

Geospatial Metadata & the Lake Tahoe Website

What is Metadata?

- *Data describing data.* In the library/archives profession, we refer to metadata as the fields and information in a database that supports digital collections. Metadata is used to access, manage, and preservation of these collections.
- *Internal management* – If you've ever taken a class on computer programming, one principle they always stress is to comment your code to make it easy for other people to understand what processes and rationales you used. If digital resource has good metadata, its longevity and proper implementation will be independent of the informal knowledge of the people who originally created and managed it.
- *Other benefits* – Good metadata can help avoid duplication of efforts, provide answers to frequently asked questions, or promote your products and capabilities.
- *External Access* – People from outside of your organization can consult metadata to make an informed decision about data quality or how to implement it. The quality issue is most important for GIS data, which needs to be accurate if it's re-used for cartography, surveying, or creating GIS applications.
- *Who creates it* – Metadata producer doesn't always have to be the person who creates/manages the data it describes. USGS recommends that the metadata producer should have the technical knowledge to understand the data they're describing. But what's more important is that they have good organization and communication skills In order to be able to envision the long-term benefits, how to reach that goal and how to communicate (even in asking the right questions) that vision with the data producers.

Metadata Standards

- *Who creates the standard?* Usually professional communities. A standard's scope can be drawn from the data types that the community manages or how people in that profession(s) use these data types.
- *Why should you use a standard?* Standards emphasize data's common aspects; bring consistency to highly diverse items and record pertinent information for long-term access and preservation.
- *Planning metadata?* What types of information do you need to annotate about an item for its access, long-term management and preservation? What user groups need this information? Besides just you and your organization, who else will be using these collections? How are their needs/activities going to be similar or different from yours?

What Role Does Metadata Play in the Tahoe Website?

- *Multiple Standards:* the Western States Dublin Core Metadata Best Practices for cultural heritage and environmental education materials and the Federal Geographic Data Committee standard for the interactive map data collections. Bob's already discussed the former, I'm going to focus on the challenge of creating metadata records for the Interactive Map Server.

Geospatial Metadata & the Interactive Tahoe Maps

- *Tools:* GIS software, SQL server, and FGDC metadata standard.
- *Template:* Using the ArcCatalog program, Duncan created a template for the metadata records that included information necessary for each item. Duncan's name and contact information as the collection manager, a legal disclaimer, and technical details about the equipment and processed used for digitizing the maps

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- *Creating Metadata:* Imported the template into each item's database record to automatically generate its metadata. Some of the metadata had to be manually created and some of it was automatically extracted from the map file.
- *Manually created metadata-* Reviewed map for Title, Publication Date, Edition and Location. Also included the URL for downloading all the files associated with a map. "Image with Border and Legend (.jpg)," "Georeferenced with Border and Legend (.jpg zipped)," and "Georeferenced & Clipped (.img zipped);" Include a disclaimer for legal purposes.
- *Automatically generated metadata* - For this collection, we highlighted the metadata function in ArcCatalog to extract the map's bounding coordinates [4 quadrangle corners] and projection [such as UTM/NAD].
- *Technical metadata:* Information you need for others to re-use your GIS data and also for long term management/preservation. That can include the scanning resolution at (300 DPI) and the geo referencing software (version 9 of the ArcMap software). Other types of information that we'd want to include the georeferencing process and that the map projection is skewed to California (NAD 1927 Zone 10) because the majority of Lake Tahoe falls in that state.
- *Creating Final Record:* Once the manual and extracted information are saved to the metadata record, select "Export to XML" and save it to the desktop. Drag and drop the XML file to the SQL Server's SDE (spatial data engine) & voila! You have a FGDC compliant metadata record.
- *Lessons Learned:* Arc Catalog's default setting is to populate the metadata with fields from both the FGDC and ISO standards. We didn't realize this until after we had uploaded the metadata to the map server and then noticed all of the empty ISO fields. I had to go back into ArcCatalog in order to run a macro that would strip out the ISO fields and to modify the software settings in order to prevent generating those fields.
- *Harvesting:* Our GIS metadata for the Tahoe region is now available to the world by being a node (Nevada Dataworks Spatial Data Warehouse) on National Spatial Data Infrastructure Clearing House. Anybody with access to this site can download and re-use the maps and metadata (hence having disclaimer information in the metadata records).
- UNR Libraries are always interested in hosting geospatial metadata for other organizations.

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