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**Welcome to the premier issue of OpenSpirit Connection!** Published four times a year, this newsletter is for our "stakeholders"—that is, people who interact with the OpenSpirit application framework in their daily work. Our intent is to share interesting and useful information and keep you up to date on what's going on at OpenSpirit and the companies that offer OpenSpirit-enabled resources.

In this issue, Dan Piette, our CEO, considers OpenSpirit's place in the evolution of geophysical and geotechnical data management and analysis. Our regular columns cover some tips and features that we hope will interest you, whether as an end user or a developer.

**You are invited to provide suggestions, feedback, and content.** If you have questions, suggestions, or feedback about the information provided in OpenSpirit Connection, please let us know. Tell us if there are specific topics that you would like to see addressed here, and we will do our best to include them in future issues. You are also invited to contribute articles for any of our newsletter sections. Please send any material via email to [trish.lambert@openspirit.com](mailto:trish.lambert@openspirit.com).



### Feature Story

## Evolving in the Right Direction

By Dan Piette, OpenSpirit Corporation CEO

**evo-lu-tion** (e-v&-lū-sh&n)

**a** : a process of change in a certain direction **b**: a process of continuous change from a simpler to a better state

Data integration in the oil and gas business was simple twenty years ago:

- To overlay a well log onto a seismic line, you went to one of those newfangled copiers that let you enlarge or shrink the copy, you played around with the scale for a couple of minutes, and then you copied out reams of paper with a little tiny log curve on each piece. Next it was a matter of cutting and pasting the pieces (with scissors and scotch tape, probably) until you had recreated the log at a scale that would fit onto your seismic line. slip and slide the log until you saw some correlation to your colored pencil marks, and then you could draw the conclusion about whether it was an on-lap or a pinch-out.
- To integrate two different lines of seismic data, you simply folded them where they crossed, and crossed your fingers that the scales were close enough to find the wiggle trace as it crossed the fold. You ignored the fact that the earth was round, and that different projections would result in errors of tens, or maybe even hundreds, of feet.
- To integrate map data, all you had to do was take your scale, measure your "x" and "y" values, translate to the new scale on the second map, and re-plot the well-spot, seismic shot point, fault intersection, or road. No worries about computer generated contour lines because nobody trusted them: "Geology is an art! You can't use computers to generate art!"

These thumbnails of yesterday assume that human communication occurred as well. But of course it was a rare exploration company that allowed their geologists to talk to their geophysicists (Not that they ever really WANTED to talk) or their engineers to talk to their geologists. There was plenty of oil (and money) lost in the walls that developed between the different disciplines.

A major evolutionary corner was turned with the advent of interpretation computers. In the early to mid 1980s, individual geologists, engineers, and geophysicists were given huge systems with various pieces of software. With these systems they could interpret seismic data, analyze well logs, generate contour maps, and create very static earth models. As long as they didn't want everything at the same time, or with the same data, or on the same

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computer, there was no problem. The productivity of exploration and production personnel skyrocketed, which translated into a much smaller workforce finding much more oil in a much shorter amount of time.

As data volumes kept increasing, it became apparent that the systems analyzing the data had to get better as well. We saw improvements in operating systems, hardware performance, and applications. The evolutionary nature of the OpenSpirit framework traces back to these days.

In the 1990s, data management became a business in and of itself, with an entire "subindustry" springing up around the loading, maintaining, and cleansing of various types of subsurface data. It was still difficult to transfer data between systems, though, and nearly impossible to integrate data across disciplines.

The pressure for improved integration of applications and data continually increased as oil became harder to find and the workforce became smaller. People had to do more with less. Frequently that meant making a geophysicist out of a geologist and a reservoir engineer out of a geophysicist. Solutions started to appear with varying degrees of success. Landmark Graphics, for example, released OpenWorks<sup>®</sup>, a startling new concept that allowed many G&G applications to share not only data, but "events" or actions within the software. The "open spirit" of the tools was evident by ready access to a developer's kit and the support that Landmark provided to developers as they started using it. But competition and the strategy of many large oil companies to maintain dual suppliers for critical functionalities forced many

software companies to look elsewhere for an integration tool.

At various oil companies this spirit was also evident by the desire to keep using internally-developed proprietary tools where appropriate, and combine them with COTS ("commercial off the shelf") software where possible. Research teams started creating frameworks, and the advantage of creating a vendor neutral, standards based solution became apparent. OpenSpirit is the result of that development effort, commercialized.



*The vision at OpenSpirit has not wavered from its early days: Giving energy companies the option to use whatever software best meets their needs, without regard to vendor or data store.*

The first release of the integration software took place in October 2000—a basic toolset that allowed for well data access and seismic data access from Seisworks, OpenWorks, and IESX/Charisma. It was the first leg of a road that reaches to the present. The framework now has full read-write capability for well, seismic, and interpretation data. It allows access across multiple data stores and diverse operating systems/languages and will perform "on the fly" unit, coordinate, and data model transformations. In addition, the framework coordinates user interactions between multiple vendor applications. Future efforts will extend the data model footprint into other E&P disciplines and will allow data

providers to readily publish into OpenSpirit. The seventh major release of the framework is scheduled for early 2004.

The vision at OpenSpirit has not wavered from the initial days in the oil company and software company research centers. Giving energy companies the option to use whatever software best meets their needs, without regard to vendor or data store, has been the driving force behind OSC.

OpenSpirit middleware technology is now the preferred vehicle by which all Schlumberger Information Solutions (SIS) software applications access petrotechnical data. A memorandum of understanding executed by the two firms earlier this year details plans to expand their current business relationship. With this latest agreement in place between OpenSpirit and SIS, the entire operation takes another step forward. Now the dream of becoming an industry standard vendor-neutral, standards-based integration platform is closer to a reality. OpenSpirit is now more like part of the environment – a piece of the operating system that gives no single vendor a competitive advantage over another.

With the products that OpenSpirit Corporation provides now being embedded in commercial software, we can now provide services to ALL of our clients. Because it frees software companies from worrying about how to get at the data, OpenSpirit allows them to do what they do best: provide technology that helps oil companies make money by finding oil and gas more efficiently. It's another important step in the evolution in the ongoing search for oil.



## End User Corner

**The "Most Frequent" FAQs About Installations**

*End User Corner is a regular column in OpenSpirit Connection that focuses on questions, tips, and information for end users and administrators. In this issue we are highlighting the two most frequently asked "frequently asked questions" about installation.*

**Is it possible to install different versions of OpenSpirit on the same machine?**

It is possible to do this, with two changes that must occur:

- Make sure that you have two different port numbers for your osagent. The same rules apply: The port number must be between 1024 and 65535 and each must be a unique number. During installation, the installer attempts to detect if you already have an existing installation running, and will refuse to allow you to use the same port number. However, if the first installation is shut down it will not be detected, so you need to make sure to use a different port number. (You can find the port number of an installation by looking in `$OSP_HOME/bin/etc/ospenv.sh`; it is the value of `OSAGENT_PORT`.)
- You must run only one osp flexlm daemon at a time. To do this, start whichever version of OpenSpirit is your main release. We'll assume v2.5.0, so start v2.5.0 as normal. In your v2.4.x Installation, when you start your Shared Services, do the following:  
`$OSP_HOME/bin/runOSServices.sh nolicense start`  
 The "nolicense" option will cause the startup to look for an already running osp daemon, which will be the one from your v2.5.0 installation.  
 (Note: The v2.5.0 version of the runOSServices.sh no longer uses the "nolicense" option, so just start is normally, i.e. `$OSP_HOME/bin/runOSServices.sh start`)

**I need to switch my server installation from one host to another. How?**

This typically happens in the following cases:

- During installation, the host name was incorrectly specified and various files were generated with the incorrect host name of the server installation.
- After an installation has been used for various reasons, you want to run the server installation on another host.
- You are making client installations that cannot resolve the host name and you want to replace the host name with an IP address that can be resolved on the client installations.

In these cases, you either must reinstall OpenSpirit or follow the instructions listed on our End Users FAQ.

**The OpenSpirit User Group**

The OpenSpirit User Group is a volunteer organization run by OpenSpirit users with active support from the OpenSpirit Corporation.

It exists to:

- Allow users to share experiences in using the OpenSpirit framework.
- Allow users to feedback suggestions for product improvement and extensions.
- Serve as a forum for spawning collaborative workgroups to consolidate multi-company requirements and specifications for OpenSpirit extensions.
- Provide a vehicle for OpenSpirit Corporation to share future product plans and receive user feedback.

Membership is open to any OpenSpirit licensee. Invitations to attend user group meetings may also be extended to other companies by OpenSpirit Corporation. Software developers, software development managers, technology managers, and product planners may find it useful to attend one or both days of the meetings.

There are two annual user group meetings, one in Europe and one in North America. 2004 meetings will be in Paris, France on June 10 and 11, and in Houston on September 29 and 30. Details will be posted as they become available on the OpenSpirit web site at <http://www.openspirit.com/usergroups.html>.

OpenSpirit Corporation maintains an online bulletin board for facilitating discussions between users. OpenSpirit users can discuss product development issues, new requirements, etc., as well as conduct the business of the OpenSpirit User's Group. To register for the User Discussion Forum, go to <http://workplace.openspirit.com/>.

**OpenSpirit Connection** is a quarterly publication of the OpenSpirit Corporation.

It is distributed via email and posted on the corporate web site.

If you would like to subscribe to OpenSpirit Connection, please send an email with "subscribe" anywhere in the subject or message body to the address below.

Contributions are welcome. If you have suggestions for topics, questions that you would like addressed in the newsletter, or would like to submit an article for publication, please send a message to Trish Lambert at the address below.

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## Developer Spotlight

### QBA: Query By Attribute


*Developer Spotlight is a regular column of OpenSpirit Connection. Its purpose is to provide information and insights into functionalities of OpenSpirit that will help application developers in their efforts. If you have questions or input pertinent to developing OpenSpirit-enabled applications or functionalities, please send an email to [info@openspirit.com](mailto:info@openspirit.com).*

The Query By Attribute (QBA) function incorporated into Release 2.5 has received high marks from the developers who have taken advantage of it.

The key advantage of QBA over the older style object query is faster access. For example, an end user can issue queries for only those attributes that he or she wants from a well log object. All the requested attributes are returned by a single call from a result set, as opposed to the multiple calls required by the object query. Benchmarking QBA relative to object query indicates that when dealing with a large number of objects, a one-hundred-fold improvement in access speed is easily obtained.






QBA also offers the ability to do more generic application development. The interface for constructing and executing a query and then getting back a result set is independent of the data model or the data type. So generic code can be use for a well, a well log, or other objects.

Release 2.5 exposed the QBA functionality for "select only" (i.e., "read only") for well objects. Release 2.6 will extend the feature to cover all data types, so it will address seismic and interpretation data objects as well.

To ensure compatibility with existing applications, OpenSpirit will retain fixed object interfaces in the near term. Over time, however, we will be moving more and more towards a QBA interface. This is an example of our focus on evolving the architecture of OpenSpirit to assist developers and to continuously improve performance. 

## Short Shots

### OpenSpirit News and Events

-  **Are you attending the ESRI PUG on February 23 & 24 in Houston?**  
Come see us at **Booth #18** to see the latest developments at OpenSpirit.
-  **Attention AAPG Annual Meeting Attendees!**  
We will be presenting various topics related to OpenSpirit Release 2.6. Download our presentation schedule at <http://www.openspirit.com/events.html> and mark your calendar so you won't miss out!
-  **OpenSpirit is exclusive worldwide seller of ETL's Transformation Manager in the upstream oil and gas industry.**  
Read about this exciting news in our latest press release at <http://www.openspirit.com/newsitems.html>.
-  **Herding Cats - The Challenge of Data and Application Integration**  
Clay Harter, OpenSpirit CTO, explains how the "middleware" solution to application integration has taken shape to manage data across multiple data repositories in the January issue of EAGE's First Break magazine. Access the article from <http://www.openspirit.com/newsitems.html>.
-  **8th Int'l Conference on Petroleum Data Integration, E-Commerce, and Data Management**  
Clay Harter, OpenSpirit CTO, will present on data application and integration. Access the agenda at <http://www.openspirit.com/events.html>.