

## **Multi-Application Technical Database Integration Using Vendor-Independent Solutions**

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### **ABSTRACT**

A significant problem in the petroleum industry for decades is the issue of data availability. By many estimates, geoscientists and engineers spend more than half their time locating, organizing, reformatting, loading, and checking data before any interpretive work can be done. Despite the “digital revolution” and increasingly sophisticated application software, we still spend an enormous amount of time hunting for and integrating data. Although major software vendors promise to deliver fully-integrated applications, these solutions are rarely as complete as advertised.

Tatweer Petroleum assumed operation of Awali field in December 2009, and immediately faced several data integration problems. Landmark OpenWorks was selected as the primary geotechnical database, as it is already integrated with G&G interpretive applications. However, other applications used by Tatweer (e.g. Petrel, OFM, WSM, ArcGIS) do not provide direct integration with OpenWorks. To overcome these limitations, we developed innovative, vendor-independent integration solutions.

First, for applications utilizing Oracle-based data management, we created custom SQL and Python scripts to allow data updates and transfers which are essentially transparent to the end users. Second, for all applications using non- Oracle based data management, we created additional Python scripts which move, update, or link data between non- integrated applications. Finally, when script-based solutions were not practical or possible, we created custom utilities which manipulate or reformat exported ASCII-format files to make the data compatible with non-integrated application. This paper presents high-level examples of each of these solutions to illustrate the concepts and methods employed.

Beyond integration between applications, these same approaches can be used to develop custom solutions for sophisticated data quality control, analysis, and queries. The resulting collection of integration solutions and custom- developed database links produced a cross-discipline data management system which provides geoscience and engineering interpreters with the data needed for an operations-focused organization.