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SeisPlan

OPERATION MANUAL

DISCLAIMER
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TECHNICAL SUPPORT
Support for licensed users on any topics covered in this manual and for the use of the software described herein may be obtained from:

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1 OVERVIEW

SeisPlan is a Microsoft Windows based software program for the creation of preplots for marine seismic surveys. It is designed to be used in a single or multi-user environment.

This manual describes the operational steps required to produce a full set of preplot outputs.

The installation and licensing of this program is documented separately from this manual.

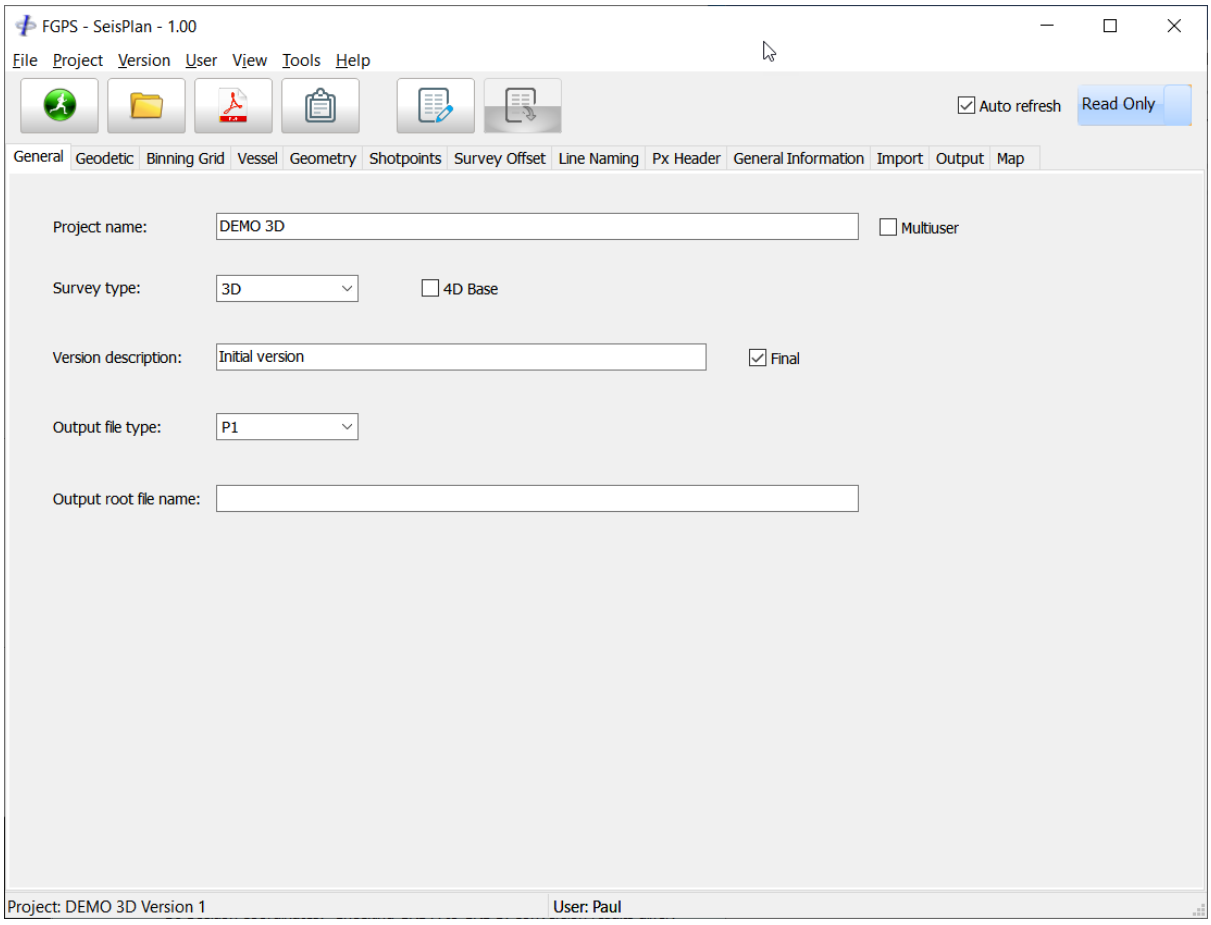

Figure 1-1 – Main Window

1.1 Main Menu

1.1.1 File

Printer Setup:	Open the printer setup dialog.
Exit:	Close the program. A prompt will appear to save unsaved changes.

1.1.2 Project

New:	Create a new project.
Open:	Open an existing project.
Save:	Save the current project
Save As:	Save the current project file as a different project file.
Recent Projects:	Open one of the last 10 most recently opened projects.
Delete:	Delete a project.
Open Project Folder:	Open the project folder.
Open Input Folder:	Open the project input folder.
Open Output Folder:	Open the project output folder.
Open Reports Folder:	Open the project reports folder.
Open Change Log:	Open the Change Log.

1.1.3 Version

Open Version:	Select a version from the sub-menu to open.

New Version:	Increment the version number, copying the current parameter set to the new version, and open that version in the user interface.
Delete Version:	Select a version from the sub-menu to delete.

1.1.4 User

Change:	Change to a different user.
Manage:	Open the *User Manager*.

1.1.5 View

Plot:	Toggle the visibility of the interactive plot display.
Log:	Toggle the visibility of the log.

1.1.6 Tools

Options:	Open the *Options* dialog. See section 1.4.
Manage Templates:	Open the *Template Manager*.
Import P6 File:	Import a P6/xx file. See section 4.
Import P1Tools Preplot Project:	Import preplot project file (*.ppf) created by the P1Tools Preplot module. **Note:** Some parameters in SeisPlan are no present in the P1Tools project file and will need to be set.
Coordinate Conversions:	Open the coordinate conversion window.

1.1.7 Help

Manual:	Open the user manual. Requires PDF file viewer.
CRS Manual:	Open the CRS manual. Requires PDF file viewer.
Release Notes:	Open the release notes. Requires PDF file viewer.
Online Services:	Provides utilities to upload project files to the FGPS server and to un-compress archived projects to a specified location.
Licence:	Open the licensing dialog.
Check for Updates:	Check for the availability of a program update.
About:	Display the program version, licence number, support contact details and number of days remaining in the case of a time limited licence.

1.2 Main Toolbar


Run

Run the preplot. Icon changes to red to indicate that the preplot has not been run since the last parameter change.


Open Output Folder

Open the specified project output folder in Windows Explorer.


PDF Report

Open the PDF report using the default PDF viewer.


Text Report

Open the text report.

Edit Input Coordinate File

Open the input coordinate file for editing. The contents of this file will be records defining a polygon (3D surveys) or line waypoints (2D surveys).

Save Input Coordinate File

Save the input coordinate file(s). This button is only enabled if the polygon or line waypoint file has been interactively edited.

1.3 Projects

The project folder is the default location under which all project related files are maintained for a single preplot project. This folder is specified when creating a new project – *Project* | *New* – or saving the current project – *Project* | *Save As*.

The project folder for multiuser access must have full access permission for all users on the network.

The project name is hereinafter referred to as <*project_name*>.
The specified project folder is hereinafter referred to as <*project_folder*>.

Geodetic parameters are saved to the database file <*project_folder*>\<*Project Name*>.gpf

Computed sail lines and change logs are saved to the database file <*project_folder*>\<*project_name*>.db

All other parameters are saved to the file <*project_folder*>\<*project_name*>.spprj

The current project name is displayed in the status bar at the bottom of the main window.

When any parameter is changed, the user will be prompted to save the project when attempting to open a different project or exit the program.

1.4 Options

From the main menu select *Tools* | *Options*.

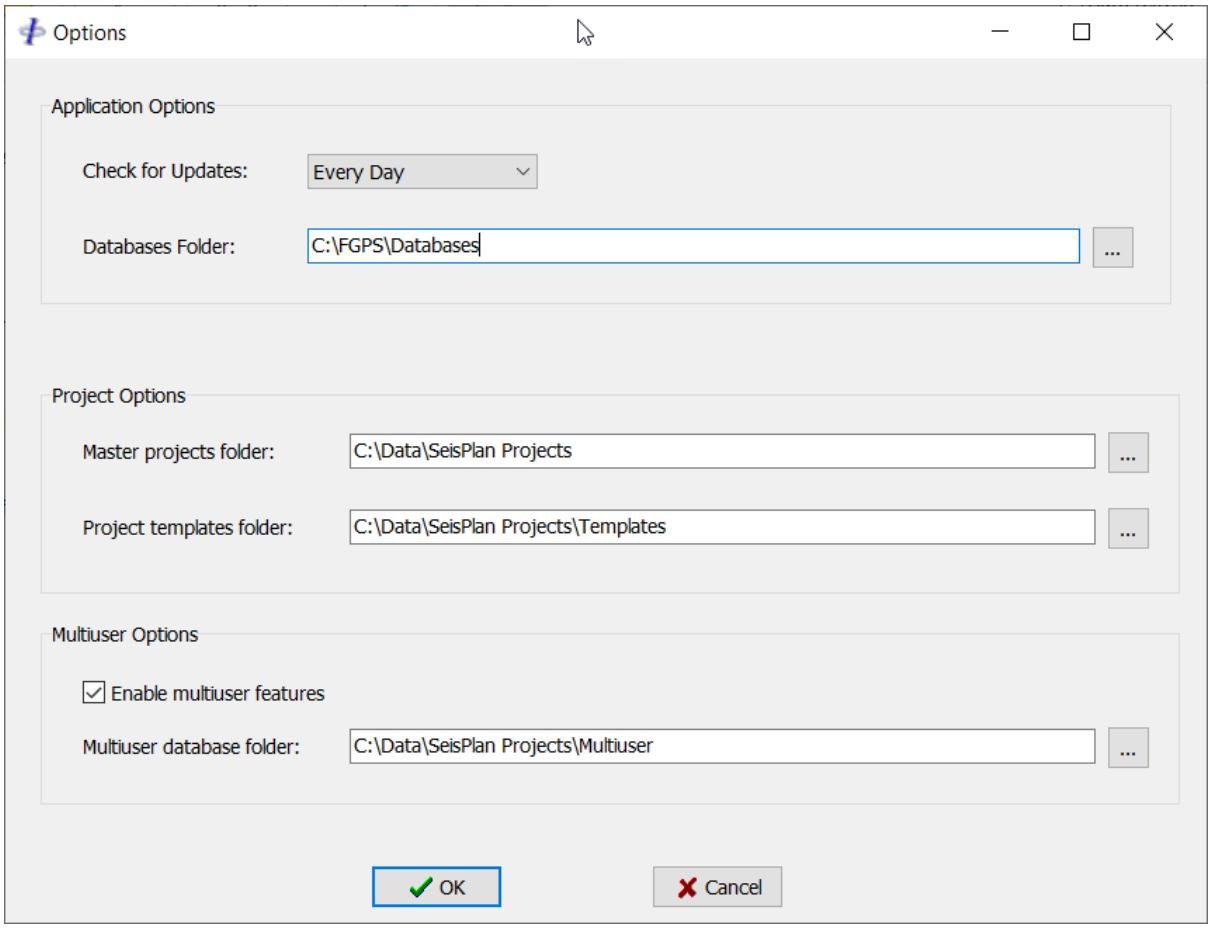

Figure 1-2 – Options

Application Options:

Check for updates: Select the frequency of checks for application updates. Internet connection is required.

Databases Folder: Select the folder location of the shared databases for all FGPS applications. The default location is *C:\FGPS\Databases*.

Caution: Only change this folder if the databases folder is moved from the default location.

Project Options:

Master projects folder: Specify the default folder in which new projects will be created.

Project templates folder: Specify the folder in which templates, **.sptmpl* , for all projects are stored. See section 4.

This folder should be accessible by all users.

Multiuser Options:

Enable multiuser features: Enable multiuser features.

Multiuser database folder: Specify the folder in which the user database file, *seisplan_multiuser.db* is stored.

This folder should be accessible by all users.

2 MULTIUSER OPERATION

SeisPlan may be used in both single user and multiuser modes. Before multiuser mode can be used at least one user must be set up in the *User Manager*.

2.1 Multiuser Database

The multiuser database contains the list of users. The folder location for this file can be set by selecting from the menu *Tools* | *Options*. This folder must have full access permission for all users on the network.

2.2 User Manager

From the main menu select *User* | *Manager*.

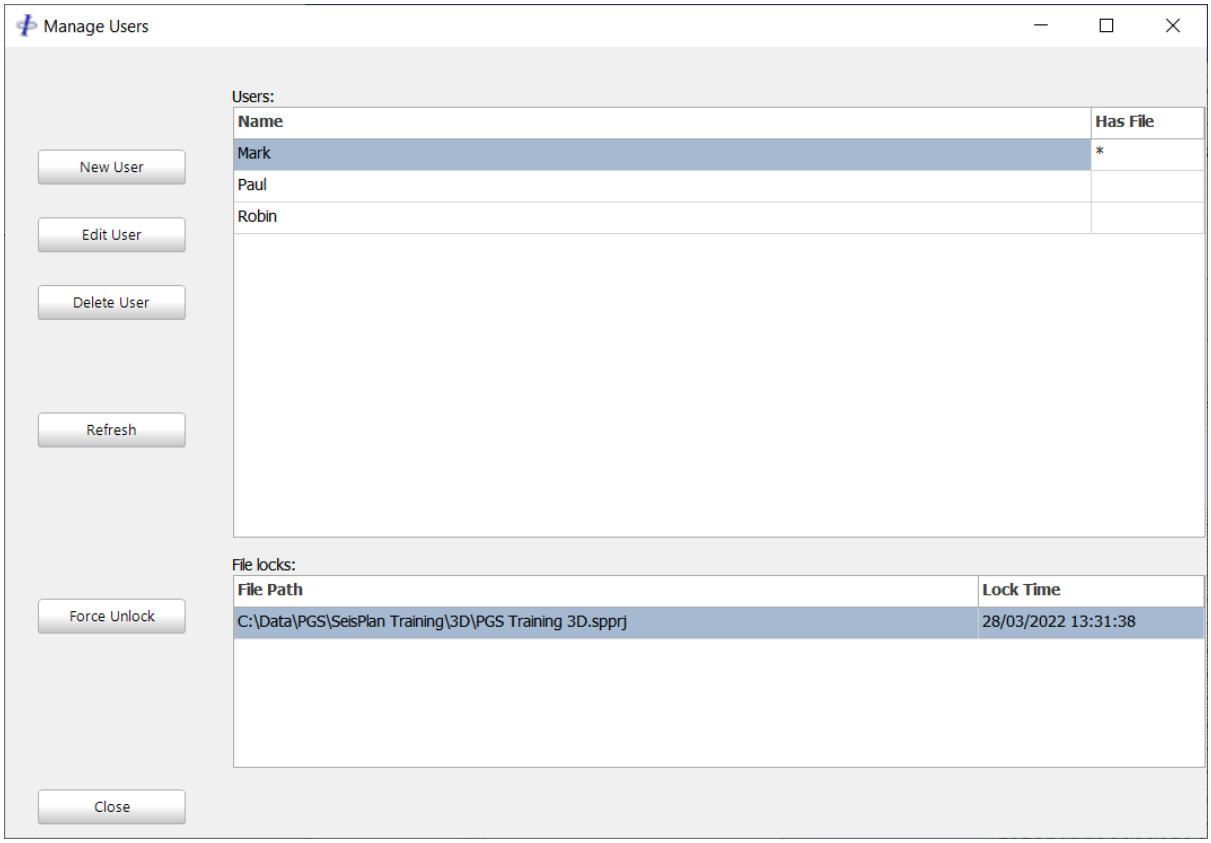

Figure 2-1 – User Manager

New User: Click to create a new user and enter a unique user name.

Edit User:	In the user list, select the user to be edited and click to edit this user name.
Delete User:	In the user list, select the user to be deleted and click to delete this name.
Refresh:	Refresh the tables.
Force unlock:	Click to unlock the selected project in the *File Locks* table.
Close:	Exit the *User Manager*.

2.3 Setting the Current user

To set the current user for the local machine, from the main menu select *User* | *Change*, and select the username from the list.

3 CHANGE LOG

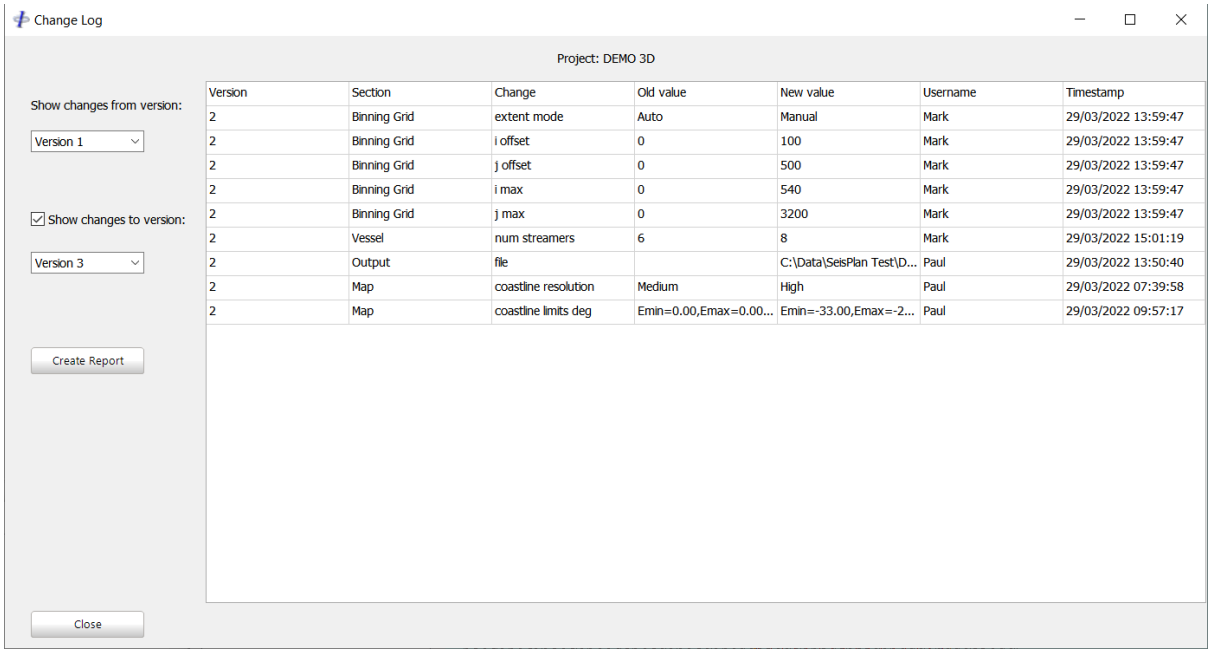

Figure 3-1 – Change Log

The change log records parameter changes in a project from its creation. Log entries are made every time the project is saved. The change log is saved in the project database file – see section 1.3.

To view the change log, from the main menu select *Project* | *Open Change Log*.

3.1 Report

Click the *Report* button to produce the change log report in PDF format which is saved in the folder <*project_folder*>*Reports*.

3.2 Versions

To view a sub-set of changes for a range of versions select the versions) from the version dropdown lists.

3.3 Fields

The following fields are presented for each entry:

Version: The version of the project in which the change was made.

Section: The parameter section in which the change was made.

Change: The name of the parameter that was changed.

Old value: The previous parameter value.

New value: The new parameter value.

Username: The name of the user who made the change.

Timestamp: The date and time of the change.

4 TEMPLATES

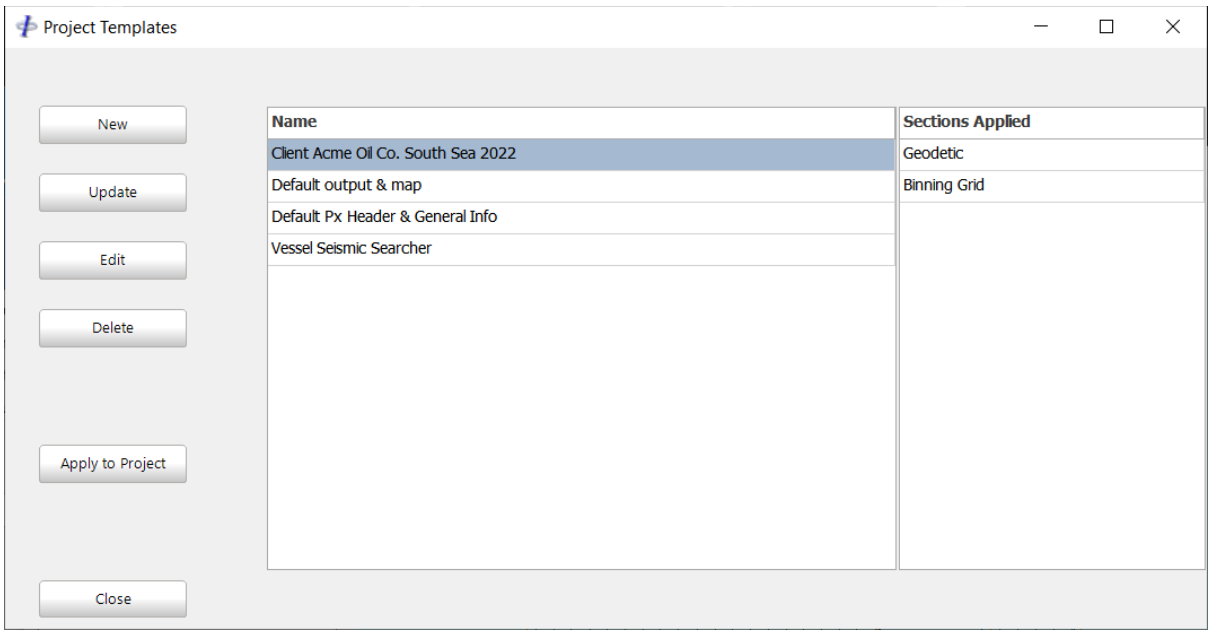

Figure 4-1 – Templates

Templates are used to save sets of parameters which may be applied to any project.

To open the *Template Manager*, from the main menu select *Tools* | *Manage Templates*.

The template manager controls are described as follows:

New: Create a new template. (Figure 4-2).

Enter a name for the template and select which sections to include in the template. The template will include all parameter values from the selected sections.

The project must be saved before creating the template.

Update: Update the selected template's sections with the current parameter set.

The project must be saved before updating the template.

Edit: Edit the selected template to change its name and add or remove sections.

Apply to project: Apply the selected templates to the current project.

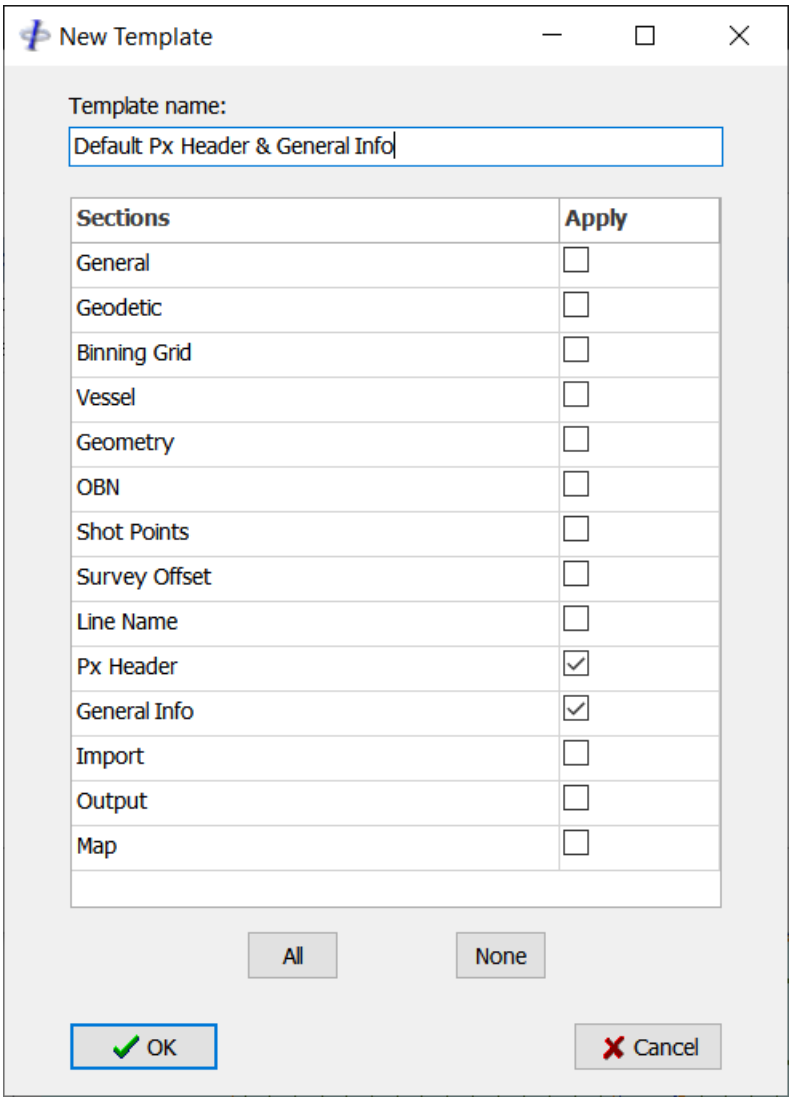

Figure 4-2 – Create / Edit Template

The template settings are saved in the specified multiuser folder (multiuser mode) or the folder <*seisplan_program_folder*>\Project (single user mode).

The template files have the filename extension *sptmpl*.

5 IMPORT P6

Binning grid parameters may be set by importing a P6/98 or P6/11. From the main menu select *Tools* | *Import P6 File*.

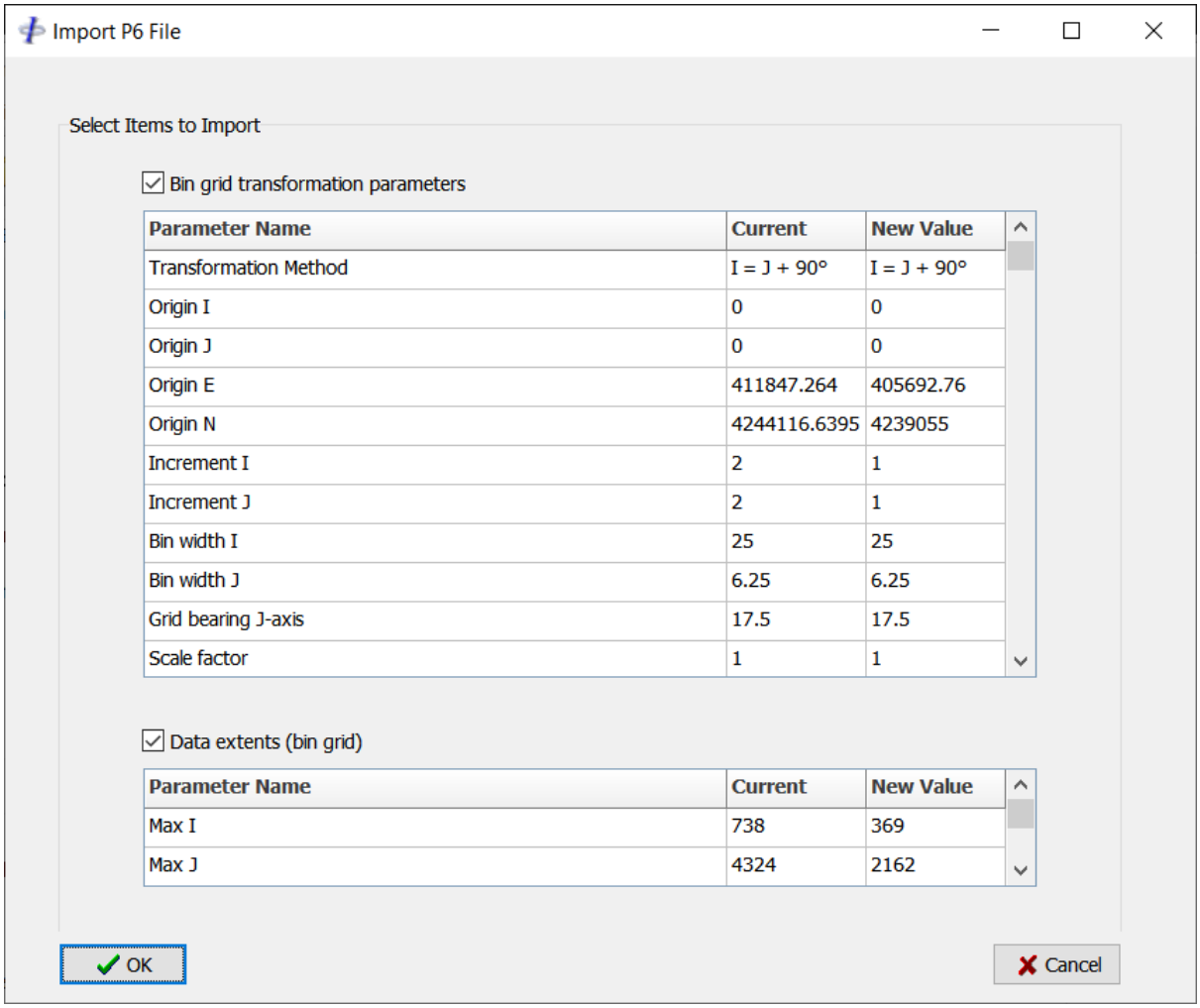

Figure 5-1 – Import P6

The import dialog displays the parameters in the file alongside the existing parameters. The import is divided into two sections, bin grid transformation and data extents. The user may select by checking the relevant checkboxes which of these parameter sets to import. See Figure 5-1.

After importing the P6, the parameters are updated and those previously set to *Automatic* are change to *Manual*.

Once the import has been made, save the project to keep the changes.

6 PARAMETERS

The parameters and settings required to define a run the preplot are divided into a number of pages, each accessible by clicking on the tabs below the main toolbar.

The parameters are defined in the tables in the following sections and are appliable to all survey types, or, only to the survey types listed in column two of the tables.

Geodetic definitions are described in section 6.2.

6.1 General Parameters

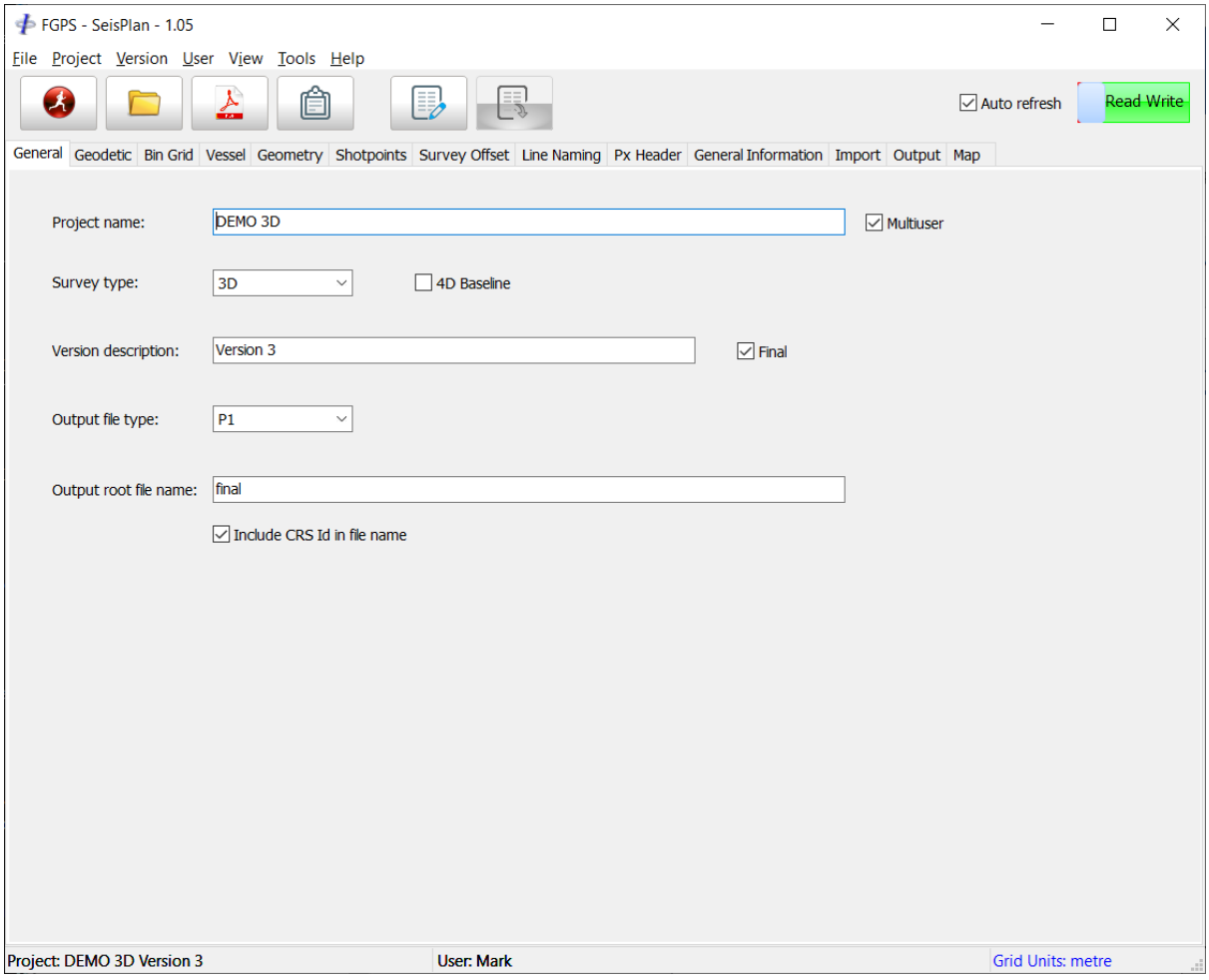

Figure 6-1 – General Parameters

Parameter	**Survey types**	**Description**
Project name:		Project name.
Multiuser:		Set the project as multiuser. The project will be shared amongst users and will be subject to access permission rules. See section 0.
Survey type:		Select from: • 3D • 2D • OBN • 3D Segmented • Spiral • Circle • Coil When setting the survey type, some of parameters throughout the user interface may change according to the survey type.
4D Baseline:	3D, 3D Segmented	Set this survey to 4D baseline. This option enables additional parameters in other sections. Sail lines will be calculated with layback and run-outs applied, in both the nominal and reciprocal directions.
Version description:		Version description.
Final:		Check the checkbox to set this as the project version for which the deliverable outputs are produced.

Output file type:	Select from: *P1:* output P1/90 and/or P1/11 *SPS S:* output SPS source *SPS R:* output SPS receiver *SPS Pair:* output SPS source and receiver. Only applies to *3D*, *3D Segmented* and *OBN* survey types.
SPS format:	Select from: *Revision 1.0* *Revision 2.1*
Output root file name:	Enter the output root file name.
Include CRS Id in file name:	Check to include in all output files the CRS short name as defined in the Geodetic parameters page.

6.2 Geodetic Parameters

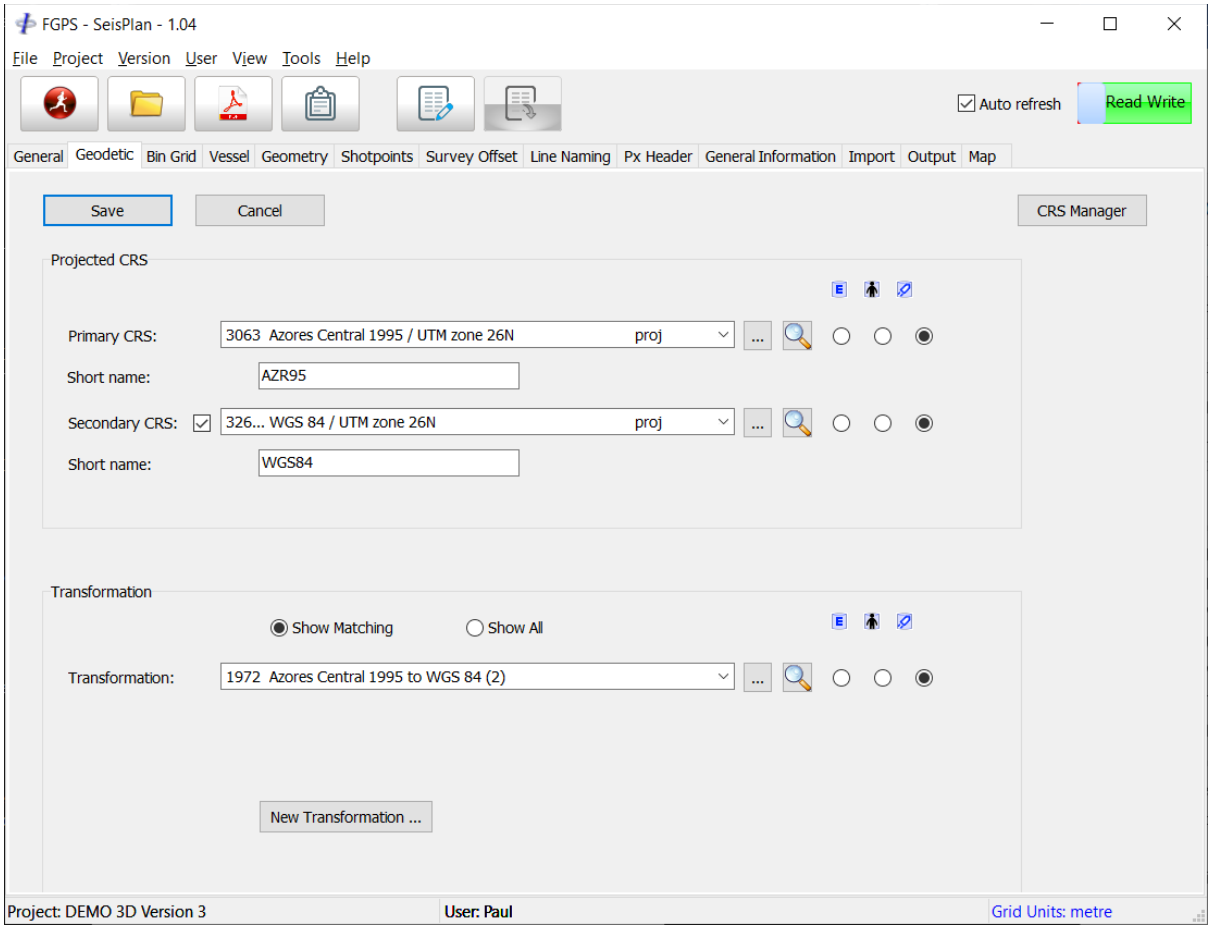

Figure 6-2 – Geodetic

Geodetic parameters, with the exception of the binning grid parameters are specified in the *Geodetic Parameters* page.

To edit the parameters, click the *Edit* button. The page will appear with additional controls enabled as shown in Figure 6-2 below.

E	Select from the EPSG database.
	Select from the User database.
	Select from the Working database.
Short name:	This name is used in the output file naming, Optional.

To save changes click the *Save button* then from the main menu select *Project* | *Save*.

The binning grid parameters are specified in the Binning Grid page. Refer to section 6.3.

For details on the *CRS Manager* refer to the CRS manual.

6.3 Bin Grid

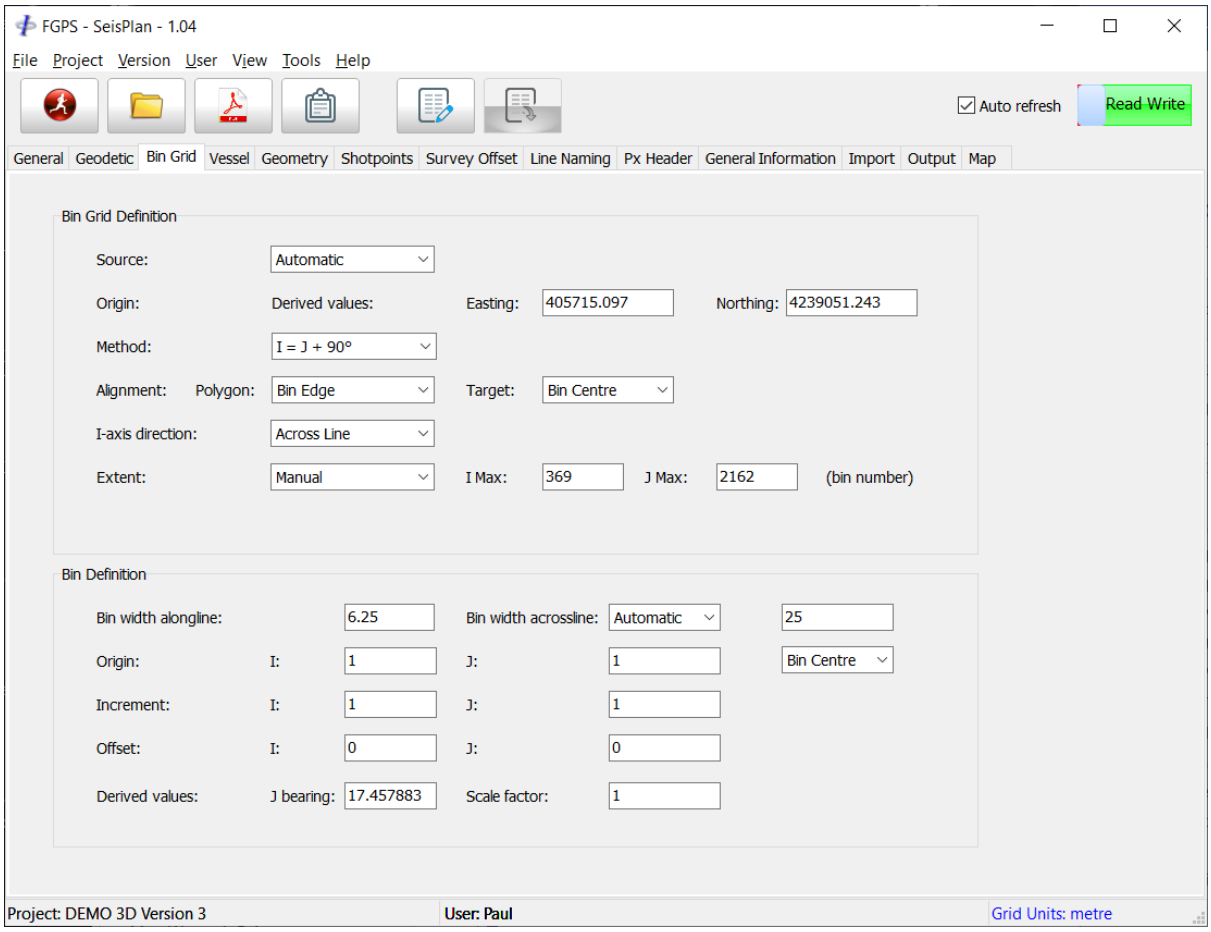

Figure 6-3 – Bin Grid

Parameter	Survey types	Description

Source:	3D, 3D Segmented, OBN	Select from: *Automatic:* the bin grid origin is automatically calculated to best fit the polygon. *Manual:* the bin grid origin is specified.
Origin coordinate type:	3D, 3D Segmented, OBN	Select *Grid* or *Geographic*.
Easting or latitude:	3D, 3D Segmented, OBN	Enter bin grid origin easting or latitude. This field is read-only when *Source* is set to *Automatic*.
Northing or longitude:	3D, 3D Segmented, OBN	Enter bin grid origin northing or longitude. This field is read-only when *Source* is set to *Automatic*.
Method:	3D, 3D Segmented, OBN	Select from: *I = J + 90°:* the I axis is 90° clockwise from the J axis (EPSG coordinate operation method 9666). *I = J – 90°:* the I axis is 90° anticlockwise from the J axis (EPSG coordinate operation method 1049).
Polygon alignment:	3D, 3D Segmented, OBN	Only applies to automatic bin grid definition. Select from: *Bin Centre*: polygon corner nearest grid origin will be aligned with the centre of a bin. *Bin Edge:* polygon corner nearest grid origin will be aligned with corner of bin.

Target alignment:	3D, 3D Segmented	Only applies when *Polygon Alignment* is set to *Bin Edge*. Is always *Bin* Centre when *Polygon Alignment* is set to *Bin Centre.* Select from: *Bin Centre*: start of line waypoint will be aligned with the centre of a bin. *Bin Edge:* start of line waypoint will be aligned with edge of bin.
I-axis direction:	3D, 3D Segmented, OBN	Select from: *Across Line:* I-axis will be in the across line direction. *Along Line:* I-axis will be in the along line direction. NOTE: the J-axis orientation is calculated from the sail line direction specified in the *Geometry* parameters.
Extent:	3D, 3D Segmented, OBN	Select from: *Automatic:* the bin grid extents will be calculated from the polygon. *Manual:* the bin grid extents, in bin numbers, are manually entered.
Bin width along line:	3D, 3D Segmented, OBN	Enter the bin width in grid units.
Bin width across line:	3D, 3D Segmented, OBN	Select from: *Automatic:* bin width will be calculated according to source and streamer separation. *Manual:* Enter the bin width in grid units.

Origin I and J:	3D, 3D Segmented, OBN	Enter the bin I and J coordinates at the bin grid origin. From the dropdown list select from: *Bin Centre:* the bin grid origin is defined at the bin centre. *Bin Corner:* the bin grid origin is defined at the bin corner. NOTE: This defines the position within the bin that the bin coordinates refer to.
Increment I and J:	3D, 3D Segmented, OBN	Enter the bin number increment of the I and J axes.
Offset:	3D, 3D Segmented, OBN	Only applies when bin grid definition is set to automatic. Enter the number of bins by which to shift the origin away from the polygon. See Figure 6-4 and Figure 6-5.
Derived Values:	3D, 3D Segmented, OBN	*J* bearing: The bearing of the J-axis. For 3D survey types this is the line direction as specified in the *Geometry* page. *Scale factor*: See section 6.3.21.

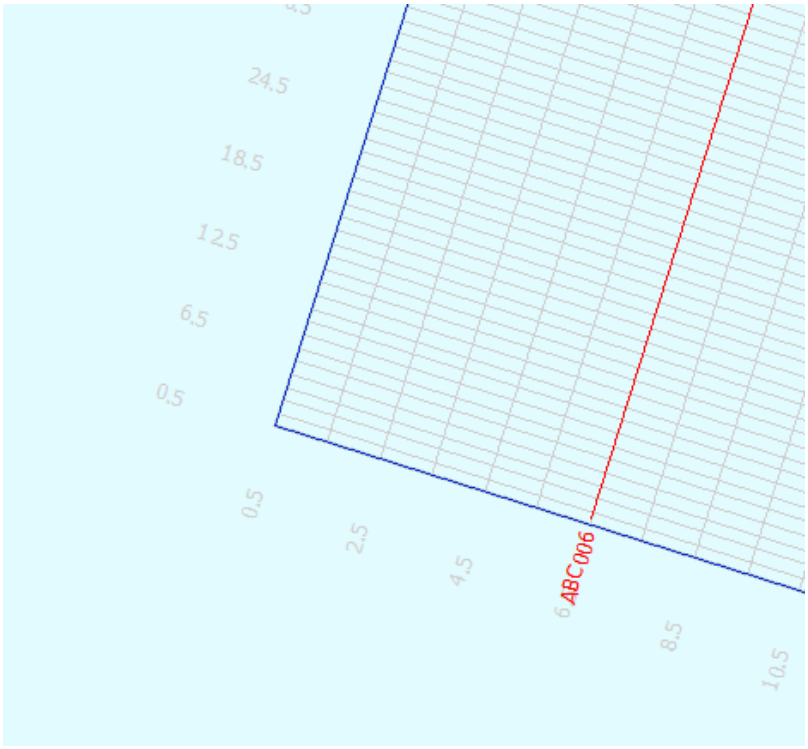

Figure 6-4 – Preplot: automatic bin grid origin with no offset

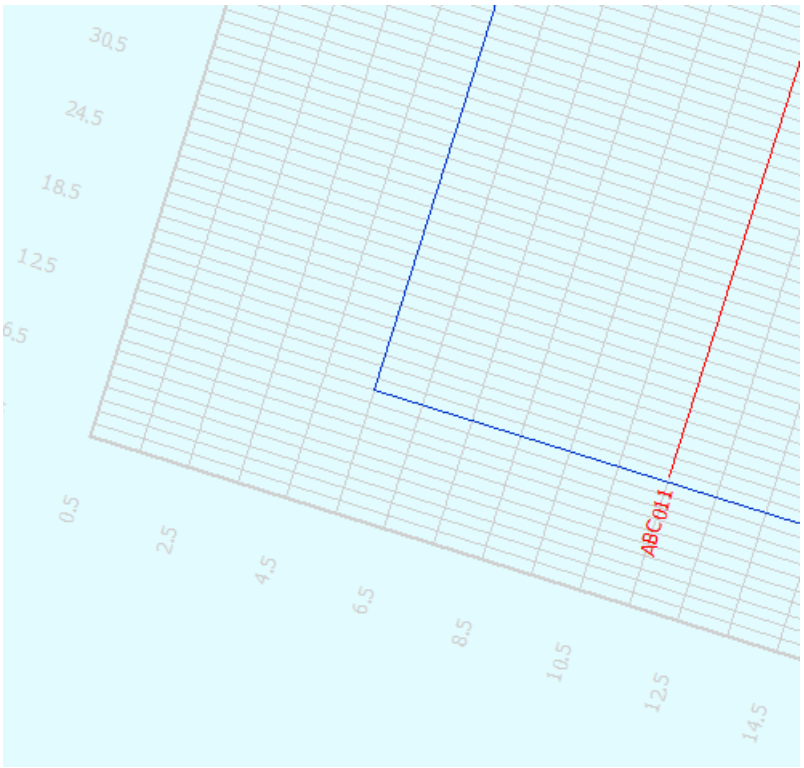

Figure 6-5 – Preplot: automatic bin grid origin with offset I: 5, J: 10

6.3.1 Geodetic Parameters for Bin Grid Transformation

Geodetic parameters for the bin grid transformation are not specified in the Geodetic Parameters page but are copied from the General Parameters. The geodetic parameters are automatically updated whenever changes are made in the General Parameters.

The table below shows the parameter mapping from General to Geodetic parameters.

General Parameter	Copied to Geodetic Parameter
Transformation Method	Coordinate Operation Method
Bin Grid Origin Number I	Bin grid origin I
Bin Grid Origin Number J	Bin grid origin J
Bin Grid Origin Easting	Bin grid origin easting
Bin Grid Origin Northing	Bin grid origin northing

General Parameter	Copied to Geodetic Parameter
Bin Length (along line) and Bin Width (across line). These depend on the I-axis direction.	Bin width on I-axis Bin width on J-axis
Line Direction (specified in *Geometry* page)	Map grid bearing of bin grid J-axis
Bin Number Increment I	Bin node increment on I-axis
Bin Number Increment J	Bin node increment on J-axis

6.3.2 Binning Grid Scale Factor

When the distance mode (see section 6.6) is set to *Grid* then the binning grid scale factor is set to 1. When the distance mode is set to *Ellipsoid* then the binning grid scale factor is calculated at the centre of the binning grid.

6.4 Vessel

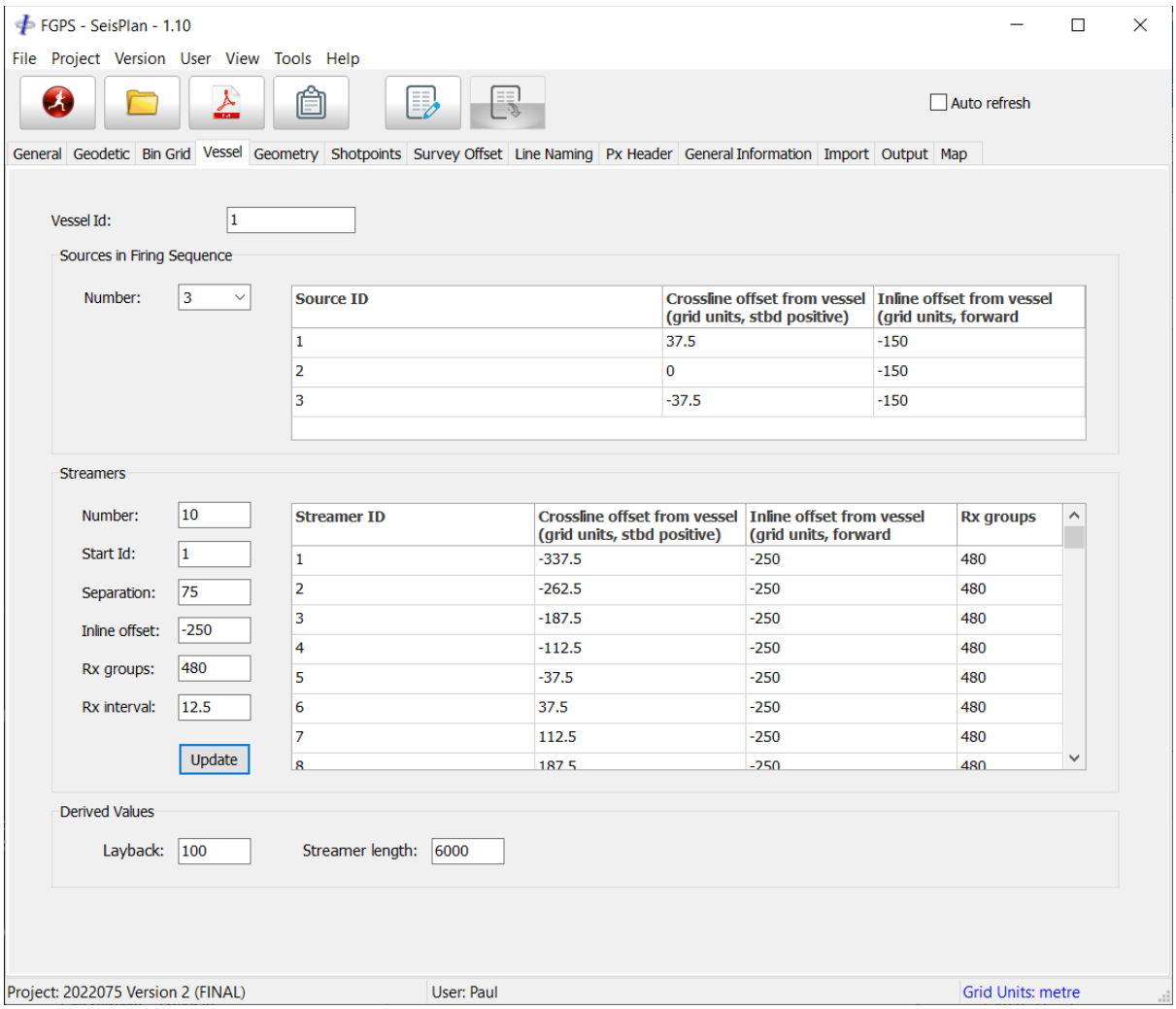

Figure 6-6 – Vessel

Parameter	**Survey types**	**Description**
Vessel Id:		Enter the vessel ID.

Sources:		Select the number of sources and for each source enter: • The ID • The crossline offset from the vessel • The inline offset from the vessel The first source defined will be associated with the shotpoint with the number defined in the *Shotpoints* section. Refer to section 6.6.
Streamers:	3D, 3D Segmented, 2D, Spiral, Circle, Coil	Enter the number of streamers and for each streamer enter • The crossline offset from the vessel • The inline offset from the vessel • The number of receiver groups The above values can be automatically populated by entering the values in the fields to the left and clicking the *Update* button. The receiver group interval is common to all streamers and is used along with the maximum number of receivers defined for any streamer to calculate the streamer length. The layback is calculated as the shortest distance between any one streamer and any one source.

6.5 Geometry

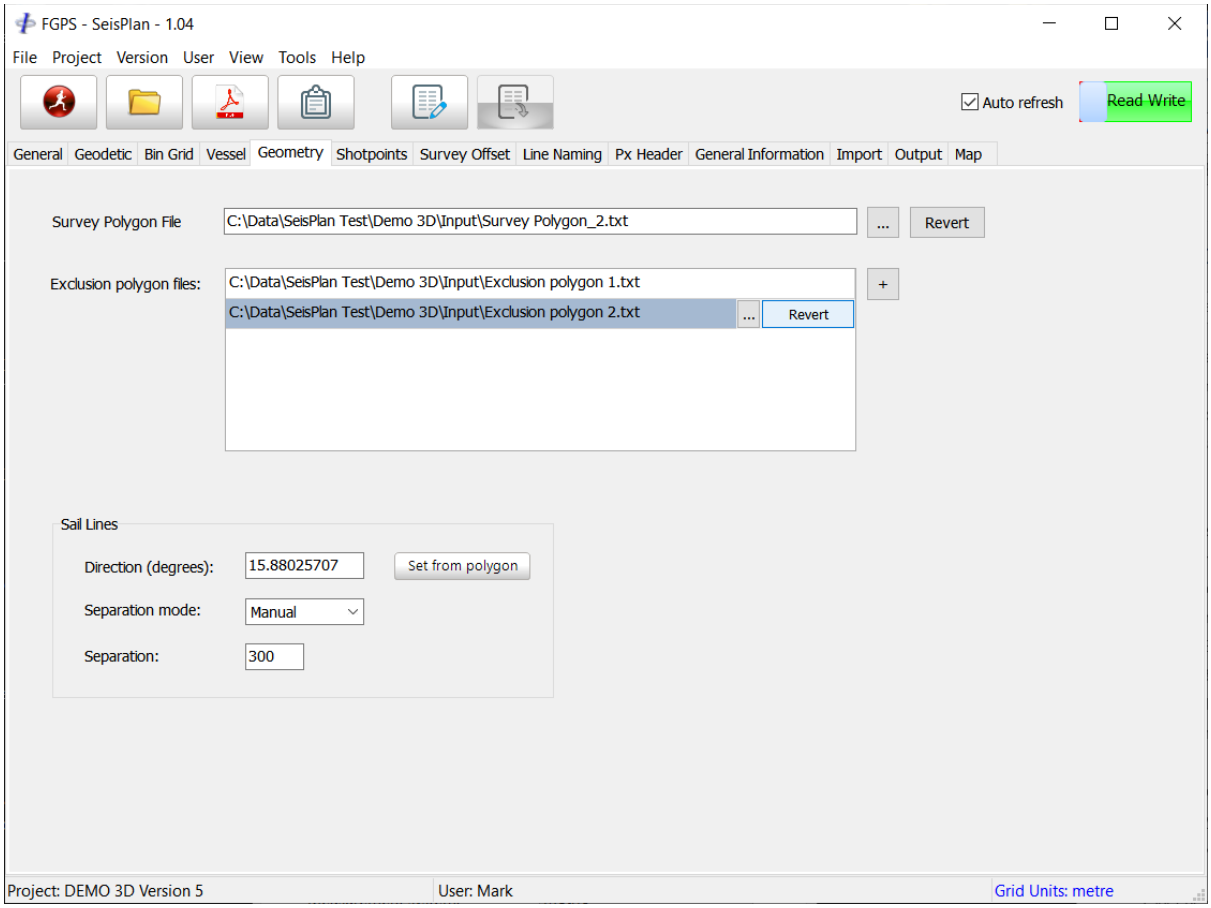

Figure 6-7 – Geometry

Parameter	**Survey types**	**Description**
Survey polygon file:	3D, 3D Segmented	Browse for the file containing the survey polygon coordinates. See section 7 for file geodetic and format specification. Click the *Revert* button to revert the adjusted polygon to the polygon from file.
Node coordinate file:	OBN	Browse for the file containing the node coordinates. See section 7 for file format specification.

Line waypoint file:	2D	Browse for the file containing the line waypoint coordinates. See section 7 for file geodetic and format specification.
Exclusion polygon file(s):	3D, 3D Segmented, 2D	Optional. Browse for the file containing exclusion polygon coordinates. See section 7 for file geodetic and format specification. Multiple polygon files containing a single polygon each may be specified. On mouse over a specified polygon option buttons are presented to select a different file, and to revert the adjusted polygon to the polygon from file.
Sail line direction:	3D, OBN	Enter the line direction in decimal degrees or click the Polygon button to set the line direction by clicking close to one of the polygon legs. Clicking on the opposite side of a polygon leg will reverse the line direction. The line direction is also the bin grid inline axis orientation.
Sail line separation mode:	3D, 3D Segmented	Select from: Automatic: sail line separation will be automatically calculated according to the CMP separation. Manual: specify the sail line separation.
Sail line separation:	3D, 3D Segmented	Enter the sail line separation in grid units.

Segment border computation:	3D Segmented	Select from: *Node angle bisection:* segment borders bisect the polygon nodes. *Nearest opposite node:* segment borders are joined to the nearest node on the opposite side of the polygon. **Warning:** this method may lead to inconsistent sail line separation between segments.
Min gap between same swath lines:	3D Segmented	Enter the minimum distance in grid units of gaps between lines in the same swath. This is used to prevent very small gaps which may be in lines which exit and re-enter the polygon.
Define segment directions:	3D Segmented	Click to open the segment definition interface.
Easting and northing at centre:	Circle, Spiral	Enter the grid coordinates of the centre.
Easting and northing at start:	Coil	Enter the grid coordinates of the start.
Easting and northing at end:	Coil	Enter the grid coordinates of the end.
Coil spacing:	Coil	Enter the distance in grid units between adjacent coil segments.
Dir. Centre to sol	Circle, Spiral	Enter the direction, in degrees, from the centre to the start of line.

Direction:	Circle, Spiral, Coil	Select from: Clockwise: The line is to be acquired in the clockwise direction. Anti-clockwise: The line is to be acquired in the anti-clockwise direction.
Radius:	Circle	Enter the circle radius in grid units.
Radius:	Coil	Enter the coil radius in grid units.
Line spacing:	Spiral	Enter the distance in grid units between concentric spiral segments.
Maximum radius:	Spiral	Enter the distance in grid units from the centre to the start of line.
Minimum radius:	Spiral	Enter the distance in grid units from the centre to the end of line.

6.5.1 Polygon Handling

Polygons are read from file when a project is first created. Any subsequent edits using the interactive display toolbar buttons are saved to the database.

The interactive display layer tree contains entries for both the original polygon and the adjusted polygon.

6.6 OBN

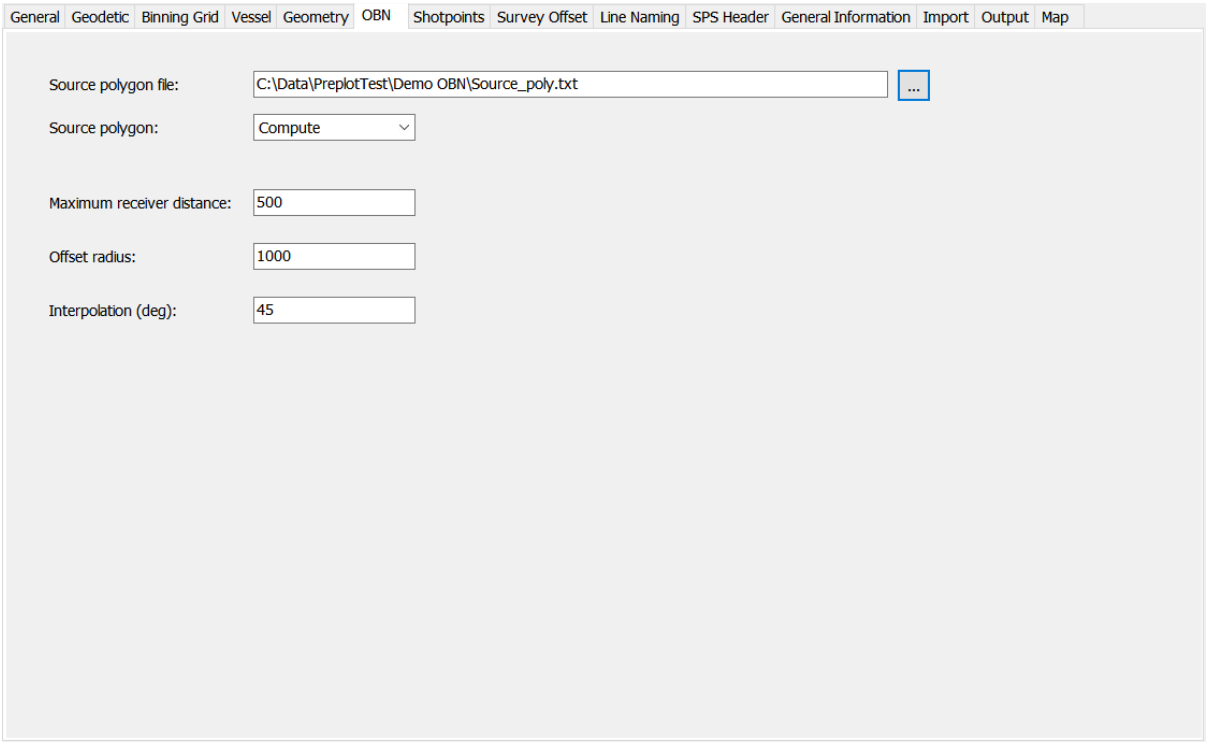

Figure 6-8 – OBN

Parameter	**Survey types**	**Description**
Source polygon file:	OBN	Browse for the file to read or write the source polygon coordinates. The file format is space separated text with each record containing node number easting northing.
Source polygon:	OBN	Select from: *Compute:* the source polygon will be computed and saved to the specified file when prompted. *From file:* the source polygon will be read from the specified file.

Maximum receiver distance:	OBN	Enter the maximum distance between adjacent receivers used for the receiver node polygon computation. A large value results in a smoother polygon. A value of 1000 was used for the polygon shown in Figure 6-9. A value of 4000 was used for the polygon shown in Figure 6-10.
Offset radius:	OBN	Enter the distance between the receiver node polygon and the source polygon.
Interpolation (deg):	OBN	Enter the angular increment for interpolating nodes on the curved parts of the source polygon. A low value results in a smoother polygon. The default value of 10 is recommended.

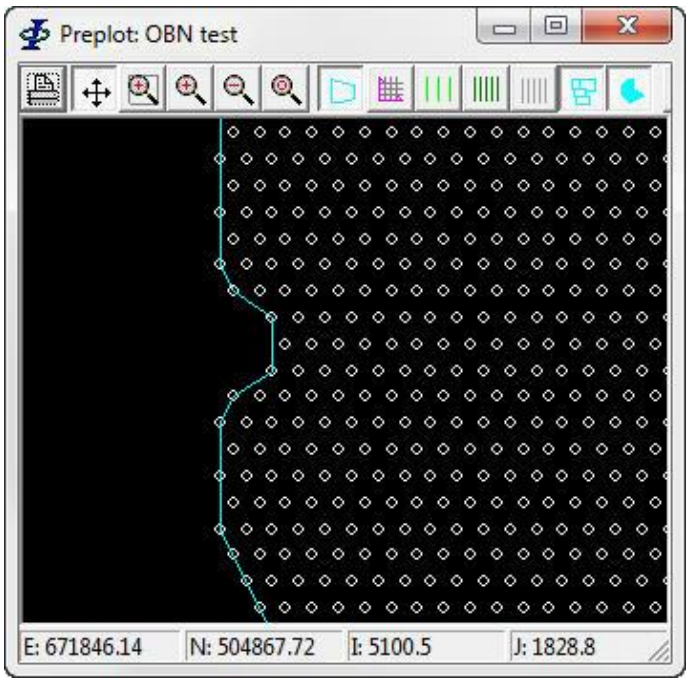

Figure 6-9 – Preplot: OBN polygon computation 1

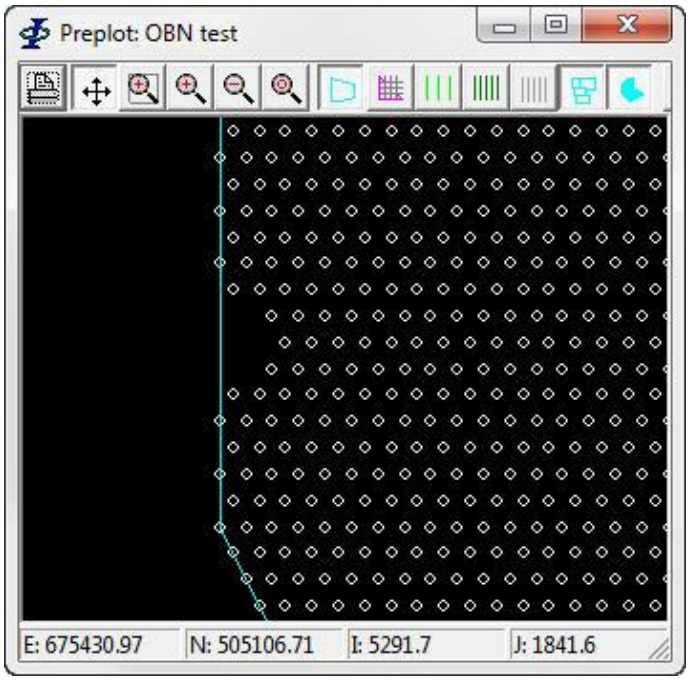

Figure 6-10 – Preplot: OBN polygon computation 2

6.7 Shotpoints

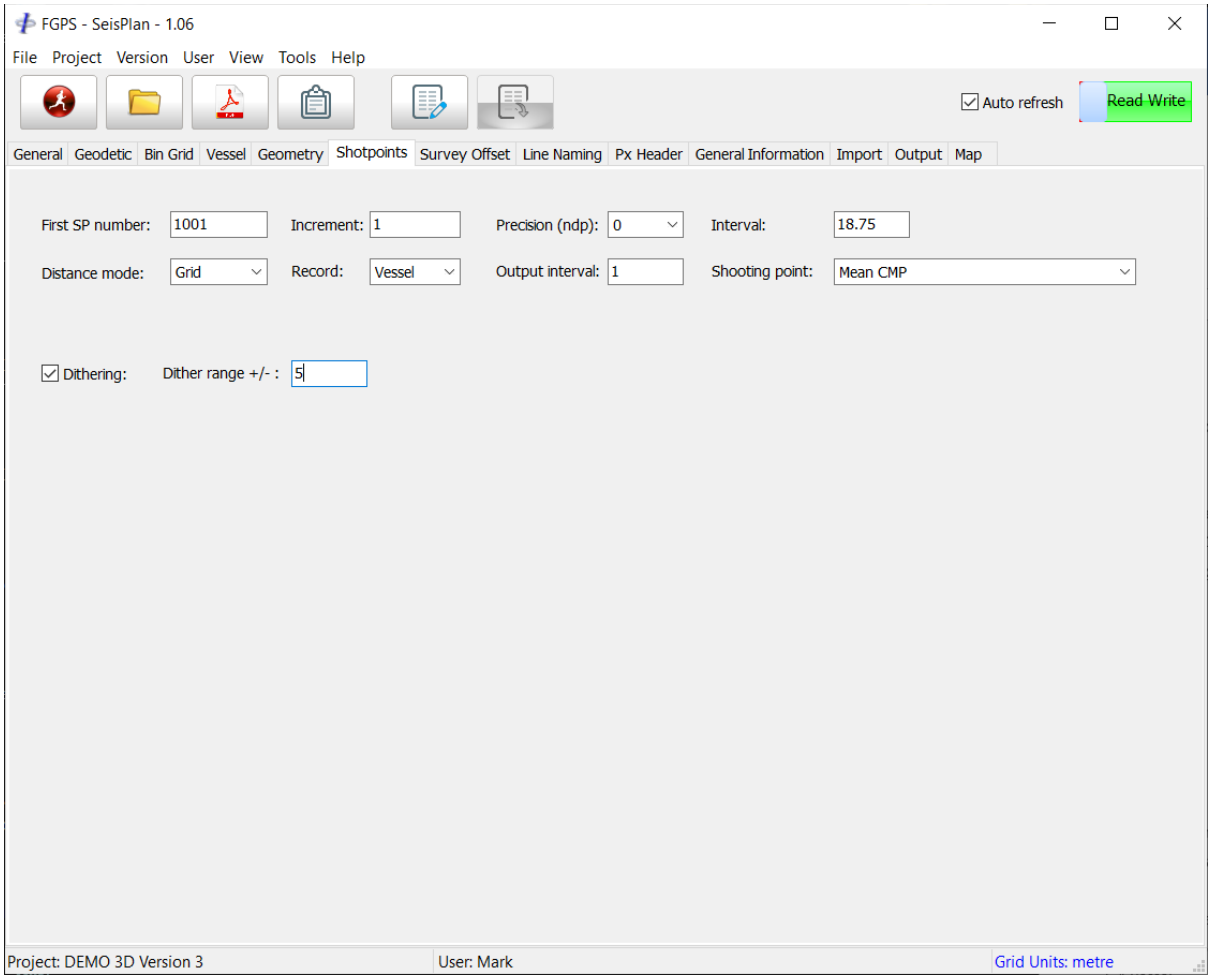

Figure 6-11 – Shotpoints

Parameter	**Survey types**	**Description**
First SP Number:	3D, 3D Segmented, OBN	The SP number at the bin grid origin.
First SP Number:	2D	The first SP number for each line. See *Align SPs* option below.
First SP Number:	Circle, Spiral, Coil	The first SP number for the line.

SP Number Increment:		The SP number increment.
SP Number Precision:		The number of decimal places to which SP numbers are to be rounded.
SP Interval:		The SP interval in grid units.
Distance Mode:		Select from: *Ellipsoid:* distances are calculated on the ellipsoid. *Grid:* distances are calculated on the grid.
Record:		Select the record type from the dropdown list. NOTE: For 4D Baseline this is fixed as *Source*.
Output Interval		Enter the output SP interval. If 0 then only waypoints will be written to the P1 and shapefile. If this number, *n*, is greater than 0 then waypoints and every *n*th SP will be written to the P1 and shapefile.
Shooting Point:		The shooting point for Orca P1/90 H2600 record.
Dithering:		Check to enable dithering. Dither will be applied pseudo-randomly up to the limit specified by the *Dither Range* (see below).
Dither Range +/-:		Enter the maximum dither in grid units.
Align SPs:	2D	When checked, the shotpoint numbers of all lines with the same, or opposite, orientation $^{\pm}10^{o}$ are aligned. The lowest shotpoint number is that specified as the *First SP Number.*
Max SPs per line	Spiral, Coil	Enter the maximum number of shotpoints to be defined in one line. If the total number of shotpoints exceeds this value then the preplot will be split into additional lines.
Run-in SPs:	3D, 3D Segmented	Enter the number of run-in shotpoints. Applies only to output file types *SPS S* and *SPS Pair*.

Run-out SPs:	3D, 3D Segmented	Enter the number of run-out shotpoints. Applies only to output file types *SPS S* and *SPS Pair*.
Instrument code source:		Enter the source record instrument code, maximum 2 characters. Applies only to output file types *SPS S* and *SPS Pair*.
Instrument code receiver:		Enter the receiver record instrument code, maximum 2 characters. Applies only to output file types *SPS R* and *SPS Pair*.

6.8 Survey Offset

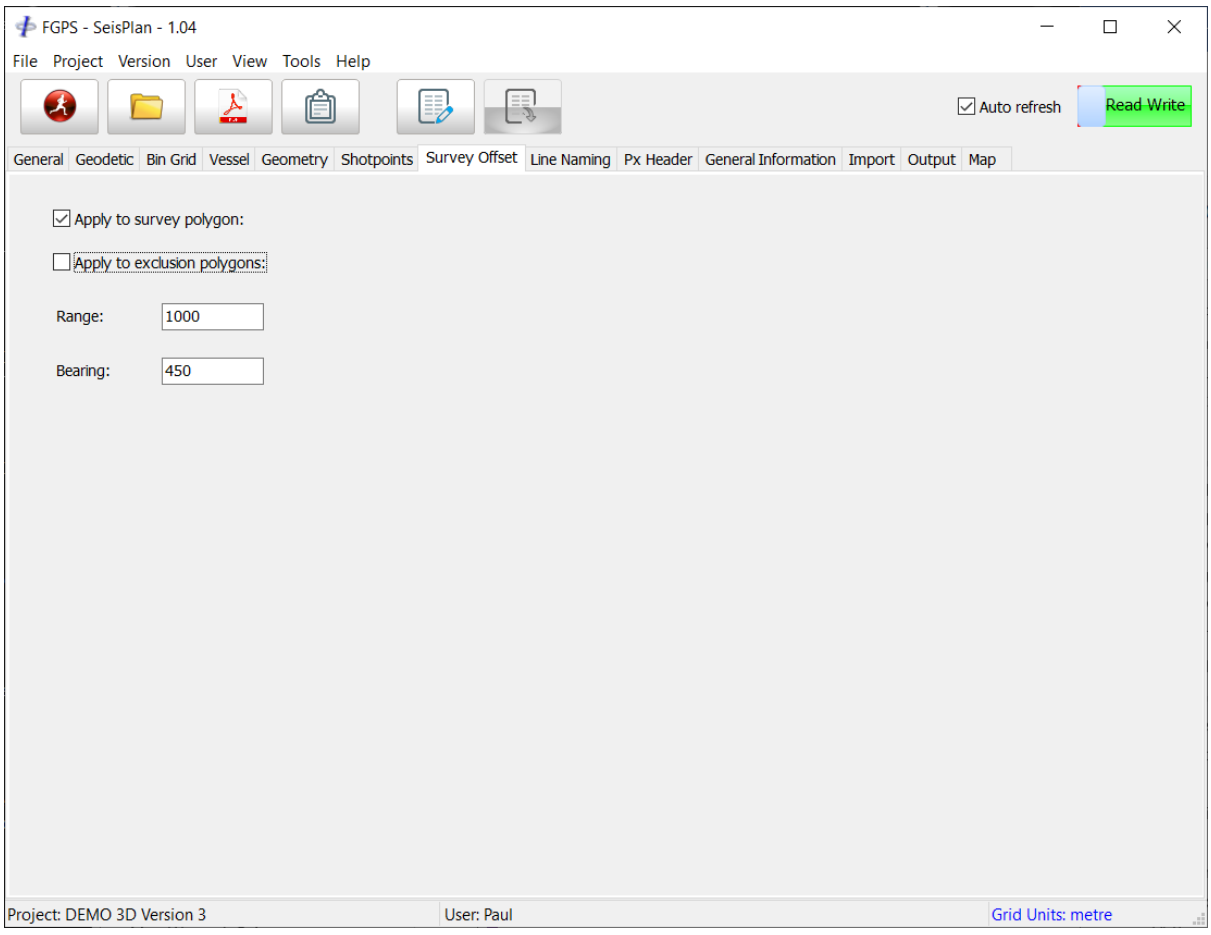

Figure 6-12 – Survey Offset

This feature may be used to apply a shift to all polygon vertices such as may be required, for example, to match a preplot with any existing adjacent survey. The shift is parameterised with a range and bearing. The initial input polygons are not altered.

Parameter	**Survey types**	**Description**
Apply to survey polygon:	3D, 3D Segmented, OBN	Apply the offset to the survey polygon.
Apply to exclusion polygons:	3D, 3D Segmented, OBN	Apply the offset to the exclusion polygons.
Range:	3D, 3D Segmented, OBN	The offset range in grid units.
Bearing:	3D, 3D Segmented	The offset bearing in decimal degrees.

6.9 Line Naming

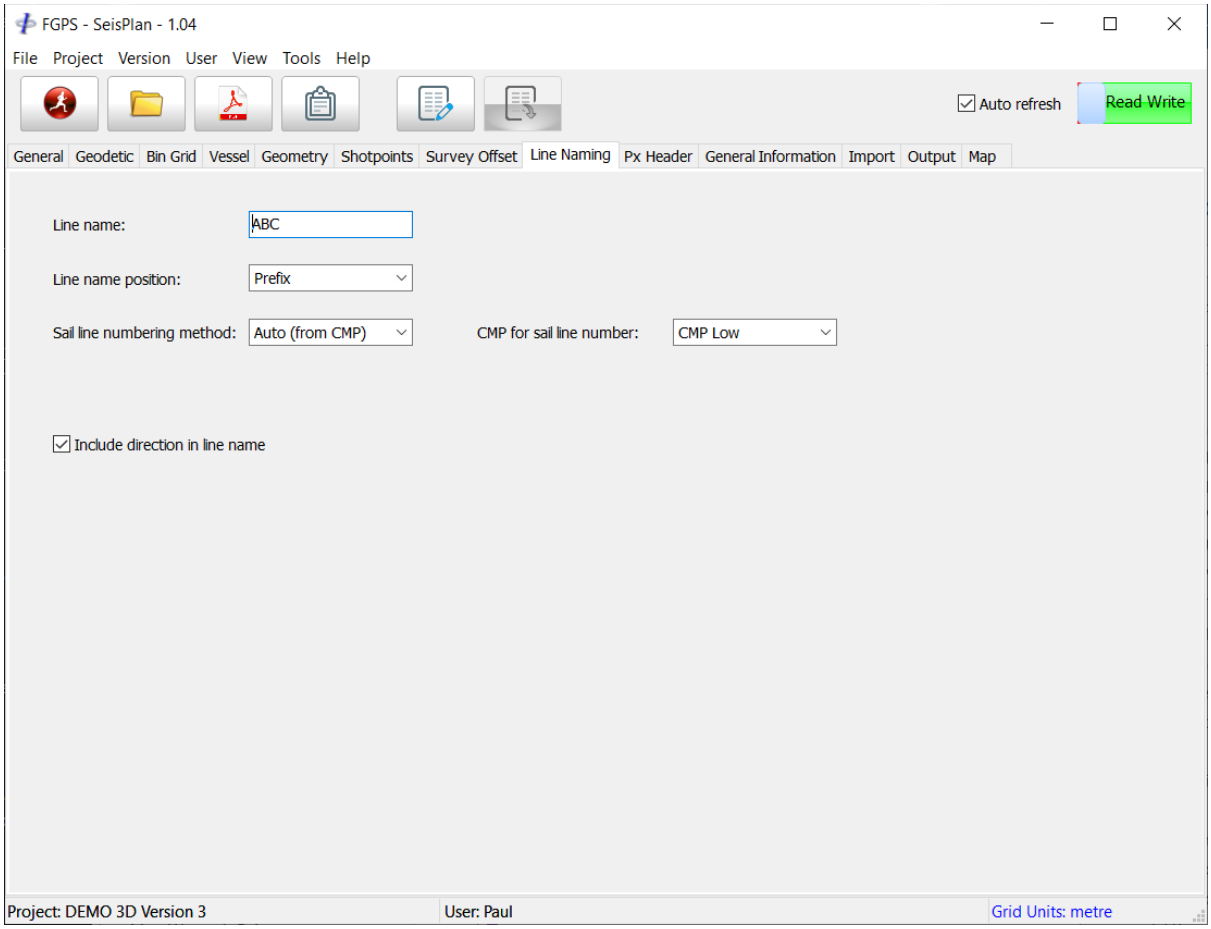

Figure 6-13 – line Naming

Parameter	**Survey types**	**Description**
Line name:		Enter a string to be prepended or appended to the line number.
Line name position:		Select from: *Prefix:* the string will be prepended to the line number. *Suffix:* the string will be appended to the line number.

Sail line numbering method:	3D, 3D Segmented	Select from: *Auto (from CMP):* line number will be taken from a CMP as specified by the *CMP for Sail Line Number* (see below). *CMP low-high:* line number will be in the format *LLLL-HH* where *LLLL* is the lowest CMP in the swath and *HH* is the highest CMP in the swath. *Nearest CMP:* line number will be taken from the nearest SMP to the line. *Manual:* line number is manually specified according to the first line number and the *First Sail Line Number* and the *Sail Line Number Increment* (see below).
CMP for sail line number:	3D, 3D Segmented, OBN	Select from: *CMP High:* line number will be taken from the highest of the two CMPs adjacent to the sail line. *CMP Low:* line number will be taken from the lowest of the two CMPs adjacent to the sail line.
First sail line number:	3D, 3D Segmented	Enter the number of the first sail line i.e., the sail line nearest the bin grid origin.
Sail line number increment:	3D, 3D Segmented	Enter the sail line number increment.
Include direction in line name:	3D	When checked the sail line direction rounded to integer will be appended to the line name. Applies only to 4D Baseline option – see section 6.1.

6.10 Px Header

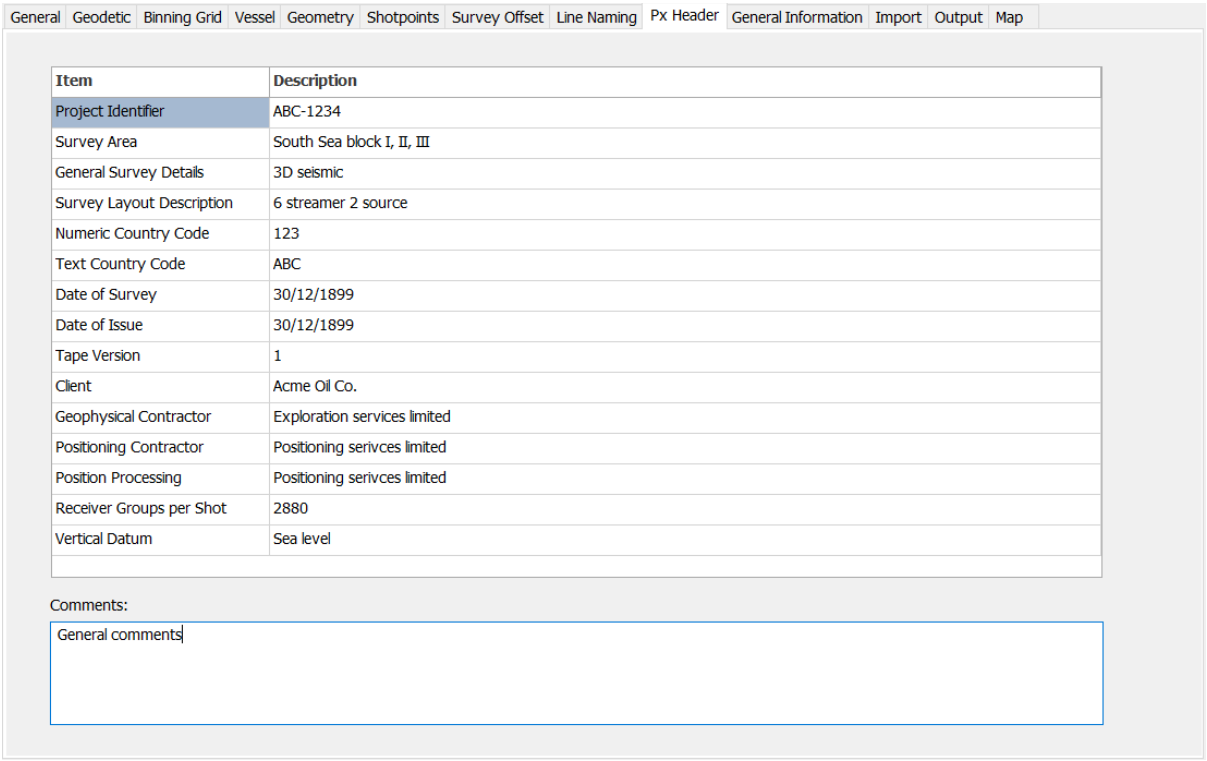

Figure 6-14 – Px Header

This section is for the provision of mandatory fields required in the P1 and P6 headers.

It also provides for the inclusion of general comments. Free text may be entered here and field width limits are automatically handled at the time of writing the file header.

6.11 SPS Header

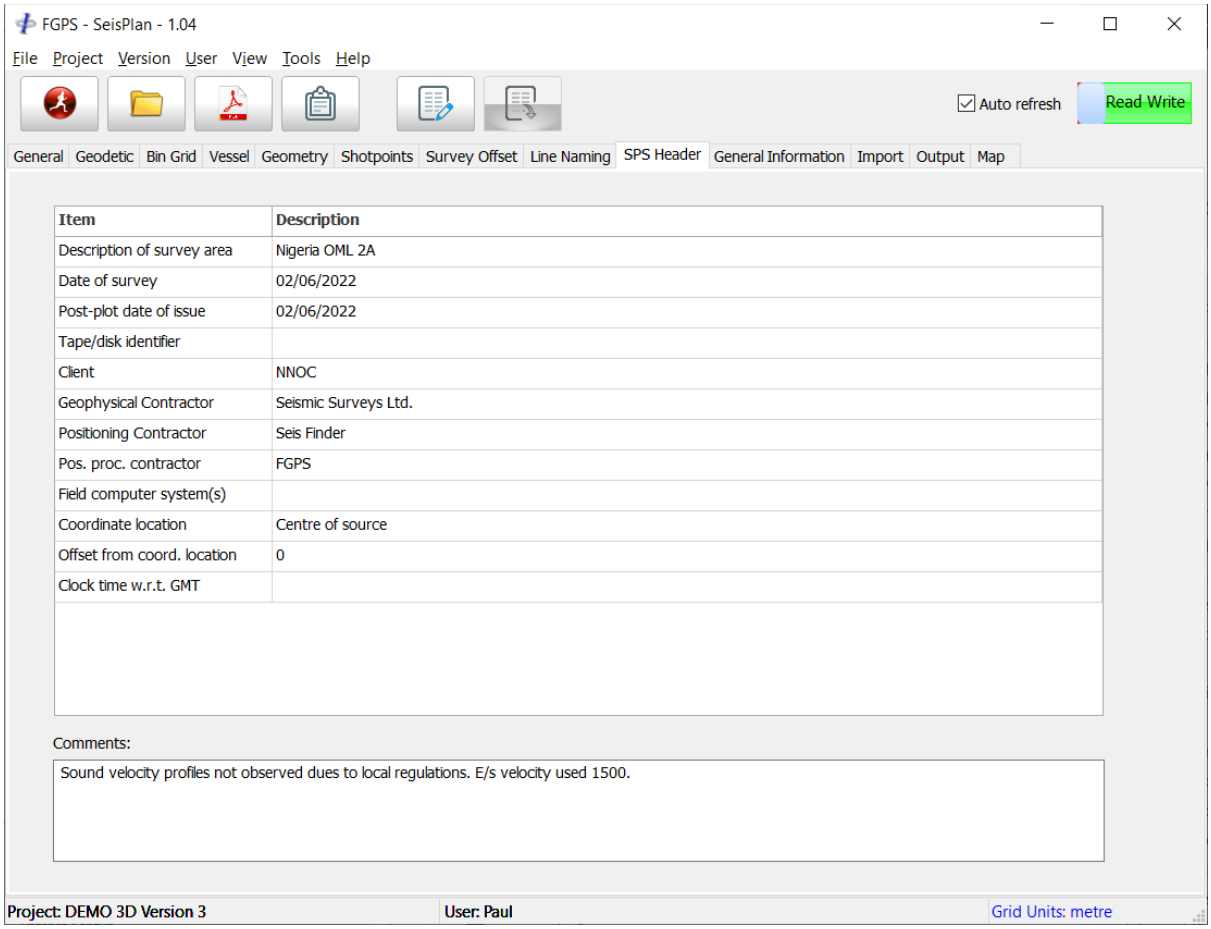

Figure 6-15 – SPS Header

This section contains mandatory record information to be written to the SPS file header.

It also provides for the inclusion of general comments. Free text may be entered here and field width limits are automatically handled at the time of writing the file header.

6.12 General Information

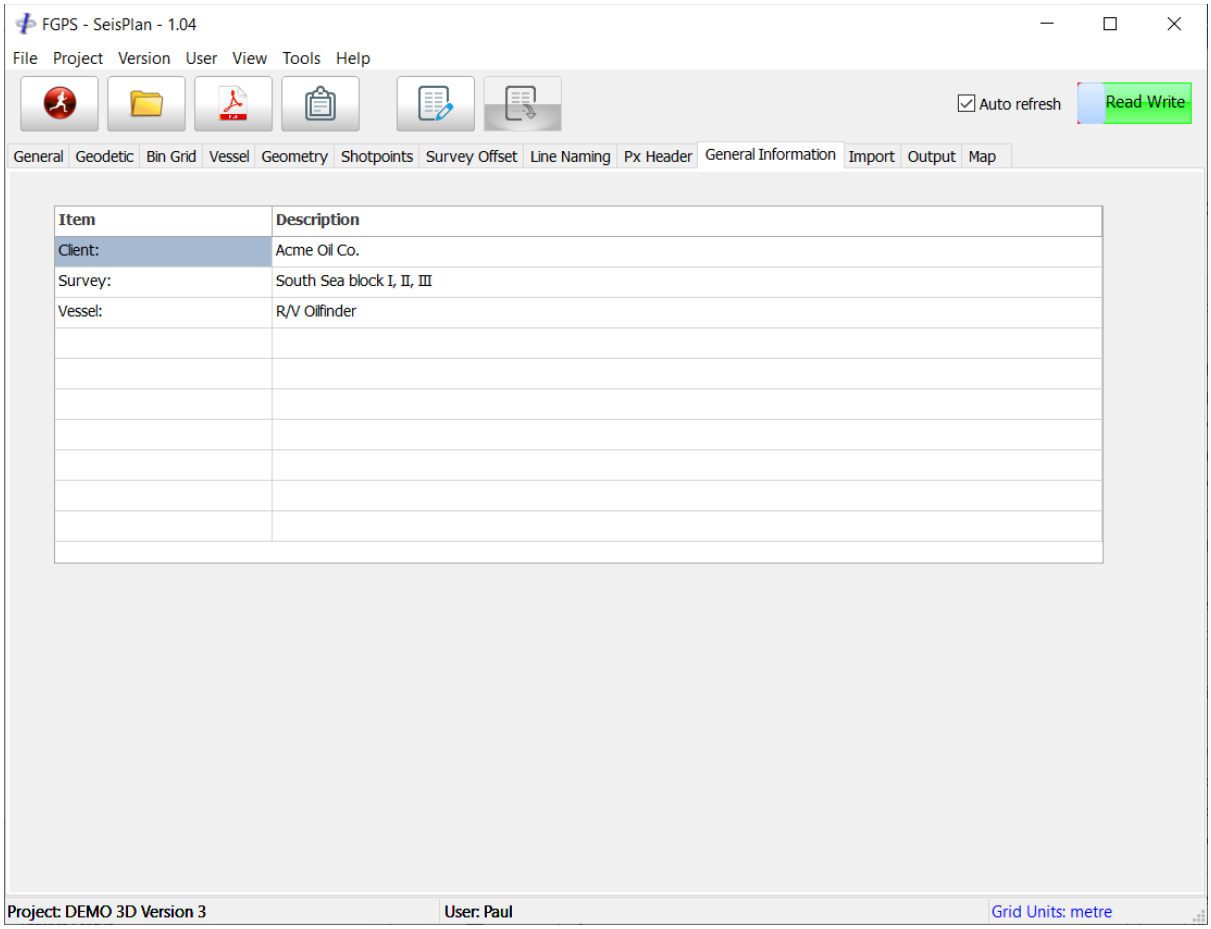

Figure 6-16 – General Information

This section is for the provision of optional general information to be included to the preplot report and map.

6.13 Import

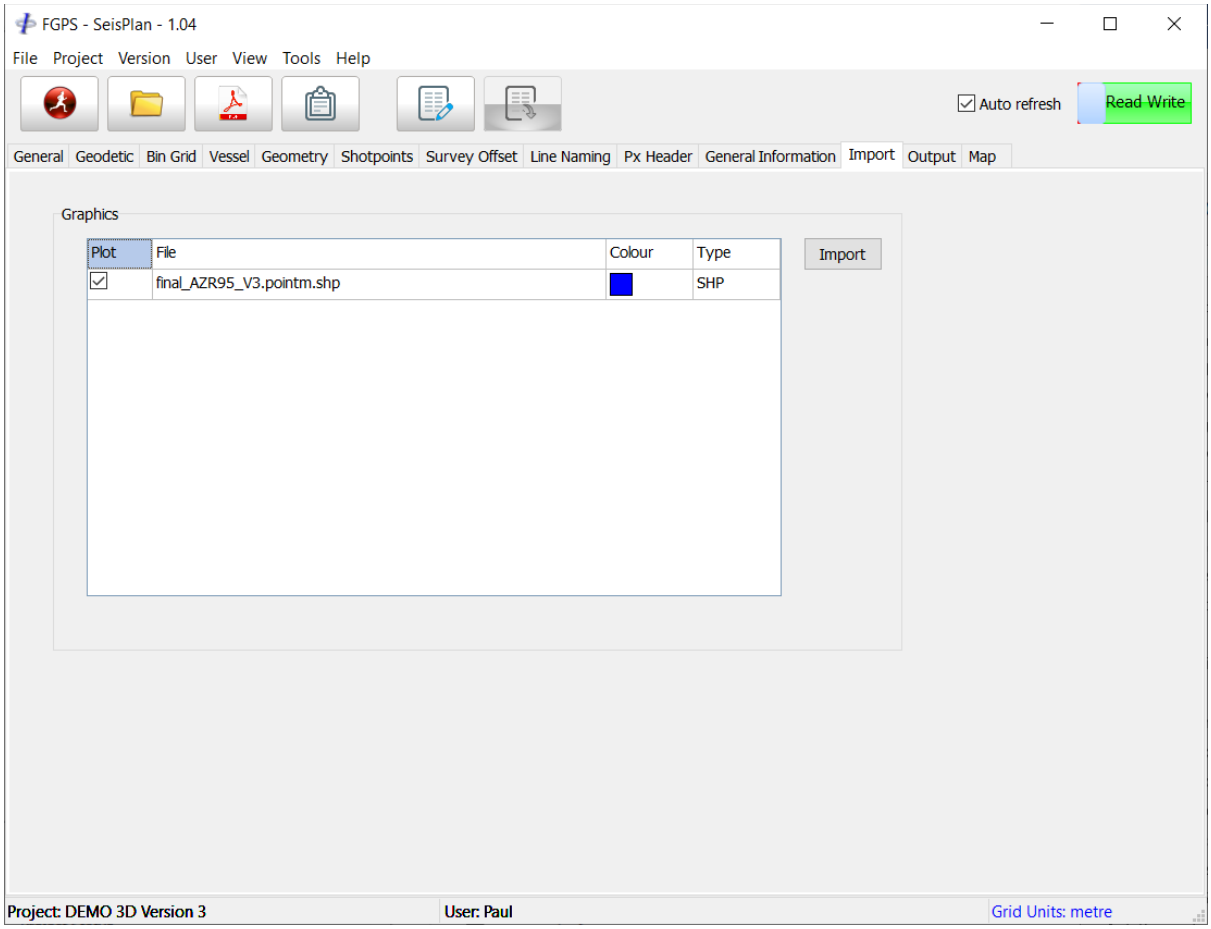

Figure 6-17 – Import

Click the *Import* button and browse for the files to import. Supported formats are ESRI Shapefile and DXF.

For shapefiles, if the shapefile .prj file is present then it will be used to convert the coordinates to the specified Primary CRS via a WGS-84 transformation.

For DXF files and for shapefles without a .prj file then it is assumed that the coordinates are referenced to the Primary CRS.

Click the right mouse button for the popup menu to remove files from the list.

Click on the colour box for each file to set the colour.

6.14 Output

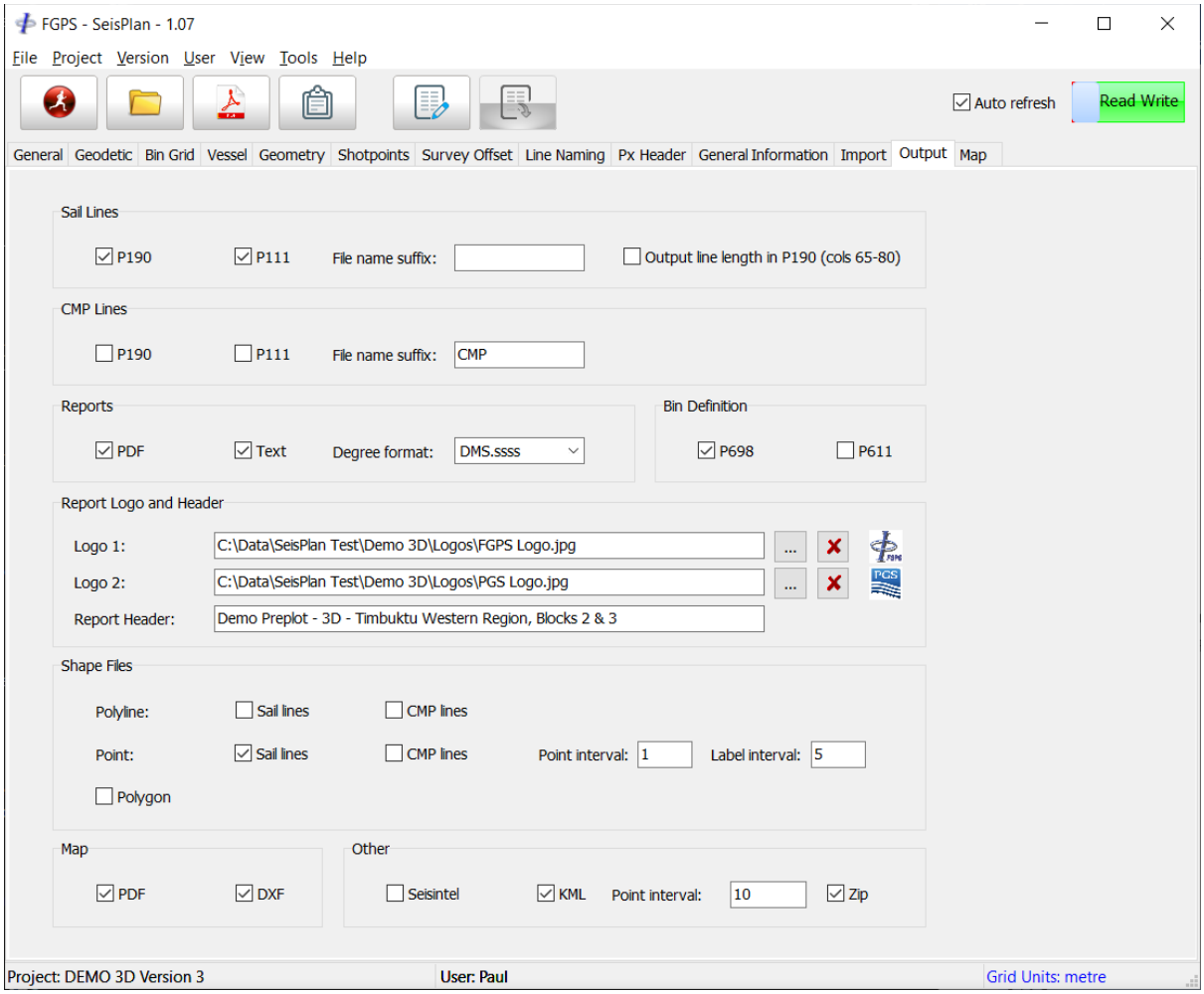

Figure 6-18 – Output

Parameter	**Survey types**	**Description**
Sail lines:		Check to output P1/90 and/or P1/11.
Output line length:		Output the line segment lengths to the P1/90 in columns 65-80.

CMP lines:	3D, 3D Segmented, OBN	Check to output P1/90 and/or P1/11.
Filename suffix:		Text will be included in the file name for P1 files.
Reports:		
PDF:		Check to output PDF report.
Text:		Check to output text report.
Degree format:		Select the degree format for reporting. Select from: DM.mmmm: degree and decimal minute DMS.ssss: degree, minute and second
Bin definition:	3D, 3D Segmented, OBN	Check to output P6/90 and/or P6/11
Report logo and header:		Select logo image files and header text to appear in the PDF report.
Shapefiles:		
Sail lines:		Check to output shapefiles for sail lines
CMP lines:	3D, 3D Segmented, OBN	Check to output shapefiles for CMP lines
Polyline:		Output to ESRI shapefile set with feature class PolylineM (polyline with measures).
Legs as separate lines:		When checked, lines with more than two waypoints will have line legs written as separate lines to PolylineM feature class shapefile.
Point:		Output to ESRI shapefile set with feature class PointM (point with measures). Every shotpoint will be written to the file.

Point interval:		Set the point and label interval for PointM files. **Warning:** for large surveys with a low point interval this operation may take several minutes for CMP files.
Polygon:	3D, 3D Segmented, OBN	Output the survey polygon to ESRI shapefile set with feature class PolygonM (polygon with measures).
Map:		Check to output map to PDF and/or DXF files. See section 6.15 for map content specification.
Other:		
SeisIntel:		Output sail lines and polygons to SeisIntel format. This option is only enabled if the WGS 84 CRS is defined as either primary or secondary CRS.
KML:		Output sail lines to KML
Point interval:		Set the KML point interval.
Zip:		Output to KMZ file.

6.15 Map

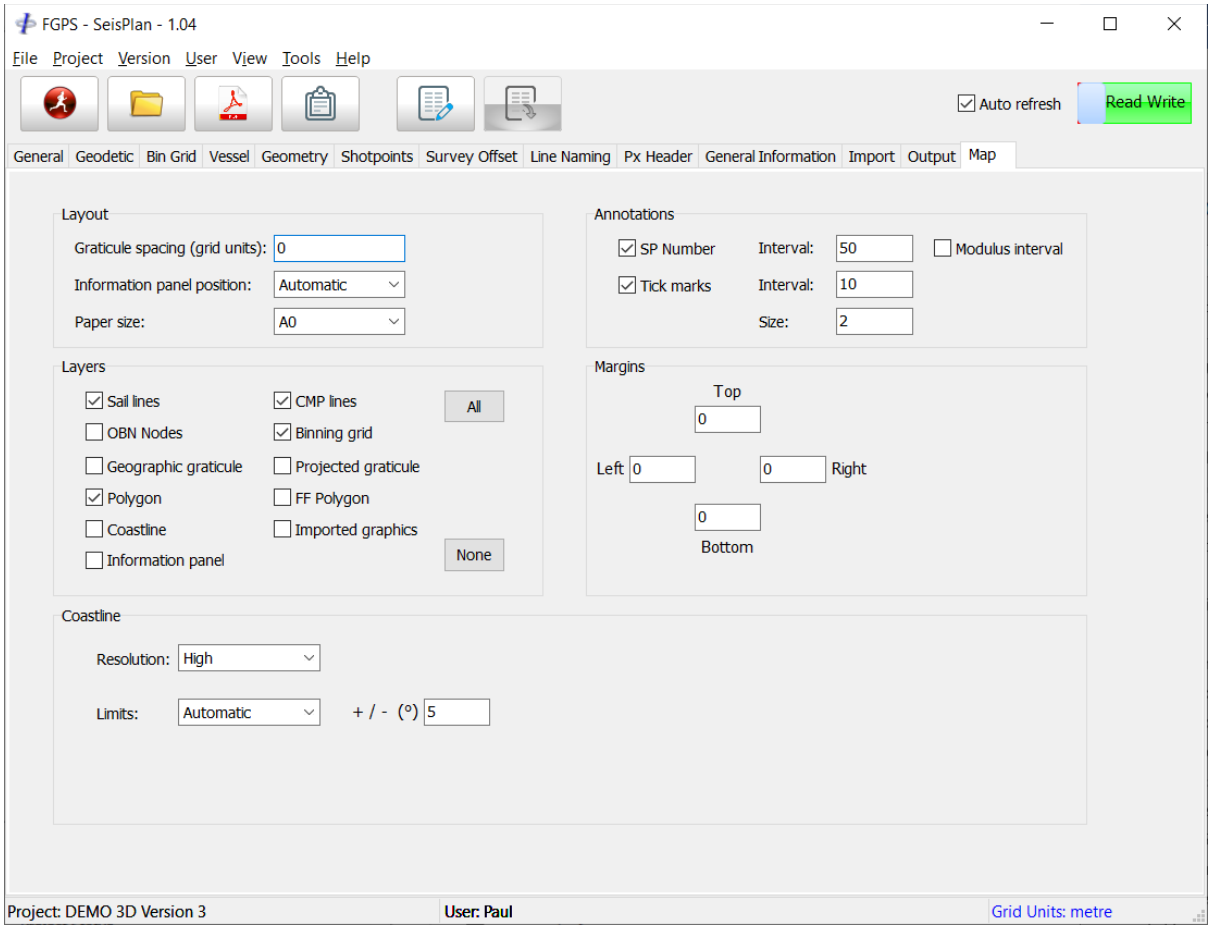

Figure 6-19 – Map

Parameter	**Survey types**	**Description**
Layout:		
Graticule spacing		Enter the projection graticule spacing in grid units. If blank or zero the spacing will be automatically calculated.

Information panel position:	Select from: *Automatic:* the information panel position will be automatically set according to the aspect ratio. *Side:* the information panel will appear on the right-hand side. *Bottom:* the information panel will appear at the bottom.
Paper size:	Select from the dropdown list.
Annotations:	
SP number:	Check to output the SP number at the specified interval.
SP number interval:	Specify the interval, *n*, at which to output SP numbers.
Modulus interval:	When checked, the first, last and every modulus *n* SP will be output
Tick marks:	Check to output tick marks at the specified interval.
Tick mark interval:	Specify the interval, *n*, at which to output tick marks. The first, last and every modulus *n* tick mark will be output.
Size:	Specify, in grid units, the annotation text height and tick mark length.
Layers:	Check the appropriate checkboxes for the layer selection. If no layers are checked then the map will not be output.
Margins:	Optionally set the margins in grid units. These are to allow for additional objects to be inserted int the DXF.

Coastline: The coastline database is located under the folder specified in *Main Menu* | *Tools* | *Options*. If the files have not been installed, they should be download from the FGPS website, Products page.

WARNING: the coastline database is referenced to the WGS-84 CRS. If the project primary CRS is not WGS-84 then the software will search for a transformation to convert the coastline coordinates to the primary CRS. If no transformation is found then the coastline will not be plotted.

Resolution: Select from *High, Medium, Low.*

Limits: Select from:

Automatic: the coastline extent will be automatically calculated.

Manual: specify the coastline extents in decimal degrees.

7 INPUT COORDINATE FILE FORMATS

Supported formats are:

- DXF
- Shapefile
- User defined

7.1 DXF File Format

For DXF files, the coordinates in the file are assumed to be referenced to the specified projected CRS. The file must contain a polyline object. Only the first object found will be read from the file.

IMPORTANT: File coordinates must be referenced to the Primary CRS.

7.2 Shapefile Format

For Shapefiles, if the shapefile .prj file is present then it will be used to convert the coordinates to the specified Primary CRS via a WGS-84 transformation.

If there is no .prj file then it is assumed that the coordinates are referenced to the Primary CRS.

7.2.1 3D Surveys

For 3D surveys the file must contain a Polygon feature class. Only the first object found will be read from the file.

7.2.2 2D Surveys

For 2D surveys, the file must contain a Polyline feature class. Additional options are available as shown in Figure 7-1, described as follows:

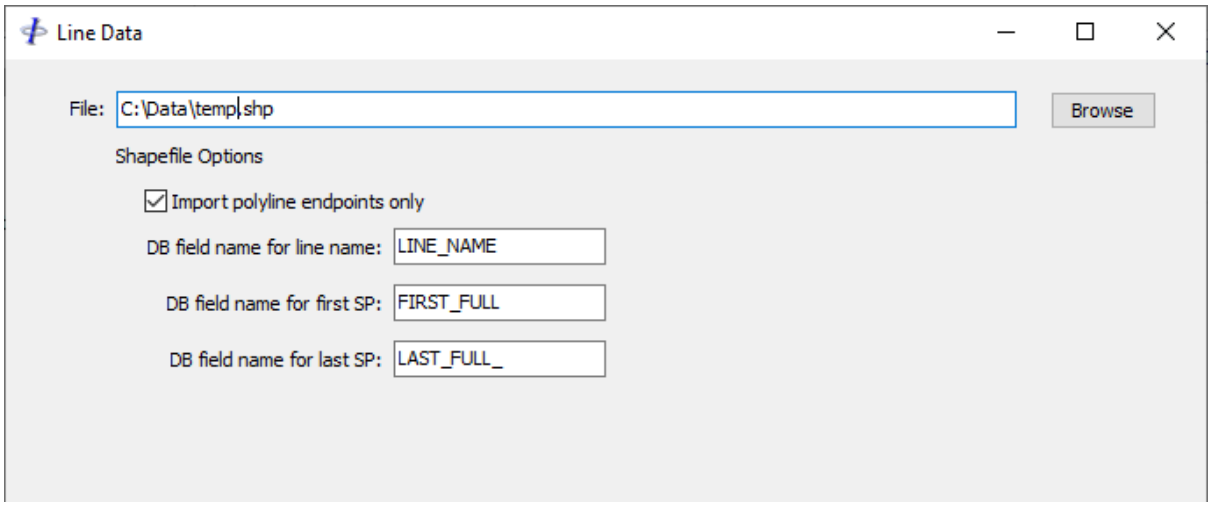

Figure 7-1 - Preplot: Shapefile line definitions

Import polygon endpoints only:	When checked, only the first and last points in a line will be input. Use this option if the shapefile contains points for every shot. When unchecked, all points in a line will be input. Use this option if the shapefile contains waypoints for doglegs.
DB field name for line name:	Optional. Enter the name of the shapefile database field that contains the line name.
DB field for first SP:	Optional. Enter the name of the shapefile database field that contains the first SP number. This will be used for the FSP in the line.
DB field for last SP:	Optional. Enter the name of the shapefile database field that contains the last SP number. This will be used to determine the line direction. If the LSP is less than the FSP then the SP numbers and waypoints will be reversed.

7.3 User Defined Format

Coordinates may be specified as grid coordinates (easting and northing) or geographical coordinates (latitude and longitude).

IMPORTANT: File coordinates must be referenced to the Primary CRS.

For 3D survey polygons each record must contain the coordinates for one polygon node.

For 2D surveys each record must contain the line name and the coordinates for the waypoint. At least two records are required to define one line.

For OBN surveys each record must contain the coordinates for one OBN receiver.

The coordinate files are free format with the format defined by field identifiers. Click the *Browse* button to display the format dialog. The field identifiers are described as follows:

n = line name (max 12 characters) (not applicable to polygon definition)
p = first shotpoint number (optional) (not applicable to polygon definition)

x = easting
y = northing

OR

D = degrees latitude
M = minutes latitude
S = seconds latitude
H = hemisphere latitude
d = degrees longitude
m = minutes longitude
s = seconds longitude
h = hemisphere longitude

any other character = do not import field

File records must be terminated with a carriage return and line feed (cr/lf)

Fixed width:
format characters must match exact file positions
e.g.
data: abc1001A 12345.6 34567.8
format: nnnnnnnn xxxxxxx yyyyyyy

Delimited:
only one character is used to represent a field, field delimiter character(s) must be provided
e.g.
data: abc1001A,12345.6,34567.8
format: nxy
field delimiter: ,

Note: a tab character must be represented with ^t

Note: care should be taken when inputting fixed width format files which contain tabs. In this case the *Format String* will not necessarily appear to line up with the records in the file. The correct alignment can be verified by highlighting the *Format String* and checking that the first record displayed is also highlighted for the correct columns.

8 INTERACTIVE DISPLAY

Each time the *Run* button is pressed, the display is re-generated using the current set of parameters.

With the *Auto refresh* option enabled, when a display-relevant parameter is changed, the display is re-generated using the current set of parameters. Parameter entry fields are triggered as being changed when the <*Enter*> key is pressed, or the focus is changed to a different control.

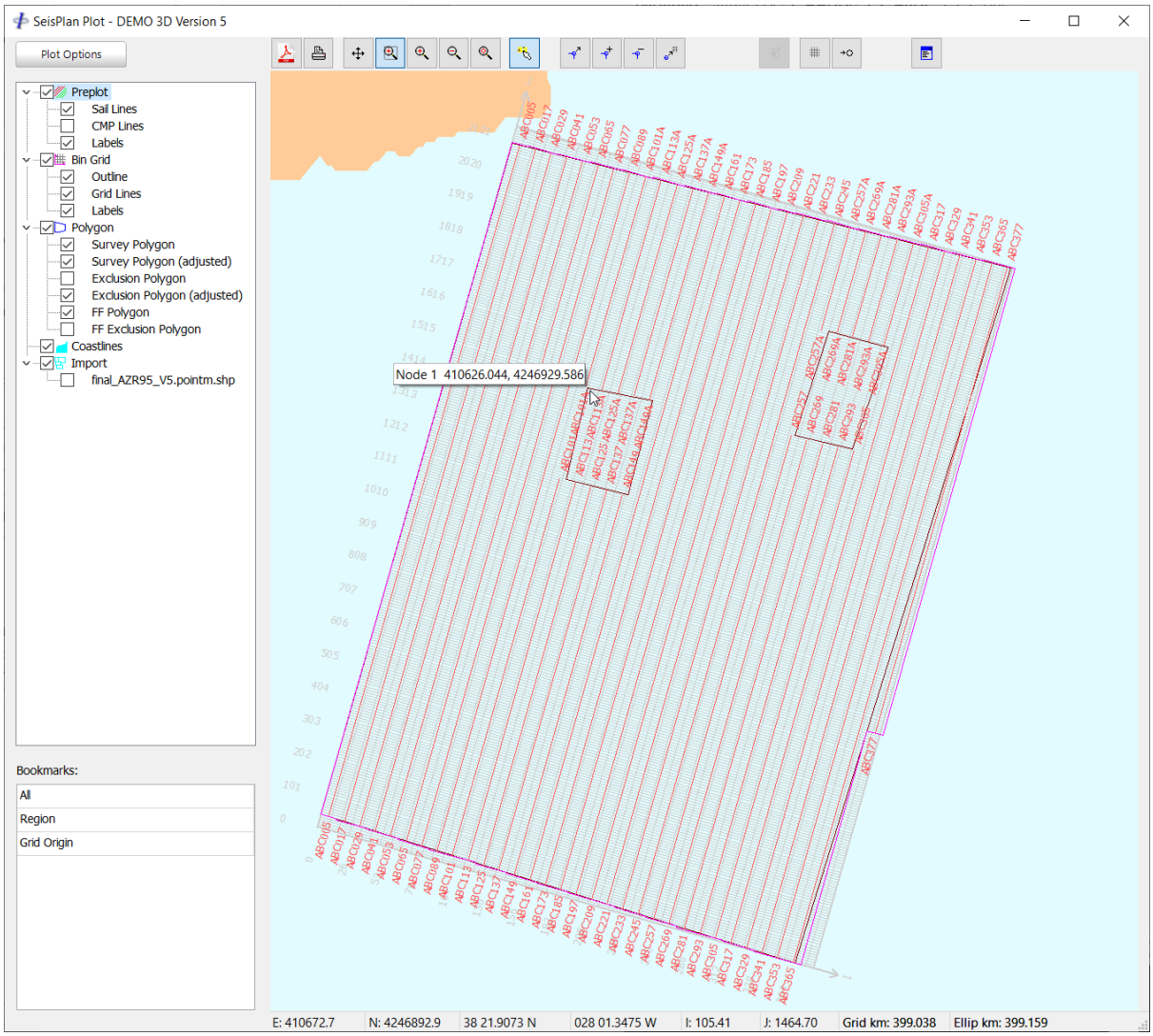

Figure 8-1 – Interactive Display

8.1 Layers

Plot layers are listed in the left-hand side panel where they may be enabled or disabled by checking the appropriate checkboxes.

The layers available are dependent on the survey type and imported content. The layers commonly available for a 3D survey type are shown in Figure 8-1.

8.2 Dynamic Information Display

Information pertaining to the preplot lines is displayed in the status bar at the bottom of the display window. This comprises the following:

Mouse cursor:
- Grid Easting
- Grid Northing
- Latitude
- Longitude
- Cell I (3D survey types)
- Cell J (3D survey types)
- Line number (2D survey types)
- Shotpoint number (2D survey types)
- Total sail line lengths, grid and ellipsoidal.

Measurements when holding down right mouse button:
- Delta Easting
- Delta Northing
- Distance
- Azimuth

Prospect sail line total distance:
- Grid
- Ellipsoidal

8.3 Zoom and Pan Functions

Enable pan mode – the mouse can be used to pan the display.

Enable window zoom mode – the mouse can then be used to zoom into an area.

Click or hold down to zoom in.

Click or hold down to zoom out.

Zoom extents.

8.4 Editing Functions

Move a polygon node (3D surveys) or line waypoint (2D surveys).

Graphically: Hold the left mouse button down to drag the nearest node/waypoint to a new position.

Numerically: Right click on a node/waypoint and from the popup dialog enter either range, bearing; easting, northing or delta easting, delta northing.

Create a polygon node (3D surveys) or line waypoint (2D surveys). Hold the left mouse button down to create and drag into position a new node/waypoint. The new node/waypoint will be created between the two nearest existing nodes/waypoints.

Remove a node (3D surveys) or line waypoint (2D surveys). Click nearest to the node (3D surveys) or line waypoint (2D surveys) which is to be removed.

Adjust polygon to grid. See section 8.4.1.

Create a line (2D surveys). Draw the line using the left mouse button.

Extend line (2D surveys). Extend an existing line by specifying distance and bearing, or by specifying distance only maintaining existing bearing.

Snap to grid (3D surveys). When creating or editing a node the new position is forced to a cell corner, centre or side midpoint.

Snap to object. Used to snap to an imported graphics object when interactively editing polygon nodes (3D surveys) or line waypoints (2D surveys).

 Undo last edit.

Important: When the mouse button is released after editing a node or waypoint the preplot is re-computed for display purposes only. To re-compute and write new output files the *Run* button must be clicked. The user will then be given the option to save the new polygons (3D) or line waypoints (2D).

8.4.1 Adjust Polygon to Grid

All polygon nodes are moved to the nearest bin.

The snap point relative to the bin is determined by the Bin Grid polygon alignment setting (see section 6.3):

Alignment set to *Bin Edge*: the nearest bin corner is chosen.

Alignment set to *Bin Centre*: the nearest bin centre is chosen.

In order to handle the situation whereby two adjacent nodes are within 1 bin along either axis, then the second node will be adjusted to the same bin coordinate on that axis. The first node to be adjusted (node 1) is not subject to this action.

8.5 Other Toolbar Functions

 Print the display to PDF.

 Print the display.

 Display line attribute window. Attributes displayed are for the line nearest the mouse cursor.

8.6 Bookmarks

Bookmarks are provided as a short cut to a specified view. In the Bookmarks panel click the right mouse button to display the popup menu:

New: Create a new bookmark for the current display.

Delete: Delete the selected bookmark.

Update: Update the selected bookmark to the new view.

Rename: Rename the selected bookmark.