



Attributes

High resolution seismic attributes on the fly

2015.1



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Introduction

LMKR is pleased to announce the release of the GVERSE™ Attributes™ 2015.1 software.

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

What is GVERSE Attributes?

The Attributes software enables geoscientists to harness the full power of seismic attributes by drastically reducing the time, effort and disk space required for attribute analysis. Fast, on-the-fly computation, and real-time visualization of seismic attributes in a multi-pane viewer lets interpreters perform detailed, in-depth attribute analysis quickly and efficiently, maximizing the value of their seismic data. The Attributes 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 Attributes software are as follows:

- Fast, on-the-fly computation of attributes using the Graphics Processing Unit (GPU).
- Integrated viewer for immediate feedback.
- Eliminate intermediate volumes for minimal disk management.
- Compute over 50 physical and geometric attributes, including frequency-tuned attributes using the patented CAPS technique.
- Create and save custom attributes by defining expressions to combine different attributes.
- View attributes in multiple panes and visually compare attributes and parameters.
- Load 3dx or SEG-Y formats for seismic data. 3dh file support for even faster performance.
- Create subsets to compute attributes only in the zone of interest.
- Tweak parameters for attributes and instantly view results.
- Compute attributes for any inline, crossline, timeslice or imported horizons.
- Change color palette for each pane and assign default palette and range for attributes and view histograms.
- Generate volumes for selected attributes.
- Utility to mark empty traces as dead trace with null values.

Benefits

Using this software, you can compute attributes on-the-fly using the GPU; allowing seismic interpreters to quickly see the results in an integrated viewer for a selected inline, crossline or timeslice and also easily adjust attribute parameters to optimize their results.

- **Real-time Visualization of Results:** Having intensively minimized processing time, the Attributes software offers an integrated viewer to display attributes for the selected IL/XL/TS computed on-the-fly using GPU. After adjusting attribute parameters and seeing results in real-time, the user can generate the attribute for the entire dataset and load the resulting volume into SeisVision (or an equivalent interpretation software).
- **Reduced Time and Effort for Attribute Analysis:** As compared to traditional tools, GVERSE Attributes allows geoscientists to harness the full power of seismic attributes by drastically reducing the time, effort and disk space required for attribute analysis. Features such as the ability to save parameters for all available attributes, and saving the complete state of the workspace to a file, saves users' time as they can resume work from the last saved state and share their workspace with others. The workspace can contain all the information in the application including the input files, any subsets, the view state (all view panels, attributes displayed on those panels, the seismic IL/XL/TS opened, and the parameters for the attributes displayed) along with any other data.
- **Flexible:** Users can get the most out of seismic data through creating custom attributes by combining the various available attributes using mathematical relationships.
- **Seamless integration with GeoGraphix® Discovery:** The application integrates seamlessly with GeoGraphix Discovery as it reads seismic amplitude data from SeisVision, and exports generated volumes to SeisVision (which can then be used for further interpretation).

System Requirements

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

Software

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

- Microsoft® .NET 4.5
- NVIDIA Driver version 347.62 or higher
For optimum performance, use NVIDIA graphics card.
- GeoGraphix Discovery 2015.1 is required for integrated mode only
- LMKR License Management Tool 2015.1 for Attributes license
The LMKR License Management Tool (LMT) must be installed to configure the Attributes license.

Operating System

To run the Attributes software, 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 minimum hardware requirements are as follows:

- 2.4 GHz 64-bit processor
- 8 GB RAM
- Graphics card NVIDIA GeForce 430 or higher with minimum 1GB Dedicated VRAM
For optimum performance, use NVIDIA graphics card.
- 1,366 x 768 screen resolution

The recommended hardware requirements are as follows:

- Quad 3.2 GHz 64-bit
- 32 GB RAM or greater
- High-end NVIDIA GeForce GTX Graphics card X70 - X95 (where X represents GeForce Series 400 onwards) with minimum 2GB dedicated GDDR5 VRAM
For optimum performance, use NVIDIA graphics card.
- Solid state hard disk
- 1920 x 1080 screen resolution.

Licenses

The following license is required to run the Attributes software:


- GVERSE Attributes 2015.1 license

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

Third Party Applications

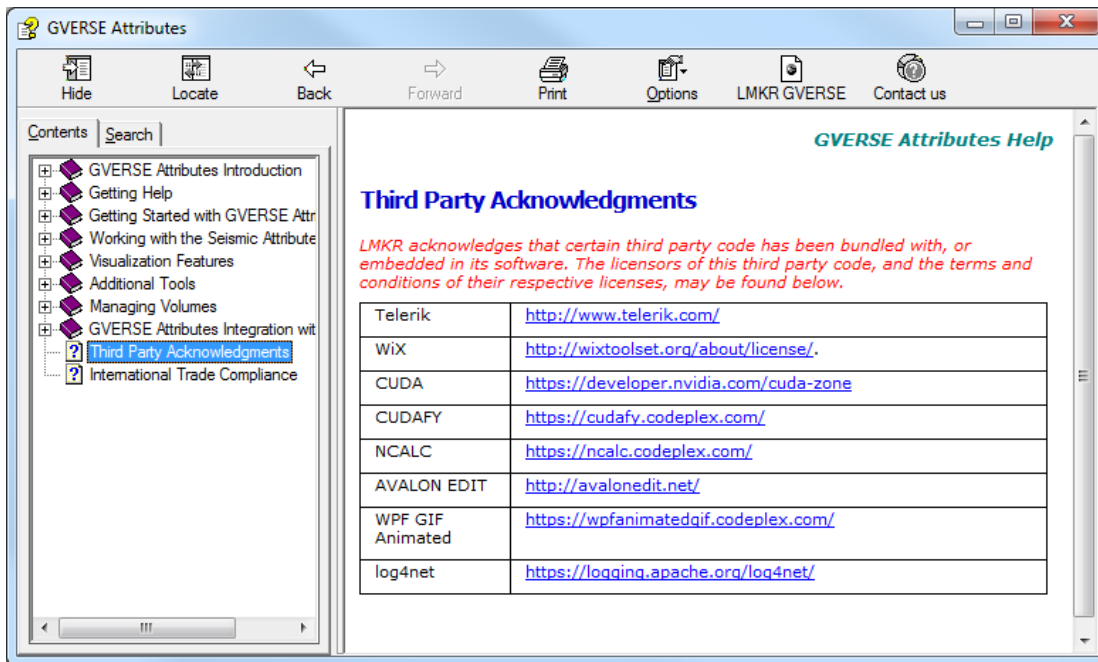
LMKR acknowledges that certain third party code has been bundled with, or embedded in, its software. The licensors of this third party code, and the terms and conditions of their respective licenses, may be found in the Attributes software Help file.

To access the third party license agreements:

1. In the Attributes software dialog, click .

The Help window displays.

2. In the **Contents** pane, locate the **Third Party Acknowledgments** 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.

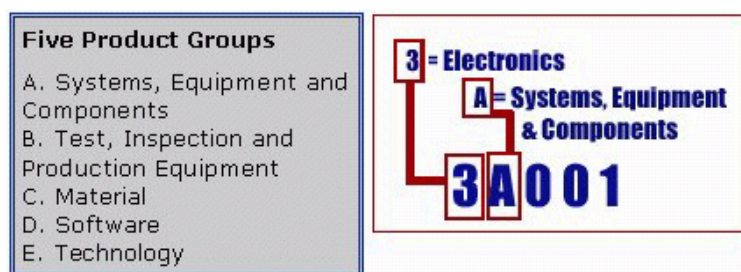
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The URL is: <http://www.bis.doc.gov>.

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 Attributes	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