



Geomodeling

Fully Integrated 3D Interpretation

Release Notes

GVERSE Geomodeling 2019.1



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Introduction

LMKR is pleased to announce the release of the GVERSE® Geomodeling 2019.1.

This document provides an introduction to the GVERSE Geomodeling features and benefits. It also lists the system requirements necessary to install and run the software.

What is GVERSE Geomodeling?

GVERSE Geomodeling introduces an integrated environment for geological/reservoir modeling that incorporates existing mapping and cross section features of smartSECTION® with the 3D view.

The application is part of the GVERSE application suite by LMKR (<http://www.lmkr.com/gverse>).

LMKR GVERSE consists of geoscience and engineering solutions focused on workflow optimization and enhancing productivity of teams working on diverse geological and geophysical projects.

Main Features

The main features of the Geomodeling application as follows:

- **Integrated 3D Visualization Environment**
GVERSE Geomodeling introduces an integrated map, cross section, and 3D view of a geomodel which enables you to work in 2D or 3D views simultaneously. Observe the real time effect of topography and subsurface geology in your geomodel with tightly integrated and synchronous Map, CrossSection and 3D views. Designed for the geoscientists who work on integrated data sets that include petrophysical, geophysical, drilling, and GIS data.
- **Well Data Visualization and Management**
GVERSE Geomodeling provides simple and flexible methods to create geomodel based on filtered set of wells. Wells can be filtered by spatial selection or by predefined filters created in GeoGraphix®.
- **Display Surface Tops, Fault Cuts and Well logs in 3D View**
Enhance the understanding of your reservoir by displaying log curves, surface tops and fault cuts along the wells in 3D view. With these features you can characterize your reservoir on the basis of log curves and surface geometries.
- **Interpolation**
Multiple interpolation methods are available to help diagnose interplay between lithofacies, depositional trends as suggested by the log curve response. Advance your understanding of the reservoir by analyzing different geological sections and identifying lithofacies, stratigraphic sequences, and depositional trends from the interpolated logs.
- **Clipping Planes**
In a complex geomodel, clipping plays a significant role in examining interrelationships and intrarelationships between surfaces and faults. Using GVERSE Geomodeling clipping tool, you can easily clip planes vertically or horizontally to keep a specific portion of the scene's geometry in focus and analyze trajectory of wells as they are drilled through geomodel surfaces.

- **Fence**
Construct a true geomodel of the region by creating fence diagrams. This feature assists in construing and representing litho-stratigraphic relationship, pinchouts and truncations of units, unconformities, structural and stratigraphic traps and any other geological associations that exist in a region.
- **Displaying Petrophysical Model on Fence**
Considering importance of Petrophysics, GVERSE Geomodeling represents petrophysical models (porosity, saturation and geomechanics etc.) based on statistical methods. These petrophysical modeling results are used to populate the fence diagrams to comprehend and analyze general behavior of the reservoir and future prospects.
- **Coblending Fence with Seismic**
Justify the reservoir behavior by means of harmonizing acoustic impedance contrast with interpolated curve, lateral lithofacies variation, and relating structural geometries from both cross sections and seismic sections. Regional behavior of the reservoir can be quickly analyzed by applying co-blended Interpolated computed or raw curve responses over entire seismic.
- **Perforation Postings**
Display Completion, Perforation Stage and Perforation along the wellbore path in 3D View to identify the productive zones of the targeted formations. Display of satellite image along the perforation data also helps to determine potential environmental hazards and plan areas for future prospect accordingly.

Benefits

- **Real-time Integrated Visualization of Results**
GVERSE Geomodeling provides an integrated real-time map view, cross section view, and 3D visualization of a developing geomodel. Integrate petrophysical, geophysical, drilling, and GIS data into the interpretation and observe real time effect on a comprehensive geomodel.
- **Quick and Easy**
As compared to traditional tools, GVERSE Geomodeling allows geoscientists to load and display large datasets with minimum time and effort required.
- **Scalability**
GVERSE Geomodeling provides support for modeling surfaces created from wide range of datasets. Cross sections with high amount of wells and large aerial extents are handled in an efficient manner.
- **Flexibility**
Features such as the ability to quick pick on Main Map view, clipping of 3D grid, developing fence diagrams, and creating regions and groups for wells offer greater flexibility in Interpretation workflows. Docking windows and panels provide the freedom to arrange the workspace as desired and saving complete state of the workspace facilitates the user to resume the work from where they left off.

System Requirements

The following sections list the system requirements.

Software

The software that must be installed on the system running the application are as follows:

- GeoGraphix Discovery 2019.1
- LMKR License Management Tool 2016.1 for GVERSE Geomodeling license
The LMKR License Management Tool (LMT) must be installed to configure the license.
- Microsoft DirectX End-User Runtime (June 2010)
- Adobe Reader for selected help files (optional)

Operating System

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

Note: It is recommended to use the latest Microsoft® service packs and security patches. Geomodeling specifically requires Windows platform update KB2670838 installed on the machine, in case the operating system is Windows 7.

Hardware

- System: 8 GB (16+ GB recommended)
- Graphics Card: 2 GB (4 GB recommended)
- DirectX 11 capable hardware

Note: We recommend using the latest video drivers and Microsoft updates for your system.

Licenses

The following licenses are required to run the application:

- GeoGraphix Discovery license version 2019.1
- GVERSE Geomodeling license version 2019.1.
The GVERSE Geomodeling license is required to enable Model 3D view and Contours on Map view.
Also note that FrameBuilder™ is part of the GVERSE Geomodeling license.

Notes: Refer to the LMKR Customer Support > Knowledge Center > [System Requirements](#) page for up-to-date information on the requirements.

Installing GVERSE Geomodeling

GVERSE Geomodeling is installed seamlessly as part of the GeoGraphix installation. For details, refer to the GeoGraphix Installation Guide on the LMKR Support Portal > Knowledge Center > [Release Notes and Installation Guides](#) page.

What's New in GVERSE Geomodeling 2019.1



LMKR is pleased to announce the release of GVERSE NOW, a web-based launch platform for all GeoGraphix and GVERSE applications. GVERSE NOW provides instant access to GeoGraphix and GVERSE support, documentation, white papers, training schedules, webinars, software downloads, and release and user group announcements. The main purpose of GVERSE NOW is to put the entire range of LMKR resources at your fingertips - so you get the support and information you need - when you need it. We've also integrated iEnergy® Core into the launcher. iEnergy® Core gives you access to in-depth discussions of industry standards and trends.

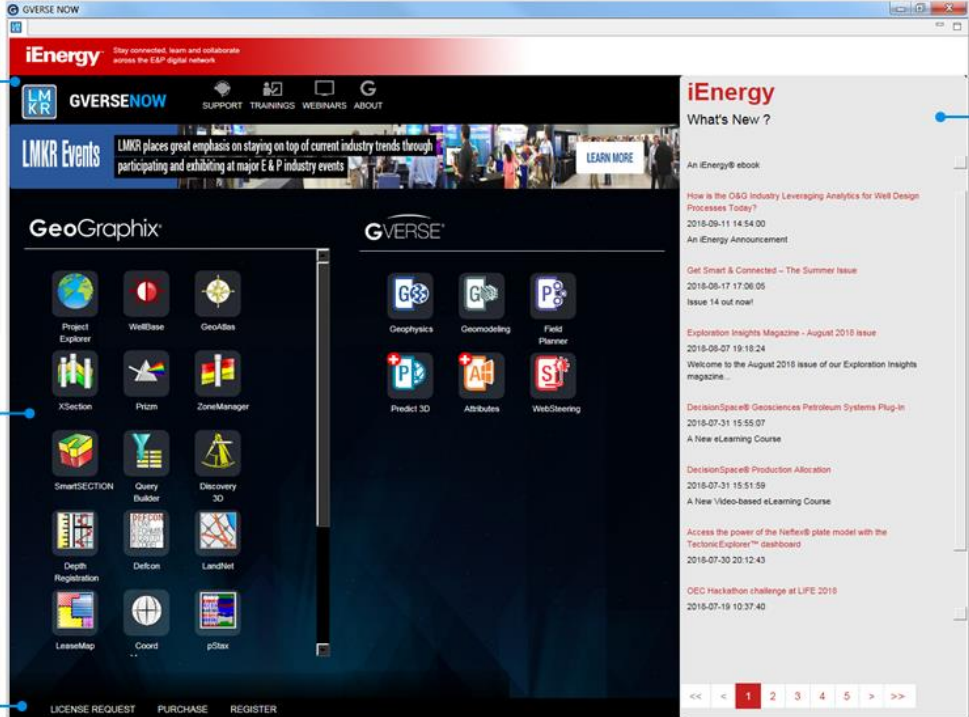
To launch GVERSE NOW:

- From the Start menu, select **All Programs > GVERSE NOW > GVERSE NOW**.

Or

- Double-click **GVERSE NOW**  on your desktop.

In the GVERSE NOW window, the GeoGraphix applications display under the GeoGraphix menu and GVERSE applications display under the GVERSE menu.



Quick Links
Instant access to GeoGraphix and GVERSE support, documentation, white papers, training schedules, webinars, software downloads, and release and user group announcements.


GeoGraphix & GVERSE Menus
Single interface to launch GeoGraphix and GVERSE applications.

Useful Links
Access License Request, Purchase and Register.

iEnergy® Core
Provides access to in-depth discussions on industry standards and trends.

To launch GVERSE Geomodeling:

Click **GVERSE Geomodeling**  from the **GVERSE** menu.

Note: To run GVERSE Geomodeling from the GVERSE NOW window, ensure the application is installed on your machine. The applications that are not installed are marked with a red plus sign .

Third Party Acknowledgements

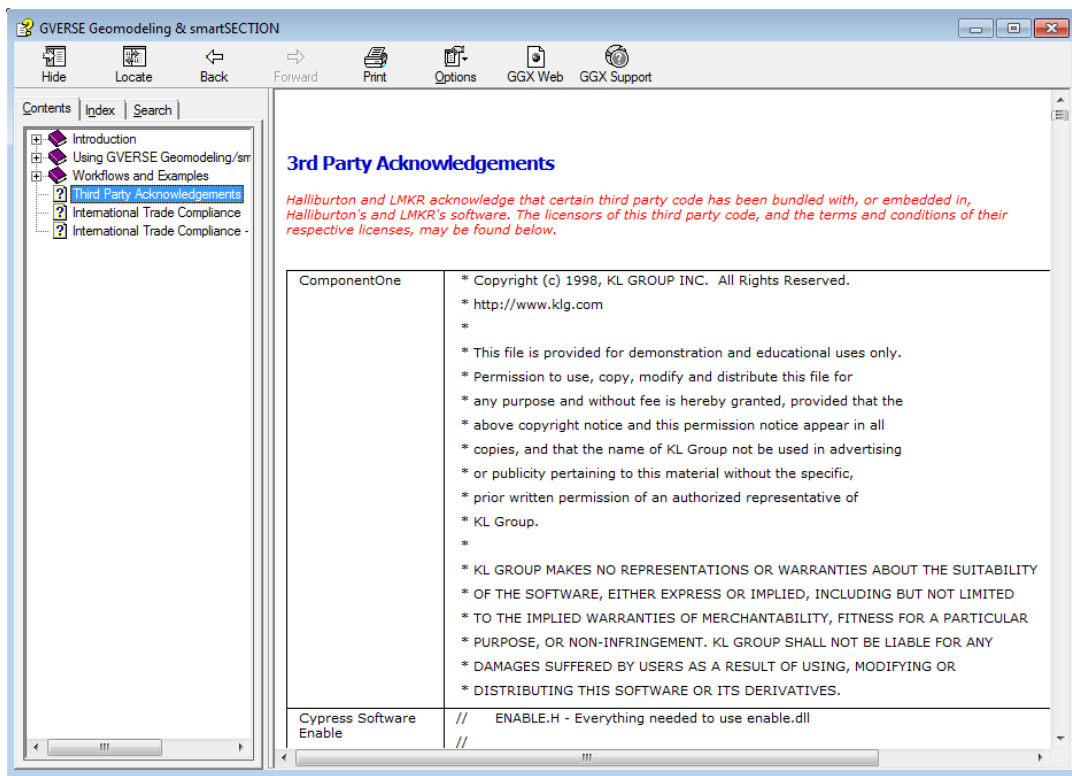
LMKR acknowledges that certain third party code has been bundled with, or embedded in, its software. The licensors of this third party code, and the terms and conditions of their respective licenses, may be found in the help file.

To access the 3rd party license agreements:

1. To access the online help, click the **help** tab located on the tab commands bar.

The Help window displays.

2. In the **Contents** pane, locate the **Third Party Acknowledgements** help topic as shown in the image below.



International Trade Compliance

This application is manufactured or designed using U.S. origin technology and is therefore subject to the export control laws of the United States. Any use or further disposition of such items is subject to U.S. law. Exports from the United States and any re-export thereafter may require a formal export license authorization from the government. If there are doubts about the requirements of the applicable law, it is recommended that the buyer obtain qualified legal advice. These items cannot be used in the design, production, use, or storage of chemical, biological, or nuclear weapons, or missiles of any kind.

The ECCNs provided here (if available) represent LMKR's opinion of the correct classification for the product today (based on the original software and/or original hardware). Classifications are subject to change. If you have any questions or need assistance please contact us at support@lmkr.com.

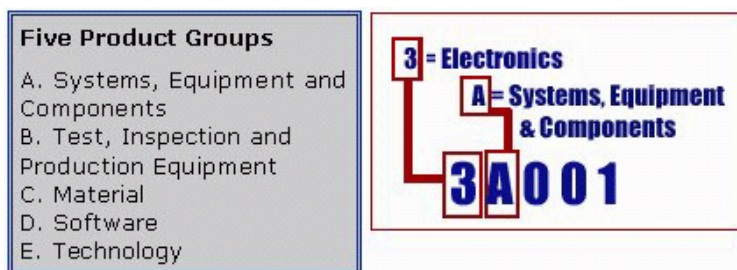
Under the U.S. Export Administration Regulations (EAR), the U.S. Government assigns your organization or client, as exporter/importer of record, responsibility for determining the correct authorization for the item at the time of export/import. Restrictions may apply to shipments based on the products, the customer, or the country of destination, and an export license may be required by the Department of Commerce prior to shipment. The U.S. Bureau of Industry and Security provides a website to assist you with determining the need for a license and with information regarding where to obtain help.

The URL is: <http://www.bis.doc.gov>.

Definitions

ECCN - Export Control Classification Number - The ECCN is an alpha-numeric code, e.g., 3A001, that describes a particular item or type of item, and shows the controls placed on that item. The CCL (Commerce Control List) is divided into ten broad categories, and each category is further subdivided into five product groups. The CCL is available on the EAR Website.

The below illustration is a sample:



The ECCN number (if available) and License Type for this product are included in the table below. Also included is the date the table was last updated.

Product/Component/R5000	EAR Number	License	Last Updated On
GVERSE Geomodeling	EAR99	EAR	11/28/2017

Contacting LMKR Support

LMKR is committed to providing the highest level of technical customer support in the industry. With an average tenure of more than thirteen years, our highly trained and experienced staff of technical analysts is comprised of geoscientists, engineers, land professionals, petrophysicists, and system specialists.

Please refer to our Customer Support timings mentioned below to ensure that you have access to our support analysts assigned to your region. When getting in touch with LMKR support, please remember that real-time support will not be available during bank holidays or after office hours. If you do get in touch with LMKR Support outside of work hours, please leave a voice message with a brief description of the issue that you are facing. Your voice message will be used to automatically create a support case for you. This will enable our analysts to attend to your issue and provide you with a resolution as soon as possible

North and South America	Europe, Middle East & Africa
<p>Monday – Friday 8 am-6 pm CST* Toll Free (US/Canada) : +1 855 GGX LMKR (449 5657)</p> <p>Colombia: +57 1381 4908</p> <p>United States: +1 303 295 0020</p> <p>Canada: +1 587 233 4004</p> <p><i>*Excluding bank holidays</i></p>	<p>UK: Monday - Friday 8 am – 5 pm* +44 20 3608 8042</p> <p>UAE: Sunday - Thursday (Dubai GMT+4) 8 am – 5 pm* +971 4 3727 999</p> <p><i>*Excluding bank holidays</i></p>
Asia Pacific & Australian Continent	Southwest Asian countries
<p>Malaysia: Monday - Friday (Kuala Lumpur GMT+8) 9 am – 6 pm* +60 32 300 8777</p> <p><i>*Excluding bank holidays</i></p>	<p>Pakistan: Monday - Friday (Islamabad GMT+5) 9 am – 6 pm* +92 51 209 7400</p> <p><i>*Excluding bank holidays</i></p>

Helpful Links

Name	Website Address
LMKR Homepage	http://www.lmkr.com
LMKR GVERSE	http://www.lmkr.com/gverse
LMKR Support Portal	http://support.lmkr.com