



Geophysics

Powerful seismic interpretation for your play

Release Notes

GVERSE Geophysics 2017.3



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Introduction

LMKR is pleased to announce the release of the GVERSE® Geophysics 2017.3 software.

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

What is GVERSE Geophysics?

GVERSE Geophysics is a 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 tasks. The Geophysics software 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

- View 2D and 3D seismic data in highly optimized 3D viewer
- Visualize volumes with voxel rendering
- View horizons, faults, wells and associated well data, ISOMap layers and much more in 3D
- Big data support with the new LOD format
- Powerful color palette control with histogram and selective transparency
- Blending to visualize data from multiple versions simultaneously
- Interpret horizons and faults directly in the 3D view
- View surveys, lines, wells, surfaces, layers on highly customizable maps
- Seamless interactivity between map and 3D views
- Import external cubes and use as your velocity model
- Use velocity model for depth conversion of horizons
- View velocity values on seismic sections in real time
- Work on multiple screens with dockable windows
- Save and share work as sessions
- Full backward compatibility for existing interpretations

Benefits

Blazing Fast 3D Visualization: GVERSE Geophysics introduces a brand-new 3D viewer that is built on an engine designed and optimized for seismic and related data. It's never been easier to view your seismic sections, horizons, faults, wells and wellbore data, and much more in the 3D space. The new LOD format does not compromise performance even with very large seismic files. With features such as voxel rendering and co-blending, you can visualize subsurface structures like never before, gain more insight into your data, and make better decisions for your play.

Interpretation in 3D: Pick your horizons and faults directly in the 3D viewer. Mark seeds picks and run the auto-trackers directly from the 3D view. With all horizon and fault picking and editing modes available, you can quickly mark your structures and instantly see what they look like in the 3D space.

Do More with Your Velocity Models: Import external velocity cubes and use them as your velocity model, visualize velocity values directly on your sections and horizon surfaces, or use the velocity model for T/D conversion of horizons. The velocity modeling improvements will help you get a more accurate picture of the subsurface.

Easy to use, Intuitive Workflows: 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.

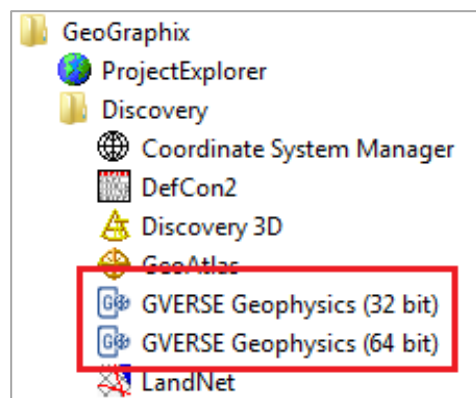
Installing GVERSE Geophysics

GVERSE Geophysics along with its 3D module, is installed seamlessly as part of the GeoGraphix installation. For details, refer to the GeoGraphix Installation Guide.

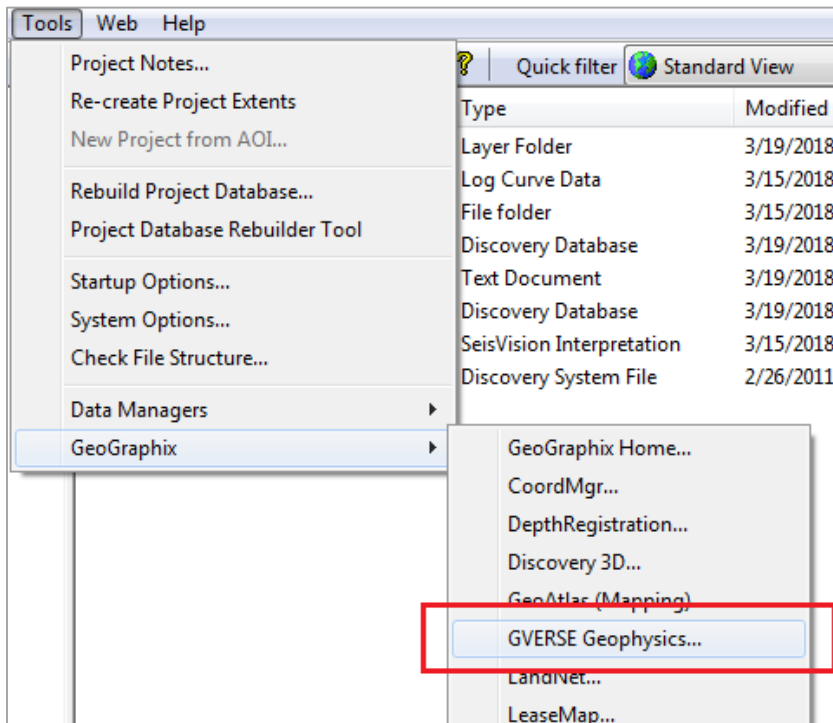
Launching GVERSE Geophysics


After successful installation of GeoGraphix, GVERSE Geophysics can be launched in any of the following three ways:

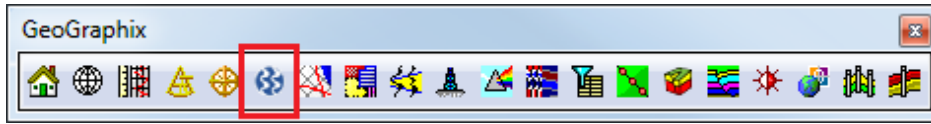
- From the **Start** menu, select **Start >> Programs >> GeoGraphix >> Discovery >> GVERSE Geophysics (32 bit & 64 bit)**




- From the menu bar of **ProjectExplorer** or other GeoGraphix *Discovery* applications, select **Tools >> GeoGraphix >> GVERSE Geophysics**



- Click the **GVERSE Geophysics** button  on the GeoGraphix toolbar in any other Discovery application.



Launching 3D Module of GVERSE Geophysics

To open the 3D module of GVERSE Geophysics, click the **Launch 3D View** button  on the **3D View** toolbar in the main GVERSE Geophysics interface.


The 3D module of GVERSE Geophysics launches as a separate instance from within the main GVERSE Geophysics interface. Once launched, all data in the interpretation can be accessed from within the 3D module. You can also use the 3D View toolbar to view seismic sections and interpretation objects such as horizons and faults, in the 3D module directly from the main map.

3D Module Tabs
Provide access to File menu, Home, Horizons, Faults, Map View and 3D View tabs

Map/3D Views
Provide visualization and control of seismic objects available in the active survey


Inventory Pane
Provides access to all the seismic data, picked horizons and faults, well data and mapping grids through Interpretation and Scene trees

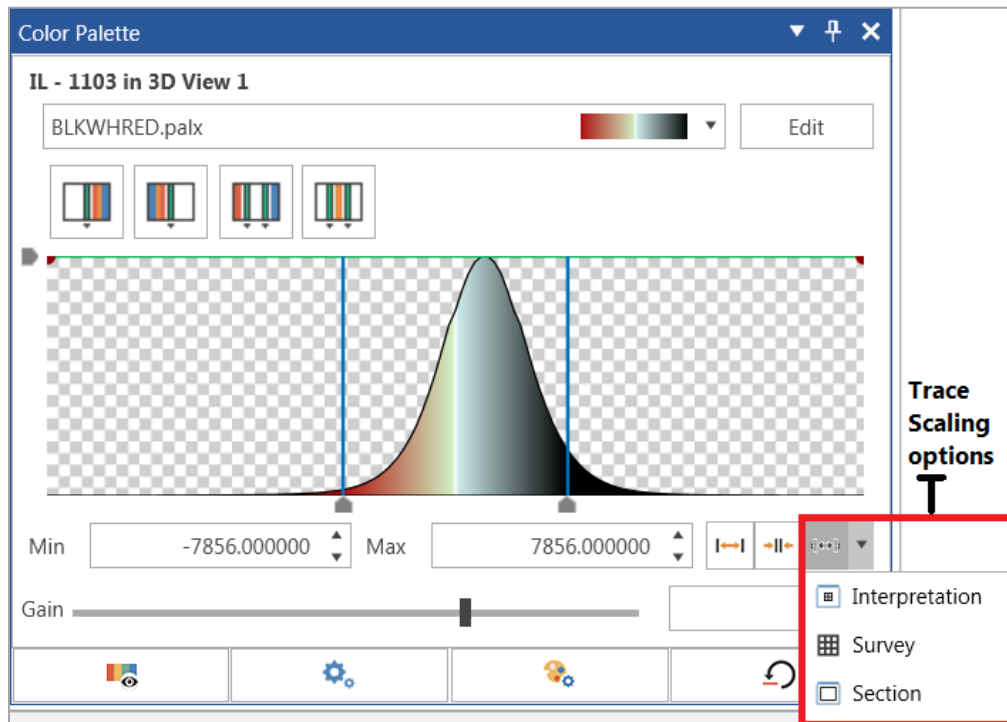
Map/3D View Sidebar
Allows access to all the common options that can be applied to Map/3D view

- Note:** To access the online help for the 3D module, either press **<F1>** or click the **Help** button  located at the top right corner.

What's New in GVERSE Geophysics 2017.3?

Tighter Integration



- Create cross sections in GVERSE Geomodeling and smartSECTION with a single click. To do so, select the desired seismic section, right-click and select **Create Cross Section In > GVERSE® Geomodeling**, or **Create Cross Section In > smartSECTION** from the context menu.
- Open wells in WellBase, PRIZM, ZoneManager, DepthRegistration, and LogM Well Editor directly from the 3D module. To do so, right-click on the desired well and choose one of the listed GeoGraphix/GVERSE applications to open wells in, from the context menu.
- Send seismic sections displayed in the 3D view to vertical and horizontal seismic display windows and work with sections in a 2D view. To do so, select any open seismic section in the 3D interface, right-click and select **View in 2D** from the context menu.
- View seismic sections displayed in 2D windows immediately in the 3D view by clicking the **View open seismic section(s) in 3D** icon  on the **3D View** toolbar to open the **Open in 3D View** dialog box. Select the desired objects that you want to send to the 3D view.
- Access the interpretation, survey and section derived trace scaling options in the 3D interface. These options are available in the Color Palette control.

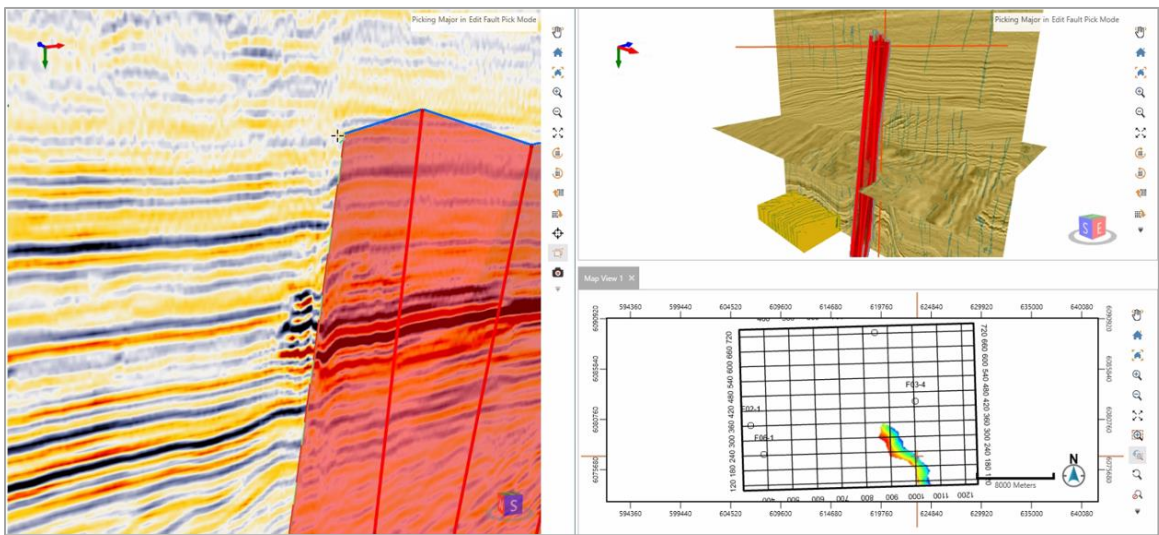
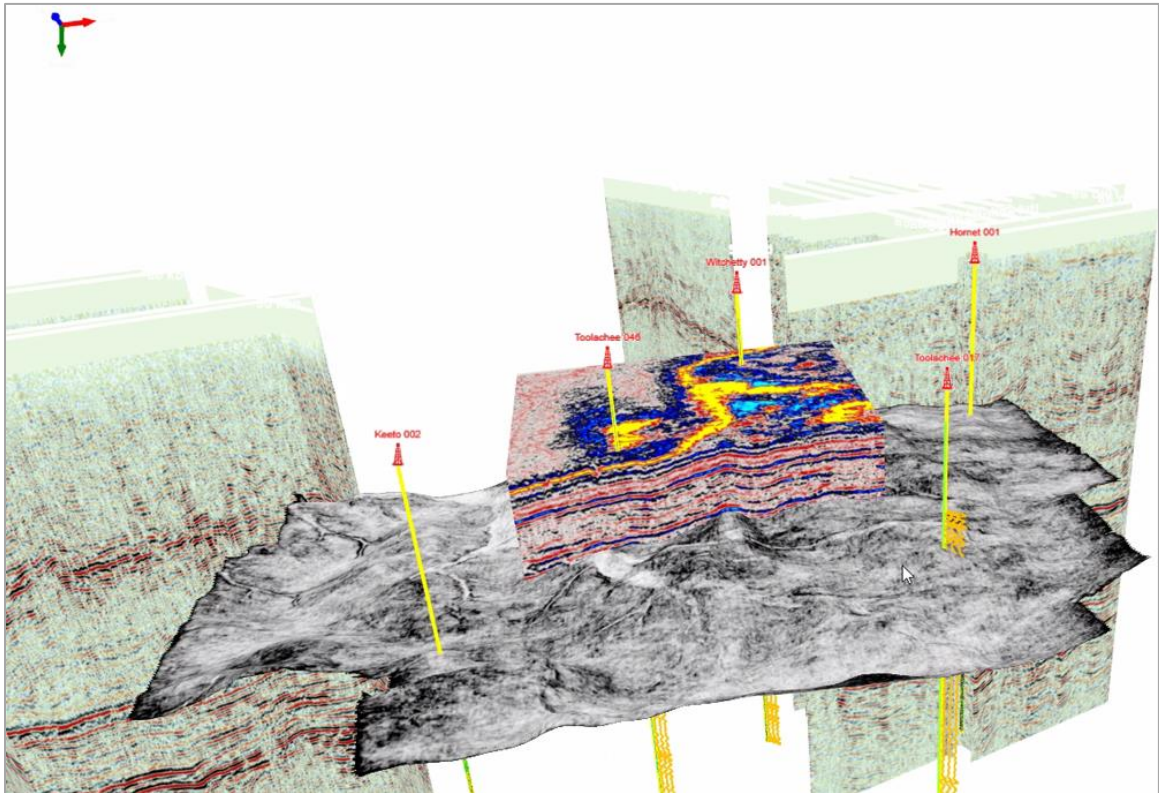


- Apply customized PALX format color palette to seismic sections, horizon surfaces and more in the main GVERSE® Geophysics interface.









Enhanced Interpretation Capabilities

- Quickly pick horizons even through noisy data with a new 2D auto pick algorithm. This option is available in both the main interface as well as the 3D interface.

- Main Interface: Click the **Segment Pick mode** icon  on the **Horizon palette**
- 3D Interface: Click the **Segment Pick mode**  **Segment Pick** button under **2D Pick modes** in the **Picking** menu of **Horizons** tab



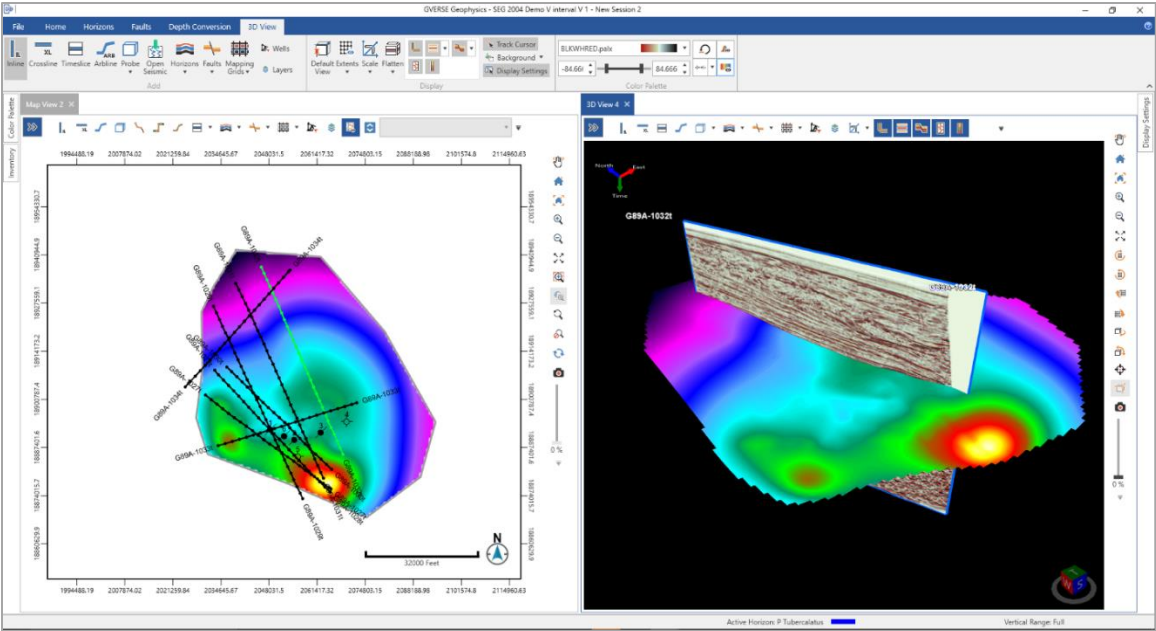
- Snap horizons more accurately with additional options to snap to events above, below or near existing picks. To access the **Snap Horizons** dialog box, select Horizons > Horizon Operations > Snap Horizon from the main GVERSE Geophysics interface menu bar.
- Gain more insight into stratigraphic features by flattening the entire 3D scene on a horizon. To do so, select **3D View** tab > **Display** menu > **Flatten** drop-down list > the horizon on which to flatten the seismic data
- Independent action lists for individual horizons and faults for more flexible and context aware undo and redo functionality. This option is available for horizons and faults in both the main and 3D interfaces. To perform this action:

- **Main Interface: For Faults:** Select **Undo Fault Pick**  or **Redo Fault Pick**  icons from the **Fault Palette**.
- **Main Interface > Horizons:** Select **Undo Horizon Pick**  or **Redo Horizon Picks**  icons from the **Horizon Palette**.
- **3D Interface > Faults:** Click the **Undo Last Action**  icon on the **Picking** menu on **Faults** tab to perform single undo actions. To undo more than one actions, select the number of desired actions from the **Undo** drop-down list. Click the **Redo Last Action**  icon on the **Picking** menu on **Faults** tab to perform single redo actions. To redo more than one actions, select the number of desired actions from the **Redo** drop-down list.
- **3D Interface > Horizons:** Click the **Undo Last Action**  icon on the **Picking** menu on **Horizons** tab to perform single undo actions. To undo more than one actions, select the number of desired actions from the **Undo** drop-down list. Click the **Redo Last Action**  icon on the **Picking** menu on **Horizons** tab to perform single redo actions. To redo more than one actions, select the number of desired actions from the **Redo** drop-down list.
- Easily verify well-seismic tie using a variable density display for synthetic seismograms.

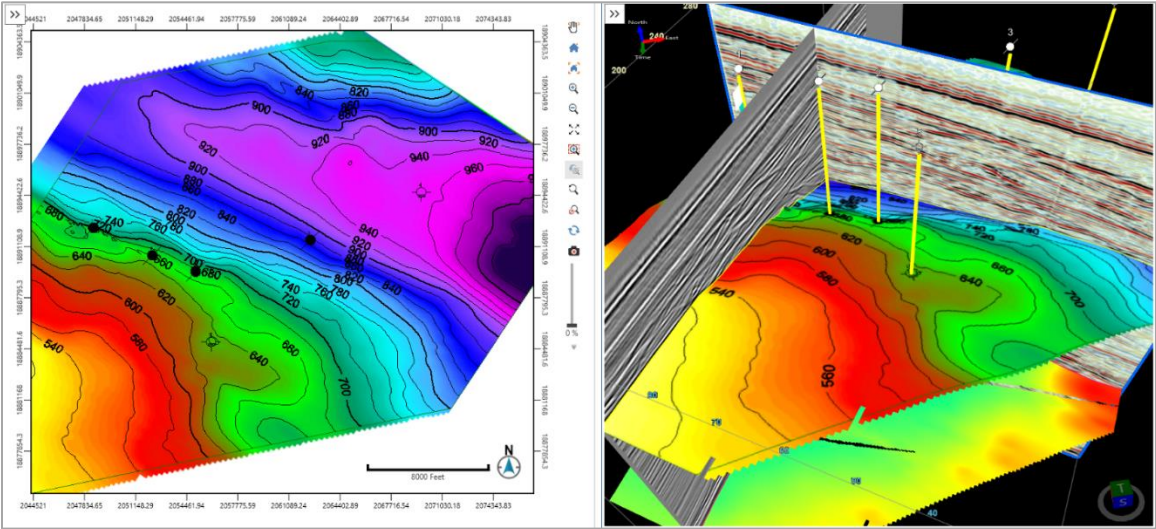
Increased Visualization Functionality

- Add mapping grids to the 3D scene and Map of the new 3D module.
 - 3D View: Select **3D View** tab > **Display** menu > **Mapping grid** drop-down list > select the desired mapping from the list to apply on the 3D scene
 - Map View: Select **Map View** tab > **Display** menu > **Mapping grid** drop-down list > select the desired mapping from the list to apply on the Map view

- View horizon picks associated with mapping grids in the 3D scene. To do so, select the horizon in the 3D scene and select the desired mapping grid from the available **Mapping Grids** list in the **Horizon Display Settings**.

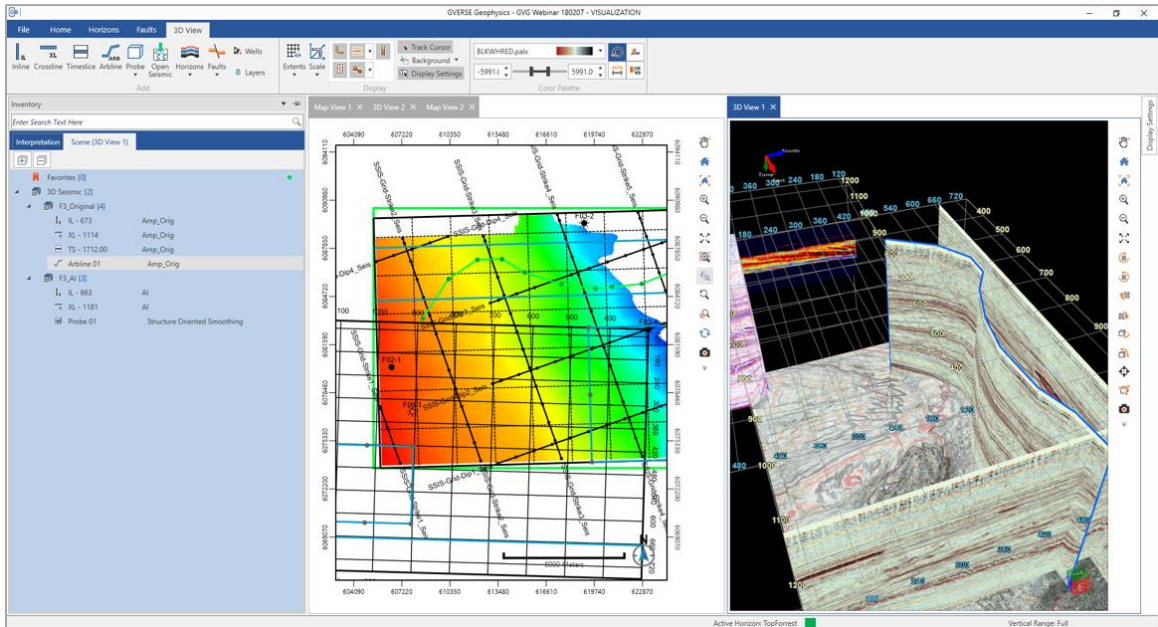


- Gain more insight into your structures by drawing IsoMap layers directly on the horizon surface. These layers can be draped on the horizon from the **Horizon Display Settings** in the 3D interface.



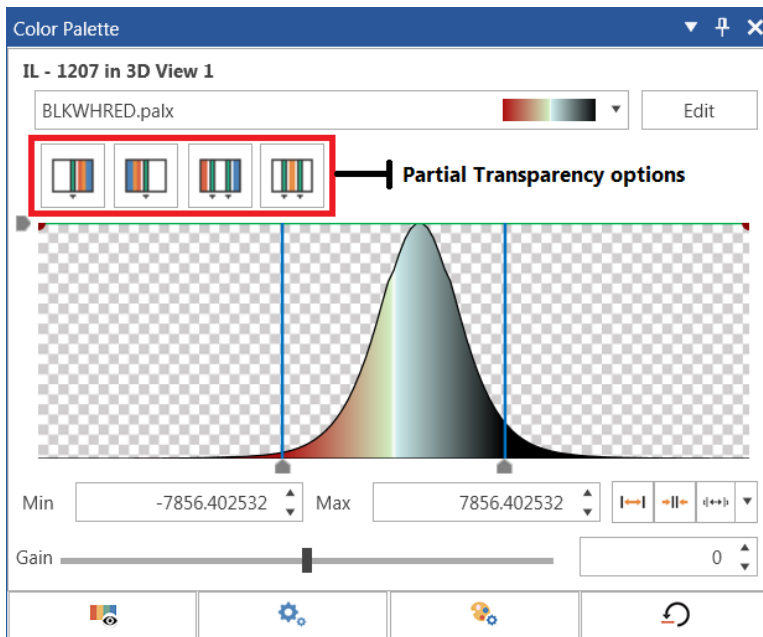
Improved Efficiency and Usability

- Access all depth conversion settings at a single location. The depth conversion settings can be accessed using:
 - Main Interface: Select **Depth Conversion > Depth Conversion Settings** from the menu bar
 - 3D Interface: **Depth Conversion** tab > **Settings**



- Shortcuts to depth conversion workflows in the 3D view. The workflows that can be accessed from the Depth Conversion menu are:
 - Using Velocity Manager
 - Create Velocity Model
 - Create Velocity Volume
 - Create Depth Survey
 - Configure Reference Wells
- Scene-specific toolbars for a true multiscreen experience. These toolbars are available at the top of the scene in both the Map and 3D Views of the 3D interface.
- Arblines and probes can be navigated using hotkeys. Probes can also be resized using the hotkeys.
- Single click to open seismic sections at well locations and horizon and fault surfaces.
- View well symbols as defined by the status field in **WellBase** in the 3D scene. The wells are displayed either at surface or bottom hole location. The location of wells symbols can be set in the **Display Settings** of the chosen well.
- Manipulate and modify arbitrary lines directly in the 3D scene. You can now move the control points of arbitrary lines to rearrange them quickly and efficiently.

- Quicker access to partial transparency options in the color palette control in the 3D interface through pre-set buttons.



System Requirements

The following sections list the system requirements.

Software

- GeoGraphix Discovery 2017.3
- LMKR License Management Tool 2016.1 for GVERSE Geophysics license
The LMKR License Management Tool (LMT) must be installed to configure the Geophysics license.
- Microsoft DirectX End-User Runtime (June 2010)
- Microsoft® .NET Framework 4.5.1
- Adobe Reader for selected help files (optional)

Operating System

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

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

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 2017.3. 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 2017.3. You must download and install it separately.
- Solid state hard disk
- 1920 x 1080 screen resolution

Licenses

The following licenses are required to run GVERSE Geophysics:

- GeoGraphix Discovery license version 2017.1
- GVERSE Geophysics license version 2017.1


Notes:

- Users upgrading from GeoGraphix 2017.2 to GeoGraphix 2017.3 do not require a new Geophysics license. However, all other users require a new Geophysics license.
- Refer to the LMKR Customer Support > Knowledge Center > [System Requirements](#) page for up-to-date information on the requirements.

Third Party Applications

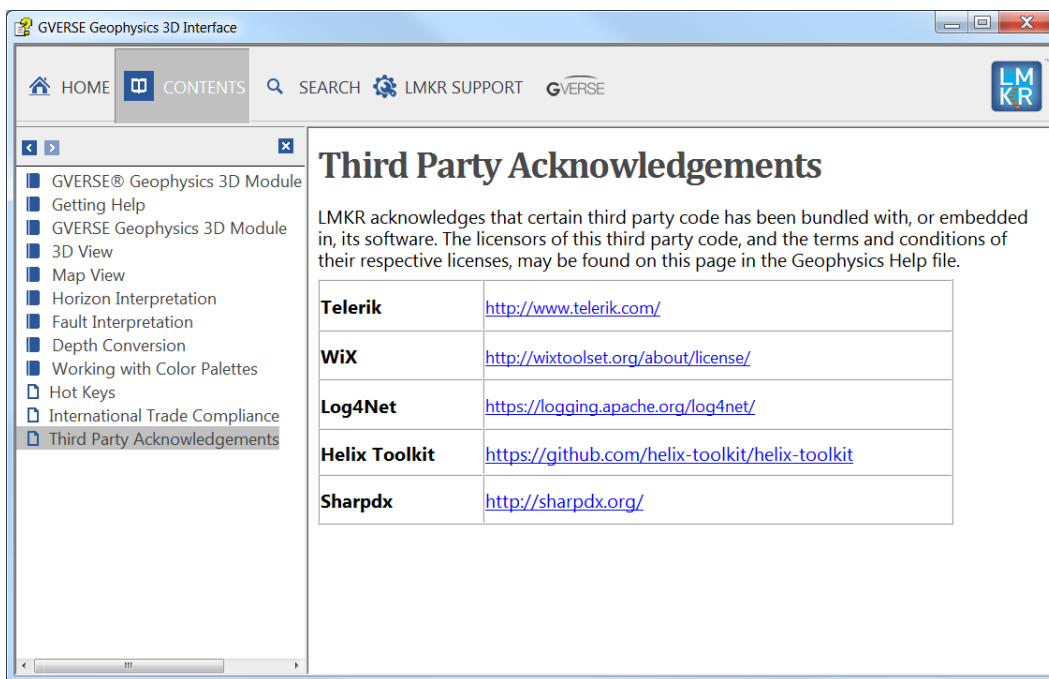
LMKR acknowledges that certain third party code has been bundled with, or embedded in, its software. The licensors of this third party code, and the terms and conditions of their respective licenses, may be found in the Geophysics help file.

To access the 3rd party license agreements:

1. Either press <F1> or click the **Help** button  located at the top right corner.

The Help window displays.

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



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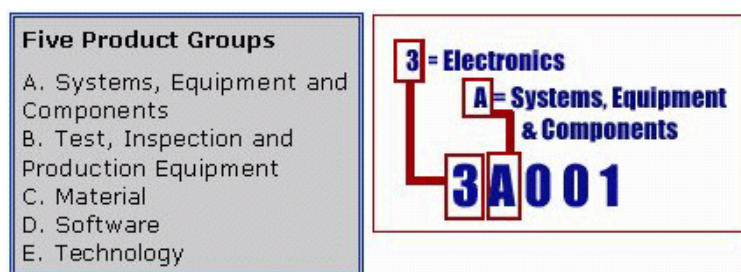
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The URL is: <http://www.bis.doc.gov>.

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 following 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 Geophysics	EAR99	EAR	03/28/2018

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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 & 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