Discovery Release Notes 2012.0.0

copyright © 2012 by LMK Resources, Inc

March 2012

Discovery™ Software Version 2012.0.0

Release Notes

Contents

What's in This Release

The **2012.0.0 release** of Discovery™ and Discovery™ on OpenWorks® software is synchronized with OpenWorks® 5000.8.0.0, which can now utilize Windows 7 64 bit operating systems. It also provides defect fixes that address issues, improve performance and simplify use.

To go directly to the new features, defect fixes, known issues and system requirements for the Discovery application, click on the blue links below:

New Features

Fixed Issues

Known Issues

System Requirements

An Introduction to the Discovery 2012.0.0 software release is also provided in this document.

Introduction

GeoGraphix is pleased to announce the release of the Discovery™ and Discovery™ on OpenWorks® 2012.0.0 software.

This release is focused on integration with the OpenWorks 5000.8.0.0 software and contains many improvements to the performance and stability for Discovery on OpenWorks (DOW) on this platform. This guide provides information on what to look for in this release and will help you get the most out of Discovery 2012.0.0.

Important information regarding system requirements, installation, new improvements, and valuable resources that will allow you to get the most out of the Discovery™ 2012.0.0 release is included in this volume.

Note: If working in a network environment, in order for all computers to work together on shared projects, ALL computers (clients and servers) must be updated to the same version of the software. It is intentional that computers with different versions of GeoGraphix software cannot and should not be connected with each other.

The Discovery 2012.0.0 release contains the following products:

GeoGraphix® Discovery™ 2012.0.0 is our integrated product suite that incorporates shared data management and geological, petrophysical, and geophysical interpretation tools. It utilizes a Sybase (GXDB) database in Discovery mode, or accesses the OpenWorks/SeisWorks (Oracle) database in Discovery on OpenWorks mode. The Discovery tools consist of the following:

Geological Suite

DataManager™ includes ProjectExplorer™, Coordinate System Manager™, WellBase™, SeisBase™, QueryBuilder™, LandNet™, LeaseMap™, and ZoneManager™.
- The GeoGraphix Discovery and Discovery on OpenWorks project and data management engine

GeoAtlas™
- The map display and montage environment working on ESRI MapObjects

IsoMap®
- The gridding contouring engine, featuring 10 powerful gridding algorithms

XSection™
- A fully integrated geological interpretation tool

Prizm™
- An interactive petrophysical and log analysis system

Discovery™ smartSECTION® with Discovery FrameBuilder™
- The next generation cross section and mapping tool for complex structural and sequence stratigraphic analysis

Discovery™ 3D
- The advanced 3D scene viewer that uses the most recent video and X-Box tools to display Seismic and Geologic data in three dimensions

Geophysical Suite

SeisVision™

- The SeisVision comprehensive 2D/3D seismic interpretation system, which also includes a dynamic real-time link to SeisWorks/OpenWorks™

pStaX™

- The post stack processing module for enhancing seismic character and detecting anomalies related to geologic features

SCAN™

- The patented semblance calculation for enhanced fault interpretation

Seismic Modeling

LogM Advanced Synthetics™

- The Geophysical application used for interactively editing well logs and evaluating synthetic trace character response

LogM Modeling™

- The 2D forward seismic waveform, ray tracing and structural modeling tool to predict seismic response away from the well

STRUCT™ Model Entry

- The comprehensive forward seismic structural modeling tool that is used to determine the seismic response of complex geologic structures in areas where there is little or no well control

Landmark Connectivity

Discovery™ on OpenWorks®

- Enables the Discovery tools to access OpenWorks and SeisWorks projects, and uses the OpenWorks and SeisWorks data within the Discovery framework

Xchange Tools

WellXchangePlus™

- Transfer well information to or from two Discovery projects, or between Discovery and OpenWorks

SeisXchange™

- Transfer seismic data between SeisVision and SeisWorks

GridXchange

- Transfer of map point sets and grids from Discovery to OpenWorks

Note: SeisBase, LandNet, LeaseMap, LogM ModelBuilder (LogM Modeling), and LogM Well Editor (LogM Advanced Synthetics) are not available in the current version of Discovery on OpenWorks.

System Requirements

On the following pages, you will find hardware and software system requirements tables for this release of Discovery and Discovery on OpenWorks:

- Discovery Workstation

- Discovery Project Server

System requirements can vary considerably, depending on your computing environment and software objectives. Please contact your Sales Representative or Customer Support if you have questions or need more information about system requirements.

Important Notes:

- ***Clients using Discovery on OpenWorks must upgrade to OpenWorks 5000.8.0.0 and SeisWorks 5000.0.3.2***

- ***Please also refer to the GeoGraphix Customer Support Portal (http://css.lgc.com/CustomerSupport/CustomerSupportHome.jsp) for up-to-date information on system requirements for all GeoGraphix products.***

Discovery Workstation & Laptops

Operating System Requirements		
Supported Operating System	RAM	**CPU**
Windows® 7 Professional x64 Or Windows® 7 Enterprise x64 Or Windows® 7 Ultimate x64	2 GB Minimum 8 GB recommended	Pentium 4 class or better Dual processors/cores
Windows® XP Professional 64 SP2	2 GB Minimum 4 GB Recommended	Pentium 4 x 64 class or better Dual processors/cores
Notes		
Note 1 – Current service pack versions are listed. We recommend using the latest Microsoft service packs and security patches. Note 2 – Actual available RAM on 32 bit platforms will generally be less than 4 GB due to OS limitations.		

Graphics Hardware Requirements		
Application Support Level	Required Operating System	**Required Graphics Hardware**
All Discovery Applications including Discovery 3D	Supported Windows® 7	DirectX 10 (see note 2) or DirectX 11 capable hardware
Discovery Applications except for Discovery 3D	All Supported	All Supported
Notes		
Note 1 – Microsoft DirectX End-User Runtime (August 2009) is required to run Discovery 3D. Note 2 – To run Discovery 3D, it is recommended that an NVIDIA DirectX 10 compatible card be used. Other DirectX 10 compatible cards that support "Compute Shader 4.0" should work but have not been tested. Windows Vista requires SP2 or later and the Platform Update for Windows Vista. Installing this update enables selected DirectX 11 technologies on Windows Vista. Both Windows Vista and Windows 7 systems may need to install the latest display drivers for the hardware.		

Additional Requirements and Recommendations
- DVD-ROM required for media install. Download install available through Landmark Software Manager (LSM).

- DCOM configured to allow remote access. Only necessary if sharing projects.

- Microsoft .NET 3.5 SP1 runtime required.

Discovery Workstation (continued)

Optional Software Requirements	
For spreadsheet import utility in WellBase, SeisBase, and LeaseMap	Excel 2003 or 2007
For Selected Help files	Adobe reader
For Discovery on OpenWorks, GridXchange, SeisXchange	OpenWorks for Windows 5000.0.8.0 – Basic or Full (recommended) Install available on LSM. (See Notes below) and SeisWorks 5000.0.3.2 (for seismic workflows)
For ESRI georeferenced images and ESRI CAD file import in GeoAtlas	ESRI ArcGIS Runtime Engine 9.3.1 or 10.0, SP3 (found in the Discovery 2012.0.0 Third Party Install)
For LOGarc™ Version 3.2.1.00 access in smartSECTION	To use the LOGarc™ feature the LOGarc™ Version 3.2.1.00 software must be downloaded from IHS LogTech Canada, LTD and a valid account must be in place. You must have administrator rights to the computer on which you will load the software.
For TracPlanner Xpress in Discovery	WellPlanning for Discovery 2012.0.0 (contained within the DecisionSpace 5000.0.3.0 install, which is available on the LSM). Oracle Express Client or Oracle 10g Client 10.2.0.4 (32 bit)

The OpenWorks Full install requires Hummingbird Exceed. The Oracle client installation in use with the OpenWorks Full installation requires that the "Administrator" option be selected. The "Administrator" option type includes the SQL Plus and the Oracle Database Utilities components, which are needed to run Discovery on OpenWorks, as part of the total OpenWorks package.

Hummingbird Exceed is not required for the OpenWorks Basic install. If OpenWorks Basic installation is used, the Oracle client installation can use the "Administrator" option, which will include all of the needed components. Or, the Oracle client installation for the OpenWorks Basic installation can use the "Custom" installation type. However, with this install type the following components must be installed:

- Oracle Database Utilities 10.2.0.1.0
- SQL*Plus 10.2.0.1.0
- Oracle JDBC/THIN Interfaces 10.2.0.1.0
- Oracle Net 10.2.0.1.0

After these Oracle components are installed, run the upgrade patch to Oracle 10g 10.2.0.4 (32 bit)

Discovery Project Server

Operating System Requirements		
Supported Operating System	**RAM**	**CPU**
Windows® Server 2003 Standard x64 or Windows® Server 2003 Enterprise x64	4 GB Minimum 8-16 GB Recommended	Pentium 4x64 class or better Multiple (2-4) processors/cores
Windows® Server 2008 R2 Standard x64 or Windows® Server 2008 R2 Enterprise x64	4 GB Minimum 8-16 GB Recommended	Pentium 4x64 class or better Multiple (2-4) processors/cores
Notes		
Note 1 – Memory recommendations beyond 4 GB are only beneficial when running large (>2 GB) cache sizes for the database engine. Note 2 – Client applications (e.g. WellBase) are not supported on server OS versions. Note 3 – Current service pack versions are listed. We recommend using the latest Microsoft service packs and security patches.		

Additional Requirements and Recommendations

- DVD-Rom required for media install. Download install available.
- DCOM configured to allow remote access

Server performance is subject to a large number of variables. It is impossible to give specific recommendations here, but these are some guiding principles to use. In general, multi-user performance of a GeoGraphix project server is best when the server is dedicated to GeoGraphix and not shared with other applications, especially database applications. In addition, consideration should be made for the number of GeoGraphix users and the size and number of concurrently accessed projects. At some point having multiple project servers becomes a better solution than having all users on one server. Generally, somewhere between 10 and 20 users is when a second server might be suggested.

Networking

Networking performance depends on the number of users trying to access a server simultaneously as well as the bandwidth requirements for those users. Recommendations for server bandwidth typically specify server connectivity at a higher bandwidth than an individual user. For instance, users running at 100 Mbit should be accessing a server running on a 1 Gbit backbone. If users are at 1 Gbit, consider running multiple 1 Gbit connections on the server.

Discovery Project Server (continued)

Database Cache

A large database cache is an important factor to consider when dealing with multiple users accessing large databases. A cache size of up to 1.8 GB is available using basic database startup settings. Larger cache sizes are available but these require special configuration.

Storage

A great deal of Discovery's access patterns on a server deal with file I/O. Database access, raster images and seismic data are examples of files that benefit substantially from a fast disk sub-system. Server environments also place a high importance on data integrity and reliability. At a minimum, consider using a RAID 5 (striped with parity) array. As the size of disks increase, you may also want to consider a hot swap drive and/or RAID 6 (striped with dual parity). Using a controller card with its own cache can also help improve performance.

Network Attached Storage (NAS), Storage Area Networks (SAN), and Other Non-Windows Storage Solutions

There are two typical methods used for accessing external storage devices from a project server; iSCSI and CIFS.

- iSCSI allocates a block of storage on the external device and makes it appear to be a physical disk on the project server. This has the advantage of a 100% compliant file system. However since the external device sees the allocation as one big file, it makes backup and restore of individual files using the external device's capabilities problematic. Standard backup and restore from the server still work.

- Using CIFS for external storage devices depends greatly on the vendor's implementation of the CIFS protocol used by the Windows platform. In general, a 100% compliant implementation of CIFS for a performant system is required. In particular, vendor's implementation of the "File Change/Notify" functionality has been problematic. Devices based on Windows Storage Server should be 100% compatible since it shares its components with Windows. Implementations based on UNIX/Linux are where problems occur due to the fact that the kernel level support is not there.

Compatibility with OpenWorks Software

The Discovery™ on OpenWorks® (DOW) software directly links a *Discovery*™ application to the data in an OpenWorks® project, and provides a shared project environment for interpretation applications. Landmark Software has delivered the OpenWorks and DOW software for Release 5000 and will continue to provide updates and enhancements to these products. When planning your uptake of Release 5000 and verifying your workflow, you should consider version compatibility between the OpenWorks software and the Discovery on OpenWorks software.

In the Compatibility Table below, the table indicates the level of compatibility of previous releases and of upcoming scheduled and planned releases. This table will be updated as new releases are planned. The objective is to provide closely coupled compatible versions of the software to allow you to more easily take up current releases.

LMKR performs full release testing for those combinations indicated as *Release*, **R**, in the table, but may not exercise full release testing on other version combinations. For these iterative releases, LMKR performs compatibility testing between the OpenWorks and DOW software (indicated as *Compatibility*, **C,** in the table). See the table below for the level of testing for each version combination. Although LMKR does not anticipate any integration issue, it is recommended that customers also verify compatibility in their own environment.

LMKR supports the versions listed as *Release* in the table. However, while LMKR has completed compatibility testing, LMKR/GeoGraphix Support may not be able to fully support the versions listed as *Compatibility* in the table. When requesting support for a *Compatibility* environment, LMKR/GeoGraphix Support works on a best effort basis to troubleshoot any issues, and if an issue needs additional attention, LMKR/GeoGraphix Support reports such issues to LMKR Research & Development. LMKR/GeoGraphix Support cannot guarantee any resolution service levels associated with issues from a *Compatibility* environment.

Combinations which have not been tested, either in the full release or in a compatibility environment, are indicated by **U** (*untested*)**. P** indicates the indicated versions are *probably incompatible*, as the OpenWorks version has a newer development kit (devkit) than that of the indicated DOW version. Blank cells in the table indicate that OpenWorks and Discovery are incompatible and will *not operate together*.

For the most current version of this information and an overview of suggested compatibility test paths please refer to Landmark Graphics Technical Support Solution Document 170465.

Compatibility Table

		Discovery on OpenWorks					
	OW License 5000	DOW License 5000.02				DOW License 5000.01	
	Discovery Version	2012.0.0	5000.0.2.5	5000.0.2.1	5000.0.2.0	5000.0.1.1	5000.0.1.0
OpenWorks Version	OW 5000.8.0.0	R					
	OW 5000.0.3.5	C	R				
	OW 5000.0.3.0	C	C	R			
	OW 5000.0.2.9	U	U	U	U		
	OW 5000.0.2.8	U	U	U	U		
	OW 5000.0.2.7	U	R	R	R		
	OW 5000.0.2.2					R	P
	OW 5000.0.2.0						C
	OW 5000.0.1.7						R
	OW 5000.0.1.6						C
	OW 5000.0.1.5						C
	OW 5000.0.1.4						U
	OW 5000.0.1.2						U
	OW 5000.0.1.1						
	OW 5000.0.0.3					R	P

Legend

R = Release level full testing

C = Compatibility level basic testing

U = Untested

P = Probably incompatible since OW and Discovery are running different OW devkits

A blank cell indicates that OW and Discovery are incompatible

New Features

This section contains a brief description of the exciting new features included in the 2012.0.0 release.

GeoAtlas

Layer Selection Bar Enhancements

The **Layer Selection Bar** in GeoAtlas has been improved so that you can now access the entities and entity renderers for each layer on the map. This feature makes Bubble Mapping, Thematic Mapping, and Proportional Pies access a one click operation. It also gives you the ability to turn on or off individual entities quickly.
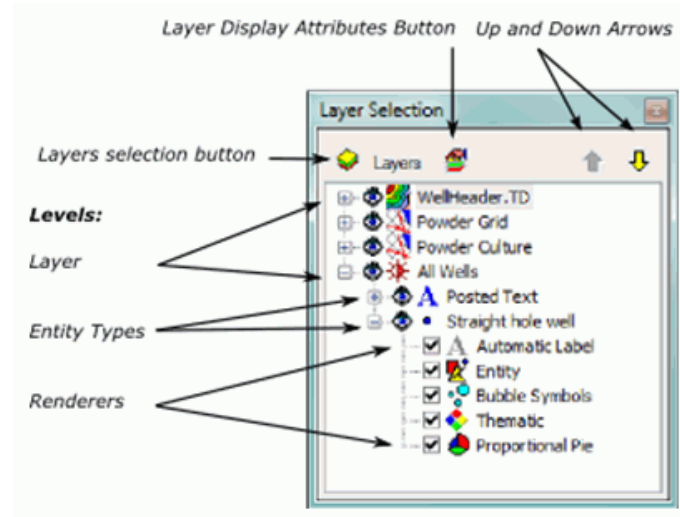

The Context menu produced by a right-click on any layer has also been expanded to include a command to make the selected layer the Active layer on the GeoAtlas view.
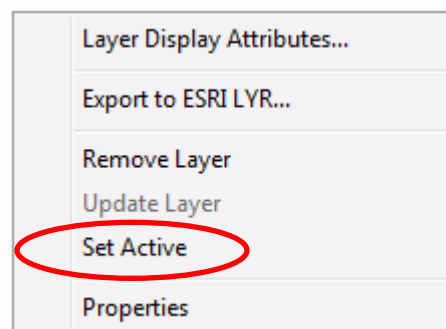
Quartering Tool

The Quartering tool is new to the 2012.0.0 version of GeoAtlas. This tool is designed to help in the planning of horizontal wells. When a section is selected you have the option of quartering the section and automatically identifying a bottom hole location at the center of each 160 acre parcel. The tool has the capability of quartering the 160 acre parcels into 40 acre parcels and placing a potential bottom hole location at the center of each 40 acres. The 40 acre parcels can likewise be quartered into 10 acre parcels with a potential bottom hole location at the center of each parcel. There are also controls to select a specific parcel within the section.
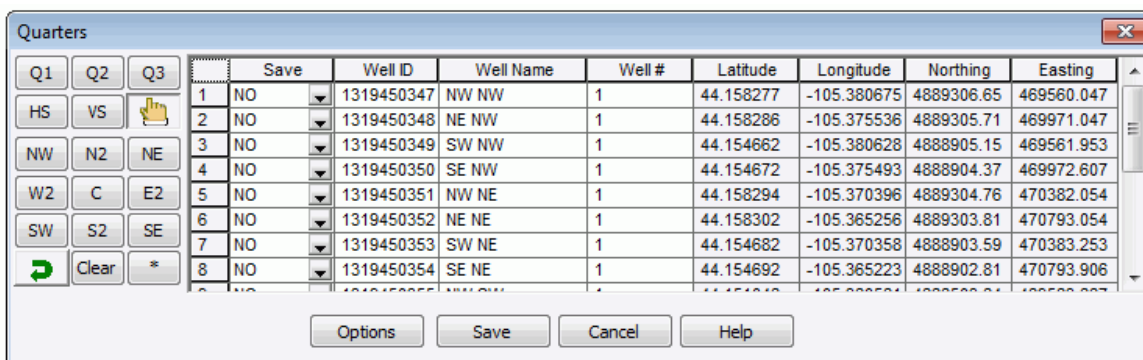
When bottom hole locations have been identified, they can be saved to the WellBase database.

Tick Marks on Closed Contours

You can now show tick marks on closed contours to indicate changes in slope direction.
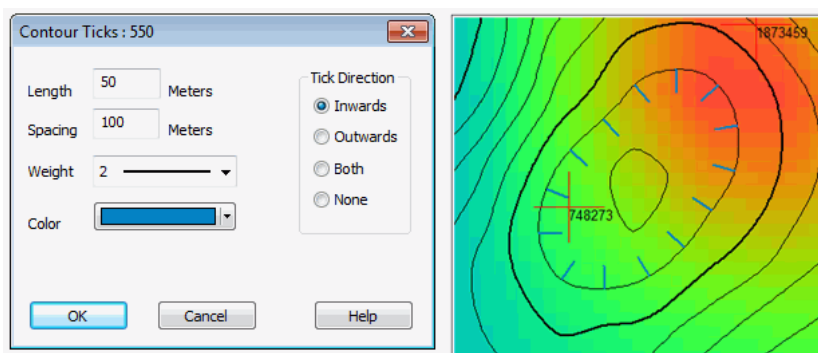
Click on a closed contour then right-click and open the Contour ticks dialog box from the Set Entity Value menu command. Use that dialog box to define the tick marks on closed contours.

Hyperlinks in GeoAtlas

Hyperlinks or URL connections can be attached to individual wells or the project using the **Document Library** feature on the **WellBase Bar** in the **WellBase** application. When a URL is attached to a well it can be accessed in **GeoAtlas** using the **Data Attributes** dialog box.
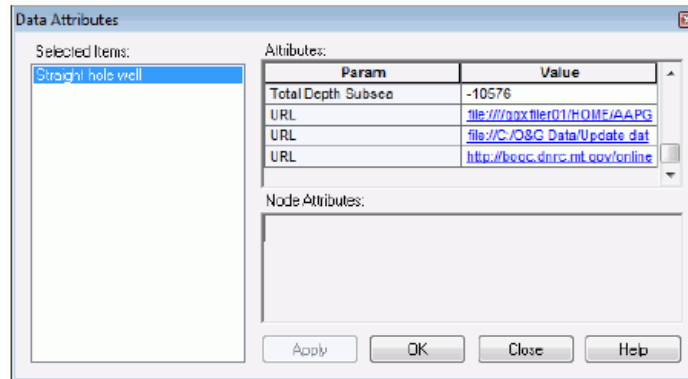
URLs must be attached to wells on a layer using the **Post Hyperlinks** option during layer creation. When a URL is attached to a well it can be accessed by highlighting the well, right clicking and selecting **Data Attributes** from the shortcut menu.

Support for ESRI ArcGIS Engine 10 Runtime

Starting with this release Discovery supports the use of ESRI ArcGIS Engine 10 Runtime.

ArcGIS Engine 10 Runtime and Service Pack 3 must be installed before installing Discovery 2012.0.0. You will need to uninstall older versions of ArcGIS before you can install ArcGIS Engine 10 Runtime.

GeoAtlas will still support ArcGIS Engine 9.3.1, ArcGIS Engine 9.3.3 or ArcGIS Desktop version 9 or higher. If you wish to use an older version of ArcGIS do not elect to install ArcGIS Engine 10 before installing Discovery 2012.0.0

DepthRegistration

Import PETRA (LIC) Depth Registration Files

Starting with this release you can import depth registration files in *.lic format. The .lic format is PETRA® depth registration format that can be associated with .tif image files.

The Import dialog box is accessed using the File > Import >> PETRA (LIC Files).
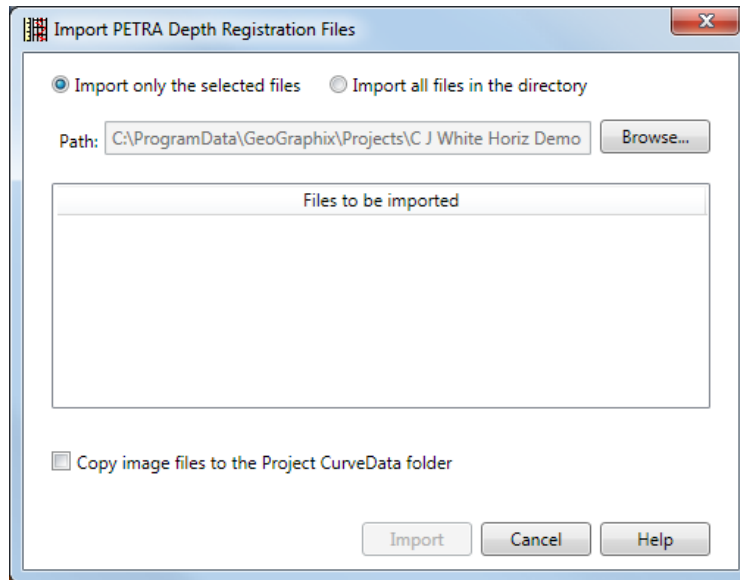
With this format a .lic file is generated for each log type in a well. Every .lic file is associated with a .tif image. A tif image may have more than one .lic file associated with it.

# <u>Coordinate System Manager</u>

New Datums

New Datums have been added in Coordinate System Manager 2012.0.0.

Note: It may be necessary to open Coordinate System Manager once before these datums become available for creating new projects.

Import ESRI Projection File

In Coordinate System Manager 2012.0.0 you can import an **ESRI .prj file** to create a custom coordinate system in Discovery. The custom coordinate system can then be used when creating a new project in Discovery.
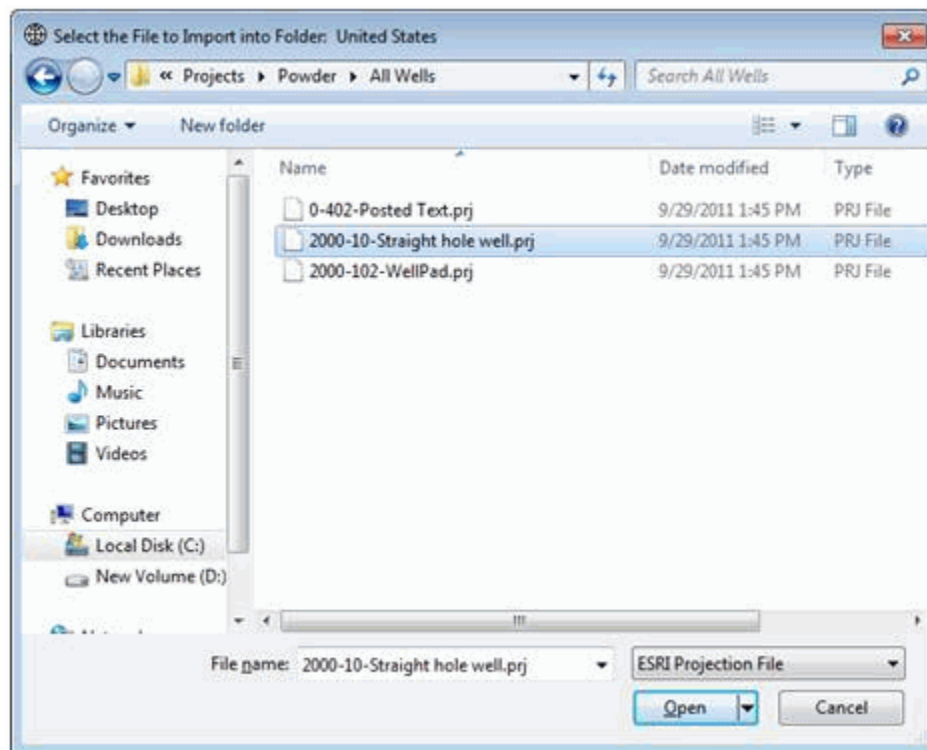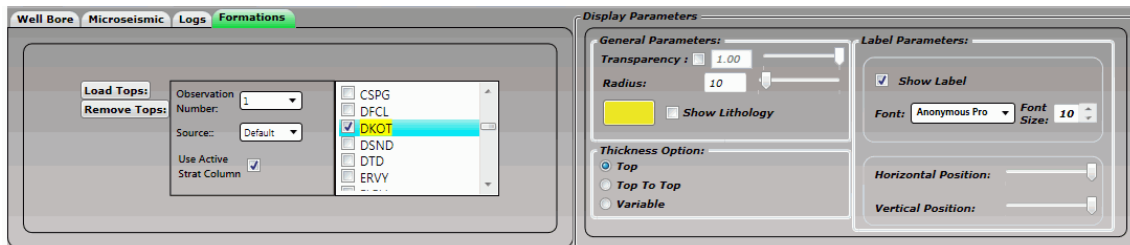
Discovery 3D

Display of Tops

Starting with the 2012.0.0 release you can display and annotate the intersection of tops at the well bore.
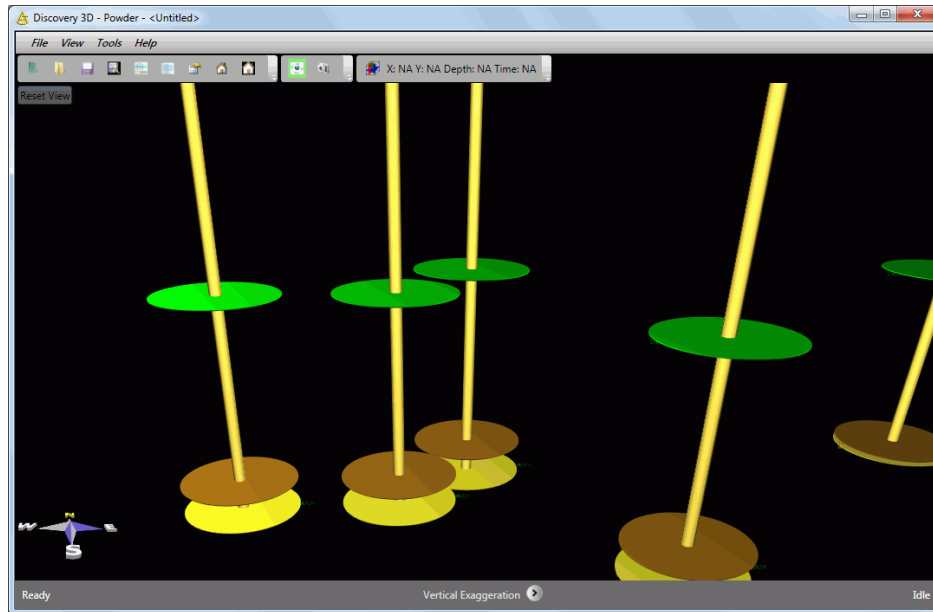
The tops initially appear as discs at the intersection point. The thickness, color and lithology fill can also be displayed.


Controls on the Wells page of the Data Selector allow you to annotate the tops, change the thickness of the discs or show lithology fill from one top to the next.

SmartSECTION

## Display Cumulative Volumes on Cross Sections

Cumulative Gas, Cumulative NGL, Cumulative Oil, and Cumulative Water options have been added to the **Available fields** list on the **Digital Header** page of the **Cross Section Display Preferences** dialog box.
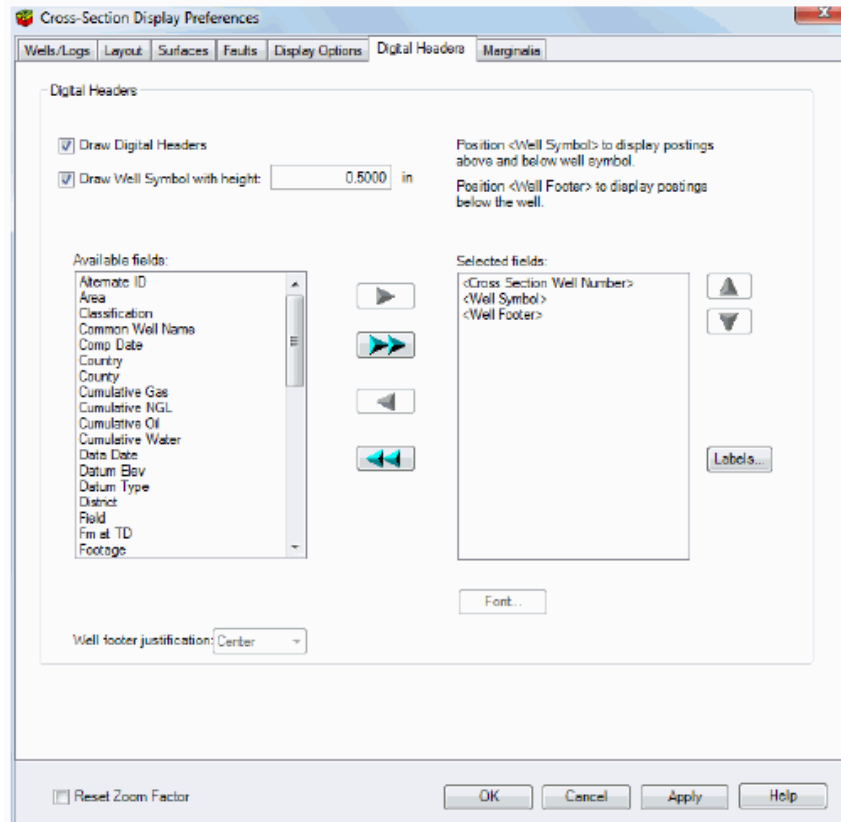
These new options can be selected for display either at the top or bottom of wells on smartSECTION cross sections.

Normalization of Type Logs

Two slider bars have been added to the **Tie Points** page of the **smartSTRAT Options** dialog box.
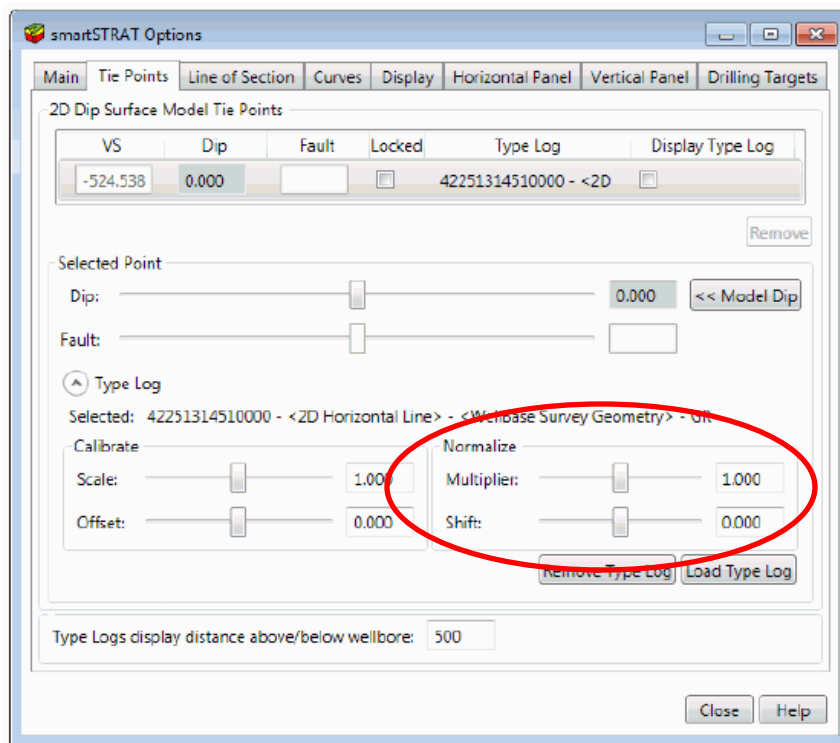
Using the **Multiplier** control, you can edit the log scales by stretching or squeezing the log scales in the Vertical panel. The **Shift** control will move the type log right or left in the **Vertical panel**.

Dynamic readout of LWD Curve

A check box has been added to the **Horizontal Panel** page of the **smartSTRAT Options** dialog box that allows you to display the recorded log value of the logging while drilling log at the cursor position.
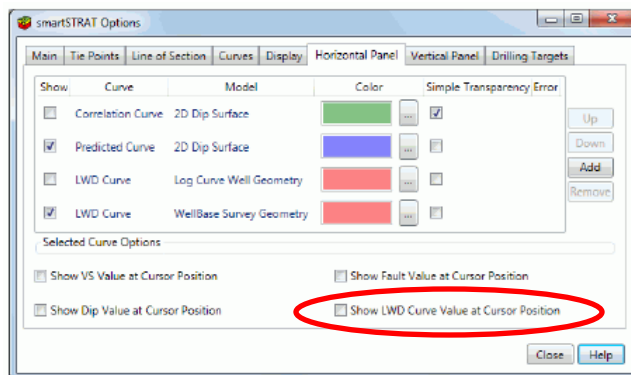
Offset Horizon

You can now create a horizon on the smartSTRAT Vertical Section that is parallel to the active horizon using a control on the Display Page of the **smartSTRAT Options** dialog box.
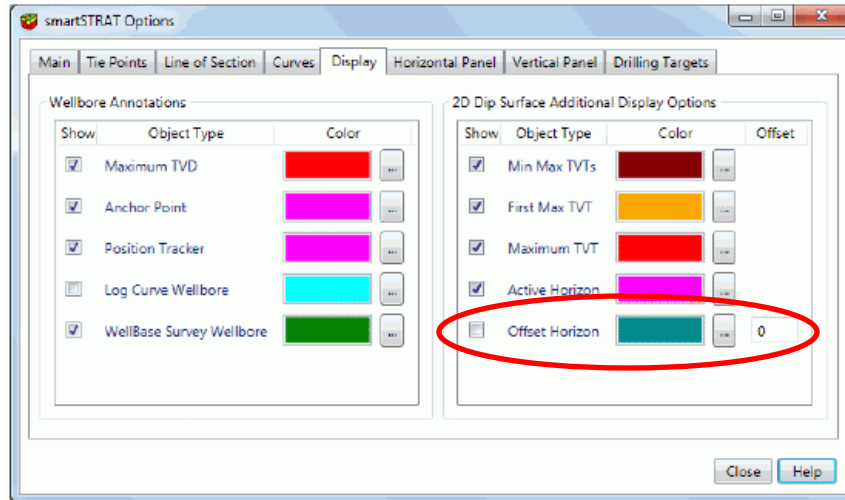
The parallel horizon can be offset to a given distance below the active horizon. This option can help you keep track of where the horizontal borehole is with respect to your modeled surface.

## Set Wellbore display Using smartSTRAT Options

A new control has been added to the **Display** page of the **smartSTRAT Options** dialog box that allows you to display the deviated wellbore as defined on the Survey Page in WellBase in smartSTRAT in a specified color.
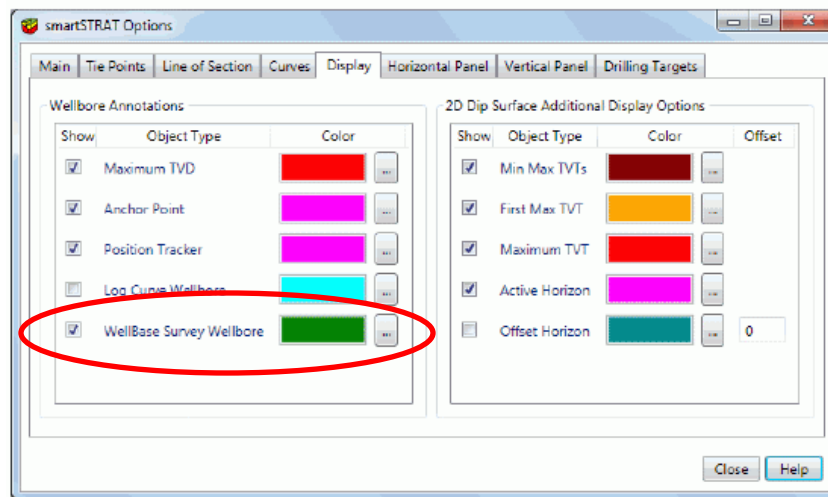
This option facilitates a comparison between the planned borehole and the actual borehole by displaying them in different colors.

Line of Section Azimuth

The azimuth or compass direction of the Line of Section for the smartSTRAT vertical section is now displayed on the **smartSTRAT Options** dialog box. The readout is on the **Line of Section** page and is shown in read-only text.
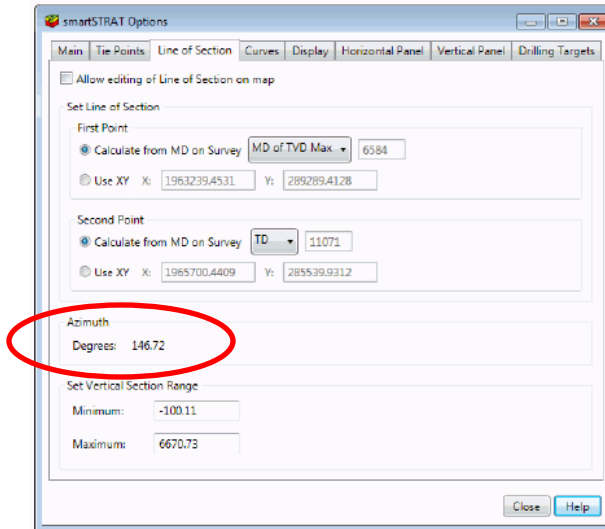
## Model Dip of Initial Tie Point

A **Model Dip** button has been added to the **Tie Points** page of the **smartSTRAT Options** dialog box.
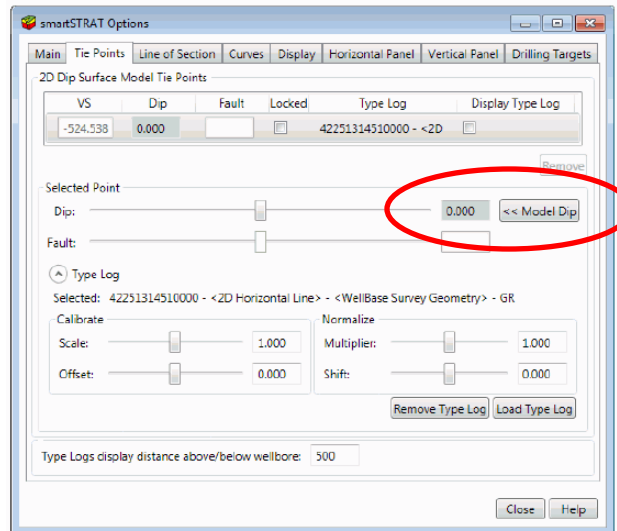
Clicking this button will set the dip of the first tie point of the horizontal well to the apparent dip of the active surface. This feature can assist you in interpreting the path of the horizontal well as drilling progresses.

Display Type Logs at Tie Points

A checkbox to **Display Type Log** has been added to the **Tie Points Page** of the **smartSTRAT Options** dialog box. When this option is selected the type log will be shown on the Vertical Section at the tie point.
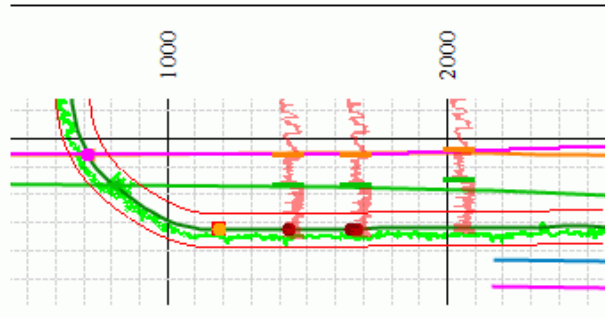
This feature facilitates correlation to the model. There is also a text box, which defines a window above and below the current wellbore. Imported Type logs will be shown in this window.

Rubber Band Line for Cross Section Creation

Starting in this release a thin dashed line between the last picked well or x,y point and the cursor will show in Map View when a cross section is created.

This feature works for either Well to Well or Projected Sections and allows more specific navigation between wells or for the Line of Section when cross sections are created.

In addition to the **Rubber Band** feature the Azimuth and length of the dashed line is shown on a read out at the bottom of the smartSECTION Map View.

Filter Type Logs

When working with TVD Type Logs the number of wells that are available for use as type logs can sometimes be very large.

A Filter option is now implemented to limit the number of wells available for generating type logs when using **TVD Type Logs**. The Filter option is on the **Open Type Log** dialog box and becomes active when the **Use Well TVD Type Log** option is selected. All **WellBase** filters created in the project will be listed on the drop-down list, and can be used to limit the number of wells.

Editable Target Line Parameters

Target lines in smartSECTION supply horizontal drillers with objectives ahead of the drill bit. The target lines supply drilling engineers with valuable parameters to assist in the planning of advancing the drill bit.

Three parameters (KBTVD@VS=0, Inclination, and *Distance*) are editable. The other parameters are calculated using the editable parameters.
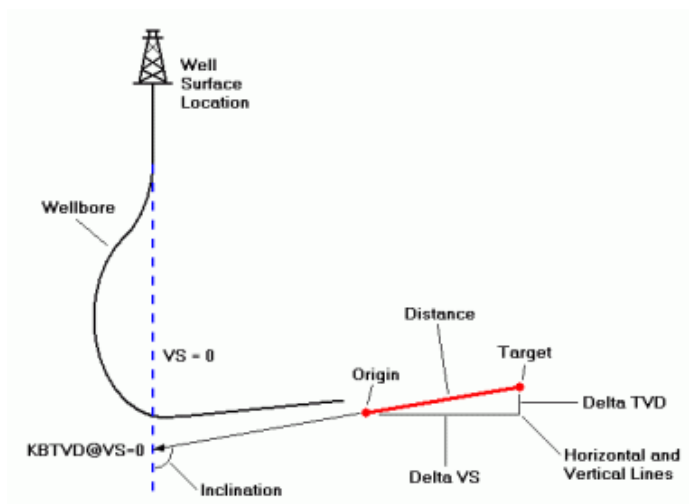
Starting with this release in addition to repositioning the target line on the Vertical Section, you can type values into the *KBTVD@VS=0, Inclination*, and *Distance* boxes on the **Target Line Properties** dialog box. In previous releases, the target line had to be physically moved to edit these parameters.

TVT Readout on the Vertical Panel

Two check boxes have been added to the Vertical Panel of the smartSTRAT Options dialog box.

One turns on the readout of the true vertical thickness (TVT) value of the distance between the wellbore and the Active Surface at the cursor position on the Vertical Section or the Horizontal Panel.

The other check box is used for the construction of Major and Minor grid lines on the Vertical Panel.

TVT values below the Active surface appear in black text, while TVT values above the Active Surface appear in red text.
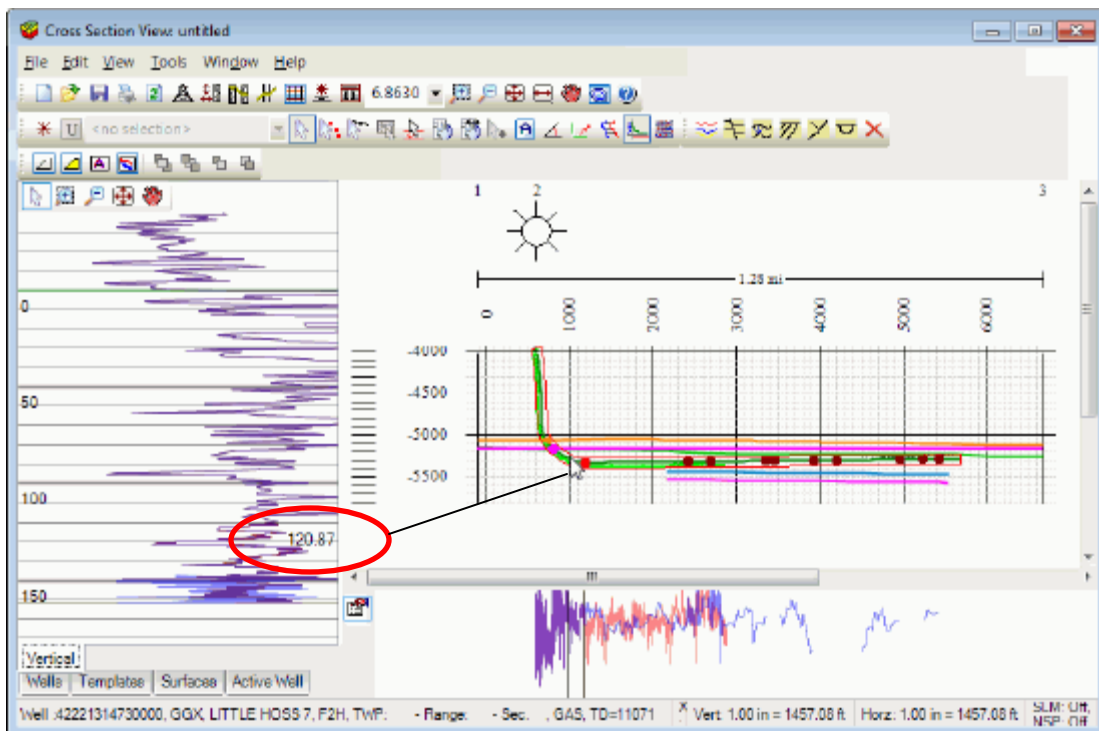
Status Bar Readout in Map View

In smartSECTION Map View the Status bar now shows the X, and Y coordinates the Z value, and the strike and dip of the active surface at the cursor location. For active Attribute maps the X, Y and Z values are displayed on the Status bar at the cursor location.

Proposed Perforations and Completions

The **Interval Options** in smartSECTION now include **Proposed Completions** and **Proposed Perforations**. You can pick intervals that will help plan perf zones or hydraulic fracturing treatments. Proposed Perfs and Comps can be stored in **ZoneManager** or on the **WellBase** Completions table.

Also as an enhancement, you can now pick interval data in measured depth in deviated bore holes.

Add Well Filtering Capability

The Add Well dialog box now includes a means to filter the list of wells to select for inclusion on the Cross Section View.
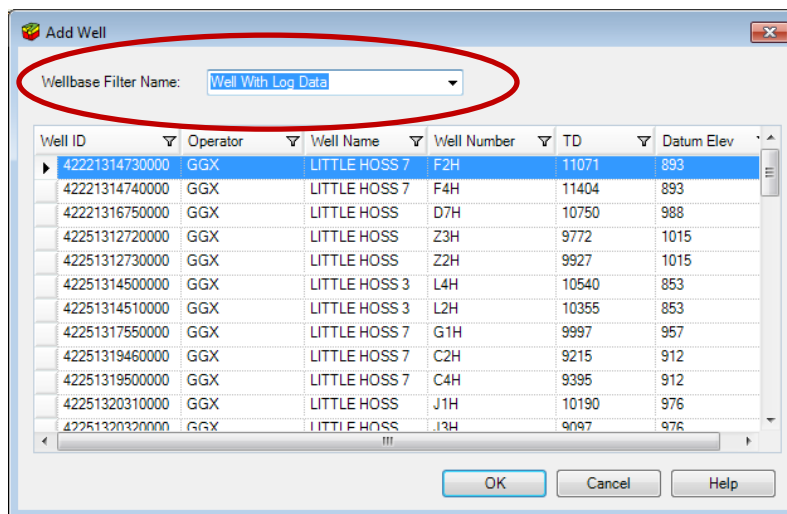

Well filtering can greatly reduce the number of wells to choose from.

The default value is <None>, meaning that the entire set of wells in the project or AOI are displayed on the Add Well dialog box. Any WellBase filter created in the project can be applied to the list.

Drilling Target Tolerance

You can now add Tolerance to a drilling Target Line to allow for the imprecision of the location of the drill bit when approaching the Target Line.
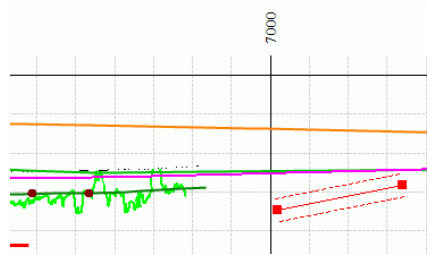
When tolerance limits are set, dashed lines offset by the Tolerance value appear parallel to the target line. The Tolerance value can be copied along with other Target Line Parameters to the clipboard and utilized by the drilling engineer to plan the advance of the bit.

XSection to smartSECTION Cross Section Converter

A utility has been added to Discovery that will reformat cross sections created in XSection application for use in the smartSECTION application. (This utility can be found within the DVD Utilities folder.)

The XSection Converter will copy wells into smartSECTION in *.ssd format, which can be displayed and manipulated using the smartSECTION tools to enhance 3D surface modeling.
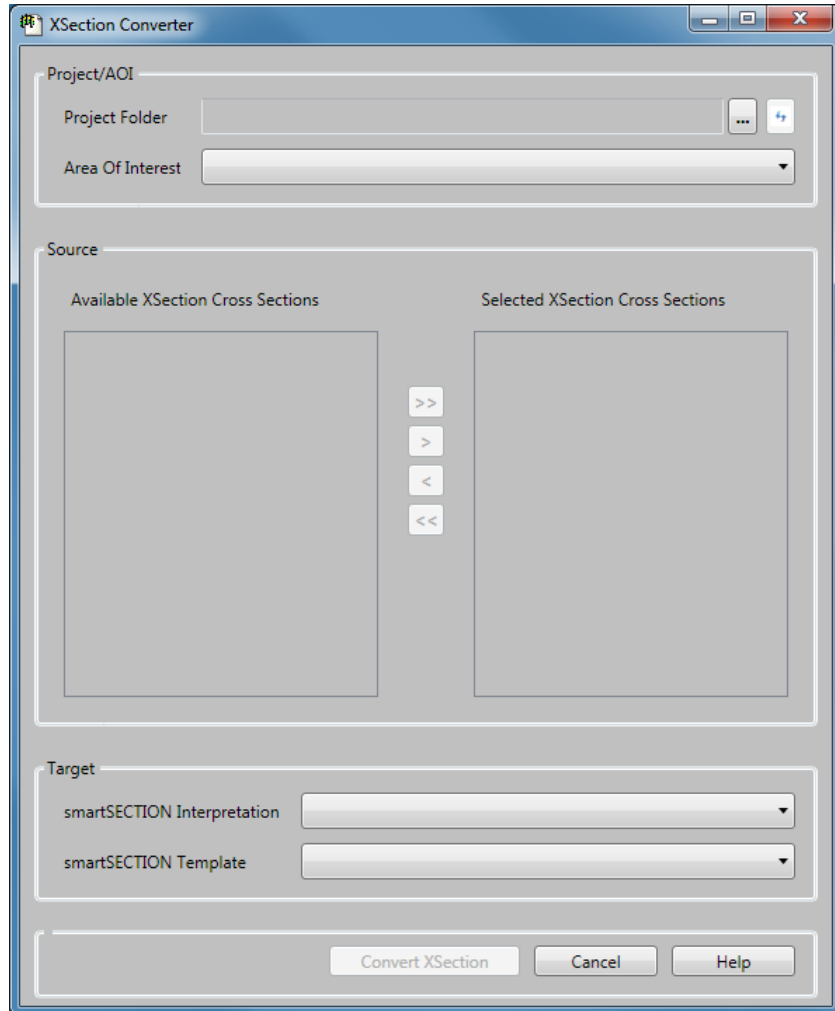
The XSection cross sections and a saved smartSECTION interpretation must reside in the same project. A source Project, XSection cross sections, and a target smartSECTION interpretation and smartSECTION cross section template file (.sst file) can be identified using the utility. The cross sections are then converted with the click of a single button.

<u>PRIZM</u>

Proposed Interval Types

Starting with PRIZM 2012.0.0 the list of intervals shipped with the software includes **Proposed Completions (Comp Prop)** and **Proposed Perforations (Perf Prop)**.
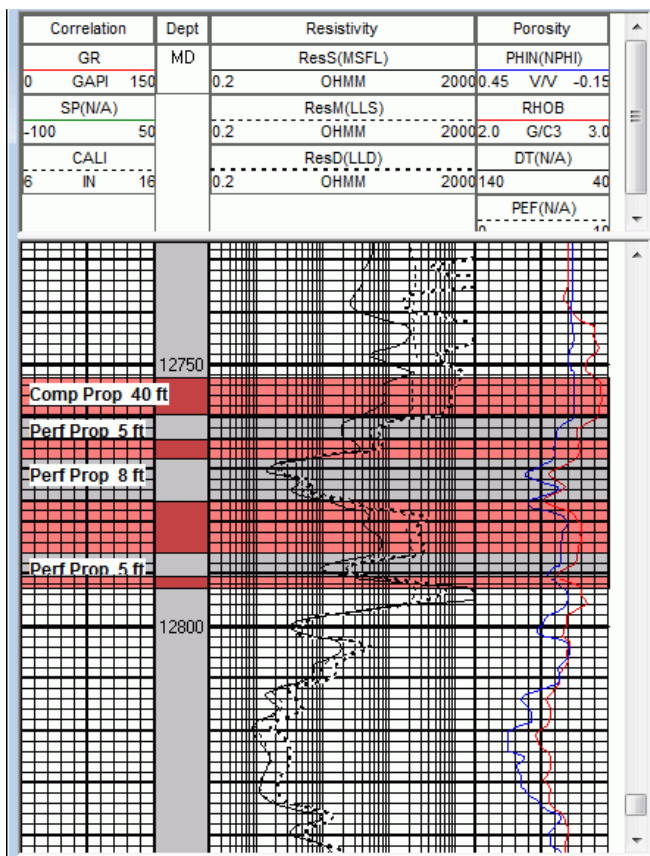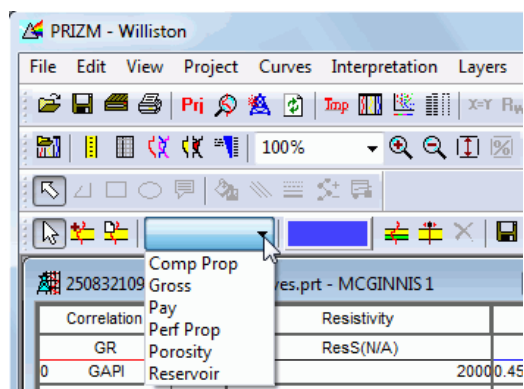
These interval types can be used to plan completions and hydraulic fracturing jobs. The interval data can be saved to **ZoneManager** or to the **WellBase** completions table.

Mechanical Equations

A new group of equations has been added to the **Standard Equations** page of the **User Defined Equations** dialog box. The Mechanical group will calculate elastic properties of rocks using measured log responses.

Four equations calculate Dynamic and Static Young's Modulus and Poisson's Ratio using Bulk Density and Average Porosity curves (read or calculated from RhoB logs) and shear and compressional slowness (measured on dipole sonic logs).
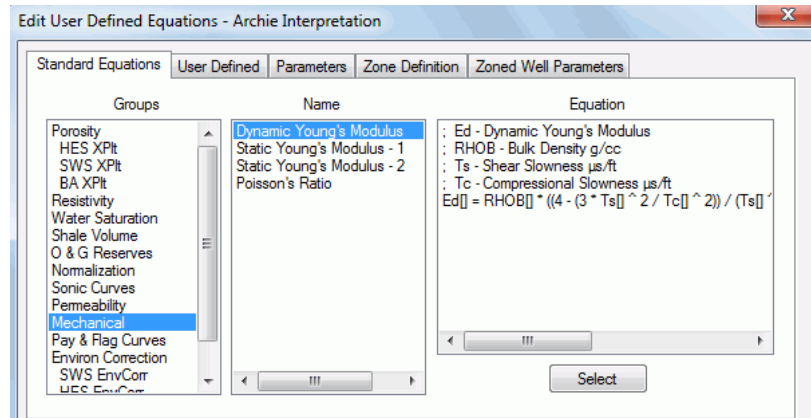
Image Track Improvements

Using the **Images Track Attributes** dialog box, several different images can be listed under a Default Image Name (Neutron, Density, and Sonic listed under Porosity for instance).
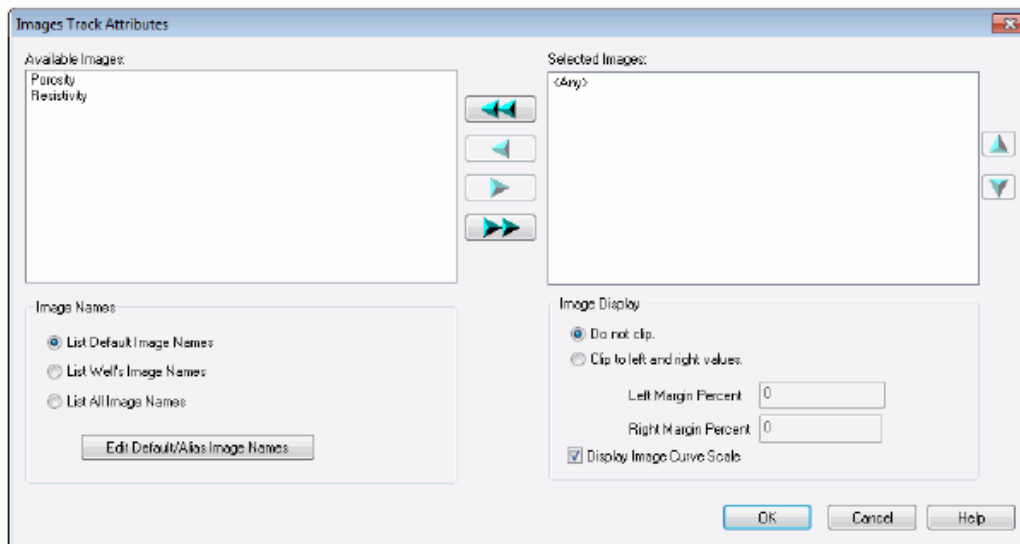
Controls on the **Image Track Attributes** dialog box allow you to list and select **Default Image Names** (all of the depth registered image names in the project), **Well's Image Names** (individual logs associated with the active well template), or **All Image Names** in the project whether they are depth registered or not.

Core Curves

The new fields added to the **WellBase Core Analysis** table can be shown using the **Core Curves** feature in PRIZM.
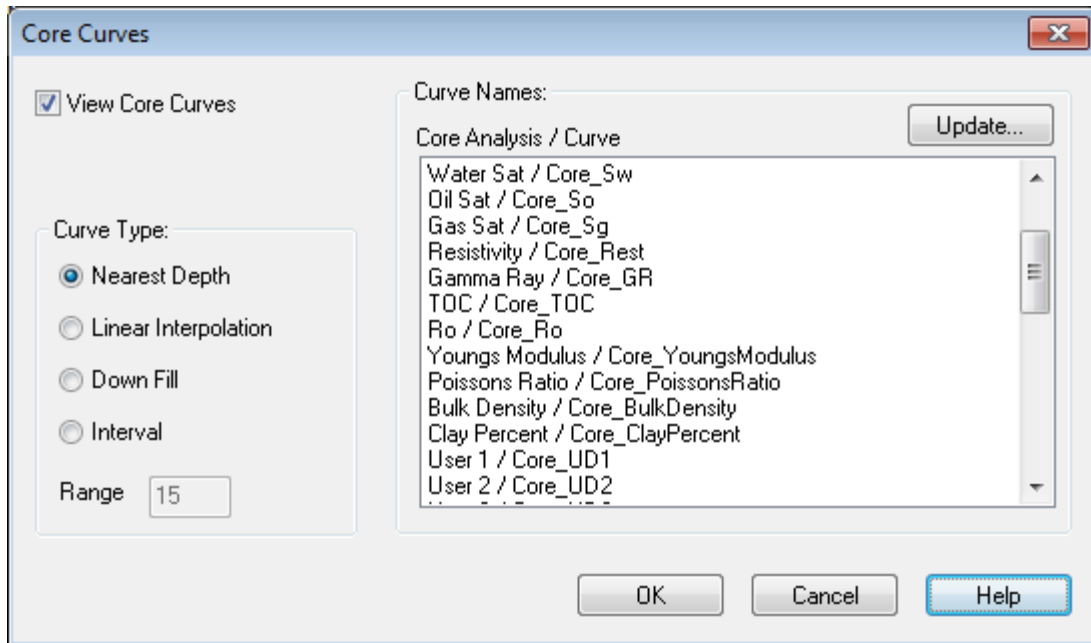
The new fields include Total Organic Carbon (TOC), Vitrinite Reflectance (Ro), Poisson's Ratio, Bulk Density, Young's Modulus, and Clay Percent.

In addition to the six new fields listed above, the number of User Defined fields have been increased to 25.

WellBase

WellBase Bar Improvements

Starting with Release 2012.0.0 The **WellBase Bar** opens automatically when the WellBase application is launched. In previous releases the **WellBase Bar** had to be turned on using the **View >> Toolbar >> WellBase Bar** menu command. The WellBase Bar can still be toggled off using the **View >> Toolbar >> WellBase Bar** menu command.

Another improvement to the **WellBase Bar** is the addition of the **Create Layer** button directly under the **Quick Filter** list. The **Create Layer** button easily opens the **WellBase Create Layer** dialog boxes without having to go through the **Layer >> Create Layer >> WellBase** menu command.

Import URLs Using the Spreadsheet Importer

The **Spreadsheet Importer** has been expanded to import hyperlinks or URLs and attach them to wells. The documents table has been added to the importer where you can specify a well unique ID and the URL name. Previously the only way to associate URLs and wells was through the **Document Library** located on the WellBase Bar.

After URLs are associated with wells, they can be linked to using the **Document Library** on the WellBase Bar, or accessed from WellBase layers displayed in **GeoAtlas** using the **Data Attributes** dialog box, which is accessed in **GeoAtlas** by a selecting **Data Attributes** from the right-click context menu when a WellBase layer is the Active layer. You have the option while building **WellBase Layers** whether to include URLs on the layer.

Proposed Flag and Well Sequence Number

In WellBase 2012.0.0 a **Proposed** checkbox has been added to the **Scout Ticket View**, to quickly identify those wells in the database for well planning. Proposed wells are exported and imported in **ASCII4** format. Proposed wells can also be imported and flagged using the **Spreadsheet Importer**.

In addition **Well Sequence Number** (**WSN**) is a read-only field that has been added to the **Scout Ticket View**. The **WSN** is assigned sequentially to every well in the database. The WSN does not change as the well is edited and they are never duplicated or reused if a well is deleted from the data base.

Create Layers with URLs in Data Attributes

A new checkbox has been added to the **WellBase Layer Create** dialog box **Data Posting** page. By selecting to **Post Hyperlinks**, the URLs are part of the layer and can be accessed using the **Data Attributes** dialog box in GeoAtlas. Posting URLs may cause performance issues if there are many of them.
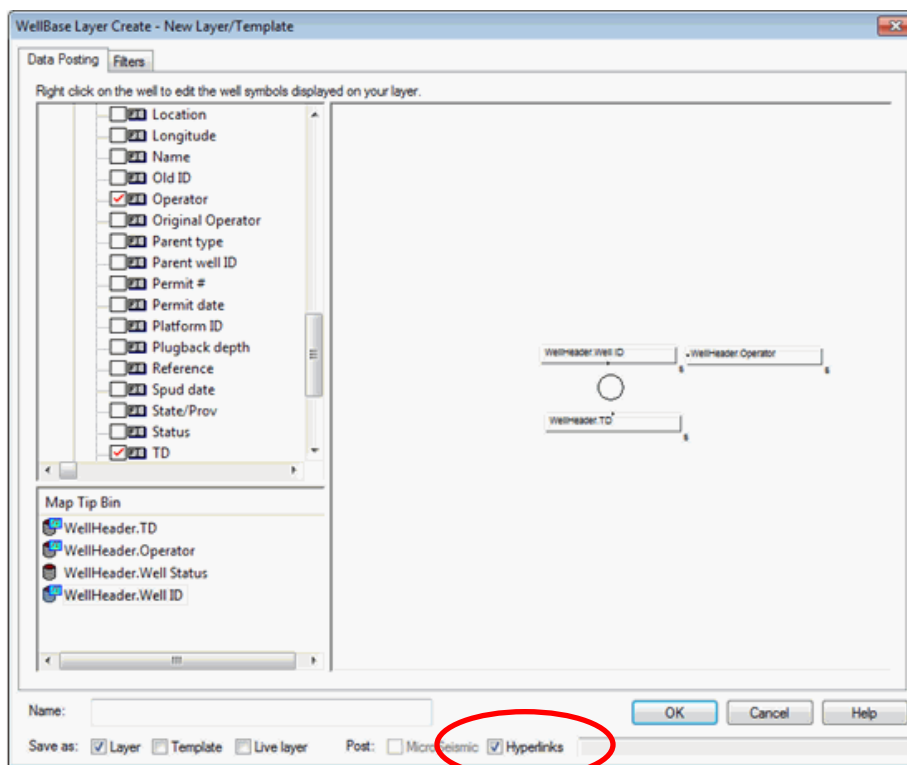
When a Layer is created using this option you can click on the well on the display layer in **GeoAtlas**, right-click and select **Data Attributes** from the shortcut menu. The URLs will be listed at the bottom of the **Data Attributes** list. Click the URL on the **Data Attributes** dialog box to connect to the URL.
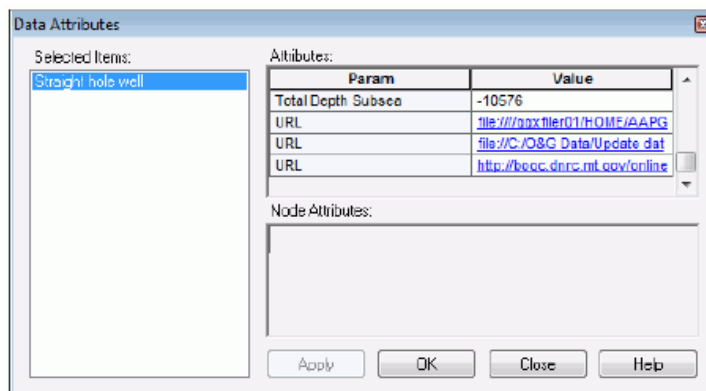
Protect Multiple Scout Cards in Well List View

You can now protect the **Well Scout Card** data of multiple selected wells from the **Well List View**. To protect the selected well's Scout Card data, highlight the wells in the Well List view and select **Wells >> Protect Well Scout Card**. Fields containing protected data in the Well List View are displayed with a grey background color.

To clear the protected status well **Scout Card** data, select the protected wells in the **Well List View** and select **Wells >> Protect Well Scout Card** to toggle off the feature.

This feature can also be accessed using the **WellBase Bar**. Click the **Properties** button for the **Toolbox** section of the **WellBase Bar** and select the **Protect Scout Card** tool. The tool will appear on the **Toolbox**, and can be turned on or off for selected wells.

Well Treatment Data on the IP Page

In **WellBase** 2012.0.0 you can import or enter well treatment information on the **IP Page**. A new spreadsheet has been added to the **IP Table** that holds stimulation attempts or hydraulic fracturing information.

Well treatments are tied to specific tests on the IP spreadsheet. For IHS imports the data that populates the spreadsheet originates from the GA records (specific to IP tests) and the FA records (specific to production tests).

Proposed Completions and Perforation Intervals

Starting with Discovery 2012.0.0, **Proposed Completion** and **Proposed Perforation** intervals can be picked in **XSection**, **PRIZM** and **smartSECTION**. The proposed intervals can be stored in the **Completion** table in **WellBase**.
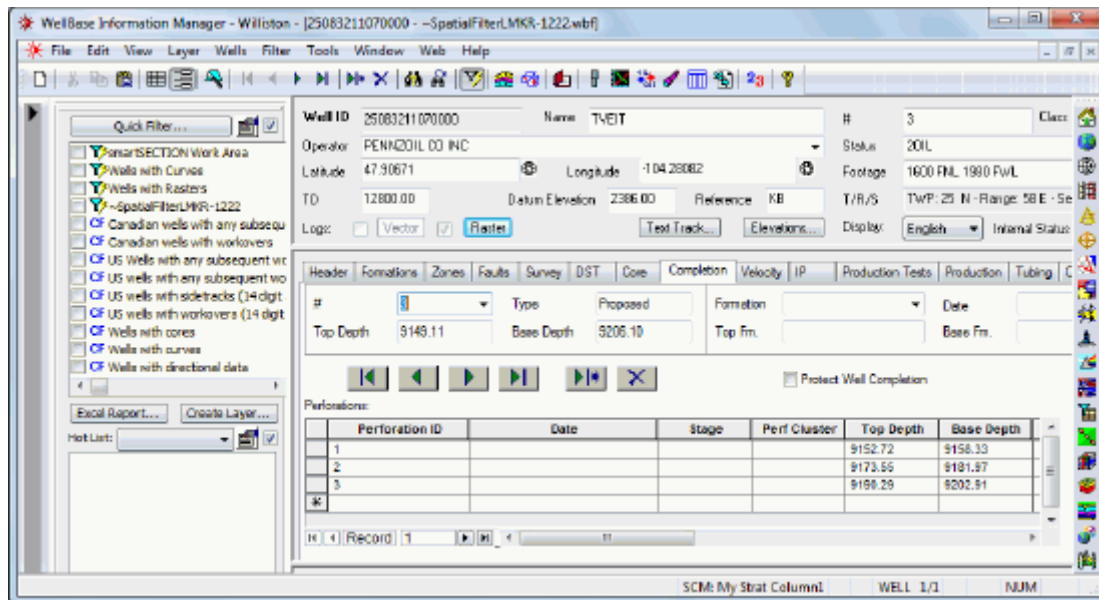
These interval types can be used to plan completions and hydraulic fracturing jobs on conventional or unconventional wells.

Add Stage and Perforation Cluster Data on the Completion Page

Two new fields have been added to the Perforations table located on the Completions page in WellBase. Hydraulic Fracturing Stage and Perforation Cluster data can be stored on the page and be linked to individual completions. Each perforation in the completion effort can store data for the individual stage and perf clusters.

Scrolling with the Mouse Wheel

You can now scroll through the tables in the WellBase Information Manager using the mouse wheel. Scrolling through tables using the mouse wheel is a quick way to view information in the Production or Formation tables, etc.

Add Core Analysis Data on the Core page

Additional fields have been added to the Core page of the WellBase Information Manager. Fields have been added for TOC, Ro, Poisson's Ratio, Bulk Density, Young's Modulus, and Clay percent. These fields are added to aid in the planning and production criteria of unconventional well bores.

In addition to these new fields, the number of User Defined fields has been increased to 25 to include data specific to your project.

Delete Data from WellBase

The **Delete Data** function in the 2012.0.0 release of WellBase has been enhanced to delete more data from the database.

The **Wells >> Delete Data** menu command opens the **Delete Data** dialog box, where you can specify the type of data to remove from the data base. The Delete Data dialog box now includes check boxes to delete **Well Pads/Slots**, **Microseismic Events**, **Microseismic Pressures**, **Well Documents**, **Depth registrations** and **Well Treatments**.

Parsing Options for Posted Data

In WellBase 2012.0.0 you can use the **Parsing Options** dialog box to parse the display of posted data by highlighting a posted field in the **Data Posting Page** of the **WellBase Layer Create** dialog box, right-clicking, and selecting **Parse** from the context menu.
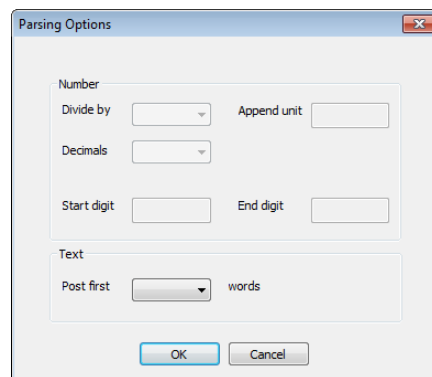
Use the **Divide By** drop down menu to divide numeric values, use the **Append unit** text box menu to specify the unit of measurement of posted attributes, and specify the number of decimal places displayed in posted data with the **Decimals** drop down list. Enter the **Start Digit** and **End Digit** numbers to specify the portion of the numeric field to display.

Limit the number of words posted in text attributes by selecting the number of words to display from the **Post first...words** drop down list.

GeoGraphix Engineer's Dashboard

Discovery 2012.0.0 introduces the GeoGraphix Engineer's Dashboard, a plug-in for Microsoft® Excel®, allowing the use of powerful PivotTable™ features to filter, process, analyze and display data. The GeoGraphix Engineer's Dashboard makes use of data imported in a spreadsheet from numerous E&P activities and sources, or uses data present in the database to make PivotTables that open in Excel.

The GeoGraphix Engineer's Dashboard is available for Discovery projects only. It is not available for Discovery on OpenWorks projects. It requires that Microsoft Excel 2007 is installed and running prior to installation of Discovery 2012.0.0.

In GeoGraphix Engineer's Dashboard 2012.0.0, the Wells section allows you to display wells in the PivotTable in either of the following applications:

- GeoAtlas – Wells present in the PivotTable are highlighted on a map displayed in GeoAtlas.

- WellBase – Wells present in the PivotTable are used to create and apply a filter, displaying only those wells that are present in the PivotTable.

- Google™ Earth™ - Wells present in the PivotTable are represented with standard oil and gas symbols on a satellite map in Google Earth.

The GeoGraphix Engineer's Dashboard can operate on any Pivot Table report, provided there is sufficient data in the report to identify a particular well. Use the Map Options dialog box to specify how to map fields in a Pivot Table for well identification.

Visual representations of data in a PivotTable can be drawn on a GeoAtlas map, and can be saved by creating a layer. Two types of visual representation can be used:

- Proportional pies – Visually depict data values particular to a well's data attributes on the map. Numeric attributes can be shown as wedges in a pie, where the size of the wedge corresponds to the magnitude of the numeric data attribute.

- Bubble maps – Visually depict data values particular to a well's data attributes as colored circles that vary in size, where the size of the bubble corresponds to the magnitude of the numeric data attribute.

Calculated fields can be employed in the PivotTable to summarize, aggregate or manipulate data for creation of New Zone attributes that can be stored in ZoneManager.

XSection

Proposed Completions and Perforations

Starting with XSection 2012.0.0 the intervals in the list of Available Intervals includes **Proposed Completions (Comp Prop)** and **Proposed Perforations (Perf Prop)**.

These options allow you to pick intervals for possible hydraulic fracturing, other well stimulation, or perforation.
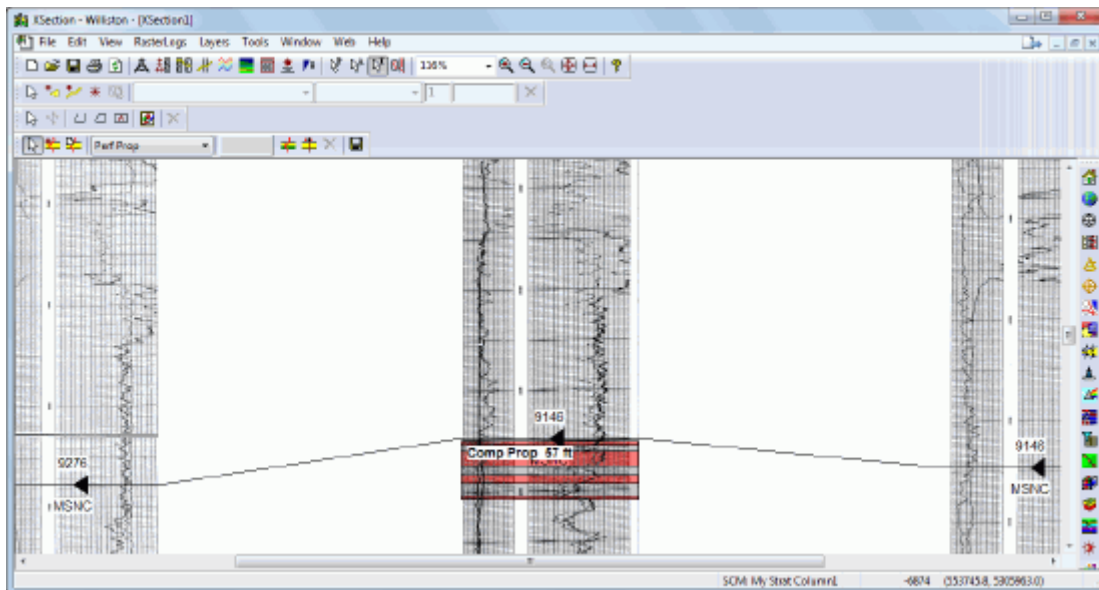
The proposed completions and perforations can be saved to **ZoneManager** or to the **Completions** table in **WellBase**.

SeisVision

Create smartSECTION Cross Sections from the Seismic View

The new **Create Cross Section in smartSECTION** menu command has been added to the shortcut menu accessed by a right click on the seismic line header when wells are displayed on the line.
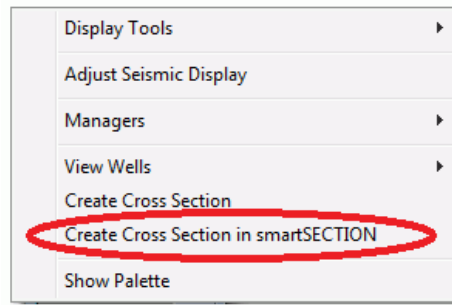
When this command is selected, **smartSECTION Cross Section View** opens showing all the wells displayed on the line in order from left to right.

Background Color on Map Views

A new control on the **General Page** of the **Active** or **Default Map Display Properties** dialog box allows you to change the color of the map behind wells, seismic lines or other entities on the Map

Clicking the down arrow in the Color box produces a color palette that can be used to select standard colors or create a custom color.
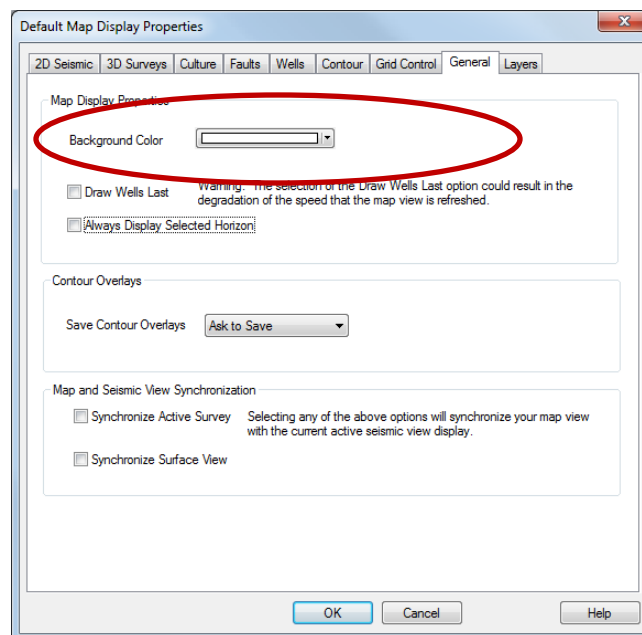
Fault Lists and Horizon Lists on the Fault Heave Calculator

You can now create **Fault Lists** and **Horizon Lists** to reduce the amount of data shown on the Fault Heave Calculator.
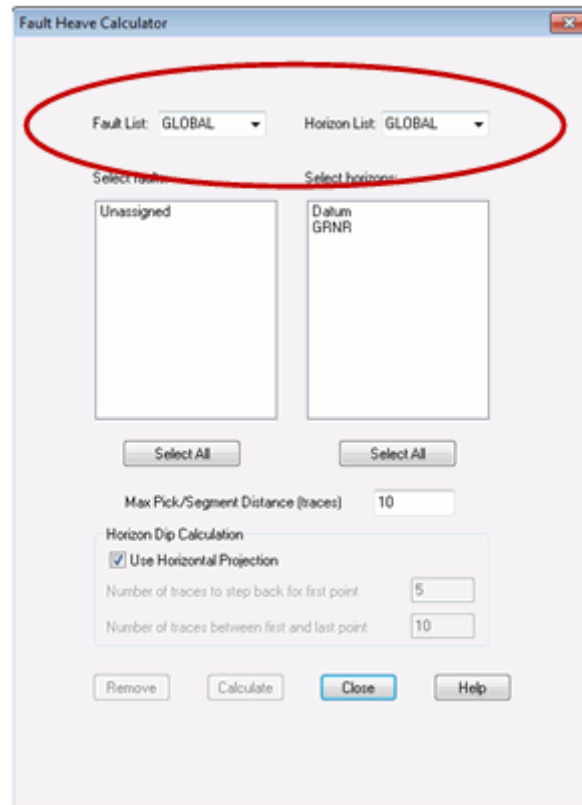
In both cases the Global lists show all of the Fault and Horizon data in the project. Fault Lists containing a reduced amount of data can be made using the **Fault Manager** in SeisVision while Horizon Lists showing fewer Horizons can be made on the **Horizon Manager**.

Larger Fault Manager

The work space on the Fault Manager has been enlarged to make it easier to see the fault settings. The larger work space makes working with faults more efficient.

Interpolation ON/OFF Toggle for Multiple Faults

The Fault Manager has been improved to give you the ability to select more than one fault at a time and set the Interpolation function for several faults. The Interpolation ON/OFF button has been added to the dialog box to toggle the function on or off for the selected faults
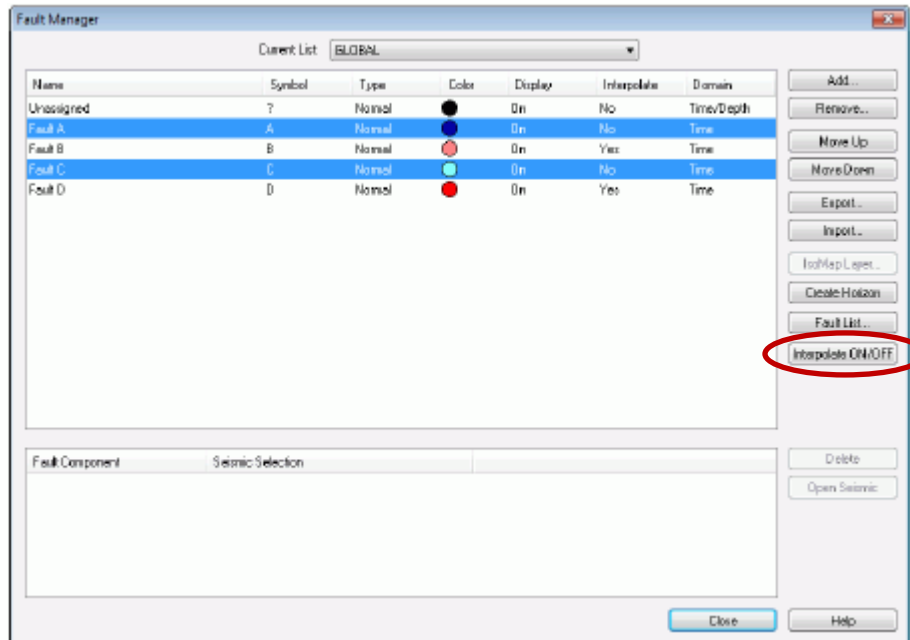
Hold the Ctrl key when selecting to select more than one fault, then toggle the Interpolate function on or off for the selected wells.

Control of Borehole Display Location

The Well display on Seismic controls have been added to the Well Display page of the Settings dialog box (Interpretation >> Settings). These options specify how wells are to be displayed or projected on the seismic section. The borehole is displayed if it is within the display radius set on the same page.
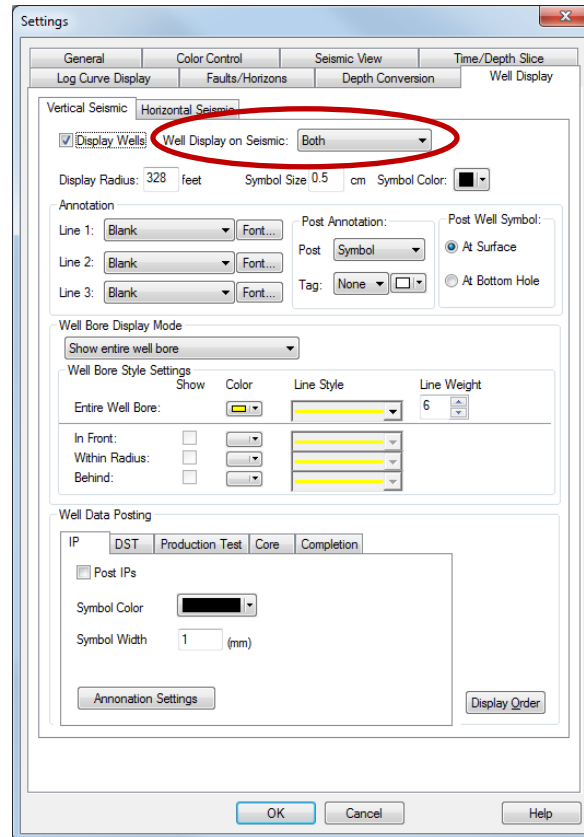
You can choose to display only the **Surface Location,** the **Bottom Hole** location, or **Both** the Surface and Bottom Hole if they are within the display radius.

<u>QueryBuilder</u>

Filter on Perf Cluster and Stage Data

The Perf Cluster and Stage fields have been added to the Perforations table in QueryBuilder. You can now build queries that are specific to unconventional or horizontal wells with hydraulic fracture stimulation in stages.

Filter on Well Treatment Data

The Well Treatment table has been added to the list of tables that can be filtered in QueryBuilder. The table consists of over 20 fields that pertain to treatments including Additives, Fluid Type, Proppant type and amount, Stages and Fractures, among other pertinent treatment data.

Filter on Additional Core Analysis Data

Several filterable fields have been added to the Core Analysis table including **Total Organic Carbon** (TOC), **Vitrinite Reflectance** (Ro), **Poissons Ratio**, **Bulk Density**, **Youngs Modulus**, **Clay Percentage** and 15 additional **User Defined** fields.

WellXchangePlus

Transfer of Log Curves

The 2012.0.0 release of WellXchangePlus allows you to transfer log curves from Discovery projects to OpenWorks projects or to other Discovery projects. Using the same interface you can transfer curves in OpenWorks projects to Discovery projects.
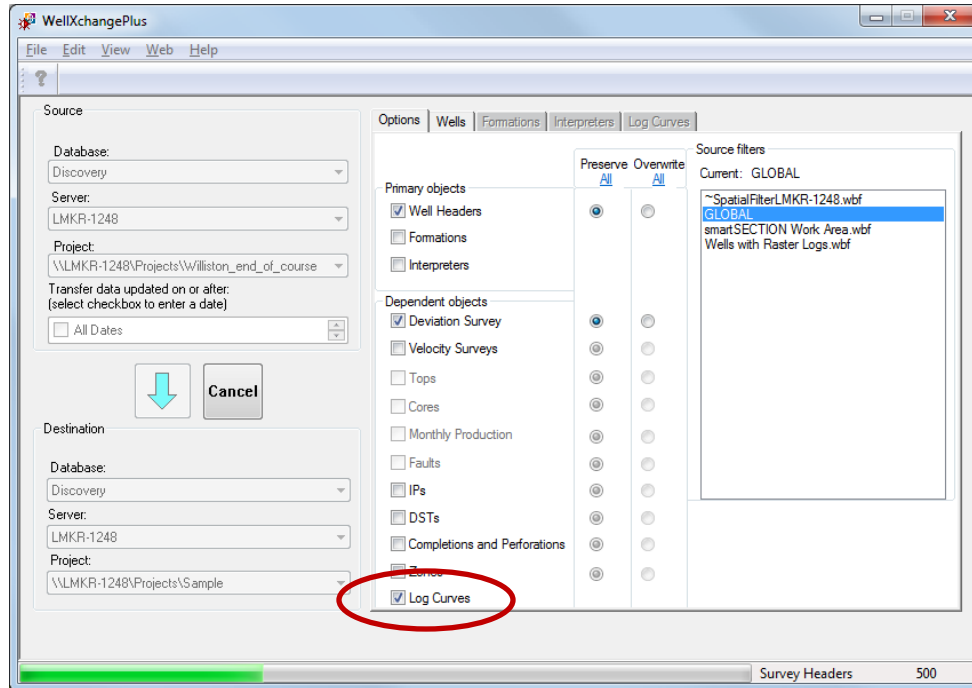
Selecting the Log Curves check box will cause the transfer of all log curves in the Source project to the Destination project.

Fixed Issues

This section explains issues that were fixed for the Discovery 2012.0.0 Release.

Architecture

Found In Version	Issue ID	Fixed Issue
5000.0.1.1	17028	Various files in DataDirectory disappear when archive flag is checked by back-up software. There are no files of type x in directory path to server data directory
5000.0.2.1	17749	Project Upgrade – Project will not upgrade properly from Discovery version 2007.2 to version 5000.0.2.1. Can't archive project.
5000.0.2.5	18661	Option requested to include an option to retain projects on the Favorites list even if the source server is not available. Project should not be cleaned from the favorite list automatically.
2012.0.0	19060	*.prj file is not getting created for the shapefile layers created through any application other than GA.

Coordinate System Manager

Found in Version	Issue ID	Fixed Issue
5000.0.1.1	16311	Need the ability to import prj files to create custom projection
5000.0.2.5	19096	NAD83 NADCON (new) datum - Attempt to change a project's Map CS to use this new version of the NAD83 datum (UTM 13), ProjectExplorer crashes.
9.0.0.0	6893	Can't create a new coord sys that uses a NADCON datum

DepthRegistration

Found In Version	Issue ID	Fixed Issue
5000.0.2.1	17550	Need a mechanism to delete numerous raster images with a single command. Added ability to delete multiple raster images through the WellBase Wells >> Delete Data function in WellBase.
5000.0.2.1	18504	Need ability to apply filter the list of raster images before deleting them. Functionality added to the WellBase Wells >> Delete data function.

Defcon2

Found In Version	Issue ID	Fixed Issue
5000.0.2.1	18313	IHS 298 production Imports - Import is skipping records with non-zero water volumes.
5000.0.2.5	18016	Regular Import with define setting & import new data (selected)/(Not Selected). Data on Datum and Ground Elevation In Well Header is being overwritten when Wellheader table in define setting is checked off.
5000.0.2.5	18462	DefCon ASCII4: When Define Setting > Import New Data is off, the data should not be added in Equipment and Liner Table

5000.0.2.5	18463	DefCon ASCII4: When Define Setting > Import New Data is off, the data should not be added in Pad/ Slot tables
5000.0.2.5	18604	DefCon-ASCII2/ASCII3/ASCII4/IHS: Overwrite with Regular Import + define setting is not working for some of the tables.
2012.0.0	18903	ASCII4 Import - Faults table displays inconsistent data between bulk load import and regular import option.
2012.0.0	18922	ASCII4 Import - Using Regular Import with Overwrite All, data on TVDSS field on the Zones tab was overwritten with a blank field.

Discovery 3D

Found in Version	Issue ID	Fixed Issue
2012.0.0	27053	Log Curves Display - Crash when displaying curve data and selecting Apply to Selected again before logs are displayed
5000.0.2.5	18423	DOW – If a 3D Scene with wells is displayed, and a new Scene is opened, the wells will not display on the new Scene.
5000.0.2.5	18840	Save a Scene with hidden objects. The objects will be visible when the saved Scene is restored.
2012.0.0	18414	Wells are not removed correctly from the 3D scene and Data Selector when using the Remove command on the context menu. The wrong well is being removed.
5000.0.2.5	19077	Microseismic display – Attempted display of microseismic data in Discovery 3D produces the following error message: Capacity was less than the current size. Parameter Name: capacity.
2012.0.0	18809	Documentation – Help files need to be updated to inform users that there is a new saved scene file type (b3d format is an upgrade to the x3d format)
2012.0.0	19069	When displaying curves in Lathe mode fill options should be disabled.

GeoAtlas

Found in Version	Issue ID	Fixed Issue
2012.0.0	18905	Bubble Symbols- Error message appears when the fields for Total Depth Subsea or Datum Elevations are selected for applying Bubble renderers in the Layer display Attributes dialog box.
2012.0.0	18923	Depth Posting - TVD values are incorrectly posted on deviated bore holes.
2012.0.0	18952	DOW - Setup Proportional Pie Symbols function - The "available fields" list box is not displaying all of the fields that were posted during layer creation.
2012.0.0	19073	DOW - Newly added zone attributes are not updating in the dropdown list for attribute values on the Drainage Ellipse dialog box.
2012.0.0	19085	DOW- When wells are selected on the map and sent to WellBase using the "View Selected Wells in >> WellBase" command from the context menu, the WellBase application crashes.
2012.0.0	19192	DOW - Interpretation Project – When wells are selected on the map view and the View Selected Wells in >>-Prizm command is invoked an Error message appears in Prizm.

2012.0.0	25994	LYR File - Advance Rendering for Proportional Pie Symbols. The symbol shapes cannot be set properly for Min and Max values from Symbol Selector window.
2012.0.0	26813	LYR File Advance rendering - On making changes to Unit and Symbol fields with the renderer set to "Proportional symbols", unhandled exception error messages appear.
2012.0.0	26826	LYR File- Advance rendering Preview Button - The preview button is hidden during different data preview attempts.
2012.0.0	26899	Advance Rendering - For any .LYR file the Preview button is not working to provide a map preview when the user switches the renderer display from proportional pie to single value.
2012.0.0	26900	Advance rendering – In the proportional Pie renderer when the "Units" is set to meters the Square symbol cannot be set on the map display.
2012.0.0	26223	Pad Design- For activated AOI Well Pad info is not getting saved in WellBase.
5000.0.1.0	14642	GeoAtlas crashes while creating a cross section when the mouse button is double-clicked on the map several times.
5000.0.1.1	16132	There is a need to Create one *.prj file for each shapefile in the project using the shapefile's name as a default.
5000.0.2.1	17972	Datum transformation error when attempting to transform the Indian - Pakistan datum to WGS84
5000.0.2.1	18792	None of the geographic transformations work between NAD27mean and WGS84 for ESRI LYR World Imagery layer
5000.0.2.5	18464	Creating conditional pies on wells with rasters takes unusually long time. Right-click Highlight wells with rasters takes unusually long time
5000.0.2.5	18624	When contours are created on a Blank IsoMap Layer and "Refresh IsoMap Layer" is selected, the GeoAtlas application crashes.
5000.0.2.5	18734	The GeoAtlas application Crashes by selecting any polygon on a LandNet layer and then trying to Hide the same layer by closing the "eyeball".
5000.0.2.5	18743	Wrong URLs are being written to deviated well wellbore path entity.
5000.0.2.5	18827	TVDSS depths will not post when all subsea values are all positive
5000.0.2.5	18849	LYR File - Advance Rendering for Proportional Pie Symbols. The Exclude Data Button is getting wrong results in case of Data Display for negative values.
5000.0.2.5	18853	LYR File - LDA- Advance Rendering for Proportional Pie Symbols. The Size tab on the Symbol Selector Window is not accepting the manually entered values for Size
2012.0.0	18712	GeoAtlas Crashes when switching the display between two layers by using Hide (Eye Icon) option
2012.0.0	18977	Proportional Pie - Error message appears when the fields for Total Depth Subsea or Datum Elevations are selected and moved from the available field lists to the selected wedges and color grid.
2012.0.0	19067	Cross Sections are not generated in XSection if a well with survey data is selected for view on the cross section.

Install

Found in Version	Issue ID	Fixed Issue
2012.0.0	26565	Version information is incorrect in the GGX_Discovery.xml file - Expected version is 2012.0.0.0 but actual is 5000.0.0.0

Help Documentation

Found in Version	Issue ID	Fixed Issue
2012.0.0	19261	DR2 - Help - Please add the DRA v1 and DRA v2 format definitions to the help files

LogM

Found in Version	Issue ID	Fixed Issue
2012.0.0	19178	Well Editor (Project Mode): Application is not working in Project mode. Integration with other applications is broken

Prizm

Found in Version	Issue ID	Fixed Issue
10.0.0.0	10455	Using the Cumulative frequency statistic using a TVD depth index crashes Prizm
2003.12.0.0	25964	Perforation data posting over entire completion interval in wells with no perfs
2012.0.0	18987	Single and Multi-Well LAS exports crash when specifying a data interval deeper than the Stop depth of the curve data.
2012.0.0	25949	DOW - Import LAS file. Value too large for column
2012.0.0	26636	LAS export. Clicking Cancel does not cancel the export.
5000.0.2.0	17106	Curve Data Statistics. Null values are included in calculation for standard deviation.
5000.0.2.5	18968	Curve set names longer than 16 characters are causing errors.
2012.0.0	19130	Crash when editing User Defined Equations without opening a well
	26674	Crash when saving curves

ProjectExplorer

Found in Version	Issue ID	Fixed Issue
10.0.0.0	10133	Imports - Zone Data - HELP button broken

5000.0.1.1	10107	Bad extents in DOW IP project, cannot fix in DOW, need to gray out option to recreate extents when IP is selected.
5000.0.2.1	18244	ProjectExplorer is able to copy (make a duplicate) of an unactivated DOW project into the same project home.
5000.0.2.5	18400	ProjectExplorer	Deleted DOW Project folders do not disappear...
2012.0.0	19132	Project Explorer crashes while selecting Tools->GeoGraphix menu item twice.

QueryBuilder

Found in Version	Issue ID	Fixed Issue
5000.0.2.5	19206	Log Data Filter > Default Curve List must be modified so user can select proper log curve names to be filtered. Please enable box to have a scroll bar, or enable it to be expanded.
2012.0.0	18440	"Rerun Filter..." button is not enabled while apply filter is checked and a filter in "Available Filters" is selected.

SeisBase

Found in Version	Issue ID	Fixed Issue
2012.0.0	26015	On the Horizon Shift Calculator (Tools Menu >> Calculate Horizon Shifts), the Save Working Set option is not saving the data and an error appears.
2012.0.0	19180	SQL statement error appears after editing some fields in The Line ID Pane and then saving comments on the Remarks tab.

SeisVision

Found in Version	Issue ID	Fixed Issue
2012.0.0	26170	SeisVision: application crashes on removing wells from interpretation for specific datasets
5000.0.2.1	18090	Deviated borehole not showing intersection on the seismic line properly
5000.0.2.1	18610	Creating a Depth volume-- Depth vol will not create on a specific dataset
5000.0.2.5	18607	2d auto will pick a peak or trough where none exists
5000.0.2.5	18701	Cannot edit multi z horizon once it has been picked on the seismic line
5000.0.2.5	18817	SeisVision: Curvature attributes are showing inconsistent behavior
5000.0.2.5	18820	SeisVision sends a message that it has crashed when you close the application
5000.0.2.5	19108	Out of Memory error when loading a large number of wells with deviation surveys into a SeisVision interpretation
	26046	After User Cancels Loading of Wells, SeisVision Shows Some Wells, then Crashes

smartSECTION

Found in Version	Issue ID	Fixed Issue
2012.0.0	26050	Duplicate surface ID not recognized if the Stratigraphic Column is not Public,

		and ID is not in selected Strat Column
2012.0.0	26412	In Cross Section View using the Esc key (Go To Last Tool functionality) causes errors if the last tool is one of the Cross Section Annotation tools
2012.0.0	19243	TVD templates cannot be clipped. The bottom TVD depth is always maxTVD.
2012.0.0	26402	Cannot enter values in the Vertical Section text box in Main Map View.
2012.0.0	26444	Z readout not always available on attribute maps
2012.0.0	26469	In a metric unit project, setting a Cross Section View template to be the default template, changes that CSV to English units
2012.0.0	27002	If you use the annotation A tool, located in the tool bar at the top of CSV to make an annotation, you cannot grab it or move the annotation box.
5000.0.1.0	15297	There is a need to see a filtered set of wells in the Add Well list (plus sign in Cross Section View), and to create a filter limiting the number of wells.
5000.0.1.1	15626	User wants ability to post/label strike, dip, and dip azimuth values on the surface contour maps, at the location where the surface/top intersects the deviated well.
5000.0.2.5	18405	Update of hard intersection points (guiding points) does not work - changes are not saved into the database
5000.0.2.5	18619	When displaying an IsoMap layer in Cross Section View, the posted source for that layer should be "IsoMap", not "3DGSM"
5000.0.2.5	18798	Add cum oil, water, gas, and NGL to well postings in smartSECTION
5000.0.2.5	18976	Observation number 2 pick on a horizontal well puts wrong Measured Depth in WellBase
2012.0.0	18410	DOW - IsoMap sourced layer appears as a predicted surface in the cross section.
2012.0.0	19004	New intervals are not saved as they were first picked on the well
2012.0.0	19005	After new intervals are saved, no other intervals can be saved
2012.0.0	19058	DOW project in metric units, ssd is stretched
2012.0.0	19075	Intervals not drawn correctly on deviated templates with gaps on
2012.0.0	19211	If interval is split by gap, selecting the gap will select the interval.
2012.0.0	19212	When both deviated and straight template are displayed for the same well, interval lines on straight template are corrupted and disconnected from color fill and display at invalid positions.
2012.0.0	19213	Zero markers can be selected on straight template when not selected for display
	26274	Annotate well points in Main Map View for Z, Strike, dip info
	26277	PMInterop.IOleMessageFilter error when creating a new smartSECTION interpretation and apply filter
	26426	Change User Preference - Application and FrameBuilder info dialogs to mention activating a FrameBuilder license.
	26532	Main Map View - The Ctrl-Shift-W hot keys do not open WB the first time the interpretation is opened.

smartSTRAT

Found in Version	Issue ID	Fixed Issue
2012.0.0	26047	Log Scale L and R curve options are not saving.
5000.0.2.1	17493	Load type log -Need the ability to search for a well ID and/or use WB filters to subset list of available well IDs for a type log.
5000.0.2.1	18596	Only show active segment on Vertical Panel for first tie point segment.
5000.0.2.5	18401	After Refresh all view CSV windows can have invalid ssd open if at least one window has smartSTRAT section.
5000.0.2.5	18480	Add .gsx smartSTRAT file type to PE quick filter
5000.0.2.5	18594	Change increment for smartSTRAT arrow keys to .5 and Page Up/Down to .5
5000.0.2.5	18684	When user scrolls left and right, the vertical position of the curves in the Horizontal Panel do not stay fixed. The curves jump up and down, even when client uses arrow keys to fix a position
5000.0.2.5	18685	Type logs - loaded type log curve is different from type log LWD curve, GUI Curve name does not match loaded curve name.
5000.0.2.5	18706	Two close tie points should invoke a context menu for selection.
5000.0.2.5	18742	TVD Type log is stretched compared to its TVT equivalent
5000.0.2.5	18824	When new smartSTRAT section is open in a window that has smartSTRAT section, panels are not updated.
5000.0.2.5	19095	Change verbiage on the Type Log Options to read "Use first values encountered through maximum TVD".
5000.0.2.5	19107	Second segment cannot be adjusted in the Vertical Panel.
2012.0.0	19003	Create Drilling target tool: Editing drilling target start point with the mouse does not work.
2012.0.0	19027	Update the LOS minimum and the first VS value does not update immediately.
2012.0.0	19183	Load Type Log of FrameBuilder Surface returns Horizon error.
2012.0.0	19203	Cannot delete smartSTRAT model and re-add it with same name: duplicate error.
2012.0.0	26443	Reduce the sensitivity of the Calibration Scale slider and arrow keys.
2012.0.0	26670	Turn on Vertical Panel Scale grid by default.
2012.0.0	26671	Display the Options dialog box when smartSTRAT is activated.

WellBase

Found in Version	Issue ID	Fixed Issue
10.5.0.0	11879	Formation behaves correct throughout software EXCEPT when picking new tops in XSection because the formation was created in XSection with unassigned checked. Sources should not be assigned to unassigned picks.
2012.0.0	18898	Layer Create: New Numeric fields are not available to set Decimal digits of precision in the layer create dialog box.
2012.0.0	18979	"Well Summary" tool does not show data for well properly and the Tree/Well controls do not work.
2012.0.0	18982	When building a WellBase Layer, drag "Attribute Value" from the Zones table into the posting area. The Zone Attribute dialog box does not list the Zone

		name in the Drop-down list. An error message appears if building the layer is attempted.
2012.0.0	19171	Internal status – Assigning any internal status to a well makes the well deviated on a WellBase layer. The wells should be straight.
2012.0.0	25977	Pad Design - The data for a newly created non-rectangular pad are showing in the column header on the Pad/Slot Information dialog box as Latitude/Longitude when it should show Easting and Northing. The Transform Coordinates dialog box (produced by clicking on the Transform coordinates button) is showing Northing and Easting values in the Latitude and Longitude fields.
2012.0.0	26060	Well Pad/Well Slots – When a well slot position is changed by dragging and dropping in GeoAtlas, the new latitude and longitude data will not update on the Pad/Slot Information dialog box in WellBase.
2012.0.0	26263	Quick Filter - Combo Boxes on the Quick Filter dialog box should retrieve values once from the database to improve the performance.
2012.0.0	26294	WellBase crashes when trying to create a Pivot Report using a project with a large number of wells (~10,000).
2012.0.0	26300	When an Excel Pivot Report is saved and closed, then reopened (using a double-click on the saved report), the Engineer's Dashboard menu is disabled.
2012.0.0	26768	Pivot Report – If an Excel Pivot Report is created using a large data set, a "Server Busy" message appears.
5000.0.2.1	18422	Pad design tool – If you manually add an existing well to the Well Pad Slots grid, lat long values do not populate.
5000.0.2.1	18460	Batch well spotting of bottom hole locations will spot straight hole wells.
5000.0.2.5	17928	Quick Filter - Export Filter Results to Excel is exporting duplicate records.
5000.0.2.5	18340	ASCII2-Existing remarks are disappearing on Regular Import with Overwrite All option.
5000.0.2.5	18549	Well Base Bar Toolbox - Production Calculator dialog does not open.
5000.0.2.5	18558	DOW – If a Main project and Interpretation Project have different State Plane zones, the bottom hole locations do not transform properly.
5000.0.2.5	18559	DOW - Cannot recalculate a position log in an Interpretation Project. All offsets and tvd values are set to 0
5000.0.2.5	18613	On the Quick filter dialog box, Operators for the Depth field (=, >=, <=, <>, IN) are selectable for Production when the depth field is grayed out.
5000.0.2.5	18679	The Layer Create process for wells with zone postings is very slow.
5000.0.2.5	18880	When using the Select Region Tool in GeoAtlas to select wells that are subsequently viewed in WellBase, the scroll arrows on the WellBase Information Manager are grayed-out in Scout Ticket view.
5000.0.2.5	18947	DOW - Activate Existing Filter fails with an oracle error for an upgraded DOW project
5000.0.2.5	18978	Import of hyperlinks using the spreadsheet importer will drop the first backslash in the URL path.
5000.0.2.5	19002	Quick Filter Data Present for Production - Specific zone cannot be used in QueryBuilder, pulls data from the wrong table
5000.0.2.5	19083	Layer Update - Layers with ZoneManager postings and with the Hot fix applied update slower than pre 5000.0.2.x versions.
5000.0.2.5	19181	Surveys - Calculation Method is set to Straight Line and produces an error. The default should be Minimum Curvature.

5000.0.2.5	19193	Pivot Excel Report – The Highest n months production Pivot Report is also reading Injection records along with the Production records.
5000.0.2.5	26531	Deviation Surveys will not calculate when BH lat-longs are imported using the Spreadsheet Importer (PS defect 855479)
2012.0.0	18502	WellBase Bar – When attempting to generate an Excel Report the Error messages "The Filter contains no records" or "Add method of AddIns class failed" appear and the report is not generated.
2012.0.0	18769	In Scout Ticket view, Protected Fields "lat/long" can be editable with "Transform Coordinate" buttons.
2012.0.0	18942	Quick Filter - Application crashes when a query is run through Quick Filter with scout ticket fields and using operator "IN".
2012.0.0	19094	DOW: In Scout ticket View, Header tab, the State/Pro, County, Water Depth, Fm at TD and Parent Type fields have changed

WellXchange

Found in Version	Issue ID	Fixed Issue
5000.0.2.0	17690	Transfer fails when using Update Date feature and transferring zones data.
5000.0.2.5	18503	Select a specific source in the tab, no tops transferred, no errors.
5000.0.2.5	18912	Formation picks are not transferred from OW to gxdb if the OW project is not extended with DOW.
5000.0.2.5	18933	Congressional legal locations not transferred from gxdb to OW if OW project not extended with DOW.

XSection

Found in Version	Issue ID	Fixed Issue
10.5.0.0	11853	New Formation Top Dialog - Change default so Unassigned is not checked.
5000.0.1.1	17166	Curves off depth with vector template displaying perfs and depth interval set.
5000.0.2.5	19065	Log templates are shifting uphole in XSection because of perf data posting.

ZoneManager

Found in Version	Issue ID	Fixed Issue
5000.0.2.5	26032	Attribute Names containing dash Pay-TVD, cannot change the decimal place in project attributes
	26056	Attribute names in Prizm, ZoneManager, and smartSECTION should all be able to use a hyphen (-) in the name

Known Issues

Discovery 3D

Defect ID 26654 – When a GeoAtlas layer is displayed in Discovery 3D, then subsequently removed from the 3D Scene, or Discovery 3D is closed the layer cannot be displayed in GeoAtlas. The GeoAtlas Data Provider must be closed from the tray at the lower right of the screen to view the layer in GeoAtlas.

Defect ID 18438 – Discovery 3D dies not pick up changes to the active Strat Column. If the Strat Column is changed in the Strat Column Manager, the changes will not be recognized in Discovery 3D until the Services are shut off.

Defect ID 16292 – DOW – Opening an Interpretation Project produces data provider errors: cannot re-query to clear them.

Defect ID 16475 – Data Selector – Wells page – working remotely – frequently get error message.

DefCon2

Defect ID 27243 – IHS 297 import ignores the GD records, which may be the only detailed perf information for a well.

DepthRegistration

Defect 17759 – DepthRegistration does not straighten the raster log for use in other applications in Discovery 5000.0.2.0

Defect 17016 – DRG files are not migrated into the database if an AOI is activated instead of the main project.

Defect 18740 – File Menu performance – File menu takes a long time to appear in large projects.

Defect 19078 – Crash when exporting GGX DRA, multiple wells using a filter that results in 0 wells.

Installation

Defect 17027 – Error 1923 when GGX Services are configured to log on as a specific account (not Local System).

GeoAtlas

Defect 17777 – GMP files with geoTIF above LYR layer cannot be opened from ProjectExplorer or in the wizard – or the LYR file displays as a solid fill.

Defect 17813 – When displaying online map layers, GeoAtlas sends up a warning message that the layer needs a datum shift even when the source and target datums are equal.

Defect 17474 – LYR of Shaded Relief will not print above a certain scale and does not show up in Print Preview.

Defect 26915 – Tick marks can be drawn on Open Contours for Z-Map Contour Layers.

Defect 27107 – Import ESRI ArcGIS – ArcGIS Server layer connect – GeoAtlas crashes when two layers with different spatial reference systems are selected for import.

Defect 27175 – Autodesk DXF\DWG import - .dwg file is not getting imported at the right location in the project.

Defect 26463 – Prevent user from renaming active map.

Prizm

Defect 17577 – Prizm Log View – Image track curve scale disappears when changing display between feet and meters.

Defect 18143 – Prizm import to computed curve set is not creating the named curve set. It creates import 1.

Defect 18682 – LAS file with too many decimal values in the data does not import properly.

Defect 18593 – DOW – Prizm cannot use DEPT curves in multiwall xplot.

Defect 18963 – DOW – LAS import – Can't add well to project using Curve Data Manager after deleting the same well in WellBase.

Defect 19011 – In a metric project and in TVD mode, switching to depth in feet does nothing.

Defect 19041 – Out of memory error when saving parameters to ZoneManager in large projects.

Defect 19071 – Inverse checkbox in Prizm filter does not work for "Wells with Curve Set".

ProjectManager

Defect 18760 – Icon of GXDB project in network home is changed to DOW project if the database is rebuilt.

SeisVision

Defect ID 27108 – The Save Working Set function in Seismic Line Balance is not working properly. The file is not saved in either DOW or Discovery.

Defect ID 26733 – (DOW) Seismic trace data and interpretation data display incorrectly when Datum values are set for both the Project and the Survey in OpenWorks. Only the fault heaves display at the correct time on seismic sections. Seismic trace and interpretation data can be made to show correctly if the Survey datum is manually entered in SeisVision, however when this is done the fault heaves display in error

Defect ID26690 – (DOW) A fault marked on a 2D seismic section will not display after closing and reopening the SV interpretation, however, the fault segment is saved to the OpenWorks Interpretation Manager.

Defect 26689 – The application will crash when re-opened after it is saved with a new fault pick on 2D seismic lines. This defect is seen in both DOW and Discovery.

Defect 15603 – DOW – Unable to do velocity gridding for 3D Volume only.

Defect 26269 – (DOW) Well Deviations are not being displayed on the Main Map View for Interpretation Projects where the Master project has a Geographic coordinate system and the Interpretation project has a Projected coordinate system.

smartSECTION

Defect 16119 – Zone Attribute Map – Changing the smoothing factor does not update the contours.

Defect 17644 – Fault picking is slow when the Offset tool is on.

Defect 17716 – MissingSectionMap on both unconformities are not generated correctly in a case of a channel unconformity being trimmed by another unconformity.

Defect 17835 – Fault Vertical Section is not correctly calculated for Straight Wells with two Formation Tops separated by a Reverse Fault.

Defect 17830 – Color fill between two surfaces has holes (missing triangles).

Defect 17708 – Unconformity gapping is not working in a project with a channel unconformity networked to a flood plain unconformity.

Defect 18538 – DOW – Unconformity gapping is tied to source hierarchy.

Defect 18642 – When using a .prt with a depth track, the depth value font does not scale with the zoom.

Defect 19158 – XSection and smartSECTION – Negative TVDs in survey, cannot display TVD less than 0 in TVD mode in XSection or smartSECTION. The function works correctly in Prizm.

Defect 26613 – Z values on Gross Zone Attribute Maps are not in sync (different signs).

Defect 26743 – Seismic Backdrop will not work if the seismic data is in a coordinate system other than the project coordinate system.

Defect 26955 – Renaming a zone causes loss of the contour display information (color fill).

Defect 27012 – Depth values in WellBase are loaded with precision 0 in smartSECTION and XSection.

Defect 27032 – Vertical alignment of wells is lost if alignment is unconstrained and Display Preferences are applied twice.

Defect 27059 – Printing vertical scale in smartSECTION – If printout is split on multiple pages the scale is not correct.

Defect 27187 – Seismic Backdrop not correct in smartSECTION when the SV interpretation datum is different than the datum of the seismic.

Defect 17861 - Surfaces near to an unconformity are not drawing correctly with unconformity clip and unconformity gap open.

smartSTRAT

Defect 26275 – With seismic backdrop, the horizontal scroll bar moves without stopping.

Defect 27055 – Saved gsx file needs a refresh before it shows all the saved target lines.

Defect 27251 – LWD curve in smartSTRAT Horizontal panel does not refresh with "Refresh All Views" command after extending survey data.

SeisXchange

Defect 26935 – When a subset of Seismic Data is transferred from SeisWorks to SeisVision, the subsequent display of inlines, crosslines, or arbitrary lines in SeisVision is blank

WellBase

Defect 17754 – Excel Spreadsheet Import – does not work with Office 2010 64 bit application.

Defect 17599 – Well Import is not stopping a bulk load update when there are other connections to the database. Wells should not load if there are other applications attached to the database at the same time as loading.

Defect 19225 – WellBase Bar Excel Report – Report type "Monthly Production" didn't generate on a large data set and returns a message "Server Busy".

Defect 26560 – DOW – User unable to add well if delete once and try to add again with the same Well ID.

Defect 26901 – Duplicate Well Sequence Number value appears if the user imports ASCII4 file having the same Well Sequence Number as one already present in the project.

Defect 26918 – WellBase Bar Document Library – When using "Add Doc" button the attached document is not shown in the WellBase layer under data attributes.

Defect 26836 – Scrolling the Thematic Tab in the Layer Display Attributes dialog box the words in the Value column start to get muffled and can appear blurred.

WellXchangePlus

Defect 17573 – WellXchangePlus is throwing ODBC errors when attempting to connect to a remote project server.

Defect 17758 – ZoneManager data is written to OpenWorks using the wrong interpreters.

Defect 26754 – Performance is slow when transferring log curve data from GXDB to DOW in a large data set.

Defect 27132 – Task schedule wizard is not running from created Batch File in WellXchange.

Defect 27313 – Error while transferring data on a large project.

XSection

Defect 19210 – Edit Cross Section in GeoAtlas locks XSection if a different WellBase layer is selected and then clicked on to add wells.

Defect 26936 – XSection becomes unresponsive after working for a while particularly under heavy concurrent usage (20+ users).

ZoneManager

Defect 18433 – Crossplot – Export Graphics. Windows metafile is poor quality.

Defect 18459 – After saving Curve Set Parameters to ZoneManager, have to close the Save Curve Set Parameters to ZoneManager dialog box to see them.

Third Party Applications

Halliburton and LMKR use various third-party applications in the development of its software.

Halliburton and LMKR acknowledge 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 Discovery Help files. To access the third party applications:

1. In any Discovery application select Help >> Contents.

2. On the Help window contents page locate the Third Party Acknowledgements Help topic as shown below.
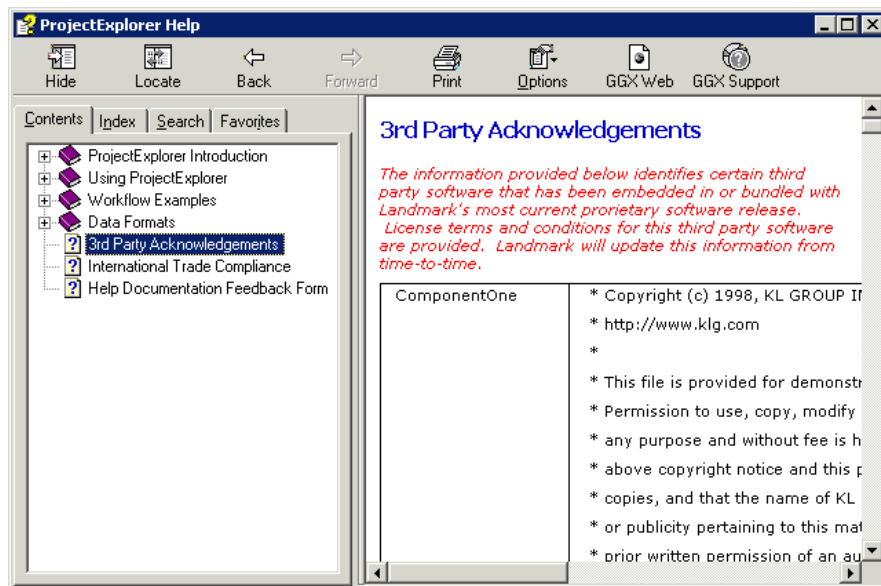
International Trade Compliance

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 ECCN's provided in Release Notes represent Halliburton'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:

FHOUEXP@halliburton.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

CCATS (Commodity Classification Automated Tracking System) - the tracking number assigned by the U.S. Bureau of Industry and Security (BIS) to products formally reviewed and classified by the government. The CCATS provides information concerning export/re-export authorizations, available exceptions, and conditions.

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.
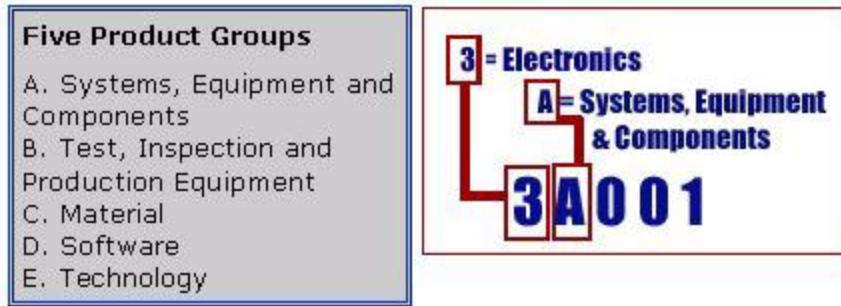
The ECCN Number, License Type, and the CCATS Numbers for this product are included in the table below. Also included is the date the table was last updated.

Product/Component/R5000	ECCN Number	License	CCATS Number	Last Date Updated
Discovery	5D002	ENC	G063964	11/5/2009
Landmark Software Manager (LSM)	5D002	ENC	G058319	2/11/2008
OpenWorks	5D002	ENC	G054746	2/11/2008

Contacting Support

Landmark software operates Technical Assistance Centers (TACs) in Australia, the United Kingdom, and the United States. Additional support is also provided through local support offices around the world.

- [Support Via Web Portal](#)

- [Technical Assistance Centers](#)

- [Regional Offices](#)

Support via Web Portal

Support information is available through the LMKR website, or the Landmark Customer Support internet page. You can also submit a support request directly to GeoGraphix Customer Support though the Landmark Customer Support Portal making sure to select GeoGraphix as the product. This will ensure it is placed into the LMKR/GeoGraphix support queue.

http://css.lgc.com/InfoCenter/index?page=home

To request support in the Landmark Customer Support Portal:

1. In the **PIN** and **Password** text boxes in the Please Sign In area, enter your registered personal identification number and password.

2. Click the **Sign In** button.

3. In the Case & Defect Information area, click the **Create A New Case** link.

4. In the **Create Case** area, fill in the necessary information. Provide details about your technical concern, including any error messages, the workflow steps where the problem occurred, and attachments of screen shots that display the problem. To help understand the concern, you can also attach other files too, such as example data files.

5. Click the **Submit** button. A support analyst in the nearest Technical Assistance Center will respond to your request.

Technical Assistance Centers

Asia, Pacific
8:00 am - 5:00 pm Local Time
Monday-Friday, excluding holidays

61-8-9481-4488 (Perth, Australia)
Toll Free 1-800-448-488
Fax: 61-8-9481-1580
Email: apsupport@lgc.com

Europe, Africa, Middle East
9:00 am - 5:30 pm Local Time
Monday - Friday, excluding holidays

44-1372-868686 (Leatherhead, UK)
Fax: 44-1224-723260 (Aberdeen, UK)
Fax: 44-1372-868601 (Leatherhead, UK)
Email: support@lgc.com

Latin America
(Spanish, Portuguese, English)
7:00 am - 5:00 pm Local Time

713-839-3405 (Houston, TX, USA)
Fax: 713-839-3646
Email: soporte@lgc.com

North America
7:00 am - 5:00 pm Rocky Mountain Time
Monday - Friday, excluding holidays

713-839-2200 (Houston, TX, USA)
Toll Free 1-877-435-7542
(1-877-HELP-LGC)
Fax: 303-996-2186
Email: Solutions@geographix.com

Regional Offices

For contact information for regional offices, see the Contact Support page located at:

http://css.lgc.com/InfoCenter/index?page=contact&section=contact

If problems cannot be resolved at the regional level, an escalation team is called to resolve your incidents quickly.

Helpful Internet Links

Name	Website Address
LMKR home page	http://www.lmkr.com
Landmark Support Portal	http://css.lgc.com/InfoCenter/index?page=home
Landmark Software and Services home page	http://halliburton.com/landmark
SyBase home page	http://www.sybase.com
Microsoft SQL Server home page	http://www.microsoft.com/sqlserver
Oracle home page	http://www.oracle.com