NOT MEASUREMENT
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MIL-DTL-87269D
30 JANUARY 2014

SUPERSEDING
MIL-DTL-87269C
22 JANUARY 2007

DETAIL SPECIFICATION
DATABASE, REVISABLE INTERACTIVE ELECTRONIC TECHNICAL MANUALS, FOR THE SUPPORT OF

Comments, suggestions, or questions on this document should be addressed to AFLCMC/HIAM Technical Data Section, 4170 Hebble Creek Road, Bldg. 280, Door 15, Area A, Wright-Patterson AFB, OH 45433–5653 or emailed to SGMLsupport@us.af.mil. Since contact information can change, the currency of this address information should be verified using the ASSIST Online database at https://assist.dla.mil/.

AMSC F9447   **AREA TMSS**

This specification is approved for use by the Department of the Air Force and is available for use by all Departments and Agencies of the Department of Defense.

1 SCOPE

1.1 Scope. This specification prescribes the requirements for an Interactive Electronic Technical Manual Database (IETMDB) to be constructed by a weapon-system contractor for the purpose of creating Interactive Electronic Technical Manuals (IETM). These requirements cover the specification for the IETMDB and are intended to apply to one or both of two modes as specified in a contract:

    a. The interchange format for the database to be delivered to the Government; and/or

    b. The structure and the naming of the elements of the database created and maintained by the contractor for purposes of creating IETMs which are in turn delivered to the Government.

1.2 Paragraphs with limited applicability. This specification contains paragraphs and specific requirements which may not be applicable to all Services. Such paragraphs or requirements are prefixed to indicate the Services to which the limited applicability pertains: (A) for Army; (N) for Navy; (M) for Marines; and (F) for Air Force.

2 APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

    DEPARTMENT OF DEFENSE SPECIFICATIONS

        MIL-DTL-87268   Manual, Technical - General Content, Style, Format, and User Requirements for Interactive Electronic Technical Manuals

(Copies of these documents are available online at https://assist.dla.mil/ or by mail from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation or contract.

    DEPARTMENT OF DEFENSE PUBLICATIONS

        DODM-5200.01   Department of Defense Information Security Program Regulations

        DOD 5220.22-M   National Industrial Security Program Operating Manual

(Documents may be obtained at http://www.dtic.mil)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

    INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

        ISO 10744   Hypermedia/Time-Based Structuring Language (HyTime)

(Documents may be obtained at http://www.ansi.org/.)

2.4 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3 **REQUIREMENTS**

3.1 General requirements. An IETMDB developed in accordance with this specification shall conform to the Content Data Model (CDM) specified in this document (reference Appendix A.1.1). The IETM Content Data Model (CDM) provides a representation of technical information (TI) elements and their relationships. The CDM is composed of three separate layers. The first is the "Generic Layer". It defines general characteristics which are common across all applications. The second layer is the "Interchange Layer". This layer has been established to provide a content data model (i.e. DTD fragment) holding area for harmonized, commonly used ETM and IETM data structures. The Interchange layer exists in two parts. Part 1 is a holding area for harmonized standalone ETM DTD fragments that constitute contained subsets of or identified transforms to IETM functional IETM data structures found in Part 2 of the interchange layer. The final layer is called the "Content Specific Layer" (CSL) and it contains the defining elements for weapon system specific TI.

3.1.1 The "Generic Layer. The "Generic Layer" shall define the general elements which are common across all TI applications. This layer contains resource objects that can be used for any ETM or IETM application. The generic layer defines the templates, linking elements, primitive elements, and context filtering elements which are used to create content specific DTDs. Templates define rules which must be followed in the creation of content specific DTDs and document instances. The templates provide the structure for creating composite nodes, context dependent filtering, user interaction and branching. The templates provide basic sets of rules to which elements must adhere. Also included in the generic layer are configuration management version control and incremental update entities and elements that are used in conjunction with declared template attributes to support the selection and incremental update of revisable information units within documents, the version control and interchange packaging of documents as spine SGML instances, and the flagging of updated content. A basic security classification entity is also provided to allow consistent identification of classified information within the IETM database. See DODM-5200.01 and DOD 5220.22-M for information about the Department of Defense and the National Industrial Security Program.

3.1.2 The Interchange Layer. The Interchange Layer provides a DTD fragment holding area for harmonized, commonly used IETM and ETM data structures. The Interchange layer exists in two parts.

    a. Part 1 is a holding area for harmonized standalone ETM DTD fragments that constitute contained subsets of, or have identified transforms to the interactive IETM data structures found in Part 2 of the interchange layer.

    b. Part 2 is a holding area for both harmonized and IETM-specific DTD fragments that employ the Generic Layer architectural forms to implement interactive technical manual traversal.

3.1.3 The Interchange Layer Part 1. The Interchange Layer Part 1 contains the harmonized ETM DTD fragments which define the common primitive elements and data structures. These elements and structures can be referenced from or appended to ETM DTDs to maximize upward compatibility of their instance data into an IETM database presentation environment while at the same time retaining their conventional ETM "electronic book" functionality. This Part 1 interchange layer contains declarations for primitive TEXT, GRAPHIC, AUDIO, VIDEO, PROCESS, and LINK entities and data elements, and declarations for primitive LIST data structures. These harmonized primitive entities and elements, list data models and table data model are vital to the achievement of harmonious data migration from conforming ETM instances into IETM database environments. WARNING: THESE PRIMITIVE ENTITY, ELEMENT, AND DATA STRUCTURE DECLARATIONS SHALL NOT BE ALTERED.

3.1.4 ETM data model. The above warning noted, ETM DTD data model developers are free to use all or part of the remaining entity, element, data structure models and DTD fragments referenced in this document. Undesired model content can simply be commented out. Data model developers are advised that the less of the included common content that is used, the less the resulting ETM product instance will be in harmony with the IETM database model.

3.1.5 <u>The Interchange Layer Part 2.</u> The Interchange Layer Part 2 is the holding area for a harmonized set of common content entity, element and structure declarations and DTD fragments that employ the semantics and primitive elements found in the generic layer to implement interactive presentation models. The common elements and data structures contained in this area are provided as building blocks for content-specific layer data model developers and as harmonized pathways for the migration of ETM content that was developed employing the harmonized entities, elements, and structures found in Part 1 of this layer. Data model developers are free to use all or part of the entity, element and data models provided in this document by commenting out undesired content. Data model developers are advised however that commenting out of any table or list models provided in this area will also necessitate the removal of their entity declarations from the generic layer. IETM table and list functionality is dependent upon the presence of both this Part 2 Harmonized IETM Interchange Model Area DTD and the generic layer DTD in the Content-specific Layer DTD Content Data Model.

3.1.6 <u>The bottom layer.</u> The bottom layer, the content specific layer (CSL), shall employ the generic layer when defining elements for weapon system specific TI. Many content specific layers can be developed in accordance with the generic layer. An example CSL DTD is available for download. (See Appendix A.1.1.)

3.2 <u>The CDM generic layer.</u> The CDM generic layer is the DoD standard for any IETM technical information data base procured using this specification. In addition, unless otherwise specified by the procuring activity, the content specific layer Document Type Definition (DTD) (see 6.2b.)The IETMDB can be invoked by a procuring activity in either one of two modes as follows, depending on whether a database is (1) specified for interchange and delivery to the Government, or (2) being developed and maintained for the subsequent preparation of IETMs, but not actually delivered to the Government.

a. Database interchange requirements. When specified, IETMDBs which are to be delivered to the Government under this specification shall be structured and tagged in accordance with the DTDs and the tag set descriptions referenced in Appendix A (see 6.2c.).

b. Database structuring and data element naming requirements. Unless otherwise specified, a deliverable instance created under this specification shall be structured in accordance with the hierarchical relationships defined in the CDM DTDs referenced in Appendix A, and created and named using the tag set descriptions contained in the referenced DTD. When a tagged instance is not specified for delivery, the contractor shall maintain the ability to map the internal element names to the specified content specific DTD names (see 6.2d.).

3.3 <u>Format free technical information.</u> The IETMDB shall consist of an assemblage of data elements, including a listing of the specific attributes possessed by the data elements; and a list of explicit relationships providing logical links among the data elements. The relationships incorporated into the database, by the IETMDB author, shall provide the basis of the technical structure of the IETMs and other logistic support TI which will be extracted from it. The IETMDB shall not contain format directions in the sense of arrangement of text and graphics on a display screen for presentation to the end user. The IETMDB itself shall require a "format" (database structure) but this specification does not impose structural requirements on the actual Database Management System (DBMS) methodology to be employed (i.e., the database may be either relational or object oriented). The exterior view of the database to be used for updating, adding cross references, producing tagged output files, etc. shall conform to requirements of this specification.

3.3.1 <u>Data portability.</u> Formatting requirements shall be eliminated from the IETMDB to reduce the overall magnitude of database and data interchange standardization effort. This shall also permit the use of a less complex DBMS by the contractor which is, in turn, less expensive and easier to modify. The "format-free" nature of the IETMDB shall provide the Government the capability to:

a. Acquire or access the data in a variety of ways (IETMs, other types of logistics reports, training TI, etc.).

b. Subsequently format and style the data in a variety of ways for electronic display options.

3.3.2 <u>Integration support.</u> IETMDBs shall provide direct, on-line data access to a variety of users and to a number of automated logistic support and management information systems throughout the services.

Establishment of standard identifiers, data entity relationships, and multiple path access routes to individual data elements shall be part of the IETMDB design and construction.

3.3.3 <u>Data maintainability.</u> The IETMDB shall be constructed with provisions that allow incorporation of any change to automatically update all aspects of the database affected by that change. This data-maintainability requirement shall involve the following two kinds of changes to the IETMDB:

    a. Additions to, eliminations of, or changes to individual data elements and attributes.

    b. Changes to relationships including establishment of new relationships or elimination of old relationships.

3.3.4 <u>Additional content specific DTDs.</u> When specified, additional content specific DTDs shall be used in addition to or instead of the content specific DTD provided by TMSS (see 6.2e.). These DTDs shall be incorporated into the overall CDM in accordance with the requirements of para 3.3.2.

3.4 <u>Generic layer.</u> The generic layer of the CDM is defined in the DTD provided by TMSS. This DTD provides templates, which shall be used to define content specific elements. The generic layer includes a definition for each template and the attribute lists associated with the template. The DTD provides a definition of three other data types; primitive data elements that shall remain standard across all content specific applications; user interaction elements, called dialogs; and the context filtering elements, which shall be used to provide the most appropriate information to a user. The following paragraphs describe the components of the generic layer:

3.4.1 <u>Templates.</u> Templates shall be used as described in the DTD to define elements declared in content specific DTDs. The generic layer shall contain five templates: Node, Node Alternatives, Node Sequence, If Node, and Loop Node. Each template shall have two components: (1) a set of semantic rules that govern the template's activities and (2) a list of attributes.

3.4.1.1 <u>Node template.</u> All elements conforming to the node template shall provide the capability for creating composite structures within the content specific layer. Composite structures shall contain primitives, links, and preconditions. When a composite structure contains other composite structures within its content model, this implies hierarchy.

3.4.1.2 <u>Node Alternatives (Alts) template.</u> All elements conforming to the Node Alts template shall contain a list of mutually exclusive nodes, only one of which shall be used at the time of presentation.

3.4.1.3 <u>Node Sequence (Seq) template.</u> All elements shall conform to the Node Seq template group elements together and provide an order or presentation sequence to the elements. The elements conforming to the Node Seq shall also allow an author to define branching logic within the TI.

3.4.1.4 <u>IF node template.</u> Elements conforming to the if node template shall provide a method for conditional branching. These elements shall use the same logic as the IF-THEN-ELSE statement in a programming language. The "IF" part is the expression in the content model. The "THEN" part is the first node seq and is selected when the expression evaluates to true. The "ELSE" part is the second node seq, which is optional in the CDM, and is selected when the expression evaluates to not true.

3.4.1.5 <u>Loop node template.</u> The loop node template shall provide the equivalent of a loop in a programming language. This element shall provide the capability to create either a "FOR" loop or a "WHILE" loop within the data. The expressions and assertions shall be developed in accordance with this template and provide the testing criteria for the loop. The node sequence shall contain the actual elements to be repeated within the loop.

3.4.2 <u>Relational links.</u> Elements shall have relationships to other elements in the TI, when applicable. These relationships shall be represented through two or more link ends. The link element shall provide the capability to show the relationship between several elements. The contractor shall include the specific cross-references to elements within the IETMDB as well as information sources outside the IETMDB.

3.4.2.1 <u>Links to reduce redundancy.</u> Links shall be used to reduce the number of redundant elements by referencing common elements. The templates defined within the generic layer CDM DTD shall define attributes to reduce redundant elements.

3.4.2.2 <u>Location elements.</u> Location elements are defined by ISO 10744. Elements shall be referenced by other elements in accordance with ISO 10744.

3.4.2.3 <u>Logistics support and task-analysis link.</u> The contractor shall establish linkages (information-access capabilities) with the IETMDB when external logistics support and task-analysis systems have been developed.

3.4.3 <u>Primitive elements.</u> An IETMDB shall be composed of the primitive elements defined in the generic layer DTD. Content and style for these elements shall conform to the requirements of MIL-DTL-87268.

3.4.3.1 <u>Textual information.</u> Textual information shall consist of alphanumeric (i.e., character) data. When required, textual information shall contain embedded references to some higher level elements, such as those describing parts or consumables.

3.4.3.2 <u>Tables.</u> Tables shall be represented as a series of separate entries, each entry being associated with a specific row and column intersection (cell) of a table. Each entry in the table may be associated with other primitive types of information presentation and attributes. Each entry may refer (through a relationship) to any other template element or primitive element in the IETMDB.

3.4.3.3 <u>Graphics.</u> Graphics (drawings, illustrations) information shall be structured in a hierarchical manner and consist of logically related groups. Graphics shall be composed of a series of illustrations which can be overlaid on each other to build a complete graphic. These graphic "building blocks" are called graphic primitives. Graphic primitives may be combined to produce composite information which can be referenced and selected. For Information about composing graphics (see 6.1.2.1.).

3.4.3.4 <u>Audio, video, and process elements.</u> The audio, video, and process elements shall provide the capability for the author to define an audio sequence, a video sequence, or a call to a software process.

3.4.3.5 <u>Dialog elements.</u> Dialog elements are the basic element which provides the capability for user interaction with the TI. During a presentation these elements shall be used to prompt the user to input a response, select a choice from a set of alternatives, or to select items from within a text, table or graphic.

3.4.4 <u>Context dependent filtering.</u> Context dependent filtering shall be accomplished through author-defined preconditions. Preconditions shall contain an expression which will contain all the information necessary to identify what conditions must be present to display the TI.

3.4.4.1 <u>Preconditions.</u> A precondition shall contain an expression which identifies the conditions which must be present to display the TI. Precondition elements may be referenced by node elements. This implies that the element's information is relevant only if the precondition is true in the presentation situation.

3.4.4.2 <u>Post conditions.</u> Post conditions shall assert the value of an expression to a property. Once these property values are asserted, they shall be accessible to the presentation software for later testing and processing to determine the user's situation.

3.4.4.3 <u>Expressions.</u> Expressions developed for an IETMDB shall conform to one of four types of expressions defined in the CDM. The first is a binary operation between two expressions; the second is a unary operation which is applied to an expression; the third and fourth are operations that identify a unique property (variable) or a value to be used in an expression.

3.5 <u>Content specific layer.</u> All TI shall be structured in accordance with a content specific DTD. One content specific DTD shall apply for an entire set of information regardless of the desired access to the information. The CDM shall define the content and structure of the TI but shall not describe format information.

3.5.1 <u>Control of content specific DTDs.</u> The contractor shall not exchange TI with the DoD unless it has been developed in accordance with the generic layer DTD and one or more of the latest versions of DoD approved content specific DTDs. If a content specific DTD does not exist which meets the contract's requirements, the contractor shall submit a content specific DTD to the Government for approval.

3.5.2 <u>Development of content specific DTDs.</u> For guidance to develop content specific DTDs (see 6.1.2.2).

3.5.2.1 <u>Use of generic DTD primitive elements.</u> The generic layer of the CDM shall define a set of primitive elements. Those elements shall be available to any content specific layer DTD that includes the generic layer in an entity declaration and corresponding entity reference. Any element defined within a content specific DTD which requires the use of any of the primitive elements need only include text, table,

graphic, or dialog within its content model. The contractor shall not redefine primitive elements within the content specific DTD. Those elements, using primitive elements, shall be restricted to the structure of primitive elements as defined within the generic layer.

3.5.2.2 Use of generic DTD template elements. Elements within a content specific DTD shall conform to one of the templates defined within the generic layer. Elements shall include the attributes listed under the generic layer's definition of the templates. The two common attributes among the five templates are identification (id) and CDM. Each element employing a template includes an identification attribute for referencing. The CDM attribute identifies which template an element is employing.

3.5.3 Content specific DTD for Organizational Level (O-Level) maintenance. The following describes requirements for the content specific DTD provided by TMSS.

3.5.3.1 Item/System hierarchy. The vehicle, weapon system, or other equipment that is being maintained and operated is composed of several layers of subsystems, components, and parts. This hierarchical representation shall be accomplished by use of a system element that is used recursively, and which breaks down the equipment into only those components that are being maintained or operated. Each component of this hierarchy shall have one or more of the following four categories of information associated with it:

 a. Descriptive information

 b. Procedural information

 c. Fault isolation information

 d. Parts information

3.5.3.2 Descriptive information. Descriptive information shall contain a hierarchy of narrative paragraphs. Paragraphs, in turn, may refer to primitive elements. Descriptive information may provide information on system (subsystem, component, part) physical arrangement, functional behavior, theory of operation, and other aspects.

3.5.3.3 Procedural information. Procedural information shall be composed primarily of task statements. Each task element shall be associated with attributes which provide related information such as: estimated completion time; maintenance level(s) where the task is to be performed; required conditions which shall be met before performing the task; and the number of people required to perform the task. A procedural element may be linked to other elements which define the support equipment and consumables that task requires, through the establishment of appropriate relationships.

3.5.3.4 Fault isolation information. Fault isolation information shall contain data necessary to isolate faults found in a system. Fault isolation information shall contain fault elements, fault state elements, test elements, outcome elements, and rectification elements.

3.5.3.4.1 Fault elements. Fault elements shall identify potential faults which might occur in the system.

3.5.3.4.2 Fault state elements. Fault state elements shall present a list of faults implicated as the result of a test that has been performed. Each suspected fault in the list shall be weighted, based on the probability that it is the cause of the observed malfunction. The fault state element may also present a list of possible faults that have been eliminated from consideration as the result of tests performed.

3.5.3.4.3 Test elements. Test elements shall contain a link to the procedural instructions a technician must follow to carry out a required task at a particular juncture in the fault isolation procedure. Test elements shall also provide all possible test outcomes.

3.5.3.4.4 Outcome elements. Outcome elements shall contain definitions of new fault states associated with the results of a particular test. Outcome elements shall also contain a description of the state of the item being maintained. An outcome is based on one or more expressions (i.e., system states which shall be established for the specific outcome to apply). The final outcome element of a fault isolation procedure shall have a relationship which associates it with an identified fault. The identified fault has, in turn, associated with it the initial element of the appropriate corrective maintenance action.

3.5.3.4.5 <u>Rectification elements.</u> Rectification (i.e., corrective maintenance actions) elements shall contain references to procedural rectification tasks, checkout tests used to report the success of completed rectification tasks, and a list of all faults that the rectification shall repair.

3.5.3.5 <u>Parts information.</u> Two types of parts information shall be included: (1) maintainer/operator information, and (2) supply information. Elements containing either type shall refer explicitly to corresponding elements of the other type.

3.5.3.5.1 <u>Parts information for the maintainer or operator.</u> Parts information provided for a system maintainer or operator shall include such items as units per assembly, usable-on code, mean time between failures (MTBF), and reference designator, if applicable.

3.5.3.5.2 <u>Parts information provided for parts supply.</u> Parts information provided for the parts supply process shall constitute unambiguous identification of a part so that it can be reordered, and may consist of such items as: the part number; Commercial and Government Entity (CAGE) code; Source, Maintenance, and Recoverability (SMR) code; Hardness Critical Item (HCI) identification; and National Stock Number (NSN), if applicable.

4 VERIFICATION

4.1 <u>Verification.</u> Unless otherwise specified in the contract or purchase order:

    a. Validity of the accuracy and scope of the IETMDB technical content, user interface functionality, and EDS-IETM interface shall be the responsibility of the contractor (see 6.2f.).

    b. The contractor shall provide suitable facilities to perform the validation functions specified in this document.

    c. The contractor's existing quality assurance procedures shall be used.

    d. The government reserves the right to review any of the verifications.

4.1.1 <u>Minimum verification requirements.</u> As a minimum, verification shall ensure the following:

    a. Suitability of the IETMDB for the intended maintenance environment.

    b. Usability by the intended users.

    c. Compatibility with other Government systems.

4.1.2 <u>Compliance.</u> All IETMDB shall meet all of the requirements of sections 3 and 4 of this specification. The requirements set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any requirements in this specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Use of sampling inspections shall be in accordance with commercially acceptable quality assurance procedures; however, Government approval for use of sampling in QA procedures does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

5 PACKAGING

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

5.1 <u>Intended use.</u> For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2g.). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6 NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 <u>Intended use.</u> An IETMDB is the source data for the preparation of IETMs. IETMs prepared in accordance with this specification are intended for use in the installation, operation, maintenance, repair, and logistics support of equipment/systems or for the accomplishment of the assigned mission of users.

6.1.1 <u>Nature and purpose of a revisable source database.</u> For complex weapon systems and other types of military equipment, adequate logistic support in all its forms requires an enormous amount of current, readily accessible, accurate, and highly detailed data, consisting of TI. This information has been traditionally prepared and distributed to the end user in paper form; but with new technology, it can be better and more effectively displayed or presented electronically and interactively to an end user. The material presented is derived from material stored in textual, graphical, audio, or video form in a revisable database which is composed of logically connected but randomly accessible IETM data elements. It is this starting point of the IETM electronic data chain that is specified in this document. An integral part of the IETM concept and, in the larger arena of the DoD Computer-aided Acquisition and Logistic Support (CALS) program, is that the services can acquire and maintain large scale databases. They can also gain access to such databases that are maintained continuously by a contractor.

6.1.2 <u>IETMDB capabilities.</u> An IETMDB is a complete collection of database elements relating to a weapon system or other equipment acquired by the Government and constructed in a standardized manner to provide the following capabilities:

    a. The IETMDB can serve as the basis for construction and update of the entire suite of electronically displayed, weapon system, IETMs through the use of automated authoring systems.

    b. Government activities or DoD contractors concerned with logistic support for the weapon system involved, can access the database directly to obtain needed logistic support information for specific purposes.

    c. The IETMDB, or portions of it, can be interchanged by means of standardized formats and procedures throughout the DoD and its supporting contractors when needed for any purpose.

6.1.2.1 <u>References for composing graphics.</u> Information about composing graphics may be found in MIL-HDBK-28001, MIL-STD-1840 and ISO 8632-1.

6.1.2.2 <u>Development of content specific DTDs.</u> Refer to MIL-PRF-28001 Markup Requirements and Generic Style Specification for Exchange of Text and its Presentation, for guidance to develop content specific DTDs.

6.2 <u>Acquisition requirements.</u> Information for acquisition documents may include:

    a. Title, number, and date of the specification.

    b. If IETM program requires content specific layer elements other than the content specific layer elements provided by TMSS (see 3.2.).

    c. If the specification applies to the delivery and tagging of an IETMDB (see 3.2a.).

    d. If the specification applies to the structuring of the IETMDB and naming of the IETMDB elements which are created and maintained by the contractor (see 3.2b.).

    e. Content specific DTDs other than the one provided by TMSS and whether these are to be used in addition to or instead of the one provided by TMSS. (see 3.3.4).

    f. If Validity is to be the responsibility of the Contractor (see 4.1).

    g. Packaging requirements (see 5.1).

6.3 <u>Technical information procurement options.</u> Acquisition of IETMs may be carried out by one of several optional approaches. This specification provides requirements for a standardized IETMDB which will permit the Government to acquire TI by applying any of the following contractual options:

    a. Acquisition of only the required final form IETMs. Although the author (equipment prime contractor) will need to establish an automated equipment or weapon-system (source) database, this database will not be acquired by the Government. The contractor will maintain, use, and

control the database, both for the preparation of IETMs and for other purposes. The Government under this specification requires that the database be structured and the individual data elements named and attributed in a standard manner. However, an explicitly tagged data file need not be prepared for delivery as no database delivery is required.

    b. Acquisition of the IETMDB. Acquisition of the IETMDB may involve either of the following options:

        1. Delivery to the Government, in standardized form, and subsequently maintained by the Government (whether or not update information is supplied on a continuing basis by the contractor).

        2. Title to the IETMDB acquired by the Government, but with the database retained and maintained in standardized form in the contractor's plant. The Government could be provided with online access to the database.

    c. Acquisition of fully constructed IETMs (fully prepared and validated by the contractor), as well as the IETMDB upon which they are based. Acquisition under this option may involve either option (1) or (2) as given in 6.2.b. above.

6.4 <u>Definitions of acronyms and terms.</u> Acronyms and IETM terms not listed in MIL-STD-12 included in this specification are defined as follow:

6.4.1 <u>Definitions of acronyms.</u>

CAGE	Commercial And Government Entity
CDM	Content Data Model
DBMS	Database Management System
DD	Department of Defense (document-number prefix)
DoD	Department of Defense
ASSIST	Acquisition Streamlining and Standardization Information System
DTD	Document Type Definition
EDS	Electronic Display System
HCI	Hardness Critical Item
IETM	Interactive Electronic Technical Manual
IETMDB	IETM Database
ISO	International Organization for Standardization
MTBF	Mean Time Between Failures
NSN	National Stock Number
QA	Quality Assurance
SGML	Standard Generalized Markup Language
SMR	Source, Maintenance, and Recoverability (Code)

6.5 <u>Changes from previous issue.</u> The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

6.6 <u>Subject term (key word) listing.</u>

    Generic layer

Item/System hierarchy
The Interchange Layer
The loop node template
Database Management System
Content Data Model
Content Specific Layer

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APPENDIX A

IETM DATABASE TECHNICAL MANUAL
TAGGED LANGUAGE TOOL SUBSET

A.1 SCOPE.

A.1.1 Scope. This appendix describes the standard Air Force (AF) tagged language digital tools created for developing and delivering AF Technical Manuals (TMs). These tools are available as subsets in the Digital Support Suites (DSS) provided by the AF Technical Manual Specifications and Standards (TMSS) activity (see A.2). This appendix is a mandatory part of this detail specification. The information herein is intended for compliance.

A.1.2 Template Tool. The Document Type Definition (DTD) is the primary tool that is used as a template for authoring AF TMs and is based on rules outlined in MIL-PRF-28001 and ISO 8879. See A.2.1 for information about the DTD specified for this appendix subset.

A.2 DSS.

The DSS is comprised of the following tools for authoring and rendering the TM. See A.3 for information about obtaining DSS component files in digital format through the TMSS activity web site. For information about the current status of DSS tools, see A.3.4.

A.2.1 DTD. The DTD provides the structure and content template in accordance with the content specific requirements of this specification. To be delivered digitally, the TM shall be tagged using the applicable DTD provided through the TMSS activity. DTDs are furnished in Standardized General Markup Language (SGML); however, this does not preclude converting TMs authored in SGML to Extensible Markup Language (XML), if directed by the acquiring activity.

A.2.2 Formatted Output Specification Instance (FOSI). The FOSI provides formatting for each element of an SGML tagged instance for rendering as a page-oriented document. It contains formatting information that conforms to the content specific requirements of this specification. It should be noted that the FOSIs offered by the TMSS activity are written to be used with a specific document composition engine, i.e., DL Composer™, available for use on the AF JCALS.

A.2.3 Tag Description Table (TDT). The TDT provides detailed descriptions of the elements contained in the DTD. The TDT contains the element tagging structure, parent elements, full element name, source paragraph, attribute descriptions unique to the element, and entities.

A.2.4 OmniMark™. OmniMark™ is a text processing language that is used by TMSS to allow authors to auto-generate redundant material that may be difficult to tag manually. DSSs contain Omimark™ scripts designed for use on the AF JCALS.

A.3 OBTAINING DSS TOOLS.

A.3.1 Obtaining files by users with .mil web site access. The following applies to those interested in obtaining DSS component files who are on a .mil internet domain, having .mil web address access.

A.3.1.1 AF TMSS web site. DTDs, TDTs, and other files in the DSS can be accessed at the TMSS web site at https://techdata.wpafb.af.mil/tmss/index.html. On the web page, the "Baseline" menu option in the left pane contains three bulleted options called "Specifications", "Standards", and "Handbooks". Hover the cursor over "Specifications" and a listing of the TMSS specifications will appear. Hover over the desired specification number and another drop down list will appear that contains an entry indicating the PDF version of the specification and other entries for the associated appendices. To obtain the preferred subset DTD, select the desired appendix from the list. The following items will appear on the downloading page: The name of the specification, the appendix number and name, the current version of the DSS, buttons to download specific DSS files provided and a "Download" button to download the entire DSS zip file.

A.3.2 Obtaining files by users with a Public Key Infrastructure (PKI) certificate or a Common Access Card (CAC). The following applies to those interested in obtaining DSS component files who have a PKI certificate or a CAC (see http://iase.disa.mil/pki-pke/index.html for information on PKI and CAC access requirements).

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A.3.2.1 <u>AF TMSS SharePoint web site.</u> DTDs, TDTs, and other files in the DSS can be accessed at the AF TMSS Sharepoint web site: https://cs3.eis.af.mil/sites/OO-LG-MC-38/default.aspx.

A.3.3 <u>Obtaining files by users without .mil access, PKI certificate, or CAC.</u> Those seeking to obtain DSS files who do not have .mil web access, a PKI certificate, or a CAC should contact their AF Program Management Office (PMO) or see A.3.4 to obtain information.

A.3.4 <u>TMSS Helpdesk assistance.</u> Address any requests or questions relating to the DSS by E-mail to SGMLSUPPORT@us.af.mil (organizational address: Wright-Patterson AFLCMC/HIAM_AF TMSS HLPDSK) or by postal mail to Air Force Technical Manual Specifications and Standards, AFMC AFLCMC/HIAM, 4170 Hebble Creek Road, Building 280, Door 15, Wright-Patterson AFB OH 45433-5653.

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CONCLUDING MATERIAL

Custodians: Preparing activity:
Navy - AS   Air Force - 16
Air Force - 16   (Project TMSS-2014-001)

Review activities:
Navy - EC, MC, SA, SH, YD
Air Force - 11, 13, 19, 70, 71, 84, 99

NOTE

The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.