SOFTWARE RELEASE NOTES

Version 2018.1.2

Introducing Petrosys PRO 2018.1 – a major upgrade release from Petrosys PRO 2017. Petrosys will continue to develop Petrosys PRO 2018, releasing new features to clients as minor updates, while retaining the same user interface reducing upgrade costs. By making new features available as soon as they are ready, we hope to maximize client maintenance and services investment.

Petrosys PRO 2018 builds on the map templates released in 2017 and the ongoing initiative to make the software easier to use reducing training overheads. Increased automation helps users focus on interpretation and produces better mapping results with less time invested. On the technical side, volumetrics is now included as standard with the Petrosys PRO bundle and the first phase of new development is now complete.
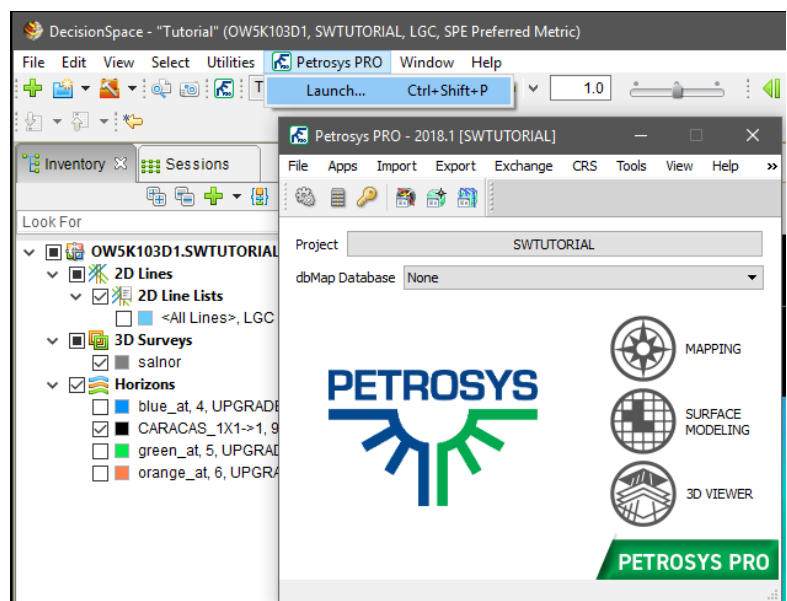
Petrosys Plug-in for DecisionSpace Geosciences

Petrosys PRO 2018.1 includes the first release of the Petrosys PRO plug-in for DecisionSpace Geosciences.

Petrosys PRO can be launched directly from within DecisionSpace Geosciences (DSG) using a menu item or toolbar icon, with support for automatic Petrosys project creation and adding seamless connectivity to user's DSG session data for immediate access with Petrosys PRO. Improving on the ease of use of the "drag-and-drop" functionality that was first introduced in Petrosys PRO 2017.1.

The Petrosys PRO plug-in helps integrate a user's DSG session data with other 3rd party geoscience and GIS data stores, in a presentation quality mapping framework and sub-surface modelling capabilities, without the overhead of importing into OpenWorks.

Additional functionality added in Petrosys PRO 2018.1 includes filtering by native Well and Seismic Line selection lists making it easy to work with the right data.

The plug-in is available for DecisionSpace Geosciences 10ep.2 and above, on Linux and Windows, and will be installed with Petrosys PRO.

Automatic Picking of Lowest Closing Contours

The new Lowest Closing Contour (LCC) option help users quickly and easily identify prospects within their grids. Changing the input parameters allows the user to identify economic prospects and remove smaller, uneconomic closures.
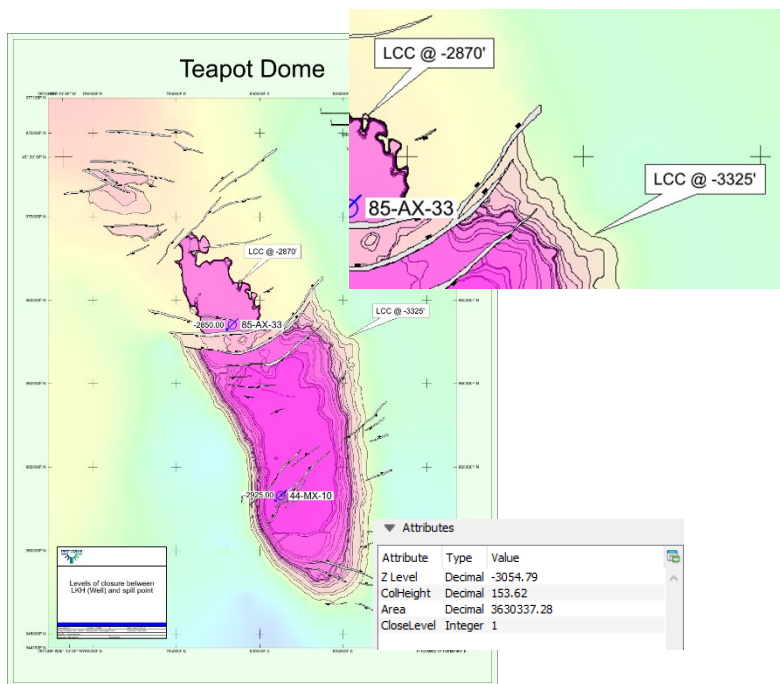
Inputs are:

- Grid (mandatory) – all standard Petrosys sources including direct connections
- Well and point data (optional) – sourced from the WDF, directly connected well data stores, and Excel spreadsheets or text files. Input attributes are Hydrocarbon Contacts, Lowest Known Hydrocarbons and Dry Holes. Multiple data sources can be selected
- Faults can be used when embedded in a grid or from a Petrosys fault file where leaking and sealing faults can be subdivided into separate groups

For economic purposes outputs can be filtered by a minimum area to remove uneconomic closures and remove noise. To create a range of distributions for subsequent modelling, multiple levels of closure can be generated for one structure.

Outputs are written to a shapefile including the polygon and the following attributes:

- Z-value of lowest contour
- Column height
- Area
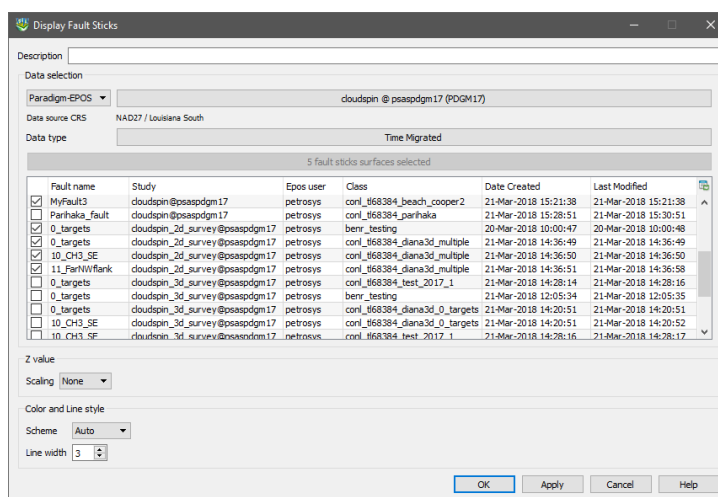- Closure number (if levels of closure are used)

The output can be mapped using the **Display/GIS** option including posting, filtering and thematically mapping by attribute.

Accessing Fault Sticks from Paradigm 2D Seismic Surveys

Paradigm fault sticks and surfaces can now be displayed in 3D Viewer. Paradigm fault sticks are also available as an input and output for Fault Sticks Exchange, and as input to Surface Modeling.

The new Study column shows the Project, 2D or 3D seismic survey the fault stick or surface is associated with.

This new functionality removes the restriction where fault sticks and surfaces could only be read from 3D seismic surveys.

3D Viewer Icon Returns to the Launcher

The popular 3D visualization module has a new icon and returns to the main Petrosys PRO launcher. QC your Petrosys outputs in 3D, drape attribute grids on structures, and combine well and surface data from interpretation systems with point data from GIS or Excel.
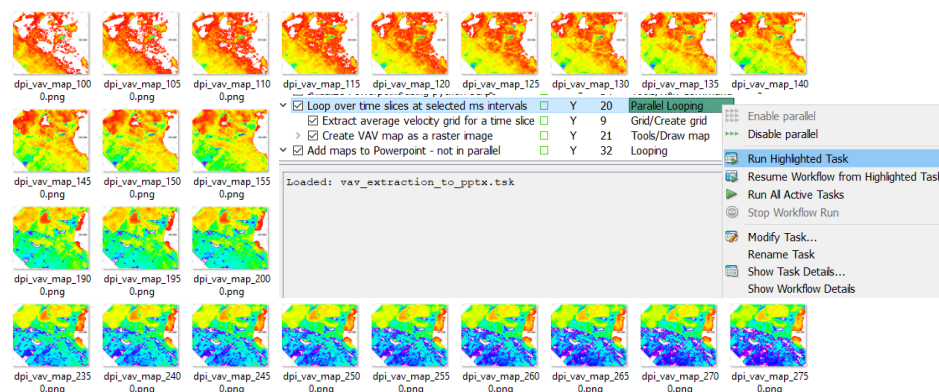
Enable Parallel Processing in Selected Workflow Task Groups

Surface Modeling has added capability for parallel processing of user workflows. Parallel processing enables the use of the multi-tasking facilities of modern CPUs by diverting selected tasks into separate processes that can run at the same time.

In the Surface Modeling task list, clicking the right mouse button when a loop task is highlighted will allow parallel processing for the tasks in that loop to be enabled, provided that Petrosys PRO determines that the operations in the group pass the criteria for safe parallel operation. Actual results will vary with hardware configuration, input data and workflows, but significant gains can be made. For example, on an 8-core laptop the extraction and mapping of a series of 41 time-slices from a SEGY velocity cube ran in 107 seconds with parallel processing, down from a coffee-break inducing 595 seconds without.

Parallel processing is suited to a range of tasks, particularly those that do not have to write to the same output file, or which do not depend on the output of one pass through a loop to be the input to the next one. Examples of existing workflows that may benefit from parallel processing include:

- Mapping of depths or times for a selection of zones from an interpretation project or a well data file
- Creation of grids from families of modelled data files, such as time steps from reservoir simulation or geohistory models
- Import or data exchange of collections of files
- Extraction of velocity slices from SEGY files for depth conversion

Our development team are now working on harnessing parallel processing power to other aspects of Petrosys PRO. Let your local support team know if you there's a processing bottleneck that you think might benefit.
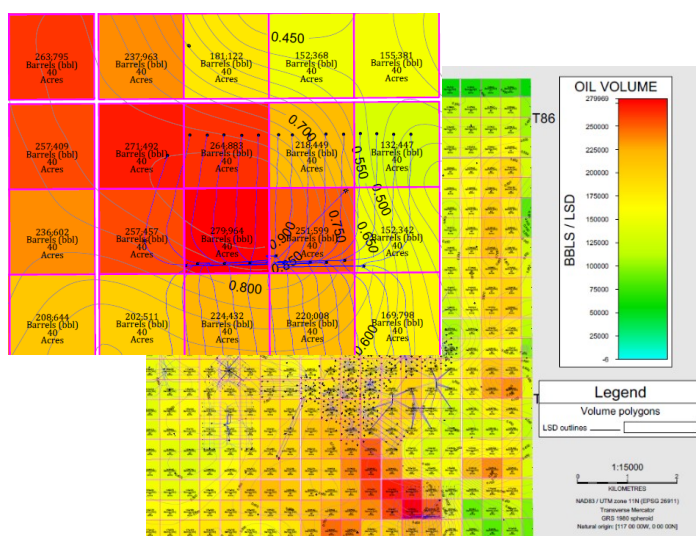
Publish Volumetrics Output to Polygon Shapefiles

Publishing reserves maps that show the spatial distribution of expected hydrocarbons across a region has become increasingly important, both in Petrosys maps and as a component of GIS portals. It is particularly valuable in the planning of the horizontal development of unconventional plays.

To make it easier to map the spatial distribution of reserves and to get Petrosys PRO volumetrics data into the GIS world, Petrosys PRO volumetrics output can now be automatically added into shapefiles representing the polygons into which the volumetrics had been split.

The option is available by specifying polygon and centroid shapefile names in the 'Reports' tab of the volumetrics task.

The shapefiles can then be displayed with annotation and thematic coloring in the Display/GIS option, or be passed on to other applications. Attributes include labels for fluid type and area and volume units, so that a comprehensive range of annotations is possible.

Petrosys PRO packaging means that all Petrosys users can now access the volumetrics tool. In conjunction with the shapefile volumetrics output, reserves mapping workflows can be significantly faster allowing more up to date information to be used with much less map generation effort.

Spatial Data from Web Feature Services and ArcGIS Server

Web Feature Service (WFS) allow access to spatial data over the internet, which keeps data current and reduces data duplication and version errors.

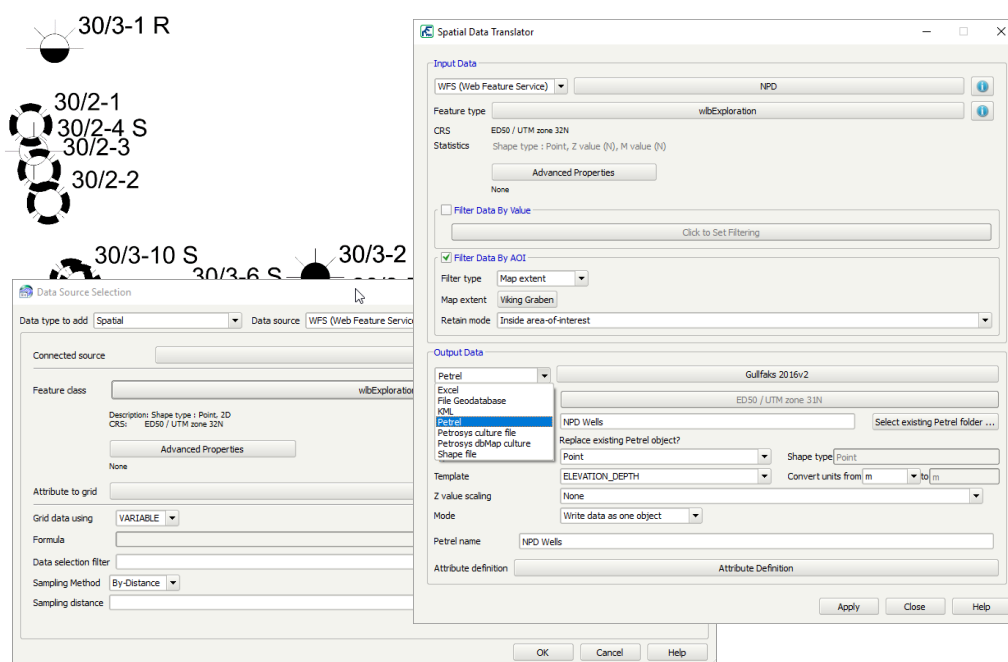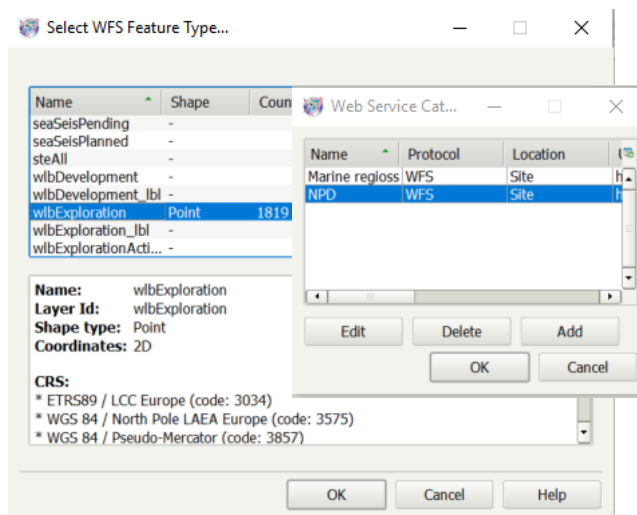Petrosys PRO supports access to spatial data from the following web services:

- OGC Web Feature Services (WFS)
- ArcGIS (MapServer and FeatureServer enabled services)

Spatial data from web services can be utilized in Petrosys PRO in the following contexts:

- Mapping – Display/GIS
- 3D Viewer – Display/Point Data
- Surface Modeling - Grid/Create Grid
- Exchange - Spatial Data Translator

Popular WFS/ArcGIS Server sources can be stored in a Catalog at site, project or user level.

Data displayed is available in the legend builder.

Automatic Project Creation from Petrel and DecisionSpace Geosciences

Project creation is much easier when launching Petrosys PRO from within Petrel and DecisionSpace Geosciences (DSG). This helps new users get started with Petrosys PRO applications immediately and shortens project start up for all plug-in users.

One click can take users from selecting the Petrosys PRO icon to the main launcher with a new Petrosys project, matching the Petrel/DSG project name and CRS, created silently in the background.

The first time Petrosys PRO is started from a plug-in, the user can choose to create a new Petrosys project with default settings from the 3rd-party source project or select an existing Petrosys project.

Automatic project creation behavior and default project location can be changed from Configuration and Settings to suit your needs.

Domain Units Automatically Set for 3rd Party Grids and Surfaces

Grids and surfaces from 3rd party data sources now automatically set the units for contour label and color bar display. As the Z-value domain of the map is now clear and no manual intervention is required, map production is both more accurate and faster.
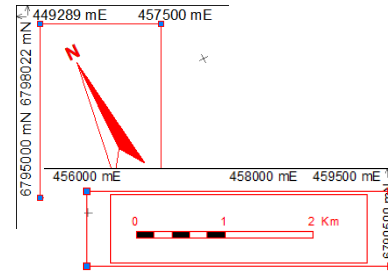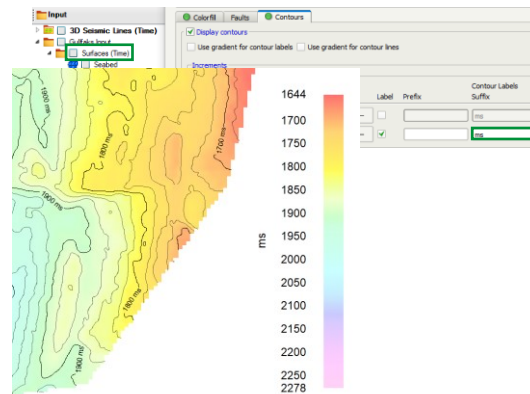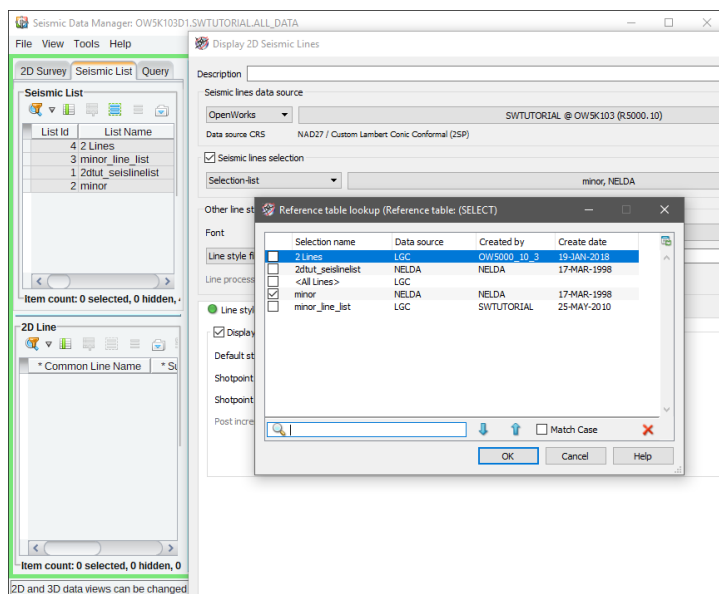
Better Map Element Positioning

The layout of north arrows and scale bars has been substantially improved, allowing richer map templates to be created and used across a broader range of maps, particularly maps that are rotated or have non-vertical meridians. By reducing white space surrounding both north arrows and scale bars, and with improved control over scale bar text, elegant maps are created directly from the template, with no or little need for adjustment by the user.

Filter by OpenWorks Seismic Line Selection Lists

Support has been added to select one or more Well or Seismic Line selection lists from OpenWorks to filter the use of Well and Seismic Lines data. The new Selection-list option is available when Data selection is used to filter OpenWorks Wells and Seismic Lines in Petrosys PRO

Notes for Upgraders

Upgraders from Petrosys PRO 2017 should be aware of the following changes:

- Petrosys PRO 2018 requires a new license file. Please obtain your license file by logging on to the Petrosys Client Portal or contacting Petrosys support.
- Petrosys PRO 2018 is backward compatible with Petrosys PRO 2017 except for:
    - Surface Modeling grid import from GeoFrame, OpenWorks, Petrel and Paradigm now use the Grid Exchange framework. Task files created, or modified using Petrosys PRO 2018 will not be usable in Petrosys PRO 2017 and earlier.
    - Identification of Petrel seismic surfaces and grids and OpenWorks grids has been changed to use unique identifiers. This may cause layers and tasks using these data sources to not be found if a Petrosys PRO 2018 map or task file is used by earlier versions of Petrosys PRO.

No environment, third-party data source or operating system updates are required for Petrosys PRO 2018. For a full list of supported environments, please see the Petrosys PRO supported environments page.

Detailed Release Notes Summary PRO 2018.1.2

Enhancements

Application - Launcher

71285   Project Selector - Caching of project metadata is saved more frequently

Configuration - General

71195   Additional configuration options added for automatic project creation

Connections, Import and Export - GeoFrame

71118   GeoFrame connection can now use the DevKit to get a list of projects

69537   GeoFrame connection can now uses Dispatch Server to honour security on Windows

Connections, Import and Export - OpenWorks

71290   DSG Plugin: Removed warning dialog about Petrosys still running when closing DSG application

Connections, Import and Export - Petrel

70560   Added initial CRS check when launching from Petrel

Detailed Release Notes Summary PRO 2018.1.2

Bug Fixes

Application - Printing and Publication

71304   Plotter Configuration Linux - List of system print queues now shows all system queues

Connections, Import and Export - OpenWorks

71289   DSG Plugin: Petrosys no longer tries to create panels.pnd in the DSG install directory

Connections, Import and Export - Petrel

71181   Fixed custom Petrel well symbol library configuration option

71399   Drawing Petrel well symbols now correctly uses the UNDEFINED symbol when failing to find the named symbol in the active Well Symbol group

Petrosys Release PRO 2018.1.2
Detailed Release Notes

Application - Launcher   Enhancements

Project Selector - Caching of project metadata is saved more frequently
71285

The Project Selector will now write out the cached list of projects and metadata even if the background process of metadata extraction and existence checking was not completed. This helps when there are projects that are on very slow or non-responding servers, the existing scanned project metadata is saved for the next invocation allowing the list of existing projects to be shown much more quickly.

In addition the time taken to scan for the existence of the project and its metadata is now able to be shown in the the list as extra columns. Use the right mouse button on the list and select /View/ and one of:

➢ Location Resolve Time (ms) : The time taken in milliseconds to check if the project exists and do any path substitution if relevant
➢ Metadata Read Time (ms) : The time take in milliseconds to read the project metadata (from the project_metadata.xml file in the project).
➢ Crs Read Tiime (ms) : The time taken in milliseconds to resolve the full CRS of the project from the CRS database.
➢ Total Read Time (ms): The sum of all of the above times.

Application - Printing and Publication   Bug Fixes

Plotter Configuration Linux - List of system print queues now shows all system queues
71304

On Linux, when adding a printer using the Configuration tool, the full list of system printer queues are shown in the selection list. Previously the first queue would be missing.

Configuration - General   Enhancements

Additional configuration options added for automatic project creation
71195

When automatic project creation is disabled, there are now two additional options available which can be used to control additional behaviors.

Remember last project for each context

When disabled, Petrosys PRO no longer maintains a separate recent projects list when launching stand-alone and for launching from Petrel or DSG.

Scan for matching projects

When starting Petrosys PRO for the first time from a given Petrel or DSG project, this option can be used to disable the initial scan for a matching projects.

Note: If either of these options are disabled, automatic project creation is also disabled.

Connections, Import and Export - GeoFrameEnhancements

GeoFrame connection can now use the DevKit to get a list of projects
71118

GeoFrame connections can now be configured to get a list of projects for a user using the GeoFrame development kit. This functionality is needed to support GeoFrame 2012 HF70. This feature is disabled by default, but can be enabled by setting the value of the CONNECT_USING_DEV_KIT tag in the geoframe_util.sqc file to Y.

GeoFrame connection can now uses Dispatch Server to honour security on Windows
69537

GeoFrame connections can now be configured to connect a user using the GeoFrame development kit through the use of the Dispatch Server on Windows. This approach will be more secure, as connecting to GeoFrame via the development kit allows the user to specify a password for the project that is different to the project name (the default at many GeoFrame sites). This functionality is disabled by default, but can be turned on by changing the value of the CONNECT_USING_DEV_KIT tag in geoframe_util.sqc to Y.

Connections, Import and Export - OpenWorksEnhancements

DSG Plugin: Removed warning dialog about Petrosys still running when closing DSG application
71290

A warning message that the Petrosys PRO application is still running when closing a DSG session or the application has now been removed.

Connections, Import and Export - OpenWorksBug Fixes

DSG Plugin: Petrosys no longer tries to create panels.pnd in the DSG install directory
71289

A bug has been fixed, which when launching Petrosys from DSG the application was attempting to create panels.pnd in the DSG application installation directory.

Connections, Import and Export - Petrel Enhancements

Added initial CRS check when launching from Petrel 70560

When launching Petrosys PRO from Petrel, an initial check is done of the Petrel CRS. Petrosys will no longer launch without a valid projected CRS set in the Petrel project.

Connections, Import and Export - Petrel   Bug Fixes

Fixed custom Petrel well symbol library configuration option 71181

When using a custom well symbol library not provided with Petrel, Petrosys PRO requires this library name to be set in Configuration/Advanced/Third Party/Petrel. This option is now working correctly and when set, Petrosys will use symbols from the custom library.

Drawing Petrel well symbols now correctly uses the UNDEFINED symbol when failing to find the named symbol in the active Well Symbol group

71399

A bug has been fixed which caused some Petrel wells to not display a Well Symbol on the map in Mapping or 3D Viewer. This was caused when the name of the symbol was not found in the active Well Symbol group and did not correctly fallback to use the UNDEFINED symbol from the Well Symbol library.

Detailed Release Notes Summary PRO 2018.1.1
Enhancements

Configuration - Licensing
70922   Install now includes latest version of Flexera License Manager lmgrd and lmtools (11.15.1.0)

Connections, Import and Export
17395   Added support for Trango v5 and above

Connections, Import and Export - OpenWorks
71089   Added support for importing Landmark CLX color bar file to gradient file

Mapping - General
63629   WMS layer selector shows hierarchical layer names

Surface Modeling - Exchange
70044   Wells Exchange - Allow user control over case sensitivity of Well matching rules

Surface Modeling - Workflows/Scripting
71079   Filter field enabled for scripting of data points gridding data source

Detailed Release Notes Summary PRO 2018.1.1
Bug Fixes

Application - Launcher

71067   Project selector dialog stays on top of Launcher window

Connections, Import and Export - DUG Insight

70834   Fixed accessing DUG wells and 3D surface with particular data

Connections, Import and Export - OpenWorks

71046   Improved obtaining Oracle SID from OpenWorks District when dropping objects from DecisionSpace

Mapping - Editors

67353   Spatial editor supports editing vertices of polygon holes

Mapping - General

64999   Accessing invalid gradients no longer causes a crash
71098   Titleblock searching will now search older linux_rhel directories in local directory
70767   Mapping no longer crashes when changing page size with the map template layers not visible

Mapping - GIS, Spatial and Culture

53522   Display GIS - Excel no longer shows error after using filter on feature class list

Mapping - Map Sheets

71101   Fixed crash when loading a legacy map sheet with restricted project file permissions

Mapping - Wells

70892   Display Wells crash when using database source and formation top posting is None with Fixed-Value Symbol type fixed

Surface Modeling - General

70917   Surface Modeling/Tools/Draw Map can be run multiple times without error

Petrosys Release PRO 2018.1.1
Detailed Release Notes

Application - Launcher   Bug Fixes

Project selector dialog stays on top of Launcher window   71067

In Petrosys PRO 2018.1 a bug was introduced which would allow the Project Selector dialog to go under the Launcher dialog. This has now been fixed so the Project Selector always stays on top of the Launcher window.

Configuration - Licensing   Enhancements

Install now includes latest version of Flexera License Manager lmgrd and lmtools (11.15.1.0)   70922

The latest version of the Flexera executables lmgrd, lmtools and lmutil are now included in the installer. These are version 11.15.1.0. The previous versions were 11.11.

There is no need to upgrade your Flexera server if it is already at version 11.11 or newer. Only use these newer versions if you are having issues with the license server starting.

Note that the version of Petrosys vendor daemon (PETROSYS) remains at version 11.11.

Connections, Import and Export   Enhancements

Added support for Trango v5 and above   17395

Support has been added to enable reading of 2D seismic data from the latest version of the Trango database.

Connections, Import and Export - DUG InsightBug Fixes

Fixed accessing DUG wells and 3D surface with particular data 70834

In previous versions, some wells data could not be read successfully from DUG project if the well data has been imported from a Petrel project. This has now been fixed.

Additionally, some 3D seismic surfaces read from DUG project used to be displayed as sparse data and therefore could not be displayed in 3D Viewer. This has now been fixed as well.

Connections, Import and Export - OpenWorksEnhancements

Added support for importing Landmark CLX color bar file to gradient file
71089

Landmark CLX (XML format) color bar file can now be imported to Petrosys gradient. Both discrete and interpolated modes are supported.

Connections, Import and Export - OpenWorks Bug Fixes

Improved obtaining Oracle SID from OpenWorks District when dropping objects from DecisionSpace 71046

Case-insensitive checking now occurs when attempting to obtain the Oracle SID for the OpenWorks District when using the Drag-n-Drop feature from DecisionSpace into Petrosys PRO.

Mapping - Editors   Bug Fixes

Spatial editor supports editing vertices of polygon holes 67353

Previously attempting to edit a polygon hole in vertex mode in the spatial editor, for example adding, deleting or moving a vertex, would cause a crash.

Mapping - General   Enhancements

WMS layer selector shows hierarchical layer names 63629

The Mapping/Display/Web Map Service option shows a full hierarchical name when selecting WMS layers. In previous versions, only the layer name was shown, which could be ambiguous for WMS services with duplicate layer names in different parts of the layer hierarchy.

Mapping - General   Bug Fixes

Accessing invalid gradients no longer causes a crash 64999

In previous versions, attempting to select or use an invalid gradient would often cause Petrosys PRO to crash.

Titleblock searching will now search older linux_rhel directories in local directory 71098

On Linux only, custom site specific titleblocks that installed in the local directory in older operating system specific directories will now be found. e.g Titleblock files in the directory local/linux_rhel5_64 will now be found if there is no local/linux_rhel6_64 directory.

Mapping no longer crashes when changing page size with the map template layers not visible 70767

In previous versions, making changes to the map page size with all map template layers hidden could sometimes cause a crash.

Mapping - GIS, Spatial and Culture   Bug Fixes

Display GIS - Excel no longer shows error after using filter on feature class list 53522

Display/GIS now works after filtering the list of feature classes. In previous versions, it may show Error [MX:32] and Error [spatial:55] for Excel after filtering the feature class list.

Mapping - Map Sheets   Bug Fixes

Fixed crash when loading a legacy map sheet with restricted project file permissions
₇₁₁₀₁

When loading a legacy map sheet, mapping would crash if it couldn't write to the active user's panels.pnd file. This has now been fixed.

Mapping - Wells   Bug Fixes

Display Wells crash when using database source and formation top posting is None with Fixed-Value Symbol type fixed ₇₀₈₉₂

A crash has been fixed in /Display/Wells when a certain combination of parameters is used. The combination was using non-WDF data, "Formation tops" tab enabled.., "Standard Annotation" set to None, and "Symbol type" set to "Fixed-Value" or "Formation-symbol".

Surface Modeling - Exchange   Enhancements

Wells Exchange - Allow user control over case sensitivity of Well matching rules
₇₀₀₄₄

Wells Exchange now allows the user to control the case sensitivity of Well Matching rules (where available) for more flexibility with matching wells between input and output data sources.

Surface Modeling - General   Bug Fixes

Surface Modeling/Tools/Draw Map can be run multiple times without error
₇₀₉₁₇

In Petrosys PRO 2018.1, running the Surface Modeling/Tools/Draw Map multiple times when drawing a map containing a north arrow would result in multiple incorrect errors being displayed.

Surface Modeling - Workflows/Scripting   Enhancements

Filter field enabled for scripting of data points gridding data source₇₁₀₇₉

Gridding data points data sources have Filter field enabled for scripting.

Detailed Release Notes Summary PRO 2018.1
Enhancements

Application - General

67845   Installers updated to remove previous versions when upgrading by default
69535   Added configuration option to control caching of CGM based Well Symbols
69438   Help/About now indicates the name of the client-specific installation
69964   Windows Installer UAC prompt now shows Petrosys PRO

Application - Launcher

68951   3D Viewer added as primary button
69437   Launcher now indicate whether the selected project has a local Connections XML file
68747   Launcher thumbnail image starts application used to capture thumbnail
69003   Removed clickable white space from around thumbnail image

Configuration - Licensing

69992   Petrosys PRO 2018.1 - New license file required

Connections, Import and Export - DUG Insight

69193   Read Well Number for Wells from DUG Insight database

Connections, Import and Export - GeoFrame

70366   GeoFrame grid import menu to use Grid Exchange

Connections, Import and Export - OpenWorks

67265   Petrosys PRO plug-in for DecisionSpace Geosciences 10ep
16664   Support added for filtering by native Well selection lists for OpenWorks and GeoFrame
69848   Dragging horizon now prompts for the 3D survey to display if required
70309   OpenWorks grid import menu to use Grid Exchange
67406   Gridding of OpenWorks Point Set data now uses the Connection Manager
64519   OpenWorks 3D surveys are now identified by Id rather than by name
64520   OpenWorks grids are now identified by Id rather than by name attributes
64548   Support added for filtering by native Seismic Line selection lists for OpenWorks

Connections, Import and Export - Paradigm-Epos

68384   Support added for reading and writing Fault sticks from Paradigm 2D seismic surveys
70365   Paradigm grid import menu to use Grid Exchange

Connections, Import and Export - Petrel

21036   Petrel grid import now uses Grid Exchange
63650   Automatic Petrosys Project Creation from Petrel

Mapping - General

69495   Display/Picture/Raster coordinate type is set automatically for selected images
68977   Landgrid based map extents support interactive panning and zooming
63279   Improved error message when using Display/Web Service Image for services requiring a password
70171   Display/Web Service Map allows ArcGIS URLs to be specified for the WMS protocol
69867   Improvements to scale bars

Mapping - GIS, Spatial and Culture

17867   Added support for display, import and gridding of OGC Web Feature Service and ArcGIS vector data
69249   BubbleMaps - More information displayed on filtering error

Mapping - Grids, Surfaces and Sampled Data Files

66499   Contour on the fly labels contours and color bar with correct units

Mapping - Wells

17334   Additional well annotation options including annotating well path and multiple locations

68663   Formation administration menu option redirected to use web screen (PPDM38 only)

Project Management - Administration

66497   Automatic Petrosys Project Creation from Petrel and DecisionSpace Geosciences

Spatial Data Translator

69895   Spatial data translator reports the total elapsed time

Surface Modeling - Contouring

69076   Performance of contouring on-the-fly improved

Surface Modeling - General

69132   Automatic selection of Lowest Closing Contours
68352   Support for reading old Solaris binary grid files directly on Linux and Windows

Surface Modeling - Volumetrics

53335   Publish volumetrics output to polygon shapefiles

Surface Modeling - Workflows/Scripting

67009   Enable parallel processing in selected workflow task groups

Wells (WDF) Editor

69859   Editing WDF computed attributes now gives more informative error messages

Detailed Release Notes Summary PRO 2018.1
Bug Fixes

3D Viewer - General

70181	Displayed grids have smooth edges when clipped outside
68774	Removed invalid drag and drop indicators (blue arrow buttons) from 3D Viewer
68784	Z-Value Attribute can be selected when opening the Display/Point data panel for the first time

Connections, Import and Export - OpenWorks

37976	Allow connection to an OpenWorks project containing 3D surveys with an invalid or unmapped CRS
70556	Grid Exchange: Updating existing OpenWorks grids now maintains the original Grid Id
70644	No longer get a connection error when dragging horizons for 2D seismic lines from DSG into Mapping

Connections, Import and Export - Petrel

68930	Petrel grids and seismic surfaces are now identified by GUID rather than by name attributes
70648	Fixed a bug which caused the drag-n-drop of 3D seismic surfaces from Petrel to not work

Coordinate Reference Systems

65199	Incorrect CRS error message on startup is no longer shown

dbMap/Web - Client

49381	dbMap Well subsea depths are now computed correctly for Chevron-Perth

Mapping - General

69866	Improvements to display of rotated north arrows
66348	Color Bar no longer displays "negative zero"

Mapping - GIS, Spatial and Culture

69321	Intermittent crash displaying GIS data in Mapping has been fixed

Mapping - Grids, Surfaces and Sampled Data Files

68983	Gradient Editor apply button redraws colorfill grids with changes to the gradient

Mapping - Wells

70688	Fixed formation top annotations not always honouring opaque property
67149	TH/BH well symbols displayed for vertical wells in mapping now follow rules

Project Management - Project Selector

70536	User group lock-down honoured when automatically selecting last project

Surface Modeling - Contouring

70243	Contour by cell works correctly for 3rd-party grids

Surface Modeling - General

70426	Grid Process Arithmetic task shows grid file paths with correct file separator

Wells (WDF) Editor

67431	WDF Computed attribute formula IF statement now works if there is space between IF and bracket

Petrosys Release PRO 2018.1
Detailed Release Notes

3D Viewer - General   Bug Fixes

Displayed grids have smooth edges when clipped outside[70181]

Displayed grids have smooth edges when grid data clipped outside. Previously, the grid edge could appear with jagged edges.

Removed invalid drag and drop indicators (blue arrow buttons) from 3D Viewer   [68774]

Some drag and drop indicators were being shown in 3D Viewer even though drag and drop was not accepted in these locations. These buttons have now been removed.

Z-Value Attribute can be selected when opening the Display/Point data panel for the first time   [68784]

The Z-Value Attribute is accessible and can be selected in the Display/Point data panel when opened for the first time.

Application - General   Enhancements

Installers updated to remove previous versions when upgrading by default
[67845]

When installing, earlier versions of the same major (i.e. year-based) version will be detected and, by default, removed. To retain, please read the installer prompts and change the default value as appropriate.

This change has been made to make it easier to manage the versions of Petrosys PRO installed on a system.

Added configuration option to control caching of CGM based Well Symbols
[69535]

An advanced configuration option has been added (Advanced/Application Internals/Enable caching of CGM symbols) to control if CGM Well Symbols read from disk are to be cached in memory by the application (default: true). Enabling this option help to increase the performance of display options that heavily rely on the use file base CGM Well Symbols, like Display/Wells and Display/GIS.

Help/About now indicates the name of the client-specific installation
[69438]

Some clients of Petrosys have customisations over the behaviour of Petrosys PRO. This information can now be view in the Help/About dialog.

Windows Installer UAC prompt now shows Petrosys PRO   [69964]

The Petrosys PRO Windows Installer is now signed with a description, so the installer will show a name similar to "Petrosys PRO 2018.1 Installer" in the elevation prompt rather than a name randomly generated by Windows. This makes it clearer that it is the Petrosys PRO installer requesting elevation.

Application - Launcher   Enhancements

3D Viewer added as primary button   68951

The 3D Viewer application has been added as a primary button on the Petrosys PRO Launcher, making it easier to start.

Launcher now indicate whether the selected project has a local Connections XML file   69437

The Launcher dialog now displays extra information about the selected project in the status bar at the bottom of the dialog. The status bar can now include information about the type of client installation of the software and/or if the selected project is using a local connections XML file, rather than a centralised file located in the Local directory.

Launcher thumbnail image starts application used to capture thumbnail   68747

The application that is started via the Launcher thumbnail image is now set to the application that captured the image - either 3D Viewer or Mapping. This is set on a per-project basis and will override default and site settings, but not the user specified setting.

The application to start can be modified in the Configuration and Settings tool.

Removed clickable white space from around thumbnail image   69003

White space that could have surrounded the thumbnail image has been removed. Previously, depending on the aspect ratio of the thumbnail image, there may have been white space surrounding the thumbnail image which responded to user click, which would then unexpectedly open the application configured to start on thumbnail clicks.

Configuration - Licensing   Enhancements

Petrosys PRO 2018.1 - New license file required   69992

Petrosys PRO 2018.1 will require a new license file to be installed. Please contact your system administrator or Petrosys support if you receive an error message referring to a license key being too old.

Connections, Import and Export - DUG InsightEnhancements

Read Well Number for Wells from DUG Insight database   69193

Now the well number read by Petrosys PRO from a DUG Insight project is consistent with the well number in the DUG Insight project.

Connections, Import and Export - GeoFrameEnhancements

GeoFrame grid import menu to use Grid Exchange 70366

The importing of a single GeoFrame grid to Petrosys Grid file menu option (Surface Modeling/File/Import/GeoFrame/Grid (GeoFrame)...) now redirects to use the Grid Exchange framework.

Connections, Import and Export - OpenWorksEnhancements

Petrosys PRO plug-in for DecisionSpace Geosciences 10ep   67265

Petrosys PRO 2018.1 includes the first release of the Petrosys PRO plug-in for DecisionSpace Geosciences 10ep.

Petrosys PRO can now be launched directly from within the DecisionSpace Geosciences 10ep (DSG) application, using either a menu item or toolbar icon. This plugin includes support for automatic Petrosys project creation and adding seamless connectivity to user's DSG session data for immediate access with Petrosys PRO. This release improves on the ease of use of the "drag-and-drop" functionality that was first introduced for DSG in Petrosys PRO 2017.1.

Additional functionality added also includes filtering by OpenWorks native Well and Seismic Line selection lists making it easier to access relevant project data.

The plug-in is available for DecisionSpace Geosciences 10ep.2 and above, on Linux and Windows, and will be added to the DSG list of plug-ins as part of installing Petrosys PRO.

See *Project Management - Administration* for details on automatic project creation.

Support added for filtering by native Well selection lists for OpenWorks and GeoFrame 16664

Support has been added to select one or more well lists from OpenWorks and GeoFrame to filter wells. The new Selection-list option is now available when Data selection is used to filter wells in Mapping, Wells Import Wizard, Surface Modelling and 3D Viewer.

Dragging horizon now prompts for the 3D survey to display if required 69848

If you drag one or more horizons from DecisionSpace Geosciences into Petrosys, it now prompts you to select which 3D seismic survey you would like to display the horizon data for. Previously it would just display horizon data for the first 3D survey found.

OpenWorks grid import menu to use Grid Exchange 70309

The importing of a single OpenWorks grid to Petrosys Grid file menu option (Surface Modeling/File/Import/Landmark/OpenWorks/Grid...) now redirects to use the Grid Exchange framework.

Gridding of OpenWorks Point Set data now uses the Connection Manager 67406

The gridding input data dialog for OpenWorks Point Sets has been upgraded to use the Connection Manager.

OpenWorks 3D surveys are now identified by Id rather than by name 64519

The reading of OpenWorks 3D Seismic Surveys has been modified to identify objects by their Id rather than the name of the survey. This will allow for the use of the correct survey during gridding, display or through the use of the drag-n-drop functionality in Petrosys PRO.

OpenWorks grids are now identified by Id rather than by name attributes 64520

The reading of OpenWorks grids has been modified to identify objects by their Id rather than a set of string based attributes, like the name of the grid. This will allow for the use of the correct grid during gridding, display or through the use of the drag-n-drop functionality in the Petrosys applications.

Note: This change is not backward compatible with older versions of Petrosys.

Support added for filtering by native Seismic Line selection lists for OpenWorks 64548

Support has been added to select one or more seismic line lists from OpenWorks to filter seismic lines. The new Selection-list option is now available when Data selection is used to filter seismic lines in Mapping and Surface Modeling.

Connections, Import and Export - OpenWorksBug Fixes

Allow connection to an OpenWorks project containing 3D surveys with an invalid or unmapped CRS
<small>37976</small>

Previously, it would be impossible to add a connection to an OpenWorks project with one or more 3D Surveys which Petrosys failed to recognise or map the CRS of, without having to modify the survey in the OpenWorks projects first. The Connection Manager now allows such OpenWorks projects to be added and used, but any survey which does not have a CRS that Petrosys PRO can recognise will be skipped over for any Seismic 3D functionality. If the survey is modified in OpenWorks or a user modifies the CRS information Petrosys PRO uses, the survey will then become available in the software.

Grid Exchange: Updating existing OpenWorks grids now maintains the original Grid Id
<small>70556</small>

Previously, when writing to an existing OpenWorks grid using the Grid Exchange tool, the grid would get deleted and recreated in OpenWorks, losing the Grid Id of the original grid. This now no longer happens, rather when writing to an existing OpenWorks grid, the grid is updated with the new information, maintaining the Grid Id.

No longer get a connection error when dragging horizons for 2D seismic lines from DSG into Mapping
<small>70644</small>

When you drag and drop a horizon for 2D seismic lines from DecisionSpace into Petrosys PRO Mapping it no longer shows a connection error (dbgen:150).

Connections, Import and Export - Paradigm-EposEnhancements

Support added for reading and writing Fault sticks from Paradigm 2D seismic surveys
<small>68384</small>

It is now possible to use fault sticks and surfaces from Paradigm 2D seismic surveys for all options supported, e.g. Exchange/Fault sticks, Surface Modeling, 3D Viewer.

Previously you had to select a 3D seismic survey, which meant fault sticks and surfaces were restricted to being read from 3D seismic surveys only.

Paradigm grid import menu to use Grid Exchange <small>70365</small>

The importing of a single Paradigm grid to Petrosys Grid file menu option (Surface Modeling/File/Import/Paradigm/Grid...) now redirects to use the Grid Exchange framework.

Connections, Import and Export - Petrel Enhancements

Petrel grid import now uses Grid Exchange <small>21036</small>

The importing of a single Petrel grid to Petrosys Grid file menu option (Surface Modeling/File/Import/Petrel/Grid...) now redirects to use the Grid Exchange framework.

Automatic Petrosys Project Creation from Petrel <small>63650</small>

Automatic project creation is now supported when launching Petrosys PRO from Petrel.

See *Project Management - Administration* for details.

Petrel grids and seismic surfaces are now identified by GUID rather than by name attributes   68930

The reading of Petrel grids and seismic surfaces have been modified to identify objects by their GUID rather than a set of string based attributes, like the name of the grid or surface. This will allow for the use of the correct grid or seismic surface during gridding, display or through the use of the drag-n-drop functionality in the Petrosys applications.

Fixed a bug which caused the drag-n-drop of 3D seismic surfaces from Petrel to not work   70648

A bug, introduced in PRO 2017.1, has been fixed, whereby the drag-and-drop of 3D Seismic Surfaces to Petrosys applications had stopped working.

Incorrect CRS error message on startup is no longer shown   65199

In previous versions of Petrosys PRO, "CRS error 58" indicating that a CRS projection could not be read, would occasionally be shown on startup. In most circumstances this error was shown incorrectly and could be safely ignored. This has now been fixed to avoid showing this error incorrectly.

dbMap Well subsea depths are now computed correctly for Chevron-Perth   49381

For Chevron-Perth only, wells from dbMap are now correctly computing subsea depths in options such as Mapping/Display/ Wells when posting and tracking along well paths. Previously the subsea values were always computed from sea level. Now it uses the correct reference elevation (KB, RT, etc.) to compute subsea values

Mapping - General   Enhancements

Display/Picture/Raster coordinate type is set automatically for selected images   69495

The Display/Picture/Raster option now sets the coordinate type (World or Map) automatically based on whether the source image is georeferenced or not.

Landgrid based map extents support interactive panning and zooming   68977

The Map Template/Extent/Pan mode option has been enabled for landgrid based extents.

Improved error message when using Display/Web Service Image for services requiring a password   63279

The error message when trying to access a web service map fails due to authentication, e.g. incorrect password or authentication not specified, has been improved to make the problem clearer.

Display/Web Service Map allows ArcGIS URLs to be specified for the WMS protocol   70171

When attempting to display images from a web service, it is not always clear what type the web service is. If the WMS protocol is selected and an ArcGIS service URL is specified, Petrosys PRO will attempt to automatically convert the URL into the equivalent WMS URL. This will work in practice if the ArcGIS service also has WMS support enabled.

Improvements to scale bars   69867

Several improvements have been made to scale bars:

➢ The initial placement of new scale bars on the map has been improved to reduce empty space.

➢ Scale bars support left or right justification within their specified box

➢ Scale lines are sized to ensure the scale line has a reasonable minimum width - previously the scale line could be shrunk completely in favour of the annotation

➢ Scale bars are always drawn inside their specified box - previously certain types of scale bars could sometimes be drawn incorrectly outside

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Mapping - General   Bug Fixes

Improvements to display of rotated north arrows   69866

North arrows can often be displayed as rotated from the vertical axis (usually due to a rotated extent or using a projection for a map where meridians are not vertical). Previous versions had a number of problems (most often occur for large angles of rotation and/or north arrows that are not square) displaying rotated north arrows, which have been fixed. As part of this change, some excessive margins were removed from several system north arrows.

Color Bar no longer displays "negative zero"   66348

In previous versions, the Display/Map Elements/Colorbar option could sometimes show an annotation value of negative zero (-0.0).

Mapping - GIS, Spatial and Culture   Enhancements

Added support for display, import and gridding of OGC Web Feature Service and ArcGIS vector data   17867

Petrosys supports access to spatial data from the following web services:

➢ OGC Web Feature Services (WFS)

➢ ArcGIS (MapServer and FeatureServer enabled services)

Spatial data from web services can be utilised in Petrosys in the following contexts:

➢ Display/GIS

➢ Spatial Data Translator

➢ Surface Modeling/Grid/Create Grid

➢ 3D Viewer/Display/Point Data

BubbleMaps - More information displayed on filtering error   69249

In the Bubble Maps option, more detailed information is now given in the message when a filtering error occurs.

Mapping - GIS, Spatial and Culture   Bug Fixes

Intermittent crash displaying GIS data in Mapping has been fixed   69321

In previous versions, a crash could sometimes occur when displaying data using Display/GIS on a dynamic map extent.

Mapping - Grids, Surfaces and Sampled Data FilesEnhancements

Contour on the fly labels contours and color bar with correct units 66499

On Grid/Surface colorfill display panel if the grid/surface has units information it is now automatically set to contour label suffix.

The color bar item's axis label is automatically populated with the units of the grid/surface in associated grid layer.

Mapping - Grids, Surfaces and Sampled Data FilesBug Fixes

Gradient Editor apply button redraws colorfill grids with changes to the gradient 68983

Petrosys PRO 2017.1 contained a bug where edits made to a gradient were not applied to colourfill grids when the Apply button in the gradient editor was used.

Mapping - Wells   Enhancements

Additional well annotation options including annotating well path and multiple locations 17334

Several enhancements have been made to the wells annotation options for data sources other than WDF. These include:

➢ The location for each annotation can be set to:
➢ Option to annotate the well path. Several orientation options for well path annotations:
➢ User interface changed to a dynamic list of annotations.

Formation administration menu option redirected to use web screen (PPDM38 only) 68663

The menu option Admin/Reference Tables/PPDM/Formation Codes... now redirects to use the associated dbMap/Web Reference Table screen.

Mapping - Wells   Bug Fixes

Fixed formation top annotations not always honouring opaque property 70688

When displaying well formation top annotations with an opaque background, some vertical wells were showing annotations with a transparent background. This has now been fixed.

TH/BH well symbols displayed for vertical wells in mapping now follow rules 67149

When displaying wells in Mapping, sometimes a vertical well would have both the surface and bottom hole symbols being posted. This has been fixed to follow the rule to only show the bottom hole symbol for vertical wells.

Automatic Petrosys Project Creation from Petrel and DecisionSpace Geosciences   66497

Project creation is much easier when launching Petrosys PRO from within Petrel and DecisionSpace Geosciences. This helps new users get started with Petrosys PRO applications immediately and shortens project startup for all plugin users. One click can take users from selecting the Petrosys PRO icon to the main launcher with a new Petrosys project, matching the Petrel/DecisionSpace project name and CRS, created silently in the background.

The first time Petrosys PRO is started from a Petrel project or DSG session, you can choose to create a new project with with default settings from the source project or select an existing project.

Automatic project creation behaviour and default project location can be changed from Configuration and Settings to suit your needs (Configuration/Advanced/Automatic Project Creation).

Project Management - Project Selector   Bug Fixes

User group lock-down honoured when automatically selecting last project   70536

The user group permissions are now checked before automatically selecting the last project when launching Petrosys PRO.

Spatial Data Translator   Enhancements

Spatial data translator reports the total elapsed time 69895

The message displayed by the Spatial Data Translator when a data transfer is complete now includes the time taken to perform the transfer.

Surface Modeling - Contouring   Enhancements

Performance of contouring on-the-fly improved   69076

Contouring by cell performance has been improved for the case there are many faults or polygons.

Surface Modeling - Contouring   Bug Fixes

Contour by cell works correctly for 3rd-party grids 70243

In Petrosys PRO 2017.1, The Surface Modeling/Contour/Contour by Cell option incorrectly showed an error and did not run when the input grid was from a source other than a Petrosys gri file.

Surface Modeling - General   Enhancements

Automatic selection of Lowest Closing Contours   69132

The new Lowest Closing Contour (LCC) option help users quickly and easily identify prospects within their grids. Changing the input parameters allows the user to identify economic prospects and remove smaller, uneconomic closures.

Inputs are:

➢ Grid (mandatory) – all standard Petrosys sources including direct connections

- ➢ Well and point data (optional) – sourced from the WDF, directly connected well data stores, and Excel spreadsheets or text files. Input attributes are Hydrocarbon Contacts, Lowest Known Hydrocarbons and Dry Holes. Multiple data sources can be selected
- ➢ Faults can be used when embedded in a grid or from a Petrosys fault file where leaking and sealing faults can be subdivided into separate groups

For economic purposes outputs can be filtered by a minimum area to remove uneconomic closures and remove noise. To create a range of distributions for subsequent modelling, multiple levels of closure can be generated for one structure.

Outputs are written to a shapefile including the polygon and the following attributes:

- ➢ Z-value of lowest contour
- ➢ Column height
- ➢ Area
- ➢ Closure number (if levels of closure are used)

The output can be mapped using the *Display/GIS* option including posting, filtering and thematically mapping by attribute.

Further details can be seen in the help topic lowestcc.

Support for reading old Solaris binary grid files directly on Linux and Windows 68352

Support has been added for reading old Solaris binary Petrosys grid files (.gri) on either Linux or Windows.

The Solaris grid files can be displayed directly on the map or more usefully be converted to the latest platform independent binary format using the Linux shell script misc/shell_scripts/ps_upgrade_grid_to_bi.sh

Surface Modeling - General   Bug Fixes

Grid Process Arithmetic task shows grid file paths with correct file separator 70426

Grid Process Arithmetic task shows grid file paths with correct file separators.

Surface Modeling - Volumetrics   Enhancements

Publish volumetrics output to polygon shapefiles 53335

The publishing of reserves maps that show the spatial distribution of expected hydrocarbons across a region has become increasingly important, both in Petrosys PRO maps and as a component of GIS portals. It is particularly valuable in the planning of the horizontal development of unconventional plays.

To make it easier to map the spatial distribution of reserves and to get Petrosys PRO volumetrics data into the GIS world, Petrosys PRO volumetrics output can now be automatically added into shapefiles representing the polygons into which the volumetrics had been split.

The option is available by specifying polygon and centroid shapefile names in the 'Reports' tab of the volumetrics task.

The shapefiles can then be displayed with annotation and thematic coloring in the Display/GIS option, or be passed on to other applications. Attributes include labels for fluid type and area and volume units, so that a comprehensive range of annotations is possible.

Petrosys PRO packaging means that all Petrosys PRO users can now access the volumetrics tool. In conjunction with the shapefile volumetrics output, reserves mapping workflows can be significantly faster allowing more up to date information to be used with much less map generation effort.

Surface Modeling - Workflows/Scripting   Enhancements

Enable parallel processing in selected workflow task groups   67009

Surface Modeling has added capability for parallel processing of user workflows. Parallel processing enables the use of the multi-tasking facilities of modern CPUs by diverting selected tasks into separate processes that can run at the same time.

In the Surface Modeling task list, clicking the right mouse button when a loop task is highlighted will allow parallel processing for the tasks in that loop to be enabled, provided that Petrosys PRO determines that the operations in the group pass the criteria for safe parallel operation. Actual results will vary with hardware configuration, input data and workflows, but significant gains can be made. For example, on an 8-core laptop the extraction and mapping of a series of 41 time-slices from a SEGY velocity cube ran in 107 seconds with parallel processing, down from a coffee-break inducing 595 seconds without.

Parallel processing is suited to a range of tasks, particularly those that do not have to write to the same output file, or which do not depend on the output of one pass through a loop to be the input to the next one. Examples of existing workflows that may benefit from parallel processing include:

➢ Mapping of depths or times for a selection of zones from an interpretation project or a well data file
➢ Creation of grids from families of modelled data files, such as time steps from reservoir simulation or geohistory models
➢ Import or data exchange of collections of files
➢ Extraction of velocity slices from SEGY files for depth conversion

Wells (WDF) Editor   Enhancements

Editing WDF computed attributes now gives more informative error messages   69859

When editing WDF computed attributes, you now get more informative errors if there is a problem with the formula, including the line and type of error.

Wells (WDF) Editor   Bug Fixes

WDF Computed attribute formula IF statement now works if there is space between IF and bracket   67431

WDF computed attributes using a conditional IF statement where there was a space between the IF and the bracket in the formula now work. Previously, you could create a valid formula like the following, but the results shown in the WDF spreadsheet for the computed attribute would always be blank.

```
IF (a < b)
{ c = 0; }
```