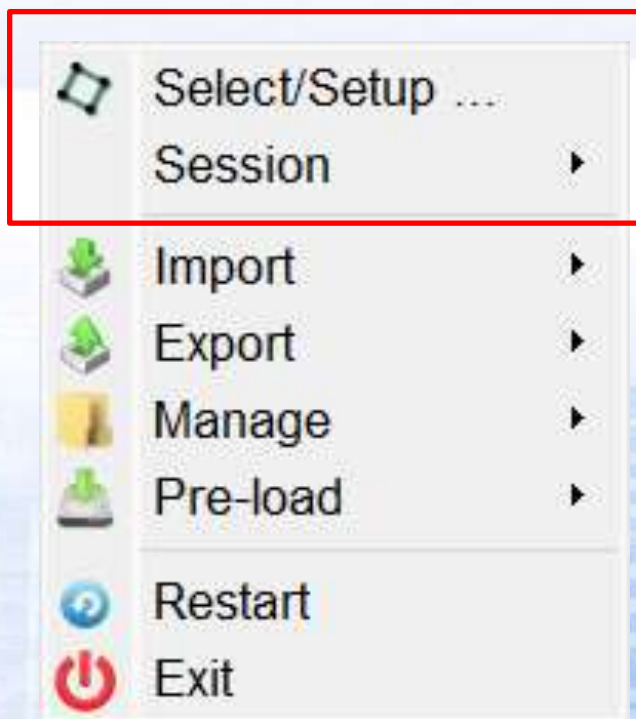




4 勘测(Survey)





4.1 Select & Setup Survey

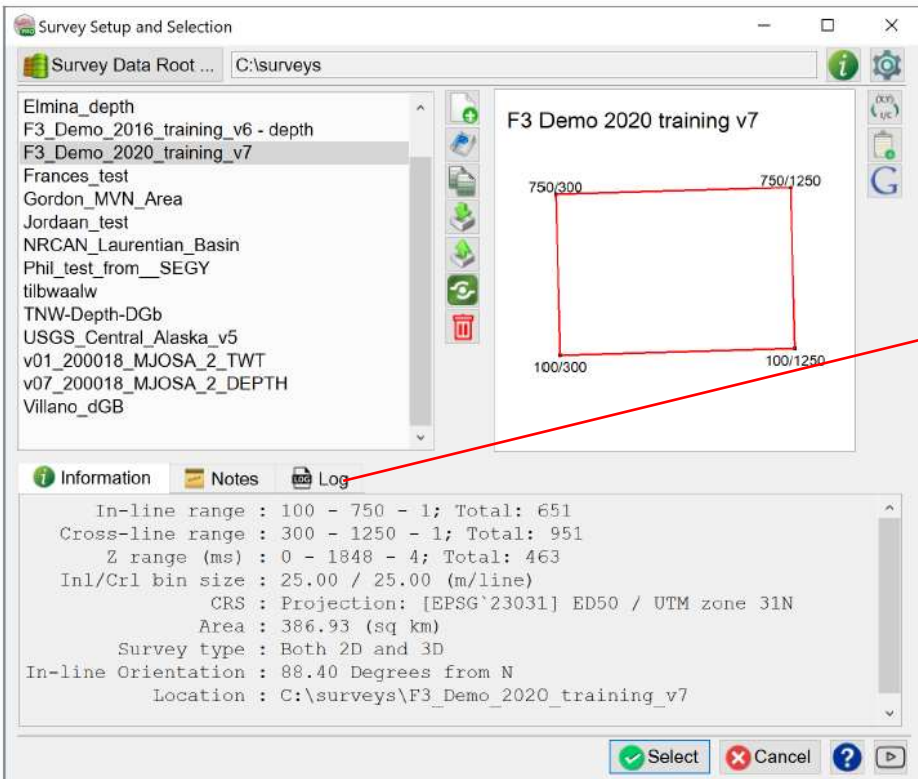
Find more detailed instructions on this topic in the Workflows Documentation.

The Survey module is used to select, create, modify, delete or copy surveys. A survey defines the geographical boundaries of an OpendTect project and relevant positioning information such as the relationship between inline/crossline and X/Y coordinate systems. Each survey (project) stores its data in a separate directory that needs to be specified along with the survey reference name.

- Survey模块用来选择、创建、修改、删除或复制勘测。
- 一次Survey定义项目的地理边界及相关位置信息，如inline/crossline和XY坐标系统之间的关系。
- 各次Survey在单独的文件夹下存储其数据，需要定义勘测的参考名称。







4.1.1 Survey Selection Window

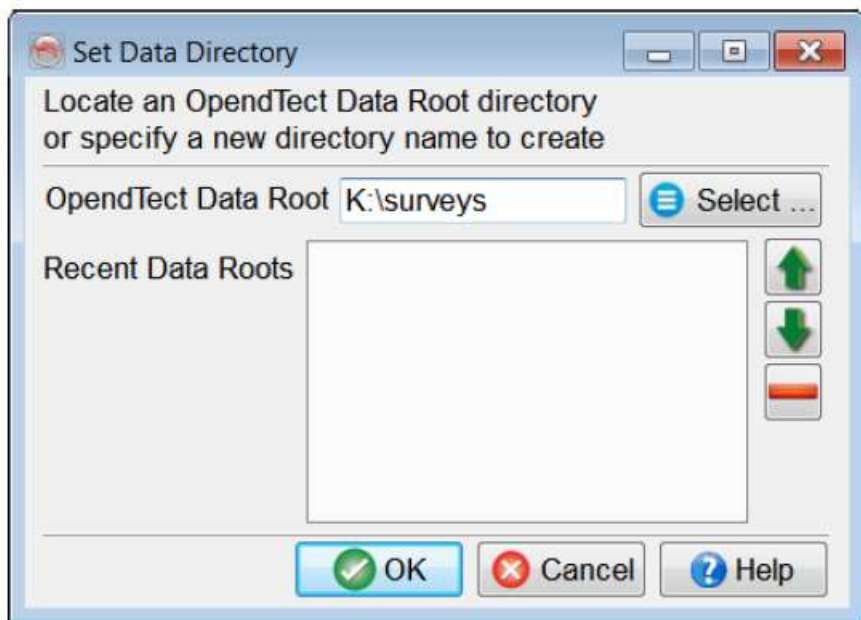


The three tabs, *Information*, *Notes* and *Log* show their respective data:



Select an existing survey from the list of surveys on the left or create a new one with New  ... (see below). The boundaries of the survey are depicted in the field to the right and detailed in the information field  . The Notes  field is a free-format text field to store relevant survey notes.


 Survey Data Root ... When you install OpendTect, selected an OpendTect data directory where all your surveys are stored:








Any folder can be turned into an OpendText folder, the only change being the addition of a parameter file (.omf).

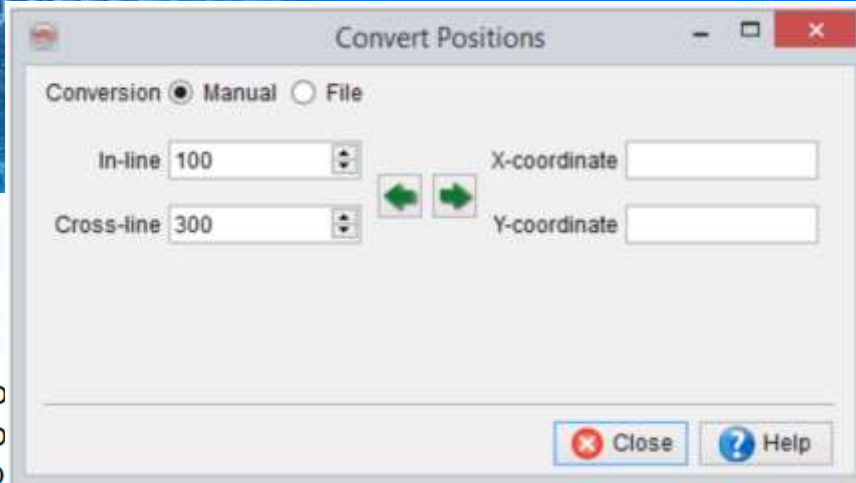
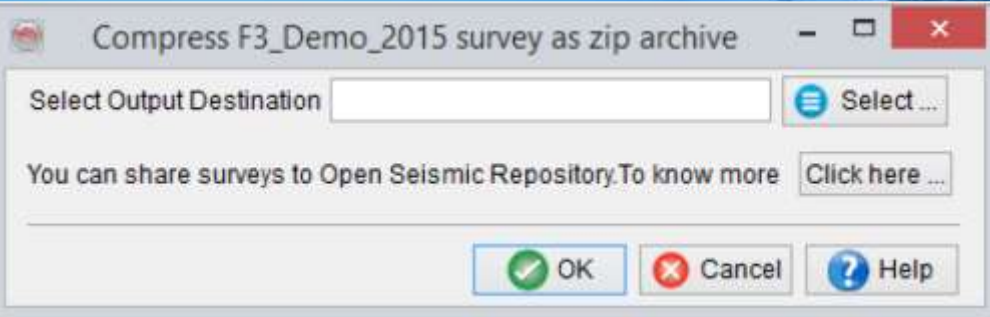
Only surveys stored in the selected OpendText folder are displayed and can be accessed. Later you can open another OpendText folder clicking on *Survey Data root*. The current data root is always displayed on the top of the window.


 Use for creating new surveys


 Use for editing survey box ranges or update coordinate information (see Edit Survey Window)


 Copy whole surveys from your data root to a designated location.


 Allows you to compress/pack your entire survey into a zip file. This is highly recommended when transferring your survey from a computer to another computer, especially if they do not use the same platform. All data from this survey will be contained in the zip file, with the exception of the SEG-Y and/or CBVS files that were used 'in-place' from another location (ie: those SEG-Y or CBVS files that were used but not actually put inside the survey folder)




 Unpacks a previously packed survey (see above) into your Data row. Most zip files could potentially be unpacked, but we support only the unp survey packed using the OpendText packing tool. If you wish to share yo with the community, visit our Open Seismic Repository.

 Takes the user to the Open Seismic Repository. Here, one can find information on how to share surveys with the wider community.

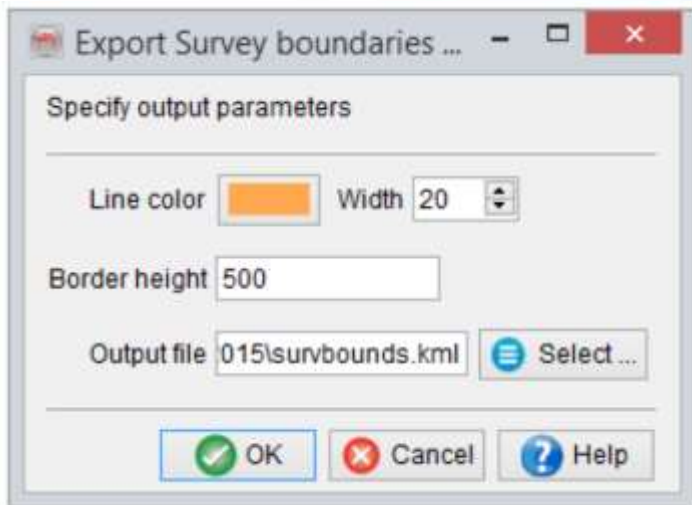
 In the position conversion window there are two modes available for coordinate conversion: Manual / File. In *Manual mode*, specify a inline/crossline pair, or a X/Y pair, and press the corresponding arrow key to obtain the position in the other domain. In *File mode*, browse the input file and create a new output file. By specifying the corresponding type conversion (XY to IC or IC to XY) and pressing the GO button, the desired conversion is written to the output file. There is no specific file type necessary for this input - even files without extension may be used. Simply *Select* them and, if desired, *Examine*, too.

 is used to copy survey information to the clipboard.


 is used to export the selected survey boundary in a *.kml file, which is accessible via Google Earth. The dialog box contains the editable fields for the survey box. The area of the survey box is filled with the selected color. The width is the horizontal thickness of the survey outline. The border height is the altitude of the line with respect to the ground. The Output file field is an output location of the *.kml file. On 'OK' the file (*.kml) is written at the specified path, which can be opened directly in Google Earth.

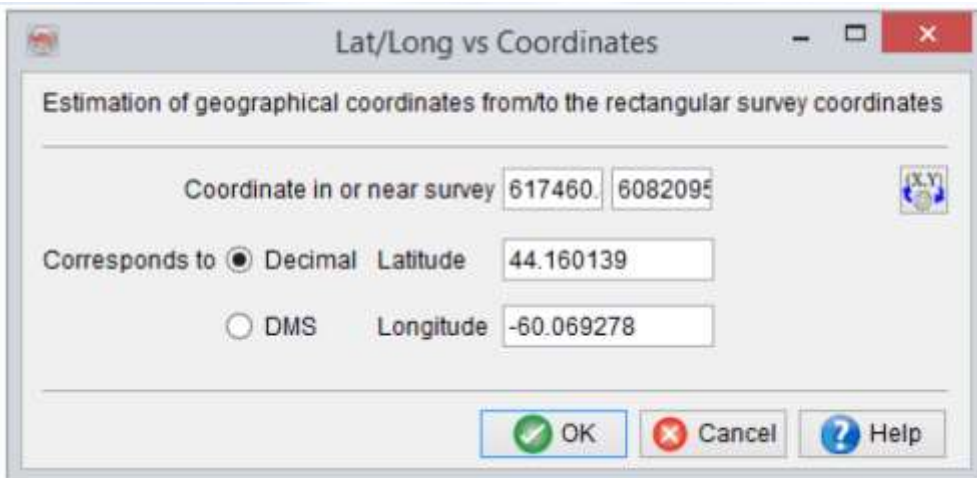
测线号与XY坐标之间的转换:

- Manual模式
- File模式

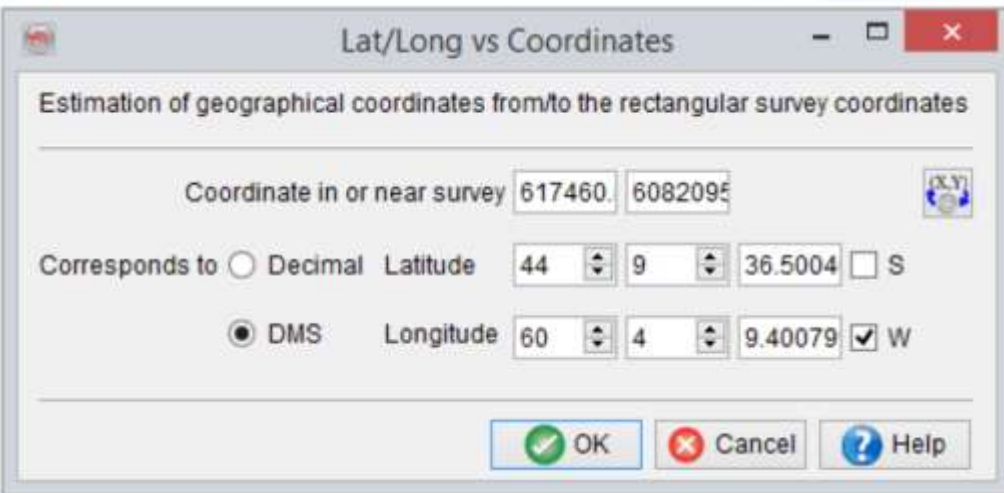




Before exporting the *.kml file, specify the correspondence between X-Y coordinates and latitude/longitude at any location in the surveybox  :



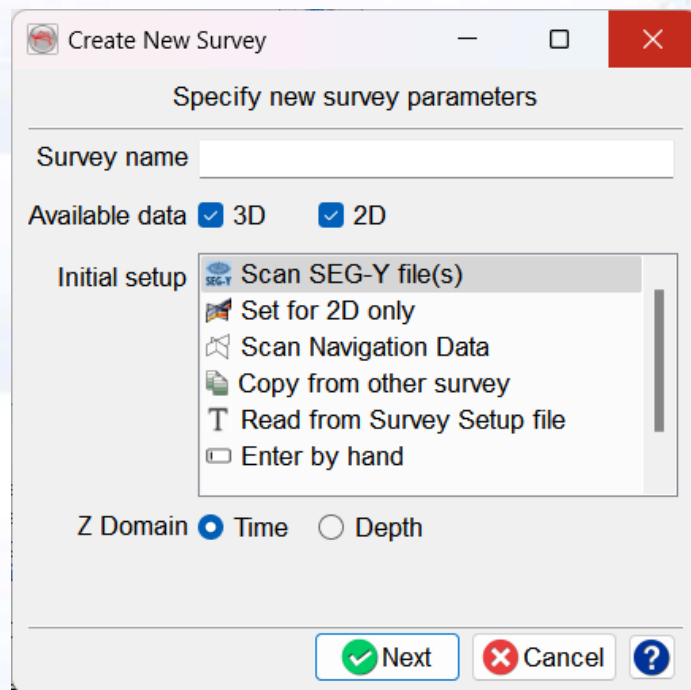
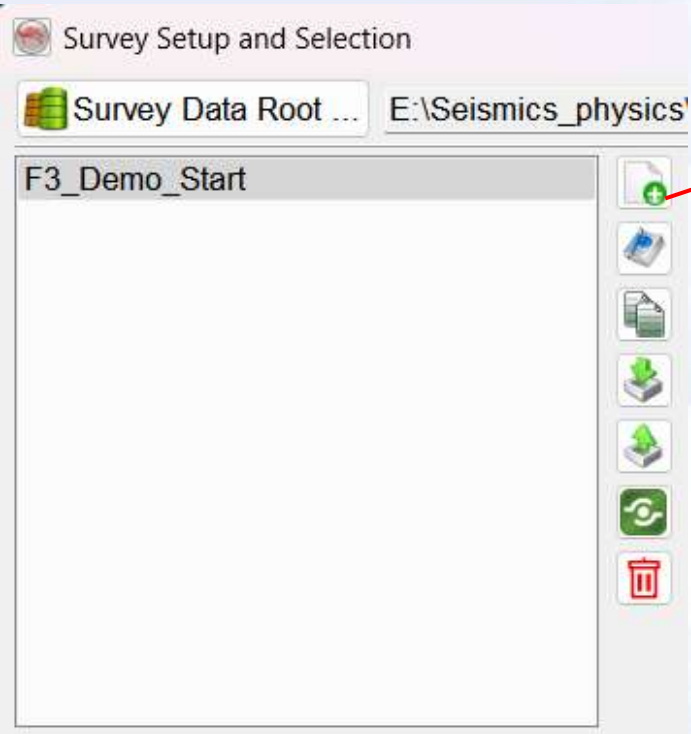
输出工区的kml文件



After pressing Ok provide an output filename.



4.1.2 New Survey Window (创建新的勘测窗口)





Survey name: In the text area specify the OpendText survey name.

Data to use: Toggle on the data type(s) to be included in the survey (2D only, 3D only or both 2D and 3D)

Note: Select only 3D, if the survey contains only 3D type data set. Select both 2D and 3D, if the survey contains both 2D and 3D type data set. If the survey contains only 2D type data set, select only 2D. Selection type here affects the tree structure and what functions are available to you in the survey.

Initial setup: Determines how you set up the survey ranges and coordinates:

Scan SEG-Y file(s): takes you to the SEG-Y tool to scan the file(s) for survey setup.

Get from Petrel: allows you to copy the survey ranges/coordinates from another software. (Available only with the Petrel Connector plugin.)

Set for 2D only: takes you to the following window where you can enter the working area values:

Copy from other survey: allows you to copy the survey setup from another survey on your drive/network.

Manual selection: enter the values manually (see Edit Survey Window)

Domain: Can be in time or depth (for depth, define here the unit):

Survey setup for 2D only

Specify working area values.
No need to be precise, parts can lie outside the ranges.
The values will determine the size of the display box,
and provide some defaults a.o. for 3D horizon generation.

Default grid spacing for horizons

X-coordinate Range

Y-coordinate Range

Above values are in ☒ Meter ☐ Feet

Optional: [Z-max (ms)]

[Default sampling rate (ms)]

Create New Survey

Specify new survey parameters

Survey name

Available data ☒ 3D ☒ 2D

Initial setup

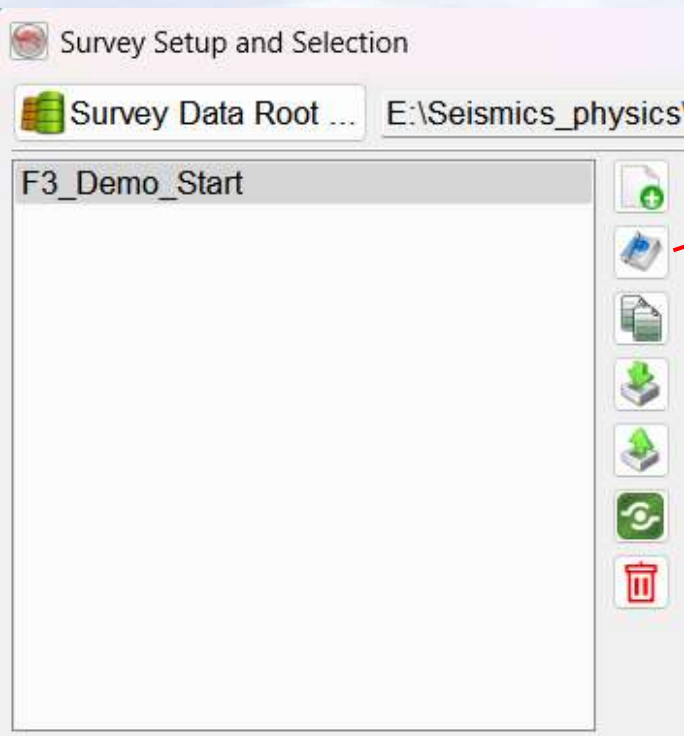
- ☒ Scan SEG-Y file(s)
- ☒ Set for 2D only
- ☐ Copy from other survey
- ☐ Enter by hand

Z Domain ☐ Time ☒ Depth

Depth unit ☐ Meter ☒ Feet



4.1.3 Edit Survey Window



To launch the survey setup window select *Edit* in the survey selection window. The following window will appear on your screen:

Survey name: F3_Demo_2020
Location on disk: C:\Surveys
Survey type: Both 2D and 3D
Ranges/coordinate settings: Enter below

Survey ranges | Coordinate settings | I/C to X/Y transformation | Coordinate System

In-line range: 100 to 750 Step 1 Nr. In-lines: 651
Cross-line range: 300 to 1250 Step 1 Nr. Cross-lines: 951
Z range: 0 to 1848 Step 4 millisecond
Display depths in: ☒ Meter ☐ Feet
Seismic Reference Datum (m): 0

Apply

Free space on disk: 120.24 GB

OK Cancel Help



All fields must be completed.

Survey name: In the text area specify the OpendTest survey name.

Location on disk: Specify a directory on disk where the OpendTest survey would be stored. The directory would be turned in to the OpendTest survey location.

Survey type: For the survey type, there are three options:

Survey type	Both 2D and 3D	
	Only 3D	
	Both 2D and 3D	
	Only 2D	

Select only 3D, if the survey contains only 3D data. Select both 2D and 3D, if the survey contains both 2D and 3D data. If the survey contains only 2D type data set, select only 2D. Selection type here affects the tree structure and what functions are available to you in the survey.

Ranges/Coordinate settings are described in the following sections.



1 Survey Ranges (勘测范围)

The survey ranges are the inline, crossline and Z-range values. The ranges define a 3D survey area for 3D seismic surveys and 2D grid area for 2D seismic surveys. These fields can be filled manually, by scanning a SEG-Y file (2D/3D), using *set for 2D only* option in Ranges/coordinate settings, or by copying the ranges from another survey. If the *Workstation Access plugin* is available, one will see the *Get from GeoFrame* or *Get from Seisworks* option in the drop-down menu.

The *set for 2D only* option is especially used to create a 2D seismic survey. Set the average trace distance and the x and y coordinate ranges, and these will automatically be translated into suitable survey settings.

Click on the *Scan SEG-Y file(s)* button to select a SEG-Y file. In the new window, you set the SEG-Y settings, see also SEG-Y section. Pressing OK will start scanning the file(s). After scanning, you'll get a file report containing sampling info, data statistics, and the survey setup. The *Survey ranges* and *Coordinate settings* will be filled in automatically.

The *Z range* is specified in milliseconds, meter, or feet. The steps are incremental Z-steps of the survey i.e. the seismic sampling rate.



2 Coordinate Ranges (坐标范围)

Edit Survey Parameters

Survey name: F3 Demo Start

Location on disk: E:\Seismics_physics\OpenData

Survey type: Only 3D

Ranges/coordinate settings: Enter below

Survey ranges | Coordinate settings | I/C to X/Y transformation | Coordinate System

The relationship between inline/crossline and X/Y can be specified in two ways. The easy way is to specify three points, two of which must be on the same inline. Due to rounding off errors, this method may not be 100% accurate.

Edit Survey Parameters

Survey name: F3_Demo_2020

Location on disk: C:\Surveys

Survey type: Both 2D and 3D

Ranges/coordinate settings: Enter below

Survey ranges | Coordinate settings | I/C to X/Y transformation | Coordinate System

First In-line/Cross-line	99	:	104	:	= (X,Y)	600938.13	6073394.5
Another position on above In-line	99	:	1316	:	= (X,Y)	631226.31	6074241
Position not on above In-line	824	:	1316	:	= (X,Y)	630720.25	6092358.5
Fourth position	824	:	104	:	= (X,Y)	600432.07	6091512.00

Coordinates are in m

Apply

OK Cancel Help



In the *I/C to X/Y Transformation* tab, the exact transformation from one coordinate system to an other can be specified. The *Apply* button can be used to verify results graphically and to check the coordinate transformation formula.

Edit Survey Parameters

Survey name: F3_Demo_2020

Location on disk: C:\Surveys

Survey type: Both 2D and 3D

Ranges/coordinate settings: Enter below

☒ Survey ranges ☒ Coordinate settings ☒ I/C to X/Y transformation ☐ Coordinate System

X = 598408.2476 + in-line * -0.69801379 + cross-line * 24.99024752

Y = 6070847.887 + in-line * 24.98965517 + cross-line * 0.69843234

☐ Overrule easy settings

3 I/C到XY转换的标签

Starting in version 6.2 it's possible to set an orthogonal coordinate system for each OpendTect survey. At this point the following features are supported:

- if a coordinate system is set, Google KML can be exported
- single well import from another coordinate system
- for OpendTect Pro users:
 - while creating an OD survey from Petrel, the new survey should be able to fetch the CRS from the original Petrel project
 - shapefiles support.



4 Coordinate System (坐标系统设置)

Survey ranges Coordinate settings I/C to X/Y transformation Coordinate System

Coordinate System **Anchor Point Based XY**

Coordinate in or near survey 617460.875 6082095 ☒ Meter ☐ Feet

Corresponds to ☒ Decimal ☐ DMS

Longitude 4.83051

Latitude 54.872108

Apply

OK Cancel ?

下拉，有3种坐标系统选项

第1种Unlocated XY

Coordinate System **Unlocated XY**

Coordinates are in ☒ Meter ☐ Feet



第2种

Anchor Point Based XY - an approximate way to convert XY coordinates to geographical latitude and longitude. Error increases with the distance from the defined point.

Coordinate Reference System

Coordinate System: Anchor Point Based XY

Coordinate in or near survey: 617460.8 6082095 ☐ Coordinates are in feet

Corresponds to: ☒ Decimal ☐ DMS

Longitude: 4.83051

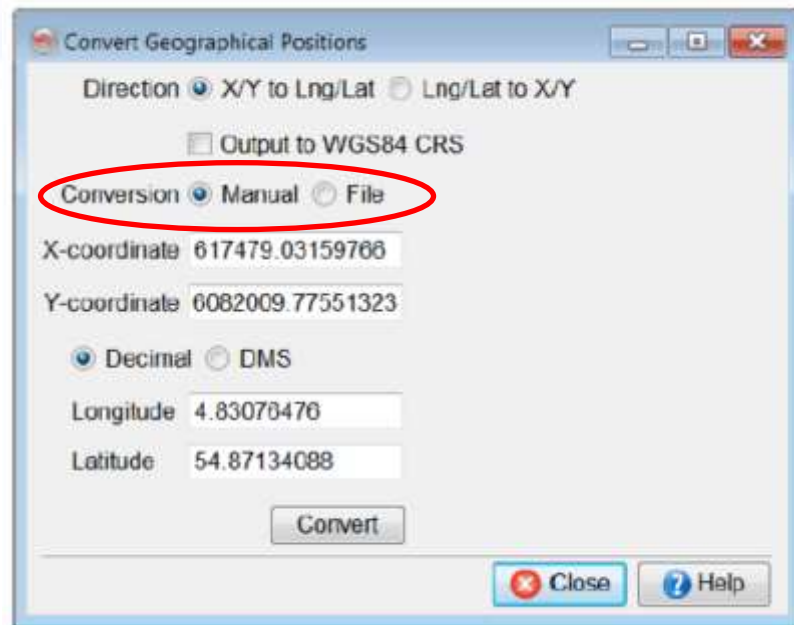
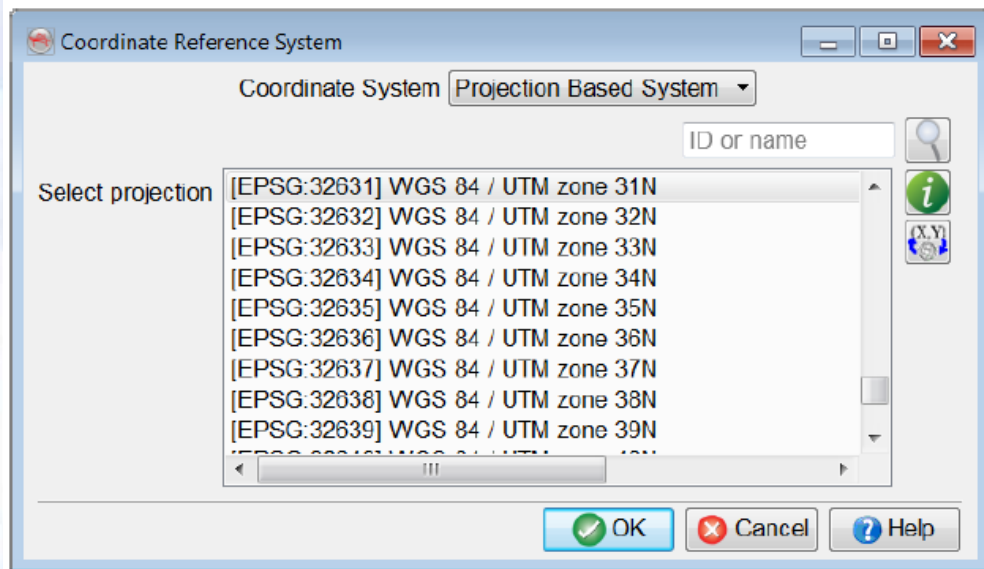
Latitude: 54.872108

OK Cancel Help



第3种：基于投影的坐标系

Project Based System can be selected when a coordinate system is known. The list of projections was created using [Proj.4 filter function](#).



Convert Geographical Positions option is available if Project Based System is selected. This utility allows conversion of XY coordinate pair to geographical latitude and longitude, and vice versa.

In the Convert Geographical Positions window, there are two modes available for coordinate conversion: Manual/File.

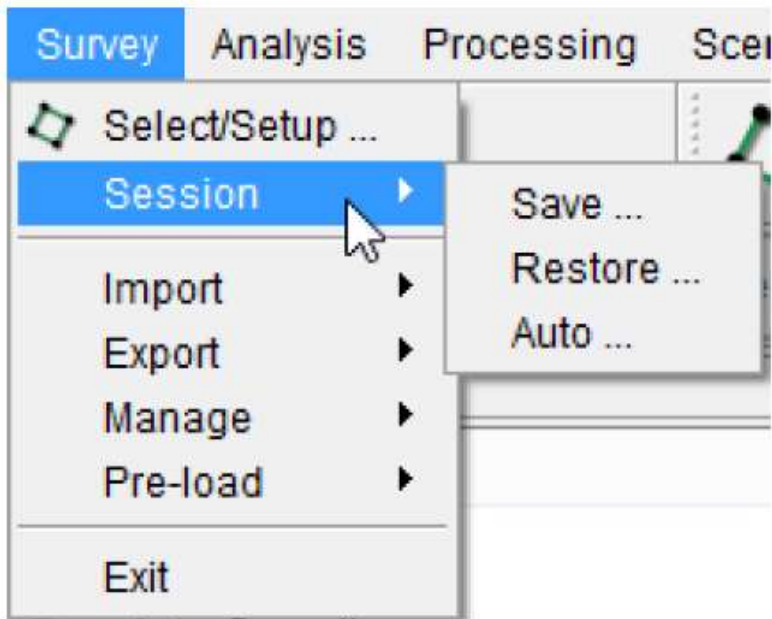
- In *Manual mode*, the user specifies an X/Y pair (or Lat/Long pair), then press the corresponding arrow key to obtain the position in the other domain.
- In *File mode*, the user browses the input file and create a new output file. By specifying the corresponding type conversion (XY to Lat/Long or Lat/Long to XY) and pressing the Convert button, the desired conversion is written on output file.





4.2 Session

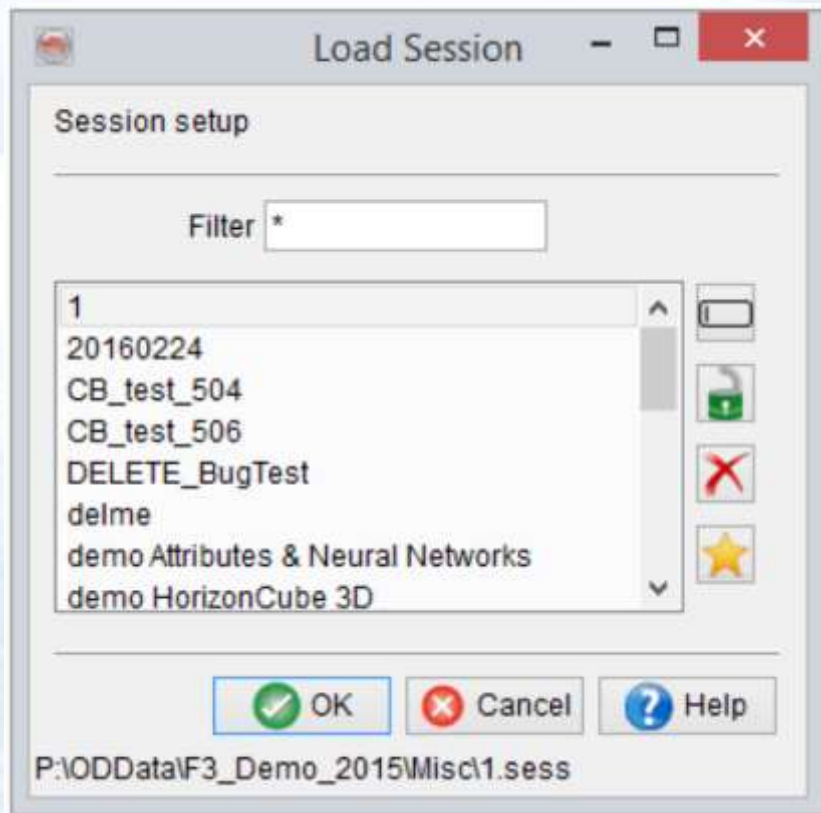
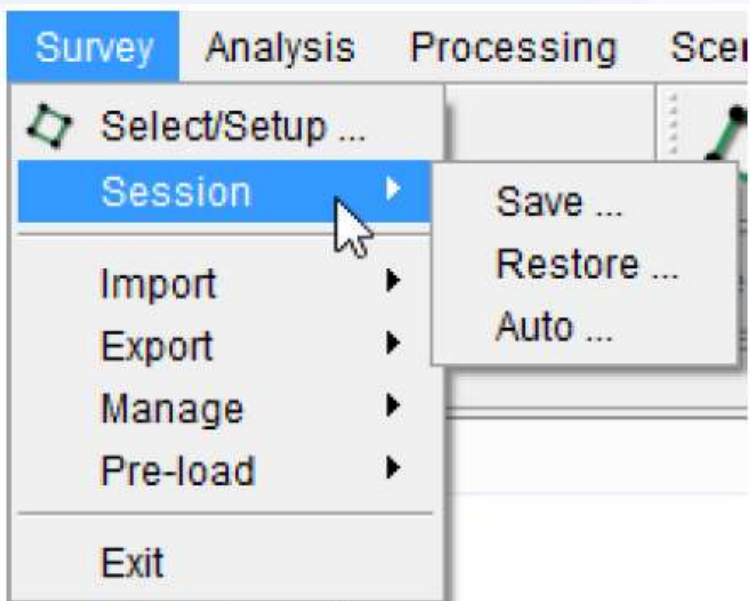
The Opendtect session is generally used to save and to retrieve the specific settings of a scene. This helps to resume work from previous settings. The session will save all settings of the displayed elements, and can be restored at any later time. When clicking the Survey option in the tool bar and then click *Session*, three options appear. It is possible to save the session or restore a previously saved session. When clicking *Auto*, the session will restore itself automatically the next time you start Opendtect.

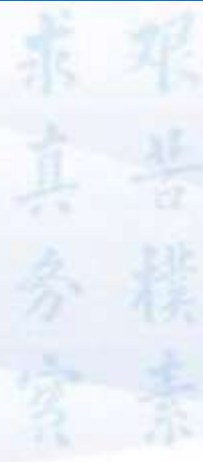


Session用来保存和恢复特定的视图设置。



The OpendText session is generally used to save and to retrieve the specific settings of a scene. This helps to resume work from previous settings. The session will save all settings of the displayed elements, and can be restored at any later time. When clicking the Survey option in the tool bar and then click *Session*, three options appear. It is possible to save the session or restore a previously saved session. When clicking *Auto*, the session will restore itself automatically the next time you start OpendText.





The auto-load window (left) and the 'Select' option (right)

The user can *enable* or *disable* the *auto-load session* option. It is also possible to choose if one of the save sessions will be used in this session. Finally the user has the choice on whether or not to *load the selected session now*.

A similar function exists to auto-load one of the attribute sets.

As mentioned earlier that the contents of the elements are not saved but are recreated. It is a common practice of the OpendTect user(s) to save and restore a session. The mistake a user(s) can normally make is to save a session with the contents of an element(s) (e.g. attributes) that takes a long time to compute. In this way, when such session is restored, it will take a way too long time to restore, because the session can only store the settings (or relevant information) but not the on-the-fly attributes. Thus, it re-calculates the contents. This can be avoided by creating the attribute outputs of such attributes. If an attribute already reside in a disk (a session is saved), the session will be restored very quickly. Similarly, the same thing can happen in a session that contains contents of surface data (the attributes calculated along horizon). The attributes applied along a horizon can be saved as a surface data. It is recommended, to save the surface data before saving a session.