
Enterprise Information Management (EIM) Minimum Metadata Standards

Directive No: CIO 2135-S-01.1	CIO Approval: August 2019	Review Date: August 2021
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*Issued by the EPA Chief Information Officer,
Pursuant to Delegation 1-19, dated 07/07/2005*

Enterprise Information Management (EIM) Minimum Metadata Standards

1. PURPOSE

To define a consistent set of required and recommended metadata elements for information produced by, funded by, or received per regulated reporting and/or federal-wide requirements and subsequently held or cataloged in information management systems by the U.S. Environmental Protection Agency (EPA or the Agency).

2. SCOPE

These standards apply to:

- Information, regardless of the format, produced by, funded by, or received per regulated reporting and/or federal-wide requirements and subsequently held or cataloged in information management systems by EPA. This includes, but is not limited to, research, programmatic, operational, and administrative information.
- (1) All EPA organizations, officials, and employees engaged in official EPA business, including but not limited to those EPA employees who administer EPA contracts or extramural funding agreements (e.g., grants) and (2) individuals or non-EPA organizations who design, develop, compile or maintain information, as defined by this policy, in support of EPA's mission if they use Agency resources and if the requirements set forth in section 6 of this policy are part of a binding contract, other funding agreement, or regulated reporting or federal-wide requirements.

They constitute the minimum required and recommended metadata standards, and may be extended by a program or community of practice agreement to comply with Agency, federal or international requirements. A list of current extended standards is included in Section 11.

3. AUDIENCE

The audience for this policy includes all EPA organizations, officials, employees and individuals or non-EPA organizations, if applicable, who create or manage information that supports the Agency's mission.

4. BACKGROUND

Metadata are descriptive facts about information, whether they are physical or electronic. Metadata standards are a key component of the information lifecycle, and are intended to:

- Improve knowledge management and information finding and sharing capabilities
- Maximize the value of EPA information

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- Increase the efficiency and efficacy of EPA's information management effort
- Minimize cost to the Agency
- Provide information consumers sufficient context to process and understand the described information
- Augment existing Agency information standards

The metadata standards underscore the importance of a consistent set of metadata elements for effective and accurate classification, retrieval, management and use of information. Metadata standards improve the quality and interoperability of environmental information across information technology platforms by increasing compatibility, improving the consistency and efficiency of information collection, and reducing redundancy.

The standards represent a minimum or baseline set of required and recommended metadata elements for all information created or funded by the Agency, and may be extended, as appropriate, to meet legal and business needs in different information domains (e.g., data, content, Web).

5. AUTHORITY

- [CIO Procedure 2135.0](#), "Enterprise Information Management Policy (EIMP)," March 3, 2015
- [OMB Circular A-130](#), "Managing Information as a Strategic Resource," July 26, 2016
- [OMB Circular A-119 Revised](#), "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities," February 10, 1998
- [Clinger-Cohen Act](#) (Information Technology Management Reform Act) of 1996, Public Law 104-106, Division E, February 10, 1996
- [Paperwork Reduction Act of 1980](#), as amended by the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35)
- [Government Paperwork Elimination Act of 1998](#) (Pub. L. 105-277, Title XVII)
- [Executive Order 13642](#), "Making Open and Machine Readable the New Default for Government Information," May 9, 2013
- [OMB Memorandum M-13-13](#), "Open Data Policy - Managing Information as an Asset," May 9, 2013
- Open, Public, Electronic, and Necessary (OPEN) Government Data Act, included as Title II of the Foundations for Evidence-Based Policymaking Act ([H.R. 4174](#)), Public Law No: 115-435, January 14, 2019.

6. STANDARD

EPA organizations, employees, and individuals or non-EPA organizations, if applicable, are directed to:

- Use these standards to manage information in Agency registries and repositories
- Incorporate the standards into all registry and repository development and maintenance efforts

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The following table identifies the metadata elements, definitions and usage notes in two categories: “mandatory” and “recommended.”

EIM Minimum Metadata Elements, Mandatory¹

Element	Definition	Usage Notes
Title	A name given to the resource.	Typically, the name by which the resource is formally known. Recommended best practices: <ul style="list-style-type: none"> • For documents with official titles, use the complete, official document title in the title field • Titles should be understandable without any other context and include sufficient detail to facilitate search and discovery • A well-designed title can help users differentiate this resource from other similar resources • Avoid acronyms and jargon
Creator	An entity primarily responsible for making the resource.	Typically, the primary author. Examples include: Author, From (memo or email), Originator, System Owner and Project Manager.
Publisher	An entity responsible for making the resource available.	Typically, the EPA organization of the primary author. Recommended best practice: <ul style="list-style-type: none"> • Include full path of the organization chain (e.g., EPA-OMS-EI-OIM-IESD-ISSB)
Date [and Date Type]	A point or period of time associated with an event in the lifecycle of the resource.	Typically, the date types are created, issued, modified, last updated or reviewed. Recommended best practices: <ul style="list-style-type: none"> • Where applicable, date formats must comply with EPA’s “Representation of Date and Time Data Standard” • Use an encoding scheme, such as the W3CDTF profile of ISO 8601 • Date format YYYY-MM-DD (e.g., 1997-07-16).

¹ These standards include elements defined in the [Dublin Core Metadata Element Set](#) (International Organization for Standardization (ISO) 15836:2009) (requires login) and Agency-defined elements (Retention, Sensitivity and Location). [Library Guide - UC Santa Cruz](#).

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Element	Definition	Usage Notes
Retention	The records disposition authority of the resource.	The applicable EPA records schedule. Requirement: <ul style="list-style-type: none"> Agency records must be assigned to the appropriate EPA records schedules Agency non-records must be designated as such
Sensitivity	The confidentiality or access restriction of the resource.	The applicable EPA sensitivity designation. Requirement: <ul style="list-style-type: none"> Agency sensitive resources must be assigned to the appropriate EPA sensitivity designation Agency non-sensitive resources must be designated as such

EIM Minimum Metadata Elements, Recommended

Element	Definition	Usage Notes
Location	The physical or virtual location of the resource.	Examples include: file room, Uniform Resource Identifier (URI).
Contributor	An entity responsible for making contributions to the resource.	Typically, the secondary author(s).
Coverage	The spatial and/or temporal topic of the resource, the spatial applicability of the resource, or the jurisdiction under which the resource is relevant.	Spatial topic and spatial applicability may be a named place or a location specified by its geographic coordinates. Temporal topic may be a named period, date, or date range. A jurisdiction may be a named administrative entity or a geographic place to which the resource applies. Recommended best practices: <ul style="list-style-type: none"> Use a controlled vocabulary such as the Geographic Names Information System (GNIS) Where appropriate, named places or time periods can be used in preference to numeric identifiers such as sets of coordinates or date ranges

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Element	Definition	Usage Notes
Description	An account of the resource.	<p>Examples include: summary, synopsis and abstract.</p> <p>Recommended best practices:</p> <ul style="list-style-type: none"> • Provide sufficient detail to enable users to quickly understand whether the asset is of interest • Be specific to your topic, highlight key concepts or issues • Provide context, geographic coverage, purpose for the resource • Address limitations to use of the resource
Format	The file format, physical medium, or dimensions of the resource.	<p>Examples of file format include: XML, PDF. Examples of dimensions include: size, duration.</p> <p>Recommended best practice:</p> <ul style="list-style-type: none"> • Use a controlled vocabulary such as the list of Internet Media Types (e.g., MIME)
Identifier	An unambiguous reference to the resource within a given context.	<p>Examples include: facility identifier, social security number, box number, unique identifier and permit number.</p> <p>Recommended best practice:</p> <ul style="list-style-type: none"> • Identify the resource by means of a string conforming to a formal identification system
Language	A language of the resource.	<p>Examples include: English, Spanish.</p> <p>Recommended best practice:</p> <ul style="list-style-type: none"> • Use a controlled vocabulary such as RFC 5646
Relation	A related resource.	<p>Examples include: attachments, appendices.</p> <p>Recommended best practice:</p> <ul style="list-style-type: none"> • Identify the related resource by means of a string conforming to a formal identification system
Rights	Information about rights held in and over the resource.	Examples include: copyright, patent, license.

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Element	Definition	Usage Notes
Source	A related resource from which the described resource is derived.	<p>The described resource may be derived from the related resource in whole or in part.</p> <p>Recommended best practice:</p> <ul style="list-style-type: none"> Identify the related resource by means of a string conforming to a formal identification system
Subject	The topic of the resource.	<p>Typically, the subject will be represented using keywords, key phrases, or classification codes.</p> <p>Recommended best practices:</p> <ul style="list-style-type: none"> Use a controlled vocabulary (EPA, federal, international, or industry) Anticipate terms that your users may employ to search for the resource Include terms that would be used by technical and non-technical users Use narrower terms (e.g., stormwater vs. water)
Type	The nature or genre of the resource.	<p>Examples include: permit, grant, data, model, programming code and contract.</p> <p>Recommended best practices:</p> <ul style="list-style-type: none"> Use a controlled vocabulary such as the DCMI Type Vocabulary Use Agency specific guidelines such as EPA Web Guide Content Types To describe the file format, physical medium, or dimensions of the resource, use the Format element

A list of current extended standards is included in Section 11.

7. ROLES AND RESPONSIBILITIES

Management of, and accountability for, EPA information are the responsibility of all organizations within the Agency to ensure that information is consistent, correct, and available to those with legitimate requirements. The roles and responsibilities directly related to this standard are outlined in this section.

Chief Information Officer (CIO):

- Issues metadata standards, and conducts periodic reviews to keep them current

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- Facilitates the process for appropriate business organizations to incorporate the standard into their organization and operations through guidance and outreach
- Grants waivers to selected provisions of these standards

Senior Information Officials (SIOs):

- Responsible for ensuring implementation of this standard within their organizations

CIO Senior Advisory Council (CIO SAC):

- Considers proposals to set new standards, and forwards recommendations to the CIO for approval
- Provides assistance with interpretation of the standards in the form of guidance

ECS Records Workgroup:

- Identifies and defines standards for information, in collaboration with other EPA information management communities of practice

All EPA Organizations, Employees and Individuals or non-EPA Organizations, if applicable:

- Use this standard to manage information resources created or funded by EPA.

8. RELATED INFORMATION

- [CIO Policy 2133.0](#), "Data Standards Policy," June 28, 2007
- [CIO Policy 2155.4](#), "Interim Records Management Policy," August 22, 2018
- [CIO Policy 2171.0](#), "Information Access Policy," January 24, 2008

9. DEFINITIONS

Non-EPA organization: An entity that has entered into a contract, extramural funding agreement, or a regulatory or federal-wide requirement with EPA, which can include, but is not limited to EPA contractors, grantees, States, Tribes, localities, regulated parties, volunteer organizations, cooperative agreement holders, other federal governmental agencies, intergovernmental organizations, or educational institutions ([CIO Policy 2106.0](#), "Quality Policy," October 20, 2008) if the requirements set forth in section 6 of this policy are part of a binding contract or other funding agreement.

Metadata: Metadata is structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource. ([Project Open Data Metadata Schema v1.1](#))

10. WAIVERS

Consistent metadata standards are critical to facilitating the management of the Agency's information. For this reason, waivers to these standards are rare and will be considered on a case by case basis.

- **Waiver Authority:** The Agency's CIO may grant waivers (directly or indirectly via delegated authority) to selected provisions of these standards for sufficient cause.

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- **Application Requirements:** Applications for waivers to specific provisions must be submitted to the CIO and shall contain:
 - Identification of the standard provision
 - Detailed justification why the standard cannot be applied or maintained
 - An assessment of impacts resulting from non-compliance
 - The signature of an Assistant Administrator (AA), Regional Administrator (RA) or Laboratory Director responsible for the information in question
- **Notification:** The CIO will notify the requesting office in writing of the disposition of the waiver within 60 days of receipt

11. MATERIAL SUPERSEDED

This standard supersedes the CIO Standard 2135-S-01.0.

12. CONTACTS

For additional information about this standard, please contact the EPA OMS-EI, Office of Information Management.

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and Chief Information Officer***
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