E&P Software Platform Improves Workflow and Productivity

Collaboration, integration, and science lead to improved productivity.

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Tracking unconventional, remote, and complex reservoirs has become common practice for E&P companies today. Drilling further, deeper, and smarter is crucial to stay ahead, and risks must be digitally mitigated long before the rig arrives on location. At the same time, a generation of tech-savvy but inexperienced recruits is coming into the industry. Using the right technology has never been more important. Extensible multidisciplinary software platforms, which incorporate advanced science and capture shared knowledge, are central to allowing E&P companies to address these challenges.

The Petrel 2013 release brings advances in multiuser collaboration integration, and science to the Petrel E&P software platform, as well as a host of other workflow improvements and productivity enhancements. This combination allows companies to standardize workflows across the board — from exploration to production.

The new release delivers seamless integration, going beyond combining just the geological and geophysical domains to addressing key industry challenges as well. Seismic processing and imaging capabilities have been augmented through better links with Omega seismic data processing software. Users can now manage comprehensive seismic processing workflows and incorporate interactive processing tools to improve imaging of complex structure or pre-salt and subsalt reservoir features. It can be easier to incorporate dynamic simulation and production information via strengthened links with OFM well and reservoir analysis software; the introduction of production analytics for well performance analysis, and integration with the INTER-SECT next-generation reservoir simulator.

Petrel 2013 builds on the platform’s existing scientific pedigree calling on Schlumberger numerical simulators, including new two-way coupling for 3-D geomechanical modeling, to better understand stresses and strains and predict natural fractures and pore pressures — particularly useful in deepwater drilling planning as well as in carbonates and unconventional reservoirs. In addition, geoscientists can now undertake 1-D petroleum systems modeling to determine charge maturity and risk and perform accurate reconstruction to understand depositional environments.

Accelerating workflow productivity has always been a key objective in the development of the Petrel E&P software platform, and the 2013 release brings a number of efficiency and usability enhancements. Seismic rendering and geobody extraction now take advantage of the latest technology, which can improve quality and performance. Workflows around interactive prestack interpretation, seismic inversion, and new amplitude-vs.-offset analysis tools — developed with WesternGeco — can provide insight into the subsurface without having to move into separate specialist applications.

Building an accurate model of the subsurface is critical in predicting hydrocarbon accumulations. The modeling-while-interpreting process has been enhanced with the introduction of a volume-based approach, which can allow greater speed, accuracy, and detail — regardless of geological complexity — enabling an accurate shared model between the geophysicist and the geologic modeler.

Other enhancements include updates to cross-sectioning, mapping, plotting, seismic interpretation, and geological modeling workflows — all designed to improve everyday productivity for end users, regardless of discipline. The number of mouse clicks required to perform common functions has been reduced, and extra information has been incorporated in context around data objects through the interactive data inspector tool.

In the E&P software platform objects and processes retain their creation history, which can allow users to capture, accumulate, share, and reuse workflows and best practices. As well as preserving insight and knowledge, time can be saved getting new recruits up to speed, in briefing other teams, or in restarting an existing project. The workflow editor facilitates rapid model updates and task automation as well as the creation of company-specific processes to establish consistent processes across teams or for less-experienced staff.

User productivity is furthered through new functionality within the Studio E&P knowledge environment for the Petrel platform. Indexing technology provides access to both structured and unstructured data. Multiuser collaboration and knowledge sharing are improved with enhanced alerts and notifications. Geoscientists can graphically review and load data across the enterprise — including information residing in Openworks, GeoFrame, and IHS data stores — all in the context of their workflows.

Studio Manager is designed for data managers to directly interact with Petrel platform users to streamline E&P data management. The Studio environment embeds enterprise technology from Microsoft Lync, SharePoint, Exchange, and Office, which can enable data managers to connect with Petrel users and proactively manage team progress. All of this is supported by the industry-standard enterprise database deployed on Oracle or Microsoft SQL Server.

The Ocean software development framework provides access to innovation, leveraging the Ocean network of independent software providers, universities, and the R&D breadth of Schlumberger, providing science within integrated workflows. This mature development community provides an array of specialized technologies across multiple disciplines. The framework can give oil and gas companies the freedom to create advantage by building or integrating specialized technologies directly inside the Petrel software platform.

The E&P software platform brings a multidisciplinary approach to drive collaborative and process efficiencies, based on science and workflow technology, which can help E&P companies achieve insight in increasingly difficult environments.

New 3-D multi-Z capabilities greatly enhance productivity. (Image courtesy of Schlumberger)