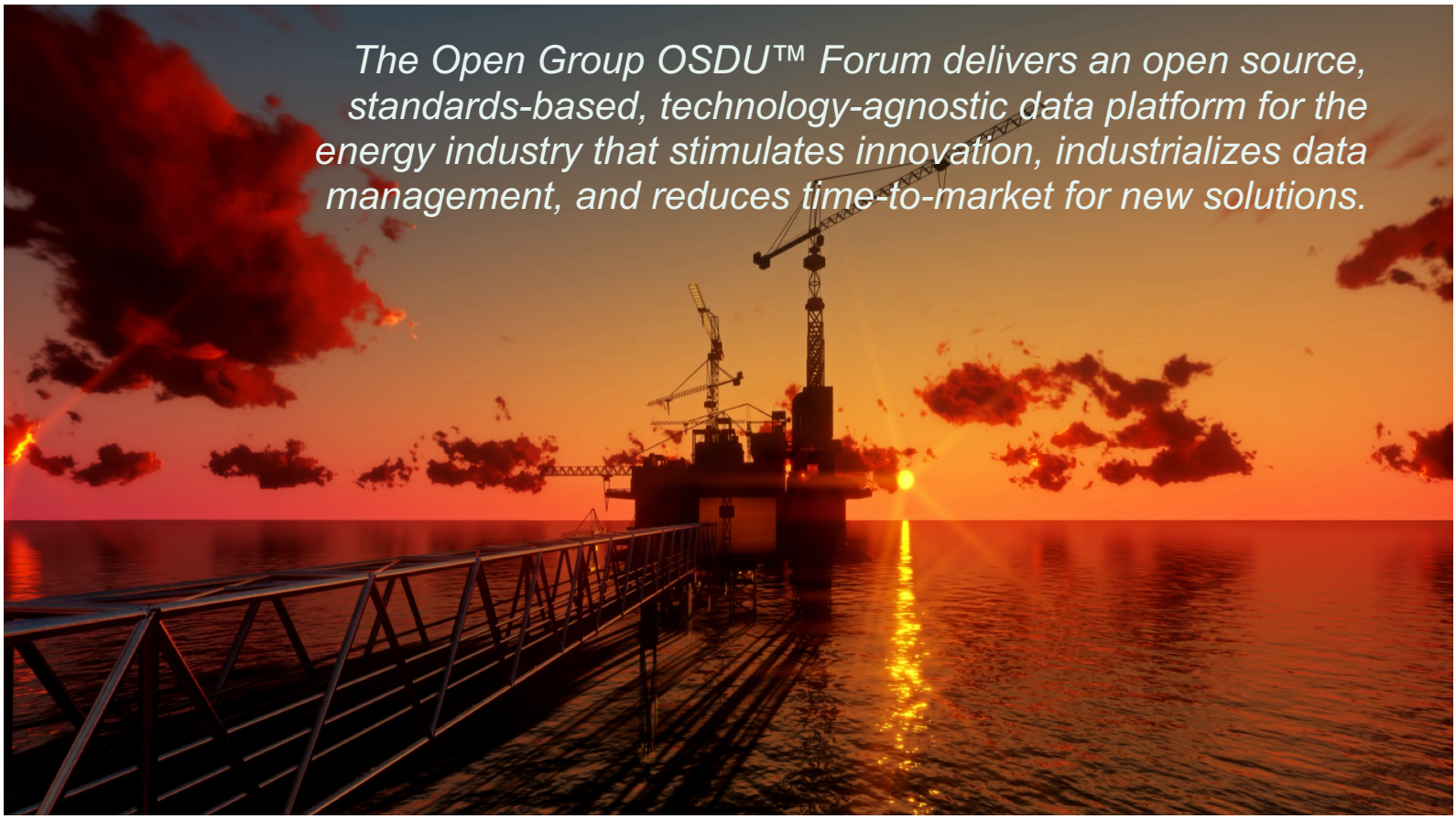
#6 THE OPEN GROUP OSDU™ FORUM QUARTERLY NEWSLETTER

2Q 2022



WELCOME

Gather with a purpose! It has been great to see the community at industry events, conferences, and other gatherings over these past couple of months as the world opens again. As we pull out of the pandemic years it is exciting to see the community with a renewed energy to gather and work together.

We recently sent out a 'save-the-date' and survey to understand your interest in attending an OSDU™ Forum-wide event in October of this year. For many new members this will be the first chance to engage the community in person and we encourage you to consider attending. If you are interested in attending, look out for our registration site which will be available soon.

CONTENTS

In the second quarter of 2022 the OSDU Forum has continued to deliver release milestones, adding and refining platform capability with member-driven features. As we strive for continuous delivery our community continues to release valuable new functionality and enhancements approximately every fifty days (average of trailing six releases).

There are some exciting new capabilities coming, and I encourage you to read on in the newsletter to learn more about External Data Sources (EDS) as just one example of projects that are adding capability to the OSDU Data Platform.

For all of you who contribute valuable development and testing resources to make these releases possible, we thank you for your contributions. If you are a software developer or tester looking to get involved in the community releases, please reach out and we will help get you connected to projects of interest.

And last, but not least, we look forward to the OSDU Forum Virtual Event taking place next week (June 22-23, 2022). Please join to hear several interesting panel discussions as well as updates from the working groups on developments in the OSDU Data Platform and the OSDU Forum. If you don't get a chance to attend as the sessions happen, please consider accessing the recordings to listen the discussion.

Thanks for all your support and until next time.

Patrick & Jane

Patrick J. Kelly
Chair, OSDU Forum

Jane McConnell
Vice Chair, OSDU Forum

Energistics® Publishes Omnibus Release of its Data Transfer Standards

The latest versions of WITSML™, PRODML™, and RESQM™L with a shared version of Energistics common are now available for download and implementation.

The Energistics Consortium published an omnibus release containing the latest versions of its domain standards. These standards support added functionality within each domain, better interoperability, and consistency, as well as providing additional data elements to improve compatibility with the OSDU™ Data Platform.

The standards include:

- **WITSML v2.1** - for well data and covering workflows for drilling, completion, and intervention
- **PRODML v2.2** - for data from the reservoir-wellbore boundary to the custody transfer point and covering workflows for production reporting, surveillance, and optimization
- **RESQML v2.2** - for reservoir and earth modeling data for the reservoir lifecycle, including workflows for initial structural interpretation and modeling, reservoir characterization, static and dynamic simulation, and production monitoring
- **Energistics *common* v2.3** - a set of data objects shared by the domain standards for consistency and easier implementation

A release candidate was posted in December 2021 for a three-month public review period. During this time, the standards were available for anyone within the sector to download, review, test, and comment on the content. This review process is critical, as it ultimately ensures the best possible version of the standard was being created and adapted for users, by users, industry-wide.

The domain standards and related documents have now been finalized and are available to download from the Energistics website Standards Download page.

Additionally, two specifications that form part of the Energistics Common Technical Architecture have been updated. The new versions are published and available in the Energistics *common* folder of the download file. These are:

- ***Energistics Identifier Specification v5.0*** - a document that describes the syntax and semantics of data object and dataspace identifiers as used within the Energistics family of data transfer standards and the Energistics Transfer Protocol (ETP)
- ***Energistics Packaging Conventions Specification v1.1*** - a document that defines and describes the details of the Energistics Packaging Conventions (EPC); tailored to the Open Packaging Conventions (OPC), a widely used container-file technology that allows multiple types of files to be presented together in a single package similar to a zip file

EXTERNAL DATA SOURCES (EDS) UPDATE

What is EDS?

With the publishing of the OSDU™ demo software ("R0") in 2019, the value of a cloud-agnostic, scalable, subsurface data ecosystem with standardized methods of data exchange that could be used by Operators, Data Suppliers, Software Providers, and others across the energy industry became clear to many. Operators and Data Suppliers recognized that if the OSDU platform's core functionality could be expanded to allow an OSDU Data Platform instance to transparently include data from other sources, then it would provide greater visibility and accessibility of data to subsurface workflows. This is where External Data Sources (EDS) comes in.

EDS enables digital communication between a consumer's OSDU platform (i.e., Operator) and OSDU-aware data sources (i.e., Data Providers like TGS® and Katalyst™). This allows EDS to transparently pull metadata (master data, work product component, etc.) from the Data Provider into the consumer's OSDU platform while leaving bulk datasets, such as files, stored at the source for delivery on demand.

Operators today license data from almost everyone. In the energy industry, much of the Operator work relies not only on the propriety data that they generate but also a large amount of data licensed from Data Providers. Operators manually go to every Data Provider portal to download the licensed data - from Suppliers such as TGS, Katalyst, and IHS™.

Overview: Connecting External Data Sources

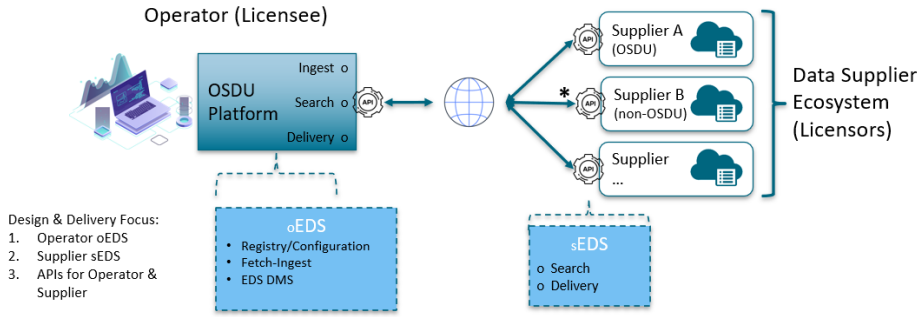


Figure 1: On the left-hand side you can see an Operator (who is a Licensee) and on the right-hand side you can see all Data Providers.

How is EDS Architected?

At a high level you can think of EDS as three capabilities:

- **Registration Process**

  This functionality enables the registration (persistence) of configuration information needed for automated services to orchestrate Fetch and Ingestion workflows between a consuming OSDU Data Platform and OSDU compliant data sources. The purpose of the Registration Process is to store data sources registry information, such as external OSDU Search and Delivery endpoints, targeted data types for retrieval, and other configurations in the consuming OSDU platform. This is so that it can be retrieved later by the Core External Data Workflow Services

(also called Fetch and Ingest) for use as input parameters in orchestrating scheduled data movement.

- **Fetch and Ingest (**External Data Workflow Services)

  Automated services that consume the Registration Process (also called Source Registry configuration) to handle the Fetch and Ingest orchestration. “Fetch” refers to retrieving targeted metadata from an external source. “Ingest” refers to preparing the fetched data for ingestion and orchestrating its ingestion into the consumer's OSDU Data Platform.

- **EDS DMS**

  Service that enables the transparent delivery of bulk datasets, such as files, from an external source to the consumer using core OSDU Delivery service patterns. Users want bulk data, such as a file, to be sourced externally. This is so it can be cached in the consumer's OSDU Data Platform, thus the file can be delivered efficiently if requested more than once, and delivered consistently and securely from the consuming platform's storage.

Who is working on EDS?

The EDS team spans operators, data providers, CSPs and some software vendors.

- From the Data Provider side, Katalyst and TGS have created the managed wrappers to enable communication between operators and data providers.
- Data Operators like Chevron, ExxonMobil, and ENI are helping us identify various scenarios and use cases.
- AWS and Microsoft are the two CSPs that work closely with EDS.

When can I try it?

We are aiming to ship our first version of EDS in M13 (if everything goes as per the plan).

- Software Maturity: Incubator
- Standard Maturity: Experimental

Want to get involved?

We would love to engage more data providers and operators to identify and clarify various use cases for EDS. In addition, more CSP engagement is always very welcome.

You can join our regular calls:

- EDS Daily Stand up calls happens on Monday, Tuesday and Thursday at 07:30 America/Chicago (30 min)
- EDS Weekly Connect every Friday at 07:30 America/Chicago (60 min)

You can find the join links here: https://www.opengroup.org/og_sduaggregatedcalendar

OSDU CCUS PURPOSE AND GOALS

Carbon Capture, Utilization, and Storage (CCUS) is an integral part of the goal of carbon neutrality and the global shift towards energy transition and reduced usage of fossil fuels. Recent years have seen an increase in both interest and investment in this arena and it represents a key part of any Open Energy platform.

The CCUS Group is represented by a number of companies with different skill sets. The focus to date has been on geological storage data types, which reflects the knowledge base of the group, but the intention is to establish an end-to-end solution including Carbon Capture, Transportation, and Utilization going forward. This will require input from Subject Matter Experts (SMEs) familiar with these areas and the setting up of additional subgroups. There is also a strong case to capture regulatory requirements as part of any Open Source solution.

The remit of the OSDU CCUS Group has been to identify and prioritize key CCUS data types, to establish where they exist in linked groups and, having discovered where there are gaps, to write additional exclusive data schemas for upcoming releases and deliver their OSDU schemas and reference values to the Platform. Unlike other groups, there is a considerable breadth of data required and CCUS can be considered as a “pattern of usage” rather than a specific data domain. The prioritization has been based on input from a number of Operators who cover a variety of project interests. It is important to understand the requirements of different types of projects, whether they are onshore or offshore, greenfield or brownfield, and to also include alternative storage solutions such as aquifer and depleted field reservoirs.

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CCUS Data Identification

				Project Phase					Type of field			
Parent Data Component	Data Component	Entity Name	Entity Details (Metadata)	Site Screening	Site characterisation and planning	Development and drilling	Injection & Monitoring	Post-Injection / Decommissioning	Onshore relevant	Offshore relevant	Brown field relevant	Green Field relevant
Spatial	Spatial	Basin		YES								
Spatial	Spatial	Bathymetry										
Spatial	Spatial	Exploration Permit / Title		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spatial	Spatial	Geographical Area		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spatial	Spatial	Geographical Outlines		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spatial	Spatial	Geological Area		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spatial	Spatial	Geopolitical Area		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spatial	Spatial	Geopolitical Boundaries		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spatial	Geohazard (Pre-drill)	Site Survey	Report on rig site conditions, shallow gas, other hazards, bathymetry for the proposed well. Information arising from 2D shallow seismic surveys; also reports describing subsidence of the seabed arising from oil and gas production activities	Yes	Yes	YES	YES	Yes	YES	YES	YES	YES
Spatial	Spatial	Land Topography		Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Spatial	Spatial	Satellite Data	InSAR and other surface deformation data	No	No	No	YES	Yes	YES	NO	YES	YES
Spatial	Spatial	Ground Water Monitoring data	Environmental monitoring Data	No	No	No	YES	Yes	YES	NO	YES	
Spatial	Spatial	Soil gas flux monitoring	Environmental monitoring Data	No	No	No	YES	Yes	YES	NO	YES	
Potential Field	Survey data	Gravity & Magnetic	All raw and processed and gridded data	Yes	Yes	YES	YES	YES	YES	YES	YES	YES
Potential Field	Survey data	Electromagnetic data	Field data (both raw and calibrated), time series data, magnitude and phase data, traces (transient CSEM) and impedance tensor (MT)	Yes	Yes	YES	YES	Yes	YES	YES	YES	YES
Earth	Stratigraphy	Chemostratigraphic Data		Yes	Yes	Yes	no	no	Yes	Yes	Yes	Yes
Earth	Stratigraphy	Geological Sequence Stratigraphy		Yes	Yes	Yes	no	no	Yes	Yes	Yes	Yes
Earth	Stratigraphy	Regional Stratigraphic Framework		Yes	Yes	NO	no	no	Yes	Yes	Yes	Yes
Earth	Earth Models	Fault Framework		YES	YES	YES	No	NO	YES	YES	YES	YES
Earth	Earth Models	Geological Framework		YES	YES	YES	No	NO	YES	YES	YES	YES
Reservoir	Earth Models	Static Earth Model		YES	YES	YES	YES	YES	YES	YES	YES	YES

The data which were unavailable were classified, surface deformation monitoring being selected as

having the highest priority and thus the first set of data to be worked on by the Group:

Micro-seismic (real-time and processed)	Medium	High	Medium	Medium	High
Environmental/Geochemical monitoring (ground water, soil gas flux)	Medium	High	Medium	High	High
Surface deformation monitoring	High	High	High	High	High
Wellbore Sample Geochemistry	High	Medium	High	Medium	Medium
Electromagnetic	Low	Low	Low	Low	Low
Micro-gravity	Low	Low	Low	Medium	Low
Hydrogeological	High	Low	High	Medium	Low

There are two CCUS bi-weekly meetings, the first working on the identification of data types and liaison with SMEs and strategy, and the second, run by the Data Definitions team, working on schema generation. The first, Processed InSAR WPC, addressed the data type for ground deformation and reference values will be available in the M12 release.

The CCUS Group is currently working on Environmental Monitoring data and Microseismic data. Although these are important requirements for CCUS projects, they will also, potentially, provide added value to other traditional Oil and Gas workflows and allow for a more comprehensive set of data to be deployed. There is considerable benefit of working across the groups to maintain consistency and avoid any overlap.

Recordings of the Virtual Vendor Roadshow Demos

In May, the OSDU™ Forum hosted two virtual sessions for vendors to show how they were working with the OSDU Data Platform.

The Member only sessions were recorded and are available on the Member Gitlab site.

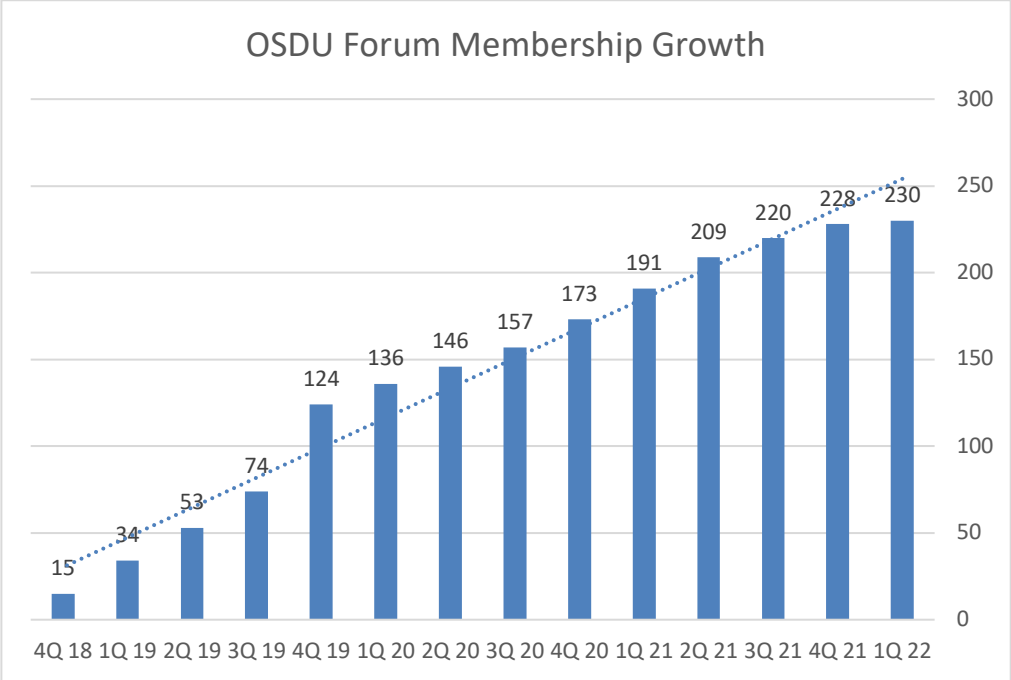
The 18 individual presentations from the vendor organizations are listed below and can be found at https://osduforum.org/osdu-videos-virtual-vendor-roadshow/:

- 47Lining®
- Accenture™
- Bluware™
- CGI™
- geoLOGIC
- Geophysical Insights™
- Geosiris
- Ikon Science
- Informatica®
- INT
- Interica
- Katalyst
- LTI
- Pro Well Plan
- QuestLabs
- Schlumberger™
- tde
- TIBCO™

If your organization is not yet a member of the OSDU Forum and would like to get involved, please email: membership@opengroup.org.

MEMBERSHIP UPDATE

The OSDU™ Forum was founded in 2018, and membership has steadily increased every quarter since then.



As of June 2022, there are 256 member organizations of The Open Group currently entitled to participate in the OSDU Forum, with 226 active OSDU Forum member companies.

There are approximately 1,800 individuals from member organizations participating in OSDU Forum activities.

THE OPEN GROUP OSDU™ FORUM MEMBER

If your organization is not yet a member of the OSDU Forum and would like to get involved, please email: membership@opengroup.org.

MEMBERSHIP UPDATE (CONTINUED)

New organizations which became members of the OSDU Forum in 1Q, 2022 were:

SOCIAL MEDIA LINKS

"The OSDU™ Data Platform Mercury Release represents an important achievement by the OSDU Forum in a very short space of time. Established in 2018, the OSDU Forum has accumulated over 200 member organizations who are collaborating together to accelerate innovation and reduce costs in the energy sector. With a standard data platform, energy companies will be able to drive innovation by integrating digital technologies and utilizing open standards for better decision-making. Looking ahead, it will be imperative to meet the world's increasing energy demands while reducing greenhouse gas emissions."

Steve Nunn
President & CEO, The Open Group

"Data is at the heart of the transformation of bp™ into an integrated energy company. We believe that the future of the energy industry will be data-driven and dependent on its ability to manage data in a manner that promotes data sharing with partners, innovation through data science, and rapid decision-making throughout the lifecycle of the energy value chains. Being a founding member of the OSDU Forum, bp has had an opportunity to be part of an organization that is fundamentally changing the data landscape for our industry. By integrating energy organizations, cloud service providers, and software vendors, the OSDU Forum is providing an opportunity for collaboration that will be beneficial for all involved. We are very excited about the release of OSDU Mercury and look forward to expanding this approach into engineering, emissions, and new energy."

David Eyton
EVP Innovation & Engineering, bp

#ogOSDU

About The Open Group

Leading the development of open, vendor-neutral technologystandards and certifications.

The Open Group is a global consortium that enables the achievement of business objectives through technology standards. With more than 870 member organizations, we have a diverse membership that spans all sectors of the technology community – customers, systems and solutions suppliers, tool vendors, integrators and consultants, as well as academics and researchers.

Vision

Boundaryless Information Flow™ achieved through global interoperability in asecure, reliable, and timely manner.

Mission

The mission of The Open Group is to drive the creation of BoundaylessInformation Flow™ achieved by:

- Working with customers to capture, understand, and address current and emerging requirements, establish policies, and share best practices
- Working with suppliers, consortia, and standards bodies to develop consensus and facilitate interoperability, to evolve and integrate specifications and open source technologies
- Offering a comprehensive set of services to enhance the operational efficiency of consortia
- Developing and operating the industry's premier certification service and encouraging procurement of certified products

Keys facts include:

- Over 870 Member organizations, with 43,000+ participants in The Open Group activities from 126 countries
- Our Platinum Members are DXC Technology, Fujitsu, HCL, Huawei, IBM, Intel, Micro Focus, Oracle, and Philips
- Developing and operating the industry's premier certification service and encouraging procurement of certified products
- Services provided include strategy, management, innovation and research, standards, certification, and test development
- Over 115,000 TOGAF® 9 certifications worldwide

Further information on The Open Group can be found at www.opengroup.org.

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