Idaho Technology Authority (ITA)

ENTERPRISE STANDARDS – S4000 INFORMATION AND DATA

Category: S4220 – GEOSPATIAL METADATA

CONTENTS:

I. DEFINITIONS

See ITA Guideline G105 (ITA Glossary of Terms) for definitions.

II. RATIONALE

As personnel change in an organization, institutional knowledge leaves the organization. Undocumented data can lose their value. Subsequent workers may have little understanding of the contents and uses for a digital database and may find they can't trust results generated from these data. [3]

Organizations can limit data liability by explicitly designating limits on the use of data. Disclosing restrictions and use constraints as well as providing disclaimers is important for both users and producers of data to limit liability.
Lack of knowledge about other organizations' data can lead to duplication of effort. Metadata supports producers in locating and using their own data resources and data consumers in locating and using data resources produced by others.

Creation and maintenance of metadata is critical for the discovery of geospatial resources through the State and federal geospatial data clearinghouses.

The adoption of geospatial metadata standards endorsed by the FGDC puts data producers in Idaho in harmony with Federal Government data producers and supports

state (see ITA Standard S4250 (GIS Data Sharing Standards)) and nationwide data publishing efforts.

III. APPROVED STANDARD(S)

Geospatial resources (any resource with a geographic component) must be documented using a geospatial metadata standard endorsed by the Federal Geographic Data Committee. (*Geospatial Metadata Standards - Federal Geographic Data Committee*) [4].

IV. APPROVED PRODUCT(S)

Metadata can be created using widely available desktop, mobile, and web-based software.

V. TECHNICAL AND IMPLEMENTATION CONSIDERATIONS

There are currently two FGDC-endorsed geospatial metadata standards: CSDGM & ISO 19100-series. Additionally, ESRI software store data using a proprietary (however publicly documented) schema commonly known as the 'ArcGIS metadata format'. This format supports documenting resources using several geospatial metadata standards. Current industry standard is not yet settled on the transition to the production of ISO metadata. It is recommended that Esri software user utilize the Esri ArcGIS metadata format selecting the 'FGDC CSDGM Metadata' style.

Content Standard for Digital Geospatial Metadata (CSDGM)

The Content Standard for Digital Geospatial Metadata (CSDGM), Version 2 (FGDC-STD-001-1998) is the current US Federal Metadata standard. The CSDGM was developed by FGDC in support of the coordinated development, use, sharing, and dissemination of geospatial data on a national basis. [4]

The CSDGM Version 2 (FGDC-STD-001-1998) Technical Specification is a helpful reference for details about the standard.

The CSDGM Workbook and the CSDGM Graphical Representation are helpful for implementing the standard as they describe mandatory and conditional sections and elements.

International Organization for Standardization (ISO)

The International Organization for Standardization (ISO) developed a series of standards to describe geographic information. International geospatial metadata standards are found in the 19100-series ISO suite of standards and these are endorsed by FGDC.

Non-Federally authored standards that are endorsed by the FGDC have the same status as FGDC developed standards.

Many geospatial metadata standards are produced by ISO committees. For example: ISO 19115 *Geographic information — Metadata* and ISO 19110 *Geographic information — Feature Catalog*, are two content standards. In contrast, ISO 19139 *Geographic information — Metadata — XML schema implementation*, is a technical specification that defines spatial metadata XML encoding. It provides a set of XML Schemas that define the XML format in which ISO 19115 and ISO 19110 metadata content should be stored. [5]

The ISO 19115-2:2009(E) workbook is helpful for implementing the standard as it describes mandatory and conditional sections and elements. The ISO 19115 Standard defines an extensive set of metadata elements however, it is essential that a basic minimum number of core metadata elements be maintained for a dataset.

Additionally, the ISO Geospatial Metadata Implementation Webinar resulted in a number of helpful resources that can help agencies move forward with implementation.

Esri ArcGIS Format Metadata

Esri's ArcGIS Desktop, Server, and Online applications store metadata using a proprietary (however publicly documented) schema. The software uses "styles" and XSLT transformations to support importing, editing, synchronizing, and exporting metadata conforming to multiple standards (FGDC CSDGM, ISO 19115, and others).

The current version of ArcGIS is designed to create, maintain, and use information stored in the ArcGIS metadata format 1.0. When using Esri software to create documentation for geospatial resources the "FGDC CSDGM Metadata" style" should be selected. Selecting FGDC-style metadata does not preclude transition to ISO-style in the future. If an organization decides to transition from FGDC-style metadata to ISO-style metadata they are able to change the style in ArcGIS. When the style is changed, all of the content previously entered remains. Metadata authors may be required to provide some different information than before to comply with the new standard's rules. [5]

Documentation can be created on resources in ArcGIS for Desktop, services in ArcGIS for Server, and items in ArcGIS Online.

VI. EMERGING TRENDS AND ARCHITECTURAL DIRECTIONS

While documentation for geospatial resources is essential, there is some lack of clarity in the United States about which FGDC-endorsed geospatial metadata standard to implement at the time of this writing. CSDGM is the current US Federal Metadata standard however, "…federal agencies are encouraged to transition to ISO metadata as

their agencies are able to do so." [4]. The CSDGM isn't scheduled for update while the ISO metadata standards continue to be updated. [6]

It is recommended that Esri software users document their geospatial assets using the Esri ArcGIS metadata format. Given the current environment at the time of this writing, the likely metadata standard to be used is the CSDGM.

As the ISO suite of geospatial metadata standards continue to evolve and their implementation within geospatial software continues to mature their adoption will likely expand due to their improved metadata development and management capabilities. [4].

VII. PROCEDURE REFERENCE

ITA Policy P1070 (Geographic Information Systems)

VIII. REVIEW CYCLE

Standard to be reviewed annually by the IGC-EC.

IX. CONTACT INFORMATION

For more information, contact the ITA Staff at (208) 605-4064.

X. WORKS CITED

[1] Federal Geospatial Data Committee. (2014). *Geospatial Metadata - Federal Geographic Data Committee*. Retrieved March 3, 2016 from: https://www.fgdc.gov/metadata

[2] Federal Geospatial Data Committee. (2015). *The Federal Geographic Data Committee - Federal Geographic Data Committee*. Retrieved March 3, 2016 from: https://www.fgdc.gov/

[3] Federal Geospatial Data Committee. (2012). *Business Case for Metadata - Federal Geographic Data Committee*. Retrieved March 3, 2016 from: https://www.fgdc.gov/metadata/metadata-business-case

[4] Federal Geospatial Data Committee. (2014). *Geospatial Metadata Standards - Federal Geographic Data Committee*. Retrieved March 3, 2016 from: https://www.fgdc.gov/metadata/geospatial-metadata-standards

[5] Esri. (2016). *Metadata styles and standards - Help | ArcGIS for Desktop*. Retrieved March 8, 2016 from: http://desktop.arcgis.com/en/arcmap/10.3/manage-data/metadata/metadata-standards-and-styles.htm

[6] Danko, D. (2015). ISO Metadata Standards Status [PowerPoint Slides]. Slide #7. Retrieved March 3, 2016 from: https://www.fgdc.gov/organization/working-groups-subcommittees/mwg/index_html

REVISION HISTORY

5/6/19 -   Removed individual definitions and replaced with reference to ITA Guideline G105 (ITA Glossary of Terms)

6/14/16 – Major revision to include ISO geospatial metadata standards and Esri ArcGISmetadata format.

7/01/13 – Changed "ITRMC" to "ITA".

2/02/11 – 4000 group title changed from "GIS (Geographic Information Systems) Data".

6/16/09 – Added Justification and Procedure Reference to this standard and deleted Timeline.

5/15/07 – Review cycle adjusted to 12 months.

   Effective Date: July 20, 2005