

95B Hanover Terrace, Brighton, BN2 9SP, UK +44 (0)7793 611932 <u>office@fgps.com</u> <u>www.fgps.com</u>

SeisPlan

OPERATION MANUAL



SeisPlan

Release:1.10Date:27 September 2022

COPYRIGHT NOTICE

Copyright © 2000-2022 by FGPS Ltd.

All rights reserved. No part of this manual shall be reproduced, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without written permission from FGPS Limited. If this manual has been provided in electronic format permission is hereby granted to print one paper copy.

DISCLAIMER

No liability is assumed with respect to the information contained in this manual. Although every precaution has been taken in the preparation of this manual, FGPS assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of information contained herein.

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:

Email: support@fgps.com

$\mathbf{\Phi}$

FGPS Software Operation Manual

SeisPlan

Release: 1.10 Date: 27 September 2022

Page 3 of 64

TABLE OF CONTENTS

1	Ove	rview	. 5
	1.1	Main Menu	. 6
	1.1.1	1 File	. 6
	1.1.2	2 Project	. 6
	1.1.3	3 Version	. 6
	1.1.4	4 User	. 7
	1.1.	5 View	. 7
	1.1.6	6 Tools	. 7
	1.1.7	7 Help	. 8
	1.2	Main Toolbar	. 8
	1.3	Projects	. 9
	1.4	Options	. 9
2	Mult	tiuser Operation	12
	2.1	Multiuser Database	12
	2.2	User Manager	12
	2.3	Setting the Current user	13
3	Cha	nge Log	14
	3.1	Report	14
	3.2	Versions	14
	3.3	Fields	14
4	Tem	nplates	16
5	Imp	ort P6	18
6	Para	ameters	20
Ŭ	6 1	Conoral Parameters	20
	0.1	Coodetia Parametera	20
	0.2	Die Crid	23
	0.3 63	1 Ceodetic Parameters for Bin Grid Transformation	24
	63	2 Binning Grid Scale Factor	20
	61		31
	0. 4 6 5	Geometry	33
	6.5	1 Polygon Handling	36
	6.6	OBN	37
	6.7	Shotpoints	40
	6.8	Survey Offset	42
	6.9	Line Naming	44
	6.10	Px Header	46
	6.11	SPS Header	47
	6.12	General Information	48
	6 1 3		40
	0.10	Import	49
	6.14	Import Output	49 50
	6.14 6.15	Import Output Map	49 50 53

 \mathbf{P}

Release:	1.10
Date:	27 September 2022

Page 4 of 64

7	Inpu	It Coordinate File Formats	56
	7.1	DXF File Format	56
	7.2	Shapefile Format	56
	7.2.1	3D Surveys	56
	7.2.2	2 2D Surveys	56
	7.3	User Defined Format	57
8	Inter	ractive Display	60
	8.1	Layers	61
	8.2	Dynamic Information Display	61
	8.3	Zoom and Pan Functions	61
	8.4	Editing Functions	62
8.4.1 Adjust Polygon to Grid			63
	8.5	Other Toolbar Functions	63
	8.6	Bookmarks	63

Þ	FGPS Soft	SeisPlan	
	Release: Date:	1.10 27 September 2022	Page 5 of 64

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.

FGPS - SeisPlan - 1.00 -					
File Project Version Use	Pr View Jools Help		Auto refresh	Read Only	
General Geodetic Binning G	rid Vessel Geometry Shotpoints Survey Offset	Line Naming Px Header General Information	Import Output Map		
Project name:	DEMO 3D]	Multiuser		
Survey type:	3D V 4D Base				
Version description:	Initial version	Final			
Output file type:	P1 ~				
Output root file name:					
Project: DEMO 3D Version 1		User: Paul			

Figure 1-1 – Main Window

 \mathbf{P}

FGPS Software Operation Manual

Release:1.10Date:27 September 2022

I.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.

SeisPlan

Page 6 of 64

Þ	FGPS Softwa	are Operation Manual	SeisPlan
	Release: Date:	1.10 27 September 2022	Page 7 of 64
New V	/ersion:	Increment the version number, copying the curre set to the new version, and open that version in t interface.	nt parameter he user
Delete	e Version:	Select a version from the sub-menu to delete.	
1.1.4 Chang	User ge:	Change to a different user.	
Manag	ge:	Open the User Manager.	
1.1.5 Plot:	View	Toggle the visibility of the interactive plot display.	
Log:		Toggle the visibility of the log.	
1.1.6	Tools		
Optior	าร:	Open the Options dialog. See section 1.4.	
Manag	ge Templates:	Open the Template Manager.	
Import	t P6 File:	Import a P6/xx file. See section 4.	
Import Projec	t P1Tools Prep. st:	<i>lot</i> Import preplot project file (*.ppf) created by the P module.	1Tools Preplot
		Note: Some parameters in SeisPlan are no pres P1Tools project file and will need to be se	ent in the t.
Coord Conve	inate ersions:	Open the coordinate conversion window.	

 \mathbf{P}

FGPS Software Operation Manual

SeisPlan

Page 8 of 64

Release:1.10Date:27 September 2022

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



Open the specified project output folder in Windows Explorer.

Open Output Folder



Open the PDF report using the default PDF viewer.



Open the text report.

SeisPlan

Release:1.10Date:27 September 2022

Page 9 of 64



Coordinate File



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

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

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.

Þ	FGPS Software Operation Manual			
	Release: Date:	1.10 27 September 2022	Page 10 of 64	

💠 Options		— C) X
Application Options			
Check for Updates:	Every Day V		
Databases Folder:	C:\FGPS\Databases		
Project Options			
Master projects folder:	C:\Data\SeisPlan Projects		
Project templates folder:	C:\Data\SeisPlan Projects\Templates		
Multiuser Options			
Enable multiuser feature	s		
Multiuser database folder:	C:\Data\SeisPlan Projects\Multiuser		
	✓ OK Xancel		

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:

4		FGPS Software Operation Manual		Operation Manual	SeisPlan
		Release: Date:	1.1 27	0 September 2022	Page 11 of 64
	Ma fold	ster projects der:		Specify the default folder in which new projects	will be created.
	Pro folo	iject templates der:		Specify the folder in which templates, *.sptmpl, are stored. See section 4.	for all projects
				This folder should be accessible by all users.	
Multiu En fea		ser Options: able multiuser tures:		Enable multiuser features.	
	Mu folo	ltiuser databası der:	е	Specify the folder in which the user database fil seisplan_multiuser.db is stored.	e,
				This folder should be accessible by all users.	

\mathbf{P}	FGPS Soft	ware Operation Manual	SeisPlan
	Release: Date:	1.10 27 September 2022	Page 12 of 64

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.

Manage Users		_		\times
	Users:			
	Name		Has File	•
New User	Mark		*	
inch osci	Paul			
EditUsor	Robin			
Edit Oser				
Delete User				
Delete Osei				
Refresh				
	File locks:			
	File Path	Lock Time		
Force Unlock	C:\Data\PGS\SeisPlan Training\3D\PGS Training 3D.spprj	28/03/2022 13	:31:38	
Close				

Figure 2-1 – User Manager

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

P	FGPS Softwa	are Operation Manual	SeisPlan
	Release: Date:	1.10 27 September 2022	Page 13 of 64
Edit U	ser:	In the user list, select the user to be edited and ouser name.	click to edit this
Delete	e User:	In the user list, select the user to be deleted and this name.	I click to delete
Refres	sh:	Refresh the tables.	
Force	unlock:	Click to unlock the selected project in the File Lo	ocks 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.



SeisPlan

Page 14 of 64

Release:	1.10
Date:	27 September 2022

3 CHANGE LOG

Change Log							- 🗆 ×
			Project: DE	EMO 3D			
chan dan se familiar	Version	Section	Change	Old value	New value	Username	Timestamp
Snow changes from version:	2	Binning Grid	extent mode	Auto	Manual	Mark	29/03/2022 13:59:47
Version 1	2	Binning Grid	i offset	0	100	Mark	29/03/2022 13:59:47
	2	Binning Grid	j offset	0	500	Mark	29/03/2022 13:59:47
	2	Binning Grid	i max	0	540	Mark	29/03/2022 13:59:47
✓ Show changes to version:	2	Binning Grid	j max	0	3200	Mark	29/03/2022 13:59:42
-	2	Vessel	num streamers	6	8	Mark	29/03/2022 15:01:19
Version 3 🛛 🗸	2	Output	file		C:\Data\SeisPlan Test\D	Paul	29/03/2022 13:50:4
	2	Мар	coastline resolution	Medium	High	Paul	29/03/2022 07:39:5
	2	Мар	coastline limits deg	Emin=0.00,Emax=0.00	Emin=-33.00,Emax=-2	Paul	29/03/2022 09:57:1
Create Report							
Close							

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.

 $\mathbf{\Phi}$

FGPS Software Operation Manual

Release:1.10Date:27 September 2022

Change: The name of the parameter that was changed.

SeisPlan

Page 15 of 64

- *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.



SeisPlan

Page 16 of 64

Release:1.10Date:27 September 2022

4 TEMPLATES

💠 Project Templates		- 🗆 X
New	Name	Sections Applied
	Client Acme Oil Co. South Sea 2022	Geodetic
Update	Default output & map	Binning Grid
	Default Px Header & General Info	
Edit	Vessel Seismic Searcher	
Delete		
Dente		
Apply to Designt		
Apply to Project		
Close		JL

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.

SeisPlan

Page 17 of 64

Release:1.10Date:27 September 2022

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

Template name:			
Default Px Header & General Info			
Sections	A	\pply	
General]	
Geodetic			
Binning Grid			
Vessel			
Geometry			
OBN			
Shot Points			
Survey Offset			
Line Name			
Px Header		/	
General Info		/	
Import	Γ		
Output	Ľ		
Мар	Γ		
All	None		
		_	

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*.

 $\mathbf{\Phi}$

FGPS Software Operation Manual

SeisPlan

Release:1.10Date:27 September 2022

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*.

💠 Import P6 File				_		×
Select Items to Import						
Bin grid transformation para	ameters					
Parameter Name		Current	New Value	^		
Transformation Method		I = J + 90°	I = J + 90°			
Origin I		0	0			
Origin J		0	0			
Origin E		411847.264	405692.76			
Origin N		4244116.6395	4239055			
Increment I		2	1			
Increment J		2	1			
Bin width I		25	25			
Bin width J		6.25	6.25			
Grid bearing J-axis		17.5	17.5			
Scale factor		1	1	~		
🗹 Data extents (bin grid)						
Parameter Name		Current	New Value	^		
Max I		738	369			
Max J		4324	2162	~		
✓ ок				×	Cancel	

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*.

Þ	FGPS Soft	ware Operation Manual	SeisPlan
	Release: Date:	1.10 27 September 2022	Page 19 of 64

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

Þ	FGPS Soft	ware Operation Manual	SeisPlan
	Release: Date:	1.10 27 September 2022	Page 20 of 64

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

💠 FGPS - SeisPlan - 1.05		-	
<u>File</u> Project <u>V</u> ersion <u>U</u> ser	V <u>i</u> ew <u>I</u> ools <u>H</u> elp		
		Auto refresh	Read Write
General Geodetic Bin Grid V	ressel Geometry Shotpoints Survey Offset Line Naming Px Header General Information Import Output	Мар	
Project name:	DEMO 3D		
rojecchaner	r mudder		
Survey type:	3D V 4D Baseline		
Version description:	Version 3 🛛 Final		
Output file type:	P1 ~		
Output root file name:	final		
	Include CRS Id in file name		
Project: DEMO 3D Version 3	User: Mark	Grid Units: r	netre

Figure 6-1 – General Parameters

 \mathbf{P}

Release:1.10Date:27 September 2022

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.
	ocymenica	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.

SeisPlan

Page 21 of 64

Þ	FGPS Softw	vare Operation Manual	SeisPlan
	Release: Date:	1.10 27 September 2022	Page 22 of 64
Output	t file	Select from:	
type:		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. 3D, 3D Segmented and OBN su	Only applies to rvey types.
SPS fo	ormat:	Select from:	
		Revision 1.0 Revision 2.1	
Outpu file nai	t root me:	Enter the output root file name.	
Include CRS Check to include in all output files th defined in the Geodetic parameters name:		Check to include in all output files the CRS defined in the Geodetic parameters page.	short name as

Þ	FGPS Soft	ware Operation Manual SeisPla	
	Release: Date:	1.10 27 September 2022	Page 23 of 64

6.2 Geodetic Parameters

FGPS - SeisPlan - 1.04		- 🗆 X
<u>File Project Version User</u>	V <u>i</u> ew <u>I</u> ools <u>H</u> elp	
		Auto refresh Read Write
General Geodetic Bin Grid Vess	sel Geometry Shotpoints Survey Offset Line Naming Px Header General Information Import Output Ma	ąp
Save	Cancel	CRS Manager
Projected CRS		
Primary CRS: 3	063 Azores Central 1995 / UTM zone 26N proj 🗸 🛄 🔍 🔿 🔿	
Short name:	AZR95	
Secondary CRS: 🔽 3	26 WGS 84 / UTM zone 26N proj 🗸 🛄 🔍 🔘 💿	
Short name:	WGS84	
Transformation		
	Show Matching O Show All	
_		
Transformation: 1	972 Azores Central 1995 to WGS 84 (2) 🛛 🖳 🔍 🔿 💿	
	New Transformation	
	new transionadori	
Project: DEMO 3D Version 3	User: Paul	Grid Units: metre

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.

$\mathbf{\Phi}$	FGPS Soft	ware Operation Manual	SeisPlan
	Release: Date:	1.10 27 September 2022	Page 24 of 64

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 <u>CRS manual</u>.

6.3 Bin Grid

FGPS - SeisPlan - 1.04	- 🗆 X
<u>File Project Version User View Tools H</u> elp	
	Auto refresh Read Write
General Geodetic Bin Grid Vessel Geometry Shotpoints Survey Offset Line Naming Px Header General Information Import Output N	lap
Bin Grid Definition	
Origin: Derived values: Easting: 405715.097 Northing: 4239051.243	
Method: I = J + 90° \vee Alignment: Polygon: Bin Edge \vee Target: Bin Centre \vee	
I-axis direction: Across Line Extent: Manual Manual I Max: 369 J Max: 2162 (bin number)	
Bin Definition	
Bin width alongline: 6.25 Bin width acrossline: Automatic V 25	
Origin: I: 1 J: 1 Bin Centre ~	
Increment: I: 1 J: 1	
Offset: I: 0 J: 0	
Derived values: J bearing: 17.457883 Scale factor: 1	
Project DEMO 2D Version 2	Grid Unity moto
roject Denio 3D version 3	ond onits, metre

Figure 6-3 – Bin Grid

Parameter Survey Description types

Þ	FGPS S	oftware Operation Manual			SeisPlan
	Release: Date:	: 1.10 27 Sept	ember 2022		Page 25 of 64
Source:		3D, 3D Seamented.	Select from		
		OBN	Automatic: 1	the bin grid origin is automaticall pest fit the polygon.	y calculated to
			<i>Manual:</i> t	he bin grid origin is specified.	
Origin coordi type:	nate	3D, 3D Segmented, OBN	Select Grid	or Geographic.	
Eastin	g or	3D, 3D	Enter bin gr	id origin easting or latitude.	
latitude: Segmented OBN		Segmented, OBN	This field is read-only when Source is set to Automatic.		
Northi	ng or	3D, 3D	Enter bin gr	id origin northing or longitude.	
longitude: Segmented, OBN		This field is read-only when Source is set to Automatic.			
Method:		3D, 3D Segmented, OBN	Select from	:	
			<i>I</i> = <i>J</i> + 90°:	the I axis is 90° clockwise from (EPSG coordinate operation m	the J axis ethod 9666).
			<i>l</i> = <i>J</i> − 90°:	the I axis is 90° anticlockwise fr (EPSG coordinate operation m	om the J axis ethod 1049).
Polygo	on	3D, 3D	Only applies	s to automatic bin grid definition.	
alignment:		OBN	Select from	:	
			Bin Centre:	polygon corner nearest grid origaligned with the centre of a bin	gin will be
			Bin Edge:	polygon corner nearest grid ori aligned with corner of bin.	gin will be

\mathbf{P}	FGPS Software Operation Manual			al	SeisPlan
	Release: Date:	: 1.10 27 Sep	tember 2022	F	Page 26 of 64
Target alignm	t nent:	3D, 3D Segmented	Only applie Is always <i>E</i> <i>Centre.</i>	es when <i>Polygon Alignment</i> is set t Bin Centre when <i>Polygon Alignmer</i>	o <i>Bin Edge.</i> It is set to <i>Bin</i>
			Select from	n:	
			Bin Centre	: start of line waypoint will be align centre of a bin.	ed with the
			Bin Edge:	start of line waypoint will be aligr edge of bin.	ned with
I-axis direction:		ion: 3D, 3D Segmented OBN	Select from	1:	
			Across Lin	e: I-axis will be in the across line di	rection.
			Along Line	: I-axis will be in the along line dire	ction.
			NOTE: the line par	e J-axis orientation is calculated fro direction specified in the <i>Geomet</i> rameters.	m the sail ſ⁄
Extent: 3D, 3D Segme OBN		3D, 3D	Select from	n:	
		Segmented, OBN	Automatic:	the bin grid extents will be calculat polygon.	ted from the
			Manual:	the bin grid extents, in bin number manually entered.	s, are
Bin wie along I	dth line:	3D, 3D Segmented, OBN	Enter the b	in width in grid units.	
Bin wi	dth	3D, 3D Select from:			
across line: Seg OB		OBN	Automatic:	bin width will be calculated accord and streamer separation.	ing to source
			Manual:	Enter the bin width in grid units.	

1.10

Release:

 $\mathbf{\Phi}$

SeisPlan

Date:	27 Septe	ember 2022		Page 27 of 64
Origin I and J: 3D, 3D		Enter the bir	Enter the bin I and J coordinates at the bin grid origin.	
	Segmented, OBN	From the dro	ppdown list select from:	
		Bin Centre:	he bin grid origin is defined at th	ne bin centre.
		Bin Corner:	the bin grid origin is defined at th	he bin corner.
		NOTE: This coor	defines the position within the b dinates refer to.	in that the bin
Increment I and J:	3D, 3D Segmented, OBN	Enter the bir	n 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 awa from the polygon. See Figure 6-4 and Figure 6-5.		e origin away e 6-5.
Derived Values:	3D, 3D Segmented, OBN	J bearing:	The bearing of the J-axis. For 3 types this is the line direction a the <i>Geometry</i> page.	BD survey as specified in
		Scale factor	See section 6.3.21.	



 $\mathbf{\Phi}$



Page 28 of 64

Release:1.10Date:27 September 2022



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

 $\mathbf{4}$

SeisPlan

Release:1.10Date:27 September 2022

Page 30 of 64

General Parameter	Copied to Geodetic Parameter
Bin Length (along line) and Bin Width	Bin width on I-axis
direction.	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.

FGPS	Software	Operation	Manual
		e por a di on	manaan

SeisPlan

Page 31 of 64

Release:1.10Date:27 September 2022

6.4 Vessel

 \mathbf{P}

Project Version	User View T	ools Help							
3)				Auto refresh		
eral Geodetic Bin G	Grid Vessel Geo	metry Shotpoints Survey Offset L	Line Naming Px Header	General Ir	nformation Import	Output M	ар		
Vessel Id:	1								
Sources in Firing	Sequence								
								_	
Number:	3 ~	Source ID	Cr (gi	ossline o rid units,	ffset from vessel stbd positive)	Inline offs (grid units	et from vessel 5, forward		
		1	37	.5		-150			
		2	0			-150			
		3	-37	7.5		-150			
Streamers									
Number:	10	Streamer ID	Crossline offset from	n vessel	Inline offset fron	ı vessel	Rx groups	^	
Chart Ide	1		(grid units, stbd pos	itive)	(grid units, forwa	ard	···· 3····		
Start Iu.		1	-337.5		-250		480		
Separation:	75	2	-262.5		-250		480		
Inline offset:	-250	3	-187.5		-250		480		
Rx groups:	480	4	-112.5		-250		480		
Duisteral		5	-37.5		-250		480		
RX Interval:	12.5	6	37.5		-250		480		
	Update	/	112.5		-250		480	~	
	<u> </u>				-250		400		
Derived Values									
Layback:	100	Streamer length: 6000							

Figure 6-6 – Vessel

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

P	FGPS So	ftware Ope	ration Manual	SeisPlan
	Release: Date:	1.10 27 Sep	otember 2022	Page 32 of 64
Source	es:		 Select the number of sources and for each sources The ID The crossline offset from the vessel The inline offset from the vessel The first source defined will be associated with with the number defined in the Shotpoints sectors.	urce enter: In the shotpoint tion. Refer to
Strean	ners: 3D Se 2D Cir	9, 3D gmented, 9, Spiral, rcle, Coil	 section 6.6. Enter the number of streamers and for each st The crossline offset from the vessel The inline offset from the vessel The number of receiver groups 	treamer enter
			The above values can be automatically popula entering the values in the fields to the left and <i>Update</i> button.	ated by clicking the
			The receiver group interval is common to all st used along with the maximum number of received for any streamer to calculate the streamer leng	treamers and is ivers defined gth.
			The layback is calculated as the shortest dista any one streamer and any one source.	nce between

FGPS Softw Release: Date [:]	ware Operation Manual	SeisPlan		
	Release: Date:	1.10 27 September 2022	Page 33 of 64	

6.5 Geometry

FGPS - SeisPlan - 1.04	New Tesla Usla	_		×
General Geodetic Bin Grid V	essel Geometry Shotpoints Survey Offset Line Naming Px Header General Information Import Output Map	Auto refresh	Read W	/rite
Survey Polygon File	C:\Data\SeisPlan Test\Demo 3D\Input\Survey Polygon_2.txt Revert			
Exclusion polygon files: Sail Lines	C:\Data\SeisPlan Test\Demo 3D\Input\Exclusion polygon 1.txt + C:\Data\SeisPlan Test\Demo 3D\Input\Exclusion polygon 2.txt Revert			
Direction (degrees): Separation mode: Separation:	15.88025707 Set from polygon Manual 300			
Project: DEMO 3D Version 5	User: Mark	Grid Units:	metre	

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 <i>Revert</i> 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.

Þ	FGPS	Softwa	are Ope	eration Mai	nual	SeisPlan
	Releas Date:	se:	1.10 27 Sep	otember 20	22	Page 34 of 64
Line waypo file:	int	2D		Browse fo See sectio	r the file containing the line waypoint on 7 for file geodetic and format spec	t coordinates. ification.
Exclus	ion	3D, 3E) ontod	Optional.		
file(s):	1	2D	enteu,	Browse fo See section	r the file containing exclusion polygo on 7 for file geodetic and format spec	n coordinates. ification.
				Multiple po be specifie	olygon files containing a single polyg ed.	on each may
				On mouse presented polygon to	e over a specified polygon option but to select a different file, and to rever the polygon from file.	tons are rt the adjusted
Sail lin directio	e on:	3D, OI	BN	Enter the Polygon b one of the polygon le	line direction in decimal degrees or o utton to set the line direction by click polygon legs. Clicking on the oppos g will reverse the line direction.	lick the ing close to ite side of a
				The line d	irection is also the bin grid inline axis	orientation.
Sail lin	e tion	3D, 3E Segm) ented	Select from	n:	
mode:		Cogin	ontou	Automatic	: sail line separation will be automati calculated according to the CMP se	cally eparation.
				Manual:	specify the sail line separation.	
Sail lin	e tion:	3D, 3E) optod	Enter the	sail line separation in grid units.	

Sa separation:

Segmented

FG	PS Softw	SeisPlan			
Re Da	lease: te:	1.10 27 Se	ptember 2022		Page 35 of 64
Segment	3D Sogn	optod	Select from:		
computatio	on:	lented	Node angle bisection:	segment b nodes.	porders bisect the polygon
			Nearest opposite node	segment b nearest no the polygo	porders are joined to the ode on the opposite side of on.
				Warning:	this method may lead to inconsistent sail line separation between segments.
Min gap between same swa lines:	3D Segn th	nented	Enter the minimum dist lines in the same swath gaps which may be in I polygon.	ance in grid n. This is us ines which	d units of gaps between ed to prevent very small exit and re-enter the
Define segment directions:	3D Segn	nented	Click to open the segm	ent definitio	on interface.
Easting ar northing a centre:	d Circle Spira	e, I	Enter the grid coordina	tes of the c	entre.
Easting ar northing a start:	d Coil		Enter the grid coordina	tes of the s	tart.
Easting ar northing a end:	d Coil		Enter the grid coordina	tes of the e	nd.
Coil spacing:	Coil		Enter the distance in gr segments.	rid units bet	ween adjacent coil
Dir. Centre to sol	e Circle Spira	e, I	Enter the direction, in c line.	legrees, fro	m the centre to the start of

 \blacklozenge

SeisPlan

Relea Date:	se:	1.10 27 Sep	otember 2022		Page 36 of 64
Direction:	Circle,	0 1	Select from:		
	Spiral,	Coll	Clockwise:	The line is to be acquired in th direction.	e clockwise
			Anti-clockwise:	The line is to be acquired in the clockwise direction.	ne anti-
Radius:	Circle		Enter the circle	radius in grid units.	
Radius:	Coil		Enter the coil ra	dius in grid units.	
Line spacing:	Spiral		Enter the distan segments.	ce in grid units between conce	ntric spiral
Maximum radius:	Spiral		Enter the distan line.	ce in grid units from the centre	to the start of
Minimum radius:	Spiral		Enter the distan line.	ce in grid units from the centre	to the end of

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.

$\mathbf{\Phi}$	FGPS Soft	ware Operation Manual	SeisPlan
	Release: Date:	1.10 27 September 2022	Page 37 of 64

6.6 OBN

General Geodetic Binning Grid Ve	ssel Geometry OBN	Shotpoints Surve	ey Offset Line Naming	SPS Header	General Information	Import	Output	Мар
Source polygon file:	C:\Data\PreplotTest\D	emo OBN\Source_n	oly tyt					
Source polygon ne.	c. pata in cpior carlo	emo obin (Source_p	oly.txt			•		
Source polygon:	Compute	/						
Maximum receiver distance:	500							
Offerst and is as	1000							
Unset radius:	1000							
Interpolation (deg):	45							
incorporation (deg).								

Figure 6-8 – OBN

Parameter	Survey types	Descriptio	on	
Source polygon file:	OBN	Browse for the file to read or write the source polygon coordinates.		
		The file for containing	mat is space separated text with each record node number easting northing.	
Source	OBN	Select fror	n:	
polygon:		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.	

P	FGPS Software Operation Manual				SeisPlan
	Release Date:):	1.10 27 Sej	ptember 2022	Page 38 of 64
Maxim receive distand	oum er ce:	OBN		Enter the maximum distance between adjacent used for the receiver node polygon computation value results in a smoother polygon. A value of used for the polygon shown in Figure 6-9. A val was used for the polygon shown in Figure 6-10.	receivers n. A large 1000 was ue of 4000
Offset radius:	:	OBN		Enter the distance between the receiver node p the source polygon.	olygon and
Interpo (deg):	olation	OBN		Enter the angular increment for interpolating no curved parts of the source polygon. A low value smoother polygon. The default value of 10 is re	des on the results in a commended.

T



Figure 6-9 – Preplot: OBN polygon computation 1

 \blacklozenge

Release:1.10Date:27 September 2022



SeisPlan



Figure 6-10 – Preplot: OBN polygon computation 2



SeisPlan

Page 40 of 64

Release:1.10Date:27 September 2022

6.7 Shotpoints

💠 FGPS - SeisPlan - 1.06		_	
File Project Version User View Tools Help			
		Auto refresh	Read Write
General Geodetic Bin Grid Vessel Geometry Shotpoints s	Survey Offset Line Naming Px Header General Information Import Output	Мар	
First SP number: 1001 Increment: 1	Precision (ndp): 0 v Interval: 18.75		
Distance mode: Grid Vessel	Output interval: 1 Shooting point: Mean CMP		~
✓ Dithering: Dither range +/- : 5			
Project: DEMO 3D Version 3	User: Mark	Grid Units: m	netre ":

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 <i>Align SPs</i> option below.
First SP Number:	Circle, Spiral, Coil	The first SP number for the line.

 $\mathbf{\Phi}$

Relea Date:	se: 1.10 27 Se	eptember 2022	Page 41 of 64
SP Number Increment:		The SP number increment.	
SP Number Precision:		The number of decimal places to which SP i be rounded.	numbers are to
SP Interval:		The SP interval in grid units.	
Distance		Select from:	
Mode:		Ellipsoid: distances are calculated on the el	lipsoid.
		Grid: distances are calculated on the g	rid.
Record:		Select the record type from the dropdown lis	st.
		NOTE: For 4D Baseline this is fixed as Sour	rce.
Output Interval		Enter the output SP interval. If 0 then only w written to the P1 and shapefile. If this number than 0 then waypoints and every <i>n</i> th SP will P1 and shapefile.	aypoints will be er, <i>n</i> , is greater be written to the
Shooting Point:		The shooting point for Orca P1/90 H2600 re	cord.
Dithering:		Check to enable dithering. Dither will be app randomly up to the limit specified by the <i>Dith</i> below).	blied pseudo- her Range (see
Dither Range +/-:		Enter the maximum dither in grid units.	
Align SPs:	2D	When checked, the shotpoint numbers of all same, or opposite, orientation ±10° are align shotpoint number is that specified as the <i>Fir</i>	lines with the ed. The lowest st SP Number.
Max SPs per line	Spiral, Coil	Enter the maximum number of shotpoints to one line. If the total number of shotpoints ex then the preplot will be split into additional line	be defined in ceeds this value nes.
Run-in SPs:	3D, 3D	Enter the number of run-in shotpoints.	
	Segmented	Applies only to output file types SPS S and	SPS Pair.

SeisPlan

\Rightarrow FGPS Software Operation Manual SeisPlan Release: 1.10 Date: 27 September 2022 Page 42 of 64 3D, 3D Run-out Enter the number of run-out shotpoints. SPs: Segmented Applies only to output file types SPS S and SPS Pair. Enter the source record instrument code, maximum 2 Instrument code characters.

characters.

Applies only to output file types SPS S and SPS Pair.

Enter the receiver record instrument code, maximum 2

Applies only to output file types SPS R and SPS Pair.

6.8 Survey Offset

source:

code receiver:

Instrument

FGPS - SeisPlan - 1.04	_	
File Project Version User View Tools Help		
	🖌 Auto refresh	Read Write
General Geodetic Bin Grid Vessel Geometry Shotpoints Survey Offset Line Naming Px Header General Information Import O	Output Map	
Apply to survey polygon:		
Apply to exclusion polygons:		
Range: 1000		
Bearing: 450		
Project: DEMO 3D Version 3 User: Paul	Grid Units: n	netre

Figure 6-12 – Survey Offset

\mathbf{P}	FGPS Soft	FGPS Software Operation Manual		
	Release: Date:	1.10 27 September 2022	Page 43 of 64	

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.

oftware Operation Manual	SeisPla	
1.10 27 September 2022	Page 44 of 64	
S o	Software Operation Manual e: 1.10 27 September 2022	

6.9 Line Naming

FGPS - SeisPlan - 1.04	_	
	☑ Auto refresh	Read Write
General Geodetic Bin Grid Vessel Geometry Shotpoints Survey Offset Line Naming Px Header General Information Import Outp	ut Map	
Line name: ABC		
Line name position: Prefix V		
Sail line numbering method: Auto (from CMP) V CMP for sail line number: CMP Low V		
Include direction in line name		
Project: DEMO 3D Version 3 User: Paul	Grid Units: I	metre
Figure 6.12 line Noming		

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		Select from:
ροδιίιοη.		Prefix: the string will be prepended to the line number.
		Suffix: the string will be appended to the line number.

Þ	FGPS	Softwa	re Op	eration Manual		SeisPlan
	Releas Date:	se:	1.10 27 Se	ptember 2022		Page 45 of 64
Sail lin	e	3D, 3D) Intod	Select from:		
metho	d:	Segmented	inted	Auto (from CMP)	: line number will be taken fro specified by the <i>CMP for Sa</i> (see below).	om a CMP as ail Line Number
				CMP low-high:	line number will be in the for where <i>LLLL</i> is the lowest CI swath and <i>HH</i> is the highes swath.	mat <i>LLLL-HH</i> MP in the t CMP in the
				Nearest CMP:	line number will be taken fro SMP to the line.	m the nearest
				Manual:	line number is manually spe according to the first line nu <i>First Sail Line Number</i> and the <i>Number Increment</i> (see below	cified mber and the the <i>Sail Line</i> ow).
CMP fo	or sail	sail 3D, 3D) anted	Select from:		
inte riu	mber.	OBN	incu,	CMP High:	line number will be taken fro of the two CMPs adjacent to	m the highest the sail line.
				CMP Low:	line number will be taken fro of the two CMPs adjacent to	m the lowest the sail line.
First sa numbe	ail line er:	3D, 3D Segme) ented	Enter the numbe the bin grid origir	r of the first sail line i.e., the s າ.	ail line nearest
Sail lin numbe increm	e er ient:	3D, 3D Segme	ented	Enter the sail line	e number increment.	
Include directio	le 3D ion in			When checked the be appended to the termination of the second sec	ne sail line direction rounded t the line name.	to integer will
iirie na	me.			Applies only to 4	D Baseline option – see secti	on 6.1.

 \mathbf{P}

FGPS Software Operation Manual

SeisPlan

Release:1.10Date:27 September 2022

Page 46 of 64

6.10 Px Header

Item	Description
Project Identifier	ABC-1234
Survey Area	South Sea block I, II, III
General Survey Details	3D seismic
Survey Layout Description	6 streamer 2 source
Numeric Country Code	123
Text Country Code	ABC
Date of Survey	30/12/1899
Date of Issue	30/12/1899
Tape Version	1
Client	Acme Oil Co.
Geophysical Contractor	Exploration services limited
Positioning Contractor	Positioning serivces limited
Position Processing	Positioning serivces limited
Receiver Groups per Shot	2880
Vertical Datum	Sea level
Comments:	
General comments	

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.



SeisPlan

Page 47 of 64

Release:1.10Date:27 September 2022

6.11 SPS Header

	Auto retresh	K	au w
ral Geodetic Bin Grid Vessel (Geometry Shotpoints Survey Offset Line Naming SPS Header General Information Import Output Map		
Item	Description		
Description of survey area	Nigeria OML 2A		
Date of survey	02/06/2022		
Post-plot date of issue	02/06/2022		
Tape/disk identifier			
Client	NNOC		
Geophysical Contractor	Seismic Surveys Ltd.		
Positioning Contractor	Seis Finder		
Pos. proc. contractor	FGPS		
Field computer system(s)			
Coordinate location	Centre of source		
Offset from coord. location	0		
Clock time w.r.t. GMT			
Comments:			
Sound velocity profiles not obs	erved dues to local regulations. E/s velocity used 1500.		

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.



Release:1.10Date:27 September 2022

SeisPlan

Page 48 of 64

6.12 General Information

FGPS - SeisPlan - 1.04		- 🗆 X
File Project Version Use	er View Tools Help	Auto refresh Read Write-
General Geodetic Bin Grid	Vessel Geometry Shotpoints Survey Offset Line Naming Px Header Gen	eral Information Import Output Map
Item	Description	
Client:	Acme Oil Co.	
Survey:	South Sea block I, II, III	
Vessel:	R/V Oifinder	
Project: DEMO 3D Version 3	User: Paul	Grid Units: metre

Figure 6-16 – General Information

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

$\mathbf{\Phi}$	FGPS Soft	ware Operation Manual	SeisPlan
	Release: Date:	1.10 27 September 2022	Page 49 of 64

6.13 Import

FGPS-SeisPlan-1.04 F							
File Project Version User View Tools Help Ceneral Geodetic Bin Grid Vessel Geometry Shotponts Survey Offset Line Naming Px Header General Information Import Output Map Graphics File Colour Type Import final_AZR95_V3.pointm.shp SHP	FGPS - SeisPlan - 1.04 — 🗆 🗙						
Caphics Pot Fie Colour Type Import Import <	e Project Ver	sion User View Tools Help					
General Geodetic Bin Grid Vessel Geometry Shotpoints Survey Offset Line Naming Px Header General Information Import Output Map	3					Auto refresh	Read Write
Pict File Colour Type Import final_AZR95_V3.pointm.shp SHP SHP<!--</td--><td>eneral Geodetic</td><td>Bin Grid Vessel Geometry Shotpoint</td><td>Survey Offset Line Naming Px Hea</td><td>der General Inf</td><td>formation Import Outp</td><td>out Map</td><td></td>	eneral Geodetic	Bin Grid Vessel Geometry Shotpoint	Survey Offset Line Naming Px Hea	der General Inf	formation Import Outp	out Map	
Plot File Colour Type Import Import SHP	Graphics						
final_AZR95_V3.pointm.shp SHP Image: SHP Image: SHP Image: SHP	Plot	File	Colour	Туре	Import		
		final_AZR95_V3.pointm.shp		SHP			
					_		
Project: DEMO 3D Version 3 User: Paul Grid Units: metre							

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.



Page 50 of 64

Release:1.10Date:27 September 2022

6.14 Output

FGPS - SeisPlan - 1.07	- 🗆 X
<u>File Project Version User View Tools H</u> elp	
	Auto refresh
General Geodetic Bin Grid Vessel Geometry Shotpoints Survey Offset Line Naming Px Header General Information Import Outp	Map
Sai Lines	
P190 P111 File name suffix: Output line length in P190 (cols 65-80)	
CMP Lines	
P190 P111 File name suffix: CMP	
Reports Bin Definition	
✓ PDF ✓ Text Degree format: DMS.ssss ✓ ✓ P698 P611	
Report Logo and Header	
Logo 1: C:\Data\SeisPlan Test\Demo 3D\Logos\FGPS Logo.jpg 🗙 🐇	
Logo 2: C:\Data\SeisPlan Test\Demo 3D\Logos\PGS Logo.jpg 🗙	
Report Header: Demo Preplot - 3D - Timbuktu Western Region, Blocks 2 & 3	
Shape Files	
Polvine: Saillines CMP lines	
Polygon	
Map Other	
PDF DXF Seisintel KML Point interval: 10 Zip	
Project: DEMO 3D Version 3 User: Paul	Grid Units: metre

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.

\mathbf{P}	FGPS Software Operation Manual		peration Manual	SeisPlan
	Releas Date:	se: 1.10 27 S) September 2022	Page 51 of 64
CMP li	MP lines: 3D, 3D Segmented, OBN		Check to output P1/90 and/or P1/11.	
Filenar suffix:	ne		Text will be included in the file name for P1 fil	es.
Report PDF:	s:		Check to output PDF report.	
Text: Degr form:	ee et		Check to output text report. Select the degree format for reporting. Select	from:
TOITIN	<i>.</i>		DM.mmmm: degree and decimal minute	
			DMS.ssss: degree, minute and second	
Bin definiti	on:	3D, 3D Segmented OBN	Check to output P6/90 and/or P6/11	
Report and he	logo ader:		Select logo image files and header text to appression report.	pear in the PDF
Shape	files:			
Sail I	ines:		Check to output shapefiles for sail lines	
CMP lines.		3D, 3D Segmented OBN	Check to output shapefiles for CMP lines	
Polyl	ine:		Output to ESRI shapefile set with feature clas (polyline with measures).	s PolylineM
Legs sepa lines.	as rate		When checked, lines with more than two way line legs written as separate lines to Polyline shapefile.	points will have A feature class
Point	<u>t:</u>		Output to ESRI shapefile set with feature clas with measures). Every shotpoint will be writte	s PointM (point n to the file.

🕈 FC	FGPS Software Operation Manual			SeisPlan
Re Da	elease: ate:	1.10 27 Septem	ber 2022	Page 52 of 64
Point		Set	the point and label interval for PointM fi	iles.
interval.		Wa	rning: for large surveys with a low poin operation may take several minu	t interval this utes for CMP files.
Polygon	: 3D, 3E Segme OBN	O Out ented, clas	put the survey polygon to ESRI shapefi is PolygonM (polygon with measures).	le set with feature
Мар:		Che	eck to output map to PDF and/or DXF fil	es.
		See	e section 6.15 for map content specificat	tion.
Other:				
SeisInte	<i>:!:</i>	Out opti eith	put sail lines and polygons to SeisIntel t on is only enabled if the WGS 84 CRS i er primary or secondary CRS.	format. This is defined as
KML:		Out	put sail lines to KML	
Point interval:		Set	the KML point interval.	
Zip:		Out	put to KMZ file.	

T



6.15 Map

FGPS - SeisPlan - 1.04	- 0	×
File Project Version User View Icols Help Image: Second to the second to th	Auto refresh Rear Naming Py Header General Information Import Output Map	d Write
Layout Graticule spacing (grid units): Information panel position: Automatic Paper size: A0 Layers Sail lines Coastline Solution: High Coastline Resolution: High Limits: Automatic + / - (°) 5	Annotations SP Number Interval: 0 Modulus interval Tick marks Interval: 10 Size: 2 Margins Top 0 Left 0 0 Bottom	
Project: DEMO 3D Version 3 User: Paul	Grid Units: metre	

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.

\mathbf{P}	FGPS Softw	ware Operation Man	nual SeisPlan
	Release: Date:	1.10 27 September 202	22 Page 54 of 64
Infor	mation	Select from	ר:
position:	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.
Pape	er size:	Select from	ו the dropdown list.
Annota	ations:		
SP num	ber:	Check to o	utput the SP number at the specified interval.
SP r inter	SP number S interval:		interval, <i>n</i> , at which to output SP numbers.
Mod inter	ulus val:	When chec output	ked, the first, last and every modulus <i>n</i> SP will be
Tick marl	ks:	Check to o	utput tick marks at the specified interval.
Tick inter	mark val:	Specify the first, last ar	e interval, <i>n</i> , at which to output tick marks. The nd every modulus <i>n</i> tick mark will be output.
Size	Size: Specify, in grid units, the annotation text height and tio length.		grid units, the annotation text height and tick mark
Layers	5:	Check the	appropriate checkboxes for the layer selection.
		If no layers	are checked then the map will not be output.
Margir	Margins: Optionally set the margins in grid units. These are to a for additional objects to be inserted int the DXF.		set the margins in grid units. These are to allow al objects to be inserted int the DXF.

Þ	FGPS Software Operation Manual		SeisPlan		
	Release: Date:	1.10 27 September 202	22	Page 55 of 64	
Coastline:		The coastli in <i>Main Me</i> installed, th Products pa	The coastline database is located under the folder specified in <i>Main Menu Tools Options</i> . If the files have not been installed, they should be download from the FGPS website, Products page.		
		WARNING	the coastline database is referen WGS-84 CRS. If the project prim WGS-84 then the software will s transformation to convert the coa coordinates to the primary CRS. transformation is found then the not be plotted.	ced to the hary CRS is not earch for a astline If no coastline will	
Reso	olution:	Select from	h High, Medium, Low.		
Limits: Se		Select from	Select from:		
		Automatic:	the coastline extent will be automa calculated.	atically	
		Manual:	specify the coastline extents in de	cimal degrees.	

 \mathbf{P}

FGPS Software Operation Manual

Release:1.10Date:27 September 2022

SeisPlan

Page 56 of 64

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:

\mathbf{P}	FGPS Software Operation Manual		SeisPlan	
	Release: Date:	1.10 27 September 2022	Page 57 of 64	

롿 Line Data	_		×
File: C:\Data\temp shp		Browse	
Import polyline endpoints only			
DB field name for first SP: FIRST_FULL			
DB field name for last SP: LAST_FULL_			

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).

SeisPlan

Release: 1.10 Date: 27 September 2022

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: nnnnnnn 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: ,

$\mathbf{\Phi}$	FGPS Soft	ware Operation Manual	SeisPlan	
	Release: Date:	1.10 27 September 2022	Page 59 of 64	

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.

P	FGPS Soft	ware Operation Manual	SeisPlan
	Release: Date:	1.10 27 September 2022	Page 60 of 64

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

FGPS Software Operation Manual

SeisPlan

Release: 1.10 Date: 27 September 2022

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.



Release: 1.10 Date: 27 September 2022 SeisPlan

Page 62 of 64

୍

Zoom extents.

8.4 Editing Functions

-p^

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.

•^{7[#]}

+

-¶

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).

 FGPS Software Operation Manual
 SeisPlan

 Release:
 1.10

 Date:
 27 September 2022
 Page 63 of 64

Undo last edit.

专

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.



E

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.

 FGPS Software Operation Manual
 SeisPlan

 Release:
 1.10

 Date:
 27 September 2022

 Page 64 of 64

Delete: Delete the selected bookmark.

Update: Update the selected bookmark to the new view.

Rename: Rename the selected bookmark.