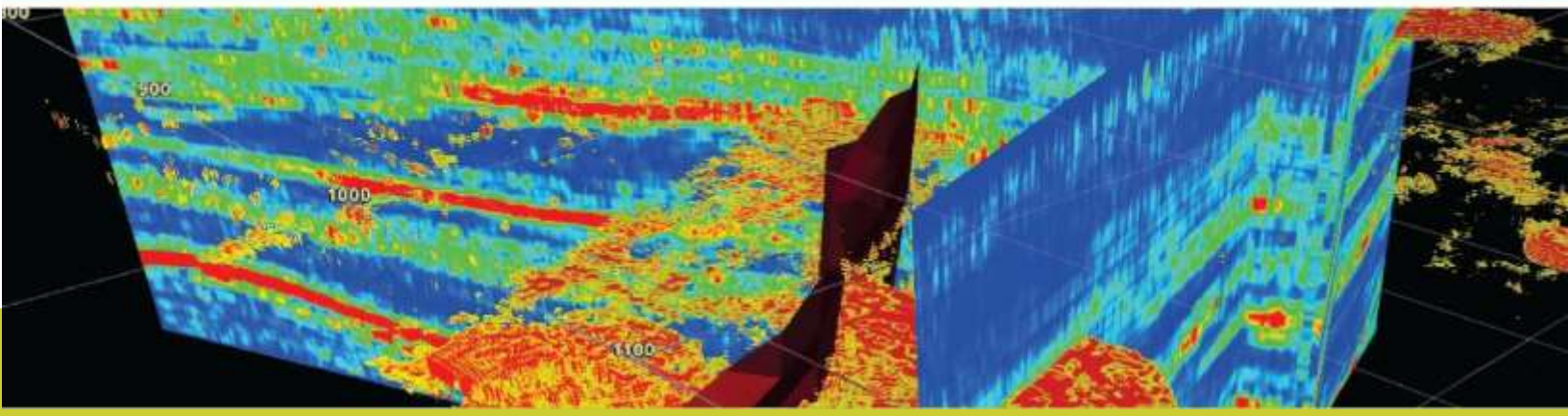
GVERSE® GeoGraphix®

GEOPHYSICS

SOFTWARE



Powerful seismic interpretation for your play

A brand new, intuitive and easy-to-use seismic interpretation system with powerful 3D visualization and interpretation capabilities. GVERSE Geophysics enables geoscientists to execute end-to-end workflows for basic interpretation and more advanced geophysical workflows.

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Seismic Interpretation Software

Powerful, 2D and 3D seismic interpretation system for rapid prospect generation

GVERSE® Geophysics software is a powerful, fully integrated 2D and 3D seismic interpretation system that provides a full range of fit-for-purpose interpretation capabilities, attribute analysis, and mapping tools. Whether exploring complex structural areas or looking for subtle stratigraphic traps, today's geoscientist can use the numerous tools offered by GVERSE Geophysics to solve these otherwise challenging problems.

GVERSE Geophysics database along with project management tools when combined with the entire GVERSE GeoGraphix software system, connect data for a complete interpretation without any need for inter-application data transfers.

Key Benefits

Full Integration

Maximize your investment with full integration between our geological, geophysical and mapping tools. Access most everyday workflows within the base package & license.

Speed & Performance

Work with large seismic files and hundreds of thousands of wells without compromising performance even on off-the-shelf hardware.

On-The-Fly Attributes

Obtain a better understanding of your seismic data with on-the-fly attribute computation.

Superior Visualization

Gain deeper insights into subsurface structures and data in our specialized 2D & 3D viewers.

Accuracy & Reliability

Make quick, accurate structural or stratigraphic interpretations with an extensive toolset for horizon, fault and geobody interpretation.

Ease of Use

Leverage a simple, intuitive UI to focus solely on making decisions that matter.

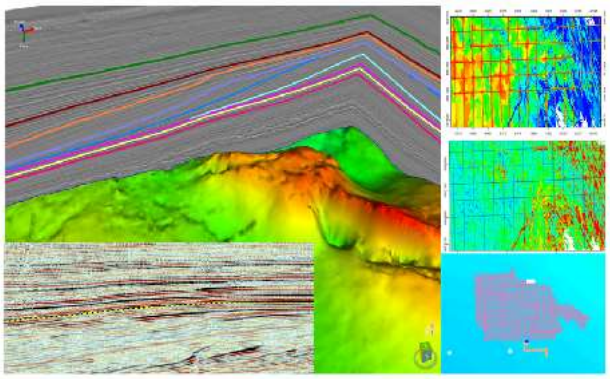
Key Features

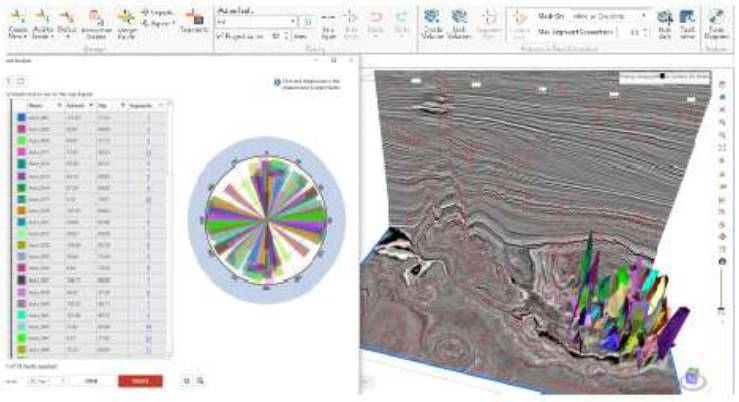
Seismic Interpretation

In-Depth Horizon Interpretation

Access multiple manual and automatic picking modes to mark seed picks and track horizon surfaces across multiple 2D and 3D surveys.

- QC features like confidence, pick order, pick type & pick relationships.
- Multi-Z horizon picking for 2D data.
- Snapping, smoothing, merging, dip & azimuth calculations and other operations.





Rapid Fault Picking & Analysis

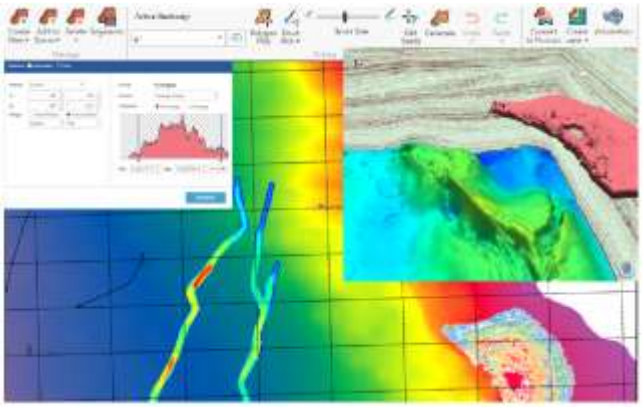
Detect and automatically pick all faults in a volume or pick manually with flexible picking and editing tools for vertical, horizontal and three-dimensional seismic displays.

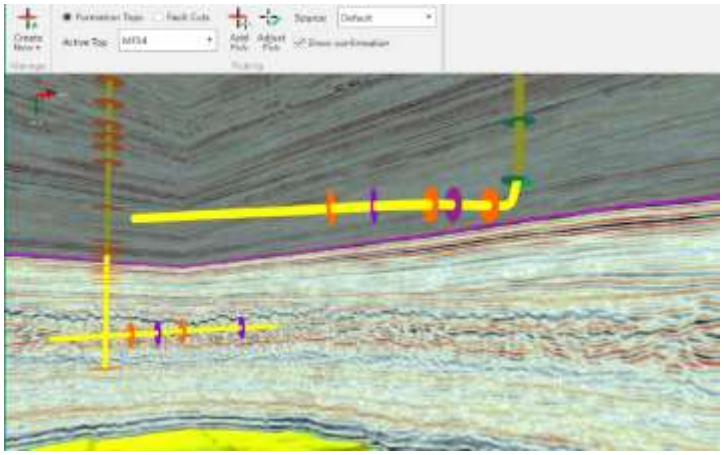
- Rose diagrams for faster analysis & decisions.
- Correlation windows & fault projection to assist picking in noisy data.
- Fault polygons & heave calculations.

Effective Geobody Analysis

Pick structures on seismic and attributes volumes and save them as geobodies. Interpolate seed picks or track signatures automatically to extract geobodies from seismic data.

- Calculate volumetrics, map thicknesses, convert to horizons, compute attributes.
- Drape data on geobodies or show intersections on sections.
- Create layers to bring geobodies to other GeoGraphix apps.





Integrated Well Top Picking

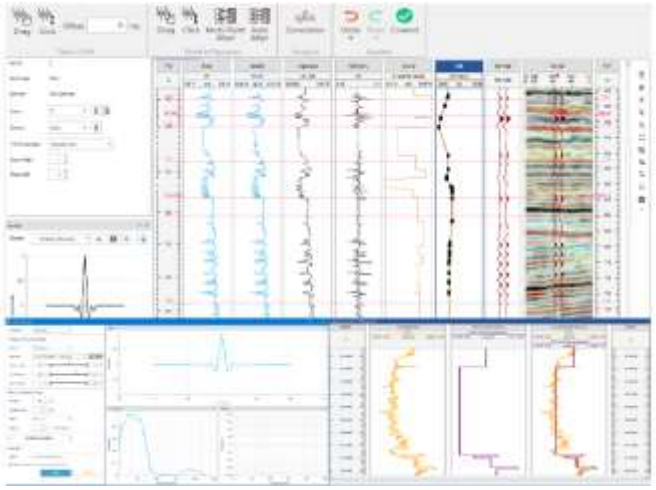
Add new or adjust existing picks for formation tops and fault cuts in a well directly from the geophysics app. View & interact with multiple observations for each formation or fault in a well.

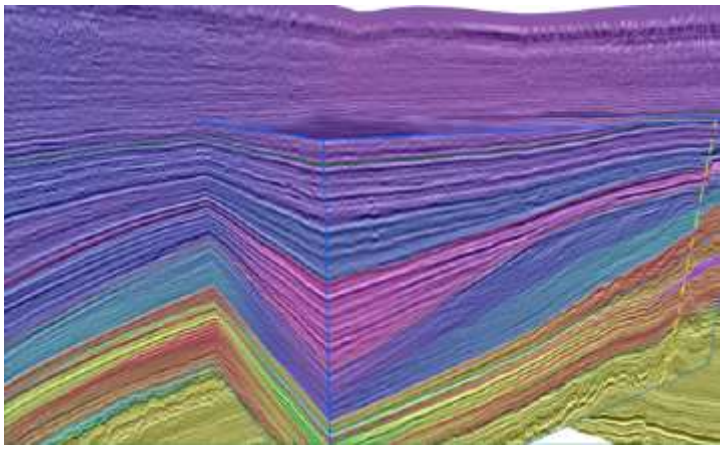
Time-Depth Conversion

Comprehensive Synthetic Modeling

Create or edit synthetic seismograms using simplified workflows in SynView – a dedicated & fully integrated synthetic editor with no additional license requirement.

- Adjust & update synthetic with undo-redo in SynView or in 3D.
- Create & edit wavelets or extract from seismic.
- Calibrate, estimate, process & edit input curves.
- Drift, correlation & spectrum analyses. Calculate optimum time & phase shifts.
- Work with deviated wells.





Robust, Reliable Depth Conversion

Experience fast and reliable depth conversion algorithms with an extensive set of options suitable for all your depth conversion requirements.

- Half-a-dozen types of velocity models including ability to use velocity cubes as models.
- Unique 3 component horizons & comprehensive conversion options.
- Dynamic depth conversion to keep backdrops in GVERSE Geomodeling up to date.
- Depth Mode to instantly convert time scenes to depth.
- Variety of velocity QC tools.

GVERSE® GeoGraphix®

GEOPHYSICS

Data Management & Visualization

Interactive Mistie Analysis

Easily balance 2D, 3D and 2D-3D datasets including automatic calculation of phase, gain & time relationships.

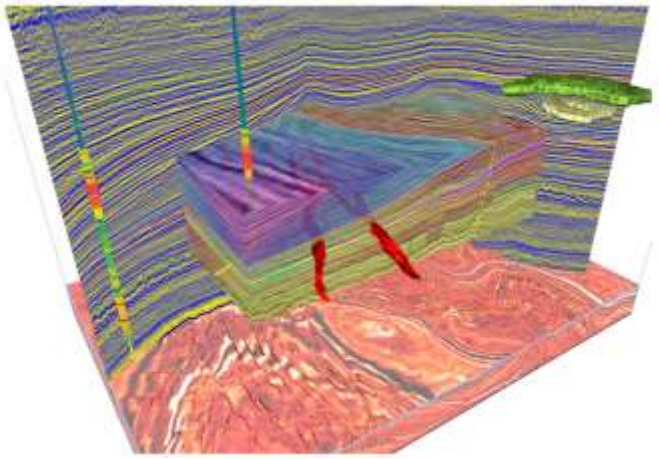
- Add, edit & search shifts in a single location.
- Import and export shift values.
- Interactive line balancing to match lines quickly & easily.

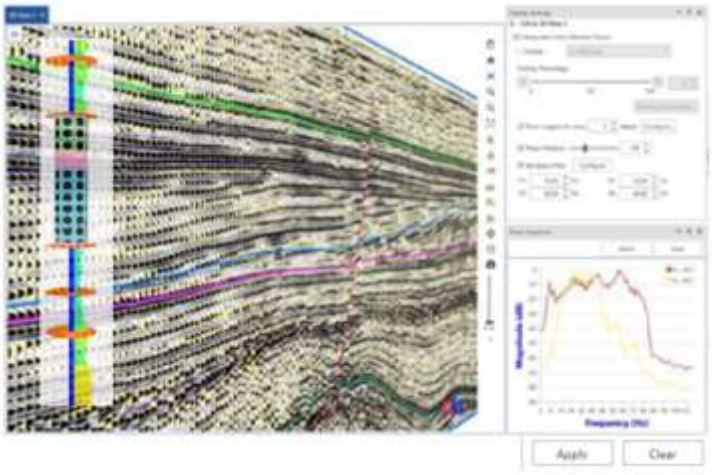
Effortless Data Management

Perform rapid interpretation in large 2D, 3D or combination projects with our 64-bit architecture. Versatile SEG-Y readers built to handle most commonly encountered scenarios.

Blazing Fast 3D

Use an engine built for subsurface data to view your seismic, wells and other data in 3D. The LOD format does not compromise performance even with very large seismic files. Voxels, blending, selective transparency and other advanced features let you visualize structures for deeper insights and better decisions for your play.





Versatile Seismic & Well Displays

Feature rich vertical, horizontal and three-dimensional seismic viewers with detailed well data posting capabilities.

- Load data into RAM for faster visualization.
- Wiggles, power spectrums, phase rotation, filters & other processing tools.
- Default color palettes based on data type.
- Display wellbores, tops & observations, well logs, production data, microseismic and more.

GVERSE® GeoGraphix®

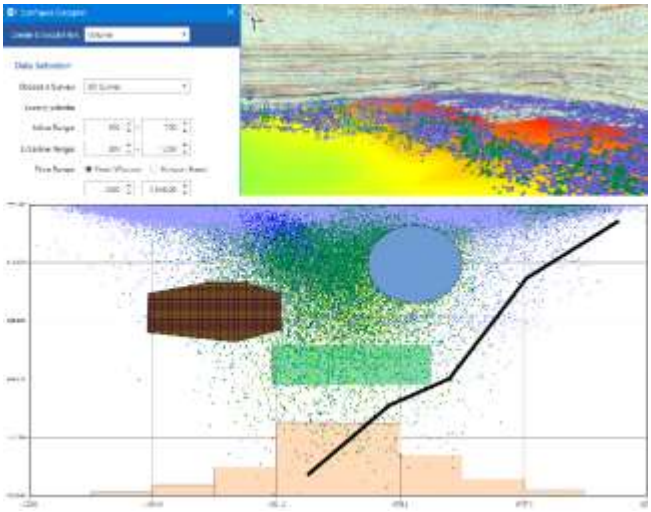
GEOPHYSICS

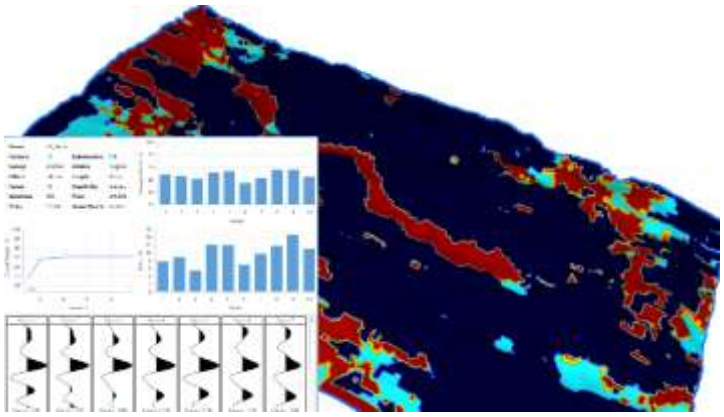
Interpret, Analyze & Map

Attribute & Surface Calculations

Compute surface attributes with the Attribute and Surface Calculator which comprises multiple attribute options in an easy to use interface.

- Flexible windowing options.
- Integration with Zone Manager.
- Surface-to-surface calculations.
- Extract seismic data at well locations.





Crossplot Seismic, Attributes & Well Logs

Create scatter plots for seismic volumes, attribute surfaces and well data and obtain deeper insight into the relationships between your data.

- Crossplots for sections, horizons, wells or volumes.
- Select and display anomalies on maps & 3D.
- Complete annotation toolset.

Indigenous Mapping Capability

Fulfill most of your mapping needs with a built-in mapping framework or leverage the full capabilities of our mapping tools with seamless integration with GeoAtlas.

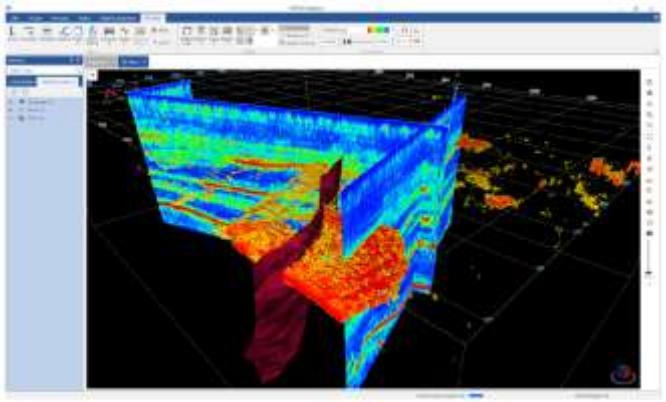
- Multiple base maps with unique set of display parameters and color palettes.
- Comprehensive gridding and contouring options for maps and surfaces.
- Export or import layers to and from other GeoGraphix apps.

Intelligent Facies Classification

Use the power of machine learning and neural networks to classify facies on horizons with automatic waveform classification by a self-organizing maps algorithm.

Ease of Use & True Mobility

Leverage the latest in technology to minimize your learning curve and focus on what's important. No more digging through tons of menus and dialogs to find what you are looking for. The multi-screen enabled, ribbon-based interface puts everything you need right in front of you. GVERSE Geophysics supports remote, desktop and mobile environments to accommodate some of the industry's largest regional projects while reducing the need for IT support.



SCAN™

SCAN software is an optional extension of the seismic processing module pSTAx. SCAN calculates Event Similarity Prediction (ESP) similarity volumes as well as Structure Cubes from the input data. With SCAN, the geoscientist readily identifies subtle discontinuities in the seismic data potentially related to geological features. This tool provides a cost-effective alternative to project outsourcing. Key features include:

- Easy identification of linear features such as faults, fractures, reefs and channels.
- Interpretation of subtle discontinuities in seismic data.
- Identification of subtle stratigraphic changes such as channel thickening.

Optional/Add-on Module

pSTAx® Post-Stack Processing Software

With pSTAx software, geoscientists perform post-stack processing flows directly from the desktop, no external reprocessing necessary. pSTAx can be used as a standalone application supporting SEG-Y formatted seismic data, or in conjunction with GVERSE Geophysics, as geoscientists accomplish input and output using bricked formats.

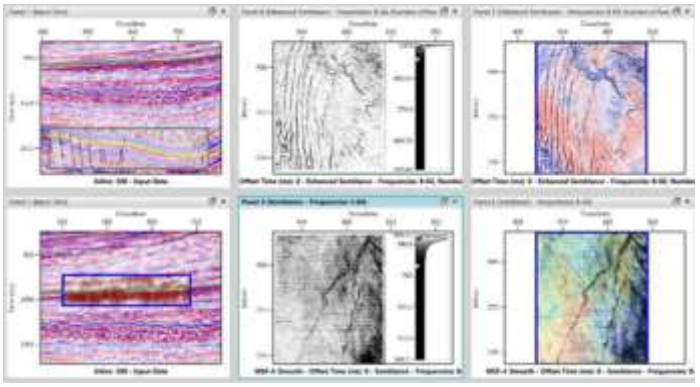
Standard, post-stack processing functions, such as amplitude scaling, correlations, convolution, filtering, and phase rotation build an ideal desktop environment for the quick and easy evaluation of the effects of new processing flows.

Seismic Attribute Analysis

GVERSE Attributes

GVERSE Attributes enables geoscientists to harness the full power of seismic attributes by drastically reducing the time, effort, and disk space required for attribute analysis. Fast, on-the-fly computation, and real-time visualization of seismic attributes in a multi- pane viewer lets interpreters perform detailed, in-depth attribute analysis quickly and efficiently, maximizing the value of their seismic data.

The multi-paned viewing environment, unmatched by any software in the industry, along with streamlined workflows and high resolution 3D seismic attributes help boost performance. The value of seismic data for seamless interpretation is maximized by fast, on the fly visualization of seismic attributes which allows for in-depth attribute analysis with immediate feedback.



Key Benefits

Real-time Visualization of Results

Having intensively minimized processing time, GVERSE Attributes offers an integrated viewer to display attributes for the selected IL/XL/TS computed on-the-fly using GPU. After adjusting attribute parameters and seeing results in real-time, the user can generate the attribute for the entire dataset and load the resulting volume into GVERSE Geophysics (or equivalent interpretation software).

Fast, Powerful 3D Engine

View on-the-fly attributes in 3D to gain deeper insight in your attribute analysis. In addition to computing attributes on inlines, crosslines and timeslices, users can view probes, arblines and horizon surfaces with attributes applied on them in real time to gain more useful information faster and more efficiently.

Effort and Time saving

As compared to traditional tools, GVERSE Attributes allows geoscientists to harness the full power of seismic attributes by drastically reducing the time, effort and disk space required for attribute analysis. Attributes are computed on-the-fly on controlled input data to let users view attributes results before they commit to creating volumes, saving both processing and analysis time. Attribute volumes are created on-demand eliminating the need for intermediate volumes and significantly reducing data and disk management.

Flexibility

Features like the ability to save parameters for all available attributes and saving the complete state of the workspace to a file saves time as the user can resume work from where left off and also be able to share his/her workspace with others. The workspace can contain all the information in the application including the input files, any subsets, the view state (all view panels, attributes displayed on those panels, the seismic IL/XL/TS opened, and the parameters for the attributes displayed) along with any other data.

Integration

The application integrates seamlessly with GGX Discovery as it reads seismic amplitude date from GVERSE Geophysics and exports volume to GVERSE Geophysics.

Key Features

- On-the-fly attributes for any inline, crossline, timeslice, or for probes, horizons and arblines using GPU.
- Compare attributes and parameters quickly and efficiently in multiple panes or in 3D space.
- Compute over 50 physical and geometric attributes, including frequency-tuned attributes using the patented CAPS technique.
- Level of Detail (LOD) encoding for faster performance on large datasets.
- Define mathematical expressions to combine existing attributes and create custom attributes.
- Automatic Fault Extraction attributes to highlight faults.
- Structure Oriented Smoothing to enhance structural features in seismic.
- Change and edit color palette, view histograms and assign default palettes for attributes.
- Co-blending and RGB blending to visualize multiple attributes simultaneously.
- Generate volumes for selected attributes.
- Loss-less compression of SEG-Y datasets for optimized performance.
- Seamless integration with GVERSE Geophysics.

Requirements

To run the application, you need one of the following operating systems installed on your system:

- Windows® 7 Professional x64
- Windows® 7 Enterprise x64
- Windows® 7 Ultimate x64
- Windows® 10 Professional x64
- Windows® 10 Enterprise x64

Hardware

Minimum

- 2.4 GHz 64-bit processor
- 8 GB RAM
- Any DirectX 11.1 capable card comparable with Nvidia® GeForce GTX 430 with 1GB VRAM. DirectX is not shipped with GeoGraphix 2019.2. You must download and install it separately.
- 1366 x 768 screen resolution

Recommended

- Quad 3.2 GHz 64-bit processor
- 32 GB RAM
- Any DirectX 11.1 capable card comparable with Nvidia®GeForce GTX 1060 with 6GB VRAM. DirectX is not shipped with GeoGraphix 2019.2. You must download and install it separately.
- Solid state hard disk (SSD)
- 1920 x 1080 screen resolution

Licenses

The following licenses are required to run the software:

- GeoGraphix license version 2019.2
- GVERSE® Geophysics license version 2