Metadata in plain language

Introduction

This document provides a general interview approach for creating metadata. It is not necessarily exhaustive but is intended to convey in plain language the basic information that will be contained in the metadata and link to pages specifying the steps required to write that information into the metadata document itself. Questions in *italics* indicate the topics and are not to be answered explicitly; those that are in plain text, indented beneath them are the questions that need to be answered.

The Questions

1. *What does the data set describe?*
    1. What is the title of the data set?
    2. What geographic area does the data set cover?
    3. Does the data set describe conditions during a particular time period?
    4. Is this a digital map or remote-sensing image, or something different like tabular data?
    5. *How does the data set **represent** geographic features?*
        1. How are geographic features stored in the data set?
        2. What coordinate system is used to represent geographic features?
    6. *How does the data set **describe** geographic features?*
        1. What are the types of features present?
        2. For each feature, what attributes of these features are described?
        3. What sort of values does each attribute hold?
        4. For measured attributes, what are the units of measure, resolution of the measurements, frequency of the measurements in time, and estimated accuracy of the measurements?
2. *Who produced the data set?*
    1. Who created the data set?
        1. Formal authors of the published work
        2. Compilers and editors who converted the work to digital form
        3. Technical specialists who did some of the processing but aren't listed as formal authors
        4. Cooperators, collaborators, funding agencies, and other contributors who deserve mention
    2. To whom should users address questions about the data?
3. *Why was the data set created?*
    1. What were the objectives of the research that resulted in this data set?
    2. What objectives are served by presenting the data in digital form?
    3. How do you recommend that the data be used?

    4. Are you concerned that nonspecialists might misinterpret the data? If so, of what aspects of the data set should they be especially wary?

4. ## *How was the data set created?*
    1. *From what previous works were the data drawn?*
        1. Are the source data original observations made by the authors and their cooperators?
        2. Were parts of the data previously packaged in a publication or distributed informally?
        3. Were the source data published?
        4. Were the source data compiled at a particular scale?
        5. What time period do the source data represent?
        6. What information was obtained from each data source?
    2. *How were the data generated, processed, and modified?*
        1. How were the data collected, handled, or processed?
        2. For this activity did you use data from some other source?
        3. Did this activity generate an intermediate data product that stands on its own?
        4. When did this processing occur?
        5. Did someone other than the formal authors do the data processing?
    3. *What similar or related data should the user be aware of?*

5. ## *How reliable are the data; what problems remain in the data set?*
    1. What can you say about the accuracy of the observations?
    2. How accurately are the geographic locations known?
    3. If data vary in depth or height, how accurately is vertical position known?
    4. Where are the gaps in the data? What is missing there?
    5. Do the observations mean the same thing throughout the data set?

6. ## *How can someone get a copy of the data set?*
    1. Are there legal restrictions on access or use of the data?
    2. Who distributes the data?
    3. What is the distributor's name or number for this data set?
    4. As a distributor, what legal disclaimers do you want users to read?
    5. *How can people download or order the data?*
        1. In what formats are the data available?
        2. Can users download the data from the network?
        3. Can users get the data on disk or tape?
        4. Is there a fee to get the data?
        5. How long will it take to get the data?
    6. What hardware or software do people need in order to use the data set?
    7. Will these data be available for only a limited time?

7. ## *Who wrote the metadata?*
    1. When were the metadata last modified?
    2. Has this metadata record been reviewed or will it be reviewed in the future?
    3. Who wrote the metadata?
    4. To what standard are the metadata intended to conform?

5. If you specified any clock times in the metadata, did you use local time, GMT, or something else?
6. Are there legal restrictions on who can get or use the metadata?

What does the data set describe?

1. What is the title of the data set?

```
Identification_Information:

  Citation:

    Citation_Information:

      Title: Put the title here
```

For a published data set, this should be the title of the publication. Not all data are formally published, however, and publication titles sometimes omit pertinent information. Since the title is what people will see first in a search of the Clearinghouse, you'll want to make sure it is both informative and concise. If you're creating a title, try to include the theme, geographic extent, and time period of the data, if applicable. If you have a formal title, consider appending additional information to it, set off by a colon.
Some people recommend keeping the title shorter than 80 characters, but there is no set limit. Additional general information should be included in a succinct Abstract as well:

```
Identification_Information:

  Description:

    Abstract: More detailed information
```

If the data are published in an official sense, include the series name and the issue number, along with the name and location of the publisher as follows:

```
Identification_Information:

  Citation:

    Citation_Information:
```

```
      Series_Information:

        Series_Name: Name of series or journal

        Issue_Identification: Volume and issue number

      Publication_Information:

        Publication_Place: Location name

        Publisher: Company or organization name
```

2. What geographic area does the data set cover?

```
Identification_Information:

  Spatial_Domain:

    Bounding_Coordinates:

      West_Bounding_Coordinate:  Westernmost longitude

      East_Bounding_Coordinate:  Easternmost longitude

      North_Bounding_Coordinate: Northernmost latitude

      South_Bounding_Coordinate: Southernmost latitude
```

Write these values in decimal degrees even if the data set uses projected coordinates.

3. Does the data set describe conditions during a particular time period?

```
Identification_Information:

  Time_Period_of_Content:

    Time_Period_Information:
```

```
      See How to describe time periods

    Currentness_Reference: What the time period means
```

4. Is this a digital map or remote-sensing image, or something different like tabular data?

```
Identification_Information:

  Citation:

    Citation_Information:

      Geospatial_Data_Presentation_Form: Pick from the list
```

The list of standard values is:

```
   atlas

    diagram

    globe

    map

    model

    profile

    remote-sensing image

    section

    view
```

Use one of these if you can, otherwise make up something more informative.

5. [How does the data set *represent* geographic features?]

6. [How does the data set *describe* geographic features?]

How to describe time periods

Dates

Dates are specified within Time_Period_Information.

- A single day

```
Single_Date/Time:

   Calendar_Date: A year or day
```

- A discrete set of days

```
Multiple_Dates/Times:

   Calendar_Date: A year or day

   Calendar_Date: Another year or day

   Calendar_Date: more if needed...
```

- **A range of days**

```
Range_of_Dates/Times:

   Beginning_Date: Starting year or day

   Ending_Date: Ending year or day
```

The dates should be written like YYYY (a four-digit year) if you only know the year, or YYYYMMDD (where MM is the month 1-12 and DD the day 1-31) if you know the day.

Times

You can add times too, but don't unless you really need to be that precise. Write the times as HHMM or HHMMSS (HH is hour 0-24, MM minutes 0-59, SS seconds 0-59):

```
Single_Date/Time:
```

```
    Calendar_Date: A year or day

    Time_of_Day: Time as HHMM or HHMMSS
```

```
Range_of_Dates/Times:

    Beginning_Date: Starting year or day

    Beginning_Time: Time as HHMM or HHMMSS

    Ending_Date: Ending year or day

    Ending_Time: Time as HHMM or HHMMSS
```

How does the data set represent geographic features?

1. **How are geographic features stored in the data set?**
   Generally you have point locations, a map with lines and polygons, or an image or grid of some sort. Point locations get lumped in with lines and polygons as **vector** maps. Raster (image or grid) data are handled differently.

Points or vector maps

```
Spatial_Data_Organization_Information:

  Direct_Spatial_Reference_Method: Point or Vector

  Point_and_Vector_Object_Information:

      SDTS_Terms_Description:

        SDTS_Point_and_Vector_Object_Type: Pick from the list below

        Point_and_Vector_Object_Count: How many of these?

      SDTS_Terms_Description:
```

```
        SDTS_Point_and_Vector_Object_Type: Another from the list

        Point_and_Vector_Object_Count: How many?

      SDTS_Terms_Description:

        SDTS_Point_and_Vector_Object_Type: More from the list ...

        Point_and_Vector_Object_Count: How many?
```

The alternative to the SDTS terms is VPF terms; use SDTS terms unless you're working for the Defense Department. Of the 27 different SDTS point and vector object types, the ones you probably want are:

`Entity point`

if your data are points that have attributes

`Complete chain`

if your data are arcs

`GT-polygon composed of chains`

if you have built polygon topology

Raster data (images or grids)

```
Spatial_Data_Organization_Information:

  Direct_Spatial_Reference_Method: Raster

  Raster_Object_Information:

      Raster_Object_Type: Point or Pixel or Grid Cell or Voxel

      Row_Count: How many?

      Column_Count: How many?

      Vertical_Count: (use only if your data are 3-D)
```

2. **What coordinate system is used to represent geographic features?**

a. Are your coordinates geographic (latitude and longitude)?

```
Spatial_Reference_Information:

  Horizontal_Coordinate_System_Definition:

      Geographic:

        Latitude_Resolution: numerical estimate

        Longitude_Resolution: numerical estimate

        Geographic_Coordinate_Units: Decimal degrees, for example

      Geodetic Model:

        Horizontal_Datum_Name: NAD27 or NAD83

        Ellipsoid_Name: Clarke 1866, for example

        Semi-major_Axis: radius of the earth in kilometers

        Denominator_of_Flattening_Ratio: number, about 300
```

b. Is this a map with a planar projection?

```
Spatial_Reference_Information:

  Horizontal_Coordinate_System_Definition:

      Planar:

        Map_Projection:

          Map_Projection_Name:  projection name from following list:

            Albers Conical Equal Area

            Azimuthal Equidistant
```

```
Equidistant Conic

Equirectangular

General Vertical Near-sided Projection

Gnomonic

Lambert Azimuthal Equal Area

Lambert Conformal Conic

Mercator

Modified Stereographic for Alaska

Miller Cylindrical

Oblique Mercator

Orthographic

Polar Stereographic

Polyconic

Robinson

Sinusoidal

Space Oblique Mercator

Stereographic

Transverse Mercator

van der Grinten
```

```
            other projection
```

Projection parameters

Projection parameters need to be specified. These vary from projection to projection, and as the jargon is daunting, this is not a fit topic for a document purporting to explain metadata in plain language.

```
     Geodetic Model:

        Horizontal_Datum_Name: NAD27 or NAD83

        Ellipsoid_Name: Clarke 1866, for example

        Semi-major_Axis: radius of the earth in kilometers

        Denominator_of_Flattening_Ratio: number, about 300
```

How does the data set describe geographic features?

People need to know what **attributes** of the geographic **features** are supplied in the data set. The *spatial extent* of the geographical features is described explicitly by the data; what are the other characteristics of the features such as scientific measurements, identifiers and labels, or characteristics associated with the geographic regions delimited by the features (population within census tracts, for example)?
In spatial data sets, attributes are typically associated with geographic features, although other arrangements are possible. Describe the attributes of each type of feature together, since the attributes of one type of feature are typically contained in one or a few related digital files or tables. You can describe the features and attributes using a Detailed_Description, which is best, or an Overview_Description. Use an overview only if *all* of the details of the attribute values are explained in some published source.

Features

```
Entity_and_Attribute_Information:

  Detailed_Description:

    Entity_Type:
```

```
      Entity_Type_Label: Name of the feature type or table

      Entity_Type_Definition: What is this feature or table?

      Entity_Type_Definition_Source: Document, if any, that defines this
type of feature.
```

If this type of feature or table isn't defined in some authoritative publication like FIPS 173, and you don't know what to put in Entity_Type_Definition_Source, leave that element out. It is mandatory, but meaningless information is worse than no information.

Attributes

For each attribute, you should know the attribute's **name** in the data set, a **definition** of the attribute, and what **values** the attribute holds.

```
   Attribute:

      Attribute_Label: Name of the item or attribute

      Attribute_Definition: What information does it provide?

      Attribute_Definition_Source: Document, if any, that defines this
attribute.
```

If this attribute isn't defined in some authoritative publication like FIPS 173, and you don't know what to put in Attribute_Definition_Source, leave that element out.

What sort of values does the attribute hold?

In general, attributes either **measure**, **categorize**, or **characterize** the features or entities they describe.

- Labels or names that **characterize** the features

```
 Attribute_Domain_Values:

    Unrepresentable_Domain:

        Description of the values, like unabbreviated descriptive
text, place names, identifiers without further scientific
significance
```

- Text codes or integer numbers that **categorize** the features

```
Attribute_Domain_Values:

   Enumerated_Domain:

     Enumerated_Domain_Value: One of the possible values

     Enumerated_Domain_Value_Definition: What it means

     Enumerated_Domain_Value_Definition_Source: Document, if any,
that defines the value.

  Attribute_Domain_Values:

   Enumerated_Domain:

     Enumerated_Domain_Value: Another possible value

     Enumerated_Domain_Value_Definition: What it means

     Enumerated_Domain_Value_Definition_Source: Document, if
different, that defines the value
```

- Integers or decimal (floating- or fixed-point) values showing some **measure** of the features

```
Range_Domain:

   Range_Domain_Minimum: Lowest possible value

   Range_Domain_Maximum: Highest possible value
```

What are the units?

```
Attribute_Units_of_Measure: units
```

Optional information about attribute values:

What is the resolution of the measurements?

```
Attribute_Measurement_Resolution: smallest meaningful difference
```

Were measurements made at regular time intervals?

- When did you start making measurements?

```
Beginning_Date_of_Attribute_Values: start date
```

- When did you stop making measurements?

```
Ending_Date_of_Attribute_Values: stop date
```

- How often did you make measurements?

```
Attribute_Measurement_Frequency: time interval
```

What about the accuracy of the values?

```
Attribute_Value_Accuracy_Information:

  Attribute_Value_Accuracy: Quantitative estimate

  Attribute_Value_Accuracy_Explanation: How did you estimate it?
```

Who produced the data set?

1. **Who created the data set?**
   This question is really too simple for many situations. People can have several different roles in producing a data set:

   - **Formal authors of the published work**

```
Identification_Information

  Citation:

    Citation_Information:
```

```
      Originator:  Author's name

      Originator:  Another author's name

      Originator:  . . .
```

- **Compilers and editors who converted the work to digital form**
  The CSDGM does not have a standard element to attribute properly the efforts of those who may have scanned or digitized a map from a previously-published product. The reason why is that primary authorship is likely to vary in scope from one organization to another; if enough changes and corrections were made to the product it may be appropriate to make the digital map specialists formal authors and include the names of the original authors in the title of the digital product. But this is not a decision that applies broadly across scientific and technical disciplines. Consequently you should consult your organization's policies, if any, and find an appropriate place to put this information in the context of those policies.
  So for example, it might be appropriate to list a compiler or editor, indicating in parentheses the role that that person carried out in the production of the data set:

```
Identification_Information

  Citation:

    Citation_Information:

      Originator:  Compiler's name (compiler)

or

      Originator:  Editor's name (editor)
```

- **Technical specialists who did some of the processing but aren't listed as formal authors**

```
Data_Quality_Information:

  Lineage:

    Process_Step:
```

```
      Process_Contact:

        Contact_Information:

          See Providing contact information
```

- **Cooperators, collaborators, funding agencies, and other contributors who deserve mention.**

```
Identification_Information

  Data_Set_Credit:  Acknowledgements
```

2. **To whom should users address questions about the data?**
   Usually one of the people or organizations above is designated as the principal point of contact for the data set, coordinating overall guidance to users. This person or organization is described formally as follows:

```
Identification_Information

  Point_of_Contact

    See Providing contact information
```

Providing contact information

Contact_Information provides a structure that attaches address, phone, fax, and email information to the names of people or organizations. It appears in four different sections of standard metadata:

- Point_of_Contact
- Process_Contact
- Distributor
- Metadata_Contact

All of the elements described here go within Contact_Information.

Required contact information

1. **Is the contact a person or an organization?**

- **Person -- the Contact_Organization is optional.**

```
Contact_Person_Primary:

   Contact_Person:  Name of the person

   Contact_Organization:  Name of the organization
```

- **Organization -- the Contact_Person is optional.**

```
Contact_Organization_Primary:

   Contact_Organization:  Name of the organization

   Contact_Person:  Name of the person
```

2. **What is the address?**
   You can supply more than one address. You should indicate whether the addresses given are mailing addresses or physical addresses. This helps people determine which delivery services they can use to send mail to the contact.

```
Contact_Address:

   Address_Type:  "mailing", "physical", or "mailing and physical"

   Address:  text

   City:  Name of city

   State_or_Province:  Name or 2-letter abbreviation

   Postal_Code:  Zip code in USA

   Country:  Optional; users may assume USA
```

3. **Does the contact have a voice, FAX, or TDD/TTY phone?**

```
Contact_Voice_Telephone:  Telephone number
```

```
  Contact_TDD/TTY_Telephone:  Telephone number

  Contact_Facsimile_Telephone:  FAX number
```

4. **Does the contact have an email address?**

```
Contact_Electronic_Mail_Address:  Email address
```

Optional contact information

```
Contact_Position:  Role of the contact in the organization

  Hours_of_Service:  Time period (not formally structured)

  Contact_Instructions:  text
```

Why was the data set created?

In general, this information should be written into the statement of Purpose:

```
Identification_Information:

  Description:

    Purpose:  Objectives and concerns
```

Include in this element information that addresses the following concerns:

1. **What were the objectives of the research that resulted in this data set?**
2. **What objectives are served by presenting the data in digital form?**
3. **How do you recommend that the data be used?**
4. **Are you concerned that nonspecialists might misinterpret the data? If so, of what aspects of the data set should they be especially wary?**
   Specific concerns about parts of the data set that could be easily misunderstood should also be written into the reports of the Data_Quality_Information. See [How reliable are the data; what problems remain?]

How reliable are the data; what problems remain?

Wise users understand that data are collected by people and organizations that have their own plans and purposes. The Data_Quality_Information is not intended to put authors to shame, but is there to

permit them to explain to users what sort of accuracy, completeness, and internal consistency they should expect to find in the data. Don't sweat it, just tell it like it is.

1. **What can you say about the accuracy of the observations?**

```
Data_Quality_Information:

  Attribute_Accuracy:

    Attribute_Accuracy_Report:  Information and advice
```

The report should include a summary of the processes by which the attribute data have been reviewed or tested, including results.
Optionally, if you have statistics on the accuracy of the attributes, include for each statistic the following elements:

```
   Quantitative_Attribute_Accuracy_Assessment:

      Attribute_Accuracy_Value:  A statistic

      Attribute_Accuracy_Explanation: What the statistic means
```

2. **How accurately are the geographic locations known?**

```
Data_Quality_Information:

  Positional_Accuracy:

    Horizontal_Positional_Accuracy:

      Horizontal_Positional_Accuracy_Report:  Information and
advice
```

This report should include a summary of the processes by which the geographic positions have been reviewed or tested, including results.
Optionally, if you have statistics on the accuracy of the locations, include for each statistic the following elements:

```
     Quantitative_Horizontal_Positional_Accuracy_Assessment:
```

```
        Horizontal_Positional_Accuracy_Value:  A statistic

        Horizontal_Positional_Accuracy_Explanation: What the
statistic means
```

3. **If data vary in depth or height, how accurately is vertical position known?**
   This is like Horizontal_Positional_Accuracy; just swap "Vertical" for "Horizontal" in all of the element names:

```
Data_Quality_Information:

  Positional_Accuracy:

    Vertical_Positional_Accuracy:

      Vertical_Positional_Accuracy_Report:  Information and advice
```

   This report should include a summary of the processes by which the elevations or depths have been reviewed or tested, including results.
   Optionally, if you have statistics on the accuracy of the elevations or depths, include for each statistic the following elements:

```
     Quantitative_Vertical_Positional_Accuracy_Assessment:

        Vertical_Positional_Accuracy_Value:  A statistic

        Vertical_Positional_Accuracy_Explanation: What the
statistic means
```

4. **Where are the gaps in the data? What is missing there?**

```
Data_Quality_Information:

  Completeness_Report:  Information and advice
```

5. **Do the observations mean the same thing throughout the data set?**
   - What contextual factors should be considered by someone who wants to understand the data?
   - Did the instrumentation or calibration change while observations were being made?

- Does it matter who made the observations? If so, did more than one person make observations?

```
Data_Quality_Information:

  Logical_Consistency_Report:  Information and advice
```

If you have contact information for people who did some of the data collection or data processing but aren't authors, you can include that contact information in the Process_Contact section of the Lineage (see [Are the data original observations of the authors?](#) and [How were the source data modified?](#)).

Are the source data original observations made by the authors and their cooperators?

```
Data_Quality_Information:

  Lineage:

    Process_Step:

      Process_Description: Methodology and procedures

      Process_Date:  YYYY or YYYYMMDD

      Process_Time:  Include only if it's important
```

If you want to provide contact information for the people who did the work but aren't the Point_of_Contact, add

```
     Process_Contact:

        Contact_Information:

          See Providing contact information
```

How were the data generated, processed, and modified?

1. **How were the data collected, handled, or processed?**

```
Process_Step:

  Process_Description:  text
```

I usually make this description fairly long but I don't usually include program code; where the processing was done using some script or program I usually refer to another file that contains the code itself. Other people do things differently so don't be surprised if you see a lot of variability in how people process steps are described.

2. **For this activity did you use data from some other source?**

```
Source_Used_Citation_Abbreviation:  source
```

The source specified here is the same value that is given for the Source_Citation_Abbreviation for one of the sources.

3. **Did this activity generate an intermediate data product that stands on its own?**

```
Source_Produced_Citation_Abbreviation:  source
```

The source specified here is the same value that is given for the Source_Citation_Abbreviation for one of the sources.

4. **When did this step occur?**

```
Process_Date  YYYY for the year or YYYYMMDD for the day
```

5. **Does it matter when these modifications were made?**

```
Process_Time  HHMM or HHMMSS
```

If it doesn't matter, leave this element out.

6. **Did someone other than the formal authors do the processing?**

```
Process_Contact

See Providing contact information
```

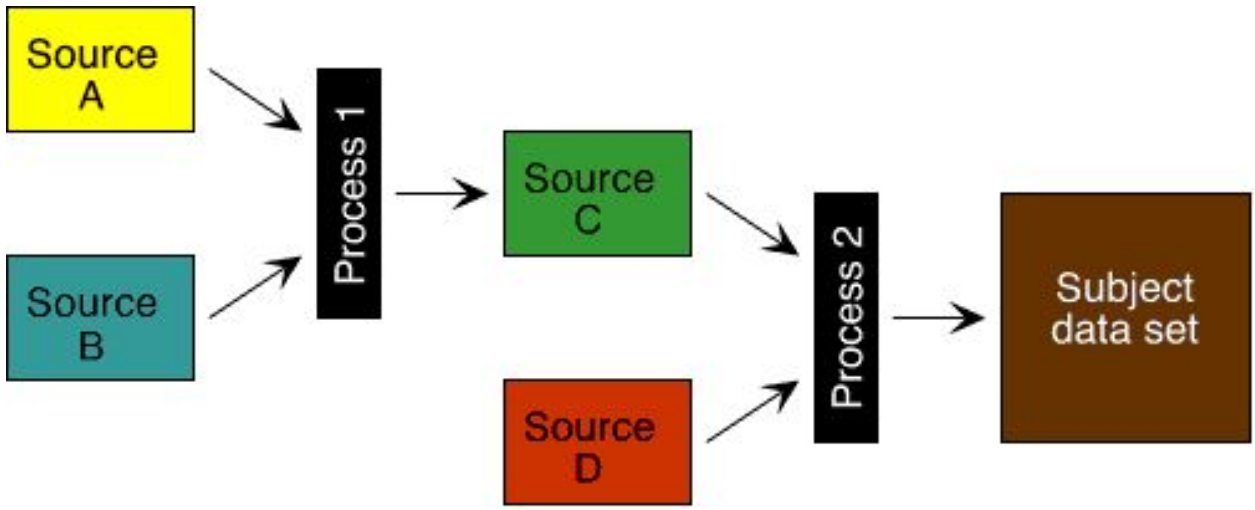
How was the data set created?

1. **From what previous works were the data drawn?**
   - Original observations made by the authors and their cooperators
   - Data previously packaged in a publication or distributed informally

2. **How were the data generated, processed, and modified?**
    - Does it matter when these modifications were made?
    - Did someone other than the formal authors do the processing?
3. **What similar or related data should the user be aware of?**

Describing data gathering and processing

The overall genesis of a data set is described as a series of **process steps** in which previously-created data **sources** are used and new data sources are built. In the diagram below, data sources A and B were used in process step 1 to create data source C. Data sources C and D were used in process step 2 to create the subject data set. The Lineage in the metadata for the subject data set therefore contains four Source_Information elements and two Process_Step elements.



So the metadata for the subject data set would contain the following elements:

```
Data_Quality_Information:

  (other data quality elements ...)

  Lineage:

    Source_Information:

      Source_Citation:
```

```
      Citation_Information:

        (more details about the source's citation ...)

    Source_Citation_Abbreviation: A

    (more details about the source ...)

  Source_Information:

    Source_Citation:

      Citation_Information:

        (more details about the source's citation ...)

    Source_Citation_Abbreviation: B

    (more details about the source ...)

  Source_Information:

    Source_Citation:

      Citation_Information:

        (more details about the source's citation ...)

    Source_Citation_Abbreviation: C

    (more details about the source ...)

  Source_Information:

    Source_Citation:

      Citation_Information:
```

```
        (more details about the source's citation ...)

      Source_Citation_Abbreviation: D

      (more details about the source ...)

    Process_Step:

      Process_Description: Process 1 ...

      Source_Used_Citation_Abbreviation: A

      Source_Used_Citation_Abbreviation: B

      Source_Produced_Citation_Abbreviation: C

      Process_Date: 1998

    Process_Step:

      Process_Description: Process 2 ...

      Source_Used_Citation_Abbreviation: C

      Source_Used_Citation_Abbreviation: D

      Process_Date: 1998
```

Note that Source C is **produced** in one process step and **used** in another. Note also that the elements Source_Used_Citation_Abbreviation andSource_Produced_Citation_Abbreviation appear only in a Process_Step, while the element Source_Citation_Abbreviation appears only in a Source_Information.

Were parts of the data previously packaged in a publication or distributed informally?

```
Data_Quality_Information:
```

```
  Lineage:

    Source_Information:
```

1. **Were the source data published?**
   - **Yes**; describe it in the Source_Citation (see [How to cite a publication](#))
   - **No**; try to get at least the source data's creator, a date produced, and a title:

     a. **Who produced the source data?**

```
   Source_Information:

      Source_Citation:

        Citation_information:

          Originator:  Name

          Originator:  Another name

          Originator:  . . .
```

     b. **When were the source data produced?**

```
Publication_Date:  Year as YYYY
```

If the data weren't published, use this to indicate the date that you received the data. That will help the user understand whether you worked from a relatively old copy of the source data or not.

     c. **Is there a title for the source data? If there isn't a title in the source itself, make up a descriptive title.**

```
         Title:  text
```

     d. **Is the source data available on the internet?**

```
         Online_Linkage:  a URL
```

2. **Were the source data compiled at a particular scale?**

```
     Source_Information:
```

```
        Source_Scale_Denominator:  number, just the denominator,
like 24000, not 1:24000
```

3. **What time period do the source data represent?**

```
     Source_Information:

        Source_Time_Period_of_Content:

          Time_Period_Information:

            See How to describe time periods

          Source_Currentness_Reference:  What the time period is
```

4. **How do you refer to this source in other parts of the documentation?**

```
     Source_Information:

        Source_Citation_Abbreviation:  short text
```

5. **What information from this source did you use?**

```
     Source_Information:

        Source_Contribution:  text
```

What similar or related data should the user be aware of?

```
   Identification_Information:

      Cross_Reference:

        Citation_information:
```

Use the Cross_Reference to tell the user about data that were produced in concert with these data but are not included with them, data that are similar in nature and function, and data that would normally be of interest to someone who is considering using these data.

How to cite a publication

All of the following information is encoded within Citation_Information.

```
Citation_Information:
```

1. **Who were the authors?**

```
Originator:  First author's name

 Originator:  Second author's name

 Originator:  ...
```

2. **When was it published?**

```
Publication_Date:  YYYY or YYYYMMDD if day matters

 Publication_Time:  HHMM or HHMMSS
```

   A month and day are rarely specified. Time is rarely specified.

3. **What is the title?**

```
Title:  text
```

4. **Does the publication have an edition designation?**

```
Edition:  number or text
```

5. **Does the publication include geospatial data?**

```
Geospatial_Data_Presentation_Form:  Pick from a list
```

   The list of standard values is:

```
  atlas

   diagram
```

```
   globe

   map

   model

   profile

   remote-sensing image

   section

   view
```

Use one of these if you can, otherwise make up something more informative.

6. **What journal or other formal series was this published in?**

```
Series_Information:

   Series_Name:  Name of journal

   Issue_Identification:  Volume, issue, optionally pages
```

7. **Who published the journal or book, and where?**

```
Publication_Information:

   Publication_Place:  City, State or Country

   Publisher:  Name
```

8. **Is this publication online?**

```
Online_Linkage:  URL
```

9. **Is this part of a larger publication?**

```
Larger_Work_Citation:
```

```
    Citation_Information:
```

Follow instructions on this page for the citation of the larger work.

10. **Anything you want to add that doesn't fit anywhere else?**

```
Other_Citation_Details:  text
```

How can someone get a copy of the data set?

1. **Are there *legal restrictions* on access or use of the data?**

```
Identification_Information:

  Access_Constraints:  Legal statement

  Use_Constraints:  Legal statement
```

2. **Who distributes the data?**

```
Distribution_Information:

  Distributor:

    See Providing contact information
```

3. **By what name does the distributor know this data set?**

```
 Resource_Description:  text
```

This might be a report number, a part number, a catalog number, or some similar identifier. If you called the distributor and said "I want to order _____", what goes in the blank?

4. **As a distributor, what legal disclaimers do you want users to read?**

```
 Distribution_Liability:  Legal statement
```

5. **How can people download or order the data?** ***Optional information about the distribution***
6. **What hardware or software do people need in order to use the data set?**

```
Technical_Prerequisites:  Advisory text
```

7. **Will these data be available for only a limited time?**

```
Available_Time_Period:

   See How to describe time periods
```

How can people download or order the data set?

1. **In what formats are the data available?** Generally the data are in some file format like the Topological Vector Profile of SDTS, ARC/INFO shapefile, ARC/INFO export, HDF, GeoTIFF, or any of thousands of other formats. The format version (or date of the format) is important to the users--this might be the version of the program that created files in that format (for example, "ARC/INFO v7.0.4 export")

```
Distribution_Information:

  Standard_Order_Process:

    Digital_Form:

      Digital_Transfer_Information:

        Format_Name:  Be as specific as possible

        Format_Version_Number:

        Format_Version_Date:

        Format_Specification:

        Format_Information_Content:  What data are in this format?

        File_Decompression_Technique:  (if compressed) something
like "gzip -d"
```

```
        Transfer_Size:  Size in megabytes (decimal number)
```

2. **Can I download the data from the network?**

```
     Digital_Transfer_Option:

        Online_Option:

          Computer_Contact_Information:

            Network_Address:

              Network_Resource_Name:  URL to the data

          Access_Instructions:  (optional) Necessary additional
instructions

          Online_Computer_and_Operating_System:  (optional) System
distributor uses
```

3. **Can I get the data on disk or tape?**

```
       Offline_Option:

          Offline_Media:  Name of media (CD-ROM, CD-R, DVD, QIC,
etc.)

          Recording_Capacity:

            Recording_Density:  (for tapes) number

            Recording_Density_Units:  (for tapes) bpi or some other
units

          Recording_Format:  CD or tape format

          Compatibility_Information:  more text about compatibility
```

4. **How much money will it cost to get the data?**

```
Fees:  Cost
```

5. **Are there special instructions for ordering?**

```
Ordering_Instructions:  text
```

6. **How long will it take to get the data?**

```
Turnaround:  text
```

7. **Is there an informal procedure for getting the data?**

```
Custom_Order_Process:  Legal statement
```

Who wrote the metadata?

Details about the metadata document itself are contained within Metadata_Reference_Information. The only elements that are always required here are

- Metadata_Date
- Metadata_Contact
- Metadata_Standard_Name
- Metadata_Standard_Version

Some people working with classified data may be required to add security information of various sorts:

- Metadata_Access_Constraints
- Metadata_Use_Constraints
- Metadata_Security_Information

If your metadata aren't classified, leave these out. The other elements are necessary only if your organization requires them.

```
Metadata_Reference_Information:
```

1. **When were the metadata last modified?**

```
Metadata_Date:
```

2. **Has this metadata record been reviewed or will it be reviewed in the future?**

Metadata_Review_Date: YYYYMMDD

Metadata_Future_Review_Date: YYYYMMDD

3. **Who wrote the metadata?**

Metadata_Contact:

Contact_Information:

See Providing contact information

4. **To what standard are the metadata intended to conform?**

Metadata_Standard_Name: Content Standard for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

5. **If you specified any clock times in the metadata, did you use local time, GMT, or something else?**

Metadata_Time_Convention: Local Time, GMT, or something else

6. **Are there legal restrictions on who can get or use the metadata?**

Metadata_Access_Constraints: Legal statement

Metadata_Use_Constraints: Legal statement

Metadata_Security_Information:

Metadata_Security_Classification_System: Spook stuff code book

Metadata_Security_Classification: Spook stuff code

Metadata_Security_Handling_Description: Instructions to other spooks