

Metadata Acquisition

Objectives (Entry)

This unit will introduce the definition, component, acquiring or importing, editing and exporting of Metadata. At the end of the unit, the student will be able to acquire the metadata when the data receives or create a metadata when the data is created and export the metadata when the data is distributed.

Metadata Acquisition (Clarification)

1. Introduction to metadata

What

Metadata is "data about data". Metadata is background information, which describes the content, quality, condition, and other appropriate characteristics of the data.

Example

Paper maps contain Metadata, primarily as part of the map legend and description of the map. In this form, Metadata is readily apparent and easily transferred between map producers and map users.

The following are examples of Metadata.

- Map indices and map legends
- Folder or booklet with notes on the production of dataset
- Readme files
- Table of content and Index of a Book

Metadata can be organized into several levels ranging from a simple listing of basic information about available data to detailed documentation about an individual data set or even individual features in a dataset.

Metadata is particularly required in GIS because information about spatial, thematic and temporal content is in numerical form, therefore meaningless without content code description.

When map data are in a digital form, Metadata is equally as important, but its development and maintenance often require a more conscious effort on the part of data producers and subsequent users who may modify the data to suit their particular needs.

Typically, Metadata on Geospatial Dataset should answer the following questions. Therefore the following information about the data would be acquired when the data is received or create when the data is generated or made available to the other users if the data is distributed.

- What does the data set describe?
- Who produced the dataset?
- Why was the data set created?
- How was the data set created?
- What are data collection techniques and sampling strategy used?
- How reliable are the data, what problems remain in the data set?
- What is quality of the data collected?
- What are data classification methods and interpolation methods used?
- What is currency of the data?
- What is the scale of the data?
- What is the data model?
- What is the size of the minimum mapping unit?
- What is the resolution of the data?
- What is the georeferencing system used?
- What are spatial units? Administrative units of whatever level (County, District, Country) or physiographic units (watershed, agroecological zones)
- Does the data complete?

- What is the accessibility to the data? The dataset must be accessible, at least under certain conditions that must be spelled out clearly. There is no point in documenting data that will not be released by the holding agency under any circumstances.

- How can someone get a copy of the data set?

- Who produces (generated) the Metadata?

2. Metadata standard

Contents standards have been designed and adopted or are in the process of adoption to standardize the contents and semantics of Metadata to regulate

- which characteristics of Geospatial data to be documented

- how this characteristics are termed

- how these characteristics are related to each other. Currently, there are three widely used standards to document the Geospatial data.

I. International Standards Organization (ISO). Find the Geographic Information ISO Standard ISO 19115 document under technical committee TC211.

<http://www.iso.ch/>

Swiss Draft Version for a Metadata standard (based on ISO 19115) is freely available to the public through KOGIS web site (www.kogis.ch).

Look for "Metadatenworkshop at GIS/SIT 2002".

II. Content Standard on Digital Geospatial Metadata (CSDGM) of FGDC (Federal Geographic Data Committee) <http://www.fgdc.gov/metadata/contstan.html>

3. Metadata format and Tools

Standard compliant digital Metadata may be created, stored, and used in a variety of formats. The most basic method is an ASCII text document. It is easy and independent of hardware and software to transfer. Another common format is Hypertext Markup Language (HTML). HTML provides an attractive way to view Metadata using a browser such as Netscape Navigator or Microsoft Internet

Explorer. Recently, there has been strong interest in creating Metadata in Standard Generalized Markup Language (SGML) and eXtended Markup language (XML). SGML provides an effective way to tag Metadata elements, which is important for indexing and searching Metadata on Clearinghouses. XML seems to help in the distribution of Metadata through the Web and thus to provide a means to exchange Metadata between Metadata users, Metadata databases, and Metadata tools

However, all the above formats are essentially file-based. Especially in case where Metadata changes frequently, or where cataloguing and ability to search, are the main objectives, a database solution might be recommendable. M3Cat is the Metadata tool based on Database. It is available free and can be used to create FGDC, DIF and ISO standard Metadata. The following web link lists available Metadata tools to create FGDC, DIF and ISO standard Metadata.

<http://badger.state.wi.us/agencies/wlib/sco/pages/metadata/mtools.html>

Metadata Examples (Look)

1. Metadata in HTML Format

[Metadata of Clark county in HTML Format](#)

Creating Metadata (ACT)

1. Browse and create the ISO 19115 standard document using M2CAT free metadata tool.

[Download the M3Cat tool from intelc website at http://www.intelec.ca/technologie_a.html](#)

Read the installation guide first. Then install necessary software component such as IIS (Internet Information Server) or PWS (Personal pr Peer Web Server) first. Then install the M3Cat. It is important to note to create the virtual directory that points to the M3Cat <Web> installation in IIS or PWS. Moreover, **system ODBC** has to be created because M3Cat used the link to communicate to the database. Default user name is **user** and password is **eng** if you install the English version of M3Cat.

Follow the Guide Tour of M3Cat. View the ISO standard documents in M3CAT help link. Then create an ISO 19115 sample document.

2. Optional exercise

If you are using the ArcGIS, download the optional exercise here to generate the metadata using ArcCatalog.

Exercise (Self Assessment)

1. What is metadata?
2. What information about data should be documented in metadata?
3. Create ISO Standard Metadata for a selected SWISS Map using M3CAT tool.