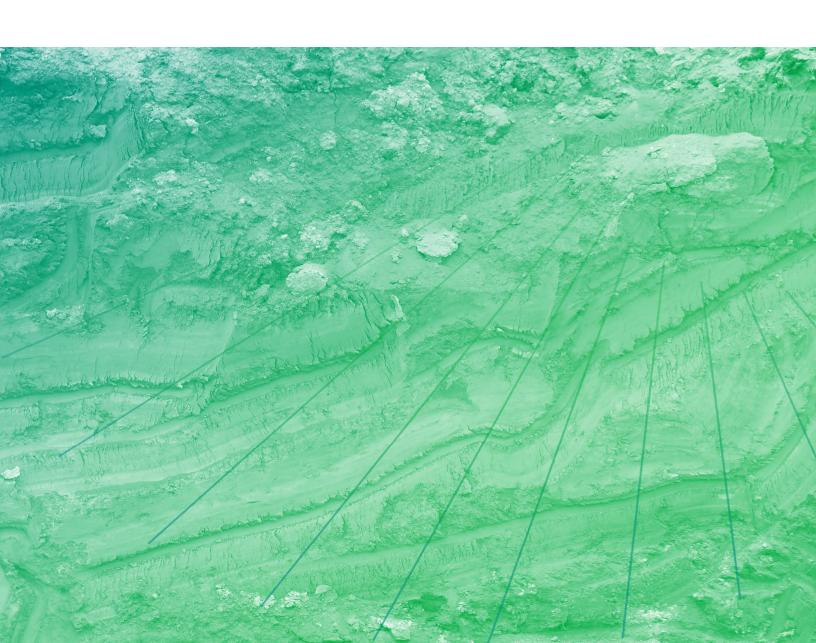


UPSTREAM ENERGY

Petra® 2019

April 2019



Petra ® 2019

April 2, 2019

© 1997-2019, IHS Markit and its affiliated and subsidiary companies, all rights reserved.

Portions of this program were developed using LEADTOOLS 1991-2017 LEAD Technologies, Inc. ALL RIGHTS RESERVED. Portions of this product are licensed under US patent 5,327,254 and foreign counterparts.

This product, including software, data and documentation are licensed to the user for its internal business purposes only and may not be disclosed, disseminated, sold, licensed, copied, reproduced, translated or transferred to any third party.

IHS Markit Global Headquarters 4th floor, Ropemaker Place 25 Ropemaker Street London EC2Y 9LY United Kingdom Phone: +44 20 7260 2000

TRADEMARKS

IHS Markit and the IHS Markit logo are trademarks of IHS Markit. Other trademarks appearing in this publication are the property of IHS Markit or their respective owners.

Table of Contents

| Table of Contents | iii |
|---|-----|
| Overview | |
| Questions | 1 |
| General | 2 |
| Louisiana Production ID Updates – Action Required | 2 |
| Petra Licensing | 2 |
| Backward Compatibility | 2 |
| Software Download Capability | 2 |
| Requirements | 3 |
| Server Recommendations | 3 |
| Terminal Services Implementation | |
| Best Practices | 3 |
| Enhancements | 4 |
| Bug Fixes | 5 |
| Petra 2019 (April, 2019) | 5 |
| | |

Overview

This document briefly describes the planned direction of the release of Petra® 2019. The focus of this release covers the following:

- Enhancements
- Bug fixes
- Known Issues

Questions

If you have any questions or need to obtain your software on physical media, contact one of our Customer Care Centers of Excellence at customercare@ihsmarkit.com or by phone. Phone numbers are listed below:

| Region | Phone |
|-----------------------|-----------------------------------|
| Americas | +1 800 IHS-CARE |
| | +1 800 447-2273 |
| | +1 303 736-3001 |
| Latin & South America | +54 11 4343-8635 |
| | +55 21 2588-8145 (Brazil) |
| | +52 55 3067-0309 (Mexico City) |
| | +55 21 3299-9946 (Rio De Janeiro) |

General

Louisiana Production ID Updates - Action Required

IHS is transforming its legacy Production Data Accumulation system to deliver production data in a more accurate and timely manner. IHS began building this new system in 2008 and went live with Colorado Production Data in July 2009. Since then, we have completed and implemented additional Rocky Mountain States including Arizona, Montana, Nevada, North Dakota, Oregon, South Dakota, Utah, and Wyoming. Since the transition, we are now able to syndicate Rocky Mountain Production data to customers on a weekly, and in some cases, daily basis.

The Louisiana production data released in February, 2016 has significant modifications, offering many new benefits and advantages to customers. IHS strives to be proactive with solutions as a result this data update is not related to any specific Petra release. Please download the document below to learn more about actions you will need to take as a Petra user.

Petra project preparation document – Download.

Petra Licensing

Petra 2019 includes common licensing for Kingdom, Harmony, Petra, and GeoSyn.

A network license requires a dedicated computer for the license server, and the installation of two license managers, one to communicate with the Sentinel EMS (Entitlement Management System), and one to activate and monitor licenses. For more information, see the Licensing section of the Installation Guide, available from the Entitlement Management System (EMS) or the Kingdom release website (login required for both).

Backward Compatibility

Petra updates periodically contain changes and additions to the database tables. If an updated version of Petra is used to access a shared project, older versions of Petra will no longer be able to access that project. All Petra seats within an organization should be updated at the same time. If the organization prefers to test new versions of Petra before general release to all users, testing should be done using dedicated test projects rather than projects that the organization wants to be accessible to older versions of Petra.

Software Download Capability

An electronic download of this new release is available from the IHS Petra Software Download page. From the Petra main menu select Help > Petra Download Web Site. Select the product you want to download and save the update file. After downloading the update, close Petra before installing. For the network version, all users must exit Petra before the update can be installed.

If you do not have an internet connection and need to obtain the Petra update on physical media, contact IHS at petralicensing@ihsmarkit.com.

Requirements

Minimum Hardware

- 64-bit dual-core machine
- 12 GB of physical RAM
- 512 Mb of video RAM with OpenGL acceleration9

| Supported Operating Systems | Install | Support |
|-----------------------------|---------|---------|
| Windows 7 SP1 (64-bit) | Yes | Yes |
| Windows 10 | Yes | Yes |
| Windows 2008 64-bit | Yes | Yes |
| Windows 2012 Server R2 | Yes | Yes |

Server Recommendations

IHS recommends that you store the database files on a network server. See the PETRA – Usage in Large Multiuser Environments document for details. Multiple servers can be deployed in your environment to accommodate large numbers of users

Terminal Services Implementation

IHS has documented remarkable performance improvements in multi-user Petra environments when Petra is deployed on a terminal server (e.g. Microsoft's Remote Desktop) using local disk storage. Under such conditions, network traffic to enable multi-user file sharing of Petra's database files is eliminated, and users achieve unparalleled efficiency and satisfaction.

IHS has fully documented, certified and supports such an implementation. We encourage you to contact IHS Customer Care for more information. We are happy to schedule professionals to come to your office to install, test and certify this Petra environment for you.

Download the Terminal Services Implementation white paper.

Best Practices

If you are storing your projects on your local hard drive, obtain an NTFS formatted drive large enough to store all of your projects. Backing up your data is critical. Remember to also use a backup device (tape drive, USB Disk Drive, DVD writer capable of spanning) in case of an internal drive failure.

Enhancements

| Module | Description |
|--|---|
| Main | Option to Select Wells from Cross-Section 1 or 2 into Main Module Supported Formation Name Column on Perforations Tab Supported Well Name/Number/Label to Production Plot Customized sizing adjustment to Well Tab Remarks window box Interval Data Deletion Core Tab Remarks Column Percentage in Wellbore Save/Load Templates Spreadsheet Quick Text File Export Filtering option for digital log exports Quality and Description added to Zone Export |
| Cross Section | TVD value posted at bottom of Cross-Section Window Intuitive reordering of wellbore position Tops display list and arrow positioning |
| Мар | Multiple overlay polygon line copy/paste functionality Map Scale Bar Modification Map Symbol Hi-light Legend modification Contour Legend Box modification Batch grid and Dynamic WSN update Polygon measurement tool addition |
| Well Selection (Query Tool) Enhancements | Search functionality for query attributes UI enhancements Dynamic Well Lists Search over multiple counties Perf Type |
| Raster Log Calibration Module | Option to hide pay intervals |

Bug Fixes

The following bug fixes have been made since the release of Petra Standard 2018 v3.12

Petra 2019 (April, 2019)

| Module | Description | Case |
|---------------|--|--------------------|
| Main | Zone Maintenance - select color for zone name - now saving | 1526496- 845T46 |
| | Well tab - Editing the field name on the well tab now updates the change date on the datum elevation and TD on the zones tab | 1362340- M97T4P |
| | Zone Highlights now saves after closing and reopening the project | 1526496- 845T46 |
| | Compute From Tests - Find Producing Zones no longer causes Main to shutdown | 1555133- FZNXXM |
| | Select by name for digital logs direct connect now opens search dialog | 1397080- 955PH8 |
| | Import 297 footage calls - wells that don't have footage calls do not get footage calls populated for that well | 1232119- T4WNRT |
| | Downloading direct connect production using a date restriction works correctly | 1220523- 3FTRD6 |
| | Selecting Subset of Wells From Well List using UWI List File - improved for selecting | 1496106- PS2XYC |
| | Perfs tab now correctly shows the bars on the right with many one foot intervals | 1478714- Y270L7 |
| Мар | Volumetric label issue when closing polygon - if shapefile is polyline the volumetrics polygon name is empty now | 1573650- KQC5L2 |
| | ESC key now stops loading data when first opening map module consistently | 472949- FBZXY1 |
| | Measure tool displaying in Deg, Mins, Secs now can convert back to Decimal Degrees | 1505708- 1TLDCL |
| Cross Section | Picking offset top on the TIFF image loaded issue - offset top pick now works with images on | 1556300- 8FGW1K |
| | Image footer plotting beyond bottom of image in certain cases when in TVD mode fixed | 1539564- 2FGQK5 |
| | Clicking show on displaying tops checkbox now works | 1493227- 9JLY2W |
| | Label tops above and below line when using something besides name and source now works correctly | 1250705- 9WRWPH |

| | Plotting of wells and some have the digital logs plotting past the track - fixed no curves plotted out side the track | 1363285- HVS8SK |
|-----------------------|---|--------------------|
| | Horizontal wells landing location now displays well path depth correctly | 1490590- ZRL8H3 |
| Raster Calibration | Digitize non linear scale raster - values at bottom of screen now matching the non linear scale | 1403978- D1YNBJ |