Why bother with metadata?
Watching Paint Dry
Why bother with metadata standards?

- Content checklist for authors
- Common understanding of geospatial data
  - Between countries
  - Between communities
- Publish to metadata catalogs
- Consistent terminology for global search
Tim Berners Lee’s rating system for the WWW

- **Published**: Data is released
- **Accessible**: Data is structured
- **Discoverable**: Data has metadata
- **Associations**: Data is linked

- **Good**
- **Better**
- **Best**
Metadata standards today

Extensions

ISO 19115 Geospatial Information - Metadata Aka “ISO Metadata”

Profiles

Index of /schemas/metadata

- Parent Directory
- fgdc-std-001-1998-sect01.xsd
- fgdc-std-001-1998-sect02.xsd
- fgdc-std-001-1998-sect03.xsd
- fgdc-std-001-1998-sect04.xsd
- fgdc-std-001-1998-sect05.xsd
- fgdc-std-001-1998-sect06.xsd
- fgdc-std-001-1998-sect07.xsd
- fgdc-std-001-1998-sect08.xsd
- fgdc-std-001-1998-sect09.xsd
- fgdc-std-001-1998-sect10.xsd
- fgdc-std-001-1998.dtd
- fgdc-std-001-1998.xsd
- fgdc-std-001-1998.xsd

<xsd:element name="bounding" type="boundingType"/>
<xsd:complexType name="boundingType">
  <xsd:sequence>
    <xsd:element ref="westbc"/>
    <xsd:element ref="eastbc"/>
    <xsd:element ref="northbc"/>
    <xsd:element ref="southbc"/>
  </xsd:sequence>
</xsd:complexType>
Overview of Metadata Standards

- FGDC CSDGM Metadata
  1. Identification Information
     • Some coded domain values
  2. Data Quality Information
  3. Spatial Data Organization Information
     • Some coded domain values
  4. Spatial Reference Information
  5. Entity and Attribute Information
  6. Distribution Information
     • Some coded domain values
  7. Metadata Information
  8. Citation Information
     • Some coded domain values
  9. Time Period Information
 10. Contact Information

Extensions for Remote Sensing Metadata

ISO TC 211 content standards
- ISO 19115-2:2009
- ISO 19110:2005
- ISO 19115:2003/Cor.1 2006

North American – 19115 (v1.2 2008)
Metadata standards tomorrow (future)
ISO 19115 (-1) Profiles

- Australia-New Zealand Profile
- North American Profile of ISO 19115:2003 (NAP)
  - CAN/CGSB-171.100-2009
  - INCITS 453-2009
- INSPIRE Metadata Directive
- ISO19115/ISO19119 Application Profile for CSW 2.0
- C3Grid ISO 19115 Metadata Profile
- Marine Community Metadata Profile of ISO 19115
- Energy Industry Profile of ISO 19115-1
- USGIN ISO 19139 Profile
- DISDI Geospatial Metadata Profile (DGMP)
- National System for Geospatial Intelligence Metadata Foundation (NMF)
- A metadata profile for precision agriculture based on ISO 19115 standard.
- WMO Core Profile of the ISO 19115 Metadata Standard
- Transformation of HDF-EOS metadata from the ECS model to ISO 19115-based XML
- Draft African metadata profile of ISO19115
- Samoan profile
- NOKIS – an ISO 19115 Based Metadata System
- The UDK and ISO 19115 Standard
- Latin American Profile
- Núcleo Español de Metadatos (NEM)
- UK GEMINI
- Biological profile
- Coastal zone profile
- S100 Metadata profile (IHO)
ArcGIS Metadata Standards Support

- ArcGIS Metadata
- FGDC CSDGM XML
- ISO 19139 XML
- ISO 19139 (NAP) XML
- ISO 19139 (INSPIRE) XML
Early advocate for “metadata” (data documentation/properties/digital marginalia)

FGDC CSDGM

Before “metadata” term

ISO 19115:2003

Lead and participate in 19139 development

Early support for Draft ISO 19115

Participate in ISO 19115 development

Full CSDGM support in ArcCatalog

Participate in CSDGM development

ISO 19139:2007

Create ISO-compliant XML

ISO Metadata revision ISO 19115-1

Participate in development and prepare for support.

Full implementation of profiles
ArcGIS Is a Platform
Enabling GIS Everywhere

Simple
Integrated
Open

Desktop
Web
Device

Portal

Server
Online Content and Services

Web GIS

Author / Create
Use
Catalog / Discover
/ search
Serve / Publish

Available in the Cloud . . .
. . . and On-Premises
ArcGIS Platform and Metadata

- **Items Carrying Metadata**
  - Portal and Online Items
  - Mxd’s, Datasets, Services
  - Folders
  - ...
  - Metadata Formats
    - Item Information
    - ArcGIS Metadata
    - Formal Metadata – FGDC, ISO, ...
    - DCAT
    - Encodings – esri JSON, XML, atom,

- **Indexing / Access / Discovery**
  - GeoServices REST Spec
  - OGC CS-W

- **Products**
  - ArcGIS Desktop – ArcMap, PRO
  - ArcGIS for Server
  - ArcGIS Online / Portal for ArcGIS
  - ArcGIS OpenData App
  - Geoportal Server
  - App Widgets
Esri support for metadata

ArcMap

Mxd properties

Geoportal

Item Info

ArcGIS Online

ArcGIS PRO

Service Metadata

ArcGIS OpenData

WMS metadata
What’s Next for ArcGIS?

• Will add support for ISO 19115-1 when it has been finalized and an XML Schema is available
  - Possibly support ISO 19115-2 at the same time

• Will update ArcGIS for Desktop to use schemas from new repository when it is available
  - Will use GML 3.2.1 namespace

• Improve and extend existing support for metadata in ArcGIS PRO

• Improve end-to-end support for metadata: Desktop -> Server -> Online/Portal