

Communications and Information

**UNITED STATES TRANSPORTATION COMMAND (USTRANSCOM)
DATA MANAGEMENT**

BY ORDER OF THE DEPUTY COMMANDER

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction establishes the policy and procedures for the management of data as a USTRANSCOM corporate asset in Defense Transportation System (DTS) and USTRANSCOM processes, databases, interfaces, and automated information systems.

This instruction is applicable to all directorates in USTRANSCOM and to the Transportation Component Commands (TCCs). Its use is directed in any DTS and USTRANSCOM system development effort, whether or not the system shares data with other systems. To facilitate interoperability, adherence to these principles is also encouraged for DTS development by agencies outside the direct control of USTRANSCOM.

This instruction refers to the USTRANSCOM Data Management Handbook. Use of the Handbook is required for all systems development in the DTS and other USTRANSCOM systems, by USTRANSCOM developers and in all USTRANSCOM systems development contracts, and is encouraged for development of the DTS outside USTRANSCOM control.

SUMMARY OF REVISIONS

Updates data standards implementation procedures and establishes procedures to maintain the USTRANSCOM Master (Data) Model (referred to hereafter as the Master Model). Broadens the scope of data management to include the concepts of a meta data repository, reference data tables, the integration of commercial off-the-shelf standards, and a data quality management process. Describes the roles and responsibilities of data management organizations and offices created since the publication of the previous instruction.

1. REFERENCES AND SUPPORTING INFORMATION. References, related publications, abbreviations, acronyms, and terms used in this instruction are listed in Attachment 1.

2. BACKGROUND.

2.1. Data management within USTRANSCOM has its roots in the data administration efforts established in the now superseded Department of Defense (DOD) Directive (DODD) 8320.1, but must go beyond that effort to enable program managers to understand how to deal with new technologies such as Enterprise Resource Planning (ERP), Extensible Markup Language (XML), DOD's net-centric data management initiatives, and others. Data management policy must also be strengthened to go beyond naming and modeling standards, and address other important metadata.

2.2. The single most important principle to USTRANSCOM data management programs is that data interoperability will be based on data standards expressed in a single, integrated, enterprise-wide Logical Data Model (LDM) as instantiated in the USTRANSCOM Master Model.

2.3. At the end of 2000, USTRANSCOM published an Enterprise Architecture (EA). One of the key principles of this EA is the management of data as a corporate asset vice a proprietary resource of each Automated Information System (AIS). The EA proposes a data integration strategy to meet this goal. The core data components of the EA include data warehouse, operational data store, metadata repository, Universal Description Discovery and Integration (UDDI) registry, and reference data repository capabilities.

2.4. The USTRANSCOM Corporate Data Office (CDO) develops and oversees the implementation of the policies and procedures associated with making the data-centric vision a reality. The CDO provides a single organization responsible for managing data as a corporate asset by managing and making available the USTRANSCOM data standards. The USTRANSCOM programs provide the CDO with their data requirements and work to promote and integrate their data requirements within the corporate standard. The USTRANSCOM Master Model supersedes the Transportation Logical Data Model as the primary tool for this data standardization effort. The CDO also provides a cadre of advisors to assist the command's program managers in implementing these data standards in their respective systems.

3. PURPOSE.

3.1. Provides policy to ensure data interoperability and quality through the application of standardization, quality control, and configuration management functions needed to support peacetime and wartime transportation operations.

3.2. Provides methodology for the transition of international, commercial, and industrial data standards such as those defined by the International Standards Organization, the Federal Information Processing Standards, and the National Motor Freight Transportation Association for use as USTRANSCOM data standards.

3.3. Provides a methodology for integrating nonstandard Government Off-The-Shelf (GOTS) and Commercial Off-The-Shelf (COTS) software, such as ERP, into the Corporate Data Environment.

3.4. Assigns responsibilities for data management within USTRANSCOM and recommends the component commands establish a CDO within their organization.

3.5. Authorizes the creation and maintenance of the Master Model.

3.6. Establishes the USTRANSCOM CDO Outreach Program. This program will consist of Points of Contact from each directorate of the USTRANSCOM staff, who will act as a liaison between the technical staff in USTRANSCOM Directorate of Command, Control, Communications and Computer Systems (TCJ6) and the USTRANSCOM functionals.

3.7. Encourages the use of USTRANSCOM data management guidance by non-USTRANSCOM DTS developers to facilitate interoperability with USTRANSCOM-developed systems.

4. POLICY.

4.1. Establishes the policy for managing data as a USTRANSCOM corporate asset that functions as a critical element in accomplishing the DOD transportation mission. Implementing processes and procedures are provided in the USTRANSCOM Data Management Handbook (https://business.transcom.mil/J6/j6a/CDO/CDO_Handbook.pdf).

4.2. Establishes the roles and responsibilities for management of USTRANSCOM data at all organization levels.

4.3. Requires each directorate within USTRANSCOM to provide a point of contact for the CDO Outreach Program. This individual should have functional knowledge to explain the business processes and business rules of their directorate's business domain and have an overview of all AIS development and implementation within their directorate.

4.4. Requires all USTRANSCOM system development programs to implement data administration aggressively in ways that provide clear, concise, unambiguous, and easily accessible data throughout the community. USTRANSCOM is committed to full compliance with the overall DOD data management policy. Accordingly, it is USTRANSCOM's policy to:

4.4.1. Record all USTRANSCOM data requirements in the Master Model. USTRANSCOM data requirements include all data persistently stored in any physical database that is partially or totally under the purview of the Distribution Process Owner's Portfolio Manager.

4.4.2. Implement USTRANSCOM data requirements by engineering Master Model-compliant databases and standardizing the interfaces with other DTS and USTRANSCOM systems and databases.

4.4.3. Standardize applicable XML data exchanges and register all XML information resources in the DOD Metadata Registry and Clearinghouse and in the USTRANSCOM/DTEBC XML Gallery in support of information sharing, visibility, and reuse among USTRANSCOM, DOD, and other government and commercial systems.

4.5. Authorizes the evaluation of individual program data management strategies as an input into investment decisions.

4.6. Requires the capture, storage, and management of enterprise-wide metadata.

4.7. Mandates that programs whose primary purpose is data integration be aligned with the data integration architecture in the DTS EA.

4.8. Promotes data quality and establishes the CDO as the clearinghouse for tracking these efforts.

4.9. Augments and amplifies DOD data management policy and procedures in support of the Global Information Grid vision for interoperability.

4.10. Mandates that all USTRANSCOM programs use and subscribe to reference data managed and distributed by the USTRANSCOM Reference Data Management process.

5. CONCEPT.

5.1. Management of USTRANSCOM data must be implemented in ways that enhance mission performance through the effective and economic acquisition and use of data. Objectives of USTRANSCOM data management are to:

5.1.1. Support DOD transportation operations and decision making with data that meets the need in terms of availability, accuracy, completeness, consistency, timeliness, uniqueness, validity, security, and origin of the data.

5.1.2. Structure the USTRANSCOM data architecture in ways that allow horizontal as well as vertical sharing of data within the DOD, other government agencies, private sector organizations, and allied nations. National security and privacy requirements must be considered.

5.2. The data management activities described in this instruction are supported by well-defined procedures, guidelines, and methods in the implementing Handbook (see USTRANSCOM Data Management Handbook at https://business.transcom.mil/J6/j6a/CDO/CDO_Handbook.pdf). This structured approach will enable effective planning, analysis, standardization, quality assurance, modeling, configuration management, storage, retrieval, protection, validation, and documentation of USTRANSCOM data.

5.3. The key components of effective USTRANSCOM data management are:

5.3.1. Implementation of Data Standards. One important role of the CDO is to assist program managers and developers in this implementation. Figure 1 illustrates the major functions involved. Further details and guidance can be found in the USTRANSCOM Data Management Handbook.

USTRANSCOM CDO Data Standards Implementation Activities

- Oversees all USTRANSCOM data management activities
- Maintains the USTRANSCOM Master Model
- Enforces system compliance with Master Model
- Assists and trains program managers in data management
- Coordinates the review and submission of data standardization change packages



Program Managers/Developers

- Develops Logical Data Models (LDM), Transformation Data Models (TDM), and Physical Data Models (PDM) to comply with the Master Model
- Submits data standardization change recommendation packages to the CDO for inclusion in the Master Model
- Includes data management provisions in development of contract language
- Implements standard databases/interfaces.
- Provide the CDO read-only access to all data base schemas.

Figure 1. Implementation of Data Standards Roles and Responsibilities.

5.3.2. Standards Enforcement through Evaluation and Measurement Programs. The Technical Analysis (TA) measures system compliance in their implementation of two data management practices: adherence to data standards and the use of standard reference data. The TA scores are provided to the USTRANSCOM Chief Information Officer (CIO) Program Review Panel (CPRP). The CPRP will review technical and functional requirements and make funding decisions based on corporate priorities. Waivers for any evaluated standard can only be granted based on submission of a Defense Transportation System (DTS) Enterprise Architecture (EA) Technical View waiver/exception request that can be found at https://cris.transcom.mil/documents/program_manager/waiver_request_format.doc. The links between technical soundness of programs and investment review ensure effective USTRANSCOM data management policy.

5.3.3. Program Alignment to the DTS EA. Key components of the data architecture include data warehouse, operational data store, and integrated metadata and reference data repository capabilities. The USTRANSCOM CIO, through the CPRP, will ensure programs are aligned properly with this EA. Detailed information is contained in the DTS EA.

5.3.4. Metadata Management. Currently, Program Managers have access to the Master Model which contains all of the required data dictionary metadata. In the future, the USTRANSCOM CIO will stand-up and maintain a USTRANSCOM Metadata Repository that will contain all DTS required metadata. Program Managers will have access to this repository for metadata

analysis and reuse purposes. The USTRANSCOM UDDI Registry will be available to make data assets discoverable and to publish standard distribution views/queries.

5.3.5. Master Model Development. The Master Model is the single USTRANSCOM corporate logical and transformation data model which contains definitions and syntax that are accepted throughout the enterprise. (A transformation data model is an LDM with only the mandatory physical transformations performed. For further information, see the USTRANSCOM Data Management Handbook.)

5.3.6. XML Management. Data exchange using XML is one of several standard interface implementations available to USTRANSCOM systems. However, it should be used only when its unique capabilities are needed. All USTRANSCOM program managers, functionals, and developers who are engaged in XML implementation shall follow the creation, reuse, validation, and registration process as described in the USTRANSCOM Data Management Handbook.

5.3.7. Reference Data Table Management. Data quality problems are often due to disagreement on reference data between systems. These problems can be greatly reduced through the use of standard reference data. All reference data managed by USTRANSCOM will be Master Model compliant, following the process in Chapter 8 of the Data Management Handbook.

5.3.8. Data Quality Assurance. The DOD core set of data quality requirements includes accuracy, completeness, consistency, timeliness, uniqueness, and validity. USTRANSCOM shall encourage and support data quality projects at the highest level consistent with available resources to achieve the level of quality necessary to meet mission requirements. The CDO is USTRANSCOM's focal point for tracking data quality problems. Implementation details for data quality projects are available in the USTRANSCOM Data Management Handbook.

6. RESPONSIBILITIES.

6.1. The USTRANSCOM CIO shall:

6.1.1. Act as the USTRANSCOM Commander's advocate to realize the vision of standardized, secure, and quality data delivered by enterprise data solutions.

6.1.2. Establish data management policy for USTRANSCOM and the TCCs.

6.1.3. Annually measure the compliance of all DTS and USTRANSCOM programs with data management policy.

6.1.4. Ensure program alignment with the EA through the CPRP.

6.1.5. Manage all applicable corporate metadata.

6.1.6. Monitor and support efforts to improve data quality throughout the enterprise.

6.1.7. Define, develop, and manage the target data architecture for USTRANSCOM and its components.

6.1.8. Implement the metadata requirements established in the USTRANSCOM Data Management Handbook.

6.1.9. Develop and implement guidance and procedures to support the data management program in accordance with this instruction and other supporting documents.

6.1.10. Provide policies, contracting language, metadata, and consulting services to DTS programs.

6.1.11. Perform management reviews to evaluate the effectiveness of data management programs.

6.1.12. Serve as the final evaluator of all programs with regards to data management implementation, as scored during the TA.

6.1.13. Consult with the Programs Division Chief in evaluating program alignment with the data architecture.

6.1.14. Identify and make recommendations for resolving multi-system data quality issues.

6.1.15. Establish and operate the USTRANSCOM CDO Outreach Program.

6.2. The USTRANSCOM directorate CDO Outreach Program Points of Contact shall:

6.2.1. Review, evaluate, and submit proposals for functional process improvements for data management.

6.2.2. Serve as the functional advocate and partner with functional Program Managers to ensure that the principles of data management published in this document are followed.

6.2.3. Serve as the advocate for functional issues raised during Master Model maintenance.

6.2.4. Identify and make recommendations for resolving data quality issues under their area.

6.2.5. Prioritize data quality efforts in terms of impact to the mission.

6.2.6. Identify and make recommendations for resolving multi-system data quality issues.

6.3. For any system partially or totally under the purview of the Distribution Process Owner's Portfolio Manager, the TCCs shall:

6.3.1. Follow all policies in this instruction and coordinate any proposed supplements through the USTRANSCOM CDO.

6.3.2. Coordinate on and provide input to existing and new data management policies.

6.3.3. Ensure the use of enterprise policies, contracting language, metadata, and consulting services for DTS programs (see USTRANSCOM Data Management Handbook).

6.3.4. Identify and make recommendations for resolving multi-system data quality issues.

6.4. Program Managers of any system partially or totally under the purview of the Distribution Process Owner's Portfolio Manager shall:

6.4.1. Ensure that USTRANSCOM data standards are implemented in their programs according to the guidance in this instruction.

6.4.2. Specify data management policies and practices in all procurement documents.

6.4.3. Provide appropriate documentation to the TA to ensure accurate program evaluation.

6.4.4. Provide deliverables that will enable frequent evaluation of development efforts against the data management standards.

6.4.5. Define their program's relationship to the data architecture and design their program accordingly.

6.4.6. Maintain metadata on all system data. Make this metadata available to the USTRANSCOM metadata repository, when it becomes available. Further information (defining specific metadata requirements and procedures) is available in the USTRANSCOM Data Management Handbook.

6.5. The CPRP shall:

6.5.1. Evaluate overall program investment priority, considering enterprise data management compliance heavily in their deliberations.

6.5.2. Review and recommend funding for programs with adequate or existent strategies for implementing USTRANSCOM data standards.

6.5.3. Ensure data integration programs are aligned to the DTS EA.

6.6. The TA shall annually evaluate and score program compliance with data management policy.

MICHAEL J. BASLA, Brigadier General, USAF
Director, Command, Control, Communications
and Computer Systems

Attachment

References and Supporting Information

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

1. References:

DODD 8320.2, Data Sharing in a Net-Centric DoD
 Defense Transportation System “To Be” Enterprise Architecture, 11 January 2001
 USTRANSCOM Data Management Handbook

2. Abbreviations and Acronyms:

| | |
|-------------|---|
| AIS | Automated Information System |
| CDE | Corporate Data Environment |
| CDO | Corporate Data Office |
| CIO | Chief Information Officer |
| COTS | Commercial Off-The-Shelf |
| CPRP | Chief Information Officer Program Review Process |
| DOD | Department of Defense |
| DODD | Department of Defense Directive |
| DTS | Defense Transportation System |
| EA | Enterprise Architecture |
| ERP | Enterprise Resource Planning |
| FIPS | Federal Information Processing Standards |
| GIG | Global Information Grid |
| GOTS | Government Off-The-Shelf |
| LDM | Logical Data Model |
| NMFTA | National Motor Freight Transportation Association |
| OPR | Office of Primary Responsibility |
| TA | Technical Assessment |
| TCC | Transportation Component Command |
| TCJ6 | Command, Control, Communications and Computer Systems Directorate |
| TLDM | Transportation Logical Data Model |
| USTRANSCOM | United States Transportation Command |
| USTRANSCOMR | United States Transportation Command Regulation |
| XML | Extensible Markup Language |

3. Terms – Not Used.