The Energy Industry Profile of ISO/DIS 19115-1: Facilitating Discovery and Evaluation of, and Access to Distributed Information Resources

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AGU Fall Meeting
7 Dec 2011
Outline

- The Problem & Solution Strategy
- Scope & Vision
- Initiative Participants & Process
- Profile Design & Provisions
- Timeline
>40% of staff time devoted to finding, retrieving, and verifying information, while data volume is growing at 60-80%/yr and need for integrating distributed, diverse resources is increasing

... and An Accepted Strategy to Address It:
Realize metadata standards and guidelines which enable stakeholders in the energy community to effectively and efficiently **discover, evaluate, and retrieve distributed information resources**.

Support **both proprietary data management** needs, and **exchange of data between members of the community**.

**Leverage existing standards to encourage adoption** within the community and integration into the business, **and exploit existing community resources needed for governance and long-term maintenance**.
1. Application usage:
   - Discovery, evaluation and retrieval of information resources distributed across the community

2. User community:
   - Anyone cataloging, searching, evaluating or accessing information with value to members of the energy industry:
     ✓ Energy companies & consortia
     ✓ Data & Information providers
     ✓ Software vendors
     ✓ Government agencies & Academia

3. Resource types:
   - Initial focus on structured and unstructured information resources which have associated spatial coordinates:
     ✓ Geospatial data sets & web services
     ✓ Mapping, Interpretation & Modeling project data sets
     ✓ Physical resources with associated location
Initiative Participants

Energistics Work Group

Dave Danko, ESRI
Lisa Derenthal, Gimmal
Alan Doniger, ACD Consulting Solutions
Scott Hills, Chevron
Hari Koduru, Energistics
Steve Richard, USGIN, AZ Geol Survey

Key Engagements

USGIN Project
- Joint project of USGS & AASG

ISO 19115 Revision Project Team
- Energistics is TC 211 Class A Liaison
- Work Group participating as Project Team member

Active Participants (SMEs)

AAPG
Apache
Boise State Univ.
Carbon Lifecycle Technology
ConocoPhillips
CoreLogic
DCP Midstream
Deloitte Services LP
Devon Energy
ETL Solutions
Exprodat
ExxonMobil
First American Spatial Solutions
Flare Solutions
Fugro Robertson
Geoscience Australia
Geosoft
Ies Brazil Consulting & Services
IHS Energy
Maersk Oil
New Century Software
North West Geomatics
Oracle
ORNL
P2 Energy Solutions
PEMEX
PennWell
PetroWEB
Pioneer Natural Resources
PPDM
Priemere Consulting Group
SAS Global Oil & Gas
Schlumberger
Shell
TOTAL
Univ. of Auckland, NZ
Virginia Dept of MM&E
Wood Mackenzie

1 Energistics member; 2 Energistics Project Manager; Bold: Contributed initial EIP requirements, Feedback about Release Candidate
Process & Deliverables

Leverage existing standards

- **ISO 19115** *(content model)*
  - and ISO 19139 *(XML encoding)*

- **Existing profiles of ISO 19115**
  - ANZLIC Profile (Australia, New Zealand)
  - European Union INSPIRE guidelines
  - USGIN Profile

... to Deliver

- **Energy Industry Profile of ISO/DIS 19115-1 v1.0**
  - ISO Conformance Level 1 Profile designed to enable community interoperability

- **125 pp. Specification Document includes:**
  - Normative Specifications
  - Implementation Guidelines
  - Selected XML Encoding Examples
Anticipating need for automated processing of large numbers of metadata records, and to simplify development, implementation, and maintenance of supporting software –

EIP v1.0
- identifies Three Classes of Information Resources, and decomposes them into Five Groups of Metadata Elements
- maps different combinations of Metadata Element Groups to MD_Scope codelist values, and thus the metadata configuration - e.g., “dataset” value identifies a Geolocated Digital Product

<table>
<thead>
<tr>
<th>Metadata Element Group</th>
<th>Digital Product</th>
<th>Physical Product</th>
<th>Digital Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Element Group</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>Digital Product-specific Group</td>
<td>Required</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Physical Product-specific Group</td>
<td>NA</td>
<td>Required</td>
<td>NA</td>
</tr>
<tr>
<td>Digital Service-specific Group</td>
<td>NA</td>
<td>NA</td>
<td>Required</td>
</tr>
<tr>
<td>Geolocated Resource-specific</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>
Profile-specific Provisions

Raises Element Obligation Level
1. of numerous elements to Conditional, based on MD_ScopeCode values
2. to Mandatory for Access and Use Constraints elements

Exploits Enhancement to ISO 19115
• Previous keyword/thesaurus construct
• ... extended in ISO/DIS 19115-1 to allow association of new class/ontology construct

... to enable semantic applications:
1. Keyword disambiguation, deciphering
2. Resource description using terms having known relationships & definitions
   (enables improved semantics of terms used to characterize structured resources)
Metadata Initiative Timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>EIP v1.0 Release Candidate Development</td>
</tr>
<tr>
<td>2011</td>
<td>ISO 19115-1 Revision Drafts (WD0, WD1, CD, DIS)</td>
</tr>
<tr>
<td>2012</td>
<td>ISO 19115-1 XML Encoding TS</td>
</tr>
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</table>

Updates:  
- ESRI UC  
- PUG  
- AGU

Key Events:

- EIP v1.0 Release Candidate
- Stakeholder Webinars
- Community Review
- ISO/DIS 19115-1 Release
- EIP v1.0
- EIP v1.1
- Pilots
- Initial Workable XML Encoding

AGU Highlight
Additional information ...

Go to www.energistics.org/metadata-work-group

or Email: metadata@energistics.org