Tesseral Pro Release Notes

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2) Fixed connection to FlexLm license server in Windows11 (discontinued outdated WinXP support).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 Aqcuisition (sometimes extent changed before)
5) 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:

5) fixed import of coordinates from some SPS files
6) fixed (improved) import of 2D survey (for Model Frame) from SPS and other survey files
7) fixed import of 3D survey from SEG-Y files
8) 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:

4) fixed 3D-replication of TGR models in feet/Imperial units
5) fixed visualization of high frequency wavelets (>1000 Hz)
6) fixed input/output of VSP survey geometries
7) 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 SEGY 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 SEGY
   - 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 sifts 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” removers 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

Fixed Bugs:

4) fixed automatic calculation of inline & crossline axes when importing survey geometry from a file

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

Fixed Bugs:

3) fixed export of 2D models in Imperial (ft) scale to SEG-Y
4) fixed 2D migrations in Imperial (ft) scale
5) fixed 2D VSP depth migration (for a very specific combination of parameters)
6) fixed elevation use and the default parameters in dialog of 3D Ray Tracing

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)

Fixed Bugs:

5) fixed the model (PQR) export for SEG-Y 2D model when space sampling of the model frame and the model SEG-Y are different
6) fixed export of 3D survey geometry for 3D Ray Tracing

7) fixed 3D Ray Tracing: export of ray coordinates, ray thinning procedure

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

Fixed Bugs:

5) fixed default length of profile for vertical slices and 2D migrations
6) fixed visualization of shotgathers in common reflection point mode

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

Fixed Bugs:

6) fixed acquisition geometry import from SEG-Y
7) fixed acquisition geometry import from several SPS formats
8) fixed export of 2D Model frame to SEG-Y (precision of coordinates)
9) fixed visualization of 2D Model frame in Seismic frame background
10) fixed procedure of model cube computing from horizon maps and well data
11) fixed autodetection of SEG-Y view mode