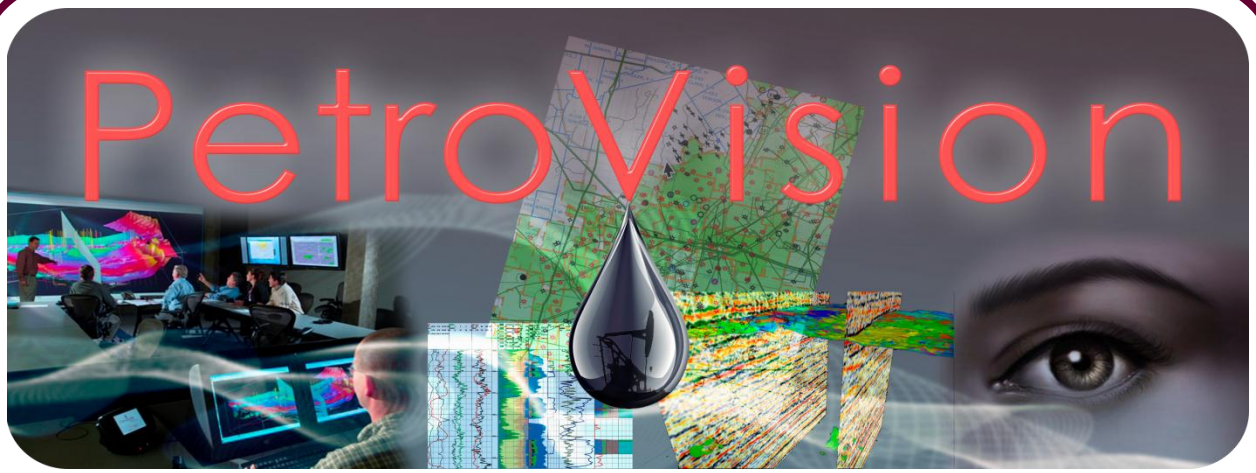


INTEGRATED DATA BANK and/or NDR for Oil and Gaz Exploration & Production data and data flow management

PetroKernel

Petrotechnical Open Software Consortium (POSC):

- It was founded in 1990 by BP Exploration, Chevron Corporation, Elf Aquitaine, Mobil Corporation, Texaco Inc.
- At present the corporation counts over 100 companies.
- Energistics, POSC rebranding, introduces new leadership goal and business strategy, providing upstream standards and bottom line results in Oil & Gas Industry.

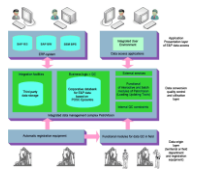
POSC Epicentre Data Model:

- Over 750 technical and business-objects, related to E& P
- A logical model, independent of database instance
- An incorporated projection tool to relational database (e.g., Oracle)
- An extension tool for logical models

PetroVision and GEODM Advantages:

- Timely access to corporate data
  - Allows loading of any new data in an up to data environment (PRODML, WITSML etc.)
- Benefits of INTEGRTAED data management
  - Inherent value of data itself used with the benefit of INTEGRATION
- Data exchange support
  - Reduced data management costs due to data sharing
  - Data management at corporate level

PetroCLUE



New PetroVision applications contain full-range of functions for automatic data QC, data model adaptation and data loading in compliance with corporate standards. CLUE Tool allows to adjust POSC Epicentre data model and GEODM data model according to your company requirements. GeoDM is an extended data model, based on the experience of all PetroVision users.

CLUE Tool is a user-friendly application, which does not require any special IT knowledge in data management and databases. CLUE Tool Design allows users to data mapping. It is based on simple ER-diagrams and detailed POSC Epicentre dictionary, illustrating the entities and their attributes.

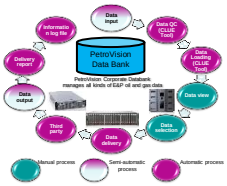
CLUE Tool Desktop (loading tool) offers a great number of predefined templates and forms for interactive data loading and pre-processing. It implies a huge experience of E&P data QC (including seismic, wells, production, reservoir analysis, etc.), acquired within a long period of time.

CLUE Tool forms, generated for a wide range of business objects and their attributes, are easy to adapt to international standards.

CLUE Tool is based on modern technologies and can be integrated in different data loading applications.

For example, it is integrated in GeoSeis QC (seismic QC), GeoTOP (well log QC), etc…

PetroAuto



Data input:
The automatic system follows corporate standards
In case of non-standard data available, you can input it manually

Data QC:
CLUE Tool introduces a set of QC procedures and constraints to verify data before loading

Data Loading:
Fully automatic process
Single or multi dataset loading
Data QC and display after loading

Data view:
Any loaded data can be viewed
The process is manual and user-defined

Data selection:
The user defines data to be exported

Data delivery:
Different ways of data delivery, which can be fully automatic

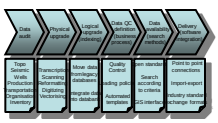
Third party:
Data integration or exchange via automatic access to third party applications

Delivery report:
Automatic delivery reports

Data output:
Output in semi-automatic mode
The user can add details

Information log file:
Generated at the request
Details about the data access: who, when, how long, etc.
Output data quality and volume
Any additional info

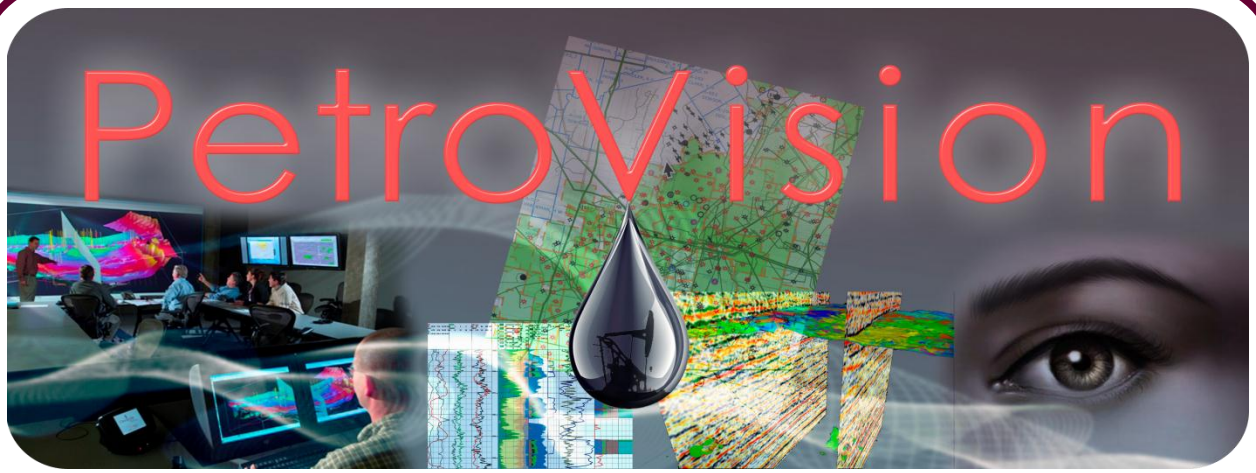
PetroFlow



Initial Data Conditioning/Loading:
One of the major hurdles to constructing a successful databank is the identification, conditioning, and loading of the existing data in existing formats into the target databank environment. This results in physical upgrade of data (transcription of tapes, scanning of documents etc), and logical upgrade of data (correction of indices, tying data to spatial objects, correction of attributes and other metadata etc).

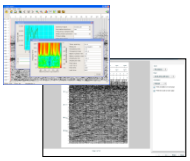
Cataloguing:
The first activity to start a project data bank is to generate a proper catalogue of all available E&P data. The cataloguing defines the size and time required for a proper building of the said data bank (or NDR) during its lifecycle. The cataloguing exercise needs reasonably accurate answers to the set of questions outlined below by providing techniques of archive search, user interviews, and reports from existing databases and ledgers.

Data delivery / transfer workflow:
The delivery module is based on the well-known principle of shop “carts” or “baskets” widely used in internet shops.



The wide set of supported data families

PetroSeis



PetroVision offers a complete set of modules for seismic data management, including transcription, QC of processing and QC of interpretation data. All integrated via OpenSpirit.

PetroVision can handle the following seismic data:

- Field (raw) data (SEG-format: SEGA, SEGB, SEGC, SEGD)
- Pre-stack data (SEGY, SEG-RODE)
- Post-stack (processed) data (SEGY, SEG-RODE)
- Navigation data (UKOOA, SPS, ASCII)
- Interpretation data (horizons, faults and others)
- Seismic documents (observers' logs, processing reports and others)
- Vertical seismic profile (data and documents)

PetroVision offers an intelligent data management:

- GIS interface (topo information)
- Search Wizard (any seismic data criteria)
- Catalogue system

PetroTopo

PetroVision has a flexible GIS interface, enabling users to create highly-secured maps, using several methods. The right settings and security level selected will help you to generate protected and intelligent graphic maps.

PetroVision GIS interface offers an easy way to

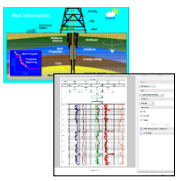
- Find data
- View the related information
- Create a full report or analysis for the required area

PetroVision Data model secures any spatial data with user roles and permission rights.

PetroVision supports different types of spatial data formats, which could be integrated in PetroVision Topo Data Management

- ESRI shapefiles or ESRI ArcSDE
- Oracle Spatial
- MPQ files (PetroVision legacy location files)

PetroWell



Data Storage and Delivery:

PetroVision implements various ways of well data loading. The following formats are supported:

- LAS (or any ASCII file with manual definition of structure)
- LIS (tape or disk)
- DLIS (tape or disk)
- BIT (tape or disk)
- TIF-encapsulated (tape file)
- RODE-encapsulated

This data can be stored in the original format or converted to another format.

The delivery system can precisely define the well logs to be exported, using the interval or log set specification.

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PetroDoc

General workflow for document management:

PetroVision propose data warehousing, indexing and capture services.

Hardcopy document indexation:

- They (films, paper & others) are bar-coded
- They are scanned (optional)
- They are vectorised (optional)

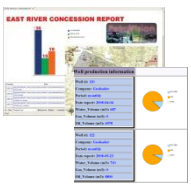
Hardcopy document storage:

- Original documents are stored in dry cool place (the rooms/shelfs are bar-coded and structured)
- They are available for Scanning/Vectorisation (initial or with higher quality)
- All documents are referenced in E&P data set associated with proper E&P objects

Hardcopy document delivery:

- PetroVision Delivery module has all the capabilities for dataset aggregation and initiation of delivery by operator (as hardcopy document borrowing or hardcopy document preparation)

PetroProd



PetroVision Production Data Management is an intelligent way for company specialists to analyze all E&P business processes. PetroVision model provides flexible methods to create business and research reports for any time period.

Daily production, monthly exploration, weekly pull-out reports are provided in accessible form.

Numerous charts and graphic forms enable to perform reliable, fast and competent evaluation of the data.

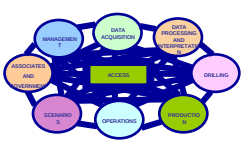
PetroVision can generate any kind of production reports according to the specified company requirements.

A wide spectrum of PetroVision production reports allows to reduce the time for analysis preparation.

PetroVision Production Data Management is a good assistance in business processes, such as tenders, monthly production and pumping analysis, data quality control, data loading audit.

Timely E&P data reports is the key rule of successful data management.

PetroData



- Spatial data.
- Seismic, VSP, Electrical, Gravity and Magnetic exploration.
- Well Information.
- Well logs, well markers, other interpretation results.
- Core, core analysis.
- Field full review
- Reservoir recovery rise
- Ecology.
- Corrosion.
- Pull out of hole.
- Hydrate formation, hydraulic formation factoring.
- Hydrodynamic research lab, analytic-chemical lab
- Oil and gas recovery plan.
- Monthly operational reports
- Crude oil analysis, crude water analysis
- etc… etc…