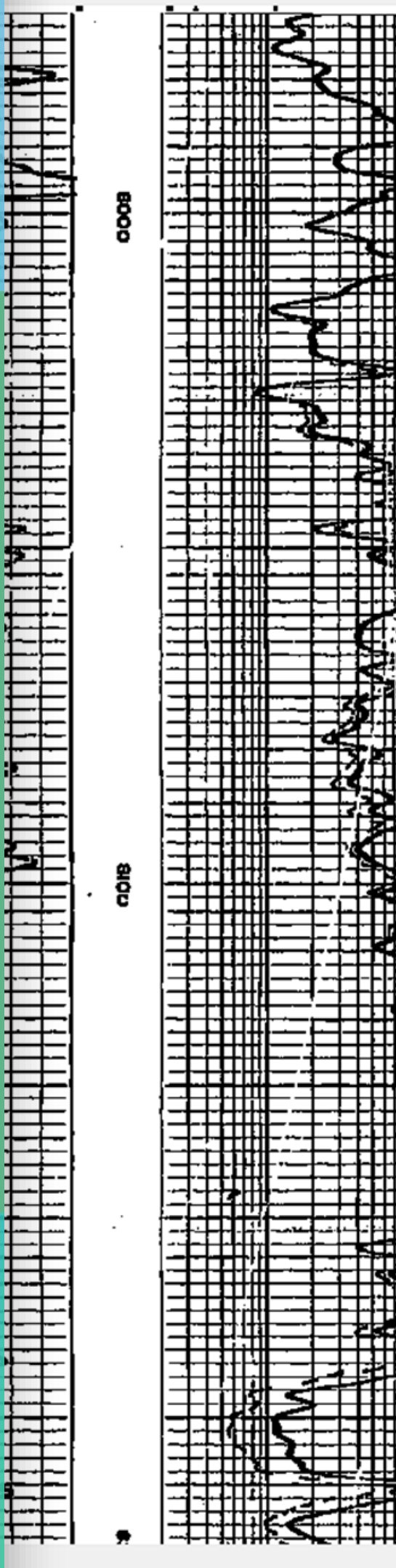
GVERSE®
GeoGraphix®
Potential to Production

GVERSE PETROPHYSICS

Integrated log analysis for comprehensive interpretation



A COMPLETE GEOSCIENCE PLATFORM

Streamline Exploration and Production Workflows

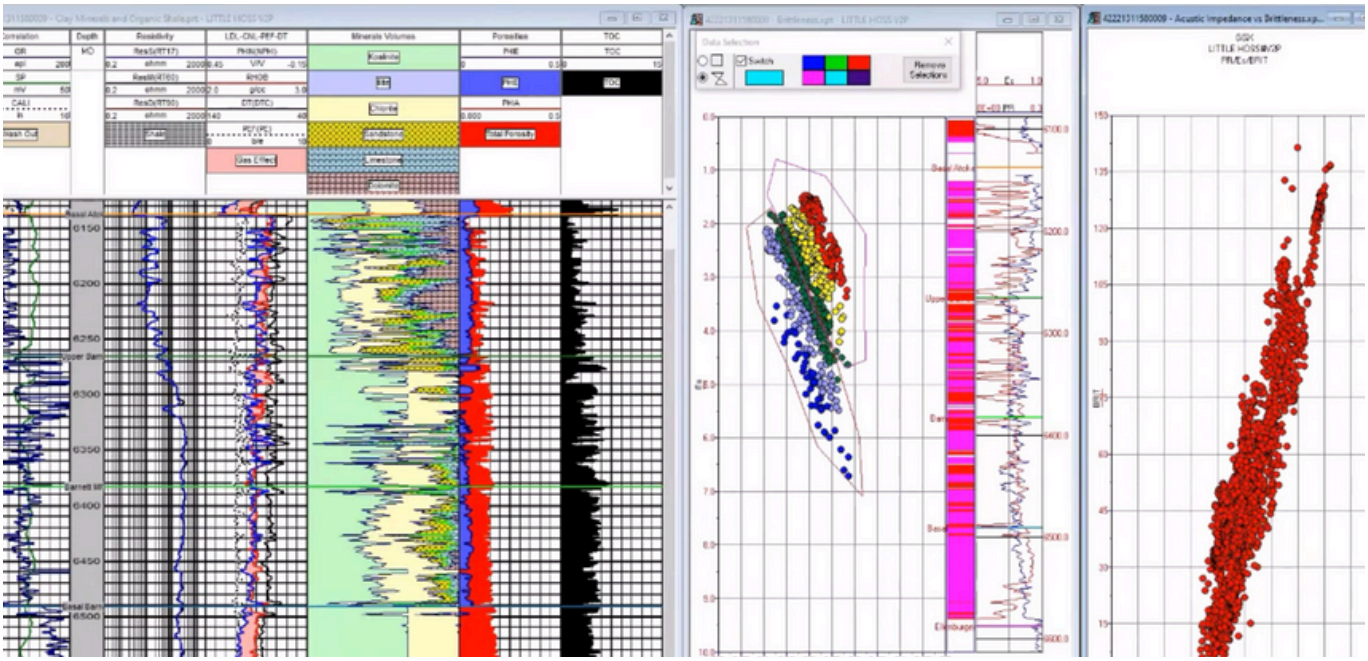
Our comprehensive **GVERSE GeoGraphix** solution integrates geological, geophysical, petrophysical, and data management tools allowing geoscience teams to collaborate and make rapid, accurate decisions.

GVERSE® Petrophysics is a petrophysical application designed to assist geoscientists and petrophysicists in analyzing and interpreting well log data and characterizing the reservoir using simple to advanced log interpretation workflows in a large multi-well multiuser environment.

- Comprehensive Well Log Analysis
- Effortless Data Integration across **GVERSE GeoGraphix** Applications
- Python API for Advanced Data Utilization

Unlock the Depths with GVERSE Petrophysics

Elevate Your Reservoir Insights, Boost Efficiency, and Make Confident Decisions with GVERSE Petrophysics—From Well Logging to Resource Estimation, All in One Platform



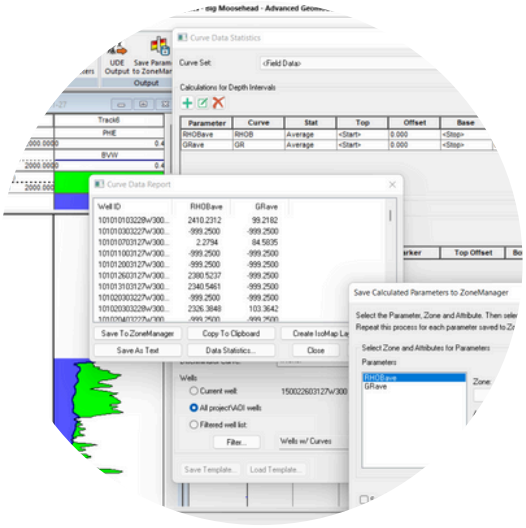
Key Benefits

Intuitive Language
GVERSE Petrophysics uses a simple scripting language, allowing users to quickly build sophisticated petrophysical models. These models can be applied to individual wells or thousands, enabling both detailed well analysis and reservoir-to-regional scale formation characterizations. Models are viewable across log templates, cross sections, and 3D fence diagrams.

Scalable Functionality
GVERSE Petrophysics offers over 250 standard log analysis equations, including water saturation, lithology, and CBM models. Grouped into easy-to-use families, equations can be copied, edited, or linked to external models in Visual Basic, C, or C++ for solving complex formation analysis problems.

Seamless Petrophysical Analysis, Attribute Extraction, and Mapping
Users can extract attributes from petrophysical models for direct map creation, statistical analysis, or export. Integrated with **ZoneManager**, **GVERSE Petrophysics** supports detailed well-by-well and zone-by-zone analysis, with Pickett Plot parameter handling for comprehensive petrophysical workflows.

Key Features

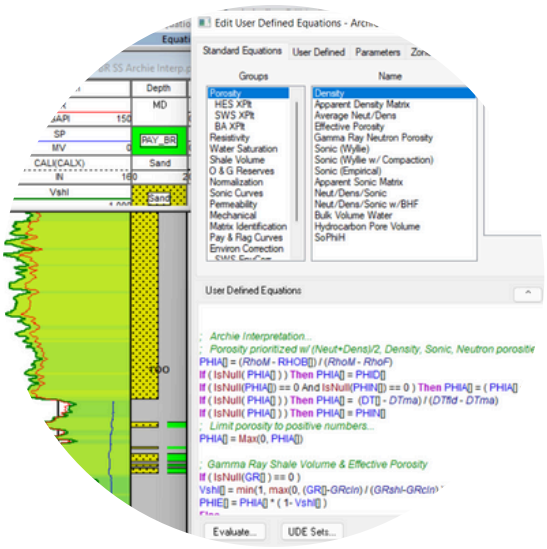


Multi-Well Interpretation

- Perform one-step reservoir pay summations for common reservoir attributes such as gross, net, net/gross, porosity feet, and hydrocarbon-filled porosity with corrections for true, vertical, and stratigraphic thickness.
- Generate virtually any statistic from curve-derived attributes over a zone or depth interval of interest with Curve Data Statistics.
- Easily confirm results using data-distribution histograms, statistics, and cross plots.
- Map the results directly in **GeoAtlas**, **GVERSE Geo+**, or save results to **ZoneManager** attributes.
- Create proposed completion stages and perforation cluster intervals, then save as proposed completion records in the **WellBase** Completion table. These records are available for data posting symbology on the well log templates.

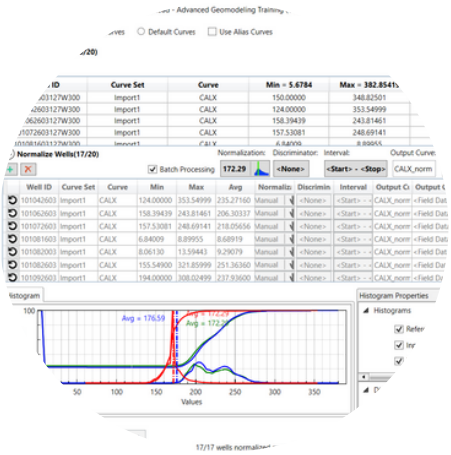
Petrophysical Analysis

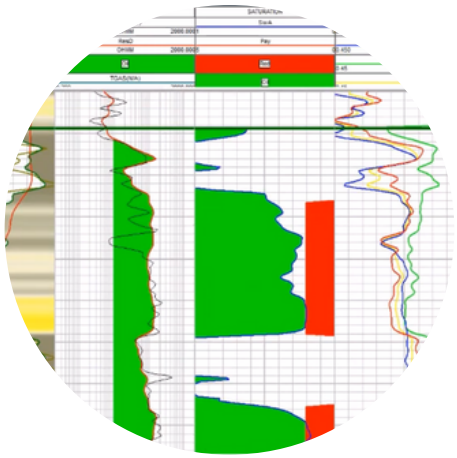
- Easily perform quick and interactive log calculations for standard interpretations and reconnaissance with user-defined equations.
- Utilize pre-written interpretations for 3 and 4-mineral determinations and Archie, Dual-Water, Indonesian, and Modified Simandoux saturation models.
- Link complex, external models written in C, C++, or Visual Basic.
- Build and save personal equations with user-defined equations comprised of over 250 pre-defined standard log analysis equations.
- Calculate Poisson's Ratio and Young's Modulus using mechanical properties/UDE Group.
- Utilize standard Halliburton, Schlumberger, and Baker Atlas charts for environmental corrections or digitize additional charts.



Curve Data Management

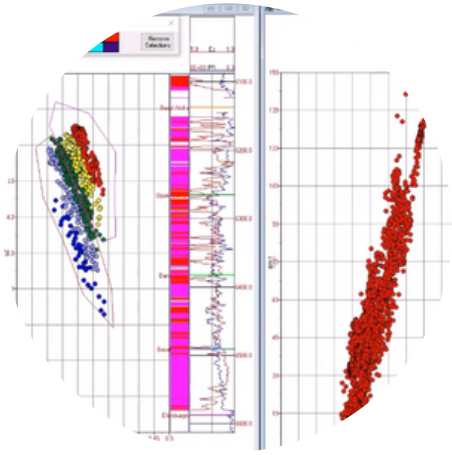
- Import standard LAS, LBS, ASCII, DLIS, and LIS/TIF data files.
- Automatically merge and splice curves using the curve import tool or optionally merge or splice at user defined depths.
- Benefit from project-based mnemonic inventory, mnemonic aliases, and unit conversions.
- Manually or bulk normalize curves using the graphical curve normalization utility which includes average, single, and two-point normalization methods.
- Utilize single or multi-well curve copy, renaming, deletion, rescaling, min/max clipping and filter smoothing tools.
- View standard core curve analysis attributes plus 200 user-defined core curves attributes.
- Combine multiple curve mnemonics for similar curve types in hierarchical order based on a pre-determined preference.





Log Analysis and Display

- Control presentation templates to display curve and depth-registered images with virtually unlimited tracks, curves, colors, and pattern fills.
- Display different track types including linear, logarithmic, mineral percent, depth registered images, text, core description, lithology pattern fills, tadpoles, and descriptions.
- Easily cut, copy, and paste curves between tracks using the on-screen presentation editing feature.
- Automatically post DST, core, perforation, mechanicals, IP, casing, tubing, and zone information.
- Interactively pick and display formation and fault markers and user-defined attribute intervals.
- On-screen QC editing of curves including performing simple or complex depth shifting, adjusting SP baseline shifting, and utilizing curve patch tools.

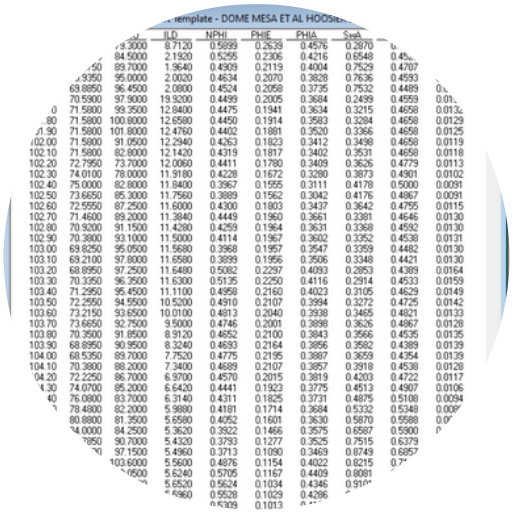


Cross Plot Analysis and Display

- Display data relationships over total well depths, user-specified depth range, or one or more zone(s).
- Create three-axis display with linear or logarithmic scale, user-controlled symbols, size and color, Z-axis color spectrum, and X and Y axis histograms.

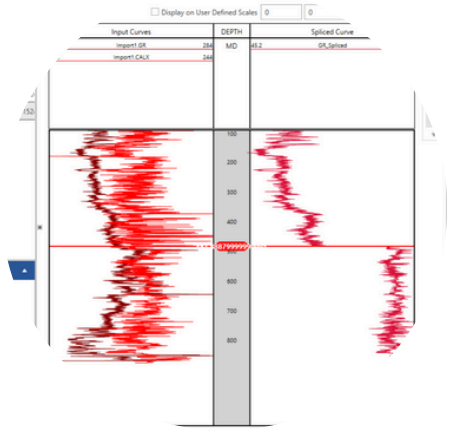
Multi-Well Cross Plots

- Benefit from multi-level discrimination with userdrawn polygon capabilities.
- Differentiate between wells by assigning colors to individual wells for better analysis.
- Fit curves using linear regression, reduced to major axis, and polynomial regression capabilities.
- Interactively determine the Formation Water Resistivity (Rw), BoundWater Resistivity (Rwb) and Cementation Exponent (m) using the Pickett plot.



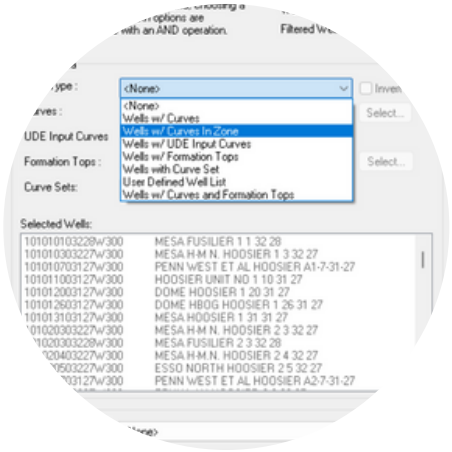
Customizable Reports

- Create user-defined well reports such as net pay, average porosity, water saturation, total porosity feet, or hydrocarbon-filled porosity.
- Define curve choices, sample rates, depth interval, or zone selection using the provided tabular list.
- Export to tab or comma delimited text files, or copy results to the Microsoft® Windows® clipboard.



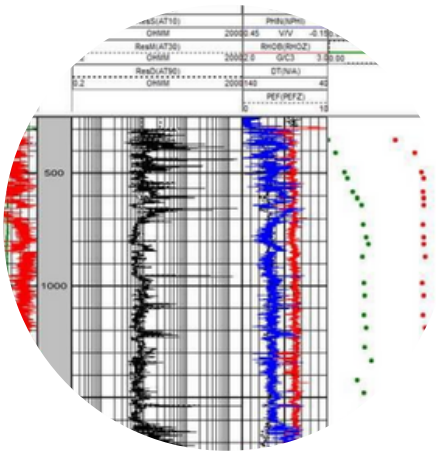
Graphical Curve Splice

- Graphically splice curve data for different runs in a well.
- Combine two or more input curves logged on different depth ranges to form a continuous composite curve into one single dataset, so that the measurements are available over the greatest possible depth interval.
- Display the single composite curve as a new curve in Log View of **GVERSE Petrophysics**.



Filter Wells with Curves in Zone

- Define wells with Curves in Zone filter to refine the inventory.
- The filter focuses on only the wells with curves lying fully or partially in the corresponding zones.



Survey Curves

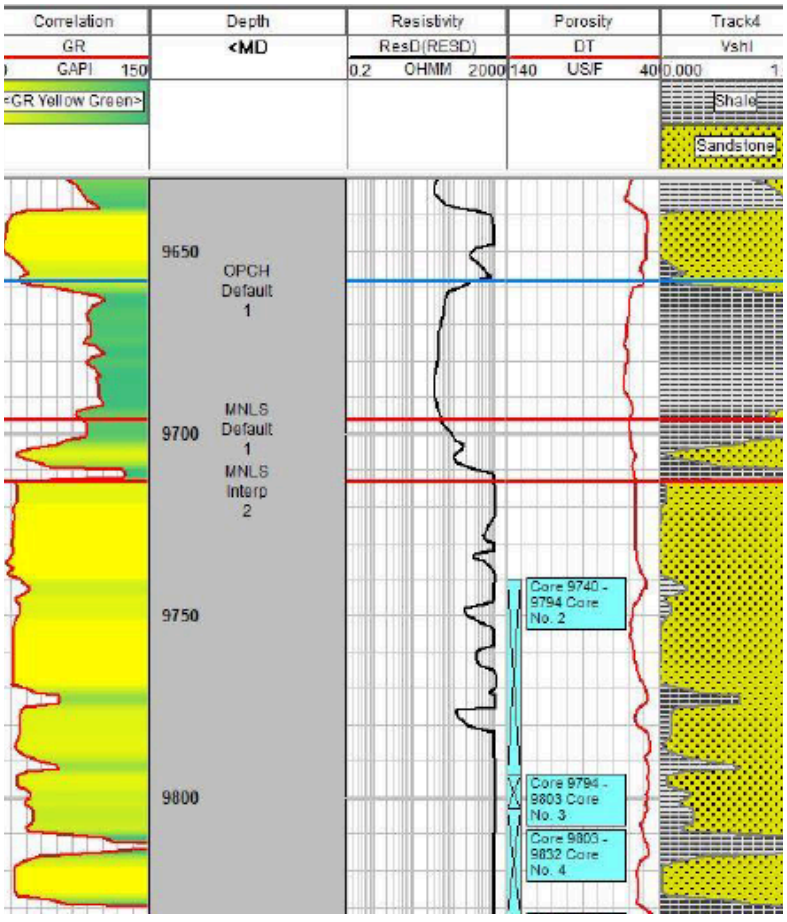
- Display the survey curves in **GVERSE Petrophysics** using the azimuth and inclination survey data from **WellBase**.
- Use the survey curves as discriminator curve or in equations in UDE models.

Release Highlights

More Control on Curve Data Management
Ignore unwanted characters, rename log curves and add suffixes when importing to keep your database clean and standardized. Limit imports to specific wells and update wells in the database with data from LAS header. Export log curves from multiple wells into a single ASCII file. Streamlined UI for importing and exporting log curves.

Faster Calculations & Data Filtering
Significantly faster filter selection and execution. A common filter for across **GVERSE Petrophysics** and a cache to bypass repeated trips to the DB. Skip pay summations for curves with nulls in the zone of interest. Significantly faster computation for Res/Pay and CDS calculations, especially when saving to **ZoneManager**.

Show More on Log Templates
Post multiple sources and observations for formation and fault picks. Use core numbers to post specific core data only and post more core data with support for cuttings & plugs. Show data fields for interval data on log displays. Easily duplicate curves and area fills in different tracks on the log template.



Triton 2024 Features List

Release	Features
2024.2	• Rename log curves on import to keep your database clean. • Create new or resample existing curve sets to standardize curve data in your projects. • Limit log curve imports to a specific list of wells. • Update well headers in the database with information from LAS file header. • Export log curves from multiple wells to a single delimited ASCII file. • Streamlined UI for importing and exporting log curves. • Get insight into available core data by posting core cuttings & plugs on log templates. • Post data fields for interval data on log displays. • Set order for tracks and curves on a log template.
2024.1	• Filter for wells with raster data available in specific zone intervals. • Cache filter results to eliminate repeated execution of filters. • Use a common filter across **GVERSE Petrophysics** application for all workflows. • Skip curves without data in the zone of interest during Res/Pay calculations. • Post multiple sources and observations for formation and fault picks. • Specify cores to post on log templates by core number. • Add partial transparencies for data postings on log templates. • Easily duplicate curves and area fills in different tracks on the log template. • Add a custom suffix to incoming curves during automated LAS imports. • Ignore commas, dots, dashes and slashes in Well IDs during import. • Display the full zone name in report views and report summary views. • Performance improvements: - Faster loading of wells for curve normalization within zone intervals. - Faster Res/Pay Summation calculations. (2023.2.1) - Faster filter execution. (2023.2.1) - Faster petrophysical calculation results to zone attributes. (2023.2.1)

Technical Specifications

The following sections list the system requirements for the **GVERSE Petrophysics**:

Hardware

Minimum

- 2.4GHz 64-bit Intel class or better
- 8 GB RAM
- 1,024 x 768 graphics resolution
- 19-inch monitor

Recommended

- Quad 2.4 GHz 64-bit Intel class or better
- 16 GB RAM or greater
- NVIDIA® GeForce or Quadro - 2GB VRAM
- Dual 21+ inch monitors

Software

- Microsoft® .NET 4.5
- Microsoft DirectX 11

Note: *It is recommended to use the latest Microsoft® service packs and security patches*

Operating System(s)

- *Windows® 10 Professional x64*
- *Windows® 10 Enterprise x64*
- *Windows® 11 Professional x64*
- *Windows® 11 Enterprise x64*

Licenses

The following licenses are required to run the application:

- *GVERSE® GeoGraphix license version 2024.2*
- *GVERSE® Petrophysics license version 2024.2*
- *License Management Tool version 2024.1*

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