

SOFTWARE RELEASE NOTES

Version 2018.2

PETROSYS PRO

Petrosys valued-added agile development continues- the first update to Petrosys PRO 2018 is a significant functionality upgrade, not just a patch release.

Petrosys PRO now includes the Probabilistic Resource Calculator in Volumetrics allowing users to run Monte-Carlo simulation on volumes without needing to use another application. Algorithms and variables are available for conventional and unconventional resources to support many situations. Clients with a large portfolio of prospects may be interested in learning more about the underlying Prospects and Leads Database which the calculator is based upon.

Users in many disciplines will appreciate direct display of Excel spreadsheet tables on maps with clearly rendered text and live updates from the source data.

PRO 2018.2 is a big release for those who work with Petrel. The upcoming Petrel 2018.1 release is supported, including the new structural framework. Color bars are automatically imported and there are significant performance gains with displaying seismic data.

Automatic map generation is enhanced with the ability to loop over extents to create similar maps over multiple areas of interest such as fields or concessions.

Map templates have been enhanced further with custom location maps, including color bars in the template and adjusting the legend to fit in the box defined by the template.

Read on for more details on these options and more, or, for more information please contact your nearest support office or email support@petrosys.com.au.

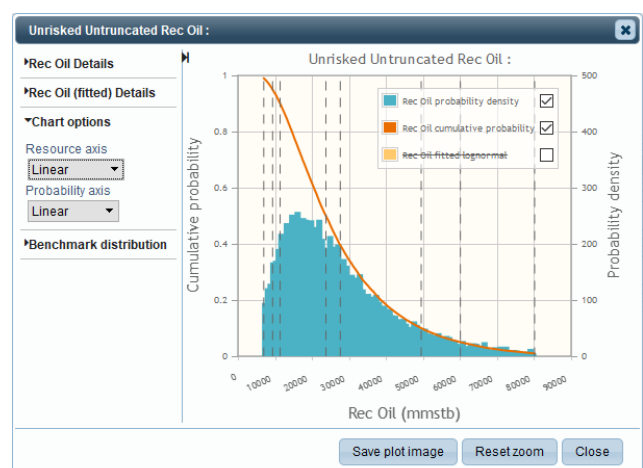
Probabilistic Resource Calculator

Petrosys has added a new option to compute a range of outcomes for Oil and Gas volumes using Monte-Carlo simulation via the dbMap/Web Prospects & Leads Resource Calculator with input from two or three Volumetrics runs.

The option is available from Surface Modeling/Volumetrics/Probabilistic Resource Calculator.

In addition to most of the standard Volumetrics/Grid Based Slices options, you can:

- Choose one of the supported PRC compute methods - Depth-Volume Method, Depth-Area Top (Constant Thickness) and GRV Method
- Choose the desired distribution type - Normal, Lognormal, Triangular or Stretched Beta

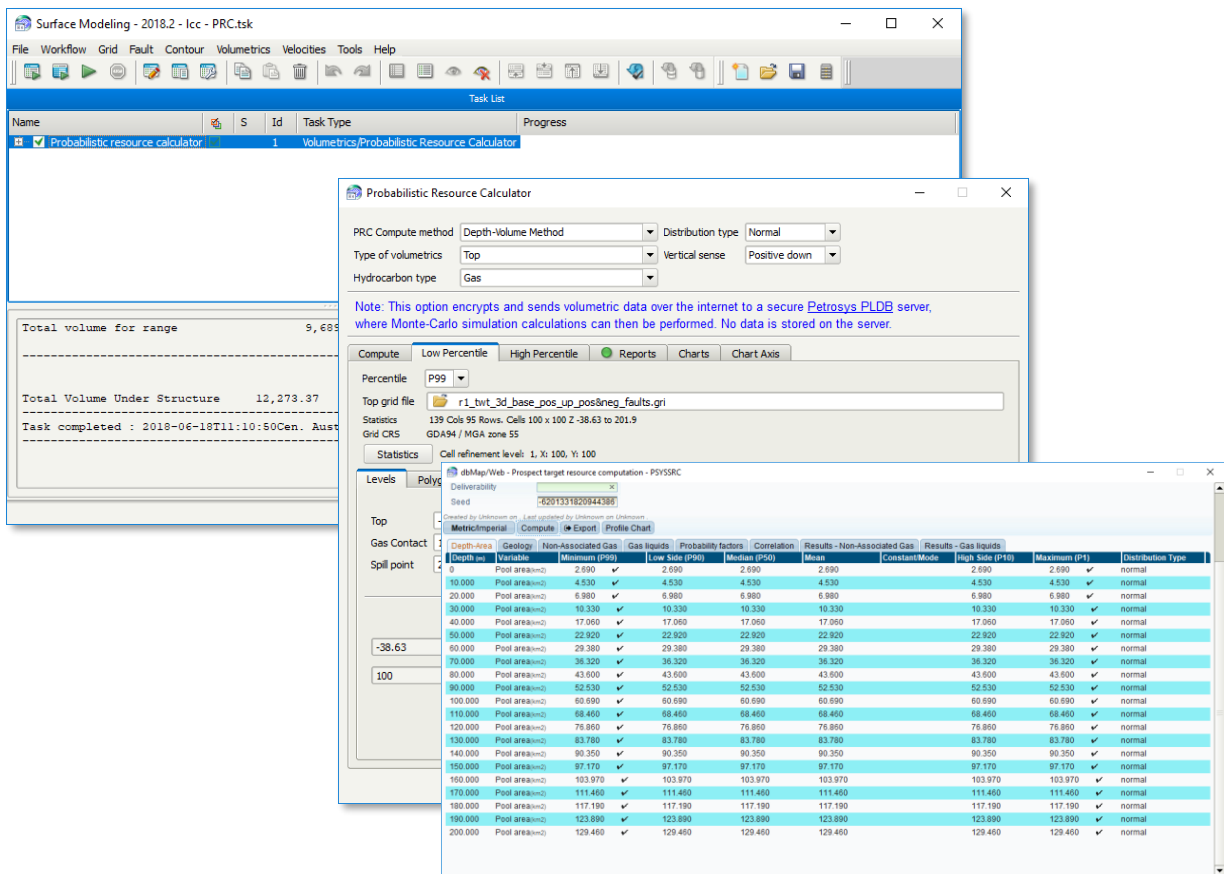


- Choose the hydrocarbon type - Oil, Gas or Oil & Gas
- Enter details for the Low & High Percentile, and Mode, depending on the distribution type selected
- Select either separate grids defining your low & high estimates, or select the same grid in both cases, and vary the contacts
- Contact level names are fixed and values mandatory, based on the PRC Compute method and Hydrocarbon type selected

When the task is run, it will run the standard Grid Based Slices volumetrics for each of the grids input in the Low/High Percentiles & Mode tabs.

Once complete, the data is securely sent to a read-only Petrosys-managed cloud dbMap/Web instance, which is restricted to only support PLDB Resource Calculator for the PRC. Some mandatory and other optional input distribution values can be set on the Geology, Oil, Gas and other tabs, such as Porosity, Net/Gross, Oil/Gas Bg and recovery factors, then pressing Compute will run a Monte-Carlo simulation for the set number of iterations. Resulting volumes are displayed in the Results tabs and can be exported to Excel for permanent storage.

Note: no data is stored or logged in the cloud beyond the current computation run. A Petrosys Connectivity license is needed.

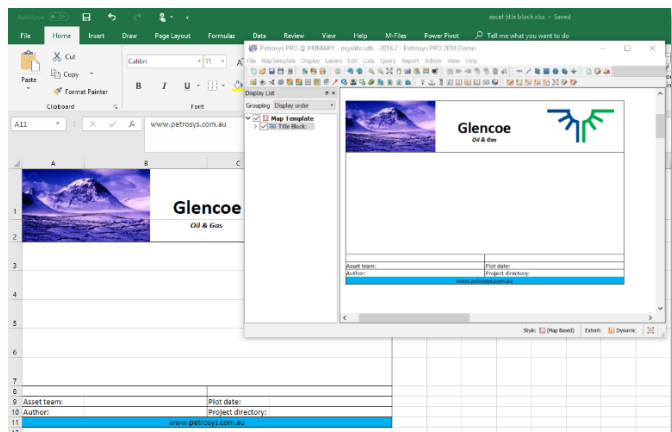


Title Blocks Created in Excel

Title blocks can now be created and edited in Excel. Previously, title blocks could only be defined using a CGM file, however it is much easier to create and edit them in an Excel file. The Excel title block supports:

- Raster logos,
- Different line thicknesses to sub-divide the title block,
- Fonts, text sizing and alignment, cell fill

Title block contents are edited in the same way as existing title blocks. A panel to specify the contents will be generated automatically, with the option to override this and use a custom panel if required.



Direct Display of Excel Spreadsheets on Maps

Excel spreadsheet store all sorts of useful information such as engineering data, production figures, volumetrics results, etc. They are also an easy way to view data in delimited text formats. Previously Excel spreadsheets were saved as a raster image and displayed in Petrosys PRO as a picture. The image was static and did not update with the spreadsheet and text could be pixelated when zoomed in.

Excel spreadsheets can now be displayed directly using the Display/Excel Table option. This option allows users to select which worksheet they want to display, and they can also restrict the display to a specific data range.

The display is live, so if the spreadsheet is updated, the data displayed on the map will update when it is refreshed. Text is properly rendered and will always be clear regardless of the zoom scale.

The screenshot displays the Petrosys PRO interface. On the left, a map shows the North Sea region with various oil and gas fields and pipelines. A 'Display Table Data' window is open, showing an Excel spreadsheet with the following columns: Field, Year, Month, Oil, Gas, NGL, Condensate, Oil equivalents, and Water. The spreadsheet contains data for the GULLFAKS field from 2017. Below the spreadsheet, a legend identifies symbols for Oil and Gas. The map also shows a detailed view of the GULLFAKS field with various sub-fields like GULLFAKS VEST, GULLFAKS SØR, and GULLFAKS SØR.

Dynamic Location Map Improvements – Custom Background

Dynamic location maps have been very popular since their introduction, however many users have requested a customizable background.

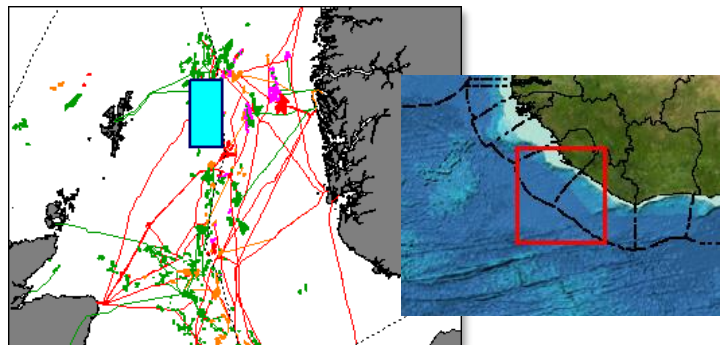
Base map types now include:

- Country outlines
- State/Province outlines
- Location map templates
- .dbm files
- Shapefiles

A shapefile can be selected and displayed directly.

For dbm files, only shapefiles and WMS layers are supported so use this option if you want to use a WMS in the background.

Location map templates are dbms or shapefiles placed in standard locations to allow sharing between users.



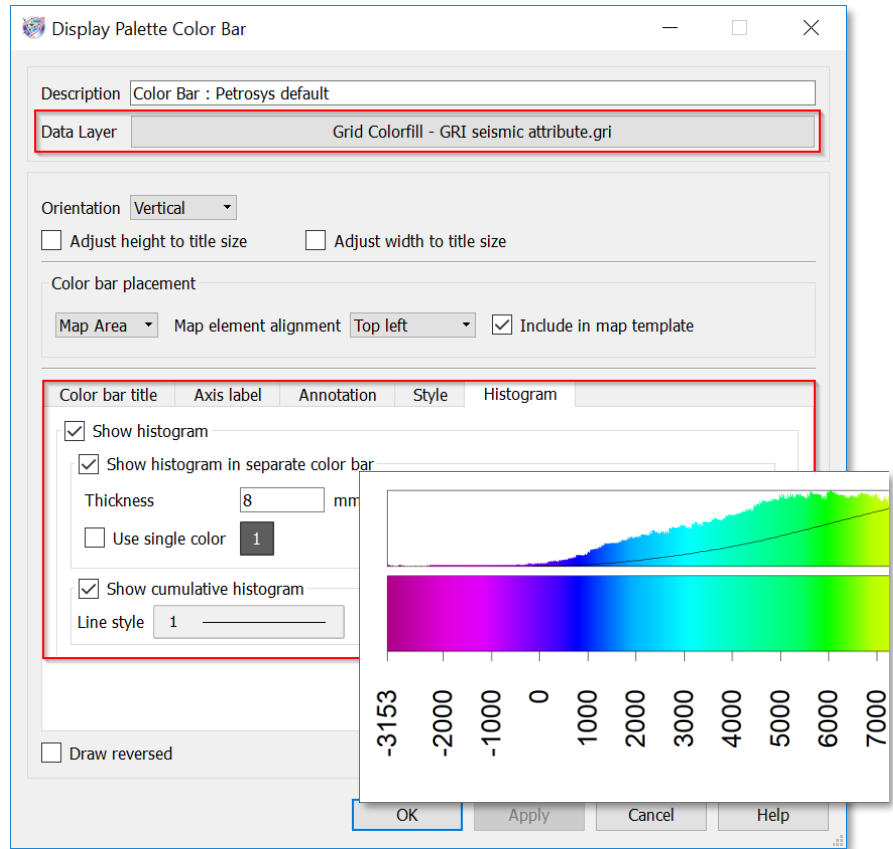
Histogram Color Bar Display and Editing

Displaying a data histogram shows spikes or extreme data variations which may not be obvious with a linear color bar. This is very useful when working with attribute data with an extreme Z-range, or with data where subtle color variations are hidden by a data spike. It can also help to identify where the spike is.

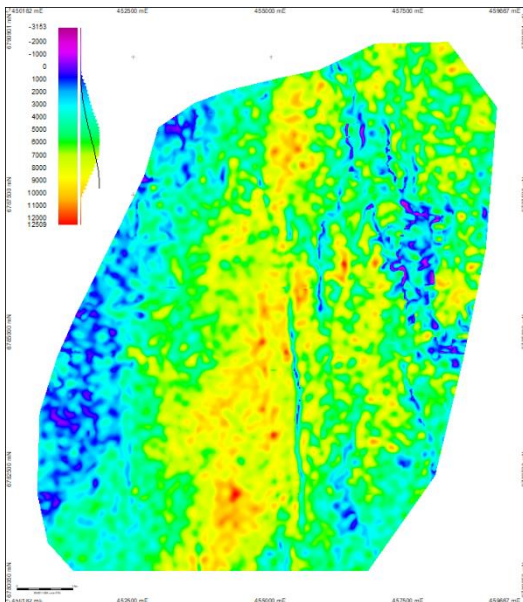
Once a grid or surface is displayed with a color bar, the data histogram can be displayed in the color bar editor and used to choose a knee point to highlight a value or range of data.

The user can choose to display the histogram over the current color bar, or as a separate color bar.

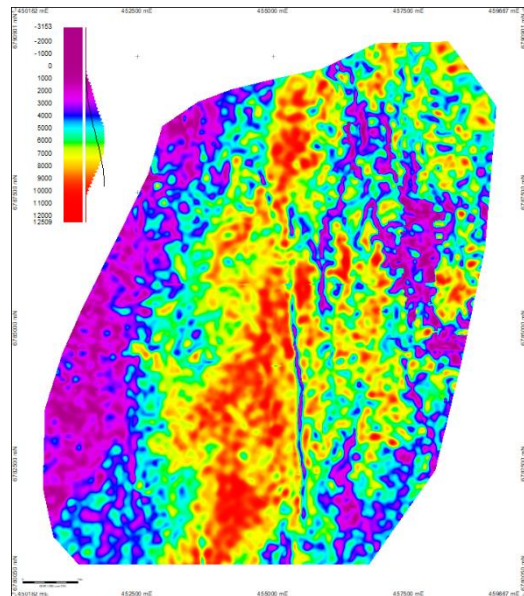
The gradient selector has a new "Equalization" checkbox. When this is enabled the gradient colors are distorted to spread the visible colors evenly on the map. This spreads out the most frequent intensity values making local areas of low contrast gain a higher contrast. This option is available in both Mapping and the 3D Viewer.



Seismic attribute grid



Seismic attribute grid - Equalized



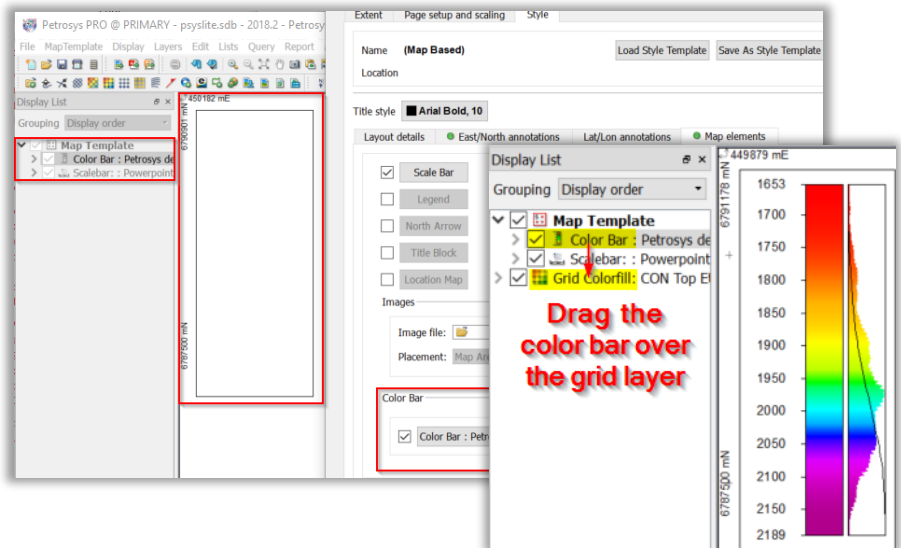
Edit Third-Party Grids, Faults and Clipping Polygons

Petrosys PRO now allows the editing of grids and faults from both Petrel and OpenWorks and clipping polygons from Petrel only, from within the Grid Editor tool. The full suite of Grid Editor features is available, allowing Petrosys PRO's intuitive editor to modify Petrel and OpenWorks grid data without the need for importing and exporting to and from Petrosys file formats.

Color Bar Added to Map Templates

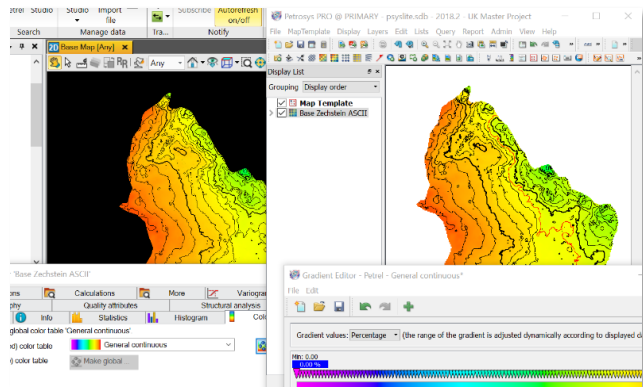
Map Template Styles now include the option to include one, or more, color bars. This enforces consistent color bar placement in company approved map styles.

The positioning options are the same as for the other map elements. When the template is selected with no grid displayed, a skeleton color bar with no fill will be displayed. This can be turned off in the display list if required. The next stage is to display a grid or surface. To populate the map style color bar, go to the display list and drag and drop the grid or surface item with the desired color bar to the color bar item in the Map Template group.



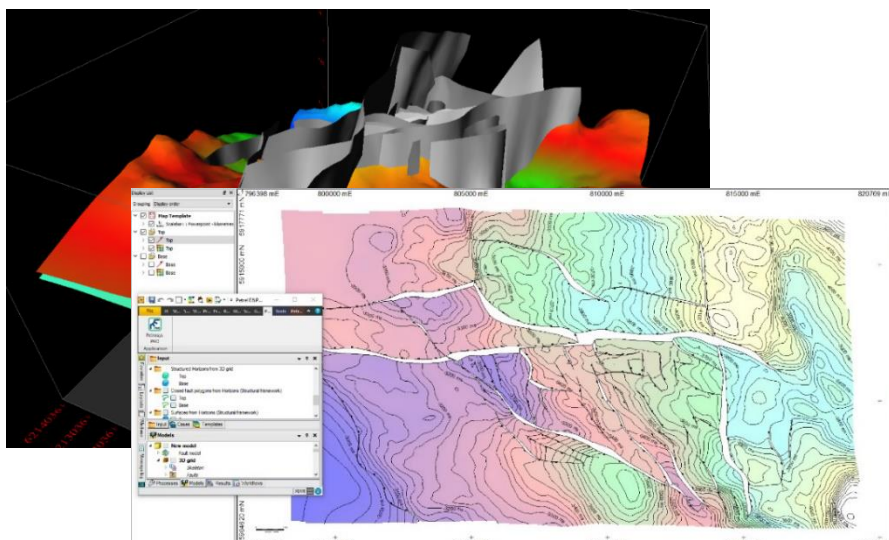
Easy Import of Petrel Color Bars

By default, when dragging grids and surfaces from Petrel, they will now be colored using their Petrel gradient. Furthermore, a Petrel grid, surface or color table can be dragged to any gradient picker in Mapping. For grids and surfaces, the range is also populated automatically to match the Petrel settings. Petrel color tables can also be dragged directly from the Petrel Templates/Color tables folder to the Petrosys PRO map canvas. For each Petrel gradient used, a Petrosys .pal file is created in the current Petrosys project.



Support for Petrel 2018.1's New Structural Framework

Petrel 2018.1 will include a new Structural Framework system (Structural Geology). Petrosys PRO 2018.2 will support these new horizons and faults in Mapping - including selection by drag and drop, Surface Modeling and 3D Viewer. They can also be imported to Petrosys grid format or selected as an input data source for Exchange.



Quicker Display of Petrel Sub-Surveys

Petrosys PRO now supports Petrel sub-surveys wherever a survey can be selected. Including working with 3D seismic interpretation. We can now limit the horizon data to a sub-survey which can greatly improve performance when dealing with very large surveys. Other improvements have been made when working with sparse 3D seismic data.

Faster Petrel 2D Display

Several changes have been made to our Petrel plugin for PRO and to our generic seismic data handling which have resulted in vastly improved performance when working with Petrel seismic data:

- Petrel 2D navigation data – up to 6 times faster than previous versions
- Petrel 2D interpretation data – up to 25 times faster than previous versions

Batch Mapping of Data Over Multiple Extents

It is often necessary to map the same data types over multiple areas of interest. For example, periodic updates of maps showing a gold standard surface, available wells or seismic, or production pie charts may be required for areas defined by license blocks or field extents.

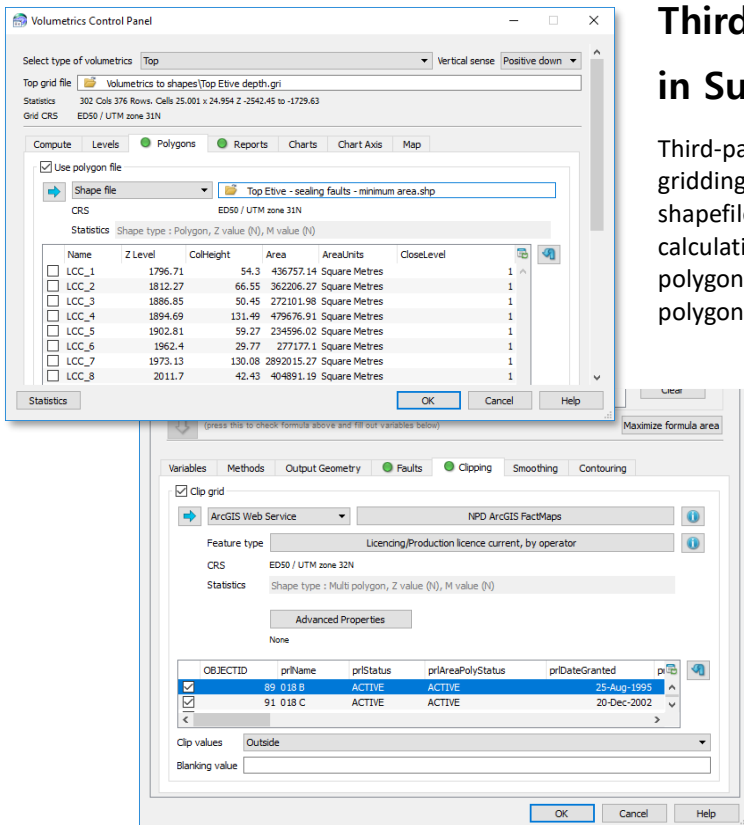
In Surface Modeling, the Workflow/Loop Over Highlighted Tasks option has a new option to loop over Map extents. In combination with

The screenshot displays the 'Loop Parameter and Values' dialog box in the Petrosys software. The dialog is set to 'User defined loop parameter' as 'extent' and 'Loop input type' as 'Map extents'. It contains a table of map extents for a '3D Seismic Data s survey'.

Name	CRS	Location Extent Type	Extent Limits (m)
Quad 3	ED50 / UTM zone 31N	Geographic (Aligned)	61 00 00N, 60 0
Quad 9	ED50 / UTM zone 31N	Geographic (Aligned)	60 00 00N, 59 0
Quad 13	ED50 / UTM zone 30N	Geographic (Aligned)	59 00 00N, 58 0
Quad 14	ED50 / UTM zone 30N	Geographic (Aligned)	59 00 00N, 58 0
Quad 15	ED50 / UTM zone 31N	Geographic (Aligned)	59 00 00N, 58 0
Quad 16	ED50 / UTM zone 31N	Geographic (Aligned)	59 00 00N, 58 0
Quad 20	ED50 / UTM zone 30N	Geographic (Aligned)	58 00 00N, 57 0
Quad 21	ED50 / UTM zone 31N	Geographic (Aligned)	58 00 00N, 57 0
Quad 22	ED50 / UTM zone 31N	Geographic (Aligned)	58 00 00N, 57 0
Quad 23	ED50 / UTM zone 31N	Geographic (Aligned)	58 00 00N, 57 0
Quad 30	ED50 / UTM zone 31N	Geographic (Aligned)	57 00 00N, 56 0
Quad 210	ED50 / UTM zone 31N	Geographic (Aligned)	62 00 00N, 61 0
Quad 211	ED50 / UTM zone 31N	Geographic (Aligned)	62 00 00N, 61 0

The background shows a 3D seismic data survey map with a color-coded surface and a vertical profile on the right. The 'Loop Parameter and Values' dialog box is overlaid on the map, showing the list of map extents and buttons for 'Add', 'Delete', 'Delete All', 'OK', 'Cancel', and 'Help'.

the Tools/Draw Map option, this makes it very easy to create consistent maps over multiple areas and periodically update them, outputting results to PDF, raster images or Petrosys dbm files.



Third-Party Polygon Sources Available in Surface Modeling

Third-party polygons are now available for use throughout gridding and volumetrics where polygons are used. For example, shapefiles can be used constraint the area for volume calculations, or as a source for clipping of grids. Supported polygon sources, include ArcSDE, WFS, shapefiles, OpenWorks polygons, Petrel and more.

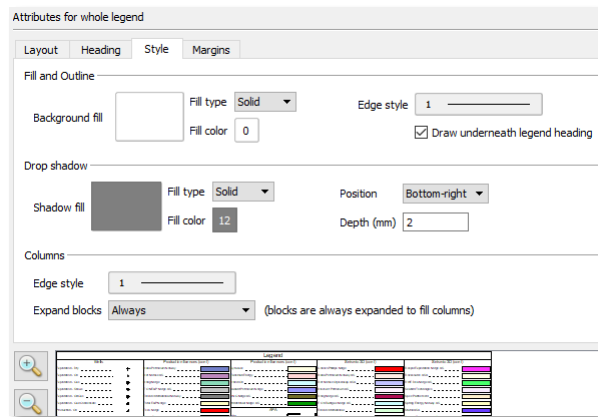
OpenWorks Districts Now Supported

OpenWorks Districts are now support for OpenWorks direct connections and through the new Remote Connections feature. When selecting a data connection, each district for each database will be listed separately, allowing users to reduce the list of projects retrieved. Project selection screens show the district details for the project connection, allowing easy filtering and sorting.

Better Formatted Legends

Map legends can now be set to a fixed size which is particularly useful with map templates. The option to size the legend based on the content remains, but now it is also possible to scale the contents to the legend box.

The number of columns is set in the new Layout tab and there are additional controls in the Style tab, including how any blank space is filled – this is most obvious when legend blocks have different background fills.



Batch Create Map Extents by

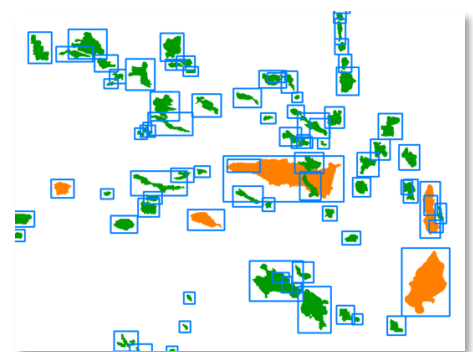
Scanning GIS Data

Map templates support fixed extents which are particularly useful when mapping specific fields or lease boundaries. Petrosys PRO has a script that batch creates extents from an input shapefile using a specified attribute as the name of the extents. The default restricts the extent to the minimum/maximum X and Y coordinate of the input data, but there is an option to add a buffer distance. Contact Support for help running this option.

This option complements extent looping also available in this release. For example, map extents created based on fields with a 1 km buffer.

Petrel 2018 Supported

Due to Petrosys' and Schlumberger's close working relationship, Petrosys is pleased to support the soon to be released Schlumberger Petrel 2018 in Petrosys PRO 2018.2. Petrel 2018 is supported in all the places you've come to expect, including grids, seismic and wells, along with the new structural framework.



Paradigm 2018 Support Ready & Coming Soon

Support for Emerson's Paradigm 2018 release has been developed for Petrosys PRO on Linux and Windows. Paradigm 2018 support will be released in a servicing update for Petrosys PRO 2018.2 shortly after Paradigm 2018 has been officially released, ensuring early adopters have continuing access to their data.

Connect to Remote Data Sources Without a Dispatch Server Daemon

Petrosys PRO has long supported cross platform connections to remote data sources through the Dispatch Server daemon. For example, accessing GeoFrame data hosted on a Linux system from a Windows PC. However, configuring and maintaining the Dispatch Server daemon can be a difficult task in some client environments. Petrosys PRO 2018.2 now supports a new remote data source connection method using SSH. Remote connections are initiated directly between the user's Windows desktop and the remote Linux data source host without the need for a service or daemon running on the remote computer. Once the connection type is specified in the connections.xml file, configuration is simple, with all required settings available on the user's desktop. Normal username/password prompts, along with RSA/DSA keyfiles, with and without passphrases, are supported, ensuring simple operation in a variety of environments. To learn how to setup these simplified cross-platform connections read the help topic "MULTIPLE CONNECTIVITY - CONFIGURATION – VIA SSH"

The Remote Connections feature will replace the Dispatch Server feature, which is now considered deprecated and may be removed in a future release.

Notes for Upgraders

Petrosys PRO 2018.2 includes an upgrade for the CRS database to EPSG 9.4. Client sites that use Petrosys PRO on an Oracle database will need to run the supplied database upgrade scripts.

There are no version incompatibilities between Petrosys PRO 2018.1 and Petrosys PRO 2018.2. Please see the Petrosys PRO 2018.1 release notes if upgrading from an earlier version of Petrosys PRO.

Detailed Release Notes Summary PRO 2018.2

Enhancements

3D Viewer - General

[71357](#) 3DViewer scaling/offset fields allow up to 8 decimal places

Application - General

[63153](#) FaultRisk 4.4 now supported

Connections, Import and Export

[71235](#) Connect from Windows to Linux data sources without a Dispatch Server daemon

[71610](#) Text file format definition UI - Tooltip added to make it more obvious that the button can be clicked

[65761](#) Support IC (ODM) connections that use 'SQL Server LocalDB'

Connections, Import and Export - Excel

[69611](#) Display/GIS - Data preview for Excel now shows data at higher precision

Connections, Import and Export - OpenWorks

[20857](#) Added support for OpenWorks Districts

Connections, Import and Export - Petrel

[71077](#) Performance improved when working with Petrel seismic

[48958](#) Added support for reading sub-surveys from Petrel

[67581](#) Added support for reading Petrel 3D seismic cropped to a sub-survey

[23894](#) Added support for drag and drop of Petrel well saved searches

[69920](#) Added support for Petrel gradients

[66830](#) Petrel 2018.1 supported

[70054](#) Added support for the new Structural Framework made available in Petrel 2018.1

Coordinate Reference Systems

[65453](#) EPSG data base upgraded to version 9.4

Mapping - General

[68464](#) Display/Location Map allows customisation of the base map

[69190](#) Map templates include support for color bars

[17916](#) Display Excel tables directly on a map

[67095](#) Map legends allows display within a fixed size and multiple columns

[63639](#) Support added for ArcGIS token authentication method

[69248](#) A new option for filtering text and Excel data when displaying bubble maps

[71063](#) Display/Title Block allows display of title blocks defined in Excel files

[58115](#) Display/Web Map Service allows management of the URL catalog

[70609](#) Display/Other Map Extent allows selection of extents from a wider variety of sources

Mapping - GIS, Spatial and Culture

[70085](#) Display/GIS allows display of spatialized dbMap basins, facilities, fields, permits and prospects

[70089](#) Display/GIS includes dbMap specific data type filtering

[70799](#) Performance of display of shapefiles over network drives has been greatly improved

Mapping - Grids, Surfaces and Sampled Data Files

[11907](#) Grid layers allow optional equalisation of gradient colors

[55561](#) Automatically display faults when a fault selection is made

[71160](#) Added option to export a displayed grid into another grid format

Mapping - Seismic

[71048](#) Added Seismic 3D Bin Grid corner point tolerance options to the Configuration and Settings tool

Mapping - Wells

[68472](#) Formation selector now shows the Basin, Interpreter and Type names instead of the Id (PPDM38 only)

[27731](#) Detailed well path checking can now be used to identify wells crossing an extent

Spatial Data Translator

[71186](#) Added warning when no feature classes are read when clicking the Select button

Spatial Editor

[58704](#) Editing of grids, faults and clipping polygons from Petrel and OpenWorks

[46239](#) Spatial editor "Unite" operation allows overlapping polygons to be merged into a single polygon

[71516](#) Spatial Editor shows the data table by default

Surface Modeling - General

[27010](#) Deprecated Grid and Contour based volumetrics options are now hidden by default

[21754](#) Grid processing and arithmetic support selection of data using polygons from any vector data type

Surface Modeling - Gridding

[70876](#) Gridding input data item names can be edited

Surface Modeling - Volumetrics

[69250](#) Probabilistic Resource Calculator (PRC)

[21753](#) Volumetrics calculations to allow selection of data using polygons from any vector data type

Surface Modeling - Workflows/Scripting

[71707](#) Increased interactive scripting 'text' field to 256 characters

[70647](#) Allow Surface Modeling workflow task description to be scriptable

[70918](#) Support for looping Map Extents added

Detailed Release Notes Summary PRO 2018.2

Bug Fixes

Configuration - Licensing

[71510](#) Tools/Flex Tools now uses correct platform version

Connections, Import and Export - DUG Insight

[71546](#) Wells read from DUG Insight always have a UWI

Connections, Import and Export - Excel

[63522](#) Minutes are shown correctly for Excel data using a date/time format

Connections, Import and Export - GeoFrame

[71695](#) CPS-3 Grid import now works if the CPS-3 grid file has comment header lines that start with a double dash

Connections, Import and Export - Petrel

[70735](#) Added support to drag and drop 2D seismic horizon attributes from Petrel

Mapping - General

[71229](#) File resolution dialog is no longer incorrectly shown for title blocks with two included images

[70768](#) Mapping allows all "map template" layers to be hidden, without hiding border annotation

[70732](#) Canadian NTS landgrid map extents allow lower case letters when specifying subdivision

[70359](#) CRS errors are no longer shown during scanning of map extents or templates

[71378](#) Display/Raster correctly restores 'Map' coordinate types from dbm files

[69315](#) Landgrid based map extents use the global landgrid by default

[70923](#) Map layers can no longer be positioned above the "Map Template" group

Mapping - GIS, Spatial and Culture

[38992](#) Display/GIS draws polygons that completely enclose the map extent

[71248](#) MapInfo polygons now appear in legend

[70477](#) Display/GIS no longer shows "linear range" twice under the Thematic/Symbol Style scaling options

[69519](#) Display/GIS using a thematic series gradient containing spike colour draws correctly

Mapping - Grids, Surfaces and Sampled Data Files

[70831](#) Faults now remain selected when changing input grid for display

Spatial Editor

[71434](#) When editing grids, the "Compute grid within faults" setting is read from the corresponding Petrosys gri

[69742](#) Grid editing correctly handles multiple "clip outside" polygons

[71514](#) Grid editor automatically regenerates contours after localised or full regriding

[71515](#) Grid editor generates contours correctly when contour increment is left blank

[71794](#) Spatial Editor no longer crashes when selecting read only layers with the "Move" tool active

Surface Modeling - General

[71447](#) Looping over SDF horizons no longer loop over horizon that was not selected

Surface Modeling - Gridding

[71404](#) Grid/Process/Arithmetic: AOI of output grid generated using GPA based on a map extent does match grid create grid

[70746](#) Stacking velocity gridding now responds to cancel

Surface Modeling - Volumetrics

[71446](#) Volumetrics report have colored gradient charts rendered

[71386](#) Volumetrics reports correct 'volume above' when no polygons are used

Surface Modeling - Workflows/Scripting

[71702](#) Looping over files no longer crashes when files are created dynamically

[71032](#) Volumetrics/Grid Based Slices task retains its scripting fields when task modified

Petrosys Release PRO 2018.2

Detailed Release Notes

[3D Viewer - General](#) [Enhancements](#)

3DViewer scaling/offset fields allow up to 8 decimal places 71357

Scaling and offset fields in some display options allow up to 8 decimal digits (previously only two).

[Application - General](#) [Enhancements](#)

FaultRisk 4.4 now supported 63153

FaultRisk v 4.4 is now supported in Petrosys PRO. It can be started from Petrosys PRO Launcher, located under the Apps menu option.

[Configuration - Licensing](#) [Bug Fixes](#)

Tools/Flex Tools now uses correct platform version 71510

On Windows the launcher option Tools/Flex Tools now uses the correct platform version of the FLEXIm tools program. This means that if this options is run on a server configured with the Petrosys license server then you will see the configured license service correctly. Previously it would not show up.

[Connections, Import and Export](#) [Enhancements](#)

Connect from Windows to Linux data sources without a Dispatch Server daemon 71235

Petrosys PRO has long supported connection to remote data source through the dispatch server daemon. For example, accessing GeoFrame data hosted on a Linux system from a Windows PC. However, configuring and maintaining the dispatch server daemon can be a difficult task in some client environments. Petrosys PRO 2018.2 now supports a new remote data source connection method using SSH. Remote connections are initiated directly between the user's desktop and the remote data source computer without the need for a service or daemon running on the remote computer. Once the connection type is specified in the connections.xml file, configuration is simple, with all required settings available on the user's desktop. Normal username/password prompts, along with RSA/DSA keyfiles, with and without passphrases, are supported, ensuring simple operation in a variety of environments.

In Petrosys PRO 2018.2, SSH connections are supported for GeoFrame and OpenWorks data sources.

The Remote Connections feature will replace the Dispatch Server feature, which is now considered deprecated and may be removed in a future release.

Text file format definition UI - Tooltip added to make it more obvious that the button can be clicked 71610

A tooltip has been added to the button that defines the format for Text files when they are used for display or gridding.

Support IC (ODM) connections that use 'SQL Server LocalDB' 65761

Petrosys now supports connecting to IC (ODM) projects that are stored using 'SQL Server LocalDB'. Petrosys continues to also support projects stored in MS Access and SQL Server databases.

Connections, Import and Export - DUG InsightBug Fixes

Wells read from DUG Insight always have a UWI 71546

A bug has been fixed where wells read from DUG Insight may end up with no UWI information. Now when reading from wells from DUG Insight, the UWI for a well in Petrosys PRO will either be the UWI as seen in the DUG Insight application and if that does not exist the Id of the well.

[Connections, Import and Export - Excel Enhancements](#)

Display/GIS - Data preview for Excel now shows data at higher precision

69611

For Excel, the data preview list now shows numerical values at a higher precision than before. Previously it would round to 4 decimal places, now it rounds to 8. Note that the data is always used at its full precision, the rounding is only for the preview display.

Connections, Import and Export - Excel Bug Fixes

Minutes are shown correctly for Excel data using a date/time format

63522

The date/time format defined by Excel is ambiguous when it distinguishes between months and minutes. In previous versions of Petrosys PRO, the numerical month value was shown instead of minutes.

Connections, Import and Export - GeoFrame Bug Fixes

CPS-3 Grid import now works if the CPS-3 grid file has comment header lines that start with a double dash

71695

CPS-3 ASCII grid files will now import correctly if they have header comment lines that start with a double dash "--". Files exported from tNavigator have these types of header comment lines and will now work correctly.

[Connections, Import and Export - OpenWorksEnhancements](#)

Added support for OpenWorks Districts 20857

OpenWorks Districts are now support for OpenWorks direct connections and through the new Remote Connections feature. When selecting a data connection, each district for each database will be listed separately, allowing users to reduce the list of projects retrieved. Project selection screens show the district details for the project connection, allowing easy filtering and sorting.

[Connections, Import and Export - Petrel Enhancements](#)

Performance improved when working with Petrel seismic 71077

The performance of reading seismic data from Petrel has been improved across both 2D and 3D seismic. Memory use has also been reduced when working with 3D seismic surfaces.

Added support for reading sub-surveys from Petrel 48958

In addition to Petrel's top-level seismic surveys, sub-surveys are now available throughout Petrosys PRO.

Added support for reading Petrel 3D seismic cropped to a sub-survey

67581

When working with 3D seismic surfaces from Petrel, you can now select a sub-survey to crop the surface to your area of interest.

Added support for drag and drop of Petrel well saved searches

23894

Saved Searches can now be dragged from Petrel to Petrosys PRO Mapping and Surface Modeling in the same way as a Petrel well or well folder.

Added support for Petrel gradients

69920

Petrel gradients can now be used directly within Petrosys PRO. The easiest way to use them is to drag and drop a Petrel grid, surface or horizon in to Mapping, and its associated gradient will automatically be imported and selected. You can also drag a Petrel color table directly to a Petrosys PRO color picker or the Mapping canvas. Imported Petrel color tables are stored within the Petrosys PRO project.

Petrel 2018.1 supported

66830

Petrosys connectivity to Schlumberger's Petrel now supports direct interaction with Petrel 2018.1.

Support for Petrel 2018.1 includes the ability to:

- Drag and drop data from Petrel into Petrosys PRO
- Import Model grid horizons and 3D seismic interpretation horizons to a Petrosys grid file
- Import faults from Model grids to a Petrosys fault file
- Import 2D and 3D seismic navigation and horizon interpretation data to a Petrosys SDF
- Directly display Model grid horizons, Input surface grids and 3D seismic interpretation horizons in Mapping
- Directly contour Model grid horizon data and Input surface grids in Surface Modeling
- Directly grid 2D and 3D seismic horizon interpretation data in Surface Modeling
- Directly display, grid and import well data.
- Directly display 2D seismic navigation and horizon interpretation in Mapping
- Directly display 3D seismic bin grids in Mapping
- Directly display Structural Model fault surfaces in 3DViewer
- Directly display fault sticks in 3DViewer
- Export Petrosys and other third party grids to Petrel

The new Structural Framework Horizons and Faults added to Petrel 2018.1 are also supported.

Petrosys PRO continues to maintain support for connections to Petrel 2014.x, 2015.x, 2016.x and 2017.x.

Added support for the new Structural Framework made available in Petrel 2018.1

70054

A new set of structural framework objects have been introduced with Petrel 2018.1. Support to read and display these new structural framework horizons and faults has been added.

[Connections, Import and Export - Petrel](#)

[Bug Fixes](#)

Added support to drag and drop 2D seismic horizon attributes from Petrel

70735

Petrel 2D seismic attributes can now be dragged and dropped where 2D seismic interpretation is accepted.

EPSG data base upgraded to version 9.4

65453

The standard EPSG coordinate reference system data included with Petrosys PRO has been upgraded to version 9.4. Please refer to www.epsg.org for specific details on the data changes included in this version.

Mapping - General Enhancements

Display/Location Map allows customisation of the base map

68464

The Display/Location Map option allows the "base map" for the location map to be customised. In previous versions of Petrosys PRO, this was fixed to country or state outlines, but the base map can now be based on shapefiles or dbm files, with a restriction on the layer types allowed in the dbm file. This can be useful for displaying on-shore location maps (e.g. based on license blocks or permits), location maps using satellite imagery (using web map services), customising styles or for adding filtering to base map polygons.

Map templates include support for color bars

69190

Petrosys PRO map templates allow color bars to be included as part of the map template. When a map template with a color bar is applied, the color bar will not be drawn until linked to a grid, or other gradient source. In addition, the layer linked to any color bar can now be modified after the color bar has been created, which previously was not possible.

Display Excel tables directly on a map

17916

The Mapping/Display/Excel Table allows Excel tables to be displayed directly on a map, using the style (fonts, colors, line styles) defined in the Excel table.

- Excel tables displayed using this option are positioned relatively within the map border - not spatially (i.e. not a particular geographic or projected coordinate). Display/GIS can still be used to display Excel data with a spatial component
- The style defined in the Excel file will be honoured as closely as possible and generally the results will match quite well. Several 'advanced' Excel formatting options are not supported (refer to the online help for specific details)

Map legends allows display within a fixed size and multiple columns

67095

The legend in previous versions of Petrosys PRO would automatically size itself according to the contents of the legend. Petrosys PRO 2018.2 still supports this behaviour, but also allows a fixed rectangular size to be set for the legend, with the content sized to fit into the defined rectangle. This is useful when creating map templates to fit the legend in between other map elements.

In addition, the legend supports multiple top-level columns, which would typically be used to create a "horizontal" legend - to fit into a horizontal title bar for example. The legend content (blocks) will automatically wrap into the legend columns to maximise the space available.

Support added for ArcGIS token authentication method

63639

The ArcGIS token authentication method is supported when accessing image or vector data from ArcGIS server web services. If this authentication method is enabled in Petrosys PRO, a "token" - which is a short piece of encrypted text - must be obtained manually from the ArcGIS server and pasted into Petrosys PRO when prompted. The same token can be used for multiple services accessed from the same ArcGIS server, and Petrosys PRO will re-prompt if a new token is required, for example when a previous token has expired.

A new option for filtering text and Excel data when displaying bubble maps

69248

The Display/Bubble Maps option includes a new "Attribute" filtering option when the input source is a text or Excel file. The "Attribute" filtering method is equivalent to the table filtering available elsewhere in Petrosys PRO and allows filtering based on text values.

Display/Title Block allows display of title blocks defined in Excel files

71063

The Display/Title Block option now allows title blocks to be displayed from Excel files, in addition to previously supported CGM based title blocks. Excel files can be placed in the standard title block locations - a "title_blocks" directory under project directories or under the ps_local Petrosys site directory - to make them available as title blocks. Specifically the content from the first worksheet in the Excel file will be shown as the title block.

The advantage of using an Excel file as a title block is that the style, e.g. borders, fonts and colors, can be defined in the Excel file, which is easier than creating a CGM file. Excel title blocks support "hook text" and also pictures. Petrosys PRO will automatically generate a dialog to allow entry of the title block contents, but a custom dialog can also be used.

Please refer to the online help in the title block panel for more details.

Display/Web Map Service allows management of the URL catalog 58115

The Display/Web Map Service option has been enhanced to allow selected URLs to be added to the catalog, and to allow existing catalog entries to be modified or deleted. In previous versions this required manual edits to the catalog file.

Display/Other Map Extent allows selection of extents from a wider variety of sources 70609

Display/Other Map Extents supports the same methods for selection as the MapTemplate/Extent/Select, including selection of extents from other projects and dbm files.

Mapping - General

Bug Fixes

File resolution dialog is no longer incorrectly shown for title blocks with two included images 71229

If a title block was used with two images, previous versions of Petrosys PRO incorrectly displayed the file resolution dialog when this was not required.

Mapping allows all "map template" layers to be hidden, without hiding border annotation 70768

In previous versions, hiding all of the "Map Template" child layers would also set the "Map Template" layer as not visible, which turns off the border annotation and background style. This has been modified so that the visibility of the "Map Template" layer is independent of its child layers.

Canadian NTS landgrid map extents allow lower case letters when specifying subdivision 70732

In previous versions, lower-case letters for the sub-division were allowed to be entered, but the resulting extent did not work as expected.

CRS errors are no longer shown during scanning of map extents or templates 70359

If a map extent or map template has a CRS related problem, such as a custom geographic CRS, an error will only be shown when the extent or template is selected. Previous versions of Petrosys PRO would display errors while these were scanned.

Display/Raster correctly restores 'Map' coordinate types from dbm files 71378

The Mapping/Display/Picture/Raster option was upgraded in PRO 2017.1 to allow raster images to be displayed relative to the map border using the "Map" coordinate type. In previous versions, the "Map" coordinate setting was not correctly restored when these layers were loaded from a dbm file.

Landgrid based map extents use the global landgrid by default

69315

If a global landgrid has been defined (Launcher/File/Landgrid), then this will now be used by default when landgrid based map extents are used.

Map layers can no longer be positioned above the "Map Template" group

70923

The standard "Map Template" group is always the top most layer in Mapping layers. In previous versions it was incorrectly possible to add layers above this group using certain methods, for example, dragging and dropping layers from Petrel.

[Mapping - GIS, Spatial and Culture](#) [Enhancements](#)

Display/GIS allows display of spatialized dbMap basins, facilities, fields, permits and prospects

70085

Petrosys dbMap databases support storage of spatialized versions of basin, facility, field, permit and prospect data. Display/GIS allows display of this data - including data specific annotation, filtering and querying.

Display/GIS includes dbMap specific data type filtering

70089

Petrosys dbMap databases support a range of spatialized data types. These have previously been available for display under the "dbMap GIS" option in Display/GIS, but were shown in a combined list, along with more generic Oracle data. Display/GIS now allows the dbMap data type to be selected to filter the list to only show layers for the relevant data type.

Performance of display of shapefiles over network drives has been greatly improved

70799

The time to display large shapefiles from network locations has been greatly improved. Petrosys has recorded improvements by a factor of 10 in some test cases.

[Mapping - GIS, Spatial and Culture](#)

[Bug Fixes](#)

Display/GIS draws polygons that completely enclose the map extent

38992

In previous versions of Petrosys, nothing would be drawn when the map extent fit completely within a polygon displayed using Display/GIS. From version 2018.2, this now works as expected with the polygon drawn and annotation displayed at the appropriate position within the map extent.

MapInfo polygons now appear in legend

71248

Display/Legend now shows the correct legend for Display/GIS MapInfo file. In previous version, it showed an extra empty legend

Display/GIS no longer shows "linear range" twice under the Thematic/Symbol Style scaling options

70477

A duplicate "linear range" option was incorrectly added in PRO 2017.1.

Display/GIS using a thematic series gradient containing spike colours draws correctly

69519

In previous versions of Petrosys PRO, this specific combination of layer and display could sometimes crash, depending on the number of spikes present in the color gradient.

[Mapping - Grids, Surfaces and Sampled Data Files Enhancements](#)

Grid layers allow optional equalisation of gradient colors 11907

The gradient selection for grid display (colorfill, values, sun-shaded) includes a new "Equalisation" checkbox, which will dynamically spread the colors in the gradient across the distribution of data being shown for the grid. This option is generally useful in practice for data with "spikes" - small horizontal areas with a relatively large vertical (Z) value. Without equalisation, the colors in the gradient are used to color the spike and the rest of the surface will lack detail. Enabling automatic equalisation will reduce the colors used for spikes - improving visibility in flat areas.

In addition, when the gradient editor is used from a grid layer, the distribution of the grid data can be optionally displayed in the gradient editor. The data distribution can be useful when setting control points for a gradient to highlight particular features in the grid.

Automatically display faults when a fault selection is made 55561

When a fault selection is made in the Display/Grids panel, the check box to display faults is now automatically checked.

Added option to export a displayed grid into another grid format 71160

When a grid is displayed in Mapping, there is now an option to export the grid to another data source using the right mouse button menu of the grid. RMB/Export Grid...

[Mapping - Grids, Surfaces and Sampled Data Files Bug Fixes](#)

Faults now remain selected when changing input grid for display 70831

When changing the grid to be displayed, the previous faults selection is now maintained.

[Mapping - Seismic Enhancements](#)

Added Seismic 3D Bin Grid corner point tolerance options to the Configuration and Settings tool 71048

Several tolerance settings, previously located in a configuration file, used when checking the corner points of Seismic 3D Bin Grids, have been moved into the Configuration and Settings Advanced section under the Data Type menu.

[Mapping - Wells Enhancements](#)

Formation selector now shows the Basin, Interpreter and Type names instead of the Id (PPDM38 only) 68472

The well formation selector has been updated for the PPDM38 configuration, to show the names rather than Ids of a Formations Basin, Interpreter and Type.

Detailed well path checking can now be used to identify wells crossing an extent 27731

An optional check has been added when processing well data to allow for detailed well path checking to determine if a well should be considered when using an extent.

For a specified extent, if a wells surface and bottom hole locations do not lie within the AOI and the 'Detailed well path checking' option is enabled, then for every well where the directional survey lies within a "buffer zone" surrounding the extent, the well will be queried to see if its path crosses the specified extent. If the path of a well crosses the extent, then it will be included for processing.

The "buffer zone" is controlled through the Configuration Tool, using the option "Advanced > Data Type > Well > Distance to expand AOI searching for intersecting paths." The value is specified in kilometres and will be converted as required based on the CRS units of the extent. The default value for the buffer zone is 6.0 kms.

This option has been added to all places where well data can be used throughout Petrosys PRO:

- Mapping
- 3D Viewer
- Surface Modeling

[Spatial Data Translator](#) [Enhancements](#)

Added warning when no feature classes are read when clicking the Select button

71186

A warning is now displayed when no data can be read from the input data source when a user has clicked the "Select Feature Class" button.

[Spatial Editor](#) [Enhancements](#)

Editing of grids, faults and clipping polygons from Petrel and OpenWorks

58704

Petrosys PRO now supports to editing of grids from OpenWorks and Petrel, together with faults and clipping polygons selected from the same data source.

Additionally, Petrel and OpenWorks faults can be directly edited in the Spatial Editor.

Spatial editor "Unite" operation allows overlapping polygons to be merged into a single polygon

46239

A new "Unite" operation has been added to the spatial editor, which merges overlapping or abutting polygons into a single polygon. This option is available when more than one polygon has been selected, using the RMB/Unite popup menu option.

Spatial Editor shows the data table by default

71516

The spatial editor will show the data table view on startup by default.

[Spatial Editor](#)

[Bug Fixes](#)

When editing grids, the "Compute grid within faults" setting is read from the corresponding Petrosys gri

71434

In previous versions, this value had to be set manually to the desired value for each grid that was edited.

Grid editing correctly handles multiple "clip outside" polygons

69742

In previous versions, editing a grid with multiple "clip outside" clipping polygons would incorrectly blank grid values that were not inside both clipping polygons. This has been corrected to blank grid values that are outside all "clip outside" polygons.

Grid editor automatically regenerates contours after localised or full regriding

71514

When editing a grid in "Contours Mode", and changes to the input data are regrided (localised or full), the behavior has changed to always recreate the contours in the "Generated Contours" layer.

Grid editor generates contours correctly when contour increment is left blank

71515

The increment for generated contours can be left blank (to automatically determine an appropriate increment). In previous versions, using a blank contour increment did not work correctly when editing grids - the contour style could not be modified and contours would not be regenerated after changes correctly.

Spatial Editor no longer crashes when selecting read only layers with the "Move" tool active

71794

In previous versions, selecting a read only layer, such as the "Generated Contours" layer with the "Move" tool active would cause a crash.

[Surface Modeling - General](#) [Enhancements](#)

Deprecated Grid and Contour based volumetrics options are now hidden by default

27010

The deprecated Volumetrics options (Grid Based, Contour Based) have been removed from the Volumetrics menu. Any existing tasks that use these methods will continue to function as per normal. These options can be returned to the Volumetrics menu via Tools/Config if needed.

Grid processing and arithmetic support selection of data using polygons from any vector data type

21754

Following Surface Modeling tasks now can use polygons from any vector data type.

- Grid / Merge / Blend
- Grid / Merge / Regrid
- Grid / Merge / Overlay
- Grid / Processes / Arithmetic
- Grid / Processes / Clip To Polygon

[Surface Modeling - General](#)

[Bug Fixes](#)

Looping over SDF horizons no longer loop over horizon that was not selected

71447

Looping over SDF horizons works correctly even if some horizon names start with the same prefix.

[Surface Modeling - Gridding](#) [Enhancements](#)

Gridding input data item names can be edited

70876

In Surface Modeling Grid/Create Grid the descriptions of input data sources can be changed by users interactively.

[Surface Modeling - Gridding](#)

[Bug Fixes](#)

Grid/Process/Arithmetic: AOI of output grid generated using GPA based on a map extent does match grid create grid

71404

Grid/Process/Arithmetic output grid will have the same grid geometry as if the output grid was created by Grid/Create Grid with the same extent and cell sizes.

Stacking velocity gridding now responds to cancel⁷⁰⁷⁴⁶

In previous versions, Surface Modeling gridding stacking velocities task could not be cancelled by clicking the cancel button once. This has now been fixed.

[Surface Modeling - Volumetrics](#) [Enhancements](#)

Probabilistic Resource Calculator (PRC) ⁶⁹²⁵⁰

Petrosys has added a new Probabilistic Resource Calculator (PRC) option to compute a range of outcomes for Oil and Gas volumes using Monte-Carlo simulation via the dbMap/Web Prospects & Leads (PLDB) Resource Calculator with input from two or three Volumetrics runs.

The option is available from Surface Modeling/Volumetrics/Probabilistic Resource Calculator.

In addition to most of the standard Volumetrics/Grid Based Slices options, you need to do the following:

- Choose one of the supported PRC compute methods - GRV Method, Depth-Volume Method and Depth-Area Top (Constant Thickness)
- Choose the desired distribution type - Lognormal, Normal, Stretched Beta or Triangular
- Choose the hydrocarbon type - Oil, Gas or Oil & Gas
- Enter details for the Low & High Percentile, and Mode, depending on the distribution type selected
- Select either separate grids defining your low & high estimates, or select the same grid in both cases, and vary the contacts
- The contact level names are fixed and values mandatory, based on the PRC Compute method and Hydrocarbon type selected

When the task is run, it will run the standard Grid Based Slices volumetrics for each of the grids input in the Low/High Percentiles & Mode tabs, depending on the PRC Compute method and Hydrocarbon type selected.

Once complete, the data is securely sent to a read-only Petrosys-managed cloud dbMap/Web instance, which is restricted to only support PLDB Resource Calculator for the PRC. Some mandatory and other optional input distribution values can be specified on the Geology, Oil, Gas and other tabs, such as Porosity, Net/Gross, Oil/Gas Bg and recovery factors, then pressing Compute will run a Monte-Carlo simulation for the set number of iterations. Resulting volumes are displayed in the Results tabs and can be exported to Excel for permanent storage

Note: no data is stored or logged in the cloud beyond the current computation run.

Volumetrics calculations to allow selection of data using polygons from any vector data type ²¹⁷⁵³

Now polygons can be selected from any supported data sources in Surface Modeling volumetrics task.

[Surface Modeling - Volumetrics](#) [Bug Fixes](#)

Volumetrics report have colored gradient charts rendered ⁷¹⁴⁴⁶

Volumetrics report have color gradient charts every time the volumetrics task is run.

Volumetrics reports correct 'volume above' when no polygons are used ⁷¹³⁸⁶

The 'volume above' for each reference level reports the total volume to the 'Shallowest level' - the total volume of the structure.

[Surface Modeling - Workflows/Scripting](#) [Enhancements](#)

Increased interactive scripting 'text' field to 256 characters ⁷¹⁷⁰⁷

Increased interactive scripting text field to 256 characters.

Allow Surface Modeling workflow task description to be scriptable 70647

Workflow task descriptions can use simple scripting fields. This is useful for looping workflows where task descriptions of looped tasks can be updated with looping values.

Support for looping Map Extents added 70918

Surface Modeling now supports looping over map extents.

Surface Modeling - Workflows/Scripting Bug Fixes

Looping over files no longer crashes when files are created dynamically 71702

In previous versions, when looping through files Surface Modeling could crash if the files were created on the fly. This has now been fixed.

Volumetrics/Grid Based Slices task retains its scripting fields when task modified 71032

Volumetrics/Grid Based Slices task retains its scripting fields after the task panel is re-opened and closed.