Geospatial standards initiatives at Esri

David Danko
Christine White
GIS - merging diverse information

Diverse:
- information types
- formats
- perspectives

Distributed

Integrated by location
Interoperability – exchanging and using geographic knowledge

the ability of two or more systems or components to exchange information and to use the information that has been exchanged *

Semantic interoperability

Technical interoperability
Interoperability enablers

Supportive networks, Interfaces, hardware

- Practical, widely used
- Providing technical and semantic interoperability
- Fit for purpose
  - Geographic structures
  - Data formats
  - Content description
  - Quality
  - Data management
  - Visualization
  - Geoweb services
  - Metadata

Knowledgeable users

- Well trained
- Understand the need for quality
- Metadata to understand and use data and services properly

Interoperability

Standards

Laws

- Intellectual property protection, Authorization to share
Esri - Understanding the importance of Interoperability

**Technical**
- Multiple platforms
- Focus on broad-based IT standards
- Published APIs & formats
- Support multiple formats & projections
- Unrivaled support for all relevant geospatial standards

**Semantic**
- Encourage, coordinate, publish community data models
- Facilitate metadata standardization, and management
- Interoperability Extension

**Human**
- Training
- Publications
- Promoting geographic awareness

**Legal /Policy**
- ArcGIS Online and data programs
- Support security and geo-rights
Esri learns about and supports standardization through active participation:

Organizations
- ISO TC 211
- OGC
- ANSI/INCITS –L1
- CEN
- Global Map
- GSDI
- DGIWG
- IHO
- GWG

Projects
- GEOSS
- INSPIRE . . .

Implementations
- Platform
- GIS standards
- IT/industry standards

Development
- International Standards
- Regional Standards
- National Standards
- Information Community Standards

W3C World Wide Web Consortium
OGC International Committee for Information Technology Standards
CEN European Committee for Standardization
ISO International Organization for Standardization
Global Map
ANSI/INCITS
CEN
DGIWG
IHO
GWG
TC participation, project leadership, technical experts, outreach, sponsorship
Guided by ISO TC211 Standards
Informing Esri Development

- ISO 19107:2003 - Spatial schema
- ISO 19108:2002 - Temporal schema
- ISO 19111:2003 - Spatial referencing by coordinates
- ISO 19112:2003 - Spatial referencing by geographic identifiers
- ISO 19123:2005 - Schema for coverage geometry and functions
- ISO 19109:2005 - Rules for application schema
- ISO 19110:2005 - Feature cataloguing methodology
- ISO 19113:2002 - Quality principles
- ISO 19114:2003 - Quality evaluation procedures
- ISO 19115:2003 - Metadata
- ISO 19117:2005 - Portrayal
- ISO 19118:2005 - Encoding
- ISO 19119:2005 - Services
- ISO 19128:2005 - Web Map server interface
- ISO 19139:2006 – Metadata XML Schema
Esri serves many roles within OGC

Board of Directors
Architecture Board
Planning Committee
Numerous Technical Committees
Joint Advisory Group to ISO TC211
OGC II
OGC Europe
OGC Forums
OWS
Testbeds & Plugfests
Testing & Compliancy
Outreach Program
Financial Support
Adopting OGC Specifications

- Geography Markup Language (GML)
- NetCDF
- Filter Encoding (Filter)
- Catalog Service (CAT)
- OGC Web Services Common Specification
- Web Coverage Service (WCS)
- Web Feature Service (WFS)
- Web Map Context Documents (WMC)
- Web Map Service (WMS)
- Web Processing Service (WPS)
- Web Map Tile Service (WMTS)
- Sensor Observation Service (SOS)
- KML
- Styled Layer Descriptor (SLD)
- Simple Features – SQL (SFS)
- Simple Features – OLE/COM (SFO)
Stories & Examples

Christine White
Esri in action with ISO

ArcGIS for INSPIRE

Overview

The INSPIRE directive sets out a framework and timetable for sharing spatial data within the European Community to help address pan-European issues in a multinational and multiagency spatial data infrastructure (SDI). ArcGIS provides a powerful and comprehensive SDI solution that now includes capabilities to ensure INSPIRE compliance supporting data, services, and metadata, which are delivered in the new ArcGIS for INSPIRE.

ArcGIS for INSPIRE helps meet INSPIRE requirements by extending the ArcGIS software platform. It provides:
- INSPIRE View Service
- INSPIRE Download Service
- INSPIRE Annex I data models
- INSPIRE Discovery Service

See what's included in ArcGIS for INSPIRE.

Metadata Style

The style determines how metadata is viewed, exported, and validated, and which pages appear when editing metadata.

- ISO 19139 Metadata Implementation Specification
- FGDC CDGM Metadata
- INSPIRE Metadata Directive
- ISO 19139 Metadata Implementation Specification

Item Description

- North American Profile of ISO19115 2003 can be updated automatically in the metadata.
- Automatically update when metadata is viewed.

Metadata Upgrade Notification

The internal storage format for metadata has changed. You can see FGDC-formatted metadata in the display as read-only information, but this content must be upgraded before it's available for editing.

About managing FGDC metadata
Demo: Esri Geoportal Server

Metadata & data brokering
Demo: Energistics

Implementing the latest ISO 19115-1
Portal for ArcGIS

Add-ins for metadata
Ministry of Energy and Mineral Resources

Make a Map »
Create a map that can be viewed in a browser, desktop or mobile device. Share it on a blog, via email, or embed it in a website.
Coasts

Coastal port locations
Layer Package by admin
Last Modified: November 13, 2013
(0 ratings, 0 downloads)

Description
Coastal port locations

Access and Use Constraints
<xml version="1.0" encoding="UTF-8"?>
  <gmd:fileIdentifier>ba2f0b9d21f71acfe10609f76e2ab4c</gmd:fileIdentifier>
  <gmd:language><gco:CharacterString>eng</gco:CharacterString></gmd:language>
  <gmd:hierarchyLevel>
    <gmd:MD_ScopeCode codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodelists.xml#MD_ScopeCode" codeListValue="dataset">dataset</gmd:MD_ScopeCode>
  </gmd:hierarchyLevel>
  <gmd:contact>
    <gmd:CI_ResponsibleParty>
      <gmd:organisationName>
        <gco:CharacterString>Esi Test Data</gco:CharacterString>
      </gmd:organisationName>
      <gmd:organisationName>
      </gmd:organisationName>
      <gmd:contactInfo>
        <gmd:CI_Contact>
          <gmd:CI_Address>
            <gmd:electronicMailAddress>
              <gco:CharacterString>cwhite@esri.com</gco:CharacterString>
            </gmd:electronicMailAddress>
          </gmd:CI_Address>
        </gmd:CI_Contact>
      </gmd:contactInfo>
    </gmd:CI_ResponsibleParty>
  </gmd:contact>
</gmd:MD_Metadata>
ISO 19115 (Data)

Identification

Citation

Resource Title
Coasts

Resource Date

Date
2011-01-01

Date Type
Publication Date

Unique Resource Identifier
Map 1
DLG's depict information about geographic features on or near the surface of the Earth, terrain, and political and administrative units. These data were collected as part of the National Mapping Program. It is the intention of the Arkansas State Land Information Board to facilitate the dissemination of the 1:100,000-scale Digital Line Graphs.

Web Map by admin
Last Modified: March 5, 2013
(0 ratings, 0 comments, 74 views)

Bing Maps Road-Copy
This web map contains the Bing Maps Road web mapping service, which offers worldwide road data.

Web Map by admin
Last Modified: February 15, 2013
(0 ratings, 0 comments, 0 views)

Bing Maps Road
This web map contains the Bing Maps Road web mapping service, which offers worldwide road data.

Web Map by esri_en
Last Modified: January 3, 2013
(0 ratings, 0 comments, 397 views)

GPX
This template animates through the time-aware gpx point data
Federated Searches to external repositories

Find groups related to "map"

Search other catalogs

- ArcGIS Server Geoportal Extension 10 - OGC CSW 2.0.2 ISO AP
- ArcGIS Server Geoportal Extension 10 - OGC CSW 2.0.2 ISO AP
- Barcelona City Council Catalog
- GEO DAB
- Geoportal 1.2.2 - OGC CSW 2.0.2 ISO AP
- GEOSS Clearinghouse
- GEOSS Clearinghouse
- Iowa Geospatial Data Clearinghouse
- Kentucky Geography Network
- Missouri Geospatial Data Clearinghouse
- Montana GIS Portal
- NC OneMap Geospatial Portal - OGC CSW 2.0.2 ISO AP
- NebraskaMAP GeoPortal
- NIWA Data Catalogue
- NJTPA Geoportal
- Oregon Spatial Data Library
- Washington State Geospatial Clearinghouse
- Webservice-Energy Catalogue (OGC/CSW)

Map Tour

Eine Storytelling-Vorlage mit einer interaktiven Karte, einem Foto- und Textfenster sowie einem Miniatursichtenschenkarussell.

- Web Mapping Application by esri_de
  Last Modified: September 16, 2013
  ★★★★★ (0 ratings, 0 comments, 74 views)
Demo: CS-W Interface:
… for Portal & AGOL …
… for other repositories

… through Geoportal
Demo: INSPIRE & ELF

SDI in Action
The European Location Framework (ELF) is a One Reference Geo-Information Source for Europe and provides reference feature data and maps from all over Europe.
Demo: ArcCatalog

Metadata management
Referenced Links

• Geoportal
  - as a broker wiki: https://github.com/Esri/geoportal-server/wiki/Geoportal-server-as-a-broker
  - Sandbox site: http://gptogc.esri.com/geoportal
  - GitHub profiles: https://github.com/Esri/geoportal-server/tree/develop/geoportal/profiles/metadata/iso

• Energistics
  - homepage: http://www.energistics.org/
  - EIP geoportal reference implementation: http://geoportal.energistics.org/eip

• ArcGIS for INSPIRE: http://www.esri.com/software/arcgis/arcgis-for-inspire

• ELF homepage: http://www.elfproject.eu

• ArcCatalog support for ISO documentation: http://resources.arcgis.com/en/help/main/10.2/index.html#/003t00000039000000
Understanding our world.