OK* to apply changes and close the window.

Chapter 6

REPORTS

It is possible to define various forms of reports depending on situation in which the report option has been activated. You can generate reports one of the following ways:

- by selecting the check boxes in the *Reports* group of the *Project properties* dialog window;
- by selecting *Report* from the pop-up menu after right-click on a solution or the *Vectors* node of the *Process* tab;
- by selecting *Report* from the pop-up menu after right-click on the *Network* node of the *Adjustment* tab.

6.1. Solution Reports

To generate a solution report follow the next steps:

1. Select the *Process* tab of the *Project* pane.
2. Right-click a desired solution to open the pop-up menu. Or right-click a desired solution in the *Map* pane (Figure 6-1).

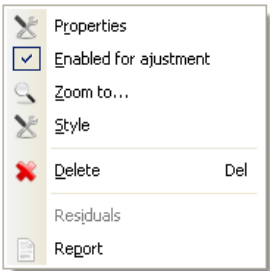

Figure 6-1. Creating a solution report

3. Click *Report*. The solution report will be generated and displayed as `.txt` file.

6.2. Vector Reports

To create a vector report, do the following steps:

1. Select the *Process* tab of the *Project* pane.
2. Right-click the *Vectors* node to open the vector's pop-up menu (Figure 6-2).

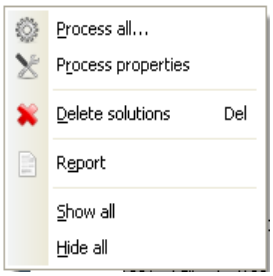

Figure 6-2. Creating a vector report

3. Click *Report.* The *Report* dialog window appears.
4. In the *Report* dialog window click the *Static* tab.
5. Select the *Available* node to get a report for all vectors of the project, or select the desired vectors (Figure 6-3).

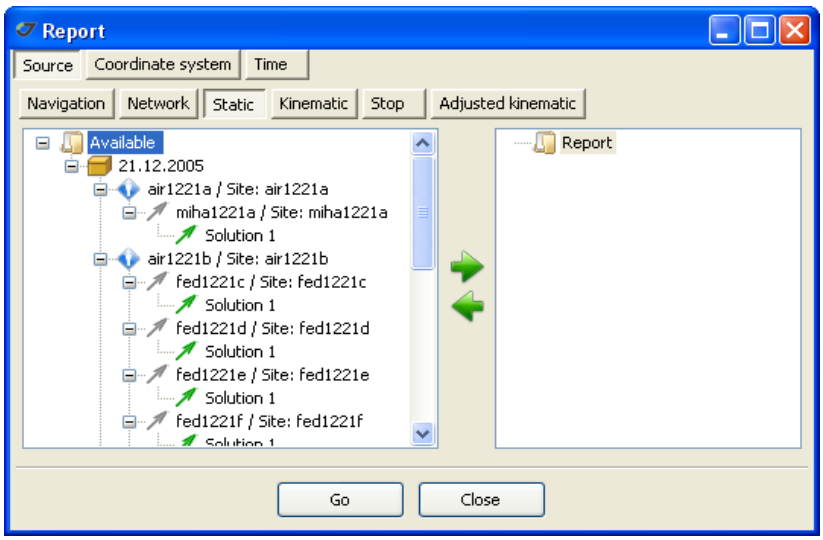

Figure 6-3. Report dialog window. Static button

6. Drag the *Available* node/selected vectors under the *Report* node. Or click  .
7. Click *Go* to generate the report.

6.3. Adjustment Reports

To create an adjustment report follow the next steps:

1. Select the *Adjustment* tab of the Project pane.
2. Right-click the *Network* node
3. In the pop-up menu, click *Report*. It opens the *Report* dialog window (Figure 6-4).

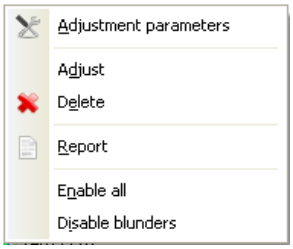

Figure 6-4. Creating an adjustment report

4. In the *Report* dialog window click the *Network* button (Figure 6-5).

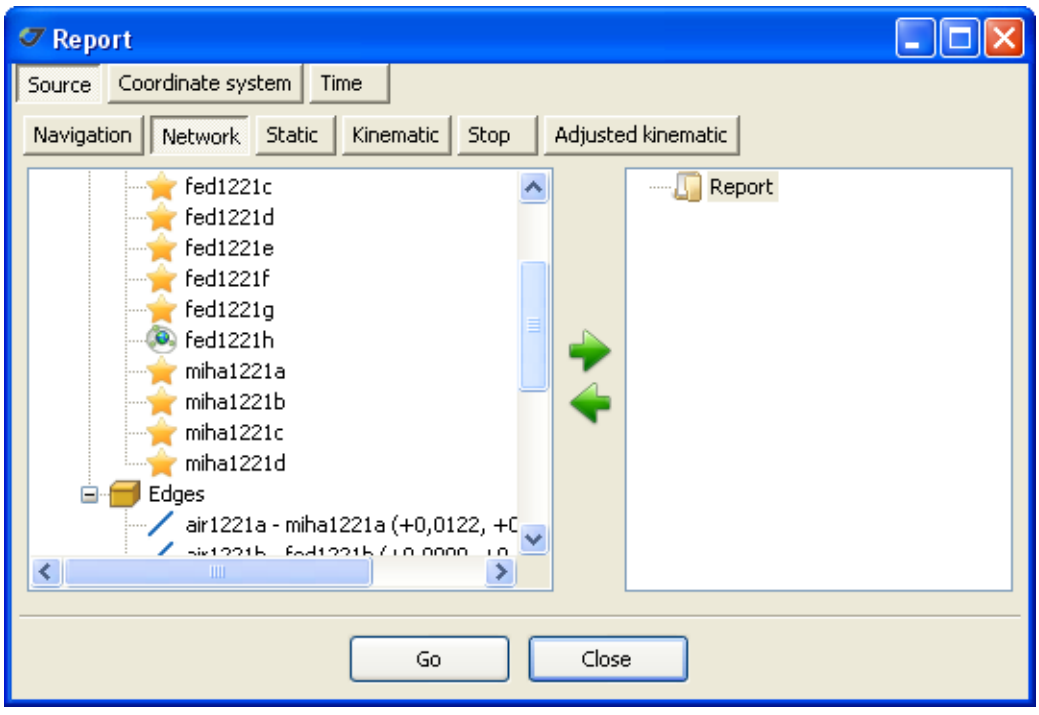

Figure 6-5. Report dialog window. Network button

5. Select the *Available* node, to get a report for the whole network, or select network components you want to see in the report.
6. Drag the *Available* node/selected components under the *Report* node. Or click  .
7. Click *Go*, to generate the report.

Note: If you have adjusted with *Inner* or *Weighted constraints*, snapped Sites and Nodes coordinates differ.

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