



Connect

Plug-in for the Petrel* Platform

Release Notes for GVERSE Connect 2016.1

*Mark of Schlumberger



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LMKR Holdings

Corporate Headquarters
Unit No. B1501, Latifa Tower,
Sheikh Zayed Road,
Dubai, UAE, P.O.Box 62163.
Phone: +971 4 372 7900
FAX: +971 4 358 6386
Internet: www.lmkr.com

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Introduction

LMKR is pleased to announce the release of the GVERSE™ Connect™ 2016.1 Plug-in for the Petrel* platform.

This document provides an introduction to the Connect plug-in features and benefits. It also lists the system requirements necessary to install and run the plug-in.

What is GVERSE Connect?

The Connect plug-in enables well, seismic and surfaces to come together into an integrated interpretation environment. This plug-in facilitates the direct exchange of data between GeoGraphix® and Petrel. It enables an efficient exchange between two industry-leading E&P technologies and provides users the ability to use the “best fit” technologies for their job without the concern of data migration issues and related delays. The Connect plug-in 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.

The Connect plug-in uses Ocean Software Development Framework to bridge between the applications.

Main Features

The main features of the Connect plug-in are as follows:

- Data transfer in either direction for the following data types is supported:
 - Well data including headers, directional surveys, well tops, log curves, velocity surveys and faults.
 - Seismic interpretations including horizons and faults marked on 2D lines and 3D volumes.
 - XYZ surfaces generated in either application.
- Supports well filters (GeoGraphix) and saves searches (Petrel), which helps users limit the data transfers to the required wells only.
- A comprehensive logging mechanism captures the different types of logs to keep track and audit all data and data types transferred between the applications.
- The choice of overwrite or skip for each data type, is an efficient way of enabling the user to keep only the selected data synchronized between two applications.
- Allows users to effectively use Source lists and SCM lists to organize data while transferring to GeoGraphix. This makes it easy for users to identify and retrieve exactly the same data for transfer back to Petrel.

*Mark of Schlumberger

Benefits

Using this plug-in, data can be transferred to an empty project (in either vendor's system) or to an existing project that the user would like to append or update. The transfer rules are configurable to allow necessary adjustments according to the data management policies of the organization.

- **Increased User Productivity:** For organizations that using both Petrel and GeoGraphix, the data transfer time will be exponentially faster than using manual data transfer methods.
- **Optimized Reservoir Characterization:** By combining the strengths of both software solutions into one interpretation, an optimized characterization of the reservoir can be produced.
- **Reduced Costs:** GeoGraphix provides an affordable, comprehensive and performant solution for daily interpretation needs and compliments the nature of Petrel's high science, higher cost solution for reservoir modeling. Rightsizing the software solution to the user's needs, while enabling full data interoperability, provides an opportunity to dramatically reduce licensing costs and associated annual maintenance and support fees.
- **Quick Adoptability:** Easy and fast transfer of well data into GeoGraphix enables the user to take advantage of GeoGraphix's geophysical, geological, petrophysical and map production capabilities, for faster, efficient and more accurate interpretation.

System Requirements

The following sections list the system requirements for the Connect plug-in.

Software

The software that must be installed on the system running the Connect plug-in are as follows:

- Petrel 2015.1.x, 2014.x, 2013.x, or 2012.x
- GeoGraphix Discovery 2016.1.x or 2015.1.x
- LMKR License Management Tool 2016.1 for Connect license
The LMKR License Management Tool (LMT) must be installed to configure the Connect license.
- Microsoft® Visual C++ Runtime 2013
- Adobe Reader for selected help files (optional)

Compatibility Matrix

GVERSE Connect Compatibility Matrix		GeoGraphix Discovery	
		2015.1.x	2016.1.x
Petrel	2012.x	✓	
	2013.x	✓	
	2014.x	✓	✓
	2015.1.x		✓

Operating System

To run the Connect plug-in, you need one of the following operating systems installed on your system:

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

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

Hardware

The hardware requirements for the Connect plug-in are the same as the Petrel hardware requirements.

Licenses

The following licenses are required to run the Connect plug-in:

- Petrel 2015.1.x, 2014.x, 2013.x, or 2012.x license
- GeoGraphix Discovery 2016.1 or 2015.1 license
- GVERSE Connect 2016.1 license

The following product/feature licenses are required to import/export the IsoMap surfaces, and horizons and faults:

- IsoMap license for surfaces
- SeisVision license for horizons and faults

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

What's New in 2016.1

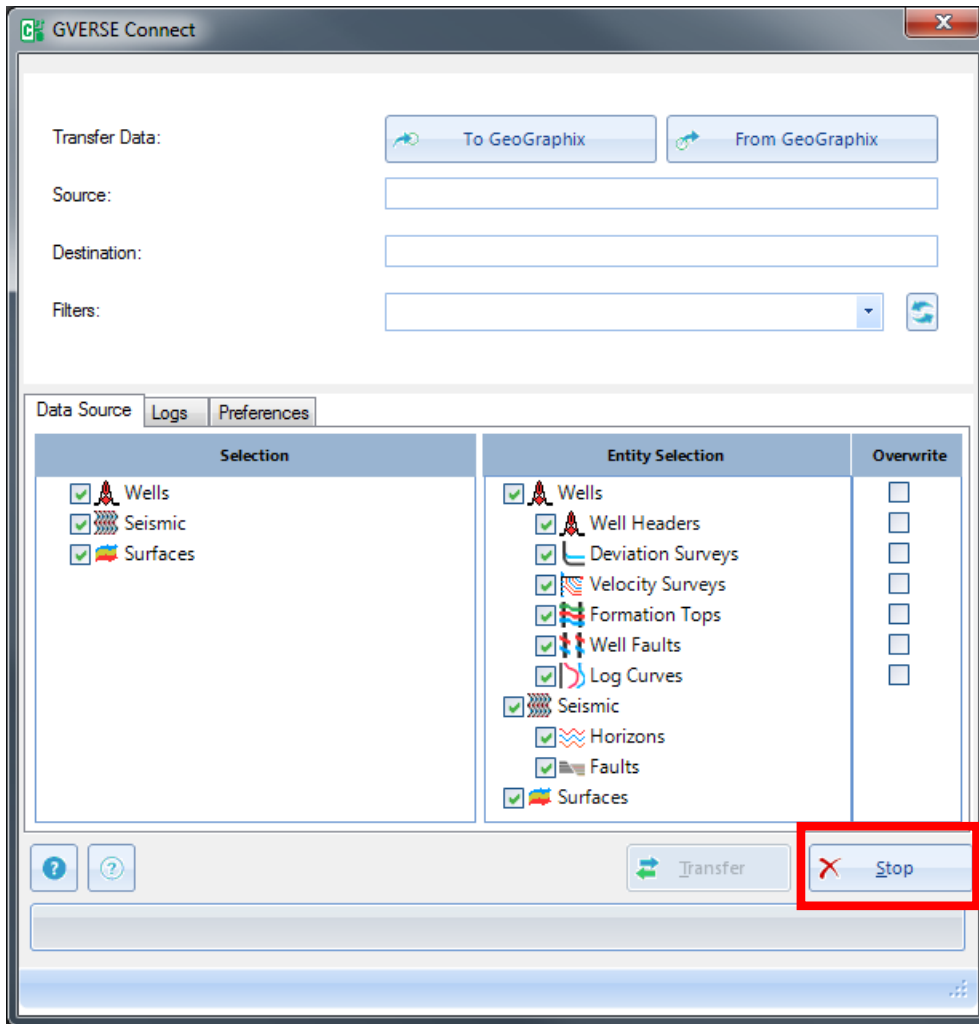
Petrel and GeoGraphix Compatibility

The plug-in supports the bidirectional transfer of well, surface and seismic data between:

- GeoGraphix® 2016.1 and Petrel 2015
- GeoGraphix® 2016.1 and Petrel 2014

Transfer Termination

The option to stop the data transfer is added to the Connect dialog box. The wells transferred before the stop operation are moved to the destination project. To find out which wells were transferred before the stop operation, refer to the Job logs.



Transferring Surfaces Data to GeoGraphix

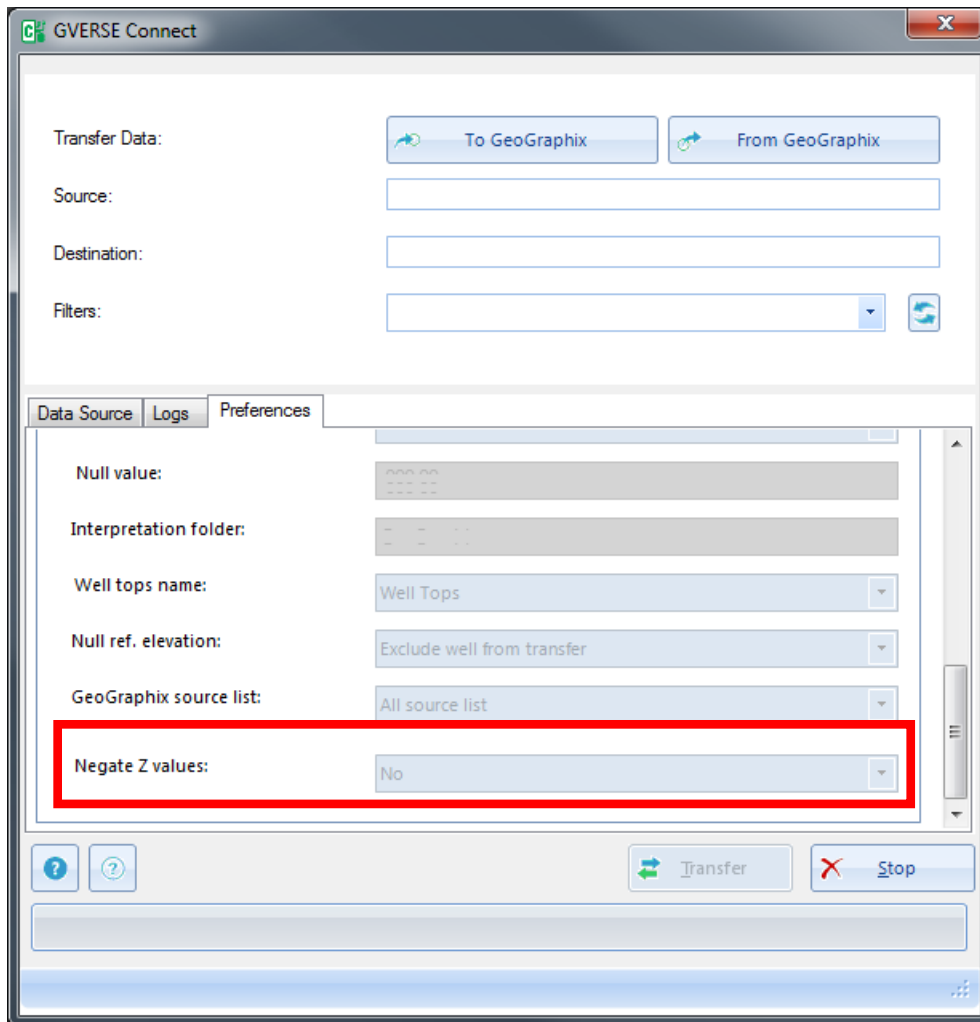
In addition to the XYZ format files, the surfaces transferred from Petrel are also saved in Z-Map Plus format files by the plug-in. To make these files part of the GeoGraphix project, import them using the **Z-Map Plus Import** option in GeoAtlas.

Transferring Wells to GeoGraphix

The deviation path of wells is calculated by the plug-in while transferring data from Petrel to GeoGraphix. Previously, batch survey calculation had to be run in GeoGraphix after the transfer operation to calculate the well path.

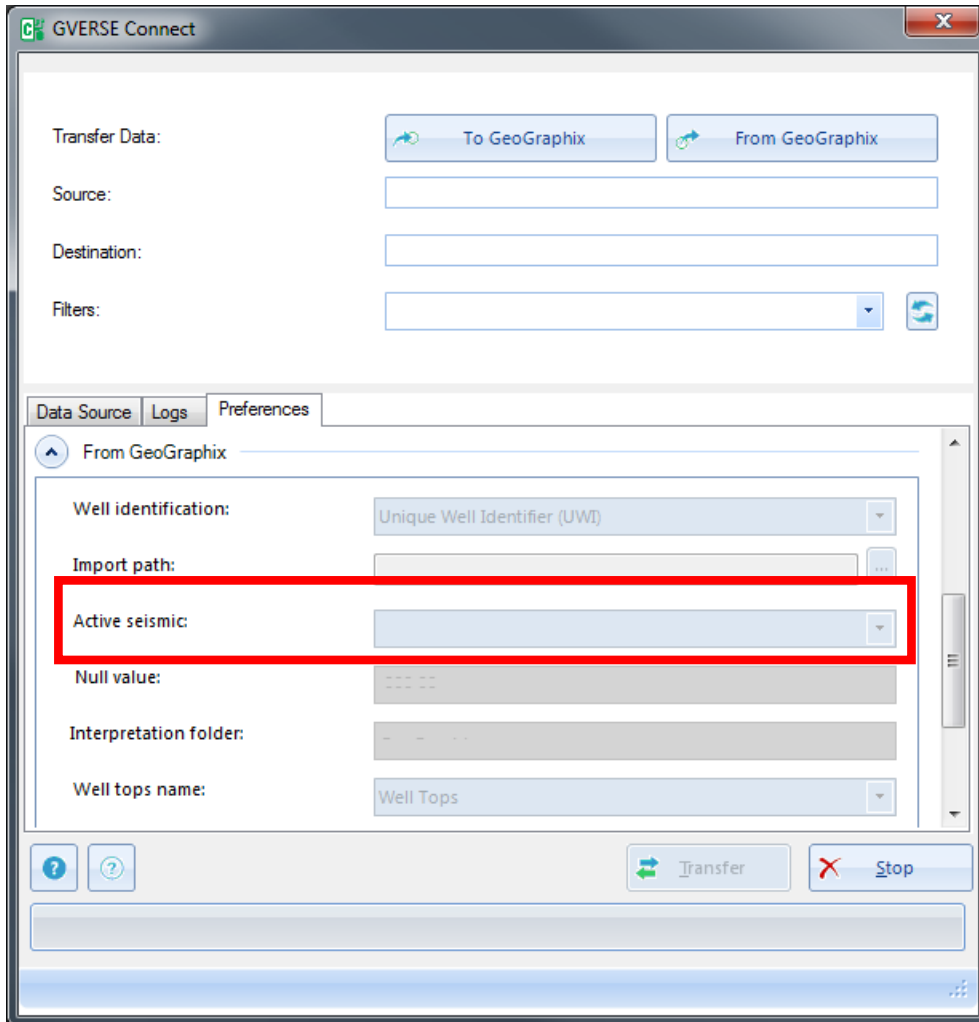
Transferring Negative Z Values to Petrel

Negative surface data can be transferred from GeoGraphix to Petrel using the **Negative Z Values** option. You can either transfer negative or positive surface data but not both at the same time.



Transferring Seismic Data to Petrel

The option **Active Seismic** is added to select the active Petrel seismic survey when transferring data from GeoGraphix. The transferred seismic data is measured and recorded against this Petrel survey.



Transferring Curves with Different Mnemonics to Petrel

Curve mnemonics and curve header information is read directly from the GeoGraphix database, the corresponding curve template information is looked up using GGX-Petrel-Curves.csv, and then transferred to the Petrel project.

Creating a Folder to Receive Well Tops in Petrel

In addition to creating a new folder to receive the Wells Tops information in Petrel, you can now select from the well tops folders already present in the petrel project. Also note that the method to create the new folder is revised.

Known Issues - Petrel

This section contains known Petrel issues that may affect the transfer of data from Petrel to GeoGraphix.

Issue	Workaround
<p>Fewer items display in the Selection tree of the plug-in as compared to the root Petrel project tree</p> <p>In some cases, the root Petrel project tree displays invalid or garbage data. While transferring data from Petrel to GeoGraphix, the plug-in filters such data using the Ocean SDK before populating the data Selection column in its dialog. Hence, in such cases, you will see fewer items in the Selection tree of the plug-in as compared to the root Petrel project tree.</p> <p>The display of invalid tree items in Petrel 2014 is a known issue and is registered with Petrel Customer Care (656127).</p>	
<p>Empty or null Petrel well names labelled as UWI* in the destination GeoGraphix project</p> <p>The plug-in transfers empty or null well names to GeoGraphix and labels them UWI*. The text UWI is used as a base name and a sequence number is added as the second part of the well name.</p> <p>The defaulting of null or empty Petrel well names to UWI* is a known issue in Petrel 2014 and registered with Petrel Customer Care (656066). This issue has been resolved in Petrel 2016.</p>	Either use valid well names or use UWIs.

Third Party Applications

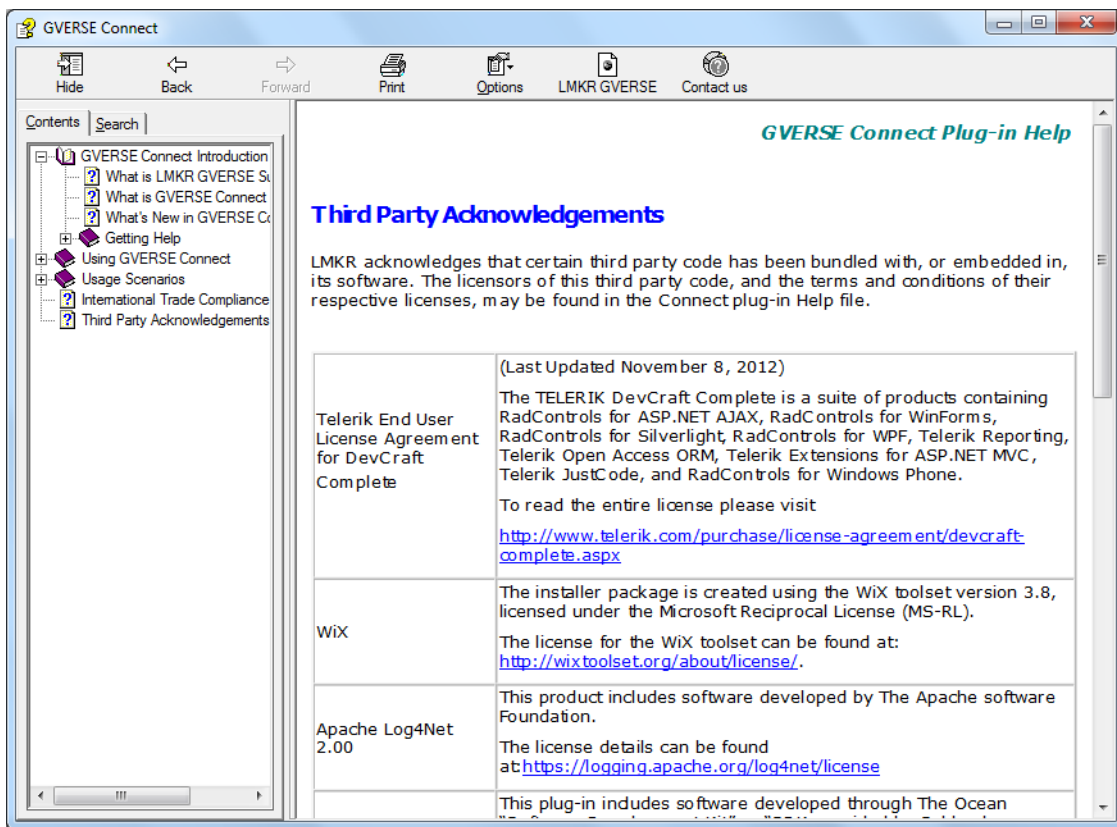
LMKR acknowledges that certain third party code has been bundled with, or embedded in, its software. The licensors of this third party code, and the terms and conditions of their respective licenses, may be found in the Connect plug-in Help file.

To access the third party license agreements:

1. In the Connect plug-in dialog, click .

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 applicable) 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.

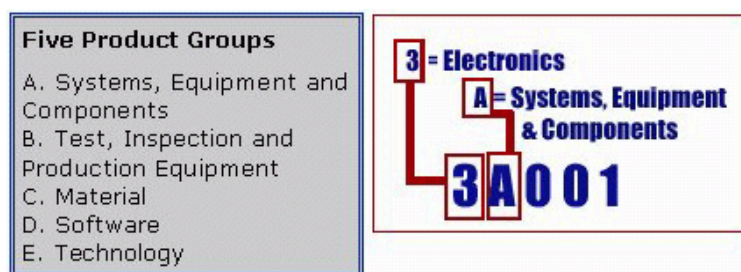
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The URL is: <http://www.bis.doc.gov>.

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 applicable) 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 Connect	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	http://www.lmkr.com
LMKR GVERSE	http://www.lmkr.com/gverse
LMKR Support Portal	http://support.lmkr.com
Petrel - Schlumberger Information Solutions	http://www.software.slb.com/products/platform/Pages/petrel.aspx