



# WebSteering

Stay ahead of the drill bit

## Release Notes for

# GVERSE WebSteering 2016.1.3



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# Contents

- Introduction ..... 1
  - What is GVERSE WebSteering? ..... 1
    - Main Features ..... 1
    - Benefits ..... 2
- System Requirements ..... 2
  - Software ..... 2
  - Operating System ..... 2
  - Hardware ..... 2
  - Licenses ..... 3
- New Features ..... 3
- Third Party Applications ..... 6
- International Trade Compliance ..... 7
- Definitions ..... 7
- Contacting LMKR Support ..... 8



# Introduction

LMKR is pleased to announce the release of the GVERSE™ WebSteering™ 2016.1.3 software. This document provides an introduction to the WebSteering software features and benefits. It also lists the system requirements necessary to install and run the software.

## What is GVERSE WebSteering?

GVERSE WebSteering software is designed specifically to help geoscientists geosteer horizontal wells in thin pay zones and to direct the bit in real time.

The GVERSE WebSteering software installs into the web browser with a few button clicks. Then it's a simple process to load LWD and surveys from the rig, add type logs and subsurface grids from GeoGraphix®, and start steering. At any point during this process, LWD data can be sent back to GeoGraphix for further analysis using GeoGraphix's feature-rich suite of tools. GVERSE WebSteering runs even when disconnected from your corporate network so whether you are in the office or working remotely, you can define your target surface and send updated drilling targets to the rig. The WebSteering 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. These applications help cut the processing time required for interpretations resulting in fast, easy to use scalable tools that are inter-operable with other known geoscience software suites; enabling a connected multi skilled workforce.

## Main Features

The main features of the WebSteering software are as follows:

- A web-based software designed to work when it is connected to a GeoGraphix server as well as when it is not.
- Ability to help geologists build a more accurate target surface that can be used to drill the next well.
- This software can also be connected to a WITSML Server. Therefore, data loaded from the rig can be directly saved to GeoGraphix.
- Easy installation.
- Technical Geosteering based on Relative Stratigraphic Depth concepts (no distortion like vertical section projection).
- Capable of converting an LAS file into a Type Log.
- Automatically calculates True Vertical Depth (TVD), Northing, Easting and Vertical Sections from MD, Inclination and Azimuth.
- Directional survey calculations and related minimum-curvature interpolations for geosteering and graphing.
- Graphic display of data with full zooming capabilities and coupling of graphs including LWD, Wellbore directional survey data, and Type Log.
- Segment addition and management.
- Display can be customized e.g. line colors, min/max scale limits, linear scale format etc.

- Has the capability to process files that have been dragged-and-dropped on the interface.
- Requires GeoGraphix® Discovery.

## Benefits

The GVERSE WebSteering software offers you the following benefits:

- **Flexible:** Flexibility in the location where you geosteer a horizontal well from – in the office, at home, or in the field
- **Simple:** Simplified Data Entry for LWD and survey data using drag-and-drop or WITSML. Data is transferred into LMKR GeoGraphix projects via the web with one button click.
- **Integration with GeoGraphix:** Integration with GeoGraphix applications, including selection of type logs and gridded surfaces from the GeoGraphix database, and use of Web Geosteering interpretations in GeoGraphix to produce more accurate target surfaces.

## System Requirements

The following sections list the system requirements for the WebSteering software.

### Software

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

- GeoGraphix Discovery 2016.1.x or 2015.1.4 onwards
- Microsoft .NET Framework 4.2 or greater
- LMKR License Management Tool 2016.1 for WebSteering license  
The LMKR License Management Tool (LMT) must be installed to configure the WebSteering license.
- Adobe Reader for selected help files (optional)

**Note:** It is recommended that you run the WebSteering software on Internet Explorer 11.x.x and Google Chrome 42.x.x.x or later.

### Operating System

To run the WebSteering software, you need the Windows® 7 operating systems installed on your system.

**Note:** It is recommend to use the latest Microsoft service packs and security patches.

### Hardware

The hardware requirements for the WebSteering software are as follows:

- Quad 2.4 GHz 64-bit Intel® class or better
- 4 GB RAM or greater
- 1024x768 graphics resolution

## Licenses

The following licenses are required to run the WebSteering software:

- GVERSE WebSteering 2016.1.3 license
- GeoGraphix Discovery 2016.1 or 2015.1 license

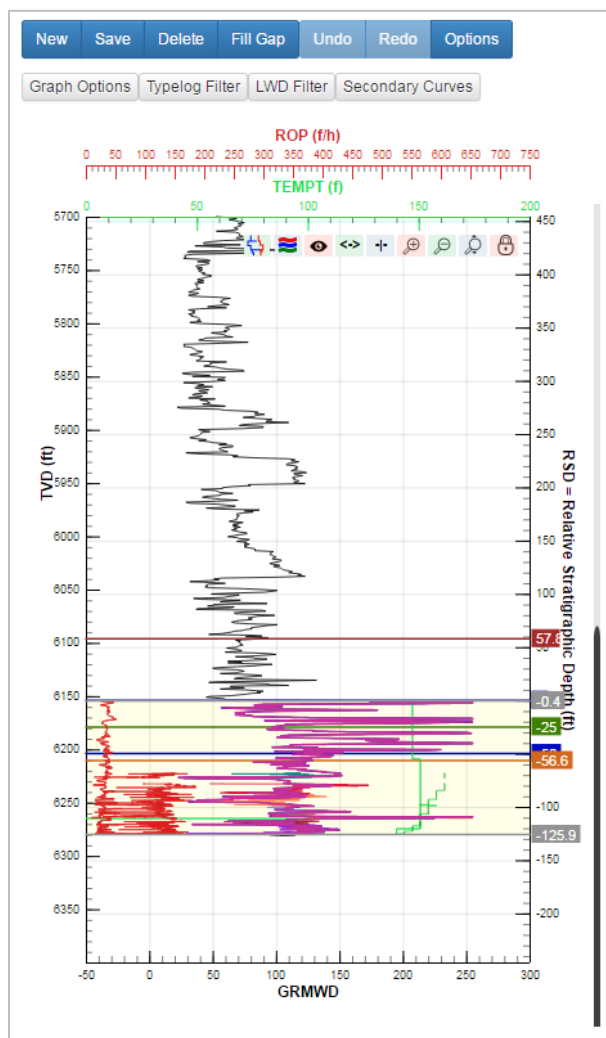
**Note:** Refer to the LMKR Customer Support Portal (<http://support.lmkr.com/>) for up-to-date information on the requirements.

## New Features

This section contains a brief description of the exciting new features included in the 2016.1.3 release.

### Add secondary curves to correlation track

Add secondary curves to the correlation track on the GeoSteer page. Click the **Secondary Curve** button on the correlation track and select the check box adjacent to the secondary curve that you want to view. You may select and view up to three secondary curves at a time.



## Improved Wells tab

The following improvements are made to the Wells tab of the Dashboard page:

- The workflow for fetching wells from GeoGraphix is improved.
- The Add New Well button allows you to add a new well to GeoGraphix.
- You can associate a WITSML well to a GeoGraphix well or a lease.

The screenshot shows the 'Wells' tab in the dashboard. The title is 'Scout Ticket - 34f82687-42c7-4000-a641-e3cd698e44be'. Below the title is a 'Search Results' dropdown menu and an 'Associate' button. The form contains several fields: UWI\* (34f82687-42c7-4000-a641-e3cd698e44be), Name (Well name (Search Enabled)), Latitude\* (0.000000), Longitude\* (0.000000), Operator (Operator name (Search Enabled)), Status (Status name (Search Enabled)), State/Prov (State name (Search Enabled)), County (County name (Search Enabled)), Field (Field name (Search Enabled)), Number (Well number (Search Enabled)), and Elevation (0). Below the form is a 'Reference' field. At the bottom, there are four buttons: 'Get GeoGraphix Wells' (highlighted with a red box), 'Get WITSML Wells', 'Clear', and 'Add New Well' (highlighted with a red box). A note at the bottom right says 'search enabled: supports wild card search, (\*) asterisk: required fields'.

## Associate WITSML well to a GeoGraphix project

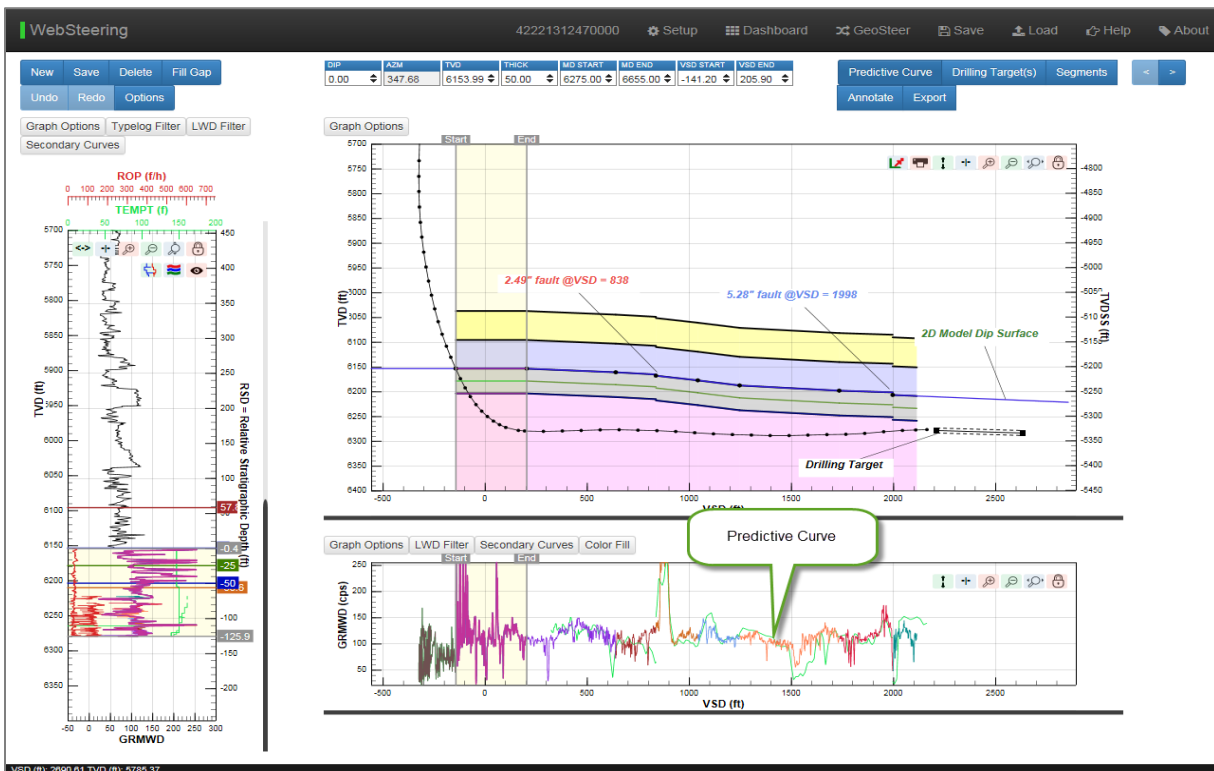
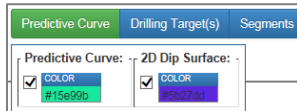
Associate a well in a GeoGraphix project to a WITSML well using the **Wells** tab on the Dashboard page. This means that the data from the WITSML well is saved to the selected GeoGraphix well.

The screenshot shows a dialog box titled 'Associate WITSML well'. The title bar is blue and contains the text '34f82687-42c7-4000-a641-e3cd698e44be'. Below the title bar is a dropdown menu labeled 'API/Lease' with 'API' selected. Below that is a text input field labeled 'UWI/Lease\*' containing '422'. To the right of the input field is a 'Search' button. Below the input field is another dropdown menu labeled 'UWI/Lease' with '42221312470000' selected. Below the dropdown menu is a red text prompt: 'Do you want to proceed with the association?'. At the bottom right are two buttons: 'Associate' and 'Cancel'.



## Generating Predictive Curve response

Predictive or synthetic curve is an estimated response of the typelog curve displayed on the LWD track. It is an alternate method of performing horizontal well correlation. Predictive curve is calculated using the relative position along the borehole, the 2D active surface, and the RSD type log. To display the predictive curve response and 2D dip surface, click the **Predictive Curve** button and select the desired check box from the resulting menu. To assign colors to the predictive curve and 2D dip surface, use the color palette available in the resulting menu.



## Hotkey control for saved segments

Select the previous or next segment on the survey track on the GeoSteer page by using the LEFT ARROW key and the RIGHT ARROW key of your keyboard.

## Rescale the Y extents of the type log graph

The Y extents of the type log graph can be adjusted by updating the **Y START** and **Y END** fields in the **Graph Options** menu of the survey track on the GeoSteer page.

## Support for NAD83 US Survey Feet projections

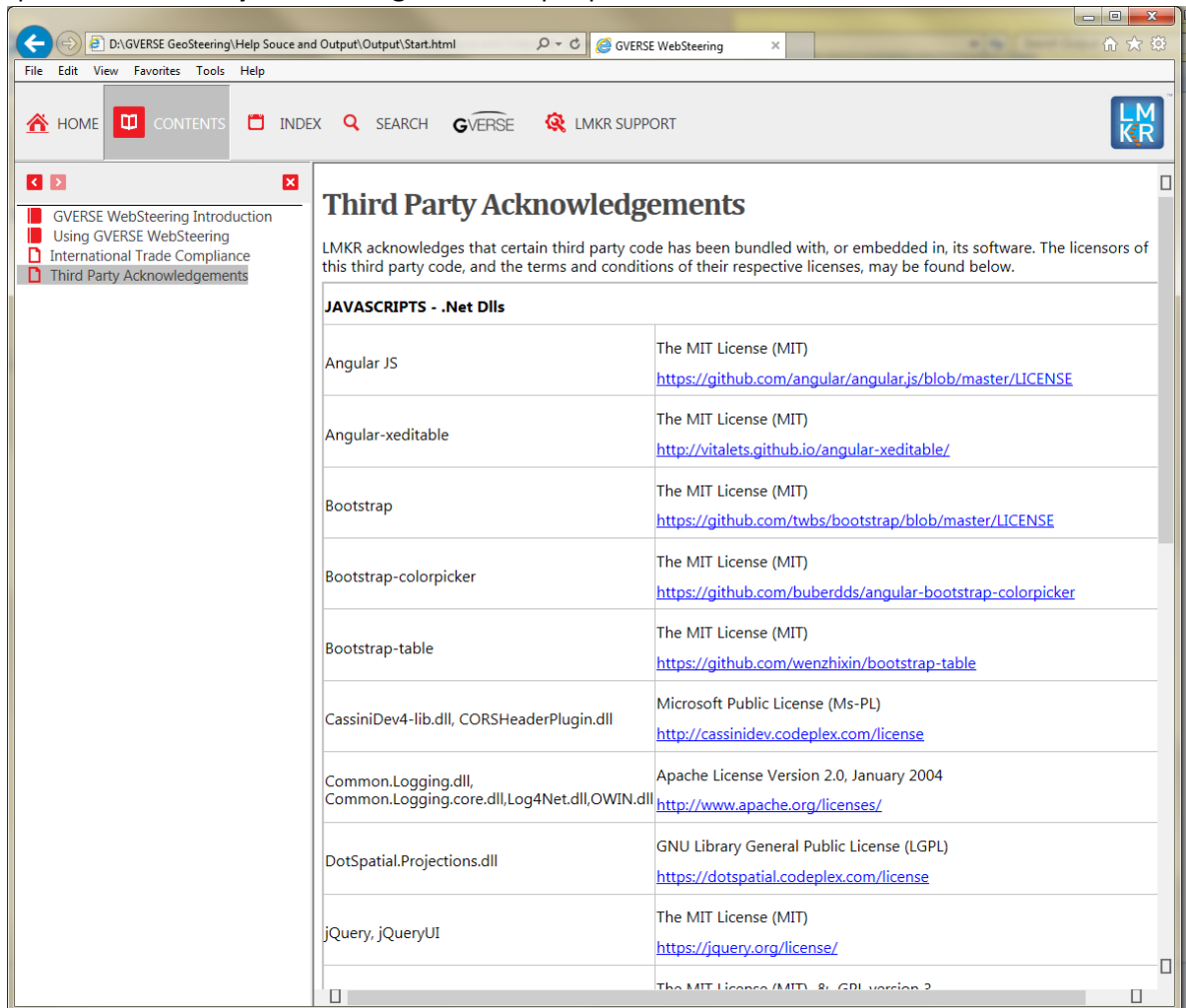
GVERSE WebSteering supports NAD83 UTM US Survey Feet Projections.

# 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 WebSteering software Help file.

To access the third party license agreements:

1. Click **Help** from the main menu bar.
2. Open the **Third Party Acknowledgements** help topic.



## 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 (if available) here 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](mailto:support@lmkr.com).

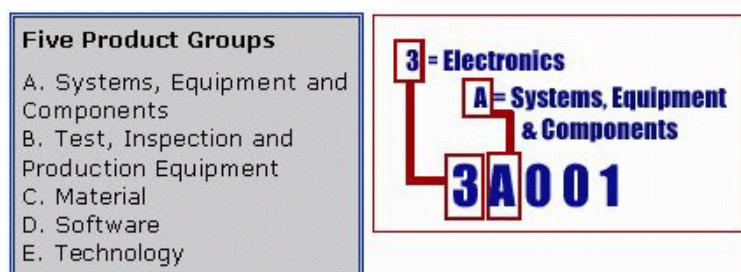
Under the U.S. Export Administration Regulations (EAR), the U.S. Government assigns your organization or client, as exporter/importer of record, responsibility for determining the correct authorization for the item at the time of export/import. Restrictions may apply to shipments based on the products, 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 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 WebSteering	EAR99	EAR	11/23/2015

## 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 8am-6pm CST Toll Free (US/Canada) : +1 855 GGX LMKR (449 5657) Colombia : +57 1381 4908 United States : +1 303 295 0020 Canada : +1 587 233 4004 *Excluding bank holidays</p>	<p>UK Monday - Friday 8am - 5pm +44 20 3608 8042 *Excluding bank holidays</p> <p>UAE Sunday - Thursday (Dubai GMT+4) 8am - 5pm +971 4 3727 999</p> <p>Egypt Sunday - Thursday +0800-000-0635 *Excluding bank holidays</p>
Asia Pacific & Australian Continent	Southwest Asian countries
<p>Malaysia Monday - Friday (Kuala Lumpur GMT+8) 9am - 6pm +60 32 300 8777 *Excluding bank holidays</p>	<p>Pakistan Monday - Friday (Islamabad GMT+5) 9am - 6pm +92 51 209 7400 *Excluding bank holidays</p>

## Helpful Links

Name	Website Address
LMKR Homepage	<a href="http://www.lmkr.com">http://www.lmkr.com</a>
LMKR GVERSE	<a href="http://www.lmkr.com/gverse">http://www.lmkr.com/gverse</a>
LMKR Support Portal	<a href="http://support.lmkr.com">http://support.lmkr.com</a>