

## 5.3.1 Major feature testing for release in Nov 2025

### Improvements:

1. SEGY output for Distributed acoustic sensing (DAS) technology measuring of strength along its sensing element of optical fiber is implemented.
2. Capabilities for selecting SEGY output data are improved.

## 5.3.0 Major feature release

### Improvements:

1. Version 5.3.0 was moved to x64 architecture. Many third-party libraries were updated. This allows working with large layouts and utilize > 3Gb RAM.
2. PNG image support as a background

### Fixed Bugs

3. While defining Receiver in VSP Azimuthal, VSP Radial, VSP (1 source), VSP Orthogonal:
4. Linked tool length and start cable depth(top) has been fixed.
5. Survey bearings in VSP Azimuthal, VSP Radial, VSP (1 source), VSP Orthogonal has been fixed and do not change while moving back and forward in D wizard
6. Load multiple 3D survey from SPS files is fixed
7. Load survey from SGY files is fixed
8. Add to current geometry in 3D is fixed
9. Units of measurement in Polygon property is fixed
10. In 3D designed guide window, the units are labelled according to defined parameters
11. Bin X, Y coordinate is fixed
12. D ray Model Properties is fixed in 3D View `
13. In Base polygon, the unit of measurement is fixed (as defined in Project Properties) in the following modeling method
  - a. Simple method
  - b. From data base wells
  - c. From LAS file
14. In Polygon Properties (Model > Simple Model), the units are fixed as defined in Project Properties
15. In Polygon Properties (Model> Simple Model), the geological legend are fixed
16. Compressional velocity label in status bar is fixed
17. Units of measurement in status bar is fixed
18. Units of measure (m/ft) are now correctly displayed after changing options
19. In Polygon properties- the option << from log>> is enabled now.
20. In PQR, units of measure are fixed
21. System crash for 2D Depth Migration is fixed
22. System crash for VSP depth migration is fixed
23. System crash while creating model from maps is fixed
24. Fixed receiver position option in 2D geometry is fixed
25. Fixed VSP layout, previously depth was inverted
26. Fixed SPS export
27. Fixed SPS add mode

28. Fixed frame resizing

## 5.2.2 Minor feature release

### Improvements:

1. Version 5.2.2 assures compatibility with following developing
2. Fixed connection to FlexLm license server in Windows11 (discontinued outdated WinXP support). Any number of licensed cores (threads) and GPU is now available.
3. Compatibility has been ensured for Tesseral Pro project files (\*.tpa) created for previous versions (including 5.2.1).
4. Set extent to «default zoom» after Geometry Acquisition (sometimes extent changed
5. before)
6. Changed permissions for installation directory to allow config files to be modified

## 5.1.4 Minor feature release

### Improvements:

1. re-developed the dialog “Fold Display Options”: improved logics and control over bin colors, numbers and diagrams
2. re-developed survey export to SPS: more flexible specification of station and line numbers independently for sources and receivers
3. information on the station inline/crossline number (ID), serial numbers of the station and the station line have been added to the station coordinate specification dialog (in the mode “Map > 3D Survey Edit Modes > Moving Shot and Receiver Lines”)
4. improved initial parameter values (like bin size or inline/crossline numbers) in several survey planning dialogs

### Fixed Bugs:

1. fixed import of coordinates from some SPS files
2. fixed (improved) import of 2D survey (for Model Frame) from SPS and other survey files
3. fixed import of 3D survey from SEG-Y files
4. fixed saving/opening the projects with 3D surveys imported from some SPS files (the program failed)

### 5.1.3 Minor feature release

#### Improvements:

1. in 2D Ray Tracing, the data precision in hodograph file was increased up to 6 digits after dot for time and up to 2 digits for coordinates and angle
2. 2D post-stack migrations now support TGR format input files
3. re-developed the observation geometry “VSP (1 shot)” and improved dialog settings for several other survey types

#### Fixed Bugs:

1. fixed 3D-replication of TGR models in feet/Imperial units
2. fixed visualization of high frequency wavelets (>1000 Hz)
3. fixed input/output of VSP survey geometries
4. fixed saving/opening the projects with shifted or hidden sources or receivers

### 5.1.2 Minor feature release

#### Improvements:

- 1) in 2D migrations:
  - DWM-SW was significantly re-developed and got additional parameters for better flexibility including the ability to compute image on the whole depth diapason as well as using a distance from the conditional reflection boundary to suppress images of the conventional horizontal boundaries
  - PSDM was fixed in respect to offset computing as receiver X minus source X instead of the previously used source minus receiver
- 2) in 3D survey design:
  - the ability to set linear change of the receiver depth with the increased distance from its shotpoint for the offshore (sea) observations
  - the observation geometry export in survey3d.txt has been improved and unified with the same file generated as a part of the 3D simulation job specification
- 3) several program messages have been improved for clarity

#### Fixed Bugs:

- 4) in 3D survey design:
  - replaced unexpected zeros in the receiver coordinates of survey3d.txt which appeared sometimes
  - added the source number missing in some cases because the number is always necessary for the simulation
  - fixed location of the shot and receiver points distributed within a polygon
- 5) in the Model frame acquisition geometry dialog (alternative to the wizard):
  - fixed unexpected disappearing of shot or receiver points

### 5.1.1 Minor feature release

#### Improvements:

- 1) extended modeling capabilities of 3D Model Builder in 3D View/Model frames:
  - improved work with two directions of the grid slices together
  - velocity and density cubes now can be imported from SEG Y files and used together with the 3D layers designed slice by slice as polygons to implement stepwise designing for complex models

- automatic layer generation from the well database supports the incomplete well strata information such as the cases when tops only or bottoms only are specified
  - information tree supports 3D Model Builder objects together with other 3D View objects
  - the 3DView "Well Properties" dialog has been fixed so to hide the strata names which are not available in the selected field
  - the context menu commands have been introduced for polygon vertices and slices to change position, delete, etc.
  - using hatching in visualization of slices to make the grid structure easier understood when using the non-rectangular (curved) model grid cells
- 2) extended import capabilities:
- for 1D well-log based models the ability to disable automatic aggregation of thin layers when importing LAS by entering 0 in both "Clearance" and "Min sampling rate in depth" controls in the appeared dialog
  - fixed depth conversion when importing LAS in feet depths
  - fixed 2D model acquisition geometry import from SEG Y
  - fixed adding SPS or another format survey geometry files if the environment variable TEMP points to absent folder or is not set
- 3) extended export capabilities:
- a 2D polygonal model from Model frame is saved as a tab-separated text file in the format imported by Tesseral-2D, Tesseral Engineering and Tesseral Pro (using the same menu commands as for export in TAM)
- 4) extended 3D survey design capabilities:
- the bins of fold 0 which are not illuminated by current survey are now left empty (without boundaries, numbers and filling) for better visual representation of rotated and irregular geometries
  - additional survey geometries such as orthogonal VSP and the marine survey subtype flip-flop for offshore exploration
  - the ability to remove all sources or all receivers to replace them by the stations in wells
  - the ability to add/remove sources or receivers on specified depth(s) along a selected well to implement combined surveys (surface recording together with VSP), irregular VSP geometries, inter-well sounding, "reverse" VSP geometries with sources in well, etc.
- 5) new command "Run>General Purpose Procedures>SEG-Y Scaling" for scaling, shifting, changing measuring units, etc.
- 6) the ability to fill polygons of 2D Model by litho hatching

#### Fixed Bugs:

- 7) "Unsupported operation" messages in 3D survey design statistics
- 8) localization and saving the stlxx.txt configuration file in the dialog of project options
- 9) wrong error messages when simulation is run on computers with video boards but without support of GPU/OpenCL computing. (The simulation was implemented on CPU cores regardless the error messages.)
- 10) several more minor bugs have been also fixed

## 5.1.0 Minor feature release

#### Improvements:

- 1) extended modeling capabilities:
  - 2D, 2.5D and 3D simulation by multiple GPU of the workstation in parallel

- import and convenient operation by very big multi-polygonal 2D models with automatic transformation to grid form
  - fixed conditions of measurement unit auto detection to import small scale models of engineering seismic exploration
  - export of 3D model SEG-Y cubes bigger than 2 GB from the frame Map with improved diagnostics and progress bar
  - the ability to insert vertical slices in 3D model with interpolation and precise positioning by entered numbers when editing (the frame 3D View)
  - the frame 3D View now supports scaling up and down as well as vertical and horizontal shifts of the whole 3D model cube
- 2) extended 3D survey design capabilities:
- support of big surveys (50 x 50 km and more), their fold maps and other attributes
  - cable distances when projecting source and/or receiver points on day surface, horizons, fixed depth plane
  - change of station icons (form, size, line and background colors) for both source and receiver points
  - the ability to decrease or reduce scaling up the station icons when zooming in survey maps
  - import of marine survey SPS
  - the ability to convert coordinates when importing SPS, background pictures and static layers (like spot boundaries from shapefile, DXF or another vector format)
  - import of multiple pictures in a Map frame (e.g. at map juncture)
  - import of incomplete surveys from SPS-like formats (e.g. shots or receivers only)
  - the ability to deactivate (hide) or activate (show) by one command all sources and/or receivers located outside or inside polygons of a selected static layer
  - automatic survey creation in the middle of the Map frame for those who prefer to design survey by mouse instead of entering numbers
  - fixed the survey type Cross
- 3) improved ray tracing visualization:
- changing colors of rays in 3D View frame according to offset, incidence angle, reflection point position
  - the ability to hide or show all rays by a checkbox in the project data tree
  - now, in the frame Model (2D) erasing of rays by selection does not affect temporary hidden rays, and all left rays become visible after the operation
- 4) other:
- the frame Seismic can import bigger SEG-Y files

#### Fixed Bugs:

- 5) fixed Set Origin from the Map -> Acquisition Geometry dialog
- 6) fixed crashes in several Undo operations
- 7) fixed m to ft and ft to m transforms in model import
- 8) fixed deactivation of near shot receivers if shot is located just between two receivers in the Model frame (2D) acquisition geometry
- 9) fixed model cube export to SEG-Y from the Map frame: the deepest “top” horizon was ignored if unchecked “Fill empty cells from upper cells”
- 10) several more minor bugs have been also fixed

## 5.0.6 Minor feature release

### Improvements:

- 1) extended modeling specification capabilities:
  - design of 3D models with curved faults in 3D View frame (read the documentation/help chapter 3.1.16)
  - new mouse mode in Seismic frame to compute signal spectrum from a selected rectangular area of field seismogram and transmit the signal to the 2D and 3D modeling wizards
  - support of additional wavelet types (Butterworth, Klauder, Ormsby) by the new button “Generate from library” for “user-defined” wavelets
  - import of Landmark grids with internal comments marked by # in Map frame
- 2) extended 3D survey design capabilities:
  - fold map for VSP survey together with the ability to specify and account a target horizon depth (“Depth of recording” on the tab “3D Survey Layout” of the “Acquisition Geometry” dialog)
  - new command “Map > Design Guide” to estimate bin from general considerations by expected parameters of the target object and survey
  - rotation in plan for a selected group of shot or receiver points
  - the ability to select origin by mouse when creating survey geometry from scratch
  - improved import of static layers (more information in the dialog, support of additional object types, import of SHP shape file without supplementary SHX)
  - improved import of acquisition geometry (support of much bigger files, import of P190 offshore survey from single file)
  - calculations with different fold maps of the same survey
  - the ability to compute fold map without additional attributes to save memory and accelerate work with very big surveys
- 3) extended pre- and post-processing capabilities:
  - new command “Run > Velocity Model > Depth Model from Average Velocity Time Model”
  - new command “Run > Velocity Model > 2D Interpolation” to transform an irregular curved 2D model line to the straight regular 2D model required by the built-in migrations
  - new command “Run > Seismic Frame > Project 2D Seismic File on Straight Line” to transform a curved 2D line to the straight form required by the built-in migrations
  - new command “Run > Seismic Frame > Restore Visible Coordinates from Trace Headers” removes results of trace coordinate import, projection or rotation not fixed by saving in the SEG-Y trace headers
  - new buttons in “Seismic > Section Properties” to shift the profile line start or end position to the nearest shot or receiver point
  - the menu “Run > Pre-Processing” has been removed, all its commands moved to “Run > Post-Processing” according to their typical use in the program

## 5.0.5 Minor feature release

### Improvements:

- 1) extended 3D survey design capabilities:
  - automatic numbers of sources and receivers according to their positions in plan
  - import of static layers from DXF (Autocad) format files
  - new acquisition geometry type: repeated patch based survey
  - new acquisition geometry type: single shotpoint VSP
  - the ability to add SPS-like file to current survey

- improved visualization of survey planning maps
  - moving shots and receivers by cable, point selection, line selection and polygon selection
  - the ability to remember and select multiple versions of survey planning related maps (like fold map, S/N ratio map) for one Map frame
  - export of acquisition geometry to survey3d.txt to make quick changes of stored 3D modeling job specification
  - more detailed import of survey geometry from SEG-Y so that both exported SPS and synthetic shotgather preserve elevation, inline/crossline/source numbers, file/trace IDs, etc.
  - improved import of trace coordinates from a text file to SEG-Y headers: support of arbitrary order of columns, the set of columns can be incomplete, less strict requirements to the format
- 2) extended 3D modeling capabilities:
- arbitrary time shifts of user defined wavelet
  - support of Imperial (ft) scale

### 5.0.3 Minor feature release

#### Improvements:

- 1) extended 3D survey design capabilities:
- survey import by parts from separate survey files (such as SPS) in current survey with automatic patch computing
  - extended patch design tools
  - user's format specification (in the file spscustomer.ini) for import of acquisition geometry from files
  - import of additional version of SPS SEG1 format files, support of the file name extensions \*.sps/\*.rps/\*.xps
  - the ability to redefine source and receiver inline/crossline numbers during the survey export to files (by specification of first number and step)
  - map and statistics of the signal-to-noise ratio
  - new commands to switch on/off the sources or receivers located in the selected polygon or in the specified coordinate interval
- 2) improved 3D View frame:
- stepwise drawing of semitransparent cubes with interruption by any command: the frame has become more convenient and the response time has decreased
  - better fit of the default picture resolution
  - improved titles of surfaces imported from the Map frame
- 3) improved Seismic frame:
- new edit mode to show seismogram spectrum in a selected part of a seismic file
  - more accurate renewal of seismogram visualization after coordinate import from text file; the program saves a copy of previous coordinates and proposes immediate change of the seismic file trace headers
  - increased precision of the imported coordinate representation in SEG-Y trace headers
  - insert of ellipsoids, cylinders or tetrahedrons in a model SEG-Y file now does not affect the file trace headers
- 4) improved processing:
- an additional internal step of eikonal propagation up within the time field computing for complex relief PSDM

- removed the internal limit of 300 m/sec velocity for the time field computing (but the ability to specify additional limitations in GUI persisted)

## 5.0.2 Minor feature release

### Improvements:

- 1) improved 3D View frame:
  - 3-7 times accelerated visualization of translucent SEG-Y cubes
  - visualization of rotated cubes, their horizontal and vertical slices
- 2) developed 2D Model frame functionality:
  - interpolation between base point can account top and bottom horizon geometry (the new interpolation mode)
- 3) extended 3D survey design capabilities:
  - Free Cable offshore survey
  - export of offshore survey plans to IOScript and SRC formats
  - extended P1-90 offshore format support
  - specification and export of source/receiver depth in acquisition geometry formats (like SPS) for onshore and offshore surface surveys
- 4) improved coordinate precision in output SEG-Y files (by use of bigger CoordScaler):
  - for vertical slices
  - for 2D Stack, PSTM, PSDM, post-stack migrations

## 5.0.1 Major feature release

### Improvements:

- 1) extended 3D survey design capabilities:
  - deep sources/receivers for offshore surveys
  - VSP surveys with receivers in curved wells
  - new formats of acquisition geometry (shapefiles of ESRI ArcView GIS, popular offshore formats P1-90 and P1-11)
  - accelerated calculations
  - improved graphics and statistics
  - forecasting of the left simulation time in the Modeling Progress dialog
  - ability to specify shotpoint or receiver coordinates by context menu command
  - ability to move survey as whole
- 2) extended illumination map computing capabilities:
  - 3D ray tracing for converted waves
  - accelerated calculations, improved scalability
- 3) extended seismic modeling capabilities:
  - support of observed velocities in 2D, 2.5D and 3D viscoelastic simulation
  - forecasting of the left simulation time in the Modeling Progress dialog
- 4) extended processing capabilities:
  - additional processing procedure Deep Moveout (DMO)
  - 2D depth migrations (PSDM, VSP PSDM, DWM) support profiles not parallel to X
  - improved processing specification in Create Processing Queue

5) more enhancement:

- visualization of SEG-Y model background in Snapshot View
- improved and accelerated 3D visualization
- import of FLOAT36 SEG-Y format
- gradient velocity ellipsoid insert in model
- export of a selected SEG-Y trace in text file
- autodetection of PDF viewer for help