Why We Implemented ISO Metadata Standards

FGDC ISO Implementation Forum
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U.S. Census Bureau

U.S. Census Bureau Background

- The Census Bureau's mission
  - To serve as the leading source of quality data about the nation's people and economy.

- Geography Division (GEO)
  - Geography provides the framework for survey design, sample selection, data collection, tabulation, and dissemination.

- Public Products for which we publish metadata
  - TIGER/Line shapefiles
  - Cartographic Products
  - TIGERweb

United States Census Bureau

U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU

Reasons for Moving to ISO Metadata

- We anticipated the requirement
- We had business needs
- The timing was right
  - Knowledge
  - Tools
  - Support
  - Staff/Resources

Business Needs

- We had an application and web mapping services to document

- Wanted to provide ISO metadata to data.gov rather than having our existing CSDGM metadata translated to ISO by an automated process

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Knowledge

- We capitalized on training opportunities:
  - FGDC CAP grant sponsored training by Westat 2010/2011
  - NOAA Data Documentation workshop June 2011
  - FGDC Metadata Summit October 2011
  - NOAA Webinar series spring 2012
  - NOAA Webinar series winter 2013

Tools and Support

- ## Tools
  - – FGDC training webinars
  - – NOAA style sheet translations for transforming from CSDGM to ISO 19115
  - – NOAA Wiki page

- ## Support
  - – We regularly participate in FGDC Metadata Working Group activities

Staff and Resources

- Department of Commerce and Geography Division Policies/Standards
  - Reference various mandates
  - State that metadata must be produced for public products
  - Identifies mandatory elements based on our products and consumers

- Metadata coordination and implementation staff
  - Implementation manager, metadata content subject matter staff, and programmer contained within one organizational unit

ISO Standards Used

- We chose to implement ISO 19115-2
  - The transforms were available
- We implement 19110
  - We provided detailed entity and attribute information with CSDGM and wanted to continue to do so
- We utilize 19119 for applications and web map services
  - TIGERweb

Benefits of ISO Metadata

- Ability to document more than just data
  - Applications and WMS
- Ability to document resources in more detail
  - In particular WMS
- Ability to re-use metadata components
- Ability to make files compact and more reader friendly

Savings with Reusable Components

- Reduced the size of the 19115-2 file by a third using re-usable components for contact info

- A tenfold reduction in file size (from over one thousand lines to less than a hundred lines) by using re-usable components for contact info and entity attributes in the 19110 file

Reusable Components Example

Contact Info Resolved

- <gmd:contactInfo>
- <gmd:CI_Contact>
  - <gmd:phone>
    - <gmd:CI_Telephone>
      - <gmd:voice>
        - <gco:CharacterString xmlns:gco="**http://www.isotc211.org/2005/gco**">301-763-1128</gco:CharacterString>
      - </gmd:voice>
      - <gmd:facsimile>
        - <gco:CharacterString xmlns:gco="**http://www.isotc211.org/2005/gco**">301-763-4710</gco:CharacterString>
      - </gmd:facsimile>
    - </gmd:CI_Telephone>
  - </gmd:phone>
  - <gmd:address>
    - <gmd:CI_Address>
      - <gmd:deliveryPoint>
        - <gco:CharacterString xmlns:gco="**http://www.isotc211.org/2005/gco**">4600 Silver Hill Road, Stop 7400</gco:CharacterString>

Reusable Components Example

Contact Info Unresolved

- <gmd:contact xlink:title="**U.S. Department of Commerce, U.S. Census Bureau, Geography Division, Geographic Products Branch**" xmlns:gmd="**http://www.isotc211.org/2005/gmd**"
xlink:href="**https://www.ngdc.noaa.gov/docucomp/c5ceb003-1ed6-4126-8a16-bc08ce8fc267**"
xmlns:xlink="**http://www.w3.org/1999/xlink**"/>

Entity and Attribute Example

Resolved NAMELSAD Attribute

- <gfc:carrierOfCharacteristics>
-     <gfc:FC_FeatureAttribute>
  - <gfc:memberName>
    - <gco:LocalName xmlns:gco="**http://www.isotc211.org/2005/gco**">NAMELSAD</gco:LocalName>
  - </gfc:memberName>
  - <gfc:definition>
    - <gco:CharacterString xmlns:gco="**http://www.isotc211.org/2005/gco**">Current name and the translated legal/statistical area description code for American Indian/Alaska Native/Native Hawaiian area</gco:CharacterString>
  - </gfc:definition>
  - <gfc:cardinality xmlns:gco="**http://www.isotc211.org/2005/gco**" gco:nilReason="**unknown**"/>
    - <gfc:definitionReference xlink:title="**U.S. Census Bureau**" xlink:href="**http://www.ngdc.noaa.gov/docucomp/eb139e38-ee29-4d59-b157-5e874d4420c4**" xmlns:xlink="**http://www.w3.org/1999/xlink**"/>
  - <gfc:listedValue>
    - <gfc:FC_ListedValue>
      - <gfc:label xmlns:gco="**http://www.isotc211.org/2005/gco**" gco:nilReason="**inapplicable**"/>
      - <gfc:definition>
        - <gco:CharacterString xmlns:gco="**http://www.isotc211.org/2005/gco**">
- Refer to the name in the 'NAME' field and the translated legal/statistical area description code for American Indian/Alaska Native/Native Hawaiian area   </gco:CharacterString>
      -     </gfc:definition>
    -     </gfc:FC_ListedValue>
  -     </gfc:listedValue>
-     </gfc:FC_FeatureAttribute>
- </gfc:carrierOfCharacteristics>

Entity and Attribute Example

Unresolved NAMELSAD Attribute

<gfc:carrierOfCharacteristics

xlink:title=" NAMELSAD: Current name and the translated legal/statistical area description code for American Indian/Alaska Native/Native Hawaiian area "

xmlns:gmd="**http://www.isotc211.org/2005/gmd**"

xlink:href="**https://www.ngdc.noaa.gov/docucomp/c5ceb003-1ed6-4126-8a16-bc08ce8fc267**"

xmlns:xlink="**http://www.w3.org/1999/xlink**"

>

Challenges to Implementing ISO Metadata

- ISO metadata files are larger in size than CSDGM files

- There weren't many examples of:
  - ISO metadata files for services and applications
  - ISO metadata files for detailed entity and attribute data

Accomplishments

- ISO metadata has been published for
  - TIGERweb services starting in 2012
  - 2013 Cartographic data products (early summer)
  - 2013 TIGER/Line shapefiles (late summer)

Next Steps

- Change our processes to create ISO metadata directly rather than translating from CSDGM format

- Automate metadata production for WMS

- Investigating feature based metadata

Questions?