



ESRI Profile of the *Content Standard for Digital Geospatial Metadata*

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ESRI Profile of the *Content Standard for Digital Geospatial Metadata*

An ESRI Technical Paper

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ESRI Profile of the *Content Standard for Digital Geospatial Metadata*

Introduction

Objective The objective of this profile is to make metadata more accessible and useful on a daily basis when browsing, searching, and managing data. ArcGIS™ software has the capability to automatically manage and update metadata as the data changes and has made that metadata easily accessible. This profile defines additional elements to support that process and to document characteristics of datasets that are not addressed by the *Content Standard for Digital Geospatial Metadata*.

The *Content Standard for Digital Geospatial Metadata* will be referred to elsewhere in this document as the Federal Geographic Data Committee (FGDC) standard. The *ESRI Profile of the Content Standard for Digital Geospatial Metadata* will be referred to elsewhere in this document as the ESRI Profile.

Scope The ESRI Profile is intended to support the daily use of metadata with ArcCatalog™ and other ESRI® software. This document describes minor modifications to the domains of a few elements in the FGDC standard. It also extends that standard by adding some new compound elements and data elements.

The elements added by the ESRI Profile are intended to allow an item's properties to be automatically harvested and recorded in the metadata, to provide information in terms that are more familiar and relevant to ESRI software users, and to allow metadata records to contain graphics and files that describe the dataset. The extended elements also allow improved documentation of items that aren't specifically addressed by the FGDC standard. In this document, "item" is used to refer to spatial and nonspatial datasets, maps, and other related documents, all of which may have metadata describing their contents. Overall, this profile helps ESRI to accomplish the goal of making metadata easier to generate, maintain, and use.

Applicability Several United States government agencies are required to document their geospatial data by Executive Order 12906, *Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure*. The FGDC standard is the data documentation standard that is required to be used when complying with the Executive Order.

ESRI recognizes that many groups, even those who are not mandated to do so, would be more likely to create metadata if the task was easier and if the resulting metadata was

more readily available. This profile assists ESRI software in making FGDC-standard metadata easier to create and maintain.

Related Standards

The FGDC standard was developed to allow creation of standardized metadata to preserve the value and meaning of datasets, allow search and retrieval of metadata via clearinghouses, and aid in data transfer. The ESRI Profile was developed to further these goals by extending the FGDC standard.

International Organization for Standardization (ISO) document 19115, *Geographic Information—Metadata*, is currently a Final Draft International Standard; it will be referred to elsewhere in this document as the ISO metadata standard. The FGDC standard is the foundation on which the ISO metadata standard is built. The ESRI Profile is in part intended to facilitate the creation of ISO metadata by including some elements that were proposed for the ISO standard for which information could be automatically harvested from spatial datasets. When the FGDC adopts the ISO standard, ESRI will design a profile of the ISO standard so that properties of datasets can continue to be harvested and recorded in metadata documents.

Standards Development Process

The FGDC standard was officially adopted on June 8, 1994. Based on user feedback, the FGDC modified the standard in 1998. The modified standard included provisions for the development of extensions and profiles on the standard. One such profile is the *Biological Data Profile of the Content Standard for Digital Geospatial Metadata*, FGDC-STD-001.1-1999. The Biological Data Profile allows the use of the FGDC metadata standard in the development of metadata on biological resource datasets, regardless of whether the datasets are explicitly geospatial in nature.

This profile was developed at ESRI by members of the ArcGIS metadata team in consultation with metadata users. Following the guidelines in the FGDC standard, the ESRI Profile defines several extended elements to allow the documentation of a variety of types of data. As new data formats and nonspatial items are supported and advancements are made in harvesting properties from those items, new elements may be added. The ESRI Profile will be updated as necessary with each software release. However, this profile will remain "backwards compatible", and changes will be documented within it.

Maintenance Authority

The maintenance authority for the ESRI Profile is the ArcGIS metadata team. Questions concerning the profile should be addressed to ESRI Metadata Profile Questions, c/o ArcGIS Metadata Team, ESRI, 380 New York St., Redlands, CA 92373-8100. Copies of this publication are available on the World Wide Web at <http://support.esri.com/> and <http://www.esri.com/metadata/esriprof80.html>. Copies of the *Content Standard for Digital Geospatial Metadata* are available on the World Wide Web at <http://www.fgdc.gov/metadata/constan.html>.

Elements of the ESRI Profile

The ESRI Profile adds several elements to those defined by the FGDC standard. These additions provide information not addressed in the FGDC standard, information in terms native to ESRI data formats and software, and information used for the automated management and update of metadata records. The elements added by the ESRI Profile are summarized in Appendix D.

Each section in the ESRI Profile is described by the production rules defining the section's contents followed by a detailed description of each element that is added or modified by the ESRI Profile. The production rules follow the notation used by the FGDC standard; for convenience, an overview is included below. In the production rules, elements that are defined by the FGDC standard appear with black text. Elements added by the ESRI Profile are presented with light blue text. Elements defined by the FGDC standard whose conditionality or domain has been modified by the ESRI Profile are presented with orange text. This format makes it clear how the ESRI Profile augments the FGDC standard.

The element descriptions are arranged hierarchically to make it easier to see how the elements are organized. In an element's description, changes between software releases in how the element is used or changes to its domain will be noted with green text; these changes are summarized in Appendix B. Changes to an FGDC element's conditionality or domain are described with orange text; these changes are summarized in Appendix A. FGDC standard elements are only included if the element contains extended elements or if the element is modified by the ESRI Profile. Descriptions for these elements are taken from the *Content Standard for Digital Geospatial Metadata*; the element numbers are included for reference.

Below the element's description, its type, domain, short name, and source are defined. An element's type is either compound or a data type such as text, integer, real, date, or time. Compound elements contain other elements. Data elements contain values of a specific data type. Each data element has a domain defining the values the element can contain. FGDC guidelines must be followed when specifying an element's value. Refer to the FGDC standard for information about how to record dates and times, latitude and longitude, and network addresses and file names in the metadata. When stored in XML format, the short name is used to represent each element in the metadata document.

Overview of Production Rules

The production rules define the relationships between a compound element and the elements it may contain; refer to the FGDC standard for a complete description of the production rules. Each production rule has the compound element on the left, an equal sign, and an expression on the right. The expression may include data elements and other compound elements. The symbols used in the production rules have the following meaning

=	is replaced by, produces, consists of.
+	and.
[]	selection—Select one term from the list of enclosed terms (exclusive or). Terms are separated by " ".
m{n}	iteration—The term(s) enclosed is(are) repeated from "m" to "n" times.
()	optional—The term(s) enclosed is(are) optional.

For example:

a = b + c	a consists of b and c.
a = [b c]	a consists of b or c.
a = 4 {b} 6	a consists of four to six occurrences of b.
a = b + (c)	a consists of b and, optionally, c.

Because all items do not have the same characteristics, elements may be "mandatory if applicable". This means that if the item exhibits a characteristic, information about that characteristic must be provided. For example, if the item is a vector dataset, information about its features must be provided. If the item is a raster dataset, information describing the raster data must be provided—elements that describe vector data are not included. This concept is described by the production rule 0{term}1.

Terms enclosed by parentheses, "(" and ")", are optional. If you choose to provide optional information, you shall follow the production rules for the enclosed information. For example, if you decide to provide the optional information described by the term (a + b + c), you shall provide a and b and c.

Metadata

```
Metadata =
  0{ESRI_Information}1 +
  Identification_Information +
  0{Data_Quality_Information}1 +
  0{Spatial_Data_Organization_Information}1 +
  0{Spatial_Reference_Information}1 +
  0{Entity_and_Attribute_Information}1 +
  0{Distribution_Information}n +
  Metadata_Reference_Information +
  (Binary_Enclosures)
```

ESRI Information—Contains elements that identify a metadata record and support metadata management and synchronization by ArcCatalog.

Type: compound
Short Name: Esri
Source: ESRI

Binary Enclosures—Contains additional documents that have been included in the metadata to describe the item.

Type: compound
Short Name: Binary
Source: ESRI

ESRI Information

```
ESRI_Information =
  0{Metadata_ID}1 +
  0{Creation_Date}1 +
  0{Creation_Time}1 +
  0{Synchronize_Once}1 +
  0{Synchronization_Date}1 +
  0{Synchronization_Time}1 +
  0{Modification_Date}1 +
  0{Modification_Time}1 +
  0{Published_Document_ID}1 +
  0{Publish_Status}1 +
  0{ArcIMS_Server}1 +
  0{ArcIMS_Service}1 +
```

```
0{ArcIMS_Service_Type}1 +  
0{ArcIMS_Feature_Class_Type}1 +  
0{ArcIMS_Feature_Class_Name}1 +  
0{Data_Properties}1 +  
(Synchronize_Automatically) +  
0{Geocoding_Information}1
```

```
Data_Properties =  
  0{Topology_Information}1
```

```
Topology_Information =  
  Topology_Properties +  
  0{Topology_Rule}n
```

```
Topology_Properties =  
  Topology_Name +  
  Cluster_Tolerance +  
  Maximum_Error_Count
```

```
Topology_Rule =  
  Topology_Rule_ID +  
  (Topology_Rule_Name) +  
  Topology_Rule_Type +  
  (Rule_Help) +  
  Topology_Rule_Origin +  
  Topology_Rule_Destination
```

```
Topology_Rule_Origin =  
  Feature_Class_Name +  
  Subtype_Code +  
  Subtype_Name +  
  All_Origin_Subtypes
```

```
Topology_Rule_Destination =  
  Feature_Class_Name +  
  Subtype_Code +  
  Subtype_Name +  
  All_Destination_Subtypes
```

```
Geocoding_Information =  
  This information is unavailable at this time.
```


Metadata ID—A Globally Unique Identifier (GUID) that is assigned to the metadata record when it is created. A GUID is a 128-bit number that is generated by an algorithm, for example, {227697D8-9E74-11D3-A63C-0008C7DF8C99}. While this identifier was intended to uniquely identify the metadata record and its associated item when the metadata is published to a metadata server, in practice this identifier is not guaranteed to be unique and therefore cannot be used for this purpose.

Type: text
Domain: 38-character text string representing a GUID
Short Name: MetaID
Source: ESRI

Creation Date—The date that the metadata was created.

Type: date
Domain: free date
Short Name: CreaDate
Source: ESRI

Creation Time—The time that the metadata was created.

Type: time
Domain: free time
Short Name: CreaTime
Source: ESRI

Synchronize Once—The presence of this element with the value "TRUE" indicates that the metadata hasn't been synchronized with the item it describes. Synchronization is the process of automatically harvesting an item's properties and recording them in the metadata. When synchronization occurs and the value is "TRUE", documentation hints or similar template information is added to the metadata, and the value is changed to "FALSE". **NOTE: ArcCatalog 8 removed this element rather than changing its value; this will not affect synchronization with version 8.1 or later.**

Type: text
Domain: "TRUE", "FALSE"
Short Name: SyncOnce
Source: ESRI

Synchronization Date—The date that the metadata was last synchronized by ArcCatalog.

Type: date
Domain: free date
Short Name: SyncDate
Source: ESRI

Synchronization Time—The time that the metadata was last synchronized by ArcCatalog.

Type: time
Domain: free time
Short Name: SyncTime
Source: ESRI

Modification Date—The date that the metadata was last modified either by synchronization or manual editing. Manually editing the metadata in ArcCatalog refers to one of the following tasks: using a metadata editor, using the Metadata Properties dialog box (for example, to add an enclosure), creating or updating the item's thumbnail, or modifying the metadata programmatically through ArcObjects™.

Type: date
Domain: free date
Short Name: ModDate
Source: ESRI

Modification Time—The time that the metadata was last modified either by synchronization or manual editing.

Type: time
Domain: free time
Short Name: ModTime
Source: ESRI

Published Document ID—A Globally Unique Identifier that is assigned to the metadata record the first time it is published to an ArcIMS® Metadata Service. A GUID is a 128-bit number that is generated by an algorithm, for example, {227697D8-9E74-11D3-A63C-0008C7DF8C99}. This value is guaranteed to be unique; it will identify the metadata record and its associated item when the metadata is published to any ArcIMS Metadata Service.

Type: text
Domain: 38-character text string representing a GUID
Short Name: PublishedDocID
Source: ESRI

Published Status—Identifies whether or not the metadata record has been successfully published to an ArcIMS Metadata Service.

Type: text
Domain: "Published", "Error publishing"
Short Name: PublishStatus
Source: ESRI

ArcIMS Server—Used to identify the ArcIMS service that is described by the metadata record. The HTTP location associated with the ArcIMS site from which the service is available. The location should be specified in the form of a Uniform Resource Locator (URL).

Type: text
Domain: free text
Short Name: Server
Source: ESRI

ArcIMS Service—The name of the ArcIMS service that is described by the metadata record.

Type: text
Domain: free text
Short Name: Service
Source: ESRI

ArcIMS Service Type—The type of ArcIMS service described by the metadata record.

Type: text
Domain: "image", "feature"
Short Name: ServiceType
Source: ESRI

ArcIMS Feature Class Type—The type of ArcIMS feature class described by the metadata record.

Type: text
Domain: "image", "feature", "wms"
Short Name: ServiceFCType
Source: ESRI

ArcIMS Feature Class Name—The name of the ArcIMS feature class described by the metadata record.

Type: text
Domain: free text
Short Name: ServiceFCName
Source: ESRI

Data Properties—Collection of properties describing the item.

Type: compound
Short Name: DataProperties
Source: ESRI

Topology Information—Information about a topology in a geodatabase.

Type: compound
Short Name: topoInfo
Source: ESRI

Topology Properties—General properties of the topology.

Type: compound
Short Name: topoProps
Source: ESRI

Topology Name—The name of the topology.

Type: real
Domain: free real
Short Name: topoName
Source: ESRI

Cluster Tolerance—The tolerance used when validating the topology.

Type: real
Domain: free real
Short Name: clusterTol
Source: ESRI

Maximum Error Count—The maximum number of errors that will be handled during validation. If the number of topology errors found exceeds this number, validation will stop.

Type: integer
Domain: free integer
Short Name: maxErrors
Source: ESRI

Topology Rule—Information about a topology rule.

Type: compound
Short Name: topoRule
Source: ESRI

Topology Rule ID—An identifier for this topology rule.

Type: integer
Domain: free integer
Short Name: topoRuleID
Source: ESRI

Topology Rule Name—The name of the topology rule.

Type: text
Domain: free text
Short Name: topoRuleName
Source: ESRI

Topology Rule Type—The constant identifying the type of topology rule. For example, the `esriTopologyRuleType` constant "3" indicates a rule stating areas in the topology must not overlap.

Type: integer
Domain: $0 \leq x \leq 44$
Short Name: topoRuleType
Source: ESRI

Rule Help—Describes the rule.

Type: text
Domain: free text
Short Name: rulehelp
Source: ESRI

Topology Rule Origin—Information about the origin feature class for the topology rule.

Type: compound
Short Name: topoRuleOrigin
Source: ESRI

Feature Class Name—The name of the feature class participating in this topology rule.

Type: text
Domain: free text
Short Name: fcname
Source: ESRI

Subtype Name—The name of the subtype.

Type: text
Domain: free text
Short Name: stname
Source: ESRI

Subtype Code—The code for the subtype. Each object in a feature class or table has a numeric value, or code, in an attribute that identifies the subtype to which it belongs.

Type: integer
Domain: free integer
Short Name: stcode
Source: ESRI

All Origin Subtypes—"TRUE" if the topology rule applies to all subtypes within the origin feature class.

Type: text
Domain: "TRUE", "FALSE"
Short Name: allOriginSubtypes
Source: ESRI

Topology Rule Destination—Information about the destination feature class for the topology rule.

Type: compound
Short Name: topoRuleDest
Source: ESRI

All Destination Subtypes—"TRUE" if the topology rule applies to all subtypes within the destination feature class.

Type: text
Domain: "TRUE", "FALSE"
Short Name: allDestSubtypes
Source: ESRI

Synchronize Automatically—Identifies whether or not the metadata will be synchronized automatically in the future. Automatic synchronization will not take place if this element is present and its value is "FALSE". This element is added to the metadata record if you check Do not automatically update metadata in the Metadata Properties dialog box. You might do this after the data and its metadata have been published.

Type: text
 Domain: "TRUE", "FALSE"
 Short Name: Sync
 Source: ESRI

Geocoding Information—A description of the geocoding service and the process that was used to create the data. This information is added and maintained by the geocoding system, not by metadata synchronization. The contents of this compound element are not available at this time.

Type: compound
 Short Name: RematchLocator
 Source: ESRI

Identification Information

Identification_Information =
 Citation +
 Description +
 Time_Period_of_Content +
 Status +
 Spatial_Domain +
 0{Spatial_Domain}1 +
 Keywords +
 Access_Constraints +
 Use_Constraints +
 (Point_of_Contact) +
 (1{Browse_Graphic}n) +
 (Data_Set_Credit) +
 (Security_Information) +
 Native_Dataset_Format +
 (Native_Data_Set_Environment) +
 (1{Cross_Reference}n)

Citation =
 Citation_Information (*see Citation Information for production rules*)

Description =
 Abstract +
 Purpose +
 (Supplemental_Information) +
 Language_of_Dataset

Time_Period_of_Content =
 Time_Period_Information (*see Time Period Information for production rules*) +
 Currentness_Reference

```
Status =
    Progress +
    Maintenance_and_Update_Frequency

Spatial_Domain =
    Bounding_Coordinates +
    0{Local_Bounding_Coordinates}1 +
    0{Minimum_Altitude}1 +
    0{Maximum_Altitude}1 +
    (Altitude_Units) +
    (1{Data_Set_G-Polygon}n) +
    (Data Frames)

Bounding_Coordinates =
    West_Bounding_Coordinate +
    East_Bounding_Coordinate +
    North_Bounding_Coordinate +
    South_Bounding_Coordinate

Local_Bounding_Coordinates =
    Left_Bounding_Coordinate +
    Right_Bounding_Coordinate +
    Top_Bounding_Coordinate +
    Bottom_Bounding_Coordinate

Data_Set_G-Polygon =
    Data_Set_G-Polygon_Outer_G-Ring +
    0{Data_Set_G-Polygon_Exclusion_G-Ring}n

Data_Set_G-Polygon_Outer_G-Ring =
    [4{G-Ring_Point}n |
     G-Ring]

Data_Set_G-Polygon_Exclusion_G-Ring =
    [4{G-Ring_Point}n |
     G-Ring]

G-Ring_Point =
    G-Ring_Latitude +
    G-Ring_Longitude

Data_Frames =
    Data_Frame_Count +
    0{Data_Frame_Name}n
```

```
Keywords =
  1{Theme}n +
  0{Place}n +
  0{Stratum}n +
  0{Temporal}n

Theme =
  Theme_Keyword_Thesaurus +
  1{Theme_Keyword}n

Place =
  Place_Keyword_Thesaurus +
  1{Place_Keyword}n

Stratum =
  Stratum_Keyword_Thesaurus +
  1{Stratum_Keyword}n

Temporal =
  Temporal_Keyword_Thesaurus +
  1{Temporal_Keyword}n

Point_of_Contact =
  Contact_Information (see Contact Information for production rules)

Browse_Graphic =
  [Browse\_Graphic\_Embedded |
  Browse_Graphic_File_Name] +
  Browse_Graphic_File_Description +
  Browse_Graphic_File_Type

Security_Information =
  Security_Classification_System +
  Security_Classification +
  Security_Handling_Description

Cross_Reference =
  Citation_Information (see Citation Information for production rules) +
  (Description\_of\_Association)
```


Language of Dataset—The language used in the dataset such as attribute values or the text on a map. The language should be represented as the appropriate two-letter code as defined by ISO 639:1988, *Code for the representation of names of languages*.

Rationale: Allows searching for data based on the language of its content and allows for a smoother transition to the ISO metadata standard.

Type: text

Domain: free text

Short Name: langdata

Source: ESRI

Spatial Domain (1.5)—The geographic areal domain of the dataset. **For nonspatial items, this element shall be considered mandatory if applicable.**

Type: compound

Short Name: spdom

Source: FGDC standard

Local Bounding Coordinates—The bounding coordinates of the data, expressed in the local coordinate system used by the data.

Rationale: The Bounding Coordinate elements require the extent of spatial data to be expressed in decimal degrees. It isn't possible to calculate the extent of projected data in decimal degrees if its coordinate system hasn't been defined. However, the extent of a spatial dataset can always be defined using the data's actual coordinates.

Type: compound

Short Name: lboundng

Source: ESRI

Left Bounding Coordinate—Leftmost coordinate (may be west) in the local coordinate system used by the data.

Type: real

Domain: free real

Short Name: leftbc

Source: ESRI

Right Bounding Coordinate—Rightmost coordinate (may be east) in the local coordinate system used by the data.

Type: real

Domain: free real

Short Name: rightbc

Source: ESRI

Top Bounding Coordinate—Topmost coordinate (may be north) in the local coordinate system used by the data.

Type: real

Domain: free real

Short Name: topbc

Source: ESRI

Bottom Bounding Coordinate—Bottommost coordinate (may be south) in the local coordinate system used by the data.

Type: real
Domain: free real
Short Name: bottombc
Source: ESRI

Minimum Altitude—The minimum elevation or z-coordinate value in the data.

Rationale: Allows searching for data based on its elevation.
Type: real
Domain: free real
Short Name: minalti
Source: ESRI

Maximum Altitude—The maximum elevation or z-coordinate value in the data.

Rationale: Allows searching for data based on its elevation.
Type: real
Domain: free real
Short Name: maxalti
Source: ESRI

Altitude Units—The units of measure used to express the data's elevation.

Type: text
Domain: "m", "meters", "ft", "feet", free text
Short Name: altunits
Source: ESRI

Data Frames—A description of the data frames in an ArcMap™ document.

Rationale: Allows a more detailed description of an ArcMap document.
Type: compound
Short Name: eframes
Source: ESRI

Data Frame Count—The number of data frames in an ArcMap document.

Type: integer
Domain: free integer
Short Name: framect
Source: ESRI

Data Frame Name—The name of a data frame.

Type: text
Domain: free text
Short Name: framenam
Source: ESRI

Browse Graphic (1.10)—A graphic that provides an illustration of the dataset. The graphic should include a legend for interpreting the graphic.

Type: compound
 Short Name: browse
 Source: FGDC standard

Browse Graphic Embedded—Contains an embedded graphic file in Windows Bitmap format that illustrates what the spatial data looks like. The file is encoded as Base64 text, then stored within the metadata. **This element is used when thumbnails are created with ArcCatalog 8, but not with version 8.1 or later. See the Binary Enclosures element.**

Rationale: Allows a browse graphic to be embedded in the metadata.
 Type: text
 Domain: free text
 Short Name: browseem
 Source: ESRI

Native Dataset Format—The native ESRI terminology describing the format of the data.

Rationale: Allows searching for items based on the format of the data, which may be different from its transfer format.

Type: text
 Domain: "ArcIMS Feature Class", "ArcIMS Feature Service", "ArcIMS Image Service", "ArcInfo Coverage", "ArcInfo Coverage Relationship Class", "AutoCAD Drawing Exchange Format", "AutoCAD Drawing File", "Coordinate System", "dBASE Table", "Filtered file", "Graph", "Info Table", "Layer", "Map", "MicroStation Design File", "PC ArcInfo Coverage", "Personal GeoDatabase Feature Class", "Personal GeoDatabase Feature Dataset", "Personal GeoDatabase Geometric Network", "Personal GeoDatabase Relationship Class", "Personal GeoDatabase Table", "Personal GeoDatabase Topology", "Raster Dataset", "SDE Feature Class", "SDE Feature Dataset", "SDE Geometric Network", "SDE Relationship Class", "SDE Table", "SDE Topology", "Scene", "SDC Feature Database", "Shapefile", "Text File", "Tin", "VPF", free text

NOTE: For reference, different domain values were used by ArcCatalog 8. The above values must be used to support searching by data format in ArcCatalog 8.1 and later versions; these values will be updated automatically the first time the metadata is synchronized.

Short Name: natvform
 Source: ESRI

Cross Reference (1.14)—Information about other related datasets that are likely to be of interest.

Type: compound
 Short Name: crossref
 Source: FGDC standard

Description of Association—A description of the relationship between the item documented by the metadata record and the cross-referenced item.

Rationale: Indicates why the cross-referenced item might be of interest.

Type: text

Domain: free text

Short Name: assndesc

Source: ESRI

Data Quality Information

Data_Quality_Information =

0{Attribute_Accuracy}1 +
 Logical_Consistency_Report +
 Completeness_Report +
 0{Positional_Accuracy}1 +
 Lineage +
 (Cloud_Cover)

Attribute_Accuracy =

Attribute_Accuracy_Report +
 (1{Quantitative_Attribute_Accuracy_Assessment}n)

Quantitative_Attribute_Accuracy_Assessment =

Attribute_Accuracy_Value +
 Attribute_Accuracy_Explanation

Positional_Accuracy =

0{Horizontal_Positional_Accuracy}1 +
 0{Vertical_Positional_Accuracy}1

Horizontal_Positional_Accuracy =

Horizontal_Positional_Accuracy_Report +
 (1{Quantitative_Horizontal_Positional_Accuracy_Assessment}n)

Quantitative_Horizontal_Positional_Accuracy_Assessment =

Horizontal_Positional_Accuracy_Value +
 Horizontal_Positional_Accuracy_Explanation

Vertical_Positional_Accuracy =

Vertical_Positional_Accuracy_Report +
 (1{Quantitative_Vertical_Positional_Accuracy_Assessment}n)

Quantitative_Vertical_Positional_Accuracy_Assessment =

Vertical_Positional_Accuracy_Value +
 Vertical_Positional_Accuracy_Explanation

Lineage =

0{Source_Information}n +
 1{Process_Step}n

```

Source_Information =
    Source_Citation +
    0{Source_Scale_Denominator}1 +
    Type_of_Source_Media +
    Source_Time_Period_of_Content +
    Source_Citation_Abbreviation +
    Source_Contribution

Source_Citation =
    Citation_Information (see Citation Information for production rules)

Source_Time_Period_of_Content =
    Time_Period_Information (see Time Period Information for production
rules) +
    Source_Currentness_Reference

Process_Step =
    Process_Description +
    (Process\_Software\_and\_Version) +
    0{Source_Used_Citation_Abbreviation}n +
    Process_Date +
    (Process_Time) +
    0{Source_Produced_Citation_Abbreviation}n +
    (Process_Contact)

Process_Contact =
    Contact_Information (see Contact Information for production rules)
    
```

Lineage (2.5)—Information about the events, parameters, and source data that constructed the dataset and information about the responsible parties.

Type: compound
 Short Name: lineage
 Source: FGDC standard

Process Step (2.5.2)—Information about a single event.

Type: compound
 Short Name: procstep
 Source: FGDC standard

Process Software and Version—The type and version of software used to perform the process.

Rationale: As software changes over time, it can be useful to know the version of the software that was used to modify the data.

Type: text
 Domain: free text
 Short Name: procsv
 Source: ESRI

**Spatial Data
Organization
Information**

```
Spatial_Data_Organization_Information =
  0{Indirect_Spatial_Reference}1 +
  0{Direct_Spatial_Reference_Method +
    ([Point_and_Vector_Object_Information |
      Raster_Object_Information])}1 +
  0{Geometric_Network_Information}1
```

```
Point_and_Vector_Object_Information =
  0{ESRI_Terms_Description}n +
  [1{SDTS_Terms_Description}n |
    VPF_Terms_Description]
```

```
ESRI_Terms_Description =
  ESRI_Feature_Type +
  ESRI_Feature_Geometry +
  ESRI_Topology +
  ESRI_Feature_Count +
  Spatial_Index +
  Linear_Referencing +
  0{XY_Rank}1 +
  0{Z_Rank}1 +
  0{Topology_Weight}1 +
  0{Events_On_Validation}1 +
  0{Participates_In_Topology_Rules}1 +
  0{Network_Role}1 +
  (Feature_Description) +
```

```
Participates_In_Topology_Rules =
  Topology_Rule_ID
```

```
SDTS_Terms_Description =
  SDTS_Point_and_Vector_Object_Type +
  (Point_and_Vector_Object_Count)
```

```
VPF_Terms_Description =
  VPF_Topology_Level +
  1{VPF_Point_and_Vector_Object_Information}n
```

```
VPF_Point_and_Vector_Object_Information =
  VPF_Point_and_Vector_Object_Type +
  (Point_and_Vector_Object_Count)
```

```
Raster_Object_Information =
  Image_Format +
  Raster_Object_Type +
  (Image_Type) +
  0{Number_of_Bands}1 +
  (Row_Count +
    Column_Count +
    0{Vertical_Count}1) +
  0{Cell_Size_X_Direction}1 +
  (Cell_Size_X_Units) +
  0{Cell_Size_Y_Direction}1 +
  (Cell_Size_Y_Units) +
  0{Bits_Per_Pixel}1 +
  (Background_Nodata_Value) +
  0{Pyramid_Layers}1 +
  0{Image_Colormap}1 +
  0{Compression_Type}1
  (Raster_Display_Type) +
  0{Raster_Origin}1 +

Geometric_Network_Information =
  Network_Type +
  0{Connectivity_Rule}n +
  (1{Network_Element}n)

Connectivity_Rule =
  Rule_Type +
  (Rule_Category) +
  (Rule_Help) +
  0{From_Edge_Feature_Class}1 +
  0{From_Edge_Subtype}1 +
  0{To_Edge_Feature_Class}1 +
  0{To_Edge_Subtype}1 +
  0{Default_Junction_Feature_Class}1 +
  0{Default_Junction_Subtype}1 +
  0{Available_Junctions}n +
  0{Edge_Feature_Class}1 +
  0{Edge_Subtype}1 +
  0{Edge_Minimum_Cardinality}1 +
  0{Edge_Maximum_Cardinality}1 +
  0{Junction_Feature_Class}1 +
  0{Junction_Subtype}1 +
  0{Junction_Minimum_Cardinality}1 +
  0{Junction_Maximum_Cardinality}1
```

```

Available_Junctions =
  Available_Junction_Feature_Class +
  Available_Junction_Subtype

Network_Element =
  Ancillary_Role +
  0{Ancillary_Role_Attribute}1 +
  Enabled_Attribute

```

Point and Vector Object Information (3.3)—The types and numbers of vector or nongridded point spatial objects in the dataset.

Type: compound
 Short Name: pvtctinf
 Source: FGDC standard

ESRI Terms Description—The properties and numbers of vector and point objects described using native ESRI terminology.

Rationale: Several properties indicate how the data can be used with ArcGIS software.
 Type: compound
 Short Name: esriterm
 Source: ESRI

ESRI Feature Type—Identifies whether the features are simple or complex. In a geodatabase, features that are complex such as dimensions have a specific, defined behavior. Complex features are also used to construct geometric networks. Geodatabase feature classes may also contain simple features. Coverages, shapefiles, and other data formats contain simple features.

Type: text
 Domain: "Simple", "Annotation", "Dimension", "Simple Edge", "Complex Edge", "Simple Junction", "Complex Junction"
 Short Name: efeatyp
 Source: ESRI

ESRI Feature Geometry—The geometry of the features in native ESRI terminology.

Type: text
 Domain: "Point", "Multipoint", "Polyline", "Polygon", "Arc", "Node", "Region", "Route", "Tic", "Label", "Annotation", "Triangle", "Edge"
 Short Name: efeageom
 Source: ESRI

ESRI Topology—Identifies feature classes that participate in network or planar topologies. For example, coverage feature classes will have the value "TRUE" if their topology has been built. Since shapefiles do not support topology, they will always have the value "FALSE". Geodatabase feature classes will have the value "TRUE" if they participate in a geometric network or a topology.

Type: text
Domain: "TRUE", "FALSE"
Short Name: esritopo
Source: ESRI

ESRI Feature Count—The number of features.

Type: integer
Domain: free integer
Short Name: efeacnt
Source: ESRI

Spatial Index—Identifies whether or not the features have a spatial index.

Type: text
Domain: "TRUE", "FALSE"
Short Name: spindex
Source: ESRI

Linear Referencing—Identifies whether or not the features can be used for linear referencing. A route feature class in a coverage and shapefiles or geodatabase feature classes that have measures can be used for linear referencing.

Type: text
Domain: "TRUE", "FALSE"
Short Name: linrefer
Source: ESRI

XY Rank—Indicates how much you trust the accuracy of the x,y coordinates for the features in this feature class. If the coordinates are accurate, they are less likely to change during validation.

Type: integer
Domain: free integer
Short Name: XYRank
Source: ESRI

Z Rank—Indicates how much you trust the accuracy of the z coordinates for the features in this feature class. If the coordinates are accurate, they are less likely to change during validation.

Type: integer
Domain: free integer
Short Name: ZRank
Source: ESRI

Topology Weight—If two feature classes in a topology share the same XY or Z rank, the weight assigned to each feature class will be used to determine which feature class's coordinates will be modified first, if necessary.

Type: integer
Domain: free integer
Short Name: topoWeight
Source: ESRI

Events on Validation—"TRUE" if events will occur when the topology is validated.

Type: text
Domain: "TRUE", "FALSE"
Short Name: validateEvents
Source: ESRI

Participates in Topology Rules—The list of topology rules in which the feature class participates.

Type: compound
Short Name: partTopoRules
Source: ESRI

Network Role—Identifies whether or not the features have an ancillary role in a geometric network.

Type: text
Domain: "None", "Source Sink"
Short Name: netwrole
Source: ESRI

Feature Description—A description of the real-world objects that the features represent such as watersheds or fire hydrants and the behavior, if appropriate, of those features.

Type: text
Domain: free text
Short Name: featdesc
Source: ESRI

Raster Object Information (3.4)—The types and numbers of raster spatial objects in the dataset.

Type: compound
Short Name: rastinfo
Source: FGDC standard

Image Format—The format of the raster dataset.

Rationale: Allows a more detailed description of a raster dataset.

Type: text

Domain: "ADRG Image", "CADRG or CIB Frame", "DTED Level 1&2", "ER Mapper", "ERDAS 7.5 GIS", "ERDAS 7.5 LAN", "ERDAS IMAGINE", "ERDAS Raw", "ESRI BIL", "ESRI BIP", "ESRI BSQ", "ESRI GRID", "ESRI GRID Stack", "GIF", "JFIF (JPEG)", "MrSID", "NITF National Imagery Transfer Format", "PNG", "SDR", "TIFF", "Windows Bitmap", free text

NOTE: For reference, different domain values were used by ArcCatalog 8. The above values are more accurate. These values will be updated automatically the first time the metadata is synchronized with version 8.1 or later.

Short Name: rastifor

Source: ESRI

Image Type—A brief description of the type of remotely sensed image represented by the raster dataset.

Rationale: Allows a more detailed description of a raster dataset.

Type: text

Domain: "Multispectral", "Infrared", "Visible", "SLAR", free text

Short Name: rastityp

Source: ESRI

Number of Bands—The number of raster bands in the raster dataset.

Rationale: Allows a more detailed description of a raster dataset.

Type: integer

Domain: free integer

Short Name: rastband

Source: ESRI

Cell Size X Direction—The distance on the earth's surface covered by a raster cell in the x direction.

Rationale: Allows a more detailed description of a raster dataset.

Type: real

Domain: free real

Short Name: rastxsz

Source: ESRI

Cell Size X Units—The units used to describe the size of a raster cell in the x direction.

Rationale: Allows a more detailed description of a raster dataset.

Type: text

Domain: "m", "meters", "ft", "feet", free text

Short Name: rastxu

Source: ESRI

Cell Size Y Direction—The distance on the earth's surface covered by a raster cell in the y direction.

Rationale: Allows a more detailed description of a raster dataset.

Type: real

Domain: free real

Short Name: rastysz

Source: ESRI

Cell Size Y Units—The units used to describe the size of a raster cell in the y direction.

Rationale: Allows a more detailed description of a raster dataset.

Type: text

Domain: "m", "meters", "ft", "feet", free text

Short Name: rastyu

Source: ESRI

Bits Per Pixel—The number of bits used to store the value in a raster cell.

Rationale: Allows a more detailed description of a raster dataset.

Type: integer

Domain: free integer

Short Name: rastbpp

Source: ESRI

Background Nodata Value—The value assigned to a raster cell to indicate that the cell does not contain any data, for example, -9999.

Rationale: Allows a more detailed description of a raster dataset.

Type: integer

Domain: free integer

Short Name: rastnodt

Source: ESRI

Pyramid Layers—Identifies whether or not pyramids have been created for the raster dataset.

Rationale: Allows a more detailed description of a raster dataset.

Type: text

Domain: "TRUE", "FALSE"

Short Name: rastplyr

Source: ESRI

Image Colormap—Identifies whether or not the raster dataset includes a default colormap.

Rationale: Allows a more detailed description of a raster dataset.

Type: text

Domain: "TRUE", "FALSE"

Short Name: rastcmap

Source: ESRI

Compression Type—The data compression technique used by the raster format.

Rationale: For some compression formats a license is required to access the data.

Type: text

Domain: "Default", "JPEG", "LZW", "PackBits", "Run-Length Encoding", "Wavelet", "None", free text

Short Name: rastcomp

Source: ESRI

Raster Display Type—The type of data contained by the raster. For remotely sensed images, use the value "pixel codes". For other data, such as a terrain surface, use the value "matrix values".

Rationale: Added to emulate an early version of the ISO metadata standard.

Type: text

Domain: "pixel codes", "matrix values"

Short Name: rastdtyp

Source: ESRI

Raster Origin—The corner of the raster dataset that is the origin point.

Rationale: Added to emulate an early version of the ISO metadata standard.

Type: text

Domain: "Upper Left", "Lower Left", "Upper Right", "Lower Right"

Short Name: rastorig

Source: ESRI

Geometric Network Information—Describes a geometric network. Geometric networks maintain topological relationships between the features in many feature classes in a geodatabase.

Type: compound

Short Name: netinfo

Source: ESRI

Network Type—The type of geometric network that has been created.

Type: text

Domain: "Utility Network", free text

Short Name: nettype

Source: ESRI

Connectivity Rule—Describes the rules that define how features in a geometric network are connected.

Type: compound

Short Name: connrule

Source: ESRI

Rule Type—Identifies the type of connectivity rule. Edge–Edge connectivity rules define the junctions through which edges in the network can be connected. Junction connectivity rules define which junctions can connect to which edges in the network.

Type: text

Domain: "Edge Connectivity", "Junction Connectivity"

Short Name: ruletype

Source: ESRI

Rule Category—Identifies the category of the connectivity rule. Edge–Edge connectivity rules and the junction connectivity rules that are associated with them have the value one; all other rules have the value negative one.

Type: integer

Domain: 1, -1

Short Name: rulecat

Source: ESRI

From Edge Feature Class—Used to describe edge connectivity rules. The name of the feature class containing the from-edge features.

Type: text

Domain: free text

Short Name: rulefeid

Source: ESRI

From Edge Subtype—Used to describe edge connectivity rules. The subtype of features in the from-edge feature class that can connect to the to-edges.

Type: integer

Domain: free integer

Short Name: rulefest

Source: ESRI

To Edge Feature Class—Used to describe edge connectivity rules. The name of the feature class containing the to-edge features.

Type: text

Domain: free text

Short Name: ruleteid

Source: ESRI

To Edge Subtype—Used to describe edge connectivity rules. The subtype of features in the to-edge feature class that can connect to the from-edges.

Type: integer

Domain: free integer

Short Name: ruletest

Source: ESRI

Default Junction Feature Class—Used to describe edge connectivity rules. The name of the feature class containing the default junction features.

Type: text
Domain: free text
Short Name: ruledjid
Source: ESRI

Default Junction Subtype—Used to describe edge connectivity rules. The subtype of features in the default junction feature class that are used by default to connect the from-edges to the to-edges.

Type: integer
Domain: free integer
Short Name: ruledjst
Source: ESRI

Available Junctions—Used to describe edge connectivity rules. The junctions that can connect the from-edges to the to-edges.

Type: compound
Short Name: rulejunc
Source: ESRI

Available Junction Feature Class—The name of the feature class containing the junction features.

Type: text
Domain: free text
Short Name: junctid
Source: ESRI

Available Junction Subtype—The subtype of features in the junction feature class that can connect the from-edges to the to-edges.

Type: integer
Domain: free integer
Short Name: junctst
Source: ESRI

Edge Feature Class—Used to describe junction connectivity rules. The name of the feature class containing the edge features.

Type: text
Domain: free text
Short Name: ruleeid
Source: ESRI

Edge Subtype—Used to describe junction connectivity rules. The subtype of features in the edge feature class that can connect to the junctions.

Type: integer
Domain: free integer
Short Name: ruleest
Source: ESRI

Edge Minimum Cardinality—Used to describe junction connectivity rules. The fewest number of edges that can connect to the junctions.

Type: integer
Domain: free integer
Short Name: ruleemnc
Source: ESRI

Edge Maximum Cardinality—Used to describe junction connectivity rules. The largest number of edges that can connect to the junctions.

Type: integer
Domain: free integer
Short Name: ruleemxc
Source: ESRI

Junction Feature Class—Used to describe junction connectivity rules. The name of the feature class containing the junction features.

Type: text
Domain: free text
Short Name: rulejid
Source: ESRI

Junction Subtype—Used to describe junction connectivity rules. The subtype of features in the junction feature class that can connect to the edges.

Type: integer
Domain: free integer
Short Name: rulejst
Source: ESRI

Junction Minimum Cardinality—Used to describe junction connectivity rules. The fewest number of junctions that can connect to the edges.

Type: integer
Domain: free integer
Short Name: rulejmc
Source: ESRI

Junction Maximum Cardinality—Used to describe junction connectivity rules. The largest number of junctions that can connect to the edges.

Type: integer
 Domain: free integer
 Short Name: rulejmx
 Source: ESRI

Network Element—Describes the roles played by different features in the geometric network.

Type: compound
 Short Name: elemcls
 Source: ESRI

Ancillary Role—The ancillary role of the feature class in the geometric network. Junction feature classes that have features acting as sources or sinks in the geometric network will have the value "Source Sink".

Type: text
 Domain: "None", "Source Sink"
 Short Name: roletype
 Source: ESRI

Ancillary Role Attribute—The name of the attribute column containing values that define a feature's ancillary role as a source or sink in the network.

Type: text
 Domain: free text
 Short Name: rolefld
 Source: ESRI

Enabled Attribute—The name of the attribute column containing values that define which features are enabled in the network.

Type: text
 Domain: free text
 Short Name: enabfld
 Source: ESRI

Spatial Reference Information

Spatial_Reference_Information =
 0{Horizontal_Coordinate_System_Definition}1 +
 0{Vertical_Coordinate_System_Definition}1

Horizontal_Coordinate_System_Definition =
 0{Coordinate_System_Name}1 +
 [Geographic |
 1{Planar}n |
 Local] +
 0{Geodetic_Model}1

```
Coordinate_System_Name =  
  0{Projected_Coordinate_System_Name}1 +  
  Geographic_Coordinate_System_Name  
  
Geographic =  
  Latitude_Resolution +  
  Longitude_Resolution +  
  Geographic_Coordinate_Units  
  
Planar =  
  [Map_Projection |  
    Grid_Coordinate_System |  
    Local_Planar] +  
  Planar_Coordinate_Information  
  
Map_Projection =  
  Map_Projection_Name +  
  [Albers_Conical_Equal_Area |  
    Azimuthal_Equidistant |  
    Equidistant_Conic |  
    Equiarectangular |  
    General_Vertical_Near-sided_Perspective |  
    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_(Landsat) |  
    Stereographic |  
    Transverse_Mercator |  
    van_der_Grinten |  
    Behrmann |  
    Bonne |  
    Cassini |  
    Eckert_I |  
    Eckert_II |  
    Eckert_III |  
    Eckert_IV |  
    Eckert_V |  
    Eckert_VI |  
    Gall_Stereographic |
```

Loximuthal |
Mollweide |
Quartic_Authalic |
Winkel_I |
Winkel_II |
Other_ESRI_Projection |
Map_Projection_Parameters]

Albers_Conical_Equal_Area =
1{Standard_Parallel}2 +
Longitude_of_Central_Meridian +
Latitude_of_Projection_Origin +
False_Easting +
False_Northing

Azimuthal_Equidistant =
Longitude_of_Central_Meridian +
Latitude_of_Projection_Origin +
False_Easting +
False_Northing

Equidistant_Conic =
1{Standard_Parallel}2 +
Longitude_of_Central_Meridian +
Latitude_of_Projection_Origin +
False_Easting +
False_Northing

Equiarectangular =
Standard_Parallel +
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

General_Vertical_Near-sided_Perspective =
Height_of_Perspective_Point_Above_Surface +
Longitude_of_Projection_Center +
Latitude_of_Projection_Center +
False_Easting +
False_Northing

Gnomonic =
Longitude_of_Projection_Center +
Latitude_of_Projection_Center +
False_Easting +
False_Northing

```
Lambert_Azimuthal_Equal_Area =
    Longitude_of_Projection_Center +
    Latitude_of_Projection_Center +
    False_Easting +
    False_Northing

Lambert_Conformal_Conic =
    1{Standard_Parallel}2 +
    Longitude_of_Central_Meridian +
    Latitude_of_Projection_Origin +
    False_Easting +
    False_Northing

Mercator =
    [Standard_Parallel |
        Scale_Factor_at_Equator] +
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

Modified_Stereographic_for_Alaska =
    False_Easting +
    False_Northing

Miller_Cylindrical =
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

Oblique_Mercator =
    Scale_Factor_at_Center_Line +
    [Oblique_Line_Azimuth |
        Oblique_Line_Point] +
    Longitude_of_Projection_Origin +
    False_Easting +
    False_Northing

Oblique_Line_Azimuth =
    Azimuthal_Angle +
    Azimuthal_Measure_Point_Longitude

Oblique_Line_Point =
    2{Oblique_Line_Latitude +
    Oblique_Line_Longitude}2
```

Orthographic =
Longitude_of_Projection_Center +
Latitude_of_Projection_Center +
False_Easting +
False_Northing

Polar_Stereographic =
Straight-Vertical_Longitude_from_Pole +
[Standard_Parallel |
Scale_Factor_at_Projection_Origin] +
False_Easting +
False_Northing

Polyconic =
Longitude_of_Central_Meridian +
Latitude_of_Projection_Origin +
False_Easting +
False_Northing

Robinson =
Longitude_of_Projection_Center +
False_Easting +
False_Northing

Sinusoidal =
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Space_Oblique_Mercator_(Landsat) =
Landsat_Number +
Path_Number +
False_Easting +
False_Northing

Stereographic =
Longitude_of_Projection_Center +
Latitude_of_Projection_Center +
False_Easting +
False_Northing

Transverse_Mercator =
Scale_Factor_at_Central_Meridian +
Longitude_of_Central_Meridian +
Latitude_of_Projection_Origin +
False_Easting +
False_Northing

van_der_Grinten =
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Behrmann =
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Bonne =
Standard_Parallel +
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Cassini =
Scale_Factor_at_Central_Meridian +
Longitude_of_Central_Meridian +
Latitude_of_Projection_Origin +
False_Easting +
False_Northing

Eckert_I =
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Eckert_II =
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Eckert_III =
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Eckert_IV =
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Eckert_V =
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Eckert_VI =

Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Gall_Stereographic =

Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Loximuthal =

Longitude_of_Central_Meridian +
Latitude_of_Projection_Origin +
False_Easting +
False_Northing

Mollweide =

Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Quartic_Authalic =

Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Winkel_I =

Standard_Parallel +
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Winkel_II =

Standard_Parallel +
Longitude_of_Central_Meridian +
False_Easting +
False_Northing

Other_ESRI_Projection =

Appropriate data elements 4.1.2.1.23.1 through 4.1.2.1.23.18 to document the map projection parameters. See Appendix A for the production rules.

Map_Projection_Parameters =

Appropriate data elements 4.1.2.1.23.1 through 4.1.2.1.23.18 to document the map projection parameters. See Appendix A for more details.

```
Grid_Coordinate_System =
  Grid_Coordinate_System_Name +
  [Universal_Transverse_Mercator |
    Universal_Polar_Stereographic |
    State_Plane_Coordinate_System |
    ARC_Coordinate_System |
    Other_Grid_System's_Definition]

Universal_Transverse_Mercator =
  UTM_Zone_Number +
  Transverse_Mercator

Universal_Polar_Stereographic =
  UPS_Zone_Identifier +
  Polar_Stereographic

State_Plane_Coordinate_System =
  SPCS_Zone_Identifier +
  [Lambert_Conformal_Conic |
    Transverse_Mercator |
    Oblique_Mercator |
    Polyconic]

ARC_Coordinate_System =
  UPS_Zone_Identifier +
  [Equirectangular |
    Azimuthal_Equidistant]

Local_Planar =
  Local_Planar_Description +
  Local_Planar_Georeference_Information

Planar_Coordinate_Information =
  Planar_Coordinate_Encoding_Method +
  [Coordinate_Representation |
    Distance_and_Bearing_Representation] +
  Planar_Distance_Units

Coordinate_Representation =
  Abscissa_Resolution +
  Ordinate_Resolution

Distance_and_Bearing_Representation =
  Distance_Resolution +
  Bearing_Resolution +
  Bearing_Units +
  Bearing_Reference_Direction +
  Bearing_Reference_Meridian +
```



```

Local =
    Local_Description +
    Local_Georeference_Information

Geodetic_Model =
    0{Horizontal_Datum_Name}1 +
    Ellipsoid_Name +
    Semi-major_Axis +
    Denominator_of_Flattening_Ratio

Vertical_Coordinate_System_Definition =
    0{Altitude_System_Definition}1 +
    0{Depth_System_Definition}1

Altitude_System_Definition =
    Altitude_Datum_Name +
    1{Altitude_Resolution}n +
    Altitude_Distance_Units +
    Altitude_Encoding_Method

Depth_System_Definition =
    Depth_Datum_Name +
    1{Depth_Resolution}n +
    Depth_Distance_Units +
    Depth_Encoding_Method

```

Horizontal Coordinate System Definition (4.1)—The reference frame or system from which linear or angular quantities are measured and assigned to the position that a point occupies.

Type: compound
 Short Name: horizsys
 Source: FGDC standard

Coordinate System Name—Descriptive names for the coordinate systems used by the data.

Rationale: These elements allow the familiar, user-defined name for the coordinate system to be recorded in the metadata. This name, which appears in the Properties dialog box with the coordinate system's parameters, is different from the official projection name defined in the FGDC standard.

Type: compound
 Short Name: cordsysn
 Source: ESRI

Projected Coordinate System Name—A descriptive name for the projected coordinate system used by the data.

Type: text
 Domain: free text
 Short Name: projcsn
 Source: ESRI

Geographic Coordinate System Name—A descriptive name for the geographic coordinate system used by the data. If the data is projected, this is the name of the ellipsoid or spheroid used by the projected coordinate system.

Type: text
 Domain: free text
 Short Name: geogcsn
 Source: ESRI

Planar (4.1.2)—The quantities of distances, or distances and angles, which define the position of a point on a reference plane to which the surface of the earth has been projected.

Type: compound
 Short Name: planar
 Source: FGDC standard

Map Projection (4.1.2.1)—The systematic representation of all or part of the surface of the earth on a plane or developable surface.

Type: compound
 Short Name: planar
 Source: FGDC standard

Map Projection Name (4.1.2.1.1)—Name of the map projection.

Type: text
 Domain: "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", free text
 Extended Domain: "Aitoff", "Behrmann", "Bonne", "Cassini", "Craster_Parabolic", "Cylindrical_Equal_Area", "Double Stereographic", "Eckert I", "Eckert II", "Eckert III", "Eckert IV", "Eckert V", "Eckert VI", "Flat_Polar_Quartic", "Gall

Stereographic", "Hammer_Aitoff", "Krovak",
 "Loximuthal", "Mollweide",
 "New_Zealand_Map_Grid", "Quartic Authalic",
 "Times", "Two Point Equidistant", "Winkel I",
 "Winkel II", "Winkel_Tripel"
 Short Name: mapprojn
 Source: FGDC standard

Behrmann—Contains parameters for the Behrmann projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
 Short Name: behrmann
 Source: ESRI

Bonne—Contains parameters for the Bonne projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
 Short Name: bonne
 Source: ESRI

Cassini—Contains parameters for the Cassini projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
 Short Name: cassini
 Source: ESRI

Eckert I—Contains parameters for the Eckert I projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
 Short Name: eckert1
 Source: ESRI

Eckert II—Contains parameters for the Eckert II projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
 Short Name: eckert2
 Source: ESRI

Eckert III—Contains parameters for the Eckert III projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Short Name: eckert3
Source: ESRI

Eckert IV—Contains parameters for the Eckert IV projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Short Name: eckert4
Source: ESRI

Eckert V—Contains parameters for the Eckert V projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Short Name: eckert5
Source: ESRI

Eckert VI—Contains parameters for the Eckert VI projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Short Name: eckert6
Source: ESRI

Gall Stereographic—Contains parameters for the Gall Stereographic projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Short Name: gallster
Source: ESRI

Loximuthal—Contains parameters for the Loximuthal projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Short Name: loximuth
Source: ESRI

Mollweide—Contains parameters for the Mollweide projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Short Name: mollweid
Source: ESRI

Quartic Authalic—Contains parameters for the Quartic Authalic projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Short Name: quartic
Source: ESRI

Winkel I—Contains parameters for the Winkel I projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Short Name: winkel1
Source: ESRI

Winkel II—Contains parameters for the Winkel II projection. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Short Name: winkel2
Source: ESRI

Other ESRI Projection—Contains parameters for other projections that are supported by ArcGIS software. This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. See Appendix C for details.

Type: compound
Children: *Appropriate data elements 4.1.2.1.23.1 through 4.1.2.1.23.18 to document the projection's parameters.*

NOTE: See Appendix C for production rules.

Short Name: otherprj
Source: ESRI

Map Projection Parameters (4.1.2.1.23)—A complete parameter set of the projection that was used for the dataset. The information provided shall include the names of the parameters and values used for the dataset that describe the mathematical relationship between the earth and the plane or developable surface for the projection.

Type: compound

Children: *Appropriate data elements 4.1.2.1.23.1 through 4.1.2.1.23.18 to document the projection's parameters.*

NOTE: See Appendix C for production rules for coordinate systems that are supported by ArcGIS software but are not explicitly defined in the FGDC standard.

Short Name: mapprojp

Source: FGDC standard

Entity and Attribute Information

```
Entity_and_Attribute_Information =
    [1{Detailed_Description}n |
     1{Overview_Description}n]
```

```
Detailed_Description =
    Entity_Type +
    0{Attribute}n +
    0{Subtype_Information}n +
    0{Relationship_Information}1
```

```
Entity_Type =
    Entity_Type_Label +
    0{Entity_Type_Type}1 +
    0{Entity_Type_Count}1 +
    Entity_Type_Definition +
    Entity_Type_Definition_Source
```

```
Attribute =
    Attribute_Label +
    0{Attribute_Alias}1 +
    Attribute_Definition +
    Attribute_Definition_Source +
    Attribute_Type+
    Attribute_Width +
    0{Attribute_Precision}1 +
    0{Attribute_Scale}1 +
    0{Attribute_Output_Width}1 +
    0{Attribute_Number_of_Decimals}1 +
    0{Attribute_Indexed}1 +
    1{Attribute_Domain_Values}n +
```

```
0{Beginning_Date_of_Attribute_Values +
    0{Ending_Date_of_Attribute_Values}1}n +
(Attribute_Value_Accuracy_Information) +
(Attribute_Measurement_Frequency)

Attribute_Domain_Values =
[1{Enumerated_Domain}n |
    Range_Domain |
    Codeset_Domain |
    Unrepresentable_Domain]

Enumerated_Domain =
    Enumerated_Domain_Value +
    Enumerated_Domain_Value_Definition +
    Enumerated_Domain_Value_Definition_Source +
    0{Attribute}n

Range_Domain =
    Range_Domain_Minimum +
    Range_Domain_Maximum +
    (Range_Domain_Mean) +
    (Range_Domain_Standard_Deviation) +
    0{Attribute_Units_of_Measure}1 +
    (Attribute_Measurement_Resolution) +
    0{Attribute}n

Codeset_Domain =
    Codeset_Name +
    Codeset_Source

Attribute_Value_Accuracy_Information =
    Attribute_Value_Accuracy +
    Attribute_Value_Accuracy_Explanation

Subtype_Information =
    Subtype_Name +
    Subtype_Code +
    0{Subtype_Attribute}n

Subtype_Attribute =
    Subtype_Attribute_Name +
    0{Subtype_Default_Value}1 +
    0{Attribute_Defined_Domain}1
```

```

Attribute_Defined_Domain =
  Domain_Name +
  (Domain_Description) +
  (Domain_Owner) +
  Domain_Attribute_Type +
  Domain_Type +
  Merge_Rule +
  Split_Rule

Relationship_Information =
  (Description_of_Relationship) +
  Relationship_Cardinality +
  Attributed_Relationship +
  Composite_Relationship +
  Notification_Direction +
  Origin_Name +
  Origin_Primary_Key +
  Origin_Foreign_Key +
  Destination_Name +
  Destination_Primary_Key +
  Destination_Foreign_Key +
  Relationship_Forward_Label +
  Relationship_Backward_Label

Overview_Description =
  Entity_and_Attribute_Overview +
  1{Entity_and_Attribute_Detail_Citation}n

```

Detailed Description (5.1)—Description of the entities, attributes, attribute values, and related characteristics encoded in the dataset.

Type: compound
 Short Name: detailed
 Source: FGDC standard

Entity Type (5.1.1)—The definition and description of a set into which similar entity instances are classified.

Type: compound
 Short Name: enttyp
 Source: FGDC standard

Entity Type Type—The type of entity that is being described.

Rationale: To identify the type of nonspatial entities.
 Type: text
 Domain: "Table", "Feature Class", "Relationship"
 Short Name: enttyp
 Source: ESRI

Entity Type Count—The number of objects that the entity contains. For example, the number of features contained by a feature class or the number of rows contained by a table.

Rationale: To identify the number of objects contained by a nonspatial entity.

Type: integer

Domain: free integer

Short Name: enttypec

Source: ESRI

Attribute (5.1.2)—A defined characteristic of an entity.

Type: compound

Short Name: attr

Source: FGDC standard

Attribute Alias—An alias for the attribute name. Attribute aliases are supported by some data formats such as coverages and geodatabase feature classes.

Type: text

Domain: free text

Short Name: attalias

Source: ESRI

Attribute Type—The data type of the attribute. The terminology used is appropriate for the data format. For example, text data in an INFO table is referred to as Character data, while for a shapefile in ArcView[®] 3 it is referred to as String data.

Type: text

Domain: "OID", "Geometry", "Small Integer", "Integer", "Single", "Double", "String", "Date", "Blob", "Number", "Boolean", "Binary", "Float", "Character"

Short Name: attrtype

Source: ESRI

Attribute Width—The maximum width of an attribute. For shapefiles and coverages, the width is the maximum number of digits that values in the attribute column can have. For all other data formats the width is the maximum size of the attribute's value in bytes.

Type: integer

Domain: free integer

Short Name: attwidth

Source: ESRI

Attribute Precision—The precision of an attribute; that is, the maximum number of digits that its values can have. This element is used to describe data formats other than shapefiles and coverages.

Type: integer
Domain: free integer
Short Name: atprecis
Source: ESRI

Attribute Scale—The maximum number of decimal places that values in an attribute can have. This element is used to describe data formats other than shapefiles and coverages.

Type: integer
Domain: free integer
Short Name: attscale
Source: ESRI

Attribute Output Width—The display width for the attribute. This is the width of the column used to present an attribute's values when using ArcInfo™ Workstation. This element is only used to describe coverages and INFO tables.

Type: integer
Domain: free integer
Short Name: atoutwid
Source: ESRI

Attribute Number of Decimals—The maximum number of decimal places that values in an attribute can have. This element is used to describe shapefiles and coverages.

Type: integer
Domain: free integer
Short Name: atnumdec
Source: ESRI

Attribute Indexed—Describes the type of index that has been created for the attribute's values.

Type: text
Domain: free text
Short Name: atindex
Source: ESRI

Attribute Domain Values (5.1.2.4)—The valid values that can be assigned for an attribute.

Type: compound
Short Name: attrdomv
Source: FGDC standard

Range Domain (5.1.2.4.2)—The minimum and maximum values of a continuum of valid values.

Type: compound
Short Name: rdom
Source: FGDC standard

Range Domain Mean—The mean of the attribute's values.

Type: real
Domain: free real
Short Name: rdommean
Source: ESRI

Range Domain Standard Deviation—The standard deviation of the attribute's values.

Type: real
Domain: free real
Short Name: rdomstdv
Source: ESRI

Subtype Information—Describes the subtypes that have been defined for a feature class in a geodatabase. For example, within a utility pole feature class there might be subtypes representing wood, concrete, and metal poles.

Type: compound
Short Name: subtype
Source: ESRI

Subtype Attribute—An attribute for which a default value or domain has been defined for this subtype.

Type: compound
Short Name: stfield
Source: ESRI

Subtype Attribute Name—The name of the attribute.

Type: text
Domain: free text
Short Name: stfldnm
Source: ESRI

Subtype Default Value—The default value for this attribute for all objects of this subtype. The default value will be placed in the attribute when a new object is added to the subtype.

Type: text
Domain: free text
Short Name: stflddv
Source: ESRI

Attribute Defined Domain—The domain that has been defined for this attribute for this subtype. When editing, only values that fall within the domain are permitted. For example, each type of pole might have a different domain defining the height range that is valid for the pole's material.

Type: compound
Short Name: stflddd
Source: ESRI

Domain Name—The name of the domain.

Type: text
Domain: free text
Short Name: domname
Source: ESRI

Domain Description—A description of the domain.

Type: text
Domain: free text
Short Name: domdesc
Source: ESRI

Domain Owner—The owner of the domain.

Type: text
Domain: free text
Short Name: domowner
Source: ESRI

Domain Attribute Type—The data type of the attribute.

Type: text
Domain: "Small Integer", "Integer",
"Single", "Double", "String", "Date"
Short Name: domfldtp
Source: ESRI

Domain Type—The type of domain.

Type: text
Domain: "Range", "Coded value"
Short Name: domtype
Source: ESRI

Merge Rule—The rule used to determine the value to be placed in the attribute if objects are merged.

Type: text
Domain: "Default value", "Sum values",
"Weighted average"
Short Name: mrgtype
Source: ESRI

Split Rule—The rule used to determine the value to be placed in the attribute if objects are split.

Type: text
 Domain: "Default value", "Duplicate",
 "Geometry ratio"
 Short Name: spltttype
 Source: ESRI

Relationship Information—Description of a relationship class that joins two items. For example, a relationship class in a geodatabase can join any two object classes. A coverage relationship class can join coverages and INFO tables.

Type: compound
 Short Name: relinfo
 Source: ESRI

Description of Relationship—A brief description of the relationship, for example, what the relationship is between the two objects.

Type: text
 Domain: free text
 Short Name: reldesc
 Source: ESRI

Relationship Cardinality—The cardinality of the relationship, for example, how many objects of type A are related to an object of type B.

Type: text
 Domain: "One to One", "One to Many", "Many to Many",
 "Many to One"
 Short Name: relcard
 Source: ESRI

Attributed Relationship—Identifies whether or not the relationship class itself is attributed. For example, an attribute of a relationship between parcels and owners might be percentage of ownership.

Type: text
 Domain: "TRUE", "FALSE"
 Short Name: relattr
 Source: ESRI

Composite Relationship—Identifies whether or not the relationship class defines a composite relationship. In a composite relationship, objects of type A are composed of objects of type B; this means that the lifetime of B objects depends on the lifetime of A objects. Relationships that are not composite are simple relationships.

Type: text
 Domain: "TRUE", "FALSE"
 Short Name: relcomp
 Source: ESRI

Notification Direction—How messages will be propagated between the related objects.

Type: text
Domain: "Forward", "Backward", "Both", "None"
Short Name: relnodir
Source: ESRI

Origin Name—The name of the origin object class.

Type: text
Domain: free text
Short Name: ofcname
Source: ESRI

Origin Primary Key—The name of the primary key for the relationship. The primary key is the attribute in the origin whose values are used to join the origin to the destination.

Type: text
Domain: free text
Short Name: ofcpkey
Source: ESRI

Origin Foreign Key—The name of the foreign key for the relationship. The foreign key is the attribute in the destination that contains the same values as those in the primary key. For attributed and many-to-many relationships, the foreign key occurs in the relationship class's table rather than in the destination.

Type: text
Domain: free text
Short Name: ofcfkey
Source: ESRI

Destination Name—The name of the destination object class.

Type: text
Domain: free text
Short Name: dtcname
Source: ESRI

Destination Primary Key—The name of the destination's primary key. For attributed and many-to-many relationships, the destination's primary key is the attribute in the destination that contains the same values as those in the origin's primary key. For all other relationships, the primary key for the destination itself such as its object identifier attribute is recorded in this element.

Type: text
Domain: free text
Short Name: dtfcpcy
Source: ESRI

Destination Foreign Key—The name of the destination's foreign key. For attributed and many-to-many relationships, the destination's foreign key occurs in the relationship class's table rather than in the destination. For all other relationships, no value will be recorded in this element.

Type: text
 Domain: free text
 Short Name: dtfcfkey
 Source: ESRI

Relationship Forward Label—The name for the relationship when it is navigated from the origin to the destination.

Type: text
 Domain: free text
 Short Name: relflab
 Source: ESRI

Relationship Backward Label—The name for the relationship when it is navigated from the destination to the origin.

Type: text
 Domain: free text
 Short Name: relblab
 Source: ESRI

Distribution Information

Distribution_Information =
 Distributor +
 0{Resource_Description}1 +
 Distribution_Liability +
 0{Standard_Order_Process}n +
 0{Custom_Order_Process}1 +
 (Technical_Prerequisites) +
 (Available_Time_Period)

Distributor =
 Contact_Information (*see Contact Information for production rules*)

Standard_Order_Process =
 [Non-digital_Form |
 1{Digital_Form}n] +
 Fees +
 (Ordering_Instructions) +
 (Turnaround)

Digital_Form =
 Digital_Transfer_Information +
 Digital_Transfer_Option

```
Digital_Transfer_Information =
  Format_Name +
  ([Format_Version_Number |
    Format_Version_Date] +
    (Format_Specification) ) +
  (Format_Information_Content) +
  0{File-Decompression_Technique}1 +
  (Transfer_Size) +
  0{Dataset_Size}1

Digital_Transfer_Option =
  1{[Online_Option |
    Offline_Option]}n

Online_Option =
  1{Computer_Contact_Information}n +
  (Access_Instructions) +
  (Online_Computer_and_Operating_System)

Computer_Contact_Information =
  [Network_Address |
    Dialup_Instructions |
    SDE_Connection_Information]

Network_Address =
  1{Network_Resource_Name}n

Dialup_Instructions =
  Lowest_BPS +
  0{Highest_BPS}1 +
  Number_DataBits +
  Number_StopBits +
  Parity +
  0{Compression_Support}1 +
  1{Dialup_Telephone}n +
  1{Dialup_File_Name}n

SDE_Connection_Information =
  Server_Name +
  Instance_Name +
  0{Database_Name}1 +
  User_Name +
  Version_Name
```



```

Offline_Option =
  Offline_Media +
  0{Recording_Capacity}1
  1{Recording_Format}n +
  0{Compatibility_Information}1

Recording_Capacity =
  1{Recording_Density}n +
  Recording_Density_Units

Available_Time_Period =
  Time_Period_Information (see Time Period Information for production
  rules)
    
```

Standard Order Process (6.4)—The common ways in which the dataset may be obtained or received and related instructions and fee information.

Type: compound
 Short Name: stdorder
 Source: FGDC standard

Digital Form (6.4.2)—The description of options for obtaining the dataset on computer-compatible media.

Type: compound
 Short Name: digform
 Source: FGDC standard

Digital Transfer Information (6.4.2.1)—Description of the form of the data to be distributed.

Type: compound
 Short Name: digtinfo
 Source: FGDC standard

Dataset Size—The size, in megabytes, of the item.

Rationale: The transfer size of the dataset may be different than the actual size of the dataset, for example, if the dataset is compressed for transfer.

Type: real
 Domain: free real
 Short Name: dssize
 Source: ESRI

Digital Transfer Option (6.4.2.2)—The means and media by which a dataset is obtained from the distributor.

Type: compound
 Short Name: digtopt
 Source: FGDC standard

Online Option (6.4.2.2.1)—Information required to directly obtain the dataset electronically.

Type: compound
Short Name: onlinopt
Source: FGDC standard

Computer Contact Information (6.4.2.2.1.1)—Instructions for establishing communications with the distribution computer.

Type: compound
Short Name: computer
Source: FGDC standard

SDE® Connection Information—The information required to connect to an ArcSDE® geodatabase server. *This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later. This information is now recorded in the Online Linkage element within the Citation Information element.*

Type: compound
Short Name: sdeconn
Source: ESRI

Server Name—The name or IP number of the computer on which the ArcSDE server resides. *This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later.*

Type: text
Domain: free text
Short Name: server
Source: ESRI

Instance Name—The name or port number of the process running on the ArcSDE server that allows access to the spatial database. *This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later.*

Type: text
Domain: free text
Short Name: instance
Source: ESRI

Database Name—The name of the database in which the data resides. This connection parameter is only used when data is stored within either a SQL Server or Sybase relational database management system. *This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later.*

Type: text
 Domain: free text
 Short Name: database
 Source: ESRI

User Name—The username used to access the data in the ArcSDE geodatabase. *This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later.*

Type: text
 Domain: free text
 Short Name: user
 Source: ESRI

Version Name—The version of the ArcSDE geodatabase that contains the data. *This element is used when metadata is synchronized with ArcCatalog 8, but not with version 8.1 or later.*

Type: text
 Domain: free text
 Short Name: version
 Source: ESRI

Metadata Reference Information

```

Metadata_Reference_Information =
  Metadata_Date +
  (Metadata_Review_Date) +
  (Metadata_Future_Review_Date) +
  Language_of_Metadata +
  Metadata_Contact +
  Metadata_Standard_Name +
  Metadata_Standard_Version +
  0{Metadata_Time_Convention}1 +
  (Metadata_Access_Constraints) +
  
```

```
(Metadata_Use_Constraints) +
(Metadata_Security_Information) +
0{Metadata_Extensions}n
```

```
Metadata_Contact =
  Contact_Information (see Contact Information for production rules)
```

```
Metadata_Security_Information =
  Metadata_Security_Classification_System +
  Metadata_Security_Classification +
  Metadata_Security_Handling_Description
```

```
Metadata_Extensions =
  0{Online_Linkage}n +
  0{Profile_Name}l
```

Language of Metadata—The language used to create the metadata. The language should be represented as the appropriate two-letter code as defined by ISO 639:1988, *Code for the representation of names of languages*.

Rationale: The language of the metadata may be different from the language used in the data itself and allows for a smoother transition to the ISO metadata standard.

Type: text

Domain: free text

Short Name: langmeta

Source: ESRI

Binary Enclosures

```
Binary_Enclosures =
  (Thumbnail) +
  (1{Enclosure}n)
```

```
Thumbnail =
  Data
```

```
Enclosure =
  Description_of_Enclosure +
  Data
```

Thumbnail—Contains an embedded graphic file in Windows Bitmap format that illustrates what the spatial data looks like. The file is encoded as Base64 text, then stored within the metadata.

Type: compound

Short Name: Thumbnail

Source: ESRI

Data—The enclosed file, encoded as Base64 text.

Type: text
 Domain: free text
 Short Name: Data
 Source: ESRI

Enclosure—Contains a copy of an external file that describes the data. The file is encoded as Base64 text, then stored within the metadata.

Type: compound
 Short Name: Enclosure
 Source: ESRI

Description of Enclosure—A brief description of the enclosure.

Type: text
 Domain: free text
 Short Name: Descript
 Source: ESRI

Citation Information

```
Citation_Information =
    1{Originator}n +
    Publication_Date +
    (Publication_Time) +
    Title +
    0{File_or_Table_Name}1 +
    0{Edition}1 +
    0{Geospatial_Data_Presentation_Form}1 +
    0{Series_Information}1 +
    0{Publication_Information}1 +
    0{Other_Citation_Details}1 +
    (1{Online_Linkage}n) +
    0{Larger_Work_Citation}1
```

```
Series_Information =
    Series_Name +
    Issue_Identification
```

```
Publication_Information =
    Publication_Place +
    Publisher
```

```
Larger_Work_Citation =
    Citation_Information
```

File or Table Name—The name of the item. For example, the name of a shapefile or a feature class in a geodatabase.

Rationale: The name of the file or the geodatabase item is different from its formal, descriptive title.

Type: text

Domain: free text

Short Name: fname

Source: ESRI

Online Linkage (8.10)—The name of an online computer resource that contains the dataset. Entries should follow the Uniform Resource Locator convention of the Internet.

For items stored in an ArcSDE geodatabase, connection information shall be recorded in the form "Server=ServerName; Service=ServiceName; Database=DatabaseName; User=UserName; Version=VersionName". For data that is distributed over the Internet using ArcIMS, the service information shall be recorded in the form

"Server=http://ServerLocation; Service=ServiceName; ServiceType=TypeOfDataService; FeatureClassType=TypeOfFeatures; FeatureClassName=NameOfFeatureClass".

Type: text

Domain: free text

Short Name: fname

Source: ESRI

Time Period Information

Time_Period_Information =
 [Single_Date/Time |
 Multiple_Dates/Times |
 Range_of_Dates/Times]

Single_Date/Time =
 Calendar_Date +
 (Time_of_Day)

Multiple_Dates/Times =
 2{Single_Date/Time}n

Range_of_Dates/Times =
 Beginning_Date +
 (Beginning_Time) +
 Ending_Date +
 (Ending_Time)

Contact Information

```
Contact_Information =  
  [Contact_Person_Primary |  
    Contact_Organization_Primary] +  
  (Contact_Position) +  
  1{Contact_Address}n +  
  1{Contact_Voice_Telephone}n +  
  (1{Contact_TDD/TTY_Telephone}n) +  
  (1{Contact_Facsimile_Telephone}n) +  
  (1{Contact_Electronic_Mail_Address}n) +  
  (Hours_of_Service) +  
  (Contact_Instructions)  
  
Contact_Person_Primary =  
  Contact_Person +  
  (Contact_Organization)  
  
Contact_Organization_Primary =  
  Contact_Organization +  
  (Contact_Person)  
  
Contact_Address =  
  Address_Type +  
  0{Address}n +  
  City +  
  State_or_Province +  
  Postal_Code +  
  (Country)
```

Appendix A—Summary of Changes to Elements Defined in the *Content Standard for Digital Geospatial Metadata*

All elements defined in the FGDC standard are included in the ESRI Profile. There are two domain changes and one conditionality change to the elements defined by the FGDC standard.

Domain Changes

The ESRI Profile has extended the domain of two elements defined in the FGDC standard. These changes are summarized below.

Map Projection Name

ESRI software supports several projections that are not explicitly defined in the FGDC standard. The domain of the Map Projection Name element as defined in the FGDC standard includes a name for each of the explicitly supported projections or free text. Since ArcCatalog will automatically derive coordinate system information from the item and include that information in its metadata, the domain for the Map Projection Name element has been extended to include the names of the additional projections supported by ESRI software.

Online Linkage

In the FGDC standard, the description of this element indicates that its value should be a URL but its domain is defined as free text. For objects stored in a geodatabase it is not possible to generate a URL representing the location of the data. For data distributed over the Internet using ArcIMS, a URL can document the location of the ArcIMS site in general but not the specific service that is being described. The domain for this element has been extended to include descriptions of the connection information used to access the geodatabase and the details for accessing an ArcIMS data service.

Conditionality Changes

The ESRI Profile has modified the conditionality of one element defined in the FGDC standard. This change is summarized below.

Spatial Domain

Data is not the only essential item for a geographic information system. Some items may not be specific to one area on the earth's surface. Even nonspatial items need metadata that can be published to a central repository so they can be shared with others. But for nonspatial items, it is inappropriate to require a geographic extent. For the ESRI Profile, this element shall be considered mandatory if applicable.

For example, ArcCatalog lets you create metadata for many items that may not have a spatial component including tables, relationship classes, coordinate system files, graphs, and file types such as Microsoft Word documents. If a table contains addresses or a Word document contains a report about a place, then it is appropriate to define a

geographic extent and the Spatial Domain element will be considered mandatory. Otherwise, the element will be considered optional. The same rule applies to geoprocessing tools, ARC Macro Language (AML™) scripts, and Web services. If a tool applies a function that uses parameters that are only valid for a given geographic region or a geocoding service relies on specific reference data, then a geographic extent will be mandatory. But if the item applies a generic function such as a buffer to any input data, a geographic extent will be considered optional.

Appendix B—Summary of Changes to the ESRI Profile Between Software Releases

Improvements are made with each release of ArcCatalog. This document will be updated as necessary to include any changes in the ESRI Profile that are introduced with the new release. Each element that has changed has a note with **green** text in the detailed description of the element. These changes are summarized below.

Changes Between ArcGIS 8.2 and 8.3

A few changes were made to the ESRI Profile to support ArcGIS 8.3.

Topology

With ArcGIS 8.3, topology objects can be created in a geodatabase. New elements were added to the ESRI Information section and the Spatial Data Organization Information section to describe the properties of a topology and of feature classes that participate in a topology. Also, new values were added to the domain of the Native Dataset Format element to support topology in personal and ArcSDE geodatabases.

Spatial Domain and Bounding Coordinates

In previous versions of this profile the Spatial Domain element was considered mandatory because this element is mandatory in the FGDC standard. Because it is not always appropriate to define a spatial extent for items that are part of your GIS, previous versions of the ESRI Profile modified the domain of the West Bounding Coordinate, East Bounding Coordinate, North Bounding Coordinate, and South Bounding Coordinate elements so they could contain the phrase "Not applicable". However, this solution caused problems when the metadata was validated because the elements contained text rather than numbers.

A more appropriate solution was to make the Spatial Domain element mandatory if applicable. This change has the effect that a metadata document that satisfies the requirements of the ESRI Profile may not satisfy the requirements of the FGDC standard because the document does not include a spatial extent.

Changes Between ArcGIS 8.1 and 8.2

A few changes were made to the ESRI Profile to support ArcGIS 8.2.

ArcIMS Image and Feature Services

With ArcGIS 8.2, ArcCatalog can automatically generate metadata for ArcIMS Image and Feature Services. New elements were added to the ESRI Information section to describe the properties of these services. Also, new values were added to the domain of the Native Dataset Format element to support ArcIMS Image and Feature Services and ArcIMS Feature Classes.

ArcIMS Metadata Services	With ArcGIS 8.2 and ArcIMS 4, metadata can be published to a central repository that can be publicly available on the Internet. When a metadata document is published to an ArcIMS Metadata Service, a unique identifier and the status of the publishing process are documented within the ESRI Information section.
Native Dataset Format	In addition to the new domain values that were described above, values were added to the domain of the Native Dataset Format element to account for spatial data catalog data, ArcGIS 3D Analyst™ software's Scene documents, and ArcGIS Survey Analyst software's geodatabase objects.
Changes Between ArcInfo 8 and ArcGIS 8.1	A few changes were made to the ESRI Profile to support ArcGIS 8.1.
Thumbnails	With ArcCatalog 8, thumbnails were stored in the Identification Information section within the Browse Graphic section defined by the FGDC standard. With version 8.1, thumbnails are instead stored within the Binary Enclosures section to avoid confusion with links to external graphic documents.
Native Dataset Format and Image Format	<p>The Native Dataset Format element was not added for all items with ArcCatalog 8. This was resolved in version 8.1. The values that are recorded in this element at version 8.1 are also different; the new values are required in order to search for items of a specific type. This element's value will be updated automatically the first time metadata is synchronized with ArcCatalog 8.1 or later.</p> <p>With version 8, a raster dataset's format was recorded in two places: the Native Dataset Format element, within the Identification Information section, and the Image Format element, within the Spatial Data Organization section. With version 8.1 and later, the Native Dataset Format element will contain the value "Raster Dataset" for all rasters. The specific raster format continues to be recorded in the Image Format element; these values are now more specific than they were at version 8.</p>
Coordinate Systems	The FGDC standard includes definitions for several map projections. ArcGIS software supports several additional projections. How these additional projections are recorded has changed between ArcCatalog 8 and 8.1. This change is discussed in detail in Appendix C.
Dataset's Location and ArcSDE Geodatabase Connection Information	With version 8, a dataset's location was recorded within the Distribution Information section. For datasets stored on disk, the file's location was recorded within the Network Resource Name element. For items stored within ArcSDE geodatabases, information about how to access the geodatabase was recorded in the SDE Connection Information section. With version 8.1 and later, the location of the item is recorded within the dataset's Citation in the Identification Information section. Either the location of the file on disk or a string containing the ArcSDE connection information is now recorded in the Online Linkage element.

Appendix C—Map Projections Supported by ArcGIS Software

The FGDC standard includes definitions for 21 specific map projections and the parameters for those projections that should be recorded in the metadata. ArcGIS software supports several additional projections that are not defined in the FGDC standard. This appendix addresses how the parameters for the additional projections are recorded in the metadata with ArcCatalog.

Using ArcInfo 8

Several elements were added by this profile to explicitly handle the following coordinate systems, which are not defined in the FGDC standard: Behrmann, Bonne, Cassini, Eckert I, Eckert II, Eckert III, Eckert IV, Eckert V, Eckert VI, Gall Stereographic, Loximuthal, Mollweide, Quartic Authalic, Winkel I, and Winkel II. These elements are defined in the Spatial Reference Information section.

In addition to the coordinate systems listed above, ArcGIS software also supported the following coordinate systems at version 8: Cylindrical Equal Area, Double Stereographic, and Two-Point Equidistant. The parameters for these projections were stored within the Other ESRI Projection element, which is also defined in the Spatial Reference Information section. The following production rules were used:

```
If Map_Projection_Name = "Cylindrical_Equal_Area"
  Other_ESRI_Projection =
    Standard_Parallel +
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Double_Stereographic"
  Other_ESRI_Projection =
    Scale_Factor_at_Projection_Origin +
    Longitude_of_Central_Meridian +
    Latitude_of_Projection_Origin +
    False_Easting +
    False_Northing
```

Parameters for the Two-Point Equidistant coordinate system were not recorded with version 8.

**Using ArcGIS 8.1
and later**

The FGDC standard includes the Map Projection Parameters element to contain information about other projections that are not explicitly defined. This element was overlooked at version 8. With version 8.1 and later, parameters for all projections supported by ArcGIS software that are not explicitly supported by the FGDC standard are documented using the Map Projection Parameters element. The Other ESRI Projection element is no longer used. The following production rules are used:

```
If Map_Projection_Name = "Aitoff"
    Map_Projection_Parameters =
        Longitude_of_Central_Meridian +
        False_Easting +
        False_Northing

If Map_Projection_Name = "Behrmann"
    Map_Projection_Parameters =
        Longitude_of_Central_Meridian +
        False_Easting +
        False_Northing

If Map_Projection_Name = "Bonne"
    Map_Projection_Parameters =
        Standard_Parallel +
        Longitude_of_Central_Meridian +
        False_Easting +
        False_Northing

If Map_Projection_Name = "Cassini"
    Map_Projection_Parameters =
        Scale_Factor_at_Central_Meridian +
        Longitude_of_Central_Meridian +
        Latitude_of_Projection_Origin +
        False_Easting +
        False_Northing

If Map_Projection_Name = "Craster_Parabolic"
    Map_Projection_Parameters =
        Longitude_of_Central_Meridian +
        False_Easting +
        False_Northing

If Map_Projection_Name = "Cylindrical_Equal_Area"
    Map_Projection_Parameters =
        Standard_Parallel +
        Longitude_of_Central_Meridian +
        False_Easting +
        False_Northing
```

```
If Map_Projection_Name = "Double Stereographic"
  Map_Projection_Parameters =
    Scale_Factor_at_Projection_Origin +
    Longitude_of_Projection_Center +
    Latitude_of_Projection_Center +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Eckert I"
  Map_Projection_Parameters =
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Eckert II"
  Map_Projection_Parameters =
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Eckert III"
  Map_Projection_Parameters =
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Eckert IV"
  Map_Projection_Parameters =
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Eckert V"
  Map_Projection_Parameters =
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Eckert VI"
  Map_Projection_Parameters =
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing
```

```
If Map_Projection_Name = "Flat_Polar_Quartic"
    Map_Projection_Parameters =
        Longitude_of_Central_Meridian +
        False_Easting +
        False_Northing

If Map_Projection_Name = "Gall_Stereographic"
    Map_Projection_Parameters =
        Longitude_of_Central_Meridian +
        False_Easting +
        False_Northing

If Map_Projection_Name = "Hammer_Aitoff"
    Map_Projection_Parameters =
        Longitude_of_Central_Meridian +
        False_Easting +
        False_Northing

If Map_Projection_Name = "Krovak"
    Map_Projection_Parameters =
        Standard_Parallel +
        Scale_Factor_at_Center_Line +
        Oblique_Line_Azimuth +
        Latitude_of_Projection_Center +
        False_Easting +
        False_Northing

If Map_Projection_Name = "Loximuthal"
    Map_Projection_Parameters =
        Longitude_of_Central_Meridian +
        Latitude_of_Projection_Origin +
        False_Easting +
        False_Northing

If Map_Projection_Name = "Mollweide"
    Map_Projection_Parameters =
        Longitude_of_Central_Meridian +
        False_Easting +
        False_Northing

If Map_Projection_Name = "New_Zealand_Map_Grid"
    Map_Projection_Parameters =
        Longitude_of_Central_Meridian +
        Latitude_of_Projection_Origin +
        False_Easting +
        False_Northing
```

```
If Map_Projection_Name = "Quartic Authalic"
  Map_Projection_Parameters =
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Times"
  Map_Projection_Parameters =
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Two Point Equidistant"
  Map_Projection_Parameters =
    Oblique_Line_Point +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Winkel I"
  Map_Projection_Parameters =
    Standard_Parallel +
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Winkel II"
  Map_Projection_Parameters =
    Standard_Parallel +
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing

If Map_Projection_Name = "Winkel Tripel"
  Map_Projection_Parameters =
    Standard_Parallel +
    Longitude_of_Central_Meridian +
    False_Easting +
    False_Northing
```


Appendix D—Summary of Elements in the ESRI Profile

The following table summarizes the elements in the ESRI Profile. It presents the long and short names of the elements in a hierarchical list. Additional columns indicate the elements whose values can be automatically synchronized by ArcCatalog, the elements whose values can be manually defined using editors provided with ArcCatalog, and which of the stylesheets provided with ArcCatalog can be used to examine the element's value(s). This table does not show production information such as whether or not an element is mandatory or how many times an element may be repeated. More detailed information about synchronization can be found in the technical paper *Synchronization in ArcCatalog*, which is available from ESRI's Online Support Center.

Columns 1 and 2: Long Name and Short Name

Columns 1 and 2 contain the long and short names of each metadata element as defined in the FGDC standard and the ESRI Profile. Short names are used as the XML tags to represent the element in the metadata XML document that is created and maintained by ArcCatalog. These elements are arranged hierarchically to make their organization easier to follow. The compound elements Citation Information, Time Period Information, and Contact Information are reused in several places; they appear in a separate table.

- FGDC-defined elements are black.
- FGDC-defined elements that have been modified by the ESRI Profile are orange.
- ESRI-defined elements are light blue.
- **Compound elements are bold.** Compound elements contain individual elements.
- Individual elements are not bold. Individual elements contain values.
- A green asterisk (*) in column 1 indicates that use of the element has changed between different versions of ArcCatalog.

Column 3: Synchronized¹

Synchronization is the process by which ArcCatalog will automatically update an item's metadata with information derived from the item itself. Values in this column indicate whether or not the element's value can be synchronized.

- **S:** element's value can be synchronized. If these elements are removed, they will be added again the next time the metadata is synchronized.

- **H:** ArcCatalog adds hints to the metadata for the mandatory elements defined in the FGDC standard. The first time the metadata is synchronized, these elements are added to the metadata. They are only added if the element does not already exist in the metadata. If these elements are removed, they won't be added again. The value for these elements is a description of the information that should be added.
- Values for all other elements must be entered manually.
- See the footnotes for details about specific elements.

Column 4: Editable

Values in this column indicate whether or not the element's value can be edited manually.

- **Y:** element's value can be edited using the FGDC metadata editor provided by ArcCatalog.
- **N:** element's value is visible in the FGDC metadata editor but not editable.
- **P:** element's value can be edited using the Metadata Properties dialog box.
- All other elements are not visible in the FGDC metadata editor or the Metadata Properties dialog box provided with ArcCatalog.

Column 5: Visible in Stylesheetⁱⁱ

Values in this column indicate which stylesheets can be used to look at the element's value.

- **G:** element's value can be viewed using the FGDC Geography Network stylesheet.
- **Q:** element's value can be viewed using the FGDC FAQ stylesheet.
- **E:** element's value can be viewed using the FGDC ESRI stylesheet.
- **F:** element's value can be viewed using the FGDC stylesheet.
- **C:** element's value can be viewed using the FGDC Classic stylesheet.
- All elements can be viewed using the XML stylesheet.
- See the footnotes for details about specific elements.

Metadata Content

Esri	Esri			
* Metadata ID	MetaID	S		
Creation Date	CreaDate	S		
Creation Time	CreaTime	S		
Synchronize Once	SyncOnce	S		
Synchronization Date	SyncDate	S		
Synchronization Time	SyncTime	S		
Modification Date	ModDate	S		E
Modification Time	ModTime	S		E
Published Document ID	PublishedDocID			
Publish Status	PublishStatus			
ArcIMS Server	Server	S		
ArcIMS Service	Service	S		
ArcIMS Service Type	ServiceType	S		
ArcIMS Feature Class Type	ServiceFCType	S		
ArcIMS Feature Class Name	ServiceFCName	S		
Data Properties	DataProperties			
Topology Information	topoInfo			
Topology Properties	topoProps			
Topology Name	topoName	S		F
Cluster Tolerance	clusterTol	S		E,F
Maximum Error Count	maxErrors	S		E,F
Topology Rule	topoRule			
Topology Rule ID	topoRuleID	S		E,F
Topology Rule Name	topoRuleName	S		F
Topology Rule Type	topoRuleType	S		E,F
RuleHelp	ruleHelp	S		F
Topology Rule Origin	topoRuleOrigin			
Feature Class Name	fcname	S		E,F
Subtype Code	stcode	S		E,F
Subtype Name	stname	S		E,F
All Origin Subtypes	allOriginSubtypes	S		E,F
Topology Rule Destination	topoRuleDest			
Feature Class Name	fcname	S		E,F
Subtype Code	stcode	S		E,F
Subtype Name	stname	S		E,F
All Destination Subtypes	allDestSubtypes	S		E,F
Synchronize Automatically	Sync		P	
Geocoding Information	RematchLocator			
<i>This information is unavailable at this time.</i>				

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Identification Information	idinfo			
Citation	citation			
Citation Information	citeinfo			
<i>See Citation Information below.</i>		S	Y	G,Q,E,C,F
Description	descript			
Abstract	abstract	H	Y	G,Q,E,C,F
Purpose	purpose	H	Y	G,Q,E,C,F
Supplemental Information	supplinf		Y	G,Q,E,C,F
Language of Dataset	langdata	S	Y	F
Time Period of Content	timeperd			
Time Period Information	timeinfo			
<i>See Time Period Information below.</i>		H ¹	Y	G,E,C,F
Currentness Reference	current	H	Y	Q,E,C,F
Status	status			
Progress	progress	H	Y	G,E,C,F
Maintenance and Update Frequency	update	H	Y	G,E,C,F
Spatial Domain	spdom			
Bounding Coordinates	bounding			
West Bounding Coordinate	westbc	S ²	Y	G,Q,E,C,F
East Bounding Coordinate	eastbc	S ²	Y	G,Q,E,C,F
North Bounding Coordinate	northbc	S ²	Y	G,Q,E,C,F
South Bounding Coordinate	southbc	S ²	Y	G,Q,E,C,F
Local Bounding Coordinates	lboundng			
Top Bounding Coordinate	topbc	S		E,F
Bottom Bounding Coordinate	bottombc	S		E,F
Left Bounding Coordinate	leftbc	S		E,F
Right Bounding Coordinate	rightbc	S		E,F
Minimum Altitude	minalti	S	Y	E,F
Maximum Altitude	maxalti	S	Y	E,F
Altitude Units	altunits		Y	F
Dataset G-Polygon	dsgpoly			
Dataset G-Polygon Outer G-Ring	dsgpolyo			
G-Ring	gring			C,F
G-Ring Point	grngpoin			
G-Ring Latitude	gringlat		Y	C,F
G-Ring Longitude	gringlon		Y	C,F
Dataset G-Polygon Exclusion G-Ring	dsgpolyx			
G-Ring	gring			C,F
G-Ring Point	grngpoin			
G-Ring Latitude	gringlat		Y	C,F
G-Ring Longitude	gringlon		Y	C,F
Data Frames	eframes			
Data Frame Count	framect		Y	F
Data Frame Name	framenam		Y	F

Keywords	keywords			
Theme	theme			
Theme Keyword Thesaurus	themekt	H	Y	C,F
Theme Keyword	themekey	H	Y	G,E,C,F
Place	place			
Place Keyword Thesaurus	placekt		Y	C,F
Place Keyword	placekey		Y	G,E,C,F
Stratum	stratum			
Stratum Keyword Thesaurus	stratkt		Y	C,F
Stratum Keyword	stratkey		Y	E,C,F
Temporal	temporal			
Temporal Keyword Thesaurus	tempkt		Y	C,F
Temporal Keyword	tempkey		Y	E,C,F
Access Constraints	accconst	H	Y	G,Q,E,C,F
Use Constraints	useconst	H	Y	G,Q,E,C,F
Point of Contact	ptcontac			
Contact Information	cntinfo			
<i>See Contact Information below.</i>			Y	Q,C,F
Browse Graphic	browse			
* Browse Graphic Embedded	browseem			E,F
Browse Graphic File Name	browseen		Y	Q,E,C,F
Browse Graphic File Description	browсед		Y	Q,E,C,F
Browse Graphic File Type	browseet		Y	Q,E,C,F
Dataset Credit	datacred		Y	Q,C,F
Security Information	secinfo			
Security Classification System	secsys		Y	C,F
Security Classification	secclass		Y	C,F
Security Handling Description	sechandle		Y	C,F
Native Dataset Environment	native	S	Y	E,C,F
* Native Dataset Format	natvform	S	Y	G,E,F
Cross Reference	crossref			
Citation Information	citeinfo			
<i>See Citation Information below.</i>			Y	C,F
Description of Association	assndesc			F
Data Quality Information	dataqual			
Attribute Accuracy	attracc			
Attribute Accuracy Report	attraccr		Y	Q,C,F
Quantitative Attribute Accuracy Assessment	qattracc			
Attribute Accuracy Value	attraccv		Y	C,F
Attribute Accuracy Explanation	attracce		Y	C,F
Logical Consistency Report	logic		Y	Q,C,F
Completeness Report	complete		Y	Q,C,F

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Positional Accuracy	posacc			
Horizontal Positional Accuracy	horizpa			
Horizontal Positional Accuracy Report	horizpar		Y	Q,E,C,F
Quantitative Horizontal Positional Accuracy Assessment	qhorizpa			
Horizontal Positional Accuracy Value	horizpav		Y	E,C,F
Horizontal Positional Accuracy Explanation	horizpae		Y	E,C,F
Vertical Positional Accuracy	vertacc			
Vertical Positional Accuracy Report	vertaccr		Y	Q,E,C,F
Quantitative Vertical Positional Accuracy Assessment	qvertpa			
Vertical Positional Accuracy Value	vertaccv		Y	E,C,F
Vertical Positional Accuracy Explanation	vertacce		Y	E,C,F
Lineage	lineage			
Source Information	srcinfo			
Source Citation	srccite			
Citation Information	citeinfo			
<i>See Citation Information below.</i>			Y	Q,C,F
Source Scale Denominator	srcscale		Y	G,Q,C,F
Type of Source Media	typesrc		Y	Q,C,F
Source Time Period of Content	srctime			
Time Period Information	timeinfo			
<i>See Time Period Information below.</i>			Y	C,F
Source Currentness Reference	srccurr		Y	C,F
Source Citation Abbreviation	srccitea		Y	C,F
Source Contribution	srctr		Y	Q,C,F
Process Step	procstep			
Process Description	procdesc		Y	Q,C,F
Process Software and Version	procsv		Y	F
Source Used Citation Abbreviation	srcused		Y	Q,C,F
Process Date	procdte		Y	Q,C,F
Process Time	proctime		Y	C,F
Source Produced Citation Abbreviation	srcprod		Y	Q,C,F
Process Contact Information	proccont			
Contact Information	cntinfo			
<i>See Contact Information below.</i>			Y	Q,C,F
Cloud Cover	cloud		Y	C,F
Spatial Data Organization Information	spdoinfo			
Indirect Spatial Reference	indsprdf		Y	Q,C,F
Direct Spatial Reference Method	direct	S	Y	Q,E,C,F

Point and Vector Object Information	ptvctinf			
ESRI Terms Description	esriterm			
ESRI Feature Type	efeatyp	S	N	E,F
ESRI Feature Geometry	efeageom	S		E,F
ESRI Topology	esritopo	S	N	E,F
ESRI Feature Count	efeacnt	S	N	E,F
Spatial Index	spindex	S	N	E,F
Linear Referencing	linrefer	S	N	E,F
Network Role	netwrole	S		E,F
XY Rank	XYRank	S		E,F
Z Rank	ZRank	S		E,F
Topology Weight	topoWeight	S		E,F
Events on Validation	validateEvents	S		E,F
Participates in Topology Rules	partTopoRules			
Topology Rule ID	topoRuleID	S		E,F
Feature Description	featdesc		Y	E,F
SDTS Terms Description	sdtsterm			
SDTS Point and Vector Object Type	sdtstype	S	Y	Q,E,C,F
Point and Vector Object Type Count	ptvctcnt	S	Y	Q,E,C,F
VPF Terms Description	vpfterm			
VPF Topology Level	vpflevel	S	Y	Q,E,C,F
VPF Point and Vector Object Information	vpfinfo			
VPF Point and Vector Object Type	vpftype	S	Y	Q,E,C,F
Point and Vector Object Type Count	ptvctcnt	S	Y	Q,E,C,F
Raster Object Information	rastinfo			
* Image Format	rastifor	S	Y	E,F
Raster Object Type	rasttype	S	Y	Q,C,F
Image Type	rastityp		Y	F
Number of Bands	rastband	S	Y	E,F
Row Count	rowcount	S	Y	Q,E,C,F
Column Count	colcount	S	Y	Q,E,C,F
Vertical Count	vertcount	S	Y	Q,E,C,F
Cell Size X Direction	rastxsz	S	Y	E,F
Cell Size X Units	rastxu		Y	F
Cell Size Y Direction	rastysz	S	Y	E,F
Cell Size Y Units	rastyu		Y	F
Bits Per Pixel	rastbpp	S	Y	E,F
Background Nodata Value	rastnodt		Y	F
Pyramid Layers	rastplyr	S	N	E,F
Image Colormap	rastcmap	S	Y	E,F
Compression Type	rastcomp	S	Y	E,F
Raster Display Type	rastdtyp	S	Y	E,F
Raster Origin	rastorig	S	Y	E,F

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Geometric Network Information	netinfo			
Network Type	nettype	S		E,F
Connectivity Rule	connrule			
Rule Type	ruletype	S		E,F
Rule Category	rulecat	S		E,F
Rule Help	rulehelp	S		E,F
From Edge Feature Class	rulefeid	S		E,F
From Edge Subtype	rulefest	S		E,F
To Edge Feature Class	ruleteid	S		E,F
To Edge Subtype	ruletest	S		E,F
Default Junction Feature Class	ruledjid	S		E,F
Default Junction Subtype	ruledjst	S		E,F
Available Junction	rulejunc			
Available Junction Feature Class	junctid	S		E,F
Available Junction Subtype	junctst	S		E,F
Edge Feature Class	ruleeid	S		E,F
Edge Subtype	ruleest	S		E,F
Edge Minimum Cardinality	ruleemnc	S		E,F
Edge Maximum Cardinality	ruleemxc	S		E,F
Junction Feature Class	rulejid	S		E,F
Junction Subtype	rulejst	S		E,F
Junction Minimum Cardinality	rulejmnc	S		E,F
Junction Maximum Cardinality	rulejmx	S		E,F
Network Element	elemcls			
Ancillary Role	roetype	S		F
Ancillary Role Attribute	rolefld	S		F
Enabled Attribute	enabfld	S		F
Spatial Reference Information	spref			
Horizontal Coordinate System Definition	horizsys			
Coordinate System Name	cordsysn			
Projected Coordinate System Name	projcsn	S	Y	E,F
Geographic Coordinate System Name	geogcsn	S	Y	E,F
Geographic	geograph			G
Latitude Resolution	latres	S	Y	Q,E,C,F
Longitude Resolution	longres	S	Y	Q,E,C,F
Geographic Coordinate Units	geogunit	S	Y	Q,E,C,F
Planar	planar			
Map Projection	mapproj			
Map Projection Name	mapprojn	S	Y	G,Q,E,C,F

Albers Conical Equal Area	albers	S		F
Standard Parallel	stdparll	S	Y	Q,E,C,F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
Latitude of Projection Origin	latprjo	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Azimuthal Equidistant	azimequi	S		F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
Latitude of Projection Origin	latprjo	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Equidistant Conic	equicon	S		F
Standard Parallel	stdparll	S	Y	Q,E,C,F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
Latitude of Projection Origin	latprjo	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Equirectangular	equirect	S		F
Standard Parallel	stdparll	S	Y	Q,E,C,F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
General Vertical Near-Sided Perspective	gvnsp			F
Height of Perspective Point Above Surface	heightpt		Y	Q,E,C,F
Longitude of Projection Center	longpc	S ⁴	Y	Q,E,C,F
Latitude of Projection Center	latprjc	S ⁴	Y	Q,E,C,F
False Easting	feast	S ⁴	Y	Q,E,C,F
False Northing	fnorth	S ⁴	Y	Q,E,C,F
Gnomonic	gnomonic			F
Longitude of Projection Center	longpc	S ⁴	Y	Q,E,C,F
Latitude of Projection Center	latprjc	S ⁴	Y	Q,E,C,F
False Easting	feast	S ⁴	Y	Q,E,C,F
False Northing	fnorth	S ⁴	Y	Q,E,C,F
Lambert Azimuthal Equal Area	lamberta	S		F
Longitude of Projection Center	longpc	S	Y	Q,E,C,F
Latitude of Projection Center	latprjc	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F

Lambert Conformal Conic	lambertc	S		F
Standard Parallel	stdparll	S	Y	Q,E,C,F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
Latitude of Projection Origin	latprjo	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Mercator	mercator	S		F
Standard Parallel	stdparll	S	Y	Q,E,C,F
Scale Factor at Equator	sfequat		Y	Q,E,C,F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Modified Stereographic for Alaska	modsak			F
False Easting	feast		Y	Q,E,C,F
False Northing	fnorth		Y	Q,E,C,F
Miller Cylindrical	miller	S		F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Oblique Mercator	obqmerc	S		F
Scale Factor at Center Line	sfctrln	S	Y	Q,E,C,F
Oblique Line Azimuth	obqlazim			
Azimuthal Angle	azimangl	S	Y	Q,E,C,F
Azimuth Measure Point Longitude	azimptl	S	Y	Q,E,C,F
Oblique Line Point	obqlpt			
Oblique Line Latitude	obqllat	S	Y	Q,E,C,F
Oblique Line Longitude	obqllong	S	Y	Q,E,C,F
Oblique Line Latitude	obqllat	S	Y	Q,E,C,F
Oblique Line Longitude	obqllong	S	Y	Q,E,C,F
Latitude of Projection Origin	latprjo	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Orthographic	orthogr			F
Longitude of Projection Center	longpc	S ⁴	Y	Q,E,C,F
Latitude of Projection Center	latprjc	S ⁴	Y	Q,E,C,F
False Easting	feast	S ⁴	Y	Q,E,C,F
False Northing	fnorth	S ⁴	Y	Q,E,C,F
Polar Stereographic	polarst			F
Straight Vertical Longitude from Pole	svlong		Y	Q,E,C,F
Standard Parallel	stdparll		Y	Q,E,C,F
Scale Factor at Projection Origin	sfprjorg		Y	Q,E,C,F
False Easting	feast		Y	Q,E,C,F
False Northing	fnorth		Y	Q,E,C,F

Polyconic	polycon	S		F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
Latitude of Projection Origin	latprjo	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Robinson	robinson	S		F
Longitude of Projection Center	longpc	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Sinusoidal	sinusoid	S		F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Space Oblique Mercator (Landsat)	spaceobq			F
Landsat Number	landsat		Y	Q,E,C,F
Path Number	pathnum		Y	Q,E,C,F
False Easting	feast		Y	Q,E,C,F
False Northing	fnorth		Y	Q,E,C,F
Stereographic	stereo	S		F
Longitude of Projection Center	longpc	S	Y	Q,E,C,F
Latitude of Projection Center	latprjc	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
Transverse Mercator	transmer	S		F
Scale Factor at Central Meridian	sfctrmer	S	Y	Q,E,C,F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
Latitude of Projection Origin	latprjo	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
van der Grinten	vdgrin	S		F
Longitude of Central Meridian	longcm	S	Y	Q,E,C,F
False Easting	feast	S	Y	Q,E,C,F
False Northing	fnorth	S	Y	Q,E,C,F
* Behrmann	behrmann	S ³		F
Longitude of Central Meridian	longcm	S	Y	E,F
False Easting	feast	S	Y	E,F
False Northing	fnorth	S	Y	E,F
* Bonne	bonne	S ³		F
Standard Parallel	stdparll	S	Y	E,F
Longitude of Central Meridian	longcm	S	Y	E,F
False Easting	feast	S	Y	E,F
False Northing	fnorth	S	Y	E,F

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*	Cassini	cassini	S ³		F
	Scale Factor at Central Meridian	sfctrmer	S	Y	E,F
	Longitude of Central Meridian	longcm	S	Y	E,F
	Latitude of Projection Origin	latprjo	S	Y	E
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Eckert I	eckert1	S ³		F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Eckert II	eckert2	S ³		F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Eckert III	eckert3	S ³		F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Eckert IV	eckert4	S ³		F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Eckert V	eckert5	S ³		F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Eckert VI	eckert6	S ³		F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Gall Stereographic	gallster	S ³		F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Loximuthal	loxmuth	S ³		F
	Longitude of Central Meridian	longcm	S	Y	E,F
	Latitude of Projection Origin	latprjo	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Mollweide	mollweid	S ³		F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F

*	Quartic Authalic	quartic	S ³		F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Winkel I	winkel1	S ³		F
	Standard Parallel	stdparll	S	Y	E,F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Winkel II	winkel	S ³		F
	Standard Parallel	stdparll	S	Y	E,F
	Longitude of Central Meridian	longcm	S	Y	E,F
	False Easting	feast	S	Y	E,F
	False Northing	fnorth	S	Y	E,F
*	Other Projection Definition	otherprj	S ³		F
	<i>Individual map projection parameters. See Appendix C for production rules.</i>		S	Y	Q,E,F
	Map Projection Parameters	mapprojp	S ⁴		F
	<i>Individual map projection parameters. See Appendix C for production rules.</i>		S ⁴		E,F
	Grid Coordinate System	gridsys			
	Grid Coordinate System Name	gridsysn	S	Y	G,Q,E,C,F
	Universal Transverse Mercator (UTM)	utm			
	UTM Zone Number	utmzone	S	Y	Q,E,C,F
	Transverse Mercator	transmerc			
	<i>See Transverse Mercator above</i>		S	Y	Q,E,C,F
	Universal Polar Stereographic (UPS)	ups			
	UPS Zone Identifier	upszone		Y	Q,E,C,F
	Polar Stereographic	polarst			
	<i>See Polar Stereographic above.</i>			Y	Q,E,C,F
	State Plane Coordinate System (SPCS)	spcs			
	SPCS Zone Identifier	spcszone	S	Y	Q,E,C,F
	Lambert Conformal Conic	lambertc			
	<i>See Lambert Conformal Conic above.</i>		S	Y	Q,E,C,F
	Transverse Mercator	transmer			
	<i>See Transverse Mercator above.</i>		S	Y	Q,E,C,F
	Oblique Mercator	obqmerc			
	<i>See Oblique Mercator above.</i>		S	Y	Q,E,C,F
	Polyconic	polycon			
	<i>See Polyconic above.</i>		S	Y	Q,E,C,F

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ARC Coordinate System	arcsys			
ARC System Zone Identifier	arczone		Y	Q,E,C,F
Equirectangular	equirect			
<i>See Equirectangular above.</i>			Y	Q,E,C,F
Azimuthal Equidistant	azimequi			
<i>See Azimuthal Equidistant above.</i>			Y	Q,E,C,F
Other Grid System Definition	othergrd		Y	Q,E,C,F
Local Planar	localp			G
Local Planar Description	localpd		Y	Q,E,C,F
Local Planar Georeference Information	localpgi		Y	Q,E,C,F
Planar Coordinate Information	planci			
Planar Coordinate Encoding Method	plance	S	Y	Q,E,C,F
Coordinate Representation	coordrep			
Abscissa Resolution	absres	S	Y	Q,E,C,F
Ordinate Resolution	orders	S	Y	Q,E,C,F
Distance and Bearing Representation	distbear			
Distance Resolution	distress		Y	Q,E,C,F
Bearing Resolution	bearers		Y	Q,E,C,F
Bearing Units	bearunit		Y	Q,E,C,F
Bearing Reference Direction	bearrefd		Y	Q,E,C,F
Bearing Reference Meridian	bearrefm		Y	Q,E,C,F
Planar Distance Units	plandu	S	Y	Q,E,C,F
Local	local			G
Local Description	localdes		Y	Q,E,C,F
Local Georeference Information	localgeo		Y	Q,E,C,F
Geodetic Model	geodetic			
Horizontal Datum Name	horizdn	S	Y	Q,E,C,F
Ellipsoid Name	ellips	S	Y	Q,E,C,F
Semi-Major Axis	semiaxis	S	Y	Q,E,C,F
Denominator of Flattening Ratio	denflat	S	Y	Q,E,C,F
Vertical Coordinate System Definition	vertdef			
Altitude System Definition	altsys			
Altitude Datum Name	altdatum		Y	Q,E,C,F
Altitude Resolution	alters	S	Y	Q,E,C,F
Altitude Distance Units	altunits		Y	Q,E,C,F
Altitude Encoding Method	altenc	S	Y	Q,E,C,F
Depth System Definition	depthsys			
Depth Datum Name	depthdn		Y	Q,E,C,F
Depth Resolution	depthres		Y	Q,E,C,F
Depth Distance Units	depthdu		Y	Q,E,C,F
Depth Encoding Method	depthen		Y	Q,E,C,F

Entity and Attribute Information	eainfo			
Detailed Description	detail			
Entity Type	enttyp			
Entity Type Label	enttyp1	S	Y	Q,E,C,F
Entity Type Type	enttyp2	S	N	E,F
Entity Type Count	enttyp3	S	N	E,F
Entity Type Definition	enttyp4		Y	Q,E,C,F
Entity Type Definition Source	enttyp5		Y	Q,E,C,F
Attribute	attr			
Attribute Label	attr1	S	Y	Q,E,C,F
Attribute Alias	attr2	S		E,F
Attribute Definition	attr3	S ⁴	Y	Q,E,C,F
Attribute Definition Source	attr4	S ⁴	Y	Q,E,C,F
Attribute Type	attr5	S	N	E,F
Attribute Width	attr6	S	N	E,F
Attribute Precision	attr7	S	N	E,F
Attribute Scale	attr8	S		E,F
Attribute Output Width	attr9	S		E,F
Attribute Number of Decimals	attr10	S		E,F
Attribute Indexed	attr11		N	F
Attribute Domain Values	attrdomv			
Enumerated Domain	edom			
Enumerated Domain Value	edom1		Y	Q,C,F
Enumerated Domain Value Definition	edom2		Y	Q,C,F
Enumerated Domain Value Definition Source	edom3		Y	C,F
Range Domain	rdom			
Range Domain Minimum	rdom1		Y	Q,C,F
Range Domain Maximum	rdom2		Y	Q,C,F
Range Domain Mean	rdom3		Y	F
Range Domain Standard Deviation	rdom4		Y	F
Attribute Units of Measure	attr12		Y	Q,C,F
Attribute Measurement Resolution	attr13		Y	Q,C,F
Codeset Domain	codesetd			
Codeset Domain Name	codeset1		Y	Q,C,F
Codeset Domain Source	codeset2		Y	Q,C,F
Unrepresentable Domain	udom	S ⁴	Y	Q,C,F
Beginning Date of Attribute Values	begdatea		Y	C,F
Ending Date of Attribute Values	enddatea		Y	C,F
Attribute Value Accuracy Information	attrvai			
Attribute Value Accuracy	attrva		Y	C,F
Attribute Value Accuracy Explanation	attrvae		Y	C,F
Attribute Value Measurement Frequency	attrmfrq		Y	Q,C,F

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Subtype Information	subtype			
Subtype Name	stname	S		E,F
Subtype Code	stcode	S		E,F
Subtype Attribute	stfield	S		
Subtype Attribute Name	stfldnm	S		E,F
Subtype Default Value	stflddv	S		E,F
Attribute Defined Domain	stflddd			
Domain Name	domname	S		E,F
Domain Description	domdesc	S		E,F
Domain Owner	domowner	S		E,F
Domain Attribute Type	domfldtp	S		E,F
Domain Type	domtype	S		E,F
Merge Rule	mfgtype	S		E,F
Split Rule	spltttype	S		E,F
Relationship Information	relinfo			
Description of Relationship	reldesc	S		F
Relationship Cardinality	relcard	S		E,F
Attributed Relationship	relattr	S		E,F
Composite Relationship	relcomp	S		E,F
Notification Direction	relnodir	S		E,F
Origin Name	otfcname	S		E,F
Origin Primary Key	otfcpkey	S		E,F
Origin Foreign Key	otfcfkey	S		E,F
Destination Name	dtfcname	S		E,F
Destination Primary Key	dtfcpkey	S		E,F
Destination Foreign Key	dtfcfkey	S		E,F
Relationship Forward Label	relflab	S		E,F
Relationship Backward Label	relblab	S		E,F
Overview Description	overview			
Entity and Attribute Overview	eaover		Y	Q,E,C,F
Entity and Attribute Detail Citation	eadetcit		Y	Q,E,C,F
Distribution Information	distinfo			
Distributor	distrib			
Contact Information	cntinfo			
<i>See Contact Information below.</i>			Y	Q,C,F
Resource Description	resdesc		Y	Q,C,F
Distribution Liability	distliab		Y	Q,C,F
Standard Order Process	stdorder			
Non-Digital Form	nondig		Y	Q,C,F
Digital Form	digform			
Digital Transfer Information	digtinfo			
Format Name	formname	S ³	Y	Q,E,C,F
Format Version Number	formvern		Y	Q,C,F

Format Version Date	formverd		Y	C,F
Format Specification	formspec		Y	Q,C,F
Format Information Content	formcont		Y	Q,C,F
File Decompression Technique	filedec	S ³	Y	E,C,F
Transfer Size	transize	S	Y	Q,E,C,F
Dataset Size	dssize	S	Y	E,F
Digital Transfer Option	digtopt			
Online Option	onlinopt			
Computer Contact Information	computer			
Network Address	networka			
Network Resource Name	networkr	S ³	Y	Q,E,C,F
Dialup Instructions	dialinst			
Lowest BPS	lowbps		Y	C,F
Highest BPS	highbps		Y	C,F
Number DataBits	numdata		Y	C,F
Number StopBits	numstop		Y	C,F
Parity	parity		Y	C,F
Compression Support	compress		Y	C,F
Dialup Telephone	dialtel		Y	E,C,F
Dialup Filename	dialfile		Y	E,C,F
SDE Connection Information	sdeconn			
* Server Name	server	S ³		E,F
* Instance Name	instance	S ³		E,F
* Database Name	database	S ³		E,F
* User Name	user	S ³		E,F
* Version Name	version	S ³		E,F
Access Instructions	accinstr	S ³	Y	E,C,F
Online Computer and Operating System	oncomp		Y	C,F
Offline Option	offoptn			
Offline Media	offmedia		Y	Q,E,C,F
Recording Capacity	recap			
Recording Density	recden		Y	Q,C,F
Recording Density Units	recdenu		Y	Q,C,F
Recording Format	recfmt		Y	Q,C,F
Compatibility Information	compat		Y	Q,C,F
Fees	fees		Y	Q,C,F
Ordering Instructions	ordering		Y	Q,C,F
Turnaround	turnarnd		Y	Q,C,F
Custom Order Process	custom		Y	Q,C,F
Technical Prerequisites	techpreq		Y	Q,C,F

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Available Time Period	availabl			
Time Period Information	timeinfo			
<i>See Time Period Information below.</i>			Y	C,F
Metadata Reference Information	metainfo			
Metadata Date	metd	S	Y	Q,E,C,F
Metadata Review Date	metrd		Y	Q,E,C,F
Metadata Future Review Date	metfrd		Y	Q,E,C,F
Language of Metadata	langmeta	S	Y	F
Metadata Contact	metc			
Contact Information	cntinfo			
<i>See Contact Information below.</i>			H ¹	Y Q,E,C,F
Metadata Standard Name	metstdn	S	Y	Q,E,C,F
Metadata Standard Version	metstdv	S	Y	Q,E,C,F
Metadata Time Convention	mettc	S	Y	E,C,F
Metadata Access Constraints	metac		Y	C,F
Metadata Use Constraints	metuc		Y	C,F
Metadata Security Information	metcsi			
Metadata Security Classification System	metscs		Y	C,F
Metadata Security Classification	metsc		Y	C,F
Metadata Security Handling Description	metshd		Y	C,F
Metadata Extensions	metextns			
Online Linkage	onlink	S	Y	Q,E,C,F
Profile Name	metprof	S	Y	E,C,F
Binary Enclosures	Binary			
Thumbnail	Thumbnail			
Data	Data			E,F
Enclosure	Enclosure			
Description	Descript		P	E,F
Data	Data		P	E ^a ,F

Reusable Metadata Sections

Citation Information	citeinfo			
Originator	origin	H	Y	G,Q,E,C,F
Publication Date	pubdate	H	Y	G,Q,E,C,F
Publication Time	pubtime		Y	E,C,F
Title	title	S	Y	G,Q,E,C,F
File or Table Name	fname	S		E,F
Edition	edition		Y	C,F
Geospatial Data Presentation Form	geoform	S	Y	G,Q ^b ,E,C,F
Series Information	serinfo			
Series Name	sername		Y	Q,E,C,F
Issue Identification	issue		Y	Q,E,C,F

Publication Information	pubinfo				
Publication Place	pubplace		Y	G,Q,E,C,F	
Publisher	publish		Y	Q,E,C,F	
Other Citation Details	othercit		Y	Q,C,F	
* Online Linkage	onlink	S ⁴	Y	Q,E,C,F	
Larger Work Citation	lworkcit				
Citation Information	citeinfo				
<i>See Citation Information.</i>			Y	Q ^c ,C,F	
Time Period Information	timeinfo				
Single Date/Time	sngdate				
Calendar Date	caldate	H ¹	Y	G,Q,E,C,F	
Time of Day	time		Y	E,C,F	
Multiple Dates/Times	mdattim				
Single Date/Time	sngdate				
Calendar Date	caldate		Y	G,Q,E,C,F	
Time of Day	time		Y	E,C,F	
Single Date/Time	sngdate				
Calendar Date	caldate		Y	G,Q,E,C,F	
Time of Day	time		Y	E,C,F	
Range of Dates/Times	rngdates				
Beginning Date	begdate		Y	G,Q,E,C,F	
Beginning Time	begtime		Y	Q,E,C,F	
End Date	enddate		Y	G,Q,E,C,F	
End Time	endtime		Y	Q,E,C,F	
Contact Information	cntinfo				
Contact Person Primary	cntperp				
Contact Person	cntper		Y	Q,E,C,F	
Contact Organization	cntorg		Y	Q,E,C,F	
Contact Organization Primary	cntorgp				
Contact Organization	cntper	H ¹	Y	Q,E,C,F	
Contact Person	cntorg	H ¹	Y	Q,E,C,F	
Contact Position	cntpos		Y	Q,C,F	
Contact Address	cntaddr				
Address Type	addrtype	H	Y	E,C,F	
Address	address		Y	Q,E,C,F	
City	city	H	Y	Q,E,C,F	
State or Province	state	H	Y	Q,E,C,F	
Postal Code	postal	H	Y	Q,E,C,F	
Country	country		Y	Q,E,C,F	
Contact Voice Telephone	cntvoice	H	Y	Q,E,C,F	
Contact TDD/TTY Telephone	cnttdd		Y	C,F	
Contact Facsimile Telephone	cntfax		Y	Q,E,C,F	
Contact Electronic Mail Address	cntemail		Y	Q,E,C,F	
Hours of Service	hours		Y	Q,E,C,F	
Contact Instructions	cntinst		Y	Q,E,C,F	

ⁱ Column 3: Synchronized

1. Hints are added to the metadata for mandatory elements. If there is more than one option for specifying the mandatory element, the hint is placed in one of the options. A different option may be used; if so, the hint should be removed from the element where it was added.
 - The Time Period of Content element must contain date information. One of three options may be used to define the dates. The hint is placed in the Single Date/Time element.
 - The Metadata Contact element must contain either the name of the person or organization to contact. Which one to use depends on whether the person or the organization is the primary contact. The hint is placed in the Contact Organization within the Contact Organization Primary element.
2. Bounding Coordinates are mandatory in FGDC standard. If the bounding coordinates can't be synchronized, either because the coordinate system is undefined or because the item is nonspatial, hints are placed within the elements.
3. The values of these elements were synchronized by ArcCatalog 8, but they are no longer synchronized in version 8.1 or later.
 - SDE Connection Info and Network Resource Name in Distribution Information. This information is now recorded in the Online Linkage element as part of the item's Citation.
 - Digital Transfer Information elements in Distribution Information. When we stopped synchronizing the above elements we also stopped synchronizing the elements Format Name, File Decompression Technique, and Access Instructions.
 - Parameters describing some ESRI-supported projections that are not defined in the FGDC standard were placed into ESRI-defined group elements in version 8, but in versions 8.1 and later these elements are no longer used.
4. The values of these elements are synchronized by ArcCatalog in versions 8.1 and later but were not in version 8.
 - Standard Attribute Definition and Attribute Definition Source will be added for ESRI-defined attribute columns, such as Shape and FID, and coverage columns such as FNODE and <coverage>#.
 - Unrepresentable Domain element is also added for the attributes described above except for <coverage>-ID, which is by definition a user-defined ID column.
 - With versions 8.1 and later, ESRI-supported projections that are not defined in the FGDC standard are described by placing the individual projection parameter elements into the FGDC-defined generic element Map Projection Parameters.
 - At version 8.1 ESRI added support for some FGDC-defined projections; however, with 8.1 and later versions their parameter elements are placed into the Map Projection Parameters element rather than the appropriate specific group element for those projections.

ⁱⁱ Column 5: Visible in Stylesheet

- a. The contents of the Data element within the Enclosure element only appear in the FGDC and FGDC ESRI stylesheets if the enclosure is an image (i.e., if the Image check box was checked when the enclosure was added).
- b. Geospatial Data Presentation Form is shown in the FGDC FAQ stylesheet separately from the rest of the dataset's Citation.
- c. When viewing a Larger Work Citation in the FGDC FAQ stylesheet, the same citation elements will appear for the larger work as for the regular citation. That is, the following elements will not be shown for the larger work: Publication Time, File or Table Name, and Edition. As indicated above, Geospatial Data Presentation Form is not shown as part of the citation in this stylesheet.



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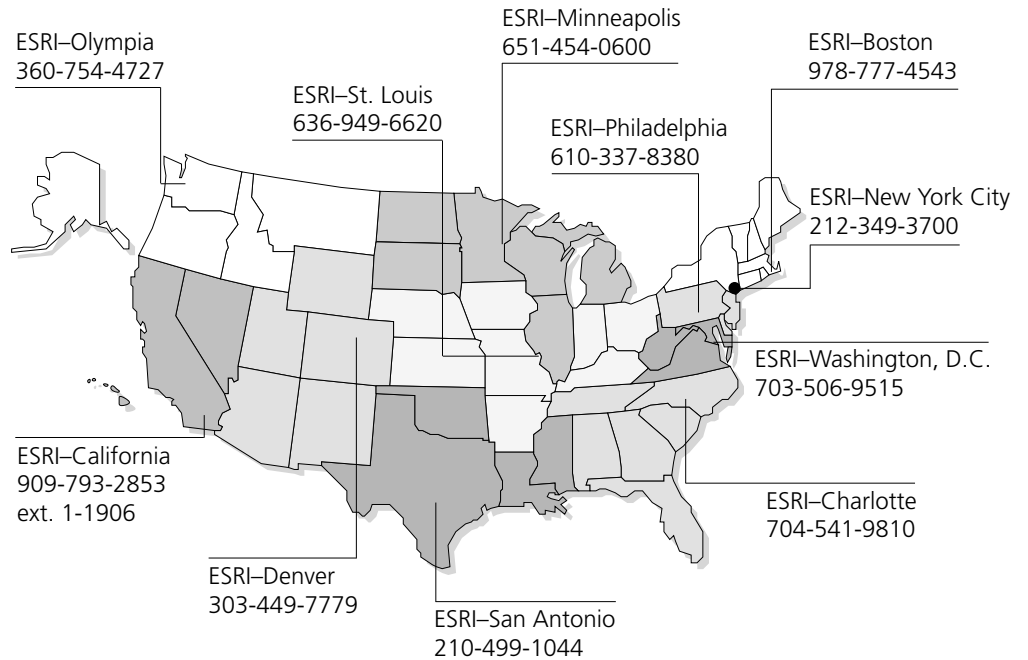
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