DATA ITEM DESCRIPTION

Title: INTERFACE DESIGN DESCRIPTION (IDD)

Number: DI-IPSC-81436A
AMSC Number: N7361
DTIC Applicable: No
Office of Primary Responsibility: NAVY/EC
Applicable Forms:
Use, Relationships:

Approval Date: 19991215
Limitation:
GIDEP Applicable:

The Interface Design Description (IDD) describes the interface characteristics of one or more systems, subsystems, Hardware Configuration Items (HWCIs), Computer Software Configuration Items (CSCIs), manual operations, or other system components. An IDD may describe any number of interfaces.

The IDD can be used to supplement the System/Subsystem Design Description (SSDD) (DI-IPSC-81432A), Software Design Description (SDD) (DI-IPSC-81435A), and Database Design Description (DBDD) (DI-IPSC-81437A). The IDD and its companion Interface Requirements Specification (IRS) (DI-IPSC-81434A) serve to communicate and control interface design decisions.

This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to define and record the interface design of one or more systems, subsystems, HWCIs, CSCIs, manual operations, or other system components.

The IRS specifies interface requirements; the IDD describes interface characteristics selected to meet those requirements. The IDD may reference the IRS to avoid repeating information. The IDD can be used to supplement the SSDD, SDD, or DBDD.

This DID supersedes DI-IPSC-81436.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The description shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The description shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the systems, subsystems, or items to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; distribution statement; and signature blocks for the developer representative authorized to release the document, the acquirer representative authorized to approve the document, and the dates of release/approval. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Interface design. This section shall be divided into the following paragraphs to describe the interface characteristics of one or more systems, subsystems, configuration items, manual operations, or other system components. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. If part or all of this information is documented elsewhere, it may be referenced. Design conventions needed to understand the design shall be presented or referenced.

3.1 Interface identification and diagrams. For each interface in 1.1, this paragraph shall state the project-unique identifier assigned to the interface and shall identify the interfacing entities (systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) and which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided, as appropriate, to depict the interfaces.

3.x (Project-unique identifier of interface). This paragraph (beginning with 3.2) shall identify an interface by project-unique identifier, shall briefly identify the interfacing entities,

and shall be divided into subparagraphs as needed to describe the interface characteristics of one or both of the interfacing entities. If a given interfacing entity is not covered by this IDD (for example, an external system) but is interface characteristics need to be mentioned to describe interfacing entities that are, these characteristics shall be stated as assumptions or as "When [the entity not covered] does this, [the entity that is covered] will ...." This paragraph may reference other documents (such as data dictionaries, standards for protocols, and standards for user interfaces) in place of stating the information here. The design description shall include the following, as applicable, presented in any order suited to the information to be provided, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

a. Priority assigned to the interface by the interfacing entity (ies)

b. Type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented

c. Characteristics of individual data elements that the interfacing entity (ies) will provide, store, send, access, receive, etc., such as:

1) Names/identifiers

a) Project-unique identifier
b) Non-technical (natural-language) name
c) DOD standard data element name
d) Technical name (e.g., variable or field name in code or database)
e) Abbreviation or synonymous names

2) Data type (alphanumeric, integer, etc.)

3) Size and format (such as length and punctuation of a character string)

4) Units of measurement (such as meters, dollars, nanoseconds)

5) Range or enumeration of possible values (such as 0-99)

6) Accuracy (how correct) and precision (number of significant digits)

7) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

8) Security and privacy constraints

9) Sources (setting/sending entities) and recipients (using/receiving entities)

d. Characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the interfacing entity (ies) will provide, store, send, access, receive, etc., such as:

1) Names/identifiers

a) Project-unique identifier
b) Non-technical (natural language) name
c) Technical name (e.g., record or data structure name in code or database)
d) Abbreviations or synonymous names

2) Data elements in the assembly and their structure (number, order, grouping)

3) Medium (such as disk) and structure of data elements/assemblies on the medium

4) Visual and auditory characteristics of displays and other outputs (such as colors, layouts, fonts, icons and other display elements, beeps, lights)

5) Relationships among assemblies, such as sorting/access characteristics

6) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply

7) Security and privacy constraints

8) Sources (setting/sending entities) and recipients (using/receiving entities)

e. Characteristics of communication methods that the interfacing entity (ies) will use for the interface such as:

1) Project-unique identifier(s)
2) Communication links/bands/frequencies/media and their characteristics
3) Message formatting
4) Flow control (such as sequence numbering and buffer allocation)
5) Data transfer rate, whether periodic/aperiodic, and interval between transfers
6) Routing, addressing, and naming conventions
7) Transmission services, including priority and grade
8) Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing

f. Characteristics of protocols that the interfacing entity (ies) will use for the interface, such as:

1) Project-unique identifier(s)

2) Priority/layer of the protocol
3) Packeting, including fragmentation and reassembly, routing, and addressing
4) Legality checks, error control, and recovery procedures
5) Synchronization, including connection establishment, maintenance, termination
6) Status, identification, and any other reporting features

g. Other characteristics, such as physical compatibility of the interfacing entity (ies) (dimensions, tolerances, loads, voltages, plug compatibility, etc.)

4. Requirements traceability. This paragraph shall contain:

a. Traceability from each software unit identified in this IDD to the system or to the CSCI requirements addressed by the entity's interface design.

b. Traceability from each system or CSCI requirements that affects an interface covered in this IDD to the interfacing entities that address it.

5. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81436A