Seismic Loader 4.4



Operational scenario: processing the seg-y file



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Introduction

Seismic Loader application is designed to work with seismic, navigation and topographic data.

This document is auxiliary and clearly shows the main stages of working with a *seg-y* file:

- 1. Adding a file
- 2. Setting parameters and attributes
- 3. Processing input material
- 4. View processed material
- 5. Saving the processed material to a *shape* file
- 6. Usage example



Adding a file

Add the document you are going to work with to the "Document" tab using the **t** button.

Set the appropriate geometry type. The example shows working with the "polygon" geometry type.

Document Coordinates Loading data Segy settings			
+ - 0			
Path	Format 🔺	Size	Geometry type
/mp/PV_DEMO_DATA/STORAGE/SEISMIC/3D/PROC/3D_SEVERNOE_2009/DOC/LIB/LXY/LXYcub.lxy	LXY	482.96 Kb	▲
/mp/PV_DEMO_DATA/STORAGE/SEISMIC/3D/PROC/3D_SEVERNOE_2009/DOC/Other/CGGVU_T20_Matcalc_nov0	PPT	3.16 Mb	
/mp/PV_DEMO_DATA/STORAGE/SEISMIC/3D/PROC/3D_MARJASOVSKOE_2008/DATA/3D_MARJASOVSKOE_2008	SEGY	648.47 Mb	polygon
/mp/PV_DEMO_DATA/STORAGE/SEISMIC/3D/PROC/3D_MARJASOVSKOE_2008/DATA/MIGR.sgy	SEGY	2.26 Gb	
/mp/PV_DEMO_DATA/STORAGE/SEISMIC/3D/PROC/3D_PIKTOVOE_2008/DATA/3D_PIKTOVOE_2008.segy	SEGY	99.25 Mb	
/mp/PV_DEMO_DATA/STORAGE/SEISMIC/3D/PROC/3D_PIKTOVOE_2009/DATA/3D_PIKTOVOE_2009.segy	SEGY	458.61 Mb	
/mp/PV_DEMO_DATA/STORAGE/SEISMIC/3D/PROC/3D_PIKTOVOE_MERGE_2010/DATA/3d_piktovoe_2010.segy	SEGY	50.75 Mb	

Setting up

Go to the "Segy settings" tab that has appeared.

"EBCDIC" tab

Go to the EBCDIC tab and select the required attributes. In the example, the following attributes are selected:

- SEISMIC ACQUISITION
- SURVEY TYPE
- ACQUISITION TYPE
- COMPANY
- DATE START
- DATE END
- AZIMUTH



Operational scenario: processing the seg-y file

EBCI	DIC Traces view Trace headers	Binary header Tape Label	Data Trailer				
				Attribute	Pos	Length	Value
			0 🗧	SEISMIC ACQUI	115	20	3D_MARJASOV
			SURVEY TYPE	195	10	3d survey	
C01	MIG		^	ACQUISITION T	275	10	processing
C02	ARIA	:3D_MARJASOVSKOE_200	8	COMPANY	595	9	Geoleader
C04	LINE/BLOCK ACTIVITY TYPE	:processing		DATE START	355	10	2008-03-08
C05	DATE ACTIVITY START	:2008-03-08		DATE END	435	10	2008-07-08
C06 C07	CLIENT	:2008-07-08 :Geoleader		AZIMUTH	1235	9	-0.090804
C08	COMPANY	:Geoleader			1		
C09	CREW	:Geoleader					
C10	OBSERVER	:Geoleader					
C11	PROCESSING COMPANY	:Geoleader					
C12	FORMAT/TYPE MEDIA/DENSITY	: SEGY					
C13	LINE RANGE	:100-1030					
C14	CRLINE RANGE	:100-751					
C15	BIN SIZE	:25x25					
C16	AZIMUTH AZX (rad)	:-0.090804	=				
C17	SAMPLE INTERVAL	:2					
C18	NLINE IN BITES	:189-192					
C19	NCRLINE IN BYTES	:193-196 or 21-24					
C20	CDP ABSCISSA (X) IN BYTES	:181-184 or 105-108					
C21	CDP ORDINATE (Y) IN BYTES	:185-188 or 205-208					
C22	POINT1 (LINE;CRLINE;X;Y)	:100,325,240039,6576	587				
C23	POINT2 (LINE;CRLINE;X;Y)	:100,665,248504,6575	816				
C24	POINT3 (LINE;CRLINE;X;Y)	:1030,386,243666,659	9603				
C25	POINT4 (LINE;CRLINE;X;Y)	:1030,736,252380,659	8809				
C26							
C27							
C28							
C29							
C30							
C31			_				
C32							
C33							
C34							
C35						Hander	tring
<u>C36</u>				+ -		- neader s	ung
				8			

"Trace headers" tab

Set the bytes for the *X*, *Y*, *INLINE*, *XLINE* parameters, which are usually indicated on the "EBCDIC" tab. In the example they are:

- INLINE = 189
- XLINE = 193
- X = 181
- Y = 185

All parameters have data type INT4.

Now you need to specify the necessary attributes and formulas that will determine which value will be included in the attribute information.

For the INLINE parameter, we set the FIRST INLINE attribute and the MIN formula, which means that the minimum value of the first *inline* parameter will be included in the attribute information. For XLINE, the LAST XLINE attribute is selected and the MAX formula - the maximum value of the last *xline* parameter.



E	EBCDIC & Traces view & Trace headers & Binary header & Tape Label & Data Trailer										
	Extended	Trace Header	number								
	N₂	Туре	Bytes	Name	Value	Attribute	Formula	Scale	Offset		
	35	INT2	95	Uphole time at source 0 if not known o	0.0			1.0	0		
	36	INT2	97	Uphole time at group 0	0.0			1.0	0	1	
	37	INT2	99	Source static correction 0	0.0			1.0	0	1	
	38	INT2	101	Group static correction 0	0.0			1.0	0	1	
	39	INT2	103	Total static applied 0	0.0			1.0	0	1	
	40	INT2	105	Lag time A. Time in msec between	3.0			1.0	0	1	
	41	INT2	107	Lag time B. Time in msec between tim	-22105.0			1.0	0		
	42	INT2	109	Delay recording time. Time in msec b	0.0			1.0	0		
	43	INT2	111	Mute time - start 0	72.0			1.0	0		
	44	INT2	113	Mute time - end 0	72.0			1.0	0		
	45	INT4	13	Inline number	0.0			1.0	0		
	46	INT4	13	Inline number	0.0			1.0	0		
	47	INT4	189	INLINE	100.0	FIRST INLINE	MIN	1.0	0	=	
	48	INT4	193	XLINE	325.0	LAST XLINE	MAX	1.0	0		
	49	INT4	181	x	240039.0			1.0	0		
	50	INT4	185	Y	6576587.0			1.0	0	Ŧ	

Conversion

Go to the "Coordinates" tab. You will see a window for configuring the reading of a *seg-y* file. Use the default settings and click continue.

o 3D-se	egy settings 🛞
 calculate as one survey allow incorrect grid distance Skip traces with empty coord all traces take every 4 	linates
Boundary calculation method use extreme INLINE traces use all traces	Buffer size 20,000 +
	Apply

A file processing window will appear displaying the current progress of the operation.

○ Parsing segy\files	×
Processing file /mp/PV_DEMO_DATA/STORAGE/SEISMIC/3D/PROC/3D_MARJASOVSKOE_20 (1/1) Progress: 60%	08/DATA/3D_M
	Cancel



Upon completion of processing, you will see the processed material in the data window, automatically marked up by the application.

(3D_MARJASOVSKOE_2008_N	/IGR.segy			
		248504 0	6575916 0	0.0	
	SD_MARJASOVSKUE_2008	248304.0	6575616.0	0.0	
	3D_MARJASOVSKOE_2008	248506.0	65/5841.0	0.0	
	3D_MARJASOVSKOE_2008	248508.0	6575866.0	0.0	
	3D_MARJASOVSKOE_2008	248511.0	6575891.0	0.0	
	3D_MARJASOVSKOE_2008	248513.0	6575916.0	0.0	
	3D_MARJASOVSKOE_2008	248515.0	6575941.0	0.0	
	3D_MARJASOVSKOE_2008	248517.0	6575966.0	0.0	
	3D_MARJASOVSKOE_2008	248520.0	6575990.0	0.0	
	3D_MARJASOVSKOE_2008	248522.0	6576015.0	0.0	
	3D_MARJASOVSKOE_2008	248524.0	6576040.0	0.0	
	3D_MARJASOVSKOE_2008	248526.0	6576065.0	0.0	
	3D_MARJASOVSKOE_2008	248529.0	6576090.0	0.0	
	3D_MARJASOVSKOE_2008	248531.0	6576115.0	0.0	
(Current page: 1 [1 - 100]				« < >

Then, on the Projection tab, select the appropriate coordinate system and datum shift from the drop-down lists.

Projection		
CS name	Pulkovo 1942 / Gauss-Kruger zone 13	-
28413→4326	Pulkovo 1942 to WGS 84 (3) (EPSG OP 1287)	-

Then click on the button - the data will appear in the "Objects" tab. After that you can interact with the processed material.



View

In order to open the map module, just click on the button. You will see a window for changing the parameters of database objects. Leave the default settings and click apply.

○ change parameters of da abase objects/zones ⊗									
		Range size: 6,000 * km							
Layers settings									
	Layer	Map title							
	countries	Страны							
Create support Point layer									
Apply									

After loading, you will see the map module:

•	2D Map Window	2	\sim \times \sim
▶ € € ⊕ 其 ==		10	
Layers			N
🔊 🗸 🚼 💾 🔪 🛒 Auxilia	ry e]	λ I
👾 🖌 😵 💾 🔪 🛒 3D_M	RJA		Д
👾 🖌 😵 💾 🔪 🛒 зр_м	RJA!		
👁 🖌 🐕 💾 🔪 🛒 New s	Jrve		
	3D_MARJASOVSKOE_2008		<u>3.7 km</u>
O No cursor	া CS projection : Pulkovo 1942 / Gauss-Kruger zone 13 Datum Shift : Pulkovo 194	2 to WGS 84 (3) (EPSG	OP 1287)



Saving to *shape*-file

The application allows you to save survey geometry and attribute information to a *shape* file and accompanying files.

In order to save the data, click on the button. After that, the save window will appear. Select a directory where you want to save the file and enter a name for the file.

0	\$	Save	(\mathbf{x})
Save <u>I</u> n:	NewFolder	•	46682
 1.shp 2.shp 3.shp 3d_marjas 4.shp Marjasovs 	ovskoe_2008.shp koe_2008.shp		
File <u>N</u> ame:			
Files of <u>T</u> ype:	Shape files		•
			Save Cancel

Upon completion of the operation, an information message will appear in the lower right corner of the application:







Usage example

Files saved this way are compatible with *shape* file viewers.

- QGIS 2.14.9-Essen Ø Project <u>E</u>dit <u>V</u>iew <u>L</u>ayer <u>S</u>ettings <u>P</u>lugins Vector <u>R</u>aster <u>H</u>elp 🗋 🛅 🖶 🖶 🖓 🔨 🖑 🆃 🕫 💭 💢 💭 🖓 🖓 🖉 🖉 🖓 🖓 👘 🖾 🔹 //-/ 🗄 🕆 🔓 🧏 🗴 🕯 🖆 🕍 🖷 🧠 💘 🖷 🖷 Layers Panel 0 × v 🍸 ६ 👻 🗊 🗔 d. 3d mariasovskoe 2008 œ. Po • V? **?**_ V -Scale 147,483,648 ▼ Rotation 0.0 🛊 🗹 Render 💮 EPSG:4284 🛛 🥶 Coordinate 252012,6594977
- 1. Survey geometry of a saved file opened with a third-party QGIS application

2. Attribute information of a saved file opened with a third-party QGIS application

🌠 Marjasovskoe_2008 :: Features total: 1, filtered: 1, selected: 0								(+ - = ×				
/	8 2 🖪	te 🗧 🖸	🖥 🦉 🖗 🖸	o 🛙 🗔 🖫								2
	name	FILE_NAME	FILE_PATH	SEISM_ACQ	SURVEYTYPE	ACQ_TYPE	COMPANY	DATE_START	DATE_END	AZIMUTH	FIRSTINLIN	LAST_XLINE
0 3	D_MARJAS	3D_MARJAS	/mp/PV_DE	3D_MARJAS	3d survey	processing	Geoleader	2008-03-08	2008-07-08	-0.090804	100	751
	Show All Features.											