ISO15926 and 3D Viewing

Ola Ødegård, CEO Octaga
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About Octaga

• Ambition to have the best 3D user interface for accessing enterprise data
• Founded in 2001 as spin off from Telenor R&D
• 23 employees, 3000 licenses sold
• Present in vertical markets like Oil and Gas, Energy and the AEC industries.
• Strong focus on using the benefits of ISO formats, not only 3D visualization
• Three key products: Octaga Player, Octaga Panorama and Octaga Enterprise
• Clients like Shell, StatoilHydro, FMC Technologies
1 million downloads: Octaga Player for ISO X3D
“Our focus is to extract valuable data from where it is created into a live database for reuse and cost saving in other parts of the organization.”
Customers include:

- StatoilHydro ASA
- Aker Solutions
- CERN
- FMC Technologies Kongsberg
- FMC Technologies Inc
- Shell
- Siemens
- M-I Epcon
- Vetco Aibel
- ExxonMobil
- Proanalasys
- Framo Engineering AS
- Rolls Royce Marine
- OceanSaver
- Ceetron
- Yumetech Inc.
- NASA
- Enria Inc.
- Web3D consortium
- Asite Plc.
- PSIBouw
- GoTagIt A/S
- North Energy
- Cadvisual Group
- PG Marine Group
- Vianova Plan & Trafikk
- IKEA
- Statsbygg
- Oslo kommune
- Bærum kommune
- Bergen Kommune
- Medplan Arkitekter
- Helsebygg Midt Norge
- DARK
- Rambøll Danmark AS
- Rambøll Mapping AS
- Vianova Systems AS
- EPM Technology AS
- Norkart AS
- Selvaag Gruppen AS
- HolteProsjekt Innovasjon AS
- GibGreiner AG
- College of Oslo
- Gothenbourg Architectural College
- College of Akershus
- Royal Technical University
- Düsseldorf University
- University of Pittsburg
- University of Marburg
- University of New South Wales
- Technical University of München
- Technical University of Taiwan
- Instituto Tecnológico de la Construcción (Spain)
- University of Sussex
- Macaulay Institute
- Karlsruhe University
- Marquette University
- University of Missouri, St. Louis

Customers that have purchased Octaga products through Octaga’s webshop is not listed.
Octaga’s products are based on Open standards/Industry standards
Octaga in Training Systems
Octaga Panorama
big screen solution for high end presentations
Octaga in technical simulations

All processes stable - fill ballast tanks

click here or press 'space bar' to start

FPS: 31.08
ISO 15926 provides foundation for Ormen Lange Training and Operations

- Plant Maintenance and Operations
- Subsea Training
- Flow visualization
- Manifold Assembly on terrain
- Evacuation Simulation
- Procedure Simulation
The Ormen Lange plant challenge

• Problem domain
  • To efficiently visualise one of world’s largest PDMS databases
  • To automatically update the view model
  • To build an 3D intuitive user interface while preserving critical process plant data
  • To merge different CAD formats including GIS/Terrainmodel

• Solution
  • Use ISO 15926 through XMpLant
  • Use Octaga’s existing parametric visualisation system
  • Use ISO X3D for interactive visualisation.

• Customer
  • Shell Norway—responsible for operating Ormen Lange processing plant.
Octaga suitability

- Strong and adaptive development team
- ISO experience and approach
- Successful pilot project
- Positive user-feedback
- User-driven development
- Close proximity to users and project steering committee
Octaga Enterprise
Transforms CAD data automatically into 3D environments.

CAD
- Process Plant
- Mechanical CAD
- AEC
- Aerospace

Geometry/Attributes

Octaga Enterprise Manager

Octaga Enterprise

Octaga Enterprise Lite
Handling of Top side and sub sea data
Combined CAD model and training simulation
ISO 15926 enables Octaga Enterprise functionality

- **Business benefits**
  - Easy to use 3D interface
  - Access asset information through context sensitive hyperlinks
  - Search and zoomed to tagged assets
  - Export information to work orders
    - Screenshots
    - Printouts
    - Viewpoint tours
  - Seamless integration with existing ERP systems
Octaga Enterprise basic functionality:

- Streaming and rendering of extremely large 3D databases including geometry and property information
- Combined 2D-3D video rendering
- Dynamic view transparency
- Viewpoint tour
- Tag search
- Intelligent zooming
- Collision detection
- Gravity on/off
- Walk, Fly, Examine, Slide, Pan, Look-At and Game Style Navigation
- Show/Hide objects in 3D view
- Integration of two-way URL interface for data warehouse
- Highlight multiple objects
- Terrain following mode
- Supported formats:
  - ISO15926
  - X3D
  - VRML
  - MCAD Formats via Enterprise manager
Octaga Enterprise additional functionality:

- 2D Mini-map for simplified navigation
- Configurable Avatar
- Textures for realistic rendering
- Filtering of objects by systems/discipline
- Color coding according to disciplines and systems
- Redlining
- Collaboration
- Viewpoint tours - recording
- Video export
- Measurement tool (distance)
- Laser Scan/ Point Cloud import with user defined resolution
  - Laser Scan/ Point Cloud combining with CAD models
- Manual insertion of object tag entry
- Merge CAD models from different formats
- Select, scale and rotate objects
- Export to Octaga Player
Octaga Enterprise system architecture incorporates XMpLant

- System divided into Asynchronous and Synchronous operations.
- XMpLant accesses PDMS database offline and generates ISO 15926 files for entire database.
- Octaga Enterprise Manager pre-processes ISO 15926 files and generates compressed ISO X3D files for optimised visualisation.
- X3D and XML files are streamed to client PCs from standard file server.
- Automatic updates can be scheduled.
Detail of ISO 15926 information processing

- Octaga Enterprise Manager generates a meta file based on spatial information.
- Visual hierarchy reflects plant item hierarchy.
- Streaming system uses plant item as lowest level of granularity.
ISO 15926 model data presented in a web based environment

- Hyperlinks can be embedded in the 3D scene.
- Hyperlinks generated on a per-plant item bases.
- Hyperlinks constructed based on tag numbers.
Using the information available in the ISO 15926 data

Critical information is preserved:

• Extents
  • Used for spatial optimisation

• Geometry
  • Used directly in visualisation

• Hierarchy
  • Used in Tree View and for graphics optimisation

• Tag numbers
  • Used for tag search and tag display

• Attributes
  • Accessible to user and used for graphical appearance
    • Metallic appearance for pipes
    • Textures for asphalt and steel work
Support of other formats
ISO and Proprietary

- Pro/ENGINEER
- CatiaV5
- Unigraphics
- SolidWorks
- VRML/X3D
- IFC (BIM)
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