Improving decision making with subsurface data

*Improving the framework for Petrel data inventory, analysis and validation*

*Tools for maintaining Data Quality*
Agenda

• Introduction to the Tracker
  • Typical Tracker results
  • Resolving the issues
• Keeping things maintained
Introduction

- Blueback Reservoir is a provider of GeoScience Software and Consultancy Solutions

- Project Tracker is our main Platform for Data Management Software and Services

- Tracker is built using Schlumberger Ocean Framework

- Where Petrel Studio is a tool for End Users, Tracker is a tool for Data Managers

- In 2013 Blueback Reservoir will be helping Tracker Customers clean up projects and data as the move towards Petrel Studio
Philosophy of the Tracker

- The Blueback Project Tracker is designed to give the Data Administrators more control and confidence with their Petrel Data Management
- It can provide a global overview of all Petrel Data
- It exposes the results to Data Managers in common office tools
Blueback Project Tracker history

• First release February 2011

• Second release September 2011
  – Spatial data support
  – Integrate with ESRI ArcGIS

• Third release May 2012
  – Multisite support
  – Identify equal data across Petrel projects based on data values
  – Geodata Exchange module to track OpenSpirit data
  – Project actions
  – End user tools in Blueback Project Management Toolbox

• Fourth Release February 2013
  – Business Rules and Notifications
  – Seismic File Manager Utility
  – Project Upgrade
How it works?

- SQL Server
- Database
- Tracker Admin
- Petrel
- Petrel Projects
- Tracker Web
- MS Excel
- ArcMap
A tool for the Data Manager

- Monitor adherence to data management policies
- Overview of location of Petrel projects across the network
- Overview of Petrel project versions
- Overview of project and seismic duplication
- Understanding of Reference project usage
- Captures Project and data history
- Control disk usage in Petrel projects
- Provides tools to Validate Project Data
- Allows comparison between Petrel and other sources
Key Features for Problem Solving

- **Project Inventory**
  - Petrel Owner
  - CRS
  - Petrel Version
  - Data Sync Status

- **Data Inventory**
  - Hashcode Generation
  - Search Across Petrel Projects
  - Data History

- **Network Graph**
  - Identify copied projects
  - Show Parent Child relationships

- **Seismic Duplicate Analysis**
  - Identifies Duplicated Seismic

- **Spatial Extension – Link to ArcGIS**
  - Compare sources
  - Identify and measure mis-positions
  - Add extra context to data

- **Link to Excel**
  - Detailed Analysis
  - Reporting
Typical Tracker Results*

- Duplicated Projects in different locations
- Significant amount of Seismic Duplication
- Many Copied Projects (Save As)
- Many Old Versions

- Ownership/Relevance of Projects and Data
- Missing Data
- Use of Coordinate Reference Systems
- Mis positioned data and duplicated Data (user loaded data)
- Non use of Reference/Corporate Data

Biggest impact is on Disk Space and Infrastructure

Biggest impact is on User decision making
Reconciling The Problems
Ownership & Relevance

Using Excel we can quickly analyse user patterns and adherence to data management policies.

We can also quickly prepare an inventory of projects and owners which do not meet policies.
### Project Duplication

Project Duplication (Save As) can be a valid user behaviour i.e. Project Milestones

#### Important to combine all the information together in one view

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<th>LastModifiedBy</th>
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<th>ZgySize</th>
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<td>8876800</td>
<td>4,75E+08</td>
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</table>
CRS Use

Incorrect selection of CRS causes data mis-positioning.

Excel can be used to analyse user behaviour and ensure consistent use of CRS within different groups.
Data Coverage

Using Spatial extension comparisons can be made between data in Petrel and other sources.

Petrel Data

Corporate Data

Project Network Graphs can also help track project evolution when looking for results.
Data Status

Capture the state of the Petrel Data in one view.

### Project name

<table>
<thead>
<tr>
<th>Project name</th>
<th>Data Referenced wells</th>
<th>Data Local wells</th>
<th>Data Referenced well logs</th>
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<tr>
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<td>BBR_Ardmore_Backup.pet</td>
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<td>NewArdmore.pet</td>
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</table>

### Hash code

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<th>Project name</th>
<th>DateType</th>
<th>Alternative name</th>
<th>Guid</th>
<th>Hash code</th>
<th>Last modified</th>
<th>Last modified by</th>
<th>Sync status</th>
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<td>brucech</td>
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</table>
Mispositioned Data - Wells

By generating a Hashcode from an objects size and position we can identify mispositioned Data.

Same GUID different Hashcode indicates a modified or mispositioned Well.

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<thead>
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<th>Project name</th>
<th>DataType</th>
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<th>Hash code</th>
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<td>Well</td>
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</table>
Mispositioned Data – Wells Spatial

Small changes in CRS use can quickly offset Well Data
Identifying Data Sources / Data Duplication

Individual Petrel Objects can frequently have different sources

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<th>DataTypes</th>
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<th>Hash code</th>
<th>Sync status</th>
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</table>

The Hashcode states that these objects are physically identical despite having a different Petrel GUID

The Hashcode is used to identify duplicated data irrespective of Hashcode

Tracker also captures an objects history
Seismic Duplication

Designed to help identify duplicated internally realised seismic.

Results are exaggerated due to project copying and Save As.
Missing Data
How to Keep it Maintained?
## Monitor the Environment

<table>
<thead>
<tr>
<th>Project name</th>
<th>Data</th>
<th>Referenced wells</th>
<th>Local wells</th>
<th>Referenced well logs</th>
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</tr>
</tbody>
</table>
Use Business Rules and Notifications

Quickly identify deviations from corporate rules

Notify Data Managers*

Bruce Chalmers
Petrel Project Errors
Blueback Project Tracker Petrel business rules notification configuration test.
Upgrade / Archive older Projects
Measure the changes through time
Visualise changes through time

2011

2012
More Information
Tracker Experience

We have a broad experience of using the Tracker at different companies

ECIM Conference, Haugesund, 2012
Management of Petrel projects in ConocoPhillips
- Stein Sigbjørnsen, Geodata Manager, ConocoPhillips Norge
Data Management in a Petrel Environment has been a nightmare. By implementing a new Petrel Environment, ConocoPhillips is now able to manage Petrel projects in a much better way

Monitoring the Petrel environment at Maersk Oil
- Morten Lind, Team Lead, Petrel and GIS Data Management, Maersk Oil
Capability of Blueback Project Tracker to bring overview and monitor Petrel projects and data.
Where is the Tracker Going?

2013 UGM Blueback Project Tracker
Blueback Reservoir will arrange the 2nd Blueback Project Tracker User Meeting taking place 28 - 29 May in Copenhagen, Denmark.

- Deeper level of detail on key data types
- Tracking of other Data Sources / Applications
Webinar

WEBINAR: Blueback Project Tracker 4.0

Register for a Webinar

Join us for a webinar on the new Blueback Project Tracker version 4.0 to see how we can help you and your company track and monitor your Petrel projects and users by defining data management procedures and company policies.

Register for a session by clicking a date below:

Wed, March 20, 2013 10:00 AM - 10:30 AM GMT
Wed, March 20, 2013 4:00 PM - 4:30 PM GMT
Thank You & Questions

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