Governmentwide Spending Data Model (GSDM)

Architecture

Version 1.3

U.S. Department of the Treasury

Bureau of the Fiscal Service

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1. Introduction

The Governmentwide Spending Data Model (GSDM) standardizes federal spending data terminology, meaning, and format to drive transparent, consistent, reliable, and accurate data for public consumption. The adoption of the GSDM recognizes spending data as a federal asset. It also requires the creation or refinement of agency data management policies and procedures for effective spending data governance and stewardship. The Office of Management and Budget (OMB) and Department of the Treasury (Treasury) provide prescriptive and descriptive guidance, instruction, and technical support for the DATA Act Information Model Schema (DAIMS) first published in April 2016. Since then, Treasury has periodically published updates to reflect the inclusion of legislation and policies that go beyond the DATA Act. In November 2023, DAIMS was rebranded as the GSDM to reflect the inclusion of new legislation and policies. The GSDM contains documents, schema, and other artifacts that express the data standards so that content consumers and content providers know what the data elements mean, how the data elements will be used, and why the data elements are included in the GSDM.

The GSDM incorporates feedback from federal communities and external stakeholders. The consensus building process includes working group meetings, feedback periods, and meetings with agency representatives. The data standard GSDM is in alignment with the ISO Directive 2 definition for a data standard, "document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context."[1] As a U.S. federal government standard, aligned with industry data standardization best practices, the GSDM delivers:

- Standardized data elements that are complete and reflect DATA Act requirements, and continuing legislation and policies.
- Data elements and structures that are documented consistently, clearly, and accurately. Extensibility supports future communities of interest, financially oriented domains, and emerging technologies.
- Business comprehension of data element content.

The GSDM leverages and aligns with the following federal guidance and architectures:

U.S. Federal Enterprise Architecture (FEA)[2] – a U.S. Office of Management and Budget (OMB), Office of E-Government and Information Technology initiative that provides an approach for integrating the strategic, business and technology management as part of organizational design and performance improvement.

[1] ISO Directives Part 2, https://www.iso.org/directives-and-policies.html
[2] The Common Approach to Federal Enterprise Architecture, http://obamawhitehouse.archives.gov/sites/default/files/omb/assets/egov_docs/common_approach_to_federal_ea.pdf

- OMB Circular No. A-119 Revised, Federal Participation in the Development and Use of Voluntary Consensus Standards in Conformity Assessment Activities[3] – establishes policies to improve the internal management of the Executive Branch with respect to the U.S. Government's role in the development and use of standards and conformity assessment.
- OMB Memorandum M-13-13, Open Data Policy Managing Information as an Asset[4] – a framework for managing information at each stage of its lifecycle to promote interoperability and openness.

The U.S. Department of the Treasury established guiding principles to produce a holistic and integrated GSDM. The guiding principles provide the foundation for the decisions made to craft, assemble, and deliver GSDM artifacts. As is the case with industry standards' specifications, the guiding principles don't constrain the development of a data standard. Instead, they help to explain the motivation, judgement, and factors considered in delivering the data standard. The GSDM guiding principles include:

- Accuracy – Provide consistent naming and precise definition and format.
- Adaptability – Enable flexibility to accommodate ad hoc federal spending requirements and unanticipated future requirements.
- Completeness – Be comprehensive and consistent; the standard could include all data elements necessary to meet federal spending reporting requirements.
- Ease of Use - Design for usability and understandability.
- User Feedback – Request feedback from users related to changes

2. Conceptual Information Model

A conceptual information model describes information representing an enterprise or a system. Applied to the GSDM, the conceptual information model is a high-level diagram and supports descriptive information used to represent and communicate the GSDM architecture to business users. This section maps the multi-level view of the GSDM architecture which includes Domains, Components, Elements and Metadata. The relationship between the different levels and the model are visualized in Figure 1.

Level 1: Domain Level

The GSDM currently supports the 360-degree lifecycle of federal spending enabling complete financial and spending transparency for the U.S. federal government. If the business requirements existed, the GSDM could support the reporting of spending data for additional communities of

[3] https://www.nist.gov/system/files/revised_circular_a-119_as_of_01-22-2016.pdf
[4] https://obamawhitehouse.archives.gov/sites/default/files/omb/memoranda/2013/m-13-13.pdf

interest such as state and local governments. Its adaptability provides the GSDM with the potential to support:

- State and Local Spending: Data elements and relationships that are unique to state and local jurisdictions or shared with federal spending.

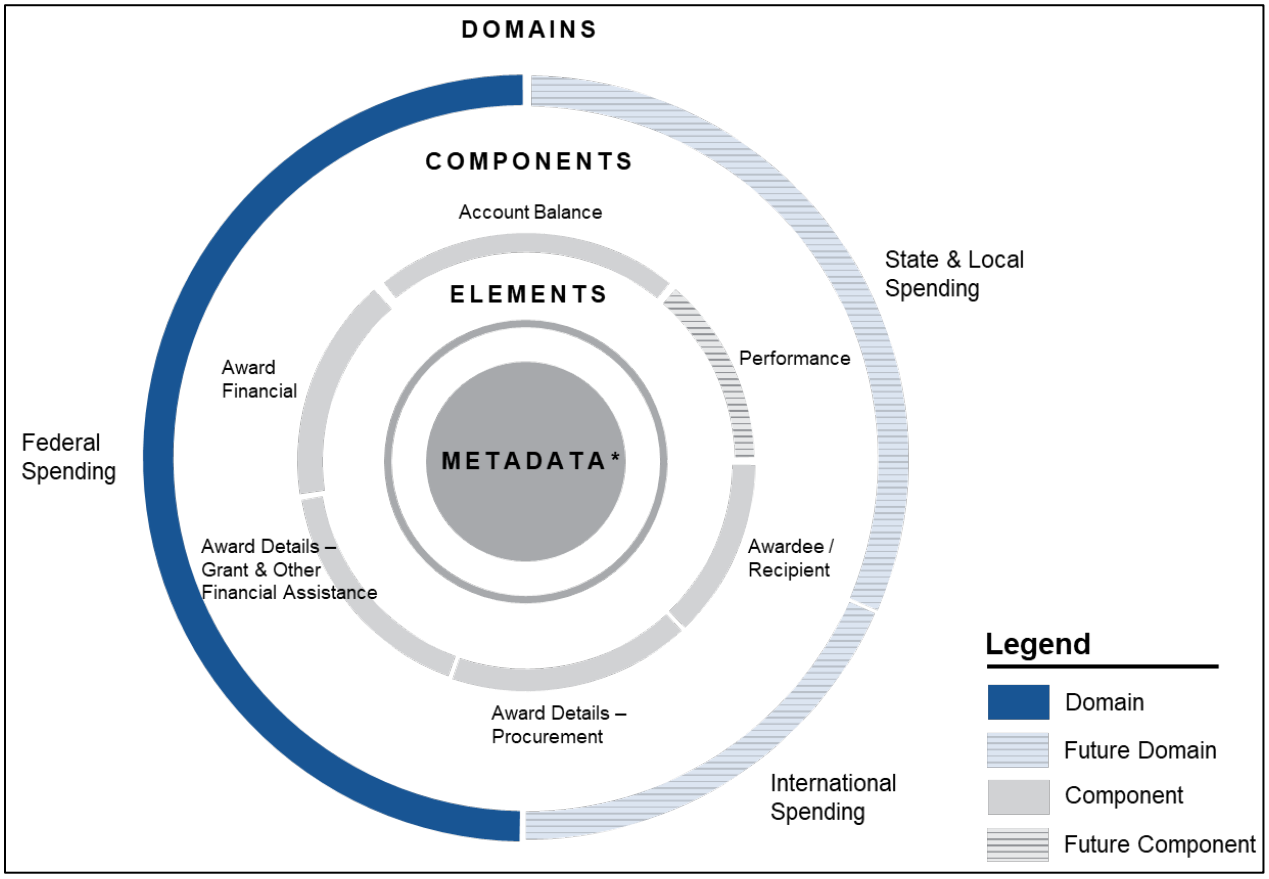


Figure 1. GSDM Conceptual Information Model

- International Spending: Data elements and relationships that are unique to cross-boundary international spending, e.g., U.S. Department of State, The World Bank, and financial sector data standards.

Level 2: Component Level

Within the federal spending domain, the GSDM components contain a set of related data elements representing a business function or an entity with a well-defined boundary. Components may share data elements and, dependent upon business requirements, may also be used across different state, local, or international domains. The GSDM components are:

- Account Balance: Includes federal budgetary balances (obligations, outlays, and payments) with accounts, object class, program activity, and U.S. Standard General Ledger (USSGL)
- Award Financial: Includes federal award level transactions with accounts, object class, program activity, and award identification.

Award Details - Grants & Other Financial Assistance: Contains the award and awardee attributes for financial assistance, including federal sub-award attributes and linkage to prime awards.

- Award Details - Procurement: Contains the federal award and awardee attributes for procurements, including federal sub-award attributes and linkage to prime awards.
- Awardee/Recipient: Contains awardee and recipient details.

Potential future GSDM content includes:

- Performance: Describes performance measures and outcomes linked to federal grants, awards or other financial assistance.

Level 3: Element Level

A data element is the description of an atomic unit of data that has precise meaning and semantics. GSDM defines data elements and their relationships, organized by domains and components.

Level 4: Metadata Level

Metadata is the data providing information about one or more aspects of the data or an individual data element. GSDM metadata leverages ISO/IEC 11179 standard for the GSDM metadata registry, data element naming and data element definitions. The metadata model defines concepts of the data elements and provides the domain value enumerations and validation rules.

3. Metadata

Metadata's simplistic definition is data about the data. When applied to the GSDM, metadata represents a federal spending data element's name, definition, type, size, and allowable values. Metadata provides the foundation for building consensus and establishing shared meaning. For example, it ensures that data elements representing a procurement award from one federal agency are easily understood, equivalent in meaning, and comparable to a procurement award from another federal agency.

The GSDM metadata registry is an information system for the registration of metadata that defines and describes federal spending data elements. The metadata registry and its registered data comply with the ISO/IEC 11179 Information Technology – Metadata Registries (MDR) standard. ISO/IEC 11179 provides guidance for standardizing data element names and descriptions to achieve common understanding of the data across organizations and organizational boundaries. It also

supports the ability to harmonize data elements with equivalent meaning and representation, and promotes data and data component re-use over time, space, systems, and applications. ISO/IEC 11179 includes:

Standard	Description	GSDM Applicability
ISO/IEC 11179-3[5]	Part 3: Registry metamodel and basic attributes - describes the attributes of data elements and associated metadata to be specified and registered as metadata items in a metadata registry (MDR)	GSDM Metadata Registry
ISO/IEC 11179-4[6]	Part 4: Formulation of data definitions - specifies the requirements and recommendations to formulate data definitions that registered in a metadata registry	GSDM Metadata Registry
ISO/IEC 11179-5[7]	Part 5: Naming principles - describe and specify common features of naming conventions	GSDM Metadata Registry

The additional metadata attributes captured by the registry includes:

- Domain: Identifies the domain / business line where the element applies.
- Data Element Label: A unique label for each element.
- Data Type: String, date, or number.
- Max Element Length: Indicates the maximum length of the data element value.
- Documentation: Contains the business definition of the data element.
- Element Use: Indicates whether a data element is an extracted value, required, optional, or conditionally required per the validation rules.
- Element Number: A unique identifier for each element.
- Enumerations/Domain Value: Provides information on potential input values for each data element.
- Example Value: Demonstrates an acceptable data entry value.
- Submission Instructions: Additional information for reporting the element.
- Validation Rule: Includes validation applied to the relevant element when data is submitted.

[5] https://standards.iso.org/ittf/PubliclyAvailableStandards/c078915_ISO_IEC%2011179-3_2023(en).zip
[6] http://standards.iso.org/ittf/PubliclyAvailableStandards/c035346_ISO_IEC_11179-4_2004(E).zip
[7] http://standards.iso.org/ittf/PubliclyAvailableStandards/c060341_ISO_IEC_11179-5_2015.zip

4. Specifications

Normative artifacts define the prescriptive requirements that are necessary to conform to the GSDM. Informative artifacts provide an understanding of the GSDM and how it enables the implementation of the DATA Act, evolving legislation, and new policies. Informative artifacts do not outline conformance requirements.

The GSDM normative artifacts are maintained by internal change control procedures and follow a standard change management process. Informative GSDM documents may undergo change as the GSDM normative artifacts evolve, but they do not always follow a standard change management process. Normative artifacts within the GSDM architecture include:

1. Schema Specifications
   a. Reporting Submission Specifications (RSS): includes a listing of the data elements with specific instructions for federal agencies to submit content in the appropriate format. It is a human-readable version of the data standard for agency submitted content.
   b. Interface Definition Documents (IDD): contains a listing of the elements, with supporting metadata to understand data pulled from government-wide systems for procurement and from agency financial assistance systems. It's a human-readable version of the data standard for content extracted from external data sources.
2. Validation Rules: verify data elements based on their values, metadata, and related elements. There are severity levels associated with the validation rules, such as error and warning. An error invalidates the data record based on the schema. A warning indicates a potential data quality issue, even though the record is valid based on the schema.
3. Practices and Procedures: Details on how agencies should submit and validate submissions to the Broker.

Informative artifacts within the GSDM architecture are meant for informational purposes and include diagrams and sample files. The GSDM informative artifacts include:

1. Online Data Dictionary[8]: The USAspending.gov online data dictionary with a full list of data elements with a definition for each element and some associated metadata.
2. Consumption-Focused Metadata (CFM)[9]: An Excel file with a list of data elements, definitions, and supporting metadata showing how submission and outlay data is compiled.
3. Consumption Focused File Diagram[10]: A PDF file diagram showing the data model for data sources of the USAspending.gov website.

[8] https://www.usaspending.gov/data-dictionary
[9] https://tfx.treasury.gov/system/files/2025-04/gsdm-cfm-v1.1.xlsx
[10] https://tfx.treasury.gov/system/files/2025-04/gsdm-cfm-v1.0-diagram.pdf

4. GSDM Information Flow[11]: A technical flowchart showing how data comes into, flows through, and is reported out, including how often that happens and where the data come from.
5. Guide to America's Finances[12]: An overview of U.S. government finances where the public will find information on money coming in (revenue), money going out (spending), the deficit, and debt. The guide presents a series of pages exploring topics through educational content and interactive visualizations, providing a comprehensive overview of the trillions of dollars collected and spent by the federal government each year.
6. Federal Spending Guide [13]: Questions and answers about federal spending concepts.
7. Data Sources [13]: Interactive explainer for the data sources in USAspending.gov.
8. Training Videos [13]: Tutorials for how to use the data and features on USAspending.gov.
9. About the Data [13]: Provides the public with information about the data displayed on USAspending.gov with sitewide data disclosures and descriptions.
10. USAspending API [13]: API endpoints and how they enable access to USAspending.gov data.
11. Dataset Metadata [14]: Information about all datasets available for download, such as file format and publishing agency.
12. Glossary [13]: Definition of commonly used terms on USAspending.gov

5. Conformance

GSDM data validation is handled externally through an open-source application called the Data Broker available in a public repository (https://github.com/fedspendingtransparency/).

6. Schema Versioning

The GSDM data standard will evolve to support spending data reporting requirements, USAspending.gov website needs, and additional domains and components as changes are identified. Schema versioning is important to manage change, gain consensus, and support the systems using the current standard. GSDM publications include annual releases and maintenance updates.

Annual Release – An annual release occurs annually in November. An annual release normally has significant impact on agencies. Annual releases follow a 1.x, 2.x, etc. naming convention.

Maintenance Update – After an annual release is finalized, issues with documentation identified during user review are not unusual. As such, guidance and policy direction may change after an annual release requiring a narrowly focused maintenance update to address the identified issues.

Release and Implementation Schedule – Treasury plans to issue an annual release in November of each year. Maintenance updates are not locked to a specific release schedule. Maintenance updates may be needed for off-cycle updates for policy changes, bug fixes, and alignment with other authoritative systems (SAM, GTAS, etc.).

Annual releases are intended for implementation at the start of the Fiscal Year. This timing is done

[11] https://tfx.treasury.gov/system/files/2025-04/gsdm-information-flow-diagram-v1.1.1.pdf
[12] https://fiscaldata.treasury.gov/americas-finance-guide/
[13] https://www.usaspending.gov/ under "Find Resources" tab
[14] https://www.usaspending.gov/ under "Download the Data" tab

so that all agency broker submissions for one fiscal year will be subject to the same annual GSDM release. The implementation date may shift to align with policy requirements and other dependencies, such as SAM, GTAS, etc.

7. Conclusion

The GSDM architecture is designed to meet the needs of business users and technical systems. It is the foundation for the GSDM data standard. It is extensible through domain, component, element, and metadata. The architecture defines the GSDM specifications as normative documents and how the schema will be versioned. Additional descriptive content on the GSDM architecture will be released as necessary.

8. Revision History

Version	Date Modified	Key Updates
DAIMS 1.1	6/27/2017	Initial release
DAIMS 1.3	10/2/2018	Updated Figure 1 "DAIMS Conceptual Information Model" with minor format changes
DAIMS 1.4	9/27/2019	Updated based on agency feedback. Specific changes include: Modifications: 1) Section 6: Updated DAIMS release cadence. 2) Section 6: Clarified maintenance release content.
DAIMS 2.2	06/03/2022	Removed all XBRL References
GSDM 1.0	11/16/2023	Rebranded DAIMS as GSDM. Updated GSDM versioning and publication in schema versioning section.
GSDM 1.0.1	04/11/2024	Updated to include or link to data related GSDM artifacts from the USAspending website. Updated link to ISO IEC 11179-3 standard.
GSDM 1.2	12/19/2025	Updated Figure 1 GSDM Conceptual Information Model to remove the "Receipts & Financing" component, as the receipts and financing data are made transparent through Treasury Fiscal Data website (fiscaldata.treasury.gov).
GSDM 1.3	11/06/2026	Removed reference "Formerly Known as DAIMS". Removed references of FPDS due to the migration to SAM.gov. Updated broken links throughout document.