



OpenTect Release Notes v7.0



Revision History

Version	Date
OpendTect v7.0.6	July 15, 2024
OpendTect v7.0.5	May 1, 2024
OpendTect v7.0.4	February 4, 2024
OpendTect v7.0.3	December 5, 2023
OpendTect v7.0.2	August 28, 2023
OpendTect v7.0.1	July 24, 2023
OpendTect v7.0.0	June 8, 2023

Release Notes of V7.0.6

OpendTect

- Fixed issue when selecting default log for the SEGMENT mnemonic
- Fixed horizon data picker workflow issue
- Fixed and enabled consecutive addition of multiple steps and filters in well log tools
- Fixed label issue when importing FaultSets in a depth survey
- Fix for horizon tracking in 2D viewers
- Fixed the wavelet display when flipping polarity of the initial wavelet in the well-tie module
- Fix for adding more lines to a saved 2D Horizon entirely tracked in Manual mode
- Horizon Tracking - Improvement to Ctrl+Left-Click for deleting seeds
- Fixed issue in scaling attribute, when no volume is selected before analyzing the gain/range
- Added a user confirmation when auto-loading a session
- Adding a large number (more than 10) of 2D tree items will add them collapsed in the tree
- Fixed writing during the LAS export of well reference datum and ground level elevation in time surveys when the depths are displayed in Feet.
- Added several new default mnemonics: RAI, REI, RSI for relative acoustic, elastic and shear impedance respectively. SEGMENT (similar to LITHO but for clustering outputs). REFL for reflectivities, SYNTH for synthetic seismic, SEIS for (real) seismic. These new mnemonics will not get automatically assigned to existing logs without mnemonics, this will require a user action.
- Logs saved in the well tie workflow will now all get a mnemonic assigned.
- The bulk shift specified during the well tie was not always honored, and the cross-correlation graph was not always updated thereafter.
- Upgrade to [HDF5 1.14.4.2](#)
- The 'about' window is now showing the zlib library version used while building OpendTect

OpendTect Pro

- Support for TSurf format for faults, geobodies and horizons
- Added a database manager for TSurf format.
- Fixed issue when retrieving saved well displays in the advanced well data manager
- Fixed well log display and improved support for multiple background colors for 3D PDF's
- Advanced well data manager fixes and updates
- The AWS link is now available on macOS

Dip Steering

- Clarified outputting the 'residual' and DSMF outputs for the dip-steered median filter attribute, when writing to disk

Machine Learning

- First release of the Log Clustering machine learning workflow (Unsupervised clustering of log data): Import, extracting, training and prediction are supported
- Fixed extraction of images from 2D seismic data
- Added maximum option to the Merge Mode used by the machine learning image predictions
- Trained machine learning models were not always saved in the project folder, on Windows and some Linux distribution like OpenSuse
- Enabled downloading pre-trained models from S3
- Fixed the automatic setting of the range for the 2D-VGG19 PyTorch (Regression) Unet output result
- Fix for neural network property prediction for well data workflow
- Enabled reading and writing of Array1D and Array2D for json files
- Several bug fixes in the seismic + wells workflows, especially for the data extraction and prediction parts
- Removed the unsupervised seismic + well workflows (they will be moved into the seismic section)

SynthRock

- Fixes several data extraction errors when extracting pseudowells synthetic seismic within the Machine Learning plugin

Well Correlation Panel

- Fixed issue with display update when applying to all wells

Release Notes of V7.0.5

OpendTect

- Improved the Survey Select/Setup Icon: it now features a drop-down menu for changing surveys or accessing settings directly for current survey
- Added support for 'Windows Terminal' access from the Python prompt in OpendTect
- odpy now utilizes odbind for improved execution times
- Fixed issue with loading default time data in a time scene within a depth project
- Fixed warning sign appearance when attempting to load a missing attribute
- Added option to apply view-snapping per scene, if multiple scenes are present
- Fixed issue when generating a random pointset between horizons
- odbind fix on users in the Opensuse OS
- Output cube name defaulted to the name of the cube selected when importing CBVS volume from another survey
- Fixed error with converted 2D seismic not showing up in list of available volumes and export dialogs
- Fixed setting the work area Z-range in depth scenes
- Fix for viewing well logs generated in an old version of OpendTect in 7.0
- Improved multi-LAS import
- Upgrade to [PROJ 9.3.1](#), including the project database update to EPSG 10.098.
- The CRS plugin information (from the plugin management window) will now show the EPSG database version and timestamp.
- Improved default 2D viewers in cases where z-step and sampling differ
- Fixed issue at survey change when 2D Viewer workflow was called
- Improved stability when working with top/bottom images
- Fixed error message that would pop-up in some specific cases when changing the survey name
- Fixed an error where the Python link would not work properly on Windows
- Fix to prevent steering data from becoming the default seismic dataset in some specific cases
- Fixed a crash when editing the stratigraphic framework
- Fixed slowness while importing a SEG-Y file from a different CRS projection system
- Fixed confusing polarity toggle in the synthetic to seismic well tie window
- Fixed incorrect average phase reported in the manager for reverse polarity wavelets
- Fixed display keyboard shortcut 'v' not doing anything
- Fixed creation of EEI logs from the Rock Physics library: The maximum number of constant and variables that can be used in the log creation tool is now set to 10
- Fixed inconsistencies in the Python settings window: It will no longer be necessary to restart OpendTect after having changed the settings

OpendTect Pro

- Improved handling VDS data stored on an S3

- The project-specific mnemonics now appear in the advanced well manager.
- The commercial plugins now show the license source in the plugin management dialog also when using node-locked licenses.
- Batch programs will now release the checked-out licenses as they should do after their initialization.
- Upgrade to [Open VDS SDK v3.4.1](#).
- Update to the official SDK for [Open ZGY SDK for Rocky8, v0.2.1122](#), with sdapi support.
- Upgrade to AWS SDK [v1.11.278](#).
- Using XYZ format for well export to Petrel and applying KB correction upon well import from Petrel
- The python_activator application should no longer be flagged by antivirus scanners as a false positive.

Machine Learning

- Image-to-image predictions can now be done on a different, user-defined size for the pre-trained Fault-net and Lundin models
- Improved and optimized the Bokeh Training Application
- Support added for PyTorch (pt -.pth) model formats
- Added support for multi-channel img2img models: multiple channels are now supported in both data extraction and output
- Added interface for selecting Machine Learning output model implementation during training
- Many bug fixes in the machine learning image-to-image data extraction
- Fixed empty window when loading saved example data extraction parameters
- It is now possible to use project specific mnemonics while extracting machine learning log data
- It is now possible to extract labeled datasets with a spare stepout in either the inline or crossline direction. The missing data will be padded with a user-defined value (defaulting to -1).

Faults & Fractures

- Added possibility to compute dip and strike from a Machine Learning-derived fault likelihood
- Fixed error message when plotting thickness vs. amplitude in the layer modeling module

SynthRock

- Fixed issue with synthetics crossplots
- Fixed drawing of a thickness property from PDF distributions

Release Notes of V7.0.4

OpendTect

- Added support for comma-separated ascii files in import dialogs
- New, central menu for all Time - Depth conversion items, under the Processing menu. The corresponding option is removed from the ASCII export dialogs.
- ASCII import dialogs can now import time and depth datasets regardless of survey domain (both for 2D and 3D, single and bulk; Faults, Faultsets and Horizons)
- Fixed the pointset color dialog window blocking data selection dialog when creating new interactive random lines
- Fixed labeling error in attribute editor and spectral decomposition output for depth surveys
- Increased precision of spectral decomposition output cycles for depth surveys
- Fixed Missing Labels for Wavelet Properties
- Expanded mnemonics list
- Enabled the pre-loading of 2D and 3D seismic datasets which are not in the survey Z domain, with the constraint that the entire dataset must be pre-loaded.
- Fixed the interface of the flattening/unflattening dialog for 3D seismic datasets (menu Processing -> Create Seismic Output -> Using Horizons -> Flatten / Unflatten)
- Improved the SEG Y examine window, where the trace header information label and Nr of traces could overlap
- Name change in well-tie module: The synthetic type “Zero Offset Stack” is renamed to “Zero Offset Trace”
- Fixed issue with computation of angle based inner mute on prestack gathers
- Fixed issue with blank mnemonics, all created logs will now get a designated mnemonic
- The port used for distributed processing by the od_remoteservice daemon is now effectively set to the value 15050 (previously it was 5050). The default value can be set using the environment variable DTECT_MMP_ODREMPROC, and must be set on the client machine and all processing nodes
- Added support for 2D seismic to the odbind python module (read/write)
- Upgrade to HDF5 [1.14.3](#)
- Consolidated API for Horizon3D, Seismic2D and Seismic3D inside the odbind python module

OpendTect SDK

- Updated compiler version on Windows to Visual Studio 17.8.4 (2022). The Windows SDK is now built on Windows 11.
- Updated compiler version on Linux to GCC 10.5
- Fixed a cmake configuration warning while running the tutorial exercise from the programmer manual

- Removed the cmake cache variable `SQLITE_DIR`, now using the built-in variable `SQLite3_ROOT`.

OpendTect Pro

- This release provides updated license management executables (Imgrd, Imutil, dgblid) in v11.19.5. While OpendTect v7.0 will continue to be fully compatible with all Imgrd versions down to v11.17.2, it is strongly recommended to replace on your license server the executables listed above by the new versions provided in this release. Latest versions can always be found at <https://www.dgbes.com/software/download/flexnet-vendors-packages>
- Upgrade to AWS SDK [v1.11.239](#).
- Added Time - Depth conversion menu for horizons, faults and fault sets to the basemap menu
- The last state of the advanced well manager will now be saved and retrieved separately for each user into the project data
- PetrelDirect can now transfer time and depth horizons and faults without domain transformation into/from the OpendTect database. The horizons larger than the survey area will no longer be discarded
- PetrelDirect will now assign a time-depth model to each imported well, even when none is present in the input Petrel project
- Fixed crash in PetrelDirect while reading some file paths
- Various bug fixes in the Open VDS and AWS links.

Machine Learning

- Added selection of preferable model format to be saved for the PyTorch platform
- Added first support for importing [torchscript PyTorch models](#), and using them for training and inferences. Note that these models contain very little information about the number of inputs, outputs, image size. The user should carefully input the required information during the import of such models.

SynthRock

- Added replacement velocity selection for value to use above 'Top Depth' for both stochastic and profile types of simulations
- Profile models were not updated without pressing the Go button after having changed the profile parameters. This is again now done automatically.
- Fixed drawing of layer properties from probability density functions
- The relZ special mathematical property can now be used to model a depth trend within a formation: It will range from 0 at the top of the formation to 1 at its base
- Fix for false circular dependency in SynthRock. Name of the property is now the primary identifier and mnemonic works as a fallback.
- Fixed issue when displaying prestack synthetic datasets with a single offset
- Fixed incorrect splitting of layers if layer thickness was set to an exact multiple of the maximum thickness

Release Notes of V7.0.3

OpendTect

- Many fixes and improvements in the time-to-depth transformations of seismic data and horizons, using all time-depth transformations providers (velocity models, simple velocity model, well-based time-depth model, linear velocity), especially relevant for projects using feet units.
- Several improvements and bug fixes in the conversions between types of velocity models (between interval, RMS and average velocity).
- Removed the time-to-depth transformations of horizons and faults during import and export. The conversion for 2D and 3D horizons can now be done in a dedicated menu under Processing -> Create Horizon Output -> Time - Depth conversion. The other conversions will be added later, incrementally in similar menus.
- Added options to import and store depth horizons in time projects and time horizons in depth projects, without transformation. These horizons require a transformed scene to be displayed, although they will be displayed without transformation in their relevant scenes.
- Improvements to the Log Tools: FFT filtering, smoothing and user interface
- Improvement to the message related to saving objects when exiting OpendTect
- Improved detection of attribute while picking seeds for Horizon tracking, when another attribute layer with transparency is overlaid on top
- Added an option to change the attribute being used for horizon tracking
- Added Fault Painter to 2D Volume Builder steps
- Fix for the fault painter output not being symmetric around the fault sticks.
- Improvement to the Horizon Data: new button option in the load prompt when adding an attribute to an horizon
- Improved import of faults in bulk mode (removed import artefacts).
- Added storage measures units for 2D/3D velocity datasets and velocity functions
- Fix for the 2D Viewer which was not honoring Work Area Settings
- Improvement to the 2D Viewer: loads correct 2D horizons by default
- Fix for the restore session issue within a depth scene
- Fix for the mismatch between the well location and synthetic seismic
- Fix for Random Line display in 2D Viewer
- Improvement to the User Interface while defining X/Y ranges in the Survey Setup
- Improvement to the tree object warning message of attributes display when the input data has a different inl/crl sampling than the survey sampling
- Fix for the rotation of the volume out of slice mode, when selecting HOME view in Map View Scene
- Added bulk / multiple import option to the polygon/pointset
- Fix for the import of RokDoc PDFs
- Fixed the issue of deleting links to CBVS files in another survey which deletes the actual file and not the link only

- Improvement to the Depth Scene, where the wells are displayed now using depth information directly
- Fixed empty display of prestack gathers in the scene when pre-processing is applied to it.
- The post-stack seismic managers (2D and 3D) now show several contextual filters by file type, vertical (Z) domain, and data type.
- The poinset/polygon manager now contains a type filter.
- Improved dataset filtering while selecting the input and output datasets for running the flattening along a 3D horizon of the post-stack seismic dataset.
- Fixed setting the default velocity model dataset
- ODBind: automatically installed, this additional functionality now facilitates: the reading of [3D faults](#), [fault stick sets](#), and [2D geometries](#) from the OpendTect database *directly in python*, using the odbind python package provided by the OpendTect installation.
- Upgrade to [OpenSSL 1.1.1w](#).
- Upgrade to [PROJ 9.3.0](#), including the project database update to EPSG 10.094.
- Upgrade to [SQLite 3.44.2](#) on Windows and Linux.

OpendTect Pro

- Fix for storage of new logs after applying log filters
- Improvement to the Inversion based horizon trackers, which now use the planarity component from the Steering Cube input by default
- Fix for Log Tools operating on multiple wells but only saving the first well
- Fixed Basemap Well Display issue after syncing with 3D scene
- Improvement to the distributed computing processing User Interface
- Upgrade to [Open VDS 3.3.3](#).
- Added read/write support for compressed OpenVDS datasets.
- First release of the AWS plugin for OpendTect Pro on Windows and Linux, based on v1.11.207 of the [AWS SDK for c++](#). This plugin adds the possibility to import an OpenVDS dataset directly from an AWS S3 storage, and to export a dataset in OpenVDS format to an AWS S3 storage. The setup for that plugin is accessible from the Utilities -> Settings -> AWS Connection menu.

PetrelDirect

- Added Petrel as the default writing option in Machine Learning workflows launched from Petrel
- Improvement to the ML workflow and setting dialogs when launched from Petrel

dGB Plugins

Dip Steering

- It is now possible to set the default Steering Cube dataset in all windows where a Steering Cube can be selected as input.

Machine Learning

- Support for multiple inputs in the Machine Learning image-to-image models during import and application
- Fix for prediction of Machine Learning models on projects smaller than the model dimensions
- Improvement to the processing options (CPU or GPU) in the 3D Fault Predictor window
- Improvement to the pseudo-well input for ML workflows. A new log Frequency filter and average window have been added

SynthRock

- Added a frequency filter attribute to be applied to synthetics and/or rock properties within SynthRock. The filter can be applied before extracting data for training a Machine Learning model, or running a HitCube inversion inside SynthRock
- Fix for the selected synthetic seismic display in SynthRock
- Fixed some formulas from the rock physics library which did not compute using the expected units of measure
- Fluid Replacement icons will now be active when building a new simulation, after pressing the Go button
- Fixed blank synthetic seismic during HitCube inversion analysis
- Fixed incorrect synthetic seismic display in SynthRock when using the flattened display
- Fixed empty synthetics in SynthRock for some old simulations where the convolution is done in the time domain, and no internal multiples are generated

Faults & Fractures

- Added the Skeletonization option for 2D workflow

SSIS

- Improved dataset filtering while selecting the input and output datasets for running the Wheeler Transformation of a seismic dataset
- Fixed crash while processing the Wheeler Transformation of a seismic dataset in batch

WCP

- Fix for the spacing issue between horizons in the HorizonCube property window in the WCP

Release Notes of V7.0.2

OpendTect

- Fix for well log calculator
- Fix for importing seismic simple file
- Fixed an issue related to cross attribute evaluate option
- Fixed an issue encountered when importing objects from another survey
- Fix for Well tie analysis. Well tie analysis can be started again using logs without associated units of measurement. Well tie analysis window is empty when the input cube is deselected
- Improve manage stratigraphy window labels
- Improve the mnemonic default display setting options
- Improve the Lithologs display
- Improve the litho log mnemonic settings

OpendTect Pro

- Fix for VDS and ZGY data displays on random lines
- Fix for unwanted zoom reset on adding extra log in Advance Well Manager Log View

dGB Plugins

Machine Learning

- Fixed an issue with launching a pre-trained log
- Fixed applying pre-trained models on VDSDirect and ZGYDirect data
- Improved the support for ONNX format pre-trained models
- Added Fault Net to the list of our pre-trained models

SynthRock

- Stochastic models using “Well log based” were missing the derived properties like Acoustic Impedance
- Stochastic models using “Well log based” had an incorrect simulated thickness when not using the “ As-Is” option
- The model viewer now shows adequate ranges when switching between properties
- The SynthRock viewer will no longer be empty after completing the initial wizard

Faults & Fractures

- Fix for the filter size issue when calculating thinned fault likelihood or edge preserved smoother

HorizonCube

- Fix for pre-loading of single HorizonCube packages

SSIS

- Fixed an issue related to session restore for a wheeler scene
- Improve SSIS interpretation window labels

Release Notes of V7.0.1

OpendTect

- Added graphic card warning at startup when no Nvidia card is available
- In 'Create Wavelet', removed the Sinc wavelet option and replaced with Bandpass
- Fix for the 3D Horizon Picking issue on Random Line
- Fix for the issue of missing attribute set name on Session Restore
- Fixed an issue when starting OpendTect in a completely fresh environment, i.e. with an empty Survey Data Root
- Improvement to the attribute error message on session restore
- Fix for the crash encountered during a new survey setup from 2D navigation data
- Fix for the issue not being able to open intersecting 2D lines from 2D viewer
- Fix for old pointsets always showing up in red
- Re-order the menu items in the survey seismic import
- Updated stored Format Definitions (that can be used while importing ASCII data, e.g. horizons)
- SRD is now always defined when creating a new survey
- Support of Survey Data Roots as a drive letter only (e.g. D:\)
- Improvement and fix for few issues in log to LAS export (use the log name in the MNEM column, X/Y are sometimes not exported, KB/GL are missing)
- Upgrade to OpenSSL-1.1.1u
- Fix for the crash when opening the dialog to create a new Random line from wells and closing OpendTect
- In Presentation Maker, fixed issue of not creating a pptx file if quotes are present in the slide title
- Fix for the issue of processing daemon od_remoteservice not always starting, especially if another instance is already running
- Fix for the issue of batch programs started from the Utility Tools menu not behaving correctly

OpendTect Pro

- Fix for the issue of all wells-related files being written when changing a marker name
- Fix for the issue of quick log tool in the advanced well manager not working properly
- Fix for the issue of applying changes to all wells in the editing default logs for Mnemonic window
- Fix for the crash when displaying a VDS volume that is smaller than the survey box

multi-att

PetrelDirect

- Fix for the issue of creating new survey from Petrel not seeing and listing the wells in PetrelDirect
- Fix for the issue of all wells being automatically selected when selecting the first well in the PetrelDirect import to OpendTect
- Fix for the issue of markers not being imported from Petrel to OpendTect via PetrelDirect
- Added the feature to export all multi-attribute datasets to Petrel e.g. Dip-Steering volumes, Spectral decomposition, FL, TFL
- Support of the import of more than 2 pointsets from Petrel to OpendTect using PetrelDirect

dGB Plugins

Machine Learning

- Implement Machine Learning - apply to remote machines
- Fix for the issue not able to select a Python IDE when .od folder is removed
- Fix for the issue of 2D Machine Learning Segmentation Workflow not extracting any examples
- Enabled the selection of pre-trained models from the seismic segmentation window to solve the bootstrap issue in 2D-VGG19 Fault Predictor Transfer-train workflow

HorizonCube

- Fix for HorizonCube not appearing in Launch Screen nor in OpendTect unless SSIS also installed
- Fix for the issue of new 2D HorizonCube creation and new horizons drawing not working

Fluid Contact Finder

- Fix for the Fluid Contact Finder plugin not launching

Release Notes of V7.0.0

OpendTect

- Large background improvements in the synthetic seismic trace generation
- Amplitude statistics are stored in the background when importing or using seismic datasets
- Added support for negative inlines and crosslines numbers in 3D seismic surveys
- GIS exports now support GeoJSON format, in addition to Google KML format: Applies to 2D seismic surveys, well locations, pointsets, polygons.
- Simplification of the dialog used for computing logs from other logs: Input is now based on mnemonics, not on log names.
- Improved LAS import interface.
- Option to create and use a project-specific list of user-defined mnemonics, accessible from the basic well manager.
- Added option to copy wells in the basic well manager.
- Added the ODBind plugin to enable fast, in memory database access of *Seismic*, *Horizon* and *Well* data from external applications (Python, ...).
- The *od_RemoteService* manager tray dialog is now available on all platforms (required on processing nodes when submitting jobs from windows clients).
- PyUp API keys can be used to scan vulnerabilities in the python environment.
- The list of coordinate reference systems has been updated from v5.1 to v9.2 to PROJ.
- Improved default camera position behavior at startup: Camera startup position is in front of the in line view.
- Added reset of toolbar positions
- Images to display in 3D scene or in Basemap are now managed as database objects and corner coordinates are stored
- Many various bug fixes and performance improvements

OpendTect Pro

- Reworked well displays in basemap
- Improved Shapefile management and performance when displaying in Basemap
- Extended Elastic Impedance can be used during synthetic to seismic matching
- Improved well log display tools in the advanced and standard well manager. The new OpendTect Log Viewers support multiple logs per track and both curve to curve and full track color and gradient fill. Display settings can be saved and restored in a subsequent session. The new log display is also used in the updated log merge tool.
- The Bokeh well log crossplot tool in the advanced well manager now supports multiwell crossplotting and is also an example of using Python and the ODBind plugin.

- Improved the log merging workflow in the advanced well manager. All traditional log tools are now also available in the advanced log manager: Despiking, frequency filter, ...
- Added horizon-based log interpolation volume builder step.
- The service for plotting wells and making crossplots using a bokeh server in the advanced well manager now starts silently in the background without delaying the start of the application
- Added support for the OSDU OpenZGY data format: survey setup, import/export and read/write for 3D seismic data.
- Added support for the OSDU OpenVDS data format: survey setup, import/export and read/write for 3D seismic data.
- [PetrelDirect] Added support for importing surfaces from Petrel to OpendTect in their native data format (time or depth)
- [PetrelDirect] Implemented faster way to read/calculate the additional information for seismic data.
- [PetrelDirect] Support for transferring multi attribute dataset from OpendTect to Petrel.
- [PetrelDirect] Many various bug fixes and performance improvements.
- [PetrelDirect] Full survey import tool from Petrel to OpendTect.
- [PetrelDirect] Petrel data access for OpendTect can start the Machine Learning control center without a prior OpendTect configuration and database.

dGB Plugins

Machine Learning

- Redesigned all interfaces for extracting data prior to the training.
- Added a tool for extracting training data from SynthRock generated saved pseudo-wells. This enables six new workflows in the Seismic – Wells part of the Machine Learning Control Center. These workflows can be used to run predictions on 2D and 3D seismic datasets.
- Added advanced training parameters interface to setup specialized options (depending on their support for each platform):
 - Several data augmentation can be selected and chained
 - Mixed-precision training is now used by default (enables very large speed improvements on modern GPUs).
 - Several scaling strategies can be selected prior to the training
- 3D machine learning models can be applied to 2D datasets.
- 2D machine learning models can be trained on examples from in-lines and/or crosslines.
- 2D machine learning models can be applied to 3D datasets, in the inline and/or crossline direction or both for an average output.
- Pre-trained 2D Fault Predictor to be applied AS-IS, or to be transfer-trained on real examples from interpreted fault-sticks.

- The services for viewing example files and running the training using a bokeh server now start silently in the background without delaying the start of the Machine Learning Control center.
- The training UI is now always visible, even before/without selecting the input data.
- Added import, transfer training and TensorBoard support for the PyTorch platform.
- Added support for TensorFlow-ONNX converter for training machine learning models.
- PyTorch is now the default platform for all 2D and 3D seismic based machine learning workflows
- Reading and writing seismic and well data to/from Petrel.
- Support to launch Machine learning control center from Petrel

SynthRock

- Full rework of the synthetic seismic data management: Major improvements in the speed and amount of memory used within SynthRock
- The SynthRock main window has been simplified and made cleaner. Performance improvements for the synthetic displays.
- Extended Elastic Impedance can be used for creating new types of post-stack synthetic seismic
- Added computation of instantaneous attributes from any other post-stack synthetic seismic.
- Upgraded the random number generator to modern standards for faster and better random distributions drawing

Faults & Fractures

- Selected faults can be combined into a single fault set object.
- Added user control for automatic fault extraction:
 - The user can choose to create sticks on Z slices or Inlines/Crosslines.
 - Stick spacing can be specified by the user.
 - Further constraints on the minimum and maximum number of sticks per fault surface can be applied.
- Added user control on distribution and orientation of fault sticks in the Automatic Fault Extraction module resulting in smoother fault planes.