

**Forest Service Handbook  
National Headquarters - Washington Office  
Washington, DC**

**Forest Service Handbook 6609.15 – Standards for Data and Data Structures Handbook  
Chapter 40 - Geospatial Metadata Standards**

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**Superseded Document(s):**

**Digest:** Following is an explanation of the changes throughout the directive by section.

**40:** Establishes codes and captions for a new chapter, "Geospatial Metadata Standards."

**40.1:** Cites authorities that require the Forest Service to comply with Federal geospatial metadata standards.

**40.2:** States the objectives for creating, maintaining, and publishing geospatial metadata.

**40.3:** Establishes and describes the policy for creating, maintaining, and publishing geospatial metadata.

**40.4:** Establishes and describes staff responsibilities for geospatial metadata.

**40.5:** Defines terms related to geospatial metadata.

**40.6:** Provides references for more information.

**40.7:** Establishes overall procedures for creating, maintaining and publishing geospatial metadata.

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This chapter sets forth the standards and direction for a Forest Service policy on geospatial metadata.

#### 40.1 - Authority

1. Executive Order 12906, April 13, 1994 (E.O. 12906). This Order calls for the establishment of the National Spatial Data Infrastructure, defined as the technologies, policies, and people necessary to promote sharing of geospatial data throughout all levels of government, private and non-profit sectors, and the academic community.

2. Office of Management and Budget (OMB) Circular A-16, 1990, revised Aug. 19, 2002. This Circular describes the responsibilities of Federal agencies with respect to multipurpose national surveying, mapping, or related spatial data categories.

3. Federal Geographic Data Committee Content Standard for Digital Geospatial Metadata (FGDC-STD-001-1998). The Federal Geographic Data Committee (FGDC) is an interagency committee organized in 1990 under OMB Circular A-16 that promotes the coordinated use, sharing, and dissemination of geospatial data on a national basis. In order to implement Circular A-16, the FGDC determines the content standards for digital geospatial metadata and posts all standards to the *www.fgdc.gov* web site.

4. Title 36, Code of Federal Regulations, section 1228.188. This CFR for electronic records requires the Forest Service to ensure that valuable electronic records are preserved permanently by being transferred to the National Archives and Records Administration (NARA) in accordance with NARA requirements and the Forest Service records disposition schedule. In addition, the CFR requires digital spatial data records include metadata that conforms to the Federal Geographic Data Committee's Content Standards for Digital Geospatial Metadata, as specified in Executive Order 12906, April 11, 1994 (3 CFR, 1995 Comp., p. 882).

#### 40.2 - Objectives

1. Create, maintain, and publish Federal Geographic Data Committee compliant metadata for geospatial data collected, generated, or disseminated by the Forest Service.

2. Provide standards to measure geospatial metadata policy compliance.

#### 40.3 - Policy

The Forest Service geospatial metadata policy is to:

1. Implement Executive Order 12906, which mandates the use of the Federal Geographic Data Committee (FGDC) metadata content standard.

2. Document all geospatial data when personnel collect, generate, or disseminate spatial data.

3. Use the FGDC's comprehensive set of descriptors, known as metadata, for digital spatial data sets. Examples of metadata are data quality descriptions, spatial accuracy, coordinate system definition, a data dictionary, and data lineage.

4. Maintain the web-based Forest Service Geospatial Metadata User's Guide for creating, publishing, and maintaining metadata, documentation requirements, recommended tools, dissemination methods, and links to metadata templates. The User's Guide is published at: <http://fsweb.gsc.wo.fs.fed.us/metadata>

5. Follow procedures outlined in section 40.7 of this handbook.

#### **40.4 - Responsibility**

##### **40.41 - Washington Office**

##### **40.41a - Deputy Chiefs, Institute Director, and the Area Director**

Washington Office Deputy Chiefs, Institute Directors, and the Area Director have the responsibility to:

1. Measure compliance with Forest Service national geospatial metadata policy.
2. Ensure that the geospatial metadata is current in the Forest Service Geospatial Metadata User's Guide.
3. Ensure Federal Geographic Data Committee compliant metadata accompanies geospatial data collected, generated or disseminated within the area of responsibility.

##### **40.41b - The Deputy Area Data Administrator of the Information Resources Management Staff**

The Deputy Area Data Administrator of the Information Resources Management Staff, Washington Office, has the responsibility to:

1. Facilitate the implementation of this policy.
2. Ensure that Forest Service metadata documentation done in support of geospatial activities complies with FGDC standards and policies.
3. Serve as a member of the Forest Service FGDC Coordinating Group.
4. Communicate with Forest Service representatives to all FGDC subcommittees and working groups.
5. Maintain an orderly traceable process for managing proposed changes to the policy or Forest Service Geospatial Metadata User's Guide.
6. Maintain the Forest Service Geospatial Metadata User's Guide.

#### **40.41c - The National Application Development Teams**

The National Application Development Teams, Washington Office, have the responsibility to:

1. Create and maintain tools to extract entity/attribute metadata from the Forest Service corporate application databases.
2. Create and maintain Forest Service National Geographic Information System (GIS) Data Dictionary metadata record templates in coordination with Data Stewards.

#### **40.42 - Regions, Stations, and Forests**

##### **40.42a - Regional Foresters, Station Directors, and Forest Supervisors**

Regional Foresters, Station Directors, and Forest Supervisors have the responsibility to:

1. Provide funding for collection and documentation of FGDC compliant metadata.
2. Monitor the completion of metadata records for the Data Dictionary.

##### **40.42b - Geographic Information System (GIS) Coordinators, Data Stewards, and Data Administrators**

Geographic Information System (GIS) Coordinators, Data Stewards, and Data Administrators who create geospatial datasets have the responsibility to:

1. Ensure that metadata is created and documented for geospatial datasets.
2. Maintain FGDC compliant geospatial metadata in accordance with USDA Forest Service records retention requirements provided in FSH 6209.11 and in the National Archives and Records Administration requirements identified by the FGDC Historical Records Working Group.
3. Publish current metadata on the Forest Service National Standards Database Information Clearinghouse Node, which is registered with the FGDC Secretariat.
4. Create, maintain, and publish metadata using the guidance in the Web-based Forest Service Geospatial Metadata User's Guide.

#### **40.5 - Definitions**

Attribute. A defined characteristic of a geographic feature.

Feature-level metadata. Information that describes when and how each feature was collected. A feature is the spatial representation of the theme within a dataset. Features are usually displayed on computer screens as points, lines, or polygons. For example, a particular stream segment is a line feature within the water theme. An example of feature level metadata

would be the source information used to input a particular road segment and a date when the segment was entered.

Federal Geographic Data Committee (FGDC). An interagency committee, organized in 1990 under OMB Circular A-16 that promotes the coordinated use, sharing, and dissemination of geospatial data on a national basis. The FGDC is composed of representatives from 17 Cabinet-level and independent Federal agencies.

FGDC Clearinghouse. A system developed by FGDC to facilitate geospatial data sharing through one entry point on the Internet. A clearinghouse is a decentralized system of servers, accessible through the Internet, that contain descriptions of available digital spatial data. This descriptive information, known as metadata, is collected in a standard format to facilitate searches and sharing across multiple sites. The FGDC Clearinghouse uses readily available Web technology.

FGDC-Compliant Metadata. Metadata records that are formatted to meet FGDC content standards for digital geospatial metadata and that include the required information.

FGDC Metadata Content Standard. A common set of terminology and definitions for the documentation of geospatial data that is used by all Federal agencies.

Geographic Information System (GIS). An organized collection of computer hardware, software, and geographic data designed to capture, store, update, manipulate, analyze, and display efficiently all forms of geographically referenced information.

Geospatial Data. Information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the earth. This information is typically derived from remote sensing, mapping, or surveying technologies.

Geospatial Dataset. A group of data that represent one or more themes and reside in one place, such as in a coverage, shapefile, or geodatabase. A geospatial dataset usually includes both spatial data and the tabular data that describe the spatial features.

Metadata. “Data about data.” They describe the content, quality, condition, and other characteristics of data. Metadata helps people locate and understand data.

Metadata Record. The complete set of information necessary to describe spatial (map) data and related tabular data for a dataset. Metadata records must use the standardized FGDC format.

National Spatial Data Infrastructure (NSDI). Encompasses policies, standards, and procedures for organizations cooperatively producing and sharing geographic data. The 17 Federal agencies that make up the FGDC develop the NSDI in cooperation with organizations from State, local and tribal governments; the academic community; and the private sector.

National Standard for Spatial Data Accuracy (NSSDA). The standard for determining and documenting the spatial accuracy of features within a dataset. This accuracy estimate is reported in meters with 95 percent confidence.

Process Step. Part of a sequence of actions, defined by FGDC, used to develop and maintain datasets. The process step documents data lineage.

Revision Date. Identifies when a feature was collected or updated. Revision dates may be grouped for a set of features edited together as part of an editing session, and should be accompanied by a description of the revision methods used in a process step of the dataset metadata.

Source. Codes that identify how individual geospatial features were collected (for example, digitized from topographic quads, or collected with the Global Positioning System). Valid codes are defined in the Forest Service Geospatial Metadata User's Guide, and the USFS Cartographic Specifications and Symbols-Metadata Requirements in Guidelines for Digital Base Map Updates.

Spatial Data. Data that records the geographic location and shape of geographic features and their spatial relationships to other features.

Tabular Data. Data entered in tables and formatted in rows and columns.

Views. Subsets of tabular data defined in the Geographic Information System Data Dictionary and originating from national applications.

#### 40.6 - References

1. Executive Order 12906, published in the Federal Register on April 13, 1994, Volume 59, Number 71, pp. 17671-17674. (Web site: <http://www.gpoaccess.gov/fr/index.html>)
2. Office of Management and Budget (OMB) Circular A-16 (Revised), "Coordination of Geographic Information and Related Spatial Data Activities," published on August 19, 2002. (Web site: [http://www.whitehouse.gov/omb/circulars/a016/a016\\_rev.html](http://www.whitehouse.gov/omb/circulars/a016/a016_rev.html))
3. Federal Geographic Data Committee Content Standard for Digital Geospatial Metadata (FGDC-STD-001-1998). (Web site: <http://www.fgdc.gov/metadata/metadata.html>)
4. Forest Service National Spatial Data Infrastructure (NSDI) Clearinghouse Node. (Web site: <http://mapping.usgs.gov/nsdi>)
5. The Forest Service Geospatial Metadata User's Guide. Updated annually (Web site: <http://fsweb.gsc.wo.fs.fed.us/metadata>)
6. Federal Geographic Data Committee home page. (Web site: <http://www.fgdc.gov/>) This site will provide links to information on related topics, such as the National Standard for Spatial Data Accuracy (NSSDA).
7. Forest Service, Geometronics Service Center, Guidelines for Digital Base Map Updates, Publication EM-7140-24.

## 40.7 - Procedures

The following procedures are required:

1. Document, publish, and maintain FGDC compliant metadata records for geospatial datasets that meet any of the following criteria and are:
  - a. Listed in the Forest Service National Geographic Information System (GIS) Data Dictionary;
  - b. Used for Freedom of Information Act (FOIA) purposes;
  - c. Published or shared outside the agency;
  - d. Used for published analyses.
2. Conform the Forest Service metadata records to the national standards established by other agencies.
3. Publish and maintain FGDC compliant metadata records for Forest Service geospatial datasets on the National Spatial Data Infrastructure Clearinghouse Node (<http://mapping.usgs.gov/nsdi>), which is registered with the FGDC Secretariat. The exception is that metadata will not be published for any restricted data due to legal or security reasons.
4. Document and maintain feature-level metadata in a standard format. Mandatory attributes include: Source and revision date. The optional attribute is statistical accuracy (National Standard for Spatial Data Accuracy (NSSDA)). Place metadata describing an individual feature into a part of the attribute file of the dataset and tie it to the FGDC metadata record through a process step. Relate the revision dates on features to appropriate process steps that describe the revision processes.
5. Describe any tabular data joined or linked to spatial datasets for distribution under the entity attribute section of the spatial metadata record. As a minimum, this includes documentation for all attributes listed in the views in the data dictionary.
6. Archive and/or dispose of FGDC compliant geospatial metadata in accordance with USDA Forest Service records retention and disposal requirements and schedules listed in FSH 6209.11 and with direction issued by the FGDC Historical Records Working Group of the National Archives and Records Administration.