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MILITARY STANDARD

CONFIGURATION MANAGEMENT PLAN

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DEPARTMENT OF DEFENSE
Washington, DC 20362-5101

Configuration Management Plan

1. This Military Standard is approved for use by all Departments and Agencies of the Department of Defense.

2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document, should be addressed to: Commander, U.S. Army ARDEC, ATTN: SMCAR-BAC-S, Picatinny Arsenal, New Jersey 07806-5000 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FOREWORD

1. Configuration Management (CM) Plans are the means by which the Government and the contractor are to document the details of their respective coordinated CM programs. Initially, CM Plans should provide planning and procedural information. As the Configuration Item (CI) progresses through the various phases of its life cycle, the content of the CM Plans should be revised to include historic as well as updated planning and procedural information. The CM Plan is applicable to a CI throughout its life cycle. A CM Plan may address a system consisting of more than one CI or a group of related CIs provided the purpose and objectives for having CM Plans can be met.

2. The CM Plans should describe the CI and the procedures for CM application, tailoring, tasks, participants and their roles, products, locations, scheduled events, related programs (e.g., reliability, maintainability, quality assurance, Integrated Logistics Support (ILS), systems engineering, test and evaluation programs, etc.), as well as other CM programs or allocated and related CIs. Implementing procedures pertinent to each element of CM should be specified as they affect the CI, its configuration identification, the government and industry.

3. CM Plans should be tailored to be consistent with total program needs and the requirements of this standard.

4. This standard covers CM plans for both Hardware Configuration Items (HCIs) and related Computer Software Configuration Items (CSCIs). Procuring activities may elect to specify CM Plans in accordance with DI-MCCR-80009 for CSCIs on programs covering Mission Critical Computer Resources (MCCR) only or on Software Intensive Systems programs. When DI-MCCR-80009 is specified for CSCIs, CM Plans in accordance with this standard should still be applied to non MCCR HCIs. When CM Plans conforming to both this standard and DI-MCCR-80009 are required on the same contract, the plans should be closely coordinated and should reference each other. Government CM Plans for all HCIs and CSCIs should be in accordance with this standard

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1. SCOPE

1.1 Purpose. This standard establishes uniform requirements for CM Plans. CM Plans shall encompass the description of methods and procedures used to manage the functional and physical characteristics of a Configuration Item (CI), its interfaces and identification documents. The term CI as used herein may be hardware, firmware or other computer software (see 30.14).

1.2 Applicability. It is intended that this standard be used by contractors and Government activities to prepare CM Plans (hardware or hardware and software) for CIs which are designed, developed, produced or modified for the Department of Defense (DOD).

1.3 Application guidance. This standard describes one task, the preparation of a CM Plan. The task description shall be tailored as appropriate to the particular CI and its life cycle phase. In tailoring the task, the detail and depth of the CM Plan required is defined and incorporated in the appropriate contractual document or tasking order. This standard shall be used for guidance only during Concept Exploration and Demonstration and Validation Program Phases.

1.3.1 Nondevelopmental item (NDI). CM Plans for NDIs shall address, at a minimum, Configuration Control interchangeability and interoperability (see 30.26).

1.4 Policy. CM Plans prepared in accordance with this standard shall be complete and in sufficient depth to not only provide the Government and industry with needed planning information, but also to serve as a means of defining specific program CM responsibilities, procedures, and practices.

2. REFERENCED DOCUMENTS

2.1 Government documents.

2.1.1 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 listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.4).

SPECIFICATIONS

MILITARY

DOD-D-1000	Drawings, Engineering and Associated Lists.
MIL-S-83490	Specifications, Types and Forms.

STANDARDS

MILITARY

DOD-STD-480	Configuration Control-Engineering Changes, Deviations and Waivers.
MIL-STD-481	Configuration Control-Engineering Changes, Deviations, and Waivers (Short Form).
MIL-STD-490	Specification Practices.
MIL-STD-961	Military Specification and Associated Documents.
MIL-STD-1521	Technical Reviews and Audits for Systems Equipment and Computer Programs.
DOD-STD-2167	Defense System Software Development.

(Copies of specifications, standards, handbooks, drawings, and publications required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.1.2 Other Government publications. The following other Government publication forms a part of this standard to the extent specified herein.

Department of Defense Directive 5010.19 - DOD Configuration Management Program.

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

3. DEFINITIONS

Definitions are contained in APPENDIX A.

4. GENERAL REQUIREMENTS

4.1 General. CM Plans shall define the methods used to manage the functional and physical characteristics of CIs, including interfaces and identification documents, for the full scale development and subsequent program phases.

4.1.1 Application. The CM Plan reflects the interpretation and application of the Department of Defense Directive 5010.19 - Configuration Management, for a given program.

4.1.2 CM plan requirement. Unless otherwise specified, CM Plans or a detailed outline for CM implementation shall be prepared following the requirements contained herein.

4.2 Objectives. A CM Plan is prepared to provide a document that shall:

a. Ensure that all required elements of CM are applied in such a manner as to provide a comprehensive CM program meeting contractual requirements.

b. Provide for identifying the means by which continuity of effort and understanding is achieved among the various activites, primarily between the responsible Government activity and the other Government Agencies which may be responsible for allocated CIs, integrating, interfacing or otherwise related CIs; contractor organizations; test and evaluation activities; and Managers.

c. Establish internal CM requirements for a total contract.

d. Serve, when approved, as a working document to plan, guide, and measure the CM process.

4.3 Implementation. CM Plans shall be initiated as soon as possible in the life cycle of the CI.

4.4 Interface management. The criticality of maintaining interfaces may require an intensive interface management program which may be administered separately from the CM program. If such a program is required, the CM Plan shall describe that program, e.g., charters, working groups, etc. If a separate interface management program is not required, the CM Plan shall detail how the identification and control of the interfaces will be accomplished.

5. DETAILED REQUIREMENTS

5.1 Format. The format of the plan shall conform to the following outline. Optionally, sections listed may be further subdivided.

a. Self-cover

b. Record of reviews and history

c. Contents page

d. Section 1. Introduction
- 1.1 Description of the Configuration Item (CI)
- 1.2 Program Phasing and Milestones
- 1.3 Special Features

e. Section 2. Organization
- 2.1 Structure
- 2.1.1 Structure (CM)
- 2.1.2 Configuration control boards
- 2.2 Authority and responsibility
- 2.3 Policy directives
- 2.4 Reference documents

f. Section 3. Baseline identification
- 3.1 Functional baseline
- 3.2 Allocated baseline
- 3.2.1 Specifications
- 3.2.2 Drawings
- 3.3 Product baseline
- 3.3.1 Specifications
- 3.3.2 Drawings and associated lists

g. Section 4. Configuration control
- 4.1 Responsibilities
- 4.2 Procedures

h. Section 5. Interface management
- 5.1 Documentation
- 5.2 Interface control

i. Section 6. Configuration traceability
- 6.1 Nomenclature
- 6.2 Documentation numbering
- 6.3 Hardware identification
- 6.3.1 Documentation/hardware correlation
- 6.4 Software and firmware identification

j. Section 7. Configuration status accounting
- 7.1 Data bank description
- 7.2 Data bank content
- 7.3 Reporting

k. Section 8. Configuration management audits

l. Section 9. Subcontractor/vendor control

5.2 Contractor CM Plan Content. The information described in the following paragraphs shall be included in each plan as applicable.

5.2.1 Self-cover. The self-cover shall provide the nomenclature of the CI, contractor's name, address and Commercial and Government Entity (CAGE) code; contract number, and CDRL Sequence No., contracting agency and date of issue. This page shall also contain the contractors authorizing signature and when required, an approval/signature block for the procuring agency.

5.2.2 Record of reviews and history. This information shall include the review and approval dates of plan changes.

5.2.3 Contents page. Self-explanatory.

5.2.4 Section 1 - Introduction. This section shall provide a description of the materiel to which the plan is to be applied, the management/acquisition philosophy to which it is tailored, the current status of the program, and significant plans for the future. Special CM problems presented by the nature of the materiel or the program shall be specified.

5.2.4.1 Paragraph 1.1 - Description of the CI. The CI, or families of CIs, will be briefly described in this paragraph and subparagraphs as required. Sufficient detail will be presented to permit a basic understanding of the CI and its complexity. Included will be the following: (Information will be provided in a manner to avoid security classification of the plan, if possible.)

a. Mission/capability of each CI.

b. Description of each CI mission and its relationship to other missions and field/unit level peculiar to its support equipment.

c. Supporting Mission Critical Computer Resources (MCCR) description.

d. Training equipment requirements.

e. Government Furnished Equipment (GFE). (May be specified in a separate appendix if necessary.)

5.2.4.2 Paragraph 1.2 - Program phasing and milestones. The current status of the program (concept exploration, demonstration and validation, full scale development, production and deployment), at the time of preparation or update of the plan, will be specified. A milestone chart shall be included which depicts the CM activities and their relationship to the major overall project/program milestones. The relationship between events critical to CM and to the schedule/control of the program, e.g., sequencing of design reviews, release of engineering documentation, production, test program, logistic support events, audits, etc, shall be specifically defined.

5.2.4.3 Paragraph 1.3 - Special features. Abnormal conditions or special features of the material or the management program which have a bearing on the plan, will be described, e.g., major product improvement programs which will result in more than one configuration to be supported in the field with more than one product baseline, depot rebuild programs designed to reduce the differences among models of fielded equipment, or major model differences in systems or weapons designed for varying applications. Peculiarities of the CM program that result from participation by a large number of organizations, or unique contracting methods, e.g., preproduction evaluation, use of many commercial items, use of existing drawings and specifications, and employment of an integrating contractor will be described here. Innovations intended to increase the effectiveness of the program will also be described here.

5.2.5 Section 2. Organization. This section shall outline the relationship and integration of the contractor's program/project management to CM and describe the organizational relationship of the individuals and activities involved in the CM program. Responsibilities shall be defined and the policy directives that govern the program shall be listed. Procedures shall not be included in this section.

5.2.5.1 Paragraph 2.1 - Structure. An organizational chart for the program (or Company, or division of Company) which illustrates the structure of program/project management shall be used. The chart, supplemented by narrative description or flow diagrams, shall illustrate the authority/ responsibility of the key organizational elements in the company impacted by contractual requirements for CM. The integration of CM activities with other program/project activity shall also be described. This paragraph shall specify the relationships among the contractor's software CM organization, the contractor's hardware CM organization, and the project's hardware CM organization when the software is only one element of the system being developed.

5.2.5.1.1 Paragraph 2.1.1 - Structure (CM). Charts supplemented by narrative descriptions will define the relationships between activities directly involved in the CM program. The charts will include the Configuration Manager, CM Office or function, interfacing organizations, procuring and administrative contacting officers, data management, and subcontractors to the extent employed in the program and any other elements that may be involved.

5.2.5.1.2 Paragraph 2.1.2 - Configuration Control Boards (CCB). This paragraph shall delineate the authority and responsibility of the CCB in depth. The following shall be included:

a. Relationship of CCB to change authorization (i.e., Recommendation or Action).

b. Relationship of CCBs if there are more than one level or separate software CCBs.

c. Membership of the CCBs.

5.2.5.2 Paragraph 2.2 - Authority and responsibility. Each activity or individual shown on the organization chart(s) shall be the subject of a subparagraph which will detail the authority and responsibility for which CM is assigned. Included will be the Configuration Manager, the Contracting Officer, interface organizations, and the CCB. Both authority and responsibility shall be covered, and signature authority for Engineering Change Proposals (ECPs) and Request for Deviation/Waivers (RFD/RFWs) shall be specifically assigned.

5.2.5.3 Paragraph 2.3 - Policy directives. All policy directives directly related to CM shall be listed. These directives shall be project/program related directives or, if company standards, directly traceable to a project/program directive. If company standards are to be tailored for the project/program application, this shall be clearly defined in a cover program directive.

5.2.5.4 Paragraph 2.4 - Reference documents. This paragraph shall list only those documents which are referred to in the CM Plan, with the exception of those listed in paragraph 2.3.

5.2.6 Section 3 - Baseline identification. Requirements covering preparation, submission for Government approval and subsequent release of the Government-approved documentation which defines each of the required baselines shall be established in this section. The contractor's methods under which the documentation will be prepared and released shall be described, and the time periods in which that will be accomplished shall be indicated.

5.2.6.1 Paragraph 3.1 - Functional baseline. The documents which establish the functional baseline shall be listed in this paragraph. The contractor's plan for proposing modifications or expansions of those documents shall be outlined.

If the Functional baseline is to be prepared by the contractor, the document format per MIL-STD-490 or MIL-STD-483 Appendix III shall be defined. The procedure for review and release will be outlined, and the degree of Government control shall be specified.

5.2.6.2 Paragraph 3.2 - Allocated baseline. The contractor's plan for proposing modifications or expansion of existing development specifications shall be outlined. A list of all existing and required development specifications shall be included in specification tree format and each HCI shall be designated in accordance with the classification system of MIL-S-83490. Allocated baseline documentation for CSCIs shall be in accordance with DOD-STD-2167 and as specified. A list of drawings, if applicable, which form a part of the allocated baseline shall also be provided. If the contractor is to prepare the documents for the allocated baseline, plans for preparation, review and release of the allocated documentation shall be outlined here. The technique for the application of the baseline documentation to control the development effort shall be specified.

5.2.6.2.1 Paragraph 3.2.1 - Specifications. This paragraph shall identify the specification per MIL-STD-490 and MIL-STD-483 that the contractor shall prepare, existing specifications for CI, and the use of these specifications to establish and control the allocated baseline developed within the contractor's organization. The alignment of authority and responsibility of the contractor and the procuring activity with respect to establishment of the configuration identifications, and changes to the specifications establishing the configuration identification, including clear delineation of responsibility for cost and schedule impacts which may result, shall be included herein. The plans shall identify known specifications below prime CI level that will be prepared; e.g., critical items. The applicability of appropriate policy and appendixes of MIL-STD-490 to this program (contract) shall be stated. Any need for deviation of the content of those appendixes deemed applicable shall be stated. Any limitations on delivery to, or use by, the procuring activity of contractor-prepared specifications shall be stated. The list of specifications shall be prepared in specification tree format. This paragraph shall also identify the software documentation imposed or to be generated as part of the allocated baseline. The type of specification/document as prescribed by DOD-STD-2167 shall be specified.

5.2.6.2.2 Paragraph 3.2.2 - Drawings. This paragraph shall identify the drawings and diagrams that are a part of or shall be a part of the allocated baseline. A list of interface control drawings for both hardware shall be delineated here or in a separate appendix. If interface control drawings are not to be a part of the allocated baseline, a justification with rationale must be provided (See also section 5 Interface Control). Plans for preparation, review, and release shall be outlined. The technique for their application to control the development effort shall be specified.

5.2.6.3 Paragraph 3.3 - Product baseline. The details of the type, categories, forms and levels of documents to be utilized in establishing this baseline shall be listed. Plans for preparation, review, release and control of the product specifications and drawings and CSCI code standards (DOD-STD-2167) shall be outlined.

5.2.6.3.1 Paragraph 3.3.1 - Specifications. This paragraph shall identify the hardware and software specifications which the contractor shall prepare and the format to which they will be prepared (MIL-STD-961 or MIL-STD-490). Any limitations on procuring activity approval of content and at what stage in the program that these above specifications will be available to the procuring activity shall also be identified. The applicability of appropriate policy and appendixes of MIL-STD-961 or MIL-STD-490 to this program (contract) shall be stated. Any need for deviation of the content of those appendixes granted for this program shall be stated. Any limitations on delivery to, or use by, the procuring activity of contractor-prepared specifications shall be stated.

5.2.6.3.2 Paragraph 3.3.2 - Drawings and associated lists. This paragraph shall define the drawings practices for application to the CI, and the application of DOD-D-1000, and standards referenced therein. Any limitation on delivery to, or use by the procuring activity, of contractor-prepared drawings shall be stated. The use of interface control drawings/interface identification of parameters shall be addressed.

5.2.7 Section 4 - Configuration control. This section shall define the responsibilities and procedures used within the contractor's organization for control to established hardware and software CI, and for processing changes to these established CIs. Configuration control of the interfaces between the procuring activities and the contractor shall be stated. This section shall be specific in its treatment of the subject of control of technical interfaces both between the contractor and the procuring activity and, when appropriate, the contractor and other contractors involved in the program. Plans for specific application of DOD-STD-480 or MIL-STD-481 shall be stated.

5.2.7.1 Paragraph 4.1 - Responsibility for design release.

a. If design responsibility rests with the contractor for part of the program, this paragraph shall define the contractors authority and responsibility. It shall also delineate the contractor's internal procedures after the Government assumes control.

b. Where the Government assumes design responsibility, this section will outline the procedures for processing ECPs and RFD/RFWs. If Value Engineering Design Release Change Proposals (VECPs) follow a different routing or level of approval, those differences will be described. Procedures and responsibilities for approval of deviations and waivers be specified, including those involving a Materiel Review Board (MRB) and reporting of deviations and waivers into the status accounting system.

5.2.7.2 Paragraph 4.2 - Procedures. This paragraph shall address:

a. A separate chart shall be prepared for the processing of contractor changes if change authority rests with the contractor for a period of time. Copies of the contractors forms as exhibits shall be included along with the narrative for the chart.

b. The processing of ECPs, VECPs, RFD/RFWs (to include all classes, priorities and types) and Software Trouble Reports (STRs) will be described in chart form, supported by narrative as required. Information shall be included for each element involved from the original proposer through the contracting officer responsible for the contractual implementing action.

c. Procedures for ensuring implementation of approved changes into production, repair parts, retrofit and technical publications programs and feedbacks to the procuring activity shall be described.

d. If during the program (contract), different requirements for processing changes are necessary, those requirements shall be clearly defined by separate charts supported by narrative.

e. The inputs to the status accounting system will be clearly defined and keyed to the change process. Capabilities for the monitoring of changes shall be described in detail.

5.2.8 Paragraph 5.2 - Interface Control. This paragraph shall delineate the authority, responsibilities and procedures for releasing and revising the Interface Control Documents and all aspects of the interface program, e.g., GFE/GFP, Government/contractor, contractor/contractor.

5.2.9 Section 6 - Configuration traceability. This section shall describe the plan for establishing the methods to be used for identifying documents and physical items in order to achieve configuration traceability from requirements to equipment, subassemblies, piece-parts, facility sites and spares, and the proper relationship between engineering/manufacturing data and manufactured CIs. Identification of software shall be addressed and include the following:

a. Locations or plan for the development of a software support library.

b. Reconciling deliverable software to its approved documentation.

c. Assuring that the software, descriptive documentation, and program materials are properly identified.

5.2.9.1 Paragraph 6.1 - Nomenclature. This paragraph shall address the process of nomenclature assignment and the requirements for titling specifications and drawings.

5.2.9.2 Paragraph 6.2 Documentation numbering. If the procuring activity has specified requirements (assignment of numbers) for documents, those requirements shall be stated here. If contractor numbers are to be used, this paragraph shall delineate in detail the numbering system to be used for drawings and specifications.

5.2.9.3 Paragraph 6.3 - Hardware identification. The contractor shall identify the plan and procedures for part identification, serialization, and lotting including the criteria to be used for part reidentification. The paragraph shall list the criteria used in applying serial numbers and lot numbers and shall identify, where possible by document number, the items that shall be subjected to serial/lot control.

5.2.9.3.1 Paragraph 6.3.1 - Documentation/hardware correlation. This paragraph shall present the contractor's plans and identify the procedures, and capability of generating and maintaining a record which describes the relationship between the "as designed," "as built," and "as modified" configurations.

5.2.9.4 Paragraph 6.4 - Software and firmware identification. This paragraph shall delineate the contractor's plans and identify the procedures, and methods for identification of software and firmware including correlation to its documentation. Plans for reconciling the software status reports and the status of the software, descriptive documentation, and program materials with the approved baselines and its approved changes shall be addressed.

5.2.10 Section 7 - Configuration status accounting. Contractors shall state their plans for status accounting for this program (contract). This section shall also outline plans for collecting, storing, handling, verifying, validating and presenting of configuration status information to management. Techniques to be applied to provide an information system responsive to customer and internal needs shall be specified. The content and format of periodic summary reports to reflect status of ECPs, RFD/RFWs and STRs, etc., as appropriate, shall also be delineated.

5.2.10.1 Paragraph 7.1 - Data bank description. Plans for establishment of the configuration status accounting data bank shall be described in this paragraph. The plan must indicate whether the data bank will be manual or automated, and how inputs and outputs of participating (Subcontractors/Government) activities will be handled.

5.2.10.2 Paragraph 7.2 - Data bank content. The type of information that will be stored in the data bank shall be indicated in this paragraph, with a short description of the sources, and the techniques by which the information will be incorporated. Means must be provided for collecting data on documentation release and revision, on deliverable tools, inspection, test equipment and repair parts affected by changes, on publication status, and on implementation of changes to hardware in production and in the field (to include software and firmware, as applicable).

5.2.10.3 Paragraph 7.3 - Reporting. The methods by which information will be presented to management will be indicated here. Both inquiry capability and periodic milestone reporting will be covered. (Under most circumstances, emphasis should be placed on the ability of the system to produce concise answers to specific inquiries by management elements; bulky periodic reports should be minimized.) The plan must indicate the type of data that will be available on call, as well as the purpose for which it is intended. Planned periodic reports will be listed.

5.2.11 Section 8 - Configuration management audits. This section shall describe (a) plans, procedures, and documentation, for the Functional and Physical Configuration Audits in accordance with MIL-STD-1521 and (b) the format and reporting results of in-process configuration audits.

5.2.12 Section 9 - Subcontractor/vendor control. The contractor shall indicate his proposed methods for control over subcontractors and vendors, insofar as it impacts on his CM commitments to the procuring activity. The methods used to determine their capability and monitor their ability to support the requirements of CM shall be explained.

5.3 Government CM Plan content. The information described in the following paragraphs shall be included in each plan as applicable.

5.3.1 Self-cover sheet. The self-cover sheet shall provide the nomenclature of the System or CI; preparing and approving Government Activity's organization and signature, and date of signature(s).

5.3.2 Record of reviews and history. This page shall show dates of reviews and approvals of plan changes.

5.3.3 Contents page. Self-explanatory

5.3.4 Section 1 - Introduction. This section shall provide a description of the materiel to which the plan is to be applied, the management/acquisition philosophy to which it is tailored, the current status of the program, and significant plans for the future. Special CM problems presented by the nature of the materiel, or the program shall be specified.

5.3.4.1 Paragraph 1.1 - Description of the CI. The CI, or families of CIs, shall be briefly described in this paragraph and subparagraphs as required. Sufficient detail shall be presented to permit a basic understanding of the CI and its complexity. Included shall be the following: (Information shall be provided in a manner that will preclude security classification of the plan, if possible.)

a. Mission/capability of the CI.

b. Description of each prime item showing its relationship to the CI.

c. Supporting software description.

d. Training equipment requirements.

e. Government Furnished Equipment/Property. (May be specified in a separate appendix if necessary.)

f. Description of the software capability as related to mission and to each prime item within the CI.

5.3.4.2 Paragraph 1.2 - Program phasing and milestones. The current status of the program (concept exploration, demonstration and validation, full scale engineering development, production and deployment) at the time of preparation or update of the plan, will be specified. A milestone chart shall be included which depicts the CM activities and their relationship to the major overall project/program milestones. The relationship between events critical to CM and to the schedule/control of the program, e.g., sequencing of design reviews, release of engineering documentation, production, test programs, logistic support events, audits, etc., shall be specifically defined.

5.3.4.3 Paragraph 1.3 Special features. Abnormal conditions or special features of the material or the management program which have bearing on the plan will be described, e.g., major product improvement programs which will result in more than one configuration to be supported in the field with more than one product baseline, depot rebuild programs designed to reduce the differences among models of field equipment, major model differences in systems or weapons designed for varying applications. Peculiarities of the CM program that result from participation by a large number of organizations, unique contracting methods, e.g., preproduction evaluation; use of many commercial items, use of existing drawings and specifications, and employment of an integrating contractor, shall be described here. Innovations intended to increase the effectiveness of the program shall also be described here.

5.3.5 Section 2 - Organization. This section shall outline the relationship and integration of the Government's program/project management to CM and describe the organizational relationship of the positions and activities involved in the CM program. Responsibilities shall be defined and the policy directives that govern the program shall be listed. Procedures shall not be included in this section.

5.3.5.1 Paragraph 2.1 - Structure. A organizational chart which illustrates the structure of program/project management shall be used. The chart, supplemented by narrative description or flow diagrams, shall illustrate the authority/responsibility of the key organizational elements impacted by CM requirements. The integration of CM activities with other program/project activity shall also be described.

5.3.5.1.1 Paragraph 2.1.1 - Structure (CM). Charts, supplemented by narrative descriptions, shall define the relationships of activities involved in the program. The charts shall include the configuration manager, CM office or function, interfacing organizations, procuring and administrative contracting officers, CCB and contractors to the extent employed in the programs, and any other elements that are involved.

5.3.5.1.2 Paragraph 2.1.2 Configuration Control Board (CCB). This paragraph shall delineate the operation of the CCB. The following shall be included:

a. Relationship of CCB to change authorization (e.g., Recommendation or Action).

b. Relationship of CCBs if there are more than one level or separate software CCBs.

c. Membership of the CCBs.

d. Activation (effective time or event at which the CCB becomes or was made operational).

5.3.5.2 Paragraph 2.2 - Authority and responsibility. Each activity or individual shown on the organization chart(s) shall be the subject of a subparagraph which will detail the authority and responsibility for which CM is assigned. Among those included will be the Configuration Manager, the Contracting Officer, interface organizations, and the CCB. Both authority and responsibility shall be covered, and signature authority for ECP's and RFD/RFWs shall be specifically assigned.

5.3.5.3 Paragraph 2.3 - Policy directives. All policy directives (e.g., SOPs, office instructions) directly related to configuration management, except those published by higher authority, shall be listed and copies shall be appended to the configuration management plan.

5.3.5.4 Paragraph 2.4 - Reference documents. This paragraph shall list all documents which are referred to in the CM Plan except those listed in para 2.3.

5.3.6 Section 3 - Baseline identification. This section shall identify and contain plans for development of the documentation that will define each of the required baselines. Contractural or in-house programs under which the documentation will be prepared and released shall be described.

5.3.6.1 Paragraph 3.1 - Functional baseline. The document or documents which establish the functional baseline shall be listed in this paragraph. The procedure for review and release must be outlined, and the degree of Government control must be specified.

5.3.6.2 Paragraph 3.2 - Allocated baseline. The documents which establish the allocated baseline shall be listed. Plans for preparation, review, and release of the allocated documentation must be outlined. The technique for their application to control the development effort (e.g., contractural provisions, in-house procedures, etc.), must be specified.

5.3.6.2.1 Paragraph 3.2.1 - Specifications. This paragraph shall identify the specifications (MIL-STD-490, Type B) that will be prepared, existing specifications, and the use of these specifications to establish and control the Allocated Baseline. Any known support documentation, (e.g., handbooks, user manuals, test plans) that is required shall be identified.

5.3.6.2.2 Paragraph 3.2.2 - Drawings. This paragraph shall identify the drawings and diagrams that are a part of or will be a part of the allocated baseline. A list of interface control drawings for both hardware and software shall be delineated here. Plans for preparation, review, and release shall be outlined.

5.3.6.3 Paragraph 3.3 - Product baseline. The details of the type, categories and forms of documents to be utilized in establishing this baseline shall be listed. Plans for preparation, review, release and control of the product specifications and drawings must be outlined.

5.3.6.3.1 Paragraph 3.3.1 - Specifications. This paragraph shall identify the hardware and software specifications (MIL-STD-961 or MIL-STD-490) that will be prepared, and any existing specifications.

5.3.6.3.2 Paragraph 3.3.2 Drawings and associated lists. This paragraph shall define the drawing practices for application to the CI, and the application of DOD-D-1000, and standards referenced therein. The use of interface control drawings/interface identification of parameters shall be addressed. This paragraph shall also specify in detail all software related drawings, including interfaces with hardware, which are required for the product baseline.

5.3.7 Section 4 - Configuration control. This section shall define the responsibilities and procedures used within the procuring activity's organization for control to the hardware and software CI and for processing changes to these CIs. This section shall be specific as it treats the subject of interfaces within/between Government agencies and Government agencies/contractors. Plans for specific application of DOD-STD-480 or MIL-STD-481 shall be stated.

5.3.7.1 Paragraph 4.1 - Responsibilities. This paragraph shall address:

a. Level and degree of configuration control to be applied.

b. Configuration control process and participants.

c. Configuration control Board (CCB) charter, including approval/disapproval authority, members and their responsibilities, limits of CCB authority, and requirements for coordinating/interfacing with other CCBs.

d. Use and authority of Materiel Review Boards.

5.3.7.2 Paragraph 4.2 - Procedures. This paragraph shall address:

a. Approval/disapproval process and procedures for Engineering Change Proposals (ECPs), Value Engineering Change Proposals (VECPs) and requests for Deviations (RFDs) and Waivers (RFWs).

b. Process and procedures for changing the CI and its configuration identification documents after the ECP/VECP/RFD/RFW is approved, including provisioning, spares, test, training and operational items. Also, include the engineering release systems shall be included.

c. Process and procedures for ensuring that the approved ECP/RFD/RFW is incorporated on schedule and that the incorporated change satisfies its intended purpose.

d. Procedures covering MRB activity.

e. Special criteria for use of preliminary ECPs/VECPs.

f. Class II ECP processing procedure.

g. When required, provisions for maintaining a library of ECPs/VECPs/RFDs/RFWs, including location, custodian, length of time to retain in an active file status, and turnover or archive requirements. Also, includes requirements for manual or automated data processing of these documents.

h. Process and procedures for incorporating approved ECPs/VECPs/RFDs/RFWs in follow-on contract requirements.

5.3.8 Section 5 - Interface management. This section shall describe the documentation and control of all physical and functional interfaces of systems, equipment, software, facilities and installation requirements.

5.3.8.1 Paragraph 5.1 - Documentation. This paragraph shall specify the documentation to be generated as part of the interface program. The documents shall be listed by type, e.g., drawings and specifications with titles and dates. Also plans to identify interface parameters on the production documentation shall be specified.

5.3.8.2 Paragraph 5.2 - Interface control. This paragraph shall delineate the authority, responsibilities, and procedures for releasing and revising the interface control documents. Also all aspects of the interface program, e.g., GFE/GFP, Government/contractor, contractor/contractor shall be addressed.

5.3.9 Section 6 - Configuration traceability. This section shall describe the methods to be used for identifying documents and physical items in order to achieve configuration traceability for equipment, subassemblies, piece-parts, facility sites, and spares and the proper relationship between engineering/manufacturing CIs. Identification of software shall be addressed and the following shall be included:

a. Location or plan for development of a software support library.

b. Reconciling deliverable software to its approved documentation.

c. Assuring that the software, descriptive documentation, and program materials are properly identified.

5.3.9.1 Paragraph 6.1 - Nomenclature. This paragraph shall address the process for official nomenclature assignment and the requirements for titling of specifications and drawings.

5.3.9.2 Paragraph 6.2 - Documentation numbering. This paragraph shall address the numbering system to be used for documentation.

5.3.9.3 Paragraph 6.3 - Hardware identification. This paragraph shall delineate the requirements, where known, for part identification, lotting, or serialization.

5.3.9.3.1 Paragraph 6.3.1 - Documentation/hardware correlation. This paragraph shall delineate the Government's requirements for generating and maintaining the records for "as designed," "as built," and "as modified" configurations.

5.3.9.4 Paragraph 6.4 - Software and firmware identification. This paragraph shall specify the methods to be used in the identification of firmware and software.

5.3.10 Section 7 - Configuration status accounting. This section shall outline plans for collecting, storing, handling, verifying, validating and presenting of configuration status information to management. Techniques to be applied to provide an information system responsive to the needs of the entire management team will be stated.

5.3.10.1 Paragraph 7.1 - Data bank description. Plans for establishment of the configuration status accounting data bank shall be described in this paragraph. The plan must indicate whether the data bank will be manual or automated, whether it will be located at a contractor's plant or at an in-house site, and how inputs and outputs of participating activities will be handled.

5.3.10.2 Paragraph 7.2 - Data bank content. The information that will be stored in the data bank shall be indicated in this paragraph, with a short description of the sources. Means must be provided for collecting data on documentation release and revision, on costs of changes, tools, inspection, test equipment and repair parts affected by changes, on publication status; and on implementation of changes to software/firmware and hardware in production and in the field.

5.3.10.3 Paragraph 7.3 - Reporting. The methods by which information will be presented to management shall be indicated here. Both on-line inquiry capability and periodic milestones reporting shall be covered.

5.3.11 Section 8 - Configuration management audits. This section shall describe plans, procedures, and documentation for the functional and physical configuration audits in accordance with MIL-STD-1521 and the in-process configuration audits and technical reviews. All items required by MIL-STD-1521 shall be addressed here.

5.3.12 Section 9 - Subcontractor/vendor control. The procuring activity shall describe the methods to be used in establishing requirements and assuring subcontractor/vendor compliance with configuration management requirements.

6. NOTES

6.1 Intended use. CM Plans conforming to the requirements of this standard are intended to provide the detailed means by which the requirements of the DOD Directive 5010.19 are implemented for a CI. The CM Plan provides in one document all policies, procedures, organizational descriptions, and scheduled events relating to CM. The application of CM principles can be monitored through this plan.

6.2 Data Requirements. The following Data Item Descriptions (DIDs) must be listed, as applicable, on the Contract Data Requirement List (DD Form 1423) when this Standard is applied on a contract, in order to obtain the data, except where DoD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

Reference Paragraph	DID Number	DID Title
4.1.2, 5.2	DI-CMAN-80858	Configuration Management Plan

The above DIDs were those cleared as of the date of this standard. The current issue of DOD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DIDs are cited on the DD 1423.

6.3 Tailoring guidance for contractual application.

See Paragraph 1.3.

6.4 Issue of DODISS. When this standard is used in acquisition, the applicable issue of the DODISS must be cited in the solicitation (see 2.1.1 and 2.2).

6.5 Subject term (key word) listing

Baseline
Configuration
Configuration audits
Configuration baselines
Configuration control
Configuration identification
Configuration item
Configuration management
Configuration status
Management plan

6.6 Changes from previous issue. Vertical lines or asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians
Army - AR
Navy - EC
Air Force - 19
DLA - DH
NSA - NS

Review activities
Army - AT, AV, ER, MI
Navy - AS, MC, SH, OM, OS, SA, TD, YD
Air Force - 1, 10, 20

User activities:
Army - GL, ME
Navy - SH
Air Force - 11, 13, 14, 17, 18

Preparing activity
Army - AR

(Project CMAN-0002)

APPENDIX A

DEFINITIONS

10. SCOPE

10.1 Scope. This appendix provides definition of those key terms in this standard which require specific definitions for use in conjunction with this document.

20. REFERENCED DOCUMENTS

Not applicable.

30. DEFINITIONS

30.1 Acquisition cycle. That part of the life-cycle of a configuration item for which acquisition is in process. The acquisition cycle consists of a series of milestone decisions and acquisition phases.

30.2 Baseline. A configuration identification document or a set of such documents formally designated by the Government at a specific time during a CIs life cycle. Baselines, plus approved changes from those baselines, constitute the current configuration identification. For CM there are three baselines, which are established sequentially, as follows:

a. Functional baseline. The initially approved documentation describing a system or item's functional characteristics and the verification tests required to demonstrate the achievement of those specified functional characteristics.

b. Allocated baseline. The initially approved documentation describing an item's interface characteristics that are allocated from those of the higher level CI or those to a lower level, interface requirements with interfacing configuration items, additional design constraints and the verification tests required to demonstrate the achievement of those specified functional and interface characteristics.

c. Product baseline. The initially approved documentation describing all the necessary physical and functional characteristics of the CI, including manufacturing processes and procedures, materials, any required joint and combined operations interoperability characteristics of a CI (including a complete summary of other Service and allied interfacing CIs or systems and equipments); the selected physical characteristics designated for production acceptance testing and tests necessary for production and support of the CI.

30.3 Computer data bases. A collection of data in a form capable of being processed and operated on by a computer.

30.4 Computer firmware. An assembly composed of a hardware unit and a computer program integration to form a functional entity whose configuration cannot be easily altered during normal operation.

30.5 Computer program. A series of instructions or statements in a form acceptable to a computer, designed to cause the computer to execute an operation.

30.6 Computer software. A combination of associated computer instructions and computer data definitions required to enable the computer hardware to perform computational or control functions.

30.7 Computer software documentation. Technical data, including computer listings and printouts, in human readable form which documents the design or details of computer software, explains the capabilities of the software, or provides operating instructions for using the software to obtain desired results from a computer.

30.8 Concept exploration phase. That part of the acquisition life-cycle when alternative concepts are explored and evaluated.

30.9 Configuration. The functional and/or physical characteristics of hardware/firmware and other software as set forth in technical documentation and achieved in a product.

30.10 Configuration audits. The verification of the CIs conformance to specifications and other contract requirements.

a. Functional Configuration Audit (FCA). The formal examination of functional characteristics of a CI, prior to acceptance, to verify that the item has achieved the performance specified in its functional and/or allocated configuration identification.

b. Physical Configuration Audit (PCA). The formal examination of the "as-built" configuration of a CI against its technical documentation to establish the CIs initial product configuration identification (PCI).

30.11 Configuration control. The systematic proposal, justification, evaluation, coordination, approval or disapproval of proposed changes, and implementation of all approved changes in the configuration of a CI after formal establishment of the baseline.

30.12 Configuration Control Board (CCB). A board composed of technical and administrative representatives who approve or disapprove proposed engineering changes to an approved baseline.

30.13 Configuration identification. The selection of the documents which will comprise the baselines for the systems and CIs involved, the documents themselves, the information in the documents, and the numbers and other identifiers affixed to the items and documents. The documents identify and define the item's functional and physical characteristics in the form of specifications, drawings, associated lists, logic diagrams, flow charts, interface control documents, evaluation plans, and documents referenced therein. The configuration identification is developed and maintained through three separate, evolutionary, increasing levels of detail, each used for establishing a specific baseline. The three levels of configuration identification are as follows:

a. Functional Configuration Identification (FCI). The approved functional baseline plus approved changes.

b. Allocated Configuration Identification (ACI). The approved allocated baseline plus approved changes.

c. Product Configuration Identification (PCI). The approved product baseline plus approved changes.

30.14 Configuration Item (CI). An aggregation of hardware, firmware, or other computer software or any of their discrete portions, which satisfies an end use function and is designated by the Government for separate CM. CIs may vary widely in complexity, size, and type, from an aircraft, electronic, or ship system to a test meter or round of ammunition. During development and manufacture of the initial (prototype) production configuration, CIs are those items whose performance parameters and physical characteristics must be separately specified defined, and controlled to provide management insight needed to achieve the overall end use function and performance. Any item required for logistic support and designated for separate procurement is a CI.

30.15 Configuration Management (CM). A discipline applying technical and administrative direction and surveillance for the following purposes:

a. Identify and document the functional and physical characteristics of a CI.

b. Control changes to the CI and its documentation.

c. Record and report change processing and implementation status.

30.16 Configuration Status Accounting (CSA). The recording and reporting of information that is needed to manage configuration effectively, including a listing of the approved configuration identification, the status of proposed changes, deviations and waivers to configuration, and the implementation status of approved changes.

30.17 Deviation. A specific written authorization, granted prior to the manufacture of an item, to depart from a particular performance or design requirement of a specification, drawing or other document for a specific number of units or a specific period of time. A deviation differs from an engineering change in that an approved engineering change requires corresponding revision of the documentation defining the effected item, whereas a deviation does not contemplate revision of the applicable specification or drawing. (DOD-STD-480)

30.18 Effectivity. A method of specifying items on which configuration identification is applicable. Effectivity of configuration identification is expressed in terms of the serial number, lot number, revision, version, module, etc., of the configuration item to which the configuration identification applies.

30.19 Engineering change. An alteration in the configuration of a configuration item or item delivered, to be delivered, or under development, after formal establishment of its configuration identification. (DOD-STD-480)

30.20 Engineering Change Proposal (ECP). A term which includes both a proposed engineering change and the documentation by which the change is described and suggested. (DOD-STD-480)

30.20.1 ECP Class. (see DOD-STD-480).

30.20.2 ECP Type.

a. Preliminary ECP (Type P). A type P ECP may be submitted to the Government for review prior to the availability of the information necessary to support a formal ECP. (DOD-STD-480)

b. Formal ECP (Type F). A type F ECP provides engineering information and other data in sufficient detail to support formal change approval and contractual authorization, and which may follow the submittal of a preliminary ECP or VECP. (DOD-STD-480)

30.21 Integrated Logistic Support (ILS). A composite of the elements necessary to ensure the effective and economical support of a system or equipment at all levels of maintenance for its programmed life cycle. The elements include all resources necessary to maintain and operate an equipment or weapons system, and are categorized as follows: (a) planned maintenance, (b) logistic support personnel, (c) technical logistic data and information, (d) support equipment, (e) spares and repair parts, (f) facilities, and (g) contract maintenance. (DOD-STD-480)

30.22 Interface. The specifically defined physical or functional juncture between two or more configuration items.

30.23 Interface agreement. A document that describes the mutually agreeable CM practices and procedures for a given system or CI when more than one agency is designated design responsibility to perform management functions for items that interface with the configuration item.

30.24 Interface control. The delineation of the procedures and documentation, both administrative and technical, necessary for identification and management of functional and physical characteristics between two or more systems or CIs.

30.25 Life-cycle. The life span of a system or CI. The life-cycle begins with the documenting of the mission element needs statement or equivalent, followed by the acquisition cycle, the operations and support phase, and is rejuvenated by a modernization program or ends with the disposal of the item. Configuration management continues for as long as the configuration identification of the item is maintained.

30.26 Nondevelopmental item. A procured or procurable item that is or will be available on the commercial market place requiring only minor modification in order to meet the requirements of the contracting activity.

30.27 Spares and repair parts. Spares are components or assemblies used for maintenance replacement purposes in major end items of equipment. Repair parts are those "bits and pieces," e.g., individual parts or nonreparable assemblies required for the repair of spares or major end items. (DOD-STD-480)

30.28 Specification. A document intended primarily for use in procurement which clearly and accurately describes the essential technical requirements for items, materials or services including the procedures by which it will be determined that the requirements have been met. (DOD-STD-480)

30.29 Specification Change Notice (SCN). A document used to propose, transmit and record changes to a specification. In proposed form, prior to approval, the SCN (P) supplies proposed changes in the text of each page affected.

30.31 Support Equipment (SE). That equipment required to maintain an item, system, or facility in its operational status, including computer programs related thereto.

30.32 System. A composite of subsystems, assemblies (or sets), skills, and techniques capable of performing and/or supporting an operational or nonoperational role. A complete system includes related facilities, items, material, services, and personnel required for its operation to the degree that it can be considered a self-sufficient item in its intended operational or nonoperational and/or support environment. (DOD-STD-480)

30.33 Tailoring. The process by which specific requirements (sections, paragraphs, or sentences) of the selected specifications, standards, and related documents are evaluated to determine the extent to which each requirement is most suitable for a specific material acquisition and the modification of these requirements, where necessary, to ensure that each tailored document invoked states only the minimum needs of the Government (DOD 4120.3-M).

30.34 Technical reviews. A series of system engineering activities by which the technical progress on a project is assessed relative to its technical and/or contractual requirements. The reviews are conducted at logical transition points in the development effort to identify and correct problems resulting from the work completed thus far before the problems can disrupt or delay the technical progress. The reviews provide a method for the contractor and Government to determine that the development of a CI and its identification have met contract milestone requirements (MIL-STD-1521).

30.35 Total program needs. A general term used for the life-cycle requirements and considerations given to the development, production, operations, and support of a CI. Total program needs include, but are not limited to quality assurance, reliability, maintainability, producibility, test and evaluation, acceptance, approval for production, integrated logistic support, personnel, training, availability, interoperability, interchangeability, transportability, survivability, nuclear biological and chemical hardening, operational readiness, security, safety, schedules, competitive reprocurement, and total life-cycle costs.

30.36 Waiver. A written authorization to accept a configuration item or other designated items, which, during production or after having been submitted for inspection, are found to depart from specified requirements, but nevertheless are considered suitable for use "as is" or after repair by an approved method. (DOD-STD-480)