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LOJIC Metadata Standards and Procedures

Louisville Jefferson County Information Consortium (LOJIC)

700 West Liberty Street

Louisville, KY 40203-1911

Phone: 502-540-6372

Fax: 502-540-6499

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This document is not intended to be an exhaustive authority on aspects of metadata but rather documents information, standards and technical guidance specific to LOJIC's metadata style sheet and standards. For a more comprehensive technical guidance regarding metadata, please consult ArcGIS Online for Metadata Help.

INTRODUCTION

In GIS, information that describes any object related to the GIS is referred to as metadata. Metadata provides the particulars and context regarding but not limited to accuracy, vintage, use and sharing restrictions and production life cycle. Most important, it can provide the business purpose for the evolution of the given data and describe the nature of the data, which will in turn provide the metadata user an idea regarding the relevance and applicability of the data to their given needs.

Care must be taken when authoring metadata to consider two critically tied points: 1.) Metadata provides the context for its respective data as it highlights the business solution purpose and descriptive details, therefore making it paramount for initial data evaluation and selection for use. 2.) Well authored metadata is therefore critical to the exposure of data within given repositories and across the web, as those interested in finding GIS data to meet their given business needs will likely search for the data using strategic search terms. This of course does not preclude its significance in providing a historical record regarding the state of the given data during the course of its life cycle as well as important factors regarding data processing that may affect one's choice or caveats in using the given data. For example someone interested in very detailed linear or areal representation should know if data has been generalized during the course of its production. Further, no one can safely assume that a data author or custodian will remain in contact with that data for the entirety of their career. There must be documentation.

The desire to share data is evidenced by the vast number of repositories, portals, FTPs and consortiums from which a breadth of data is available. LOJIC provides access and exposure to its member agency's data via web mapping applications, a shared database environment and through searchable published metadata on its public facing website. Currently LOJIC's database holds about 650 feature classes and tables with their own given purposes and architecture. This tied with the given mission to provide a coordinated environment for sharing the data across constituents gives precedence to the need for well developed metadata standards and procedures. Further, as search engines are implemented to crawl LOJIC's metadata html pages in an effort to optimize search functions, considerations for strategically authoring data for exposure is translated into how we conceptualize entries and procedurally handle them. The LOJIC online metadata search and ArcCatalog search window are two two functions that can be positively and dramatically impacted by how metadata is conceived.

The LOJIC online metadata search was developed to provide both internal and external end users to explore the data library held in LOJIC's repository. While whole metadata html pages are crawled and indexed on LOJIC's online metadata search, the title, keywords and description are currently prioritized for search engine optimization. Typically, these items are the first point at which end users assess any given piece of data and potentially feature terms on which someone may search for a given piece of information, therefore appropriate entries must be created or migrated in an effort to better clarify and expose the data. These factors affect the viability of LOJIC's searchable published metadata for outside users and affect the ability to search and communicate important information regarding shared data amongst LOJIC's members. The ArcCatalog Search

window is a function located with ArcCatalog that allows the end user to search for specific data using keywords that will search indexed drives or database connections. This search looks at both feature class or table names and metadata entries to provide results. So, when the question arises "Does LOJIC have data that can be evaluated for *X* purpose?" A first place to explore is through this given search. No one associated to LOJIC will be able to authoritatively speak to the purpose and details of all 650 objects within the database.

THE LOJIC METADATA STYLE SHEET

Because of the extensive changes made to ArcGIS metadata, LOJIC has developed a style sheet to comply with ArcGIS technology. The goal of the new style sheet is to reformat metadata content in a more user-friendly tab-driven interface. It was developed to facilitate more transparent review and navigation of metadata. The LOJIC metadata style sheet does not replace any existing metadata style but rather represents an additional style sheet alongside ArcGIS's pre-existing style sheets. Its value is in its tab driven format. Much like its ArcGIS 9.3 FGDC-Plus predecessor, it allows tab driven navigation to relevant broad categorizations to include item description information, general metadata information, spatial information, contact information and field and attribute information. In this, an end user wishing to simply discover a field attribute or contact information can simply click on the appropriate tab to access the defined data.

The default Item Description tab provides useful information including but not limited to data purpose, description, use limitations, and vintage. Spatial information has been organized under its own tab to facilitate ease in retrieving spatial extent, projection and thresholds information. All contact information for the citation, resource, maintenance or distribution of the data can be accessed under the Contacts tab. The Fields and Attributes tab lists all fields, their given properties and any field domain values where applicable. The metadata tab includes any other relevant metadata information related to its respective object.

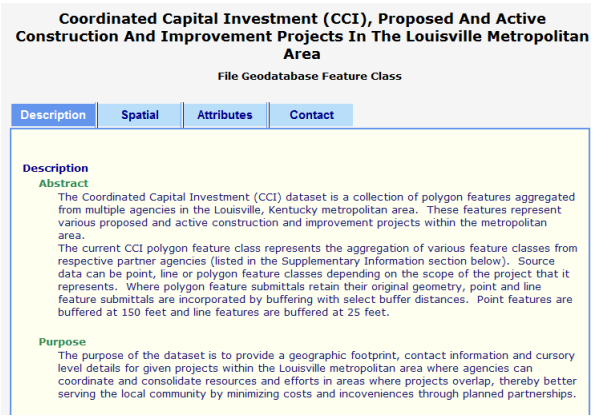
LOJIC does not mandate the use of the LOJIC metadata style sheet. However, when referring to metadata entries, LOJIC personnel will refer to the formatted section within the LOJIC style sheet. Editing data while using the LOJIC style sheet should not affect where data is stored within the given metadata XML file as all data is essentially stored within ArcGIS Metadata XML tags. That is, if one edits the data while using LOJIC metadata style sheet, that individual will still be able to view the data within another style sheet like FGDC, INSPIRE or NAP.

Regarding metadata style standards, LOJIC is not bound to any specific metadata standard as it a local consortium and has no federal constituents. Most standards are established for data exchange at the federal and international level. In this, LOJIC does not require many elements of data that might be requested in the established standards like FGDC or NAP. At its core, LOJIC metadata is based on NAP as FGDC metadata appears to be phasing out in preference for the NAP. Because LOJIC does contribute data to the state GIS repository, Division of Geographic Information, some elements of metadata have been added to facilitate that transfer. By and large, the data standards compared between DGI and LOJIC or mostly congruent.

The LOJIC metadata style sheet takes on characteristics similar to the old LOJIC FGDC-Plus based style sheet used with ArcGIS 9.3. It is essentially tab driven, but includes one extra tab versus its four-tab predecessor. Elements in the old Description tab have been divided across two tabs, the Item Description and Metadata tabs. LOJIC has elected to adapt ArcGIS 10's Item description metadata style sheet as the default 'landing' tab in the LOJIC metadata style sheet, as it establishes a strong base for summarizing the data at a first glance. The remaining information historically contained in the old LOJIC metadata is now located under the Metadata tab.

Figure 1. Comparison of 9.3 style sheet vs. 10.0 style sheet

LOJIC FGDC Stylesheet (9.3):



LOJIC ISO Stylesheet (10.0 and later):

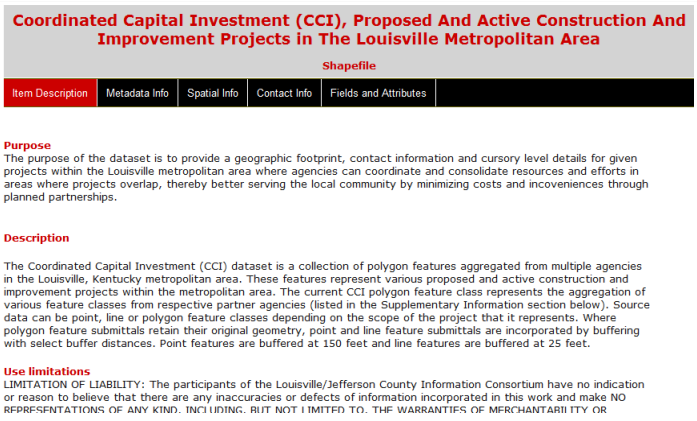
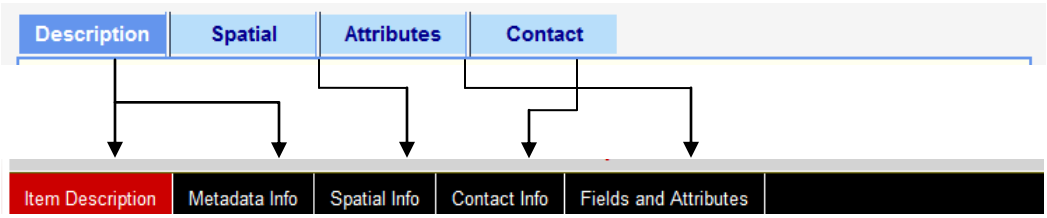


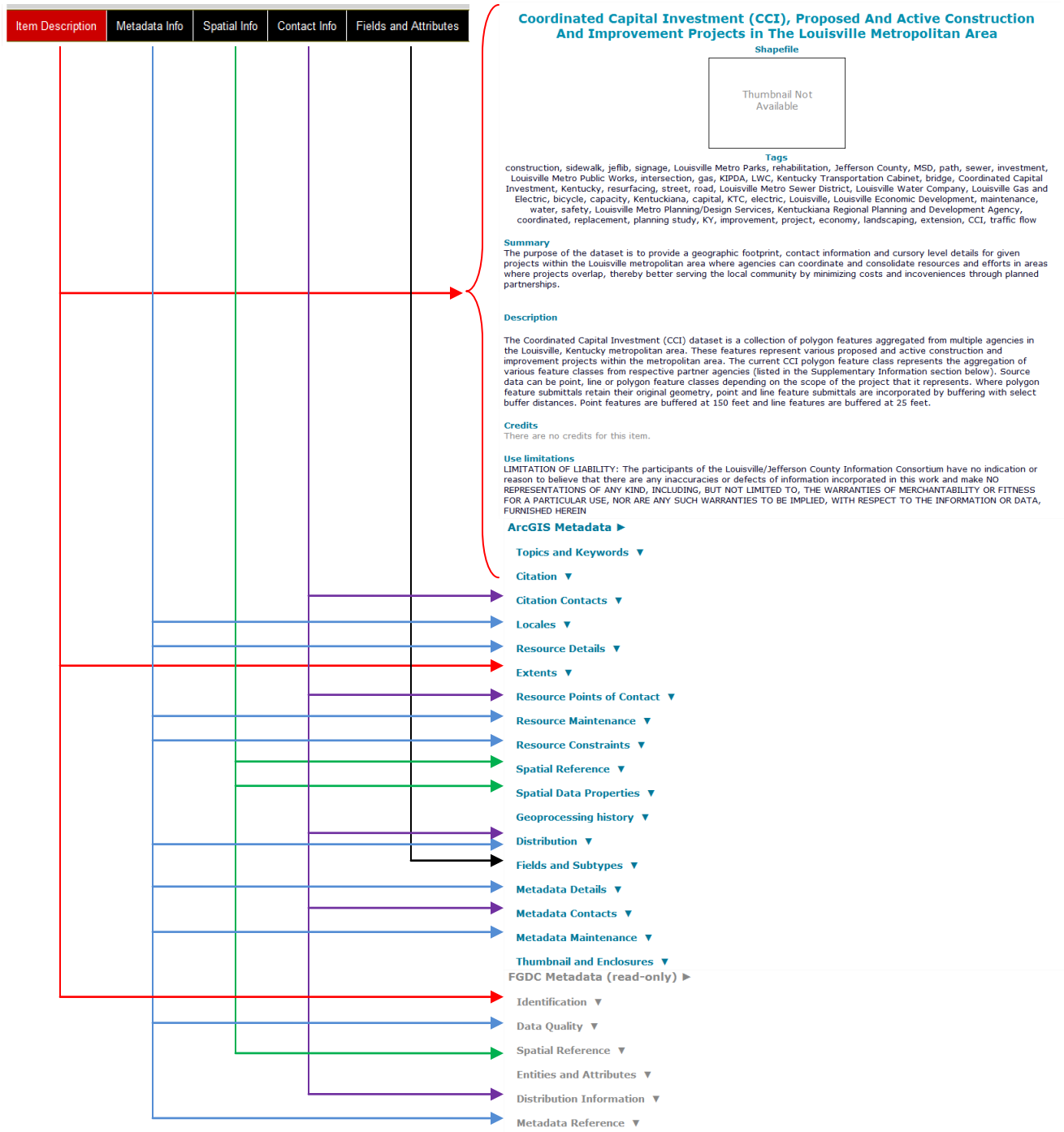
Figure 2. General Content Mapping between Tabs of Old versus New tab-driven style sheets



The following diagram indicates the mapping of content between the new tab driven metadata style sheet and the existing template for FGDC metadata in ArcCatalog. All style sheets bundled in ArcGIS have essentially the same appearance and format; however there are slight differences in the available content between pre-bundled style sheets due to variations in each given standard. FGDC has been chosen here due to its historic use within LOJIC as the given metadata standard. Note that no lines connect to the read only FGDC content in the FGDC style sheet. This diagram operates under the assumption that existing FGDC metadata has been upgraded to ArcGIS metadata standard. Most read only metadata gets translated into its respective new tag and location on upgrade, allowing

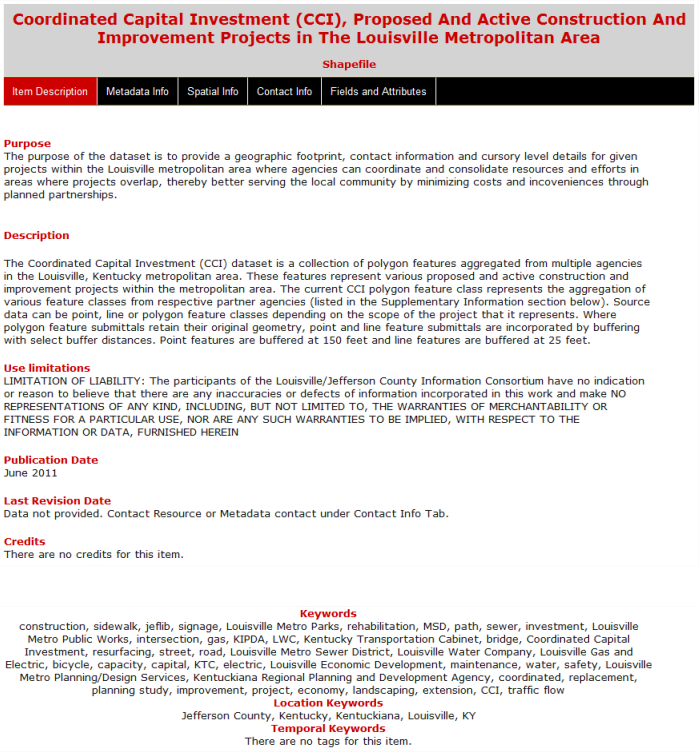
the most pertinent data to be viewed within the new ArcGIS standard, meeting LOJIC's metadata standard and therefore rendering the read only metadata somewhat unneeded.

Mapping Content in the LOJIC Stylesheet Tabs to the ArcGIS 10 FGDC Style Sheet:



Note:

Again, the Item Description tab (pictured to the right) is based on the Item Description metadata style (pictured below) prepackeaged with ArcGIS. Some subtle differences exist between the LOJIC Metadata Item Description tab and the existing Item Description style sheet prepackaged with ArcCatalog. Fundamentally, the utility remains the same; it gives an up front snapshot of the most relevant information .



Coordinated Capital Investment (CCI), Proposed And Active Construction And Improvement Projects in The Louisville Metropolitan Area

Shapefile

Item Description | Metadata Info | Spatial Info | Contact Info | Fields and Attributes

Purpose
The purpose of the dataset is to provide a geographic footprint, contact information and cursory level details for given projects within the Louisville metropolitan area where agencies can coordinate and consolidate resources and efforts in areas where projects overlap, thereby better serving the local community by minimizing costs and incoveniences through planned partnerships.

Description

The Coordinated Capital Investment (CCI) dataset is a collection of polygon features aggregated from multiple agencies in the Louisville, Kentucky metropolitan area. These features represent various proposed and active construction and improvement projects within the metropolitan area. The current CCI polygon feature class represents the aggregation of various feature classes from respective partner agencies (listed in the Supplementary Information section below). Source data can be point, line or polygon feature classes depending on the scope of the project that it represents. Where polygon feature submittals retain their original geometry, point and line feature submittals are incorporated by buffering with select buffer distances. Point features are buffered at 150 feet and line features are buffered at 25 feet.

Use limitations
LIMITATION OF LIABILITY: The participants of the Louisville/Jefferson County Information Consortium have no indication or reason to believe that there are any inaccuracies or defects of information incorporated in this work and make NO REPRESENTATIONS OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, NOR ARE ANY SUCH WARRANTIES TO BE IMPLIED, WITH RESPECT TO THE INFORMATION OR DATA, FURNISHED HEREIN

Publication Date
June 2011

Last Revision Date
Data not provided. Contact Resource or Metadata contact under Contact Info Tab.

Credits
There are no credits for this item.

Keywords
construction, sidewalk, jeflib, signage, Louisville Metro Parks, rehabilitation, MSD, path, sewer, investment, Louisville Metro Public Works, intersection, gas, KIPDA, LWC, Kentucky Transportation Cabinet, bridge, Coordinated Capital Investment, resurfacing, street, road, Louisville Metro Sewer District, Louisville Water Company, Louisville Gas and Electric, bicycle, capacity, capital, KTC, electric, Louisville Economic Development, maintenance, water, safety, Louisville Metro Planning/Design Services, Kentuckiana Regional Planning and Development Agency, coordinated, replacement, planning study, improvement, project, economy, landscaping, extension, CCI, traffic flow

Location Keywords
Jefferson County, Kentucky, Kentuckiana, Louisville, KY

Temporal Keywords
There are no tags for this item.

Where the Item Description style featured a thumbnail for the feature class, the LOJIC Item Description tab does not include a thumbnail, as it is simply LOJIC policy to not include thumbnails. Further, the Tags section located just underneath the thumbnail has been replaced with a new categorized Keywords section at the bottom of the page in the new item description tab. While the Tags section was a concatenated list of all thematic, location and temporal keywords, typically migrated from old FGDC metadata, the new Keywords section summarizes the keywords caegorically and is more reflective of the terms that are editable or generated in the new ArcGIS metadata standard and editor.

The new Item Description tab also introduces information to indicate vintage. It includes both publication date and revision dates up front, so that the end user does not have to hunt down these dates in the remaining metadata to determine if the data is temporally relevant to their needs.

Coordinated Capital Investment (CCI), Proposed And Active Construction And Improvement Projects in The Louisville Metropolitan Area

Shapefile

Thumbnail Not Available

Tags
construction, sidewalk, jeflib, signage, Louisville Metro Parks, rehabilitation, Jefferson County, MSD, path, sewer, investment, Louisville Metro Public Works, intersection, gas, KIPDA, LWC, Kentucky Transportation Cabinet, bridge, Coordinated Capital Investment, Kentucky, resurfacing, street, road, Louisville Metro Sewer District, Louisville Water Company, Louisville Gas and Electric, bicycle, capacity, Kentuckiana, capital, KTC, electric, Louisville, Louisville Economic Development, maintenance, water, safety, Louisville Metro Planning/Design Services, Kentuckiana Regional Planning and Development Agency, coordinated, replacement, planning study, KY, improvement, project, economy, landscaping, extension, CCI, traffic flow

Summary
The purpose of the dataset is to provide a geographic footprint, contact information and cursory level details for given projects within the Louisville metropolitan area where agencies can coordinate and consolidate resources and efforts in areas where projects overlap, thereby better serving the local community by minimizing costs and incoveniences through planned partnerships.

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The Coordinated Capital Investment (CCI) dataset is a collection of polygon features aggregated from multiple agencies in the Louisville, Kentucky metropolitan area. These features represent various proposed and active construction and improvement projects within the metropolitan area. The current CCI polygon feature class represents the aggregation of various feature classes from respective partner agencies (listed in the Supplementary Information section below). Source data can be point, line or polygon feature classes depending on the scope of the project that it represents. Where polygon feature submittals retain their original geometry, point and line feature submittals are incorporated by buffering with select buffer distances. Point features are buffered at 150 feet and line features are buffered at 25 feet.

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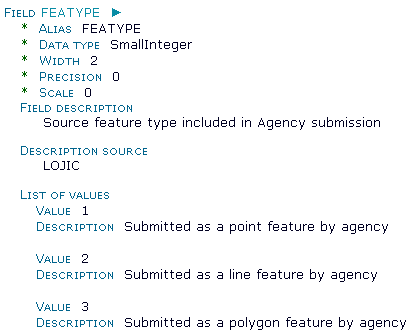
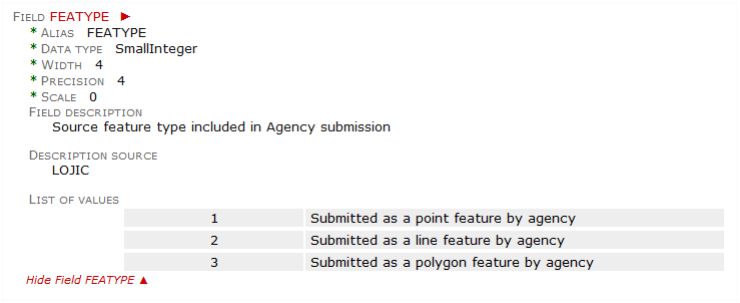
LIMITATION OF LIABILITY: The participants of the Louisville/Jefferson County Information Consortium have no indication or reason to believe that there are any inaccuracies or defects of information incorporated in this work and make NO REPRESENTATIONS OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, NOR ARE ANY SUCH WARRANTIES TO BE IMPLIED, WITH RESPECT TO THE INFORMATION OR DATA, FURNISHED HEREIN

Another feature of the LOJIC metadata style is the use of tables to distinguish domain values for fields and attributes. ArcGIS metadata style sheets display these as enumerated lists, possibly making them difficult to decifer with large domains. The LOJIC style makes this much easier to understand. See the illustration below.

ArcGIS 10 Pre-packaged Stylesheet:



LOJIC style sheet:



KEY COMPONENTS OF METADATA: STRATEGIES FOR COMPLETION

While most all metadata has utility in communicating various aspects of the data, there are those items that are so popularly reviewed that they compose what this document will refer to as key components. These components comprise the items that end users review to determine the applicability and use of the data and whether it applies to their given business needs. These key components include title, purpose, description, keywords, use limitations, publication and revision dates, contact information and field and attribute information. Six of the eight listed items reside on the first tab of the LOJIC metadata style sheet. The other two items are located on their own respective tabs.

Before moving into dialogue of these various components, it is worthy to discuss the utility of two of these items in terms of how they are implemented for online metadata searches in tandem with keywords. This has in part shaped LOJIC's conceptual approach to completing metadata for item description information. The title, description and keywords for a given metadata file are given preference in terms of the content that Google web crawlers scan initially and theoretically contain the text that will be given relevance ranks for displaying search results. So how one approaches completing the title, description and keywords becomes a strategic decision process to not only communicate the qualities of the data but to also optimize the exposure of the data. Semantics and word choices require consideration when constructing entries for these items. These items will be addressed first as they tend to overlap and complement each other.

Often (but not always) the level of explanation and detail offered in these key components is positively correlated and proportional to the level of information provided in the attribute table. Metadata should be authored with two strategic considerations:

1. *To concisely indicate the full utility of the data given the business purpose to which it is employed.

2. To provide a mechanism for exposing the data and its utility through strategic use of relevant language and terms which may be utilized by an end user seeking similar data for a specific business need.

*If this is achieved, consideration 2 should be somewhat a natural result that requires minimal adjustment.

TITLE:

Location within LOJIC style sheet: Header (always visible)

The title within the metadata file is a synchronized field that typically takes on the name of the feature class, which is not necessarily optimal in terms of providing a meaningful and obvious title for the data, as many times feature class names consist of concatenated or truncated terms. Once a metadata author manually edits the title to something more appropriate, ArcGIS sets the synchronization parameter to off in order to maintain the title. Also, when upgrading FGDC metadata to ArcGIS metadata, the title is often lost in read only metadata tags, so one must be sure to re-enter the title after upgrade.

PURPOSE (SUMMARY):

Location within LOJIC style sheet: Item Description tab

Due to the nature of GIS data, it is probably safe to assume that the data will provide a means to display spatial location and query existing attribution. Therefore, a purpose statement pertaining only to these to aspects really offers no real information or added benefit and leaves little ability to assess the data utility and relevance for various applications. It is recommended that the purpose statement goes beyond simply stating 'general query and display' or similar obvious and broad statements.

The purpose statement should be written to clarify the business purpose or use of the given geographic or GIS data. The purpose statement should seek to primarily answer the following questions.

1. For what reason is your given agency or department collecting the given data?

2. What is the problem statement or business need that this data will be utilized to answer?

3. To what degree does the data fulfill answering the given problem or business need? What is its specific utility? Does the data have a complimentary, dependent or tandem relationship with other data related to a given project?

This does not mean that the statement needs to be verbose or overly detailed or any longer than necessary. As a general guide, a targeted and concise explanation should be approximately 250 words or less; although this guideline does not preclude a longer explanation if it is necessary. The number of words should naturally be less important than concisely and accurately communicating the purpose of the data in light of its various use or uses.

DESCRIPTION:

Location within LOJIC style sheet: Item Description tab

The description provides an opportunity to succinctly describe the given data by highlighting its relevant and unique qualities. It is a critical element and has weighted utility in meeting both the requirements of both previously mentioned strategic considerations and therefore merits some careful consideration. When authoring the description, one must remember that it works in a complimentary manner with the Title and Keywords listed in the given metadata. In short, the Title, Keywords and Description are used for online search optimization. Some considerations when authoring the description follow:

1. Ask this question. How do I expose my data without getting it mixed into other search results or becoming a false positive in online or offline searches?

2. In terms of search optimization, the metadata author may consider utilizing key terms from the keywords or synonymous terms in an effort to optimize exposure and increase the number of relevant matches with potential search terms used by someone seeking data.

3. Consider a brief statement that qualifies the proprietorship of the completed data. If the data is not proprietary to your given agency, very briefly describe or cite the source from which the data came. If otherwise, consider including a brief statement of how the data was collected or constructed if it is fully proprietary. These statements should be brief as the supplemental information section will be the place for qualifying and/or quantifying source and accuracy information. Refer to the Supplementary Information section below.

4. The description should briefly cover the geographic and/or temporal extents of the data.

5. The description should discuss any attribution or classifications that can indicate relevant uses. Priority should be given to existing classifications or those proprietary to your agency for which you chose to use the data.

6. Review the attribute table and briefly describe some of the information beyond location that can be gleaned from the data.

7. Consider classifications within the attribution or use terms from field domains to indicate the variations and classifications of the data.

Again, the description does not need to be verbose or overly detailed; a targeted and concise explanation should be approximately 250 words or less; although this guideline does not preclude a longer explanation if it is necessary. The number of words should naturally be less important than concisely and accurately describing the data in light of its various use or uses.

KEYWORDS:

Location within LOJIC style sheet: Item Description tab

Keywords come in a variety of categories. In many cases thematic and location keywords are probably the most acceptable and popular, although temporal keywords may also be utilized in cases where seasonality or temporal sampling or collection constraints dictates the nature of the data.

It is advised that scrutiny be given to the number of keywords to include as too few and too many entries may hinder keyword effectiveness by introducing the possibility of false positives in search results or presenting too little terms to even afford exposure and matches. In this, consideration and prioritization must be given to terms that will be listed while realizing that keyword entries and description entries will complement each other.

A balance of relevant general and exacting terms must be used and a logical conceptual hierarchy should be considered when framing entries.

USE LIMITATIONS:

Location within LOJIC style sheet: Item Description tab & Metadata Info tab

Because the data is published under the consortium umbrella, the data and caveats for its use are sanctioned under LOJIC's de facto disclaimer:

> "LIMITATION OF LIABILITY: The participants of the Louisville/Jefferson County Information Consortium have no indication or reason to believe that there are any inaccuracies or defects of information incorporated in this work and make NO REPRESENTATIONS OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, NOR ARE ANY SUCH WARRANTIES TO BE IMPLIED, WITH RESPECT TO THE INFORMATION OR DATA, FURNISHED HEREIN."

PUBLICATION & REVISION DATES:

Publication date shall be the date that the LOJIC administration team publishes the data for the first time. Revision date shall be the date at which the given data has undergone an architectural change. So this should remain fairly static, unless the data goes through a series of changes within a given period of time due to the necessity to alter architecture. For clarity, this date reflects architectural changes while the "Last Update" element under "Metadata Details" within the Metadata Info tab will indicate the last time the database object experienced an attribute change, a row (feature or geometry) addition, a row (feature or geometry) deletion, geometry change or metadata change. It is assumed that metadata would remain unchanged unless the data has been updated.

CONTACT INFORMATION:

"Contact Information" should be completed to the specification on page 3 of this document where applicable, to include Citation Contact, Distribution Contact, Resource Contact and Metadata Contact. The following table describes the intent of each contact and makes basic recommendations pertaining to the selection of that contact.

Of course, there will be cases within organizations dictated by a multitude of factors where the recommended individuals will not be available as a contact. In these cases, it is up to the metadata author and his/her respective agency to provide the best possible contacts for each topical area. See the following table for guidance regarding each contact type.

Contact type	Description
Citation Contact	Individual who can provide information regarding the overall project purpose, description and use constraints. This person may be the project leader or an individual who used the data for its intended analysis or use.
Distribution Contact	Individual responsible for publication and/or physical distribution of GIS data or metadata. Typically this would be a LOJIC staff member, but in some instances this person may reside within the data's authoring agency, as proprietary distribution constraints may apply based on agency policies or needs.
Resource Contact	Individual responsible for authoring the resource data. This individual has in depth knowledge of the processes and architecture related to the given data.
Metadata Contact	Individual responsible for authoring the metadata. This person can provide explanations regarding metadata entries.

FIELD & ATTRIBUTE INFORMATION:

The important components of field information that must be completed include the following items:

Field & attribute item	Description
Entity type definition	This entry should provide a transparent and descriptive descriptor for the given database object. For example, the feature class named JEFLIB.aoi has a definition stated as "Areas of Interest."
Entity definition source	This entry should provide the agency source for the given definition above. In the case of JEFLIB.aoi, the data is compiled by a member of the LOJIC admin team to provide delineations of areas of interest within Louisville. In this case LOJIC becomes the definition source. If this were a wholesale duplication of data from another agency, say US Census, then the US Census might be an appropriate definition source.
Field description	This entry should explain the meaning of the Field name. For example, a field called "TYPE" that contains a classification scheme for areas of interest might have an entry consisting of "Classification of use type for area."
Field description source	This entry should indicate the agency for which and by which the description was created.
Description of values	If the field is a number field indicating metrics, the definition should include a brief description of those metrics. For example, one may clarify here that the numbers for a given field are in U.S. feet.
Domains:	*The most common Domain types are enumerated or unrepresentable domains. The difference between the two relates to function and format. Where enumerated domain lists are formatted in the metadata as tables, unrepresentable domains are simply composed of lists of values.*
Enumerated Domain	These domains include some sort of coded value and associated description. The required Value of the attribute would be the code number or characters, the Definition of the attribute value would include a brief statement describing the value. For example, a primary building structure may be given the code "1." Therefore, 1 = primary building structure. Typically this convention will be used if a SDE domain has been assigned to the feature.
Unrepresentable Domain	In some cases, a classification may be given to a domain where there is not a code and description equivalency, but simply a textual classification. In this case a GIS analyst may have only classifies items as "airport area" or "cemetery area." In this case, the analyst may simply list the items in the Unrepresentable Domain field.

SUPPLEMENTAL INFORMATION:

While the title "Supplementary information" seems secondary, it becomes a key component in terms of communicating critical information regarding sources and quality of your data, whether your data is fully proprietary to your agency or if your data is an extension of existing data retrieved from third party sources. The point of utilizing the supplemental information section is to provide a space for better communicating source and accuracy information and to avoid mixing terminology into the description section that will be combed by search engine crawlers.

The point of this section is to provide potential planners and analysts a snapshot of the reliability and caveats pertaining to your data. It facilitates their ability to vet your data for candidacy for their given purpose. It further allows them to report and consider any limitations related to their resultant analysis, interpretation and findings.

Consider the following guidance:

If borrowing or combining data from other sources, or expanding on existing data:

1. List the source data, respective agencies and location of retrieved data.
2. Indicate any documented or discovered limitations or caveats to the source data. You may want to review and copy/paste documented accuracy information from the original data source metadata.
3. If expanding the data, indicate fields, attribution and other relevant items that expand the existing data. Some of this information may be relevant to the descriptive statement for the given data. For example, if you have a point file derived from the census for areas or points of interest within your jurisdiction, an agency or analyst may decide to add a system of classification for better filtering purposes, labeling, or symbology to accommodate the given business solution. One may indicate some of those classifications in the description statement considering that these may be potential search terms utilized by individuals to conduct searches. The balance of the information regarding expanded attribution should be discussed in the supplemental information section.
4. Consider briefly reporting any QA/QC or review methodology and resultant findings performed.
5. Answer these questions. Why did you choose this data as a basis for your work? What qualities did the data possess that were appropriate for your application or analysis?

If the data is completely proprietary to your agency:

1. Consider describing how the data was acquired, compiled or manufactured. (GPS, feature extraction from aerial imagery, geocoded addresses, conflation of feature data from spreadsheets, etc.)
2. Indicate documented or discovered limitations or caveats with regard to the data.
3. Consider briefly reporting any QA/QC or review methodology and resultant findings

If contracting a third party to acquire, compile and/or attribute the data, the third party should be made accountable for producing metadata that addresses these key components as part of the list of deliverables.

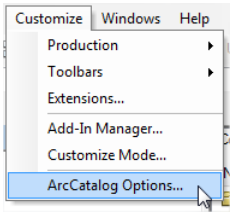
Perhaps the data has resulted from geo-locating addresses with associated attributes or conflating existing data from tracking reports or spreadsheets provided by another inter/intra-agency department handling engineering, special projects, regulation or other relevant functions. In these cases, the data author/provider from within those

areas should report/provide any relevant metadata covering any of the preceding information. It is important to include and solicit participation from all players within a given project, as metadata is not limited to GIS alone.

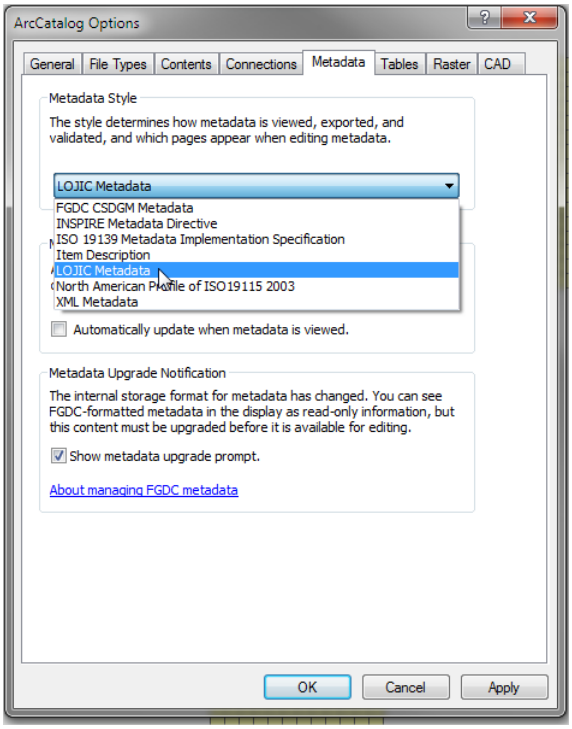
ACCESSING THE LOJIC METADATA STYLE SHEET

The following instructions clarify the process for accessing the FGDC metadata style sheet.

1. In **ArcCatalog**, select **ArcCatalog Options…** from the **Customize** dropdown.



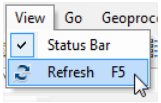
2. On the **Metadata** tab, select **LOJIC Metadata** from the **Metadata Style** dropdown. (see below)



*Note: You will notice an additional XML Metadata featured in the above illustration, but not as an actual option. The XML Metadata is shown here because the screenshot was taken from a development machine. This style was used for development purposes only. There should be no XML option in the dropdown that you view.

3. Please note that **Automatic updates checkbox** is unchecked and the **Show metadata upgrade prompt** checkbox is checked. (This is explained more fully following step 4 below.)*

4. The metadata style sheet will not refresh automatically. To view the new stylesheet, go to the **View** dropdown and click **Refresh**.

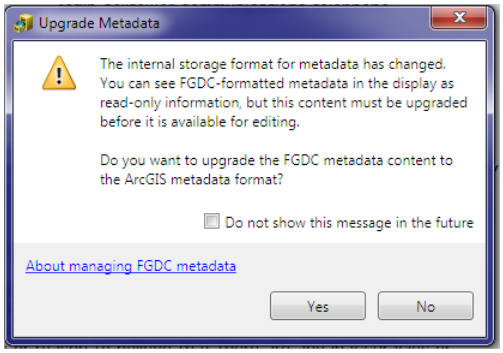


*When the "Automatically update when metadata is viewed." Checkbox is checked, any synced properties within the metadata XML will update to the most recent parameters each and every time the metadata is viewed. LOJIC recommends that this be unchecked as it it seems to have a slightly positive performance effect as it reduces any processing that may occur as one switches between feature classes while viewing the Description tab in ArcCatalog.

*When the "Metadata Upgrade Notification" is checked, ArcGIS will automatically detect when the given metadata is FGDC-formatted and will then issue a prompt to have that metadata upgraded to ArcGIS metadata format. Because ArcGIS content standards have minimized FGDC, FGDC-formatted metadata will be read only until it is upgraded to ArcGIS format, meaning that musch of the FGDC content cannot be edited unless upgraded. This setting simply make it quite apparent when metadata needs to be upgraded. This will not affect the abuility to share your metadata in FGDC format when necessary.

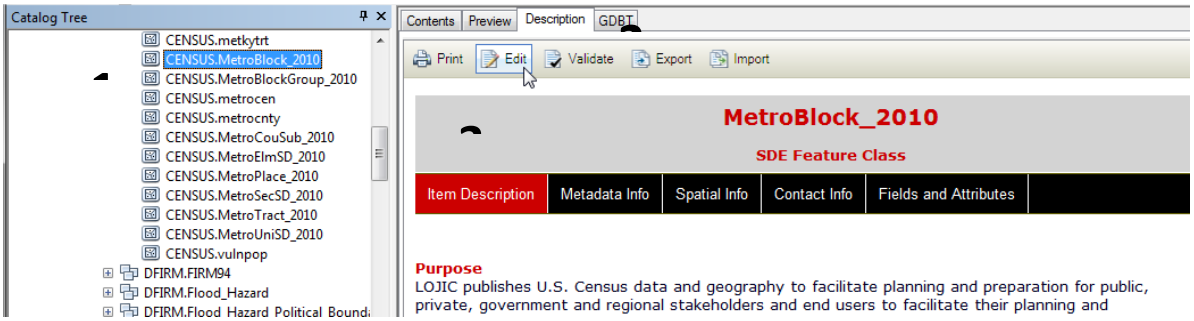
Metadata cannot be edited unless it exists in ArcGIS Metadata format. Because LOJIC historically employed the FGDC Metadata Style prior to ArcGIS 10, it may be necessary to upgrade existing metadata to ArcGIS Metadata for editing. The easiest way to discern if existing metadata is in FGDC format is to use the Metadata Upgrade Notification prompt. You will note that it is checked in the diagram to the right. When activated, ArcGIS detects FGDC Metadata, it will initiate a prompt which will then allow you to upgrade the metadata immediately. Once upgraded, it can be edited.

Below is the **Metadata Upgrade Notification** that ArcGIS will prompt when metadata is detected that has not been upgraded. Simply select "**Yes**" to upgrade the metadata immediately.

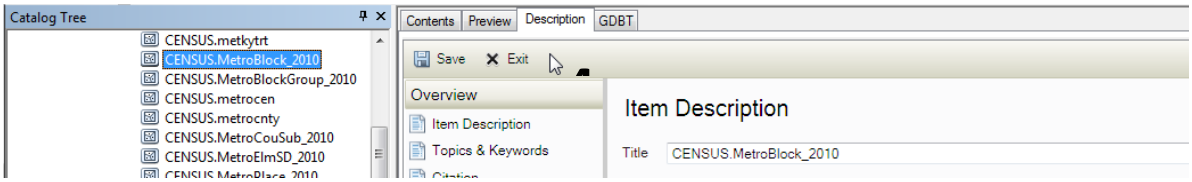


ACCESSING THE METADATA EDITOR:

Editing Metadata is very simple.



1. Select the item for which you wish to edit or create metadata.
2. Select the **Description** tab to view the item's metadata sheet.
3. Select the **Edit** button in the Description toolbar.

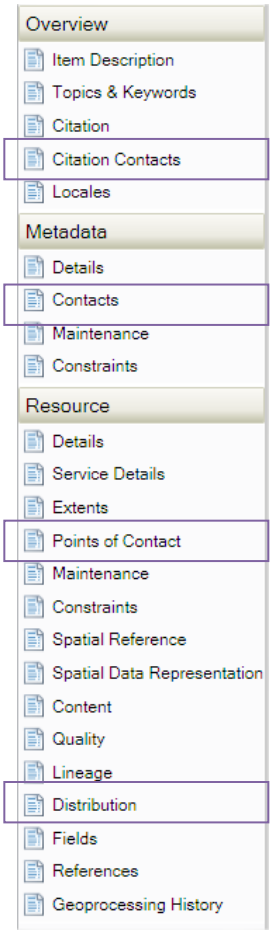


4. Be sure to save frequently while authoring or editing metadata. The Editor **Save** and **Exit** buttons are located in the top left corner of the Editor pane.

EDITING AND COMPLETING LOJIC REQUIRED METADATA ELEMENTS

CONTACT INFORMATION:

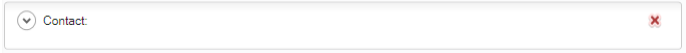
There are (4) different contact entries throughout the metadata editor. In any particular section, more than 1 contact can be entered if necessary. Generally, all contact information I entered the same way. The required elements follow: *(Items with an * are desirable, but optional.)*



1. Contact
   - 1.1. Name
   - 1.2. Organization
   - 1.3. Position
   - 1.4. Role
     Author, Publisher or Point of Contact
2. Contact Information
   - 2.1. Email
   - 2.2. Address Type
     Postal, Physical, or Both
   - 2.3. Address
   - 2.4. City
   - 2.5. State
   - 2.6. Postal Code
   - 2.7. Country
   - 2.8. Phone
   - 2.9. Fax
   - 2.10. Instructions*
   - 2.11. Hours*

For Citation Contacts, Metadata Contacts and Resource Points of Contact the process is identical.

1. When creating a new contact entry, simply click New Contact to create a new contact entry:



A new entry is shown with the options to either expand it or delete it .

2. To enter a new contact, expand the contact entry.
3. Complete the required information as indicated above for item 1. Contact
4. To complete the contact information under item 2, expand Contact Information .
5. Complete the required information as indicated above for item 2. Contact Information

Any information for a contact entry is editable at any time or can be deleted using the at the far right of the entry.

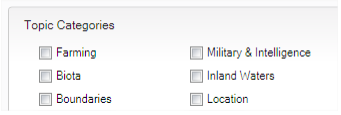
For Distribu[illegible] New Distributor [illegible]ormation, the terminology and hierarchy in the editor is slightly different. Here, the editor uses to create a new Distributor.

Much like the contact entries above, the distributor entry options are to either expand it or delete it

1. Under the new Distributor entry, expand Contact: to complete the required information for 1. Contact.
2. Much like the Contact information in the other sections, click Contact Information to complete the information for 2. Contact Information.

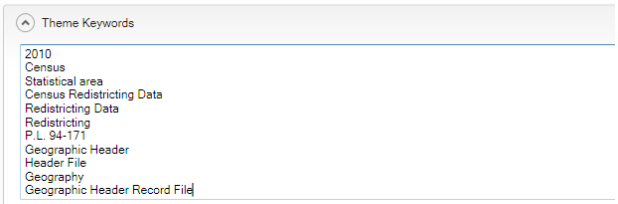
OVERVIEW:

3. Item Description:
   - 3.1. Title
   - 3.2. Tags
     This should be a concatenated list of all thematic, location and temporal keywords using a comma separator.
   - 3.3. Summary (Purpose)
   - 3.4. Description (Abstract)
     Note: Tags will be populated from the data entered in the Topics and Keywords section
     Note: Use Limitation will be populated from the General Constraints entered in Resource Constraints
4. Topics and Keywords
   - 4.1. Topic Categories – check the appropriate categorical classification(s) within the list



...

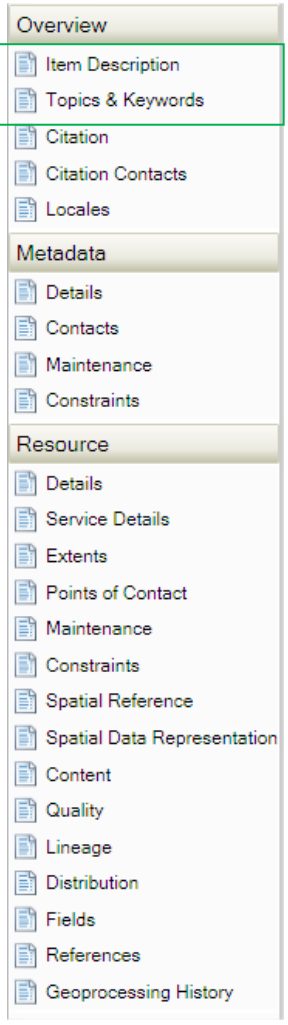
   - 4.2. Content Type*
     Downloadable Data
     Be sure that 'Export as resource Description' is checked.
   - 4.3. Theme Keywords



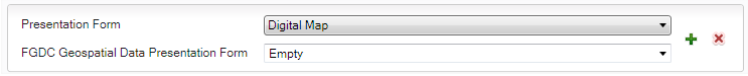
...

Important note: entries are listed with a carriage return after each item

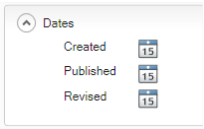
   - 4.4. Place Keywords
     See Theme Keywords



5. Citation
   - 5.1. Presentation Form
     Digital Map or Digital Table (as applicable)

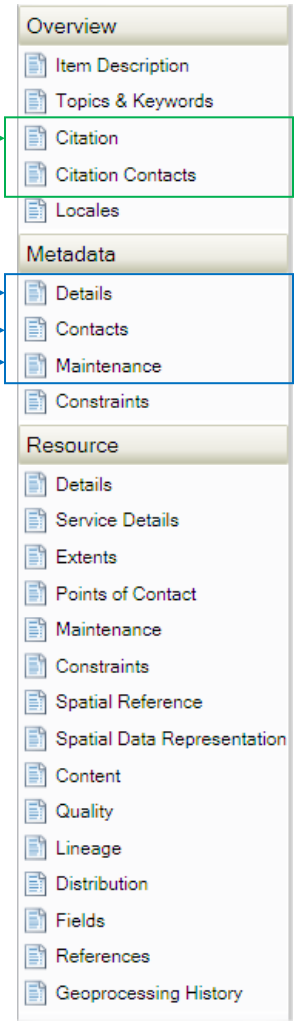


   - 5.2. FGDC Geospatial Data Presentation Form
     Tabular Digital Data or Vector Digital Data (as applicable)
   - 5.3. Dates
     - 5.3.1. Created
     - 5.3.2. Published
     - 5.3.3. Revised



6. Citation Contacts (individual responsible for or associated with or point of contact for resource data)
   - 6.1.1. See "Contact Information

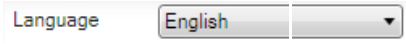
*To complete the Content Type, you must have ArcGIS 10.0 SP4 or later, otherwise this option is not available.



METADATA:

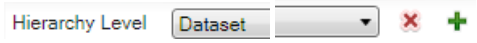
7. Details
   - 7.1. Date Stamp
     Should be synced to last edit session

   - 7.2. Language
     Should be defaulted to 'English'



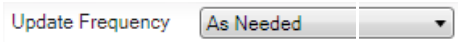
   - 7.3. Country
     'UNITED STATES'

   - 7.4. Hierarchy Level
     Dataset



8. Contacts (individual responsible for metadata for geographic data)
   - 8.1. See items listed under "Contact Information" on page 1.

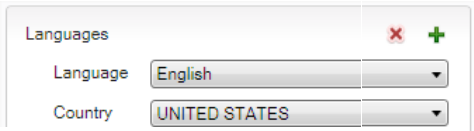
9. Maintenance
   - 9.1. Update Frequency*



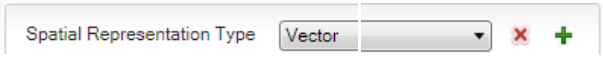
RESOURCE:

10. Details
    - 10.1. Status
      - Completed

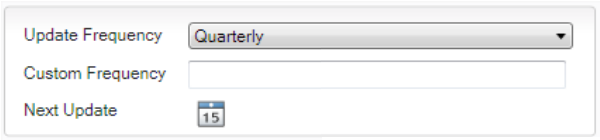
      - 10.1.1. Languages
        - 10.1.1.1. Language
          - English
        - 10.1.1.2. Country
          - United States

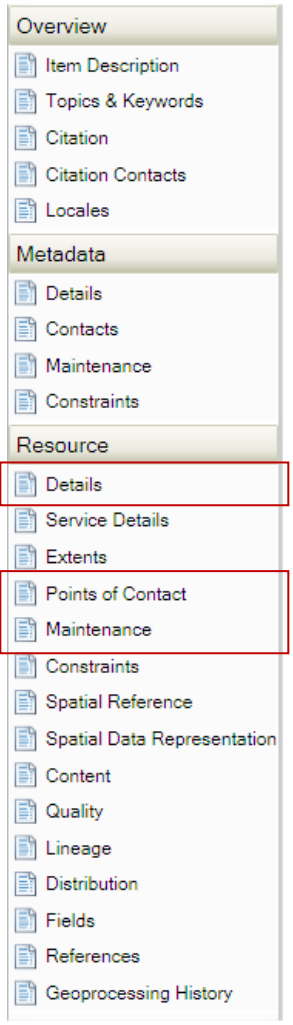


      - 10.1.2. Spatial Representation Type
        - Vector



      - 10.1.3. Processing Environment
        - *Ensure that it is synced to your computing environment*
      - 10.1.4. Supplemental Information
11. Points of Contact
    - 11.1. See items listed under “Contact Information” on page 1.
12. Maintenance
    - 12.1. Update Frequency
    - 12.2. Custom Frequency*
    - 12.3. Next Update*



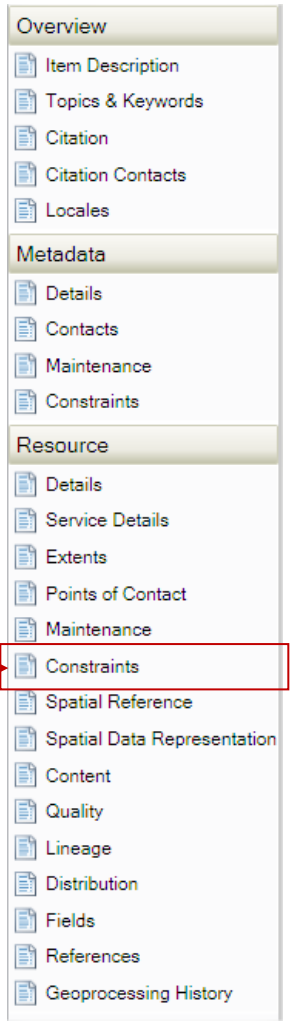


13. Constraints

13.1. Legal Constraint

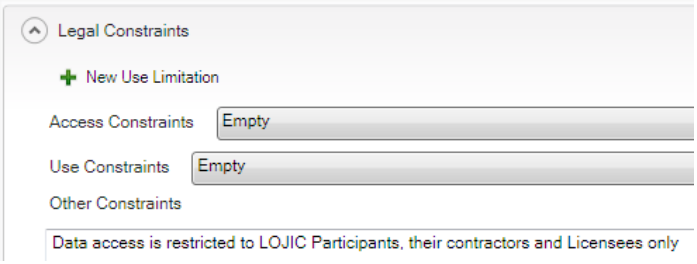
Note: Multiple constraints can be applied if necessary; however, LOJIC's Legal Access constraint should be sufficient in most cases. It is mandatory that the LOJIC Legal Access constraint be applied:

To add a new Legal Constraint, click New Legal Constraints .
To edit an existing Legal Constraint, expand the existing constraint by pressing the next on Legal Constraints . *An existing constraint can be deleted using the to the far right of the entry.*



13.1.1. Other Constraints

Data access is restricted to LOJIC Participants, their contractors and Licensees only.

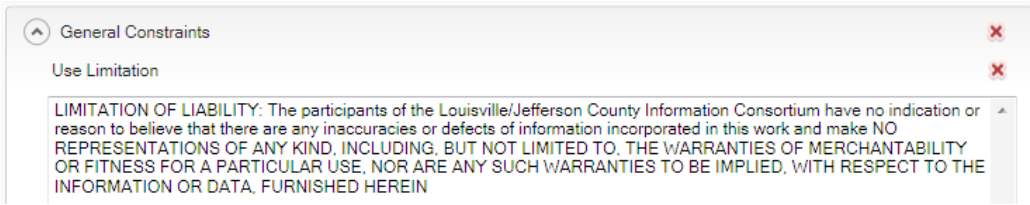


13.2. General Constraint

Note: in all constraints sections, multiple constraints and sub-constraints can be added if necessary; however LOJIC's Use Limitation constraint to be sufficient in most cases. It is mandatory that the LOJIC Use Limitation constraint be applied:

13.2.1. Use Limitation (This statement can be copied from: L:\lojicmap\liabilit.txt

LIMITATION OF LIABILITY: The participants of the Louisville/Jefferson County Information Consortium have no indication or reason to believe that there are any inaccuracies or defects of information incorporated in this work and make NO REPRESENTATIONS OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, NOR ARE ANY SUCH WARRANTIES TO BE IMPLIED, WITH RESPECT TO THE INFORMATION OR DATA, FURNISHED HEREIN.

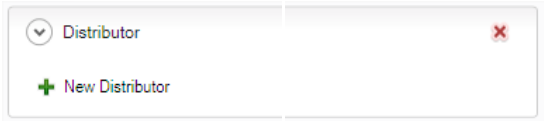


14. Distribution

14.1. Distributor

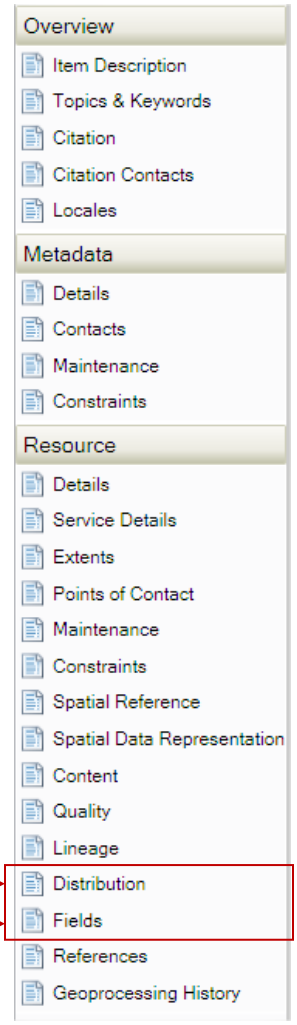
14.1.1. See elements listed under “Contact Information” above.

To add a new distribution contact, click New Distributor .



Once a Distributor entry exists, its contact information can be filled out or edited by expanding the contact information Contact: .

Once, expanded the contact information can be completed per the directions under ***Contact Information****.*



15. Fields

Fields should be synced to metadata already, meaning the names and attributes of fields should be automatically present, but not all required information will be complete. What are outstanding are the qualitative descriptions of fields, values and sources.

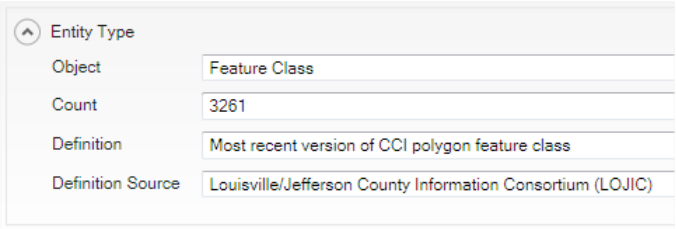
To review existing field information expand Details: .

15.1. Entity Type

15.1.1. Definition (single sentence definition of feature class or table)

15.1.2. Definition Source

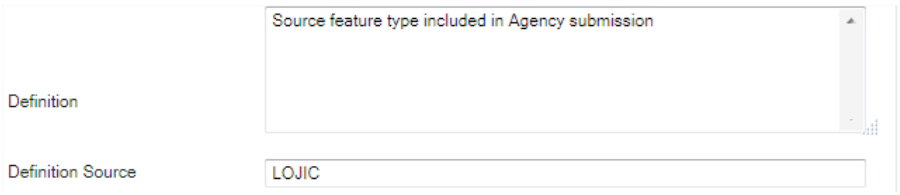
Your Agency



15.2. Attribute

15.2.1. Definition

15.2.2. Definition Source



15.2.3. Value Explanation

15.2.4. Enumerated, Range or Codeset Domain (Typically, this will be an enumerated Domain.)

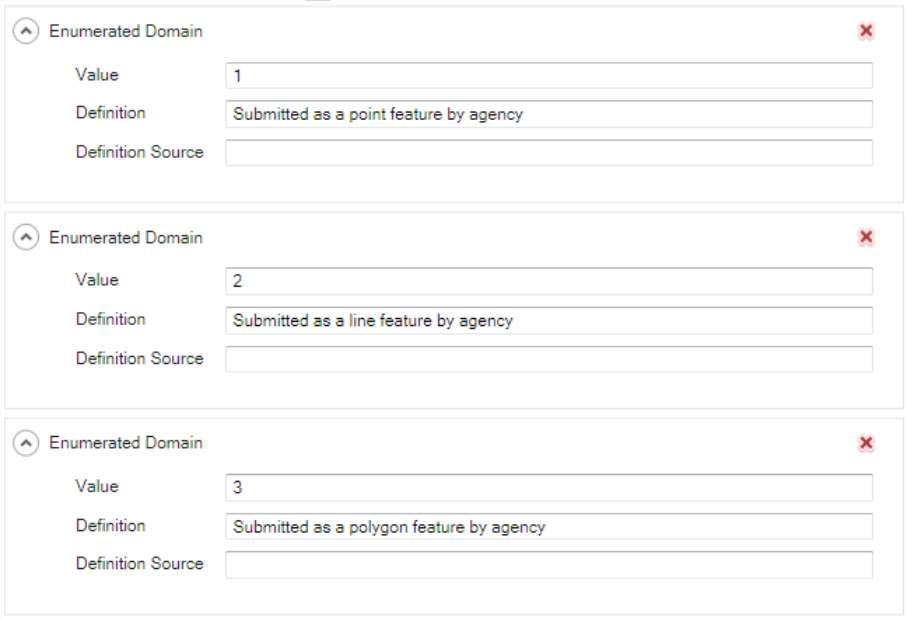
15.2.5. If your values for the given field fall into a classification scheme that requires or utilizes a domain, click New Enumated Domain to create a new enumerated /coded value.

15.2.5.1. Value

15.2.5.2. Definition

15.2.5.3. Definition Source

Your Agency



Note that each entry of the overall domain requires you to add an enumerated domain value for each classification value.

SUMMARY OF BASELINE REQUIREMENTS FOR LOJIC METADATA STANDARD

The following list indicates the baseline required items for completed LOJIC metadata. Terminology matches that which is used within the metadata editor to facilitate clear reference. In some cases, recommended or required values and entries are included in blue font below their respective item. Items followed by a single asterisk are desirable but not mandatory; in some cases, the entries of these items are dependent on policy considerations of the contributing agency.

CONTACT INFORMATION:

There are (4) different contact entries throughout the metadata editor. In any particular section, more than 1 contact can be entered if necessary. Generally, all contact information I entered the same way. The required elements follow: *(Items with an * are desirable, but optional.)*

1. Contact
   - 1.1. Name
   - 1.2. Organization
   - 1.3. Position
   - 1.4. Role
     Author, Publisher or Point of Contact
2. Contact Information
   - 2.1. Email
   - 2.2. Address Type
     Postal, Physical, or Both
   - 2.3. Address
   - 2.4. City
   - 2.5. State
   - 2.6. Postal Code
   - 2.7. Country
   - 2.8. Phone
   - 2.9. Fax
   - 2.10. Instructions*
   - 2.11. Hours*

OVERVIEW:

3. Item Description:
   - 3.1. Title
   - 3.2. Summary (Purpose)
   - 3.3. Description (Abstract)
     Note: Tags will be populated from the data entered in the Topics and Keywords section
     Note: Use Limitation will be populated from the General Constraints entered in Resource Constraints

4. Topics and Keywords
   4.1. Topic Categories – check the appropriate categorical classification(s) within the list
   4.2. Content Type**
      Downloadable Data
      Be sure that 'Export as resource Description' is checked.
   4.3. Theme Keywords
   4.4. Place Keywords
5. Citation
   5.1. Presentation Form
      Digital Map or Digital Table (as applicable)
   5.2. FGDC Geospatial Data Presentation Form
      Tabular Digital Data or Vector Digital Data (as applicable)
   5.3. Dates
      5.3.1. Created
      5.3.2. Published
6. Citation Contacts (individual responsible for or associated with or point of contact for resource data)
      6.1.1. See "Contact Information

**To complete the Content Type, you must have ArcGIS 10.0 SP4 or later, otherwise this option is not available.

METADATA:

7. Details
   7.1. Date Stamp
   7.2. Language
   7.3. Country
   7.4. Hierarchy Level
      Dataset
8. Contacts (individual responsible for metadata for geographic data)
   8.1. See items listed under "Contact Information" on page 1.

9. Maintenance
   9.1. Update Frequency*

RESOURCE:

10. Details
   10.1. Status
      Completed
      10.1.1. Languages
         10.1.1.1. Language
            English
         10.1.1.2. Country
            United States
      10.1.2. Spatial Representation Type

Vector

10.1.3. Processing Environment

10.1.4. Supplemental Information

11. Points of Contact

11.1. See items listed under “Contact Information” on page 1.

12. Maintenance

12.1. Update Frequency

12.2. Next Update*

13. Constraints

13.1. Legal Constraint

13.1.1. Access Constraint*

Data access is restricted to LOJIC Participants, their contractors and Licensees only.

13.1.2. Use Constraint*

13.1.3. Other constraint*

13.2. General Constraint

13.2.1. Use Limitation (This statement can be copied from: L:\lojicmap\liabilit.txt)

LIMITATION OF LIABILITY: The participants of the Louisville/Jefferson County Information Consortium have no indication or reason to believe that there are any inaccuracies or defects of information incorporated in this work and make NO REPRESENTATIONS OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, NOR ARE ANY SUCH WARRANTIES TO BE IMPLIED, WITH RESPECT TO THE INFORMATION OR DATA, FURNISHED HEREIN

14. Distribution

14.1. Distributor

14.1.1. See elements listed under “Contact Information” above.

15. Fields

15.1. Entity Type

15.1.1. Definition (single sentence definition of feature class or table)

15.1.2. Definition Source

Your Agency

15.2. Attribute

15.2.1. Definition

15.2.2. Definition Source

15.2.3. Value Explanation

15.2.4. Enumerated, Range or Codeset Domain (Typically, this will be an enumerated Domain.)

15.2.4.1. Value

15.2.4.2. Definition

15.2.4.3. Definition Source

Your Agency