GCMD

NASA's Global Change Master Directory (GCMD)

Service Entry Resource Format (SERF) Writer's Guide

This guide was written by the Global Change Master Directory staff to assist with the creation of data service descriptions. Any material in this pdf document may be superseded by online published content [http://gcmd.nasa.gov/User/serfguide/].
If you have any questions please contact GCMD (http://gcmd.gsfc.nasa.gov/MailComments/)

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Service Entry Resource Format (SERF) Writer's Guide

SERF Fields **Note: All fields denoted as either Required, Highly Recommended, or Recommended**

Contents

Required

Highly Recommended

What is a SERF?

SERF is the acronym for Service Entry Resource Format, a de-facto standard used to create directory entries that describe a group of data services and applications. A SERF consists of a collection of fields that detail specific information about the service. Seven fields are required in the SERF; the others expand upon and clarify the information. Some of the fields are free text or unrestricted fields, others require the use of valid values.

The SERF allows users of data to find tools to manipulate data. The SERF contains those fields that are necessary for users to decide whether a particular service would be useful for their needs.

The Global Change Master Directory (GCMD) offers online descriptive information about environmental and Earth science data sets located throughout the world. As an additional service for the Earth sciences community, GCMD also offers descriptive information about commercial and non-commercial data services that could assist its user community in analyzing, processing, and evaluating Earth science data sets.

Parameter Keyword Rules

by Lola M. Olsen

The following rules have been used in determining TERMs and VARIABLEs for the GCMD Parameter Keywords. These rules are used in GCMD's procedures for modifying GCMD keywords. TOPICs, TERMs, and VARIABLEs contain VALID lists to assist the user in locating Earth science data sets of interest. These VALIDs are expected to remain fairly stable over time, although suggestions for additions and/or changes will always be considered.

RULES

1) The service advertised in the GCMD must be specific and directly related to the processing, viewing, analysis, archival, retrieval, production, interpretation, acquisition, formatting, or indexing of Earth science data. The GCMD staff will be responsible for determining the appropriateness for inclusion and for the quality control of the entries by working with service providers.

2) A four level hierarchy of Services keywords will be maintained, positioned as CATEGORY/TOPIC/TERM/SERVICE SPECIFIC NAME.

3) All keywords at the four levels of hierarchy should be parallel and 'mutually

exclusive'. The GCMD keyword authorities will determine if modifications or additions are appropriate. All modifications or additions must strictly adhere to the rules contained herein.

4) Services should be classified by their primary purposes. Existing service keywords at the TOPIC/TERM/VARIABLE level will be used to associate the services that apply to the SERF. The summary can be used for further clarification. Providers may not submit more than one entry (SERF) for any one service.

5) Existing science keywords at the TOPIC/TERM/VARIABLE level will be used to associate the service with a science TOPIC/TERM/VARIABLE.

Entry Identifier

Definition

The **<Entry_ID>** is the unique identifier of the metadata record. The **<Entry_ID>** is determined by the metadata author and may be identical to identifiers used by the service provider's organization. For example, the National Snow and Ice Data Center (NSIDC) DAAC identifies their metadata records as *NSIDC-xxxx*, where *xxxx* is a numerical designator. Also, the identifier is case insensitive meaning nsidc-xxxx and NSIDC-xxx refer to the same metadata record.

Syntax

<Entry_ID>text entry identifier</Entry_ID>

- The **<Entry_ID>** consists of 1 to 80 alphanumeric characters of the UTF-8 set, including underbar (_), hyphen (-) and period (.)
- The following characters are **not** allowed in the **<Entry_ID>:**
  - Backward Slash (/)
  - Forward Slash (\ )
  - Colon (:)
  - Spaces ( )

Usage

- The <**Entry_ID>** is required and is not repeatable.

Example

<Entry_ID>PSU_GEOG_IMPROVISE</Entry_ID>

<Entry_ID>GES_DAAC_OPenDAP_Data_Pool</Entry_ID)

The following would **not** be allowed:
<Entry_ID>CoCoRaHS/5</Entry_ID>. The forward slash (/) is not an allowed character.

Entry Title

Definition

The **<Entry_Title>** is the title of the service described by the metadata.

- **<Entry_Title>** should be descriptive enough so that when a user is presented with a list of titles the general content of the service can be determined. For example, *<Entry_Title>Data Mining</Entry_Title>* would **not** be an adequate service title as it does not provide enough descriptive information to guide the user.
- In order to make titles descriptive, important elements about the service may be included in the **<Entry_Title>**, i.e., type of service, investigator, project. For example, *<Entry_Title> Algorithm Development and Mining System (ADaM)</Entry_Title>* provides an adequate amount of information to guide the user.

Syntax

<Entry_Title>Title of the service</Entry_Title>

    1 to 220 characters permitted from the UTF-8 character set.
    The **Entry_Title** should follow standard mixed (i.e. upper and lower) case.

Usage

    The **<Entry_Title>** field is required and is not repeatable.

Example

<Entry_Title>Climate Data Analysis Tools (CDAT) </Entry_Title>

<Entry_Title>Texas Surface Water Quality Viewer</Entry_Title>

<Entry_Title>Solar Terrestrial Dispatch - Space Weather Forecasting Services</Entry_Title>

Parameters (Science Keywords)

Definition

The **<Science_Parameters>** field allows for the specification of Earth science keywords that are representative of the data set being described. These keywords are important for the precise search and retrieval of information from the GCMD. The author must select these keywords from the controlled set of science keywords. The **<Science_Parameters>** field consists of a 7-level hierarchical classification of science keywords, defined as follows:

- **<Science_Category>** is the highest keyword category. The default is *"EARTH SCIENCE"*.

- **<Science_Topic>** is the next highest level in the keyword hierarchy under <Category>. There are 14 Topics:
    - Agriculture
    - Atmosphere
    - Biosphere
    - Biological Classification
    - Climate Indicators
    - Cryosphere
    - Human Dimensions
    - Land Surface
    - Oceans
    - Paleoclimate
    - Solid Earth
    - Spectral/Engineering
    - Sun-Earth Interactions
    - Terrestrial Hydrosphere

- **<Science_Term>** is next level in the hierarchy under **<Science_Topic>**. There can be several controlled **<Term>** keywords for each **<Science_Topic>.** **<Science_Variable_Level_1>** is the next level in the hierarchy under **<Science_Term>.** There can be several controlled **<Science_Variable_Level_1>** keywords for each **<Science_Term<Science_Variable_Level_2>** is the next level in the hierarchy under **<Science_Variable_Level_1>.** There can be several controlled **<Science_Variable_Level_2>** keywords for each

<Science_Variable_Level_1>.

<Science_Term>Animals/Invertebrates</Science_Term>

<Science_Variable_Level_1>Arthropods </Science_Variable_Level_1>

<Science_Variable_Level_2>Crustaceans</Science_Variable_Level_2>.

- **<Science_Variable_Level_3>** is the next level in the hierarchy under **<Science_Variable_Level_2>.** There can be several controlled **<Science_Variable_Level_3>** keywords for each **<Science_Variable_Level_2**

- **<Detailed_Variable>** is an uncontrolled free text field that allows the metadata author to specify any keywords to more exactly describe the measurement represented by the data.

Syntax

```
<Science_Parameters>
<Science_Category>EARTH SCIENCE </Science_Category> (by default)
<Science_Topic>Topic keyword </Science_Topic>
<Science_Term> Term keyword </Science_Term>
<Science_Variable_Level_1> Variable Level 1 keyword </Science_Variable_Level_1>
<Science_Variable_Level_2> Variable Level 2 keyword </Science_Variable_Level_2>
<Science_Variable_Level_3> Variable Level 3 keyword </Science_Variable_Level_3>
<Detailed_Variable> text </Detailed_Variable>
</Science_Parameters>
```

- **<Detailed_Variable>** is a free-text field, which may contain up to 80 characters.

- **<Science_Category>, <Science_Topic>, <Science_Term>, <Science_Variable_Level_1>, <Science_Variable_Level_2>**, and **<Science_Variable_Level_3>** must be selected from the set of controlled Earth science keywords.

Usage

- The **<Science_Parameters>** field is required field and may be repeated as often as necessary.

- The following fields within **<Science_Parameters>** are required and may not be repeated within the **<Science_Parameters>** field:
  - <Science_Category>
  - <Science_Topic>

- ▣ <Science_Term>

The following fields within **<Science_Parameters>** are optional and may not be repeated within the **<Science_Parameters>** field:

    <Science_Variable_Level_1>
    <Science_Variable_Level_2>
    <Science_Variable_Level_3>
    <Detailed_Variable>

Multiple **<Science_Parameters>** can be specified for each metadata record. All applicable **<Science_Topic>, <Science_Term>**, **<Science_Variable_Level_1>, <Science_Variable_Level_2>,** and **<Science_Variable_Level_3>** science keywords should be selected that describe the data set.

Example

Specification of **<Science_Parameters>** without a **<Science_Variable>** keyword.

```
<Science_Parameters>
<Science_Category> Earth Science</Science_Category>
<Science_Topic> Atmosphere</Science_Topic>
<Science_Term> Precipitation</Science_Term>
</Science_Parameters>
```

Specification of <**Science_Parameters**> with a <**Science_Variable_Level_1**> keyword.

```
<Science_Parameters>
<Science_Category>Earth Science</Science_Category>
<Science_Topic>Climate Indicators</Science_Topic>
<Science_Term>Teleconnections</Science_Term>
<Science_Variable_Level_1>North Atlantic Oscillation</Science_Variable_Level_1>
</Science_Parameters>
```

Specification of **<Parameters>** with two different **<Detailed_Variable>** keywords in the same metadata record. Note that the **<Parameters>** field must be repeated.

<Parameters>
<Category> Earth Science </Category>
<Topic> Biological Classification </Topic>
<Term> Animal/Invertebrates </Term>
<Variable> Fish </Variable>
<Detailed_Variable> Demersal Fish </Detailed_Variable>
</Parameters>

<Parameters>
<Category> Earth Science </Category>
<Topic> Biological Classification </Topic>
<Term> Animal/Invertebrates </Term>
<Variable_Level_1> Fish </Variable_Level_1>
<Detailed_Variable> Catch per Unit Effort </Detailed_Variable>
</Parameters>

Specification of two <Parameters> with the same <Variable_Level_1>, but different <Term>. Both <Parameters> may be in the same metadata record.

<Parameters>
<Category>Earth Science</Category>
<Topic>Cryosphere</Topic>
 <Term>Sea Ice</Term>
 <Variable_Level_1>Sea Ice Concentration</Variable_Level_1>
</Parameters>

<Parameters>
<Category>Earth Science</Category>
<Topic>Oceans</Topic>
 <Term>Sea Ice</Term>
 <Variable_Level_1>Sea Ice Concentration</Variable_Level_1>
</Parameters>

Service Parameters (Service Keywords)

Definition

The **<Service_Parameters>** field allows for the specification of Earth science services keywords that are representative of the services, tools, and/or resources being described. These keywords are important for the precise search and retrieval of information from the GCMD. The author must select these keywords from the controlled set of services keywords. The **<Service_Parameters>** field consists of a 4-level hierarchical classification of services keywords, defined as follows:

- **<Service_Category>** is the highest keyword category. The default is *"EARTH SCIENCE SERVICES".*
- **<Service_Topic>** is the next highest level in the keyword hierarchy under <Category>. There are 8 Topics:
    - Data Analysis and Visualization
    - Data Management/Data Handling
    - Education/Outreach
    - Environmental Advisories
    - Hazards Management
    - Metadata Handling
    - Models
    - Reference and Information Services

- **<Service_Term>** is next level in the hierarchy under **<Service_Topic>**. There can be several controlled **<Service_Term>** keywords for each **<Service_Topic>**. **<Service_Specific_Name>** is the next level in the hierarchy under **<Service_Term>.** There can be several controlled **<Service_Specific_Name>** keywords for each **<Service_Term>**.

Syntax

<Service_Parameters>
<Service_Category>EARTH SCIENCE SERVICES</Service_Category> *(by default)*
<Service_Topic>Topic keyword </Service_Topic>
<Service_Term>Term keyword </Service_Term>
<Service_Specific_Name>Variable keyword</Service_Specific_Name>
</Service_Parameters>

- **<Service_Category>, <Service_Topic>, <Service_Term>**, and **<Service_Specific_Name>,** must be selected from the set of controlled Earth science services keywords.

Usage

- The **<Service_Parameters>** field is required field and repeatable.
- The following fields within **<Service_Parameters>** are required and may not be repeated within the **<Service_Parameters>** field:
  - <Service_Category>
  - <Service_Topic>
  - <Service_Term>

  The **<Service_Specific_Name>** field within **<Service_Parameters>** is optional and may not be repeated

Multiple **<Service_Parameters>** can be specified for each metadata record. All applicable **<Service_Topic>, <Service_Term>**, and **<Service_Specific_Name>** services keywords should be selected that describe the service.

Example
Specification of <Service_Parameters> without a <Service_Specific_Name> keyword.

```
<Service_Parameters>
<Service_Category>Earth Science Services</Service_Category>
<Service_Topic>Data Management/Data Handling</Service_Topic>
<Service_Term>Data Search and Retrieval</Service_Term>
</Service_Parameters>
```

Specification of <Service_Parameters> with a <Service_Specific_Name> keyword.

```
<Service_Parameters>
<Service_Category>Earth Science Services</Service_Category>
<Service_Topic>Environmental Advisories</Service_Topic>
<Service_Term>Space Weather Advisories</Service_Term>
<Service_Specific_Name>Aurora Forecasts</ Service_Specific_Name>
</Service_Parameters>
```

ISO Topic Categories

Definition

The **<ISO_Topic_Category>** field is used to identify the keywords in the ISO 19115 - Geographic Information Metadata (http://www.isotc211.org/) Topic Category Code List. It is a high-level geographic data thematic classification to assist in the grouping and search of available geographic data sets and services. The **<ISO_Topic_Category>** keywords are as follows:

- Farming
- Biota
- Boundaries
- Climatology/Meteorology/Atmosphere
- Economy
- Elevation
- Environment
- Geoscientific Information
- Health
- Imagery/Base Maps/Earth Cover
- Intelligence/Military
- Inland Waters
- Location
- Oceans
- Planning Cadastre
- Society
- Structure
- Transportation
- Utilities/Communications

For definitions of these keywords, see:
http://gcmd.nasa.gov/User/difguide/iso_topics.html

Syntax

<ISO_Topic_Category>ISO Topic Category keywords</ ISO_Topic_Category>

Usage

The **<ISO_Topic_Category>** field is required and may be repeated.

The <ISO_Topic_Category> must be selected from the ISO Topic Category list of keywords (see above) from the ISO 19115 metadata standard (MD_TopicCategory Code).

Example

<ISO_Topic_Category>Farming</ISO_Topic_Category>

Service Provider

Definition

The **<Service_Provider>** is the service provider, organization, or institution responsible for distributing the service.

- ▣ **<Service_Organization>** consist of the data center **<Short_Name>** and **<Long_Name>,** which is the name of the service provider that distributes the service.
- ▣ **<Service_Organization_URL>** is the URL of the service provider.
- ▣ **<Personnel>** Contact information for the service including name, email, phone, FAX, and address information. See the **<Personnel>** entry for a complete description

Syntax

```
<Service_Provider>
  <Service_Organization>
    <Short_Name>Service Provider short name from controlled list, up to 160 characters</Short_Name>
    <Long_Name>Service Provider long name from controlled list, up to 240 characters</Long_Name>
  </Service_Organization>
  <Service_Organization_URL>URL up to 600 characters</Service_Organization_URL>
  <Personnel>
   <Role>SERVICE PROVIDER CONTACT</Role>
   <First_Name>Text up to 80 characters</First_Name>
   <Middle_Name>Text up to 80 characters</Middle_Name>
   <Last_Name>Text up to 80 characters</Last_Name>
   <Email>Text up to 80 characters, of the form janedoe@domain</Email>
   <Phone> Text up to 80 characters of the form "xxx-xxx-xxxx". Outside of the US and Canada, the country code should be added (+xx-xxx-xxxx)</Phone>
   <Fax> Text up to 80 characters (see syntax for <Phone></Fax>
   <Contact_Address>
     <Address>Text up to 80 characters</Address>
     <City>Text up to 80 characters</City>
     <Province_or_State>Text up to 80 characters</Province_or_State>
     <Postal_Code>Text up to 80 characters</Postal_Code>
     <Country>Text up to 80 characters</Country>
   </Contact_Address>
  </Personnel>
```

</Service_Provider>

- Characters may be selected from the UTF-8 character set.

Usage

The **<Service_Provider>** field is required and can be repeated.
<Service_Organization> may only be used once per **<Service_Provider>.** It consists of the data center **<Short_Name>** and **<Long_Name**>. If the **<Short_Name>** does not appear in the list of controlled service provider keywords, a new service provider **<Short_Name>** may be submitted.
<Service_Organization_URL> is a required subfield.
<Personnel> is a required subfield and may be repeated within the **<Service_Provider>** field as often as necessary. See the **<Personnel>** entry for usage.
<Role> is required and is not repeatable. The only allowable **<Role>** within **<Data_Center>** is *"Services Provider Contact".*
<Email>, <Phone> and **<FAX>** are optional and may be repeated as often as necessary. See the **<Personnel>** entry for usage.
<Address> may be repeated as often as necessary. See the **<Personnel>** entry for usage.

Example

```
<Service_Provider>
  <Service_Organization>
    <Short_Name>DOI/USGS/GEOG/MCMC</Short_Name>
    <Long_Name>Mid-Continent Mapping Center, Geography Division, U.S. Geological
Survey, U.S. Department of the Interior</Long_Name>
  </Service_Organization>

<Service_Organization_URL>http://mcmcweb.er.usgs.gov/</Service_Organization_URL>
  <Personnel>
   <Role>SERVICE PROVIDER CONTACT</Role>
   <Last_Name>MID-CONTINENT MAPPING CENTER</Last_Name>
   <Email>mcmcweb@usgs.gov</Email>
   <Phone>573-308-3500</Phone>
   <Fax>573-308-3615</Fax>
   <Contact_Address>
```

```
        <Address>US Geological Survey</Address>
        <Address>Earth Science Information Center</Address>
        <Address>1400 Independence Rd.</Address>
        <Address>MS 231</Address>
        <City>Rolla</City>
        <Province_or_State>Missouri</Province_or_State>
        <Postal_Code>65401</Postal_Code>
        <Country>USA</Country>
      </Contact_Address>
    </Personnel>
</Service_Provider>
```

Summary

Definition

The **<Summary>** is a brief description of the service that allows potential users to determine if the service is useful for their needs. The following are suggestions to populate the **<Summary>** field:

- Capitalization should follow standard constructs. For readability, all capital letters or all lower case letters should not be used. Use the appropriate case where applicable.
- Acronyms should be expanded to provide understanding.
- The **<Summary>** may contain tabular information.
- URLs will be automatically hyperlinked.
- Where applicable, the **<Summary>** should include brief statements of the following information:
    - Service organization (description of how services/software are organized within and by file).
    - Read software (if available).
    - Methodology or analytical tools.
    - Other pertinent information

Syntax

<Summary>text</Summary>

- Multiple lines of text are allowed from the UTF-8 character set.

Usage

The **<Summary>** field is required and may not be repeated.

Examples

<Summary>
 World Wind allows any user to zoom from satellite altitude into any place on
  Earth, leveraging high resolution LandSat imagery and SRTM elevation data to
  experience Earth in visually rich 3D, just as if they were really there.

Particular focus was put into the ease of usability so people of all ages can enjoy World Wind. All one needs to control World Wind is a two button mouse. Additional guides and features can be accessed though a simplified menu. Navigation is automated with single clicks of a mouse as well as the ability to type in any location and automatically zoom into it.
 http://opensource.arc.nasa.gov/project.jsp?id=9
</Summary>

<Summary>
 The NASA Goddard DISC has created an application for animating hurricane path, their varying levels of intensity and atmospheric information occurring at the time of the event. This is a beta release for this feature, and in the weeks and months to come additional features and animation options will be added to enhance the application. We believe this application offers a valuable visualization experience in spite of its current limitations and chose to make it available in its beta form.   [Summary provided by NASA.]
</Summary>

Metadata Name

Definition

This ISO 19115 **<Metadata_Name>** field is used to identify the current SERF standard name. This field is automatically populated when using the GCMD metadata authoring tools.

Syntax

<Metadata_Name>CEOS IDN SERF</Metadata_Name> (*by default*)

- The **<Metadata_Name>** field may contain 1 to 80 characters from the UTF-8 character set.

Usage

The **<Metadata_Name>** field is required and may not be repeated.
This field is automatically populated (with **CEOS IDN SERF**) when using the GCMD metadata authoring tool.

Example

<Metadata_Name>CEOS IDN SERF</Metadata_Name>

Metadata Version

Definition

This **<Metadata_Version>** field is used to identify the current SERF metadata standard. This field is automatically populated when using the GCMD metadata authoring tool.

Syntax

<Metadata_Version>9.7</Metadata_Version> (*by default*)

- The **<Metadata_Version>** field may contain 1 to 80 characters from the UTF-8 character set.

Usage

The **<Metadata_Version>** field is required and may not be repeated.

This field is automatically populated when using the GCMD metadata authoring tool.

Example

<Metadata_Version>9.7</Metadata_Version>

Service Citation

Definition

The **<Service_Citation>** field allows the author to properly cite the service producer. This field has 2 functions:

  1. To indicate how this service should be cited in the professional scientific literature, and
  2. If this service is a compilation of other services, to document and credit the services that were used in producing this compilation.

This field is not to be used to list bibliographic references of scientific research articles arising from the service. This field provides a citation for the service itself, not articles related to the research results. To list references related to the research results, use the **<Reference>** field.

<Service_Citation> consists of:

- **<Originators>** The name of the organization(s) or individual(s) with primary intellectual responsibility for the service's development.
- **<Title>** The Title of the service; this may be the same as Entry Title.
  <Release_Date> The date when the service was made available for release.
- **<Provider>** The name of the individual or organization that made the service available for release.
- **<Edition>** The Edition or version of the service. For example, <Edition>Version 1.2</Edition>
- **<URL** The URL of the online resource containing the service.

Syntax

<Service_Citation>
<Originators>Text, names separated by commas up to 500 characters</Originators>
<Title>Text up to 220 characters</Title>
<Release_Date>Text, but yyyy-mm-dd format suggested</Release_Date>
<Provider>Text up to 500 characters</Provider>
<Edition>Number and/or text up to 80 characters</Edition>
<URL>URL up to 600 characters</URL>
</Service_Citation>

Usage

The <**Service_Citation**> is a highly recommended field and can be repeated. Individual subfields may not be repeated.

Examples

<Service_Citation>
<Originators>Pacific Institute</Originators>
<Title>Bibliography - Climate Change and Its Impact on Biodiversity</Title>
<Release_Date>1999-08-31</Release_Date>
<Provider>Wil Burns</Provider>
<URL>http://www.pacinst.org/wildlife.html</URL>
</Service_Citation>

<Service_Citation>
<Originators>PyClimate</Originators>
<Title>PyClimate 1.2: Python tools for the climate variability analysis</Title>
<Release_Date>2004-01-08</Release_Date>
<Provider>PyClimate</Provider>
<Edition>1.2.1</Edition>
<URL>http://www.pyclimate.org/</URL>
</Service_Citation>

Personnel

Definition

\<Personnel\> defines the point of contact for more information about the service or the metadata.

- The contact personnel are defined by the **\<Role\>,** which include:
    - **Technical Contact**: The person who is knowledgeable about the technical content of the data (quality, processing methods, units, available software for further processing) .
    - **SERF Author** The person who is responsible for the content of the SERF. If the responsibility shifts from the original author to another person, the SERF Author field should be updated to the new responsible person.
    - **Service Provider Contact** The person who is responsible for the distribution of the data. This **\<Role\>** is only used within the **\<Service_Provider\>** field.

- **\<First_Name\>, \<Middle_Name\>** and **\<Last_Name\>** are the first, middle and last name of the person or organization defined in the **\<Personnel\>** field. Initials may be used for the **\<First_Name\>** and **\<Middle_Name\>**. Organizational names may be substituted for personal names.
- **\<Email\>** is the email address of the personal or organization. Note: Authors may use "@" in formatting email addresses, however the "@" symbol will not be displayed to the public to avoid potential spam attacks.
- **\<Phone\>** is the telephone number of the person or organization. Telephone extensions are allowed. If not in the U.S. or Canada, use the two-digit country code followed by the phone number. Otherwise, use the 10-digit phone number including area code.
- **\<FAX\>** is the FAX number of the person or organization. The same rules for **\<Phone\>** apply to FAX numbers.
- **\<Contact Address\>** contain the address information of the person or organization. It consists of:
    - **\<Address\>** is the organization name, department, mail stop, street address, etc. of the person organization.
    - **\<City\>** is the city or town of the person or organization.
    - **\<Province or State\>** is the province (particularly Canadian provinces,

region or state (particularly in the United States).

- ▣ **<Postal Code>** is the postal code of the person or organization.
- ▣ **<Country>** is the country of the person or organization.

Syntax

```
<Personnel>
    <Role>Personnel Role Keyword</Role>
    <First_Name>Text up to 80 characters</First_Name>
    <Middle_Name>Text up to 80 characters</Middle_Name>
    <Last_Name>Text up to 80 characters</Last_Name>
    <Email>Text up to 80 characters of the form   "janedoe@domain"</Email>
    <Phone>Text up to 80 characters of the form "xxx-xxx-xxxx". Outside of the US and
Canada, the country code should be added (+xx-xxx-xxxx)</Phone>
    <Fax>Text up to 80 characters (see syntax for <Phone>)</Fax>
     <Contact_Address>
       <Address>Text up to 80 characters</Address>
       <City>Text up to 80 characters</City>
       <Province_or_State>Text up to 80 characters</Province_or_State>
       <Postal_Code>Text up to 80 characters</Postal_Code>
       <Country>Text up to 80 characters</Country>
     </Contact_Address>
    </Personnel>
```

- ▣ Characters may be selected from the UTF-8 character set.

Usage

The **<Personnel>** field is highly recommended and may be repeated.

The **<Role>** field is required and must be selected from the Personnel Role keyword list (see definitions above). The **<Role>** may be repeated. A person may have more than one role, such as **Technical Contact** and **SERF Author**.

The **<First_Name>** and **<Middle_Name>** of the personnel are optional. If the **<Personnel>** field is populated, the **<Last_Name>** is required. Names may be personal names or organizational names.

The **<Email>, <Phone>** and **<Fax>** fields are optional and may be repeated.

The **<Address>** field may contain multiple lines and repeatable.

<City>, <Province_Or_State>, <Postal_Code> and **<Country>** are not repeatable.

<Phone> and **<Fax>** are optional and may be repeated.

<Country> is optional and may not be repeated. **<Country>** should always be included in the address.

Note: If personnel retire, particularly investigators, it is desirable to keep their full name, delete their **<Phone>, <Email>** and **<Fax>** number, or in the **<Address>** subfield, state that they are retired or deceased, keeping the name of their affiliation.

Examples

Example of personnel with a role of SERF Author

```
<Personnel>
 <Role>SERF AUTHOR</Role>
 <First_Name>MICHAEL</First_Name>
 <Last_Name>MORAHAN</Last_Name>
 <Email>Michael.P.Morahan.1@xxx.xxx.gov</Email>
 <Phone>301-555-5555</Phone>
 <Fax>301-222-2222</Fax>
 <Contact_Address>
  <Address>Goddard Earth Sciences Data and Information Services
Center</Address>
  <Address>Code 610.2</Address>
  <Address>NASA Goddard Space Flight Center</Address>
  <City>Greenbelt</City>
  <Province_or_State>MD</Province_or_State>
```

```
    <Postal_Code>20771</Postal_Code>
    <Country>USA</Country>
  </Contact_Address>
 </Personnel>
```

Example of organizational personnel with a role of Technical Contact

```
<Personnel>
   <Role>Technical Contact</Role>
   <Last_Name>WDC/PALEOCLIMATOLOGY, BOULDER</Last_Name>
   <Email>paleo@xxxx.gov</Email>
   <Phone>555-555-5555</Phone>
   <Fax>222-222-2222</Fax>
   <Contact_Address>
     <Address>World Data Center for Paleoclimatology</Address>
     <Address>NOAA/NCDC Code E/GCx3</Address>
     <Address>325 Broadway</Address>
     <City>Boulder</City>
     <Province or State>CO</Province or State>
     <Postal_Code>80303/Postal_Code>
     <Country>USA</Country>
   </Contact_Address>
 </Personnel>
```

Instrument (Sensor Name)

Definition

The Instrument or **<Sensor_Name>** is the name of the instrument used to acquire the data related to the service There are 3 categories of instruments, with additional levels of hierarchical classifications (see the Writer's Guide for Ancillary Descriptions):

- Earth Remote Sensing Instruments
- In Situ/Laboratory Instruments
- Solar/Space Observing Instruments.

When using the GCMD metadata authoring tools, **<Sensor_Name>** classifications are automatically populated by selecting the **<Short_Name>.**
This field allows for the specification of keywords that are the names of the instrument(s) used to collect or measure the data. These keywords are important for the search and retrieval of information from the GCMD. The field **<Sensor_Name>** consists of the short name and the long name of the instrument. There is a 1:1 correspondence between the short name and the ling name.

- **<Short_Name>** is the abbreviated name of the instrument used to acquire the data.
- **<Long_Name>** is the full name of the instrument used to acquire the data.

Syntax

<Sensor_Name>
  <Short_Name>Instrument short name keyword</Short_Name>
  <Long_Name>Instrument long name keyword</Long_Name>
</Sensor_Name>

Usage

The **<Sensor_Name>** field is highly recommended and may be repeated as many times as necessary.
<Short_Name>: 1 to 80 characters from the UTF-8 character set, except ">".
<Long_Name>: 1 to 160 characters from the UTF-8 character set, except ">".
<Short_Name> and **<Long_Name>** must be selected from the controlled set of Instrument keywords. However, new instrument identifiers may only be added if the instrument does not already appear in the Instrument keyword List.
The **<Short_Name>** is usually a mnemonic or abbreviated version of the

<Long_Name>. When submitting a new **<Short_Name>**, always check the Instrument Keyword Lists to ensure mutual exclusivity among instrument short names. No two instruments may have the same **<Short_Name>**.

Example

```
<Sensor_Name>
  <Short_Name>MODIS</Short_Name>
  <Long_Name>Moderate-Resolution Imaging Spectroradiometer
  </Long_Name>
</Sensor_Name>

<Sensor_Name>
  <Short_Name>ADCP</Short_Name>
  <Long_Name>Acoustic Doppler Current Profiler</Long_Name>
</Sensor_Name>
```

Platform (Source Name)

Definition

The Platform or **<Source_Name>** is the name of the platform used to acquire the data related to the service. There are 11 categories of platforms, with additional levels of hierarchical classifications (see the Writer's Guide for Ancillary Descriptions):

- Aircraft
- Balloons/Rockets
- Earth Observation Satellites
- In Situ Land-based Platforms
- In Situ Ocean-based Platforms
- Interplanetary Spacecraft
- Maps/Charts/Photographs
- Models
- Navigation Platforms
- Solar/Space Observation Platforms
- Space Stations/Manned Spacecraft

When using the GCMD metadata authoring tools, **<Source_Name>** classifications are automatically populated by selecting the **<Short_Name>.**
This field allows for the specification of keywords that are representative of the platform(s) or source used to collect the data. These keywords are important for the search and retrieval of information from the GCMD. The field **<Source_Name>** consists of the short name and the long name of the platform (source). There is a 1:1 correspondence between the short name and the long name.

- **<Short_Name>** is the abbreviated name of the platform (source) used to acquire the data.
- **<Long_Name>** is the full name of the platform (source) used to acquire the data.

Syntax

```
<Source_Name>
  <Short_Name>Platform Short Name keyword</Short_Name>
  <Long_Name>Platform Long Name keyword</Long_Name>
</Source_Name>
```

Usage

The **<Source_Name>** field is highly recommended and repeatable.

<Short_Name> 1 to 80 characters from the UTF-8 character set, except ">"

<Long_Name> 1 to 160 characters from the UTF-8 character set, except ">"

<Short_Name> and **<Long_Name>** must be selected from the controlled set of Platform keywords. However, new platform identifiers may only be added if the platform does not already appear in the Platform Keyword List.

The **<Short_Name>** is usually a mnemonic or abbreviated version of the **<Long_Name>**. When submitting a new **<Short_Name>**, always check the Platform Keyword List to ensure mutual exclusivity among platform short names. No two platforms may have the same **<Short_Name>**.

Examples

```
<Source_Name>
  <Short_Name>AQUA</Short_Name>
  <Long_Name>Earth Observing System, AQUA<Long_Name>
</Source_Name>

<Source_Name>
  <Short_Name>AUVS</Short_Name>
  <Long_Name>Autonomous Underwater Vehicles</Long_Name>
</Source_Name>

<Source_Name>
  <Short_Name>AIRCRAFT</Short_Name>
</Source_Name>
```

Project

Definition

The **<Project>** is the name of the scientific program, field campaign, or project from which the data or service were collected.

This field allows for the specification of keywords that are the names of the projects. These keywords are important for the search and retrieval of information from the GCMD. The field **<Project>** consists of the short name and the long name of the project. There is a 1:1 correspondence between the short name and the ling name.

- ◼ **<Short_Name>** is the abbreviated name of the project from which the data were collected.
- ◼ **<Long_Name>** is the full name of the project from which the data were collected.

Syntax

```
<Project>
  <Short_Name>Project short name keyword</Short_Name>
  <Long_Name>Project long name keyword</Long_Name>
</Project>
```

Usage

The **<Project>** field is highly recommended and repeatable.

<Short_Name> 1 to 80 characters from the UTF-8 character set, except ">"

<Long_Name> 1 to 220 characters from the UTF-8 character set, except ">"

<Short_Name> and **<Long_Name>** must be selected from the controlled set of Project keywords. However, new project identifiers may only be added if the project does not already appear in the Project keyword List.

The **<Short_Name>** is usually a mnemonic or abbreviated version of the **<Long_Name>**. When submitting a new **<Short_Name>**, always check the Project Keyword Lists to ensure mutual exclusivity among project short names. No two projects may have the same **<Short_Name>**.

Examples

```
<Project>
  <Short_Name>REASON</Short_Name>
  <Long_Name> Research, Education, and Applications Solution
   Network</Long_Name>
</Project>

<Project>
  <Short_Name>ESIP</Short_Name>
  <Long_Name>Earth Science Information Partners</Long_Name>
</Project>
```

Quality

Definition

The **<Quality>** field allows the author to provide information about the quality of the service or any quality assurance procedures followed in producing the service described in the metadata. Suggestions for information to include in the **<Quality>** field

- Description should be succinct.
- Include indicators of service quality or quality flags, validated or unvalidated.
- Include recognized or potential problems with quality (e.g., successful or unsuccessful usage by the research community).
- Established quality control mechanisms should be included.
- Established quantitative quality measurements should be included.

Syntax

<Quality>multiple lines of text</Quality>

- Multiple lines of text are allowed for the **<Quality>** field and may contain characters from the UTF-8 character set.

Usage

The <Quality> field is highly recommended and may not be repeated.

Example

<Quality>This software has been reviewed for quality and errors have been fixed.
</Quality>

Access Constraints

Definition

The **<Access_Constraints>** field allows the author to provide information about any constraints for accessing the service. This includes any special restrictions, legal prerequisites, limitations and/or warnings on obtaining the service. Some words that may be used in this field include: Public, In-house, Limited. Additional detailed instructions on how to access the service can be entered in this field.

Syntax

<Access_Constraints>text</Access_Constraints>

- Multiple lines of text are permitted. Characters may be selected from the UTF-8 character set.

Usage

The **<Access_Constraints>** field is highly recommended and may not be repeated. Text should be single spaced with blank lines separating paragraphs.

Use Constraints

Definition

The **<Use_Constraints>** field allows the author to describe how the data may or may not be used after access is granted to assure the protection of privacy or intellectual property. This includes any special restrictions, legal prerequisites, terms and conditions, and/or limitations on using the data set. Data providers may request acknowledgement of the data from users and claim no responsibility for quality and completeness of data.

Syntax

<Use_Constraints>text</Use_Constraints>

- Multiple lines of text are permitted. Characters may be selected from the UTF8 character set.

Usage

The **<Use_Constraints>** field is optional and may not be repeated.

Text should be single spaced with blank lines separating paragraphs.

Example

<Use_Constraints>
Acknowledge the use of specific records from contributing databases in the form appearing in the 'Citation' field thereof (if any); and acknowledge the use of the OBIS facility.

For information purposes, email to obissupport at marine.rutgers.edu the full citation of any publication made (printed or electronic) that cites OBIS or any constituent part.

Recognize the limitations of data in OBIS.
</Use_Constraints>

<Use_Constraints>
Data may not be used for commercial applications.
</Use_Constraints>

Distribution

Definition

The **<Distribution>** field describes media options, size, data format, and fees involved in distributing the data set.

- ▣ **<Distribution_Media>** The media options for the user receiving the data. **<Distribution_Size>** An approximate size (in KB, MB or GB) for the entire service or software. Specify if data are compressed and the method of compression. **<Distribution_Format>** The data format used to distribute the data. **<Fees>** Cost of **<Distribution_Media>** or distribution costs if any. Specify if there are no costs.

Syntax

<Distribution>
    <Distribution_Media>Text up to 80 characters</Distribution_Media>
    <Distribution_Size>Text up to 80 characters</Distribution_Size>
    <Distribution_Format>Text up to 80 characters</Distribution_Format>
    <Fees>Text up to 80 characters</Fees>
</Distribution>

- ▣ Characters may be selected from the UTF-8 character set.

Usage

The **<Distribution>** field is highly recommended and may be repeatable.
<Distribution> subfields may only appear once within **<Distribution>**.
Keywords for **<Distribution_Media>** may be selected from the Suggested Distribution Media Keywords List.
Keywords for **<Distribution_Format>** may be selected from the Suggested Distribution Format Keywords List.

Example

```
<Distribution>
    <Distribution_Media>CD-ROM</Distribution_Media>
    <Distribution_Size>25 MB</Distribution_Size>
    <Distribution_Format>ESRI shapefile</Distribution_Format>
    <Fees>$20</Fees>
</Distribution>
```

Related URL

Definition

The **<Related_URL>** field specifies links to Internet sites that contain information related to the service as well as related Internet sites such as project home pages, related data archives/servers, metadata extensions, direct links to online software packages, and web mapping services. The **<Related_URL>** field consists of

- **<URL_Content_Type>** Describes the type of resource being referenced by the URL. The <**URL_Content_Type**> is selected from a list of controlled URL content type keywords and consists of:
  - **<Type>** Describes the type resources being referenced by the URL.
- **<Subtype>** Describes the subtype of the resource being referenced by the URL.
- **<URL>** is the URL to the resource associated with the data set.
- **<Description>** provides information about the resource defined by the **<URL>**.

Syntax

```
<Related_URL>
  <URL_Content_Type>
   <Type>Related URL Type keyword</Type>
   <Subtype>Related URL Subtype keyword</Subtype>
  </URL_Content_Type>
  <URL>URL up to 600 characters</URL>
  <Description>Text</Description>
 </Related_URL>
```

- **<Description>** may contain multiple lines of 1 to 80 characters per line. Characters may be selected from the UTF-8 character set.

Usage

The **\<Related_URL\>** field is highly recommended and may be repeated.

The **\<URL_Content_Type\>** and **\<URL\>** fields are required.

The **\<URL_Content_Type\>** subfields **\<Type\>** and **\<Subtype\>** must be selected from the set of URL Content Type keywords. **\<Subtype\>** is not required.

The **\<URL\>** subfield may be repeated within the **\<Related_URL\>.**

The **\<Description\>** subfield is optional and may not be repeated.

Example

```
<Related_URL>
  <URL_Content_Type>
   <Type>GET SERVICE</Type>
   <Subtype>GET SOFTWARE PACKAGE</Subtype>
  </URL_Content_Type>
  <URL>ftp://ftpext.usgs.gov/pub/cr/mo/rolla/viewers/dlgv32pro/dlgv32_pro_usgs_setup.exe</URL>
  <Description>
     Download site for DLGv32 Pro spatial data viewing software format.
   </Description>
</Related_URL>
```

Service Language

Definition

<Service_Language> describes the language used in the preparation, storage, and description of the service   It is the language of the information object, not the language used to describe or interact with the metadata record. **<Service_Language>** does not refer to the language of the metadata. For example,
<Service_Language>Spanish</Service_Language>

Syntax

<Service_Language>text</Service_Language>

- Consists of 1 - 80 characters from the UTF-8 character set.

Usage

The **<Service_Language>** field is optional and can be repeated if the service is available in more than one language.

<Service_Language> may be selected from the Suggested Language Keywords List, which is adapted from the ISO 639 language codes:

http://www.loc.gov/standards/iso639-2/php/code_list.php

Examples

<Service_Language>English</Service_Language>
<Service_Language>French</Service_Language>

SERF Revision History

Definition

The **<SERF_Revision_History>** allows the author to provide a list of changes made to the SERF over time. This provides a mechanism for tracking revisions to SERF content.

Syntax

<SERF_Revision_History>yyyy-mm-dd, text of revision history</SERF_Revision_History>

Year, month and day must follow the International Standard ISO 8601 in the form: yyyy-mm-dd, where:

    yyyy= the 4 digit year
    mm= the 2-digit month (01-12)
    dd = the 2-digit day (01-31)

Usage

    The **<SERF_Revision_History>** field is recommended and may not be repeated.

    Multiple lines of text are allowed, each line may contain up to 600 characters of the printable ASCII character set and should be proceeded by the date the change was made.

Example

<SERF_Revision_History>2004-09-05, Jane Doe, SERF author, changed PI telephone number.</SERF_Revision_History>

<SERF_Revision_History>2005-12-17, global update, changed Service Provider URL 2006-05-22, populated new fields for version 6 </SERF_Revision_History>

Keyword (Ancillary Keyword)

Definition

The **<Keyword>** field allows authors to provide any words or phrases needed to further describe the service.

Syntax

Keyword>text up to 160 characters</Keyword>

- The **<Keyword>** field may contain up to 160 characters from the UTF-8 character set.

Usage

The **<Keyword>** field is recommended and may be repeated.

Ancillary keywords that are not found in the controlled keyword lists may be provided.

Example

<Keyword>Hierarchical Data Format</Keyword>
<Keyword>Document Type Definition</Keyword>
<Keyword>Web Map Service</Keyword>
<Keyword>Layer Metadata</Keyword>
<Keyword>ship track</Keyword>
<Keyword>environmental parameters</Keyword>

Multimedia Sample

Definition

The **<Multimedia_Sample>** field allows the author to provide information that will enable the display of a sample image, movie or sound clip within the SERF.

- **<File>** describes the filename where the multimedia sample can be found. If the multimedia sample file resides on the GCMD server, the filename should be specified in this field. If the file is to be transferred to the GCMD, arrangements should be made with GCMD staff. (Note: this is not typical).

- **<URL>** is the URL to be accessed **<Format>** is the format of the multimedia sample file (which may differ from the format of the data files), i.e. GIF, TIFF, JPEG.. For example, <Format>GIF</Format>.

- **<Caption>** is a one-line description of the multimedia sample used as a caption when the sample is displayed. The caption is especially useful for images such as graphs and photos.

- **<Description>** A more detailed description of the multimedia sample.

Syntax

<Multimedia_Sample>

<File>text, up to 80 characters</File>

<URL>URL up to 600 characters</URL>

<Format>text up to 80 characters</Format>

<Caption>text up to 80 characters</Caption>

<Description>multiple lines of text</Description> </Multimedia_Sample>

- Each field may contain one line of 1 to 80 characters, except **<URL>** fields, which may contain one line of 1 to 600 characters. The **<Description>** field may contain multiple lines of 1 to 80 characters per line. Characters may be selected from the UTF-8 character set.

Usage

The **<Multimedia_Sample>** field is recommended and may not be repeated. Individual subfields may not be repeated.

If the **<Multimedia_Sample>** is populated in the SERF, a URL is required.

Keywords for the Format subfield may be selected from the Suggested Multimedia Sample Format Keywords List.

Example

```
<Multimedia_Sample>
   <URL>http://ww2010.atmos.uiuc.edu/guides/mtr/hurr/gifs/home1.gif</URL>
   <Caption>GOES Satellite Image of a tropical cyclone</Caption>
   <Description>
     Hurricanes are tropical cyclones with winds that exceed 64
     knots (74 mi/hr) and circulate counter-clockwise about their
     centers in the Northern Hemisphere (clockwise in the Southern
     Hemisphere).
     </Description>
  </Multimedia_Sample>

<Multimedia_Sample>
   <URL>http://ag.arizona.edu/AZWATER/publications/cd/cdps/cdps4.gif</URL>
   <Caption>Engelmann's Prickly Pear (Opuntia engelmannii)</Caption>
   <Description>
     The "Plant Selector" allows users to describe a plant using
     vegetative characteristics and search the database for matches. For
     example, search for all cacti with yellow flowers. The process shown
     reveals that Engelmann's Prickly Pear (Opuntia engelmannii) is one of
     23 cacti with yellow flowers.
     </Description>
  </Multimedia_Sample>
```

Reference (Publications/References)

Definition

The <**Reference**> field describes key bibliographic citations pertaining to the service. Bibliographic citations may be provided in styles used by professional scientific journals such as APA or MLA.

Syntax

<Reference>text</Reference>

Usage

The **<Reference>** field is recommended and may not be repeated.

Multiple lines of text are allowed. Characters may be selected from the UTF-8 character set.

Example

<Reference>
http://www.rjb.csic.es/bibmaste/bibmasterprimer.pdf. A Primer for Bibmaster.
2001, Madrid, Spain.
</Reference>

<Reference>
Drewes, H., APKIM2000.0 (Actual Plate Kinematic Model),
http://dgfi2.dgfi.badw-muenchen.de/geodis/GDYN/apkim.html .

Drewes, H., and D. Angermann, The Actual Plate Kinematic and Crustal Deformation Model 2000 (APKIM2000) as a Geodetic Reference System, AIG 2001 Scientific Assembly, Budapest, 2-8 Sept 2001; see also
http://dgfi2.dgfi.badw-muenchen.de/dgfi/DOC/2001/DS_APKIM.pdf
</Reference>

Parent SERF

Definition

The **<Parent_SERF>** field allows the capability to relate generalized aggregated metadata records (parents) to metadata records with highly specific information (children). Population of the **<Parent_SERF>** field should be reserved for instances where many metadata records are basically subsets that can be better represented by one parent metadata record, which describes the entire collection. Typically, the parent metadata record will have many children metadata records, which refer to the parent through the **<Parent_SERF>** field. In some instances, a child may point to more than one parent. The **<Parent_SERF>** is populated with an **<Entry_ID>.**

The **<Parent_SERF>** is only populated if there are children metadata records that refer to a parent metadata record. Upon display of results, both parent and children metadata are available with explicit linkages between parent and child records through the **<Parent_SERF>** field.

Syntax

<Parent_SERF> Entry_ID </Parent_SERF>

- The syntax of the **<Parent_SERF>** is identical to the **<Entry_ID>.** The **<Parent_SERF>** consists of 1 to 80 alphanumeric characters of the UTF-8 set, including underbar (_), hyphen (-) and period (.)
- The following characters are not allowed in the <**Parent_SERF>:**
    - Forward Slash (/)
    - Backward Slash (\)
    - Spaces ( )
    - Colon (:)

Usage

The **<Parent_SERF>** field is recommended and may be repeated.

The **<Parent_SERF>** field must be populated with the existing **<Entry_ID>** of the parent metadata record.

The field may be repeated in cases where a child metadata record has two different immediate parents, i.e. the child is a member of two distinct aggregations.

Examples

<Parent_SERF>Natur_Haz_Center</Parent_SERF>

<Parent_SERF>USGS-GISDATA</Parent_SERF>

IDN Node

Definition

The Internal Directory Name (IDN) Node **(<IDN_Node>)** field is used internally to identify association, responsibility and/or ownership of the service. Note: The **<IDN_Node>** field is not displayed to the user. The author may populate **<IDN_Node>** from a set of controlled keywords.

Syntax

<IDN_Node><Short_Name>IDN Node Keyword</Short_Name></IDN_Node>

Usage

The **<IDN_Node>** field is recommended and may be repeated.

The **<IDN_Node>** must be selected from the set of controlled keywords.

Example

<IDN_Node><Short_Name>USA/NASA</Short_Name></IDN_Node>

SERF Creation Date

Definition

The **<SERF_Creation_Date>** specifies the date the metadata record was created. The **<SERF_Creation_Date>** is automatically populated through the authoring tool with the date the metadata entry was created, however, the author may change the date.

Syntax

<SERF_Creation_Date>yyyy-mm-dd</SERF_Creation_Date>

Year, month and day must follow the International Standard ISO 8601 in the form: yyyy-mm-dd, where:

> yyyy= the 4 digit year
> mm= the 2-digit month (01-12)
> dd = the 2-digit day (01-31)

Usage

> The **<SERF_Creation_Date>** is recommended and may not be repeated.

Example

<SERF_Creation_Date>2006-06-17</SERF_Creation_Date>

Last SERF Revision Date

Definition

The **<Last_SERF_Revision_Date>** specifies the date the metadata record was revised. The **<Last_SERF_Revision_Date>** is automatically populated through the authoring tool with the date the metadata entry was modified, however, the author may change the date.

Syntax

<Last_SERF_Revision_Date>yyyy-mm-dd</Last_SERF_Revision_Date >

Year, month and day must follow the International Standard ISO 8601 in the form: yyyy-mm-dd, where:

    yyyy= the 4 digit year
    mm= the 2-digit month (01 -12)
    dd = the 2-digit day (01-31)

Usage

    The <**Last_SERF_Revision_Date>** is recommended and may not be repeated.

Example

<Last_SERF_Revision_Date>2006-11-01
</Last_SERF_Revision_Date>

Future SERF Review Date

Definition

The **<Future_SERF_Revision_Date>** allows for the specification of a future service at which the SERF should be reviewed for accuracy of scientific or technical content. Future metadata changes may be due to:

- Anticipated changes in the personnel fields.
- Planned changes to the service content (e.g., change in processing algorithm).
- Expected inclusion of the service as part of a campaign.
- Planned review of metadata and/or data by the service provider.

Syntax

<Future_SERF_Revision_Date>yyyy-mm-dd</Future_SERF_Revision_Date>

Year, month and day must follow the International Standard ISO 8601 in the form: yyyy-mm-dd, where:

    yyyy= the 4 digit year
    mm= the 2-digit month (01 -12)
    dd = the 2-digit day (01-31)

Usage

The **<Future_SERF_Revision_Date>** is recommended and may not be repeated.

Examples

<Future_SERF_Revision_Date>2008-12-17</Future_SERF_Revision_Date>
<Future_SERF_Revision_Date>2008-12-17</Future_SERF_Revision_Date>