

EPA Classification No.: CIO 2131-P-01-0	CIO Approval Date: 10/25/07
CIO Transmittal No.: 08-004	Review Date: 10/2010

*Issued by the EPA Chief Information Officer,
Pursuant to Delegation 1-19, dated 07/07/2005*

National Geospatial Data Policy Procedure for Geospatial Metadata Management

1. PURPOSE

The purpose of the Procedure for Geospatial Metadata Management is to establish procedures, requirements and responsibilities to implement a data life cycle, as defined in the National Geospatial Data Policy (NGDP), for all geospatial metadata used by federal environmental programs and projects within the jurisdiction of the U.S. Environmental Protection Agency (EPA).

2. SCOPE AND APPLICABILITY

This procedure implements the requirements of the NGDP for managing geospatial metadata for all of EPA's geospatial data. This Procedure applies to all EPA organizations and personnel or agents (including contractors and grantees) of EPA, who design, develop (directly or indirectly), compile, operate, or maintain EPA's geospatial information developed to support Agency program and administrative operations.

3. AUDIENCE

Primary Audience

The primary audience for this document includes the Geographic Information System (GIS) Workgroup, Geospatial Data Stewards, Geospatial Data Owners and users, developers and managers of major geospatial investments, and any person involved in geospatial operations in EPA programs, or transferring or exchanging geospatial data with EPA programs, including contractors and grantees operating on behalf of EPA.

Secondary Audience

Secondary users of this document include the Geospatial Information Officer (GIO), Senior Information Officers (SIOs), Information Management Officers (IMOs), Regional Administrators, senior program managers, senior research managers and other officials responsible for oversight of EPA programs that use geospatial data.

4. BACKGROUND

1. The growing challenge to achieve EPA's mission to protect human health and the environment has increased the need for improvements in cross-programmatic, multimedia data analyses. Geospatial data provide EPA with the capacity to spatially locate, identify, and assess aspects of the environment critical to program operations. Conformant geospatial data will capitalize on EPA's sizable investment in environmental data collection by improving the utility of these data sets for a variety of secondary uses.

EPA Classification No.: CIO 2131-P-01-0	CIO Approval Date: 10/25/07
CIO Transmittal No.: 08-004	Review Date: 10/2010

2. EPA is committed to implementing the National Geospatial Data Policy in accordance with the requirements specified by the National Spatial Data Infrastructure (NSDI) and by Federal Geographic Data Committee (FGDC) guidelines and data standards.
 3. EPA is required by Executive Order 12906 and Circular A-16 to document geospatial metadata using the Federal Geographic Data Committee's (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM). EPA contributes geospatial metadata to the National Spatial Data Infrastructure to promote increased data reuse and reduced data duplication across the federal government.
 4. EPA and the Environmental Council of States (ECOS) created the Environmental Data Standards Council (EDSC) to promote improvements in data quality, data exchange and data integration. The EDSC is the data standards setting arm of ECOS, working in conjunction with EPA to develop data standards (e.g., latitude/longitude standard) for use by the Agency and information exchange partners, including but not limited to, States and Tribes.
 5. The principles of EPA's Enterprise Architecture require that all data, including geospatial data, be collected, acquired, processed, documented, stored, accessed, maintained, and retired through the use of complete, consistent, and integrated metadata.
 6. The Office of Environmental Information (OEI) is committed to the effective use of geospatial data. This is reflected in the Agency's Geospatial Blueprint, target Enterprise Architecture, the Framework for Business Warehouses, the System of Registries, and the EPA Portal.
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5. AUTHORITY

1. National Geospatial Data Policy, EPA Order 2121.
2. Executive Order 12906, *National Spatial Data Infrastructure*, April 13, 1994, Federal Register, Volume 59, Number 71, pp. 17671 – 17674.
3. Office of Management and Budget (OMB) Circular A-16, *Coordination of Geographic Information and Related Spatial Data Activities*, August 19, 2002.
4. OMB Circular A-119, *Federal participation in the Development and Use of Voluntary Standards*.
5. OMB, *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies*, October 1, 2001.
6. The Freedom of Information Act (FOIA). Title 5 of the US Code, Section 552 (a) (2) (B) includes those statements of policy and interpretation which have been adopted by the agency and are not published in the Federal Register.
7. Federal Information Security Management Act of 2002, P.L. 107-347.
8. OMB circular A-130, "*Management of Federal Information Resources*" Appendix III, Revised Nov. 30, 2000, Transmittal Memorandum No. 4
9. National Technology Transfer and Advancement Act (NTTAA) of 1995

Links to these references can be found at <http://geodata.epa.gov/policies.html>

6. PROCEDURES

6.1 Data Planning Phase

6.1.1 Preliminary Data Documentation and Search

This section applies to new data needs only, not to ongoing collection efforts on behalf of established program geospatial data collection by EPA or partners.

6.1.1.1 Preliminary Search for Existing Data

EPA Classification No.: CIO 2131-P-01-0	CIO Approval Date: 10/25/07
CIO Transmittal No.: 08-004	Review Date: 10/2010

1. Assess data needs and document metadata using the EPA Geospatial Metadata Technical Specification to the extent possible at this phase.
2. Geospatial Data Stewards must search the EPA GeoData Gateway (GDG) (<http://geogateway.epa.gov/Portal>) and other data sources (e.g., state partner catalogs, Geospatial One Stop (GOS), or other consolidated clearinghouses), as applicable, to determine whether sufficient data already exist.
3. When an acquirable data set is found during preliminary search and acquisition costs exceed \$5,000, or if an existing data set is not found and collection efforts exceed \$5,000, then Geospatial Data Stewards must post a planned data acquisition to the GDG Marketplace. If data collection or acquisition costs are less than \$5,000, the posting to the GDG Marketplace is optional but its use is encouraged.

6.1.1.2 Creating and Posting GeoData Gateway Marketplace Records

1. Geospatial Data Stewards are responsible for creating GDG Marketplace Records compliant with specifications outlined within the EPA Geospatial Metadata Technical Specification.
2. GDG Marketplace Records must be posted for a minimum of 30 calendar days prior to acquiring or collecting data. Detailed procedures for posting a metadata record to the EPA GeoData Gateway Marketplace are provided at the EPA GeoData Gateway website (<http://geogateway.epa.gov/Portal>). In cases of national emergency or natural disaster, a decision of whether to post to the market place for any amount of time is left to the discretion of the Geospatial Data Steward.
3. Geospatial Data Stewards and/or Geospatial Data Owners are responsible for determining the most cost effective solution to meet their defined needs.
4. Geospatial Data Stewards are responsible for either removing the GeoData Gateway Marketplace record or updating its status when appropriate data is acquired or collected.

6.2 Data Collection and Acquisition Phase

6.2.1 Documentation of Metadata for Acquired Data Sets

This section applies to metadata records for geospatial data sets from external sources that are required to meet the requirements of the EPA Metadata Technical Specification.

1. Acquire available metadata for the data set. Geospatial Data Stewards are responsible for ensuring metadata supplied by the data provider fulfills the minimum requirements of the EPA Metadata Technical Specification.
2. If applicable metadata elements cannot be supplied by the data provider, Geospatial Data Stewards are responsible for determining whether or not the data, and metadata, is suitable for serving program needs.
3. Geospatial Data Stewards must create or update the metadata record for the acquired data set to meet the minimum requirements of the EPA Metadata Technical Specification in the collection and acquisition phase.
4. Geospatial Data Stewards must determine and document the sensitivity of the data based on the EPA Information Security Manual, EPA NHSRC Center-Wide Classification Guide, and/or NIST FIPS 199 Standards for Security Categorization of Federal Information and Information Systems.

6.2.2 Documentation of Metadata for Pre-existing EPA Data Collection Efforts

This section applies to all geospatial data collected by EPA headquarters, regional office, laboratory staff, contractors, and partners supported by EPA funding.

1. For data contributing to a pre-existing data set, update the existing metadata record to include additional information required by the EPA Technical Specification during the data

EPA Classification No.: CIO 2131-P-01-0	CIO Approval Date: 10/25/07
CIO Transmittal No.: 08-004	Review Date: 10/2010

acquisition and collection phase or as appropriate to the record management schedule.

2. For pre-existing data sets where there is existing FGDC compliant metadata and no changes to the dataset, the existing metadata record should be updated to the EPA Technical Specification in accordance with the record management schedule, or the future review date specified in that metadata record.

6.3 Data Processing and Final Documentation Phase

6.3.1 Updating of Metadata Records to Reflect Processing

This section applies to all geodata that has been through any type of geoprocessing, conversion, or other manipulation. Geospatial Data Stewards are responsible for updating the metadata record to reflect processing steps.

1. Some data processing information is captured automatically when editing using GIS products (e.g., re-projecting data sets). Additional processing information, not captured automatically in the GIS environment, must be manually entered in the metadata record by Geospatial Data Stewards. Refer to the EPA Geospatial Metadata Technical Specification for data processing metadata requirements.

6.4 Data Storage and Access Phase

6.4.1 Harvesting or Upload of Metadata to the GeoData Gateway

This section applies to the posting of a complete metadata record on the GeoData Gateway, either by automated harvesting or by manual posting.

1. Geospatial Data Stewards must update or add information about the data storage location within the metadata record.
2. Geospatial Data Stewards must refer to the EPA Geospatial Metadata Technical Specification for data storage and access requirements.
3. Geospatial Data Stewards must validate the metadata record according to specifications outlined within the EPA GeoData Gateway (<http://geogateway.epa.gov/Portal>).
4. Geospatial Data Stewards are responsible for becoming publishers to the GeoData Gateway and publishing metadata using the mechanism implemented by their offices (e.g., direct upload or harvesting).
5. The EPA GeoData Gateway Administrator is responsible for activating metadata records in the GeoData Gateway within 3 days of submission.
6. Geospatial Data Stewards must ensure that information is successfully posted to the GeoData Gateway and review the status of the submitted record. Additional information regarding publishing and managing information within the GeoData Gateway is available at <http://geogateway.epa.gov/Portal>.

6.5 Data Maintenance and Data Retirement Phase

This section applies to all EPA organizations and personnel or agents of EPA, who design, develop, compile, operate, or maintain EPA's geospatial information developed to support Agency program and administrative operations.

6.5.1 Metadata Maintenance

Maintenance responsibility for geospatial data, and associated metadata, falls on the Geospatial Data owner or Geospatial Data Steward of the program office or division that originally collected the data. Maintenance of the data is solely their responsibility. This will ensure that data is up-to-date and as accurate as possible. All geospatial data sets, and associated metadata, must be developed in accordance with the NGDP data life cycle and have a regular maintenance schedule implemented and recorded in the procedures of the

EPA Classification No.: CIO 2131-P-01-0	CIO Approval Date: 10/25/07
CIO Transmittal No.: 08-004	Review Date: 10/2010

project/program.

6.5.2 Geospatial Metadata and Records

Geospatial data, and associated metadata, is an Agency record if it is created or received in the course of doing EPA business, and it provides evidence of the Agency's actions, programs, operations and other activities. The Geospatial Data owner or Geospatial Data Steward in the program or office sponsoring the data is responsible for maintenance and disposition of records in accordance with applicable Agency records schedules. They must ensure that records designated as "permanent" are transferred to the National Archives as directed in the schedules and in accordance with National Archives and Records Administration (NARA) guidance on transferring geospatial data records, and that records designated as "temporary" are destroyed in accordance with NARA guidance and regulations. All records management activities must be done in coordination with the Agency records liaison officers.

6.5.3 Metadata Retirement / Disposition

The Geospatial Data owner or Geospatial Data Steward must dispose of Geospatial data and associated metadata, identified as an Agency record and no longer required for conducting Agency business, in accordance with the Agency's records management policies and procedures. This includes closing the records when they become inactive, storing them on- or off-site for the length of time mandated in the applicable records schedule, and destroying temporary records and transferring permanent records to the National Archives.

7. RELATED DOCUMENTS

1. EPA *Geospatial Metadata Technical Specification*, Version 1.0, January, 2, 2007
2. Federal Geographic Data Committee Standard (FGDC-STD) 001-1998, *Content Standard for Digital Geospatial Metadata*, Federal Geographic Data Committee, June 1998.
3. FGDC-STD-007.1-1998, *Geospatial Positioning Accuracy Standards Part 1: Reporting Methodology*, Federal Geographic Data Committee, 1998.
4. EPA Data Standard, *Business Rules for Latitude/Longitude Data Standard*, November 2000.
5. EPA Guidance, *National Geospatial Data Policy Implementation Guidance*, Office of Environmental Information. March. 2007.
6. EPA *System Life Cycle Development Policy*, Office of Technology Operations and Policy (OTOP), July, 2005.
7. Draft - EPA *Guidance for Geospatial Data Quality Assurance Plans*, EPA QA/G-5g, December 2000.
8. EPA *Enterprise Architecture Geospatial Baseline Architecture*.
9. EPA *Enterprise Architecture Geospatial Blueprint*.

Links to these references can be found at <http://geodata.epa.gov/policies.html>

8. ROLES AND RESPONSIBILITIES

This section details the roles and responsibilities of EPA officials, staff positions, committees, and workgroups with respect to geospatial metadata management..

8.1 Chief Information Officer (CIO)

1. The CIO approves the Procedure for Geospatial Metadata Management and all subsequent
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EPA Classification No.: CIO 2131-P-01-0	CIO Approval Date: 10/25/07
CIO Transmittal No.: 08-004	Review Date: 10/2010

updates or revisions.

8.2 Geospatial Information Officer (GIO)

The GIO is the chair of the EPA GIS Workgroup Steering Committee and has the following responsibilities with respect to geospatial metadata management:

1. Approve standard operating procedures for metadata management on the EPA GeoData Gateway as developed by the GIS Workgroup.
2. Prepare necessary reports, decision papers, and documentation on EPA geospatial metadata management for the review of the CIO.
3. Recommend the Procedure for Geospatial Metadata Management and all subsequent updates or revisions for approval by the CIO.
4. Ensure the operation of the EPA GeoData Gateway and the GeoData Gateway Marketplace.
5. Appoint the GeoData Gateway Coordinator.

8.3 EPA GIS Workgroup Steering Committee

The GIS Workgroup Steering Committee includes representatives appointed by EPA programs, regional offices, and laboratories. Committee responsibilities for managing geospatial metadata include:

1. Recommend the Procedure for Metadata Management and the EPA Geospatial Metadata Technical Specification to the GIO.
2. Recommend suitable standard operating procedures for the operation of EPA GeoData Gateway regarding management of geospatial metadata to the GIO.

8.4 Geospatial Metadata Coordinator

The Geospatial Metadata Coordinator is responsible for managing EPA's central geospatial metadata catalog and providing coordination between EPA and inter-Agency data sharing initiatives (National Spatial Data Infrastructure and Geospatial One Stop (GOS)). Geospatial Metadata Coordinator responsibilities for managing Agency geospatial metadata include:

1. Maintain EPA's node on the National Spatial Data Infrastructure (NSDI).
2. Manage EPA's contributions to Geospatial One Stop (GOS).
3. Prepare necessary reports or papers on EPA's contribution to inter-Agency data sharing efforts for submission to the Office of Management and Budget (OMB) or others, as needed.

8.5 Geospatial Data Stewards

Geospatial Data Stewards are appointed by program offices, regional offices, or laboratories. Every geospatial data asset, and all digital geospatial information collected by EPA for inclusion in Agency databases, must be under the control of a Geospatial Data Steward whose identity must be referenced in the metadata record for that database or geospatial data asset. Geospatial Data Stewards responsibilities for managing Agency geospatial metadata include:

1. Research the existence and availability of suitable data and post notices of intent to acquire or collect geospatial data on the EPA GeoData Gateway in the planning stages of geospatial data acquisition or collection.
 2. Provide guidance, support, coordination, review, and public release of geospatial metadata for their organization related to ongoing program geographic data collection activities for business activities such as permitting, ambient monitoring, source monitoring, or pollution dispersion or migration modeling. This includes local determinations of data sets for
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EPA Classification No.: CIO 2131-P-01-0	CIO Approval Date: 10/25/07
CIO Transmittal No.: 08-004	Review Date: 10/2010

contribution, overseeing metadata creation, overseeing data updates, and reporting to central Geospatial Data Stewards, if such stewards exist for a particular data asset.

3. Ensure FIPS 199 categorizations are accurately reflected in the metadata record

8.5.1 Governance

1. Participate in the development and maintenance of relevant program, regional office, laboratory, or national geospatial metadata management procedures as appropriate.
2. Ensure certifications of metadata compliance with the NGDP as required by this procedure or by relevant program, regional office, or laboratory geospatial data procedures.

8.5.2 Enterprise Architecture

1. Work with Geospatial Data Owners to plan the life cycle of geospatial metadata in compliance with EPA enterprise architecture requirements, including collection or acquisition requirements; management of data flows among EPA and its partners and contractors; and metadata processing, storage, access, maintenance, and retirement/archiving.
2. Oversee the implementation of such plans throughout the life cycle of the metadata of the geospatial data asset.

8.5.3 EPA Partnerships and Contractor Outreach

1. Provide outreach, support, and technical assistance as appropriate to ensure the proper implementation of metadata requirements over the life cycle of the data asset.

8.6 Geospatial Data Owners

Geospatial Data Owners include representatives from EPA program offices, regional offices, or laboratories that collect geospatial information as part of ongoing program operations or that acquire geospatial information from third parties for internal business uses. Owners of geospatial data assets have responsibility for the business use of these assets and shall ensure necessary funding for its management and upkeep, including provision for the management of geospatial metadata in compliance with this procedure. Geospatial Data Owners shall also appoint technical staff as appropriate to work with Geospatial Data Stewards to execute the enterprise architecture responsibilities of Geospatial Data Stewards.

8.7 EPA GeoData Gateway Administrator

The GeoData Gateway Administrator responsibilities for managing geospatial metadata include:

1. Grant roles and responsibilities to all users of the GDG.
2. Activate Metadata records posted to the GDG within 3 days.
3. Provide technical support for GDG system administration and geospatial data harvesting.

9. DEFINITIONS

Terms

1. **EPA GeoData Gateway (GDG):** The GDG is EPA's tool for managing, searching and accessing Agency geospatial metadata on existing and planned geospatial resources.
2. **EPA GDG Marketplace:** The GDG Marketplace is a component of the GDG Gateway used to search and access Agency geospatial metadata on planned geospatial resources.
3. **Geo Data Harvesting:** Harvesting is a means of collecting metadata from geospatial data repositories using machine to machine communication protocols. Metadata documents describing

EPA Classification No.: CIO 2131-P-01-0	CIO Approval Date: 10/25/07
CIO Transmittal No.: 08-004	Review Date: 10/2010

geospatial resources are collected from participating organizations and copies of them are stored and indexed in a central location (GDG).

4. **EPA Geospatial Metadata Technical Specification:** The technical specification establishes requirements for publishing geospatial metadata for data sets, applications, and services developed by the Environmental Protection Agency (EPA).
5. **National Spatial Data Infrastructure (NSDI):** Established under Executive Order 12906, the NSDI includes the technologies, policies, and people necessary to promote sharing of geospatial data throughout all levels of government, the private and non-profit sectors, and the academic community.
6. **Geospatial One Stop (GOS):** GOS is a federal E-Gov initiative, begun in 2002, to develop a data exchange standard and models for geospatial data; create an interactive index and access to geospatial data held by the Federal Government and non-Federal organizations through a web portal; and encourage greater interaction between and among Federal, state, and local agencies plus academia and the private sector.

Acronyms

FGDC	Federal Geographic Data Committee.
GDG	GeoData Gateway
GDI	Geospatial Data Index
GIO	Geospatial Information Officer
GIS	Geographic Information System
GOS	Geospatial One-Stop
NGDP	National Geospatial Data Policy
NSDI	National Spatial Data Infrastructure
SIO	Senior Information Officer

10. WAIVERS

1. **Waiver Process.** The Agency's CIO may grant waivers to selected provisions of this Procedure for sufficient cause. The CIO may re-delegate this authority.
2. **Applications.** Applications for waivers to specific provisions shall contain (1) identification of the Procedure provision; (2) a listing of reasons why the Procedure can not be applied or maintained; (3) an assessment of the impacts resulting from non-compliance; and (4) the signature of AA, RA, or Laboratory Director responsible for the spatial data collection in question.
3. **Notification.** The CIO will notify the requesting office in writing of the disposition of the waiver within 60 days of receipt.

11. RELATED POLICIES, STANDARDS AND GUIDANCE

1. EPA *National Geospatial Data Policy Implementation Guidelines*. 2007.
 2. EPA National Homeland Security Research Center (NHSRC), (Draft) *Center-Wide Classification Guide*. December 2004.
 3. Federal Geographic Data Committee (FGDC) Content Standard for Digital Geographic Metadata, 2002
 4. NIST Federal Information Processing Standard (FIPS) Publication 199, *Standards for Security Categorization of Federal Information and Information Systems*, 2004.
- Links to these references can be found at <http://geodata.epa.gov/policies.html>

EPA Classification No.: CIO 2131-P-01-0	CIO Approval Date: 10/25/07
CIO Transmittal No.: 08-004	Review Date: 10/2010

12. ADDITIONAL INFORMATION

For further information about this Procedure, please contact the EPA Office of Environmental Information, Office of Information Collection.



*Molly A. O'Neil, Assistant Administrator
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