Petrel E&P Software Platform 2014

RELEASE NOTES

Petrel

Shared earth—critical insight

Schlumberger

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Petrel 2014

With the Petrel* E&P Software 2014.6 update release, Schlumberger continues its commitment to improve and innovate the way you work. The Petrel E&P software platform delivers collaborative workflows with best-in-class technology and leading innovation. Its unique framework makes workflows repeatable, offering the most comprehensive uncertainty assessment from seismic to simulation.

These Release Notes contain short descriptors for the most significant enhancements, fixed issues, and known limitations, as well as system requirements and recommendations. The full set of Petrel 2014 documentation, and documentation for any prior Petrel release, can be downloaded from the Software Integrated Solutions (SIS) Support Portal.

Welcome to Petrel 2014.6

User Experience redefines the user interface for Petrel

Petrel 2014 delivered a step change in User Experience, keeping focus on relevant workflows, and providing quick access to the data in a productive and ergonomic working environment. Based on the widely accepted user interface methodologies from Microsoft®, Petrel 2014 uses the Ribbon concepts to support a logical flow of activities for each individual user. Workflows are driven from in-context activities, where the user selects interactive tasks, interacting with and operating on the data directly. Petrel now gives total freedom to access tools across the whole workflow by removing the concept of an active process. Workflow productivity improvements have been measured and preliminary results show:

- Reduction of long mouse travel between 50-80%
- Reduction of mouse clicks by 30-40%
- Increase of the time spent on the data/interpretation tasks by 30-40%

The Petrel platform architecture tracks and audits beta testing, ensuring that the broad range of capabilities is consistently and comprehensively tested. For 2014, this has involved more than 70 oil and gas companies across the spectrum of major, independent, and national oil companies, as well as internal resources. In total, we have recorded more than 30 person-years of testing on the 2014 beta releases.

Technology Updates and Improvements

Petrel 2014.6 delivers technology updates in Geophysics, Geology, and Studio, including improvements in usability, performance, and stability.

Further information about the above mentioned updates and improvements can be found in the following sections and, where appropriate, in more detail in the companion document, *Petrel E&P Software Platform 2014 What's New Guide*. Complete documentation for this release, and all prior Petrel releases, is available from the Software Integrated Solutions (SIS) Support Portal.

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What's New in Brief

The following content contains short descriptions of new features and behavioral changes in this release, organized by domain. The companion document, *Petrel E&P Software Platform 2014 What's New*, contains more detailed explanations, descriptions of functionality, and workflows for these enhancements, where needed.

General

Feature	Short Description
Resolving potential project unit inconsistencies	Projects created earlier than 2014 may have inconsistent horizontal XY and Distance template units. From 2014.6 on, the inconsistency will be detected, reported, and rectified. In such cases, a warning is raised, a detailed written to the message log and an entry is added to the project history. The project may still contain corrupted data, which may have to be reloaded or recomputed.

Geophysics: General

Feature	Short Description
Toolbox (Import Seismic 2D)	• The Toolbox was not applying the override for coordinate type (meter/feet, arc seconds), leading to incorrect coordinates or a SEG-Y file not loading. This has been fixed. • The issue, where a line with large shot point numbers is loaded using Existing Petrel Line as the navigation source gets a different geometry ID than the original one, has been fixed.
Reference Project Tool	The crash when transferring 2D lines from UTM22-WGS84 to UTM22-NAD27 with RPT has been fixed.
ZGY Compression	A min/max scanning issue resulting in incorrect normalization of bricks values before compression is invoked has been fixed. It was happening only if values within a brick were monotonously increasing.
Volume attributes	Previously, when assigning a 2D survey folder or sub-folder as input, the bulk seismic of the first selected 2D line was repeatedly realized as output. This issue has been fixed.
Horizon interpretation	• **Constraining fault:** Fixed the issue where using "Seeded 2D autotracking" mode, the horizon at times tracked through constraining fault interpretation. • **Color table:** When the color table is automatically adjusted for the horizon which has been interpreted on 3D and 2D surveys, it adjusts the min-max based on all interpretation.
Fault/Multi-Z interpretation	The domain converted fault and multi-Z interpretation, when converted to a separate fault/multi-Z interpretation object, gets the correct domain (time or depth).

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Feature	Short Description
Performance	• Displaying a single large fault interpretation can be up to 7x faster. • Displaying large horizon interpretation from a large survey can be up to 7x faster • Horizon storage - size of internal ZHZ file has been minimized. • Starting from Petrel 2014.2, seismic cubes that were not properly rendered in high resolution in 3D window are now well rendered. • The time to copy large interpretation grids (120 000 by 120 000) is now reduced.

Geology: General & Wells

Feature	Short Description
Visualization in 2D and 3D window	• A regression introduced after the upgrade of NVIDIA Graphics Driver, version 350.12, resulted in a well tops, well points, check shots, and micro seismic events rendering problem in a **2D**/**3D** window for 2013.x projects opened and saved in 2014. The visualization problem has been fixed by installing driver versions 347.88 to 348.17. • User-defined well symbols were distorted when viewed in a **2D**/**3D** window. They are now displayed correctly.
Surfaces RPT	A regression introduced in the 2014.4 and 2014.5 versions during the RPT of a regular surface from projects in a different CRS (for example, utm34 to a project with utm35) when the 'don't copy option' was selected, resulted in surface misplacement after coordinate conversion. The issue has been fixed by regenerating coordinate transformation during the surface transfer.
Switch Map to Interpretation window	A visualization performance delay was introduced by having saved searches toggled in 2014.1 while activating an **Interpretation** window with the **Map** window active, has now been fixed. The time it takes to switch from a **Map** window to an **Interpretation** window has improved by over 95%.
Duplicate zones	The duplicate zones found in the zones spreadsheet because of zones not being continuously updated between the picked and modified well top has been fixed. You can now use the 'refresh zones' operation in the right-click menu of the well tops stratigraphy folder to remove the duplicate zones in the zones spreadsheet.

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Geology: Modeling

Feature	Short Description
Use of Vertical mean trend curve in Trend modeling	Since 2014.1, in Trend modeling, when creating a new Trend model using a Vertical mean trend, there was a bug that inverted the values with regards to the model layers (the values for the top layer were interpreted as being at the bottom and vice versa). This has been fixed in Petrel 2014.6.
Memory consumption of GRFS method with co-kriging	Up to Petrel 2014.5, running the method Gaussian random function simulation (GRFS) with co-kriging was over-consuming memory. This has been fixed in Petrel 2014.6.
Use of 1D filter with the workflow command "Property statistics to output sheet"	In Petrel 2014.6, the workflow command "Property statistics to output sheet" will honor 1D filters when toggling on the Use filter option.
Property operations on a property folder	In Petrel 2014.5, there was a bug preventing the use of any of the operations under the **Operations** tab of a property folder **Settings** dialog. This has been fixed in Petrel 2014.6.

Studio: Studio Client Petrel

Feature	Short Description
Database tool	In the case where a large number of wells have been upgraded to the new well model with multiple surveys and/or plans in your Studio repository, you may see a performance degradation when opening the Studio transfer tool. This issue has been fixed.

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Known Issues

The following content summarizes known issues and limitations for this release, organized by domain. For completeness, known issues and limitations outstanding from previous 2014 releases are also listed here.

User Experience

Affected Feature	Issue or Limitation
Inspector shortcut key	The **Ctrl+Shift+Spacebar** shortcut key for showing/hiding the Inspector does not work when sharing your screen with other users using Microsoft Lync™.
Using Petrel with Windows non-Aero themes	Running Microsoft Windows with non-Aero themes when using Petrel 2014 may have cosmetic implications for the rendering of the outer Petrel application border. It is recommended running Windows with the Aero theme when using Petrel 2014.
Running Petrel on 4K Display Devices	By running Petrel on 4K display devices, you may experience visual artifacts regarding labels, icons, and font sizes. We are working towards increasing Petrel's compatibility with 4K through future releases of Petrel.

Geophysics: General

Affected Feature	Issue or Limitation
Geobody Box probes	In certain situations, the box probe performs at lower resolution than expected. This issue has been observed for cubes in seismic surveys having rotation angles relative to North, in degrees other than 0, 90,180, and 270. A fix in OpenInventor is being worked on for an upcoming release. Workaround: • Use horizon probes if possible, as they are not affected by this issue. • When extracting geobodies from box probes, toggle on "extract in full resolution" option to ensure maximum extraction quality, independent of probe display resolution.

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Geophysics: Seismic Well Tie

Affected Feature	Issue or Limitation
Various Features	• For every study, a temporary folder and objects will be created and stored under the Input tree; they will be located under the Well > Study Folder > Visual. This folder should not be deleted. • When wavelets created in the Wavelet Toolbox are copied (using Copy/Paste), the parameter settings for this new wavelet cannot be edited. • Deleting any required input data belonging to the Study from the Input tree will close and delete the current study. All the objects saved from the study will still be preserved in the Input tree. • If a seismic, log or wavelet used in an SWT study is deleted, the SWT settings will be auto-populated with the next available object with the same template. • Deleting the Well Section Window study will delete the information inside this study and temporary objects created for visualization. All the objects saved from the study will still be preserved in the Input tree. • The Log conditioning style settings menu is only available in the Classic mode. The user does not have access to this menu in the Ribbon mode.

Geophysics: Quantitative Interpretation

Affected Feature	Issue or Limitation
AVO Modeling	Prestack datasets, which belong to an AVO modeling study, need to be reconnected when the Petrel project is moved to a new location. Workaround: • Identify the prestack datasets inside the borehole at the AVO modeling study folder • Right-click on the prestack data set and from the menu select "Reconnect missing file …" option • Identify the related prestack data by opening the folder Project.ptd > Ocean • Make sure to select the correct prestack dataset
AVO Modeling	Changes in prestack datasets, which belong to an AVO modeling study, are saved independently of the Petrel save mode. It means that any change to the AVO study parameters or inputs will always be kept in the final result, when the study is in Auto-update mode or when **Apply** or **OK** is selected. Workaround: It is recommended to save the Petrel project every time an input or parameter is modified in an AVO modeling study, in order to keep the consistency between inputs and output.

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Affected Feature	Issue or Limitation
AVO Modeling	Copy/Paste of prestack datasets, which belong to an AVO modeling study, disable the editing feature in the AVO modeling study. Workaround: If a copy of the prestack dataset is needed, export the prestack dataset and re-import it in the Petrel project.
Z-level	In order to display a Z-level in a Well section window, a track is automatically inserted and it needs to be visualized. Workaround: Use the horizontal scroll bar in the Well section window to visualize the created track by the Z-level.
Depth range	In order to display a Depth range in a Well section window, a track is automatically inserted and needs to be visualized. Workaround: Use the horizontal scroll bar in the Well section window to visualize the created track by the Depth range.
Crossplot	When a 3D Crossplot is used to display a collection containing poststack seismic data, some points of the collection will appear outside the axis, when the amplitude range at the statistics of the seismic volumes is not correct. Workaround: If post-stack seismic data is being used in a 3D crossplot, make sure that the amplitude range is correct, in order to define the proper limits in the axis. Change the scan values by going into the seismic volume Settings, select the Operations tab, and then the Amplitude sub-tab; the Scan and Rescan buttons can be used to determine the amplitude range from the data.
Crossplot	Axis labels rendering artifacts can appear when a 3D crossplot when it is displaying data with logarithmic scale on any of the axis. The most common case is when the difference in magnitude between the axes is very large.

Geology: General

Affected Feature	Issue or Limitation
Surface contouring	The **Enhanced** surface contouring method, which is now the default, may render slowly if there are many thousands of contour lines, and in some cases may lead to a crash. This is more likely to happen when displaying property maps. Workaround: Change the contour method from **Enhanced** to **Classic** before displaying the surface.

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Geology: Well Section Window

Affected Feature	Issue or Limitation
Simulation Logs	When you upgrade a project from Petrel 2009 or 2010 to Petrel 2014, the simulation logs are upgraded as regular logs in the Well section window. 1st Workaround: • Open the project in Petrel 2010. On the **Input** pane, clear the check boxes of the simulation logs, and update the template. Then, select the check boxes of the simulation logs in the **Input** pane, update the template, and save the project. • Open the project in Petrel 2009. On the **Windows** pane, expand a Well section window, and delete the simulation logs. On the **Input** pane, select the check boxes of the simulation logs to re-add them to the Well section window, and then save the project. 2nd Workaround: Delete the invalid logs, and then recreate the logs in the current version of Petrel.
Polysection X-section	When the well head is selected in the **Settings for x-section creation via polysection** dialog box, the polysection uses the well head to define the wells that are included in the cross section. The cross section fence alignment will use the default setting with alignment at the bottom of the well and not the well head. Workaround: You can change the fence alignment in the **Settings for X-section** dialog box by clicking the **Definition** tab, and then clicking the **Alignment** tab.
Time series mini toolbar	Before the mini toolbar icons will function for time series logs in Well section window, a time step within the time series log must be activated via the **3D** window and time player.
Well section templates	The preset style settings are not maintained when creating a new project in Petrel 2014 and using the predefined system templates, this results in the log curve line and point display colors being black and solid. The well section system templates use the preset style settings if the project has been upgraded.

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Geology: Structural Geology

Affected Feature	Issue or Limitation
Volume Based Modeling (VBM) Method	Baselap-baselap relationship is not working as expected. It is not possible to explicitly define truncation rules between unconformities: the youngest unconformity is always assumed to be truncating older unconformities. a. The stair-step faulting process is disabled when using faults coming from a VBM model. b. Eroded horizon surfaces coming from VBM models are not always handled properly in pillar gridding. They may be extrapolated beyond erosion line.
Structural Gridding	In previous versions of Petrel, there was a problem with saving stair-step fault definitions, which could lead to corruption of the fault definition. This may be apparent in the following ways: • Faults have a large number of small holes when visualized. • It is impossible to modulate or block flow through the faults using a transmissibility multipliers of 0 in a flow simulation. The problem only occurs when a grid created by the **Structural Gridding** process is saved, updated (using the process in **Edit existing** mode), and then resaved. This problem can be corrected by re-running the structural gridding step.

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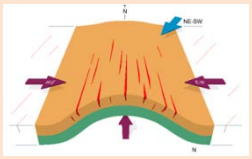
Geology: Modeling

Affected Feature	Issue or Limitation
Use of Depospace in Facies and Petrophysical modeling	When using Depospace in Facies and Petrophysical modeling, the non-bijectivity of the mapping between the Geospace and the Depospace leads to the following artifacts: a. 1D filter and depospace simbox: When using a 1D filter (located in the **Input** pane) and the depospace simbox view in a **2D** or **3D** window, you may observe that some cells are filtered out when they should not be and vice versa. Therefore, if filtering is needed, it is recommended to use the filters located in the Filter tab of the Properties settings (in the Models pane). Similarly, when using a filter for conditioning a modeling simulation, some cells are disregarded when they should not be and vice versa. b. Use of trends: Modeling a facies or a property using a conditioning to some non-depositional property could lead to some inconsistencies. This can happen when using a vertical function as a trend or a seismic attribute as a secondary variable in co-kriging. This is also due to the non-bijectivity of the mapping (e.g., several cells from one grid mapping in one cell of the other grid).

Geology: Structural & Fault Analysis

Affected Feature	Issue or Limitation
2D fault plane mapping on VBM faults	The option to run 2D fault plane maps on VBM faults is not available. The operation is still available on FGD and MPI generated faults.

Geology: Fractures

Affected Feature	Issue or Limitation
Stress based driver (NFP)	Fold-related fractures: NFP computes stresses induced by faulting. Therefore, when no faults are present in the sub surface or if it is known that the observed small-scale natural fractures are not mechanically related to the fault network, you cannot use NFP. Fracture related folding, for instance, cannot be used in NFP simulations.  Fold-related fractures

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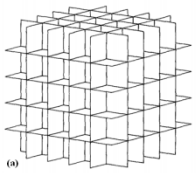
Affected Feature	Issue or Limitation
Sigma factor upscaling	The 'sigma' model is based on an orthogonal fracture systems (see figure a) that are uniformly spaced (sugar cube model). The sigma upscaling outputs are 4 properties that are used by Eclipse® Simulator: – Sigma length i (L_i) – Sigma length j (L_j) – Sigma length k (L_k) – Sigma factor aka shape factor (σ)  Basically, Li, Lj and Lk are the dimensions along each cell axis of the blocks of material, making up the matrix volume (i.e. the blocks between fractures). They can also be seen as the distance between two consecutive fractures in one cell direction, σ is the factor to account for the matrix-fracture interface area per unit volume. This is the main output. σ values should be the same for two fracture networks that differ only by their mean orientation. $\sigma = 4(\frac{1}{Li2} + \frac{1}{Lj2} + \frac{1}{Lk2})$ is valid **only** when the fractures are aligned with the axis.

Reservoir Engineering

Affected Feature	Issue or Limitation
RESQML models exported from Petrel versions 2012.2 to 2013.3 and which include a HDF5 component cannot be re-imported.	RESQML models created by any version of Petrel from 2012.2 to 2013.3 that include an HDF5 component will not be imported correctly by Petrel. This issue is caused by a fault in the binary format written to the HDF5 models by the offending versions. The same fault may affect import into other software that supports the RESQML standard. **Note**: Models that do not include an HDF5 file are unaffected. The solution depends on the version of Petrel used to create the RESQML model: • Models created with any version from 2012.2 to 2012.8 should be recreated using Petrel 2012.1. • Models created with any version from 2013.1 to 2013.3 should be recreated using Petrel 2013.4 or later.

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Affected Feature	Issue or Limitation
Re-selecting a simulation case does not update templates shown in the Well Section Window.	When deselecting a simulation case, any well section templates associated with the case are no longer visible in the Well section window. Selecting the simulation case again does not make the well section templates visible in the window. To re-visualize the templates in the Well section window, either on the window toolbar, click **Template settings** and add the required templates, or re-select the missing results from the **Results** pane.
Simulation Results Chart styling controls appear to be unavailable when using the Geoscience Core or Data and results viewer license	When viewing a chart previously created using the Results Charting and Analysis with the Geoscience core or Data and results viewer license; the **Chart themes**, **Series styles** and **Customize splitting** options appear to be unavailable on the **Style** group of the **Window Charting** tab. You can create or modify the Chart themes or Series styles using the entries in the **Results charts and analyses** group in the **Results** pane. To split a chart: open it in a Charting window, right-click and select either **Splitting** or **Customize splitting**. **Note**: To create new charts using Results Charting and Analysis, you continue to require a Reservoir Engineering or Combined Core license as in previous releases.
Structural Gridding **(also see Structural Geology)**	In previous versions of Petrel, there was a problem with saving stair-step fault definitions, which could lead to corruption of the fault definition. This may be apparent in the following ways: 1. Faults have a large number of small holes when visualized. 2. It is impossible to modulate or block flow through the faults using a transmissibility multipliers of 0 in a flow simulation. The problem only occurs when a grid created by the **Structural Gridding** process is saved, updated (using the process in **Edit existing** mode), and then resaved. This problem can be corrected by re-running the structural gridding step.

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Exploration Geology

Affected Feature	Issue or Limitation
General	After copying/pasting a Play Chance Mapping, Prospect Assessment, Prospect Summing, Petroleum Systems 1D, or Petroleum Systems 3D object in the **Input** pane, the "Edit existing" area in the process dialogs is not updated immediately, i.e., does not show the copied object (only while the process is open).
Petroleum Systems Quick Look General	When opening old projects of Petroleum Systems Quick Look from 2009 and 2010, accumulations cannot be viewed with the intersection plane. Re-run the Charge process with a 2013 or any later version.
Templates and units for "Temperature/Heat capacity" data	There is a potential legacy issue with conflicting units of "Temperature/Heat capacity" data imported to PetroMod in versions prior to Petrel 2012.2. Workaround: Re-import any overlays that were imported prior to 2012.2.
Lithologies in Reference project tool (RPT)	Currently, you cannot place lithologies into an empty Petrel project via the reference project tool (RPT). This is related to the fact that lithologies are created on demand, which means that by default, the lithologies are not part of the Templates pane but need to be loaded first by opening and closing the Facies table process or by connecting your Petrel project to a PetroMod project. Workaround: Before using the Reference project tool on an empty or new project open and close the Facies table process within that empty or new project to create the Lithologies folder on the Templates pane.
Petroleum systems 1D	Horizons missing in burial history of copied 1D simulation case: When you copy-and-paste a 1D simulation case and open a burial history of the copied case in the geotime window, some horizons might be missing in the view. Workaround: Run the simulation of the copied simulation case again.
Petrel model export	If a Petrel 3D model contains a "fractional zone division," you will encounter problems when you perform a PS3D simulation. The PetroMod 3D model will not show the initial zone division or display empty layers. Workaround: If a model shows a "zone division" in Petrel 2014.1 (and 2013.4), change the division into full zones. These zones are converted to PetroMod layers for simulation and do not cause any problems during the simulation run.

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Drilling: Well Design

Affected Feature	Issue or Limitation
Well plan display in an intersection window	If an **Intersection** window is associated with a curved surface, the display result of certain plans might be incorrect.
Converting a simple proposed well to an advanced plan	A simple proposed well is created with **Well path design** by manually digitizing the design points. When converting a simple proposed well to an advanced plan, the design points will be converted into Station points in the advanced plan. • If you click **Go to surface** or add any curve section to the top in **Well path designer**, for the Station points, only MD, INCL and AZIM values will remain unchanged during calculation, but X, Y, Z and TVD will be recalculated. • If the last point of the simple well (TD) is above MSL, the conversion will fail due to TVD and MD being referenced to MSL instead of to Kelly Bushing (KB). Workaround: Edit settings for the proposed well by changing from simple well to standalone well with appropriate KB value.
Associating a side track to a well	When assigning a branch to a main well during the sidetrack creation workflow, the trajectory of the main well (parent) and the branch (sidetrack) must be within 1m. Otherwise the assignment will fail.
Well path creation with non S-3D profile	The system automatically converts any non S-section (profile) into an S-3D profile when you click on that section in a **3D** window and in well path design Pick/Dragger mode. The conversion will display in the Well path designer spreadsheet as empty rows. Those rows will be filled up when modified with the dragger. Workaround: Click the **Undo** button and return to the Well path designer.
Plan grid convergence values	In the 2012.1 release, if a project was set up with mixed units, the grid convergence for the plan might be calculated incorrectly. This issue was fixed in the 2012.2 release. However, if a project is saved with the 2012.1 version and is opened with any newer version, an incorrect grid convergence will occur. Workaround: To correct this, you must trigger a plan recalculation by editing the plan (with Well path designer, dragger or Inspector) in a **3D** window.
Relief well path template	In the Relief well path template, if a sidetrack wellbore is selected as the target well, the relief well location cannot be calculated based on the actual well head location of the target well. Therefore, the calculated relief well path might not meet your design criteria. Workaround: Manually combine the survey data of the parent well and the sidetrack well into a new well and use the new well as the target well to design the relief well.

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Affected Feature	Issue or Limitation
Transferring plans or targets between Studio and Petrel projects	When transferring well plans or targets between Studio and Petrel projects, if the Studio repository CRS is incompatible with the Petrel project CRS, after a data round trip (Petrel project-> Studio repository -> Petrel project), the plans or targets could mismatch with the original data. Workaround: Choose or set the Studio repository in a compatible CRS with the Petrel project.
Report template	For 2012.1, Well Design is a plug-in which requires separate installation. Since Petrel 2012.2, Well Design has been integrated to Petrel. If a project is created or saved with a newer version than 2012.1, and it is opened with 2012.1 without the Well Design plug-in installed, when this project is saved as another project, the report template for the Well Design cannot be saved correctly. When this new project is opened or saved again with a newer version of Petrel, a warning message will show the upgrading failure of the Petrel drilling report module. In the **Templates** pane, there will be two **Report template** folders. One of the folders appears with the error icon. Workaround: In the **Templates** pane, delete the **Report template** folder with the error icon.

Drilling: Real Time

Affected Feature	Issue or Limitation
Transferring data over different index ranges	For some particular data sets, when one incoming log in the server contains multiple passes of data over different index ranges, if the deeper data range is downloaded before the shallower or earlier data range, the shallower or earlier data might be skipped during data transfer. For more details, see the online help.

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Drilling: Well Positioning

Affected Feature	Issue or Limitation
Trajectory uncertainty	• If the TVD of the well does not start from 0, you cannot directly calculate out the EOU for it in Petrel. For example, you cannot calculate out the EOU for a sidetrack wellbore. Workaround: Manually combine the survey data of the parent well and the sidetrack well into one well and create the survey data which starts from 0. • If the start point of the plan trajectory is NOT at the same XYZ location as the well head, you cannot calculate out the EOU for it in Petrel. Workaround: Create a new well using the start point of the trajectory as the well head location, and then copy the plan to the new well. • When an EOU cannot be calculated out, an empty EOU object is still created. However, it does not contain any EOU data.
Showing EOU and VOU	• Displaying a lot of EOU or VOU might cause performance issues. Workaround: To avoid performance issues, you can hide the EOU or VOU display by toggling off the **Show EOU** or **Show VOU** button, or you can display only the VOU, without EOU. • When EOU and VOU are displayed at the same time, the shape of the EOU might not be correctly visualized. Workaround: To correctly visualize them together, you need to toggle on the **Orthogonal camera** mode on the **3D** window toolbar.
Showing No-go zone	• The 3D No-go space is visualized by connecting all the No-go zone cross sections from wellhead to TD. As a limitation of this algorithm, the No-go zone beyond the offset well TD cross section cannot be visualized although there is some extended trajectory uncertainty. • The No-go zone only gives you a view of collision hit. On the No-go zone boundary, there might be small calculation bias compared to the Anti-collision result. The actual collision risk level must be confirmed using the Anti-collision scan.

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Affected Feature	Issue or Limitation
No-go zone data compatibility with 2014.1	When you open a project containing No-go zone objects with Petrel 2014.1, a loading failure warning message will appear in the **Message log** pane. The No-go zone object appears as an empty item with warning icon. In this case, you cannot open the Survey program or recalculate the EOU for this well plan. You can delete this well plan, although some error messages will appear in the **Message log** pane when deleting. After you save this project in 2014.1, you still can open this project correctly with 2014.3 or a later version including the No-go zone objects. Workaround: Create a new well plan and copy the trajectory and survey program to the new plan.
No-go zone data compatibility with 2014.2	When you open a project containing No-go zone objects with Petrel 2014.2, a loading failure warning message will appear in the **Message log** pane. The No-go zone object cannot be loaded, but no other functionalities are impacted. After you save this project in 2014.2, you still can open this project correctly with 2014.3 or a later version including the No-go zone objects.
Geomagnetic model for Survey program	If you select a geomagnetic model other than IGRF-11, because other geomagnetic models are not supported in Petrel 2014.1 and 2014.2, there will be a data compatibility issue with Petrel 2014.1 and 20.14.2. For example, in a 2014.3 or a later version project, HDGM 2014 is selected as the geomagnetic model. If you run this survey program with Petrel 2014.1 or 2014.2, the EOU will be calculated using the IGRF-11 model. However, after you saved this project in the 2014.1 or 2014.2 and open it again with 2014.3 or a later version, the survey program will show that HDGM 2014 is used for this survey program. In this case, you can run the survey program again to recalculate the EOU result with HDGM 2014 model.
Making driller's target	You cannot make the driller's target if the associated geological target was created from a polygon.
A/C report data compatibility with 2014.1 and 2014.2	When you open a Petrel 2014.3 or a later version project with Petrel 2014.1 or 2014.2, the Anti-collision report template will be shown with the warning icon in the **Templates** pane. If this project contains any Anti-collision reports, the reports will also be shown with the warning icon. After you save this project in 2014.1 or 2014.2, you still can open it correctly with 2014.3 or a later version including the Anti-collision report objects.

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Affected Feature	Issue or Limitation
Geological target data compatibility with 2014.1 and 2014.2	When you open a Petrel 2014.3 or a later version project with Petrel 2014.1 or 2014.2, the irregular geological targets cannot be loaded correctly. The loaded irregular geological targets will be shown as line segments and a center point instead of a closed target area in 2014.1 or 2014.2. WORKAROUND: To make the loaded irregular target closed, open its settings, verify the irregular points on the **Properties** tab and click **OK** or **Apply**. The irregular target will become a closed polygon area. However after you change this target, the **Arc radius**, **Thickness above** or **Thickness below** properties of the geological targets will be lost. After you save this project in 2014.1 or 2014.2 and open it with 2014.3 or a later version, the **Arc radius**, **Thickness above** or **Thickness below** properties of the geological target will become 0.
Driller's Target	The Driller's targets cannot be transferred between projects using the Reference project tool. When you open a Petrel 2014.3 or a later version project containing the Driller's targets with Petrel 2014.1 or 2014.2, although you can see the Driller's targets in the input tree of the Reference project tool, you cannot transfer it and an error message will appear when transferring it.

Production: General

Affected Feature	Issue or Limitation
Well Section Window	Production charts may be positioned incorrectly in a Well Section Window. Workaround: In a Well Section Window, you must display a production chart in the MD domain for the chart to be positioned correctly.
OFM Data Connector – Import	When you use the OFM Data Connector to import well trajectories and completions from OFM, the gas lift valve in OFM is imported to Petrel as an Inline FCV.
OFM Data Connector – Forecast Import	OFM Data Connector cannot import the gas, oil, and water phase units for forecast data in the OFM project. The following conversions are used: • For an OFM forecast case saved using English units: Gas = SCF/D, Oil = STB/D, and Water = STB/D • For an OFM forecast case saved using metric units: Gas = Sm3/d, Oil = Sm3/d, and Water = Sm3/d

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Production: Well Deliverability

Affected Feature	Issue or Limitation
Import from PIPESIM	PIPESIM models for which Rod Pump diagnostics have been run are not imported in Petrel. An error message will appear.
Licensing	Petrel Well Deliverability Module objects created with a Petrel WDM license are lost if the Petrel project is re-opened with the license disabled. There is no workaround for this issue.

Production: Production Interpretation

Affected Feature	Issue or Limitation
RTA interpretation process	• In the RTA interpretation results table, if you click the **Use** button only once, the cell color of kh*(kfbf)^2 from the bilinear flow regime identification is still yellow, indicating the update is not applied. This is the same for the cell of kh*Xf^2 from the formation linear flow regime identification. Workaround: Click the **Use** button twice to see the cell color changed to the 'applied' status. • In the RTA interpretation results table, the interpretation from the 'Poe Qd Linear' diagnostic chart is incorrect for a fractured well. • If the Xf (fracture half-length) from the RNI linear interpreted value is different than the one from the RNI SRV interpretation, the RNI linear interpreted value will be overwritten with the RNI SRV interpreted value when clicking the **Apply** button. Workaround: Click the **Use** button for RNI linear interpretation in the RTA interpretation results table before clicking **Apply**.
Non-linear regression (NLR) process	If the Windows regional settings has a decimal symbol set to a comma, NLR will not run. Workaround: Set the regional settings to be a dot as a decimal symbol.

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Shale

Affected Feature	Issue or Limitation
Shale Suite	The Shale Suite for 2014.6 is not: • Supported in 2014.1. • Backwards compatible for custom domain objects created with the Shale Suite in 2014.6. These objects will display with yellow warning triangle icons in 2014.1, and will not be used in the Shale Suite.
Pad Placement - Well Restriction Data Type	Laterals or **Side track** wells generated in Petrel as **Side track only, Standalone** wells generated from the first MD, or planned well paths set as active and created with StartPoint not at surface location should not be used for the **Well** restriction data type as a surface constraint for the **Applicable location**. The ground level surface will be generated with these wells as surface constraints, which is not correct since the wellhead is actually located on the main wellbore.

Studio: Studio Server

Affected Feature	Issue or Limitation
Data Transfer	Due to the interdependency of some seismic data items, there is a case where transferring back seismic data items (listed under mandatory OCRS) to Petrel is being blocked after performing CRS consolidation in Studio. This occurs due to a CRS mismatch between the seismic data being transferred and the seismic 3D survey in Petrel. It is recommended that you perform the same CRS consolidation on the Petrel side to update the OCRS of the original data in Petrel and try to transfer the data again.

Technology: Licensing

Affected Feature	Issue or Limitation
Plug-ins	When using plug-ins licensed on the PluginClass, the UseFastPackageDialog parameter in the PetrelConfiguration file should be set to **False**. Otherwise, these plug-ins may not be visible in the license selection UI.

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Project Compatibility, Distribution and Licensing

The Petrel 2014 release is available by download using the appropriate links on the Software Integrated Solutions (SIS) Support Portal. A user account is required on the portal. If you do not already have a user account, you can register to access the portal at http://support.software.slb.com.

Project Compatibility

The Petrel platform preserves the value of your historical data. Projects saved in all earlier Petrel versions will load directly into Petrel 2014 without any need for data migration. However, note that projects saved with Petrel 2014 will not be backwards compatible (e.g., cannot be opened) with earlier versions.

Licensing

A Petrel dongle and a valid license are required to run this release.

License files issued after 2012 are valid for use with new releases of Petrel, so long as the license expiry and maintenance expiry dates have not passed, as explained below. However, licenses issued prior to Petrel 2012 need to be updated.

Petrel licenses now incorporate two important dates, the maintenance expiry date and the license expiry date. You can verify the validity of your license, as follows:

```
FEATURE Petrel_01220255_MAAAdLyku/aUAslbsis<yyyy.mm> <d-mmm-yyyy>.<#>
```

Where

- <yyyy.mm> is the maintenance expiry year and month
- <d-mmm-yyyy> is the license expiry day, month, year
- <#> is the number of licenses

The license is valid to run Petrel up to the license expiry date; it allows you to run any Petrel version that is released before the maintenance expiry date. All license inquiries should be made to your SIS account manager, but note that you will normally be contacted by Schlumberger before your maintenance expires.

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System Requirements

Petrel System Requirements

The following section contains the current brief system recommendations for Petrel and Studio*. For further information, please refer to the *Petrel 2014 Installation Guide*.

Note: It is recommended running Microsoft Windows with the Aero theme when using Petrel 2014.

Minimum	Recommended
Microsoft® Windows® 7 (64-bit, SP1)	Microsoft Windows 7 Professional, Enterprise, or Ultimate Edition (64-bit, SP1)
Quad-core processor (best with fast clock speed and large cache)	Dual quad-core or hex-core processor (best with fast clock speed and large cache)
16 GB RAM memory	64 GB RAM memory
Fast rotational speed hard disk (10,000–15,000 rpm) or solid state drive	Fast rotational speed hard disk (10,000–15,000 rpm) or solid state drive (300 GB)
NVIDIA®Quadro® K2000 or NVIDIA Quadro K2000M graphics card	NVIDIA Quadro K5000 graphics card
1280 x 1024 (ideally, 1600 x 1200) @ 100 or 125% scaling	The quality of the viewing experience increases with the size and number of monitors*
Other Required Software	
Microsoft .NET® Framework 4.5 and 4.0	
Flexera™ FlexNet Publisher®	

* Petrel will run on 4K (display devices or content having horizontal resolution on the order of 4,000 pixels). However, it is recommended to use the DPI setting of 100% or 125%. By running Petrel on 4K display devices, you may experience visual artifacts regarding labels, icons, and font sizes. We are working towards increasing Petrel's compatibility with 4K through future releases of Petrel.

Note: The Petrel 2014 interface is optimized for horizontal resolutions from 1280 and higher and for vertical resolutions from 1024 and higher.

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Studio Database System Requirements

For Oracle Databases

Minimum	Recommended
Red Hat® Enterprise Linux® 6.2 (64-bit)	Red Hat Enterprise Linux 6.2 (64-bit)
AMD64 or Intel® EM64T dual quad-core processor	AMD64 or Intel EM64T dual six-core processor
16 GB memory	32 GB or greater memory
Other Required Software	
Oracle® Database Enterprise Edition 11.2.0.3	
Oracle Locator or ArcSDE™ 10.0 SP3 (64-bit)	

For Microsoft SQL Server Databases

Minimum	Recommended
Windows Server® 2012 R2 Standard (64-bit) or Windows 7 SP1 (64-bit)	Windows Server 2012 R2 Standard (64-bit) or Windows 7 SP1 (64-bit)
x64 quad-core processor	x64 dual quad-core processor
8 GB memory	48 GB or greater memory
Other Required Software	
SQL Server® 2012 Standard Edition SP1 with Cumulative update package 7	

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