

5 FAM 630 DATA MANAGEMENT

*(CT:IM-92; 08-01-2007)
(Office of Origin: IRM/BPC/PRG)*

5 FAM 631 GENERAL POLICIES

(CT:IM-75; 05-10-2006)

- a. Data Management (IRM/OPS/SIO/API/DM) manages the Department's Data Management Program (DM) in accordance with the Bureau of Information Resource Management (IRM) policies, rules, and guidelines. See 1 FAM 275.5-2 (b). This section governs Information Technology (IT) systems data management.
- b. DM identifies, evaluates, and incorporates data management policies for the Department.
- c. DM in collaboration with Data Administration Working Group (DAWG), establishes and maintains data policies, standards, and procedures to support IT systems development, integration, information assurance, and maintenance.
- d. DM implements a data management program that enables data sharing across the Department, Federal Government, and other authorized users of Department information.
- e. Managers of programs and projects must ensure that the proper data management principles and practices are incorporated into the project life cycle where data standards and elements are defined and implemented.

5 FAM 632 SCOPE

(CT:IM-75; 05-10-2006)

This policy applies to all programs and projects to effectively manage data as a critical asset for the Department. It covers the Department's data management functions to maximize data sharing and improve overall data quality. These functions are related to data policy, data standards (XML, Taxonomy, and Object Naming), OMB Federal Enterprise Architecture (FEA) Data Reference Model (DRM), Enterprise Data Model (EDM), Metadata Repository (MDR), and Outreach Programs such as the Data Administration Working Group (DAWG). Any deviations from this policy shall be coordinated with DM.

5 FAM 633 AUTHORITIES

(CT:IM-75; 05-10-2006)

The authorities establishing this policy include:

- (1) Clinger-Cohen Act – Public Law 104-106, Section 5125 (40 U.S.C. 11315);
- (2) OMB Circular A-130, Management of Federal Information Resources, November 30, 2002;
- (3) Data Quality – OMB, “Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility and Integrity of Information Disseminated by Government Agencies, issued pursuant to the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554, Section 515;
- (4) Government Performance and Results Act (GPRA), Public Law, 103-62;
- (5) Government Paperwork Elimination Act (GPEA), Public Law, 105-277, Title XVII (44 U.S.C. 3504 note); and
- (6) E-Government Act of 2002, Title II, Section 207 (44 U.S.C. 3501 note).

5 FAM 634 ROLES AND RESPONSIBILITIES

(CT:IM-75; 05-10-2006)

a. Data Management:

- (1) Develop and manage the Department’s data governance/ stewardship program.
- (2) Implement a data management program that enables data sharing across the Department, Federal Government, and other authorized users of Department information;
- (3) Is a central point of contact for Department-wide data-related issues;
- (4) Provide policy, program direction, and standards in regard to organizing and maintaining the Department’s automated database assets to conform with established enterprise architecture standards, disseminate relevant data management information;
- (5) Collect and share IT systems documentation, specification, metadata, and other relevant information to both technical and business users, to promote common understanding and usage of the Department’s information;

- (6) Coordinate with the business and technical users through the Data Administration Working Group (DAWG) as a forum to develop and validate the data standards;
- (7) Identify and maintain the Department-wide standard data elements and metadata; assists bureaus in defining Logical Data Models (LDM), integrated into the Enterprise Data Model (EDM), consistent with the enterprise data architecture;
- (8) Define standards and guidelines regarding methods and tools for ensuring Department-wide database security and integrity in conformance with established data policies;
- (9) Support bureaus in benchmarking, selecting, supporting, and acquiring database management systems and database administration resources in accordance with the ITCCB and EA target technical architectures; and
- (10) Assist Department-wide application/system developers in defining logical data models and databases consistent with the enterprise data architecture.

b. Program and Project Organizations:

- (1) **System Owner(s)** – The bureau-designated senior executive(s) who is responsible for the given automated system.
- (2) **Program/Project Managers** – Establish the scope and boundaries of the business area being examined; evaluate all issues that arise during data discovery and modeling process related to the scope of the business area or project to identify solutions.
- (3) **Database Administrators** – Responsible for developing and maintaining physical database structures that reflect the requirements as specified in the physical data models; work closely with the data analyst in the creation, review, validation, and expansion of associated logical data model(s), physical data models, and database schemas; conduct database performance tuning, which may require changes to original database structure.
- (4) **Data Stewards** – Coordinate data management activities to address and resolve data quality issues and make decisions related to the data and/or information integrity, security, delivery, and access within the assigned business area.
- (5) **Data Architects/Data Analysts** – Primarily responsible for data discovery and data analysis, and work closely with subject matter experts to uncover, document, model, and validate logical information requirements into specifications that can be used to develop physical data structures required to support automated systems.

- (6) **Users** – Stakeholders and/or customers who determine the data requirements for the project; responsible for defining data usage requirements by providing information that allows data to be accessed (security, login ID's, etc.).

5 FAM 635 HOW DO YOU APPLY DATA MANAGEMENT TO THE SYSTEM LIFE CYCLE?

(CT:IM-75; 05-10-2006)

- a. Information Technology (IT) program and project managers must perform data and process analysis for IT projects in all phases of the system development life cycle.
- b. IT project managers must refer to the Department's data standards, procedures, and guidelines to ensure project compliance with IT systems development processes. These include object definition and object-naming conventions, data modeling guidelines, standard data elements, and eXtensible Markup Language (XML) standards (see 5 FAM 638.1).
- c. IT project managers must involve DM in the beginning and throughout the project life cycle of all major applications and general support systems activities. Project managers must contact DM for guidance regarding data management requirements, products, and services.
- d. Stakeholders, system owners, and data stewards must ensure availability, completeness, and quality of Department data.
- e. IT project managers must provide to DM life cycle documentation (i.e., logical data model, database structure/schema, and/or data dictionary) in order to collect metadata information relevant to the data and system requirements of the project (see 5 FAM 637.3 and 12 FAM 600).
- f. IT project managers must refer to the Department's data management policies and guidelines to ensure compliance with the Capital Planning and Investment Control (CPIC) requirements for budget submissions. See E-GOV PMO Web site."

5 FAM 636 WHAT IS THE PURPOSE OF THE DATA ADMINISTRATION WORKING GROUP (DAWG)?

(CT:IM-75; 05-10-2006)

- a. The Data Administration Working Group (DAWG) is composed of bureau personnel and other representatives throughout the Department who

meet quarterly to participate in DM program activities, including the development of policies, standards, and resolution of data issues.

- b. DM facilitates DAWG activities to promote data sharing across the Department.
- c. The DAWG serves as the primary advisory group to the Information Technology Change Control Board (IT CCB) to ensure comprehensive business area representation on matters related to data management.

5 FAM 637 WHAT IS THE RELATIONSHIP BETWEEN DATA MANAGEMENT AND ENTERPRISE ARCHITECTURE?

(CT:IM-75; 05-10-2006)

- a. The Department of State must comply with the Federal Enterprise Architecture's (FEA) Data Reference Model (DRM), an OMB-driven approach to facilitate data standardization, harmonization, and data sharing within each agency and across the Federal Government. This alignment is achieved through the Department's Information and Data Architecture (IDA) as part of the Joint State-USAID Enterprise Architecture (EA) initiative.
- b. To comply with OMB's DRM directives, the Data Management Program must align with the Department's Joint EA IDA initiative, in collaboration with the Office of Enterprise Architecture and Planning (IRM/BPC/EAP) for guidance.
- c. Data Management must develop, manage, and maintain the Department's Enterprise Data Model (EDM) that aligns with the DRM data infrastructure and the IDA framework, in collaboration with the DAWG. The EDM is a conceptual representation (i.e., model) of the Department's data and information that support its various lines of business toward accomplishment of its mission, goals, and objectives.
- d. Project Managers must provide to DM project documentation (e.g., logical data model, database schema, and/or data dictionary) that defines the data requirements of their projects. This information will be integrated into the EDM and stored in the Metadata Repository for Department-wide data sharing.

5 FAM 637.1 Why Do We Need an Enterprise Data Model (EDM)?

(CT:IM-75; 05-10-2006)

- a. The Enterprise Data Model (EDM) is a graphical and textual representation of the Department's data and information requirements, using basic data modeling methods and techniques. The EDM contains entities, relationships, general definitions, and attributes – standard data management terminologies that describe data components used in databases, files, or reports. These components are crucial in systems development and maintenance.
- b. In collaboration with the Office of Enterprise Architecture and Planning (IRM/BPC/EAP), systems owners, and data stewards, DM must develop, validate, and maintain the EDM to reflect the data and information needs of the Department.
- c. DM must ensure that the EDM components are aligned with the DRM infrastructure requirements.

5 FAM 637.2 What Is the Purpose of the Data Reference Model?

(CT:IM-75; 05-10-2006)

- a. The Data Reference Model (DRM) is a functional framework that classifies, categorizes, and describes data and information to support the business of government. The DRM is a major component of the Federal Enterprise Architecture (FEA) that focuses on subject areas, classifications, data elements, data properties, and data representations. See the E-Gov PMO.
- b. The DRM provides guidance on data governance and data architecture. The DRM ultimately benefits the Department through data sharing, data reuse and integration, data quality improvement, alignment with business processes, and overall business performance improvement.
- c. DM must work collaboratively with the Office of Enterprise Architecture and Planning (IRM/BPC/EAP) to comply with the DRM and other FEA related government directives.
- d. DM must ensure alignment of the EDM with the DRM components to comply with OMB FEA directives. See E-Gov PMO Web site.
- e. IT Project Managers must refer to the Department's data management policies and guidelines to ensure compliance with the Capital Planning and Investment Control (CPIC) requirements for budget submissions. See E-Gov PMO Web site.

5 FAM 637.3 Why Do We Need a Metadata Repository?

(CT:IM-75; 05-10-2006)

- a. Metadata is the definition or description of data. In data processing, metadata provides information about, or documentation of, other data managed within an application or environment. For example, metadata would document data about data elements or attributes, (name, size, data type, etc.) and data about records or data structures (length, fields, columns, etc.) and data about data (where it is located, how it is associated, ownership, etc.).
- b. DM maintains a Metadata Repository (MDR) that contains a collection of enterprise metadata in a centralized database. A Metadata Repository is a tool used for gathering, storing, updating, and for retrieving the business and technical metadata of an organization.
- c. DM facilitates access and use of the MDR across the Department.
- d. DM collects and shares IT systems data and relevant information in the MDR to promote common understanding and usage of the Department's information, as follows:
 - (1) Make data meaningful to both technical and business use;
 - (2) Manage repeatable data transformation processes; and
 - (3) Support data standardization and change/impact analyses.
- e. IT project managers must provide to DM metadata information based on the requirements previously stated in 5 FAM 635 e.

5 FAM 638 WHY ARE DATA STANDARDS REQUIRED?

5 FAM 638.1 Why Are XML Standards Required?

(CT:IM-75; 05-10-2006)

- a. The eXtensible Markup Language (XML) provides a critical foundation for the Department and Government-wide data sharing architectures. DM coordinates the development and maintenance of Department-wide XML standards in collaboration with the Department's development community and other Federal agencies and industry.
- b. DM develops and maintains the Department's XML use policy and procedures in collaboration with key XML stakeholders throughout the Department. XML stakeholders include developers and IT project managers who are responsible for exchanging data between systems within the Department and other agencies.
- c. DM defines the rules, guidelines, and naming conventions for XML

schemas, tags, element, attributes, and namespaces that are consistent with the Department's data-sharing architecture.

- d. DM develops and maintains the Department's centralized XML Registry to store the Department's XML artifacts, such as schemas, tags, element, attributes, and namespaces for access and re-use by the Department's XML Community.
- e. IT Project Managers must comply with the Department's XML standards for data sharing.
- f. IT Project Managers must ensure that all XML artifacts for their respective projects are registered with the Department's Centralized XML Registry located in (IRM/OPS/SIO/API/DM).

5 FAM 638.2 Why Is Taxonomy Standard Required?

(CT:IM-75; 05-10-2006)

- a. Taxonomy is the science of classification. It is a conceptual framework for organizing information within a defined scope and context. It is also a component of information architecture. It can be applied to any electronic resource system to improve information access.
- b. Taxonomy is an integral part of Data Management. It is a mandate of E-Gov (E-Government Act of 2002, Section 207)
- c. DM develops the baseline taxonomy in coordination with the Department-wide subject matter experts (e.g., program/policy officers) and Taxonomy Communities of Interest [e.g., Office of Enterprise Architecture and Planning (EAP), A Bureau, Public Diplomacy (PD)].

5 FAM 638.3 Why Are Naming Standards Required?

(CT:IM-75; 05-10-2006)

- a. Object definition and naming standards are critical in facilitating object sharing and consistency across the Department's organizations.
- b. The Department's naming standard describes how objects should be defined, including what metadata should be documented. In addition, naming standards are defined to:
 - (1) Facilitate object sharing, object consistency, and communication among the Department's organizations;
 - (2) Increase reliability of information stored, shared, and managed by the repository tool set;
 - (3) Promote accessibility and understandability of information across

- systems;
 - (4) Improve the quality of data and application documentation;
 - (5) Eliminate data redundancy and inconsistency;
 - (6) Facilitate user access to object names and related documentation as used throughout the Department;
 - (7) Assist analysts in selecting names that are clear and represent rules of good grammar; and
 - (8) Simplify recognition of synonyms.
- c. DM's object naming standard is compatible with the Federal Information Processing Standards (FIPS) 156 Information Resource Dictionary System (IRDS) standard and the National Institute of Standards and Technology (NIST) data design guidelines.

5 FAM 639 UNASSIGNED