Defense Information Infrastructure (DII) Common Operating Environment (COE)

Configuration Management Plan

Version 2.0

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Prepared for and by

Joint Interoperability and Engineering Organization
Defense Information Systems Agency

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Common Operating Environment (COE)
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DII COE CM PLAN
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SECTION 1
INTRODUCTION

1.1 Background

The Department of Defense (DoD) information systems program managers and developers, with the Office of the Assistant Secretary of Defense (OASD)/ Command, Control, Communications, and Intelligence (C3I) and Defense Information Systems Agency (DISA) guidance, initiated projects to re-engineer command and control and combat support systems. The re-engineering was driven by a standard technical reference model for information system services. This DISA standards framework and development guidelines became the initial Defense Information Infrastructure (DII), a set of system building blocks and services. Since the initial DII, DISA has evolved system principles, standards, and products to the current DII Common Operating Environment (COE). The DII COE is a Joint Technical Architecture (JTA) standards-based computing and communications infrastructure composed of support services and facilities. The DII COE is a foundation for system development which encompasses the following:

- An architecture and approach for building interoperable systems
- An environment for sharing data between applications and systems
- An infrastructure for supporting mission-area applications
- A rigorous definition of the runtime execution environment
- A reference implementation on which systems can be built
- A collection of reusable software components and data
- A rigorous set of requirements for achieving DII COE compliance
- An approach and methodology for software and data reuse.

DISA is the technical integrator of the DII COE. As integrator, the DISA Joint Interoperability and Engineering Organization (JIEO) manages development and preparation of the DII COE to meet infrastructure requirements of a wide variety of users across DoD. The need for a clear and controlled configuration management (CM) process is recognized as a priority in the DoD communities evolving and using the DII COE. Because many DoD organizations are involved with evolving the DII COE and because the DII COE is not a system, but an infrastructure that is tailored to meet specific mission requirements, traditional CM practices and procedures need to be extended and tailored to address CM for the DII COE. This plan provides the CM practices and procedures for the DII COE.

1.2 Purpose/Objectives

This CM plan provides formal CM policies and procedures for controlling requirements, development, production, and maintenance of the DII COE. The objectives of the DII COE CM plan are as follows:

- Provide the depth of control required to control the DII COE configuration items (CIs)
- Provide a common DII COE baseline reference configuration for all items to be controlled over the life of DII COE components and reusable software
- Provide unity and clarification for governing bodies who review and approve DII COE baselines, resources, and development projects
- Provide a common nomenclature to help resource and technical managers verify that DII COE product items and configurations meet source requirements
- Focus development and modification of DII COE services on DoD mission and mission application priorities
- Ensure traceable DII COE requirements and DII COE product accountability.

This plan addresses two major DII COE CM priorities: (1) Define the DII COE CI structure and (2) Establish formal control of COE baselines.

1.3 Scope

This plan addresses the responsibilities, process and/or procedures for implementing DII COE CM. It encompasses the identity and selection of DII COE Configuration Items, criteria for establishing baselines, definition of the configuration control process and operations, and the accumulation and reporting of configuration status accounting data. The plan meets the intent of the OASD Memorandum of April 1997 to implement and establish CM requirements and responsibilities for DII COE. Commanders-in-Chief (CINCs), Services and Agencies (C/S/As) who use DII COE software shall have and maintain the CM capabilities required to perform their assigned mission within the scope of this plan. CM control of C/S/A systems which incorporate the DII COE segments and distribution of DII COE software to individual C/S/A sites are outside the scope of this plan.

1.4 Key Terms

Terms used frequently in this plan and in conducting CM are defined here for reader orientation and reference. Definitions comply with current International Standards Organization (ISO), the Institute of Electrical and Electronics Engineers (IEEE), and Military Standards (MIL-STDs) for CM and CM Plans and with the DII COE Integration and Runtime Specification (I&RTS). Terms and brief definitions are as follows:

- **Baseline:** a specification or product that has been formally reviewed and agreed upon, that thereafter serves as the basis for future development, and that can be changed only through formal change control procedures. Note: Baselines, plus approved changes from those baselines, constitute the current configuration identification.

- **Build Plan:** development strategy document that contains objectives of each build and activities to be accomplished during the development of each build; discusses tailoring decisions and presents schedule of activities.

- **Component:** one of the parts that make up a system. A DII COE component is a segment. A component will be subdivided into other components. Note: The terms “module,” “component,” and “unit” are often used interchangeably or defined to be sub-elements of one another in different ways depending on the context. The relationship of these terms is not yet standardized.

- **Configuration:** the arrangement of a computer system or component as defined by the number, nature, and interconnections of its constituent parts. In CM, it is the functional and physical characteristics of hardware or software as set forth in technical documentation or achieved in a product.

- **Configuration Definitions**: a hierarchical representation of a collection of segments that are to be installed. Configuration definitions are organized into distributions, folders, configurations, bundles, and segments. The purpose of configuration definitions is to allow pre-definition of the segments that are to be installed at a site broken down into meaningful groupings (DII COE I&RTS, Section 2.1.3, Rev 3.0, July 1997) and defined and controlled by the cognizant Chief System Engineer or Architect.

- **Configuration Item:** an aggregation of hardware, software, or both, that is designated for CM and treated as a single entity in the CM process. Examples in the DII COE include: requirements for changes, developer toolkits, and the DII COE required kernel.

- **Configuration Management:** a discipline applying technical and administrative direction and surveillance to identify and document the functional and physical characteristics of a CI, control changes to those characteristics, record and report change processing and implementation status, and verify compliance with specified requirements.

- **Control Point (project control point):** a project agreed-on point in time or times when specified agreements or controls are applied to the CIs being developed, e.g., an approved baseline or release of a specified document/code.

- **Partition:** the separation of a class into its elements or parts; a method of analysis; a subdivision of one large block into smaller subunits that can be handled more conveniently, e.g., partitioning a matrix.

- **Release:** the formal notification and distribution of an approved version.

- **Segment:** A collection of one or more Computer Software Configuration Items (CSCIs) most conveniently managed as a unit of functionality. Segments are defined to keep related CSCIs together so that functionality will be easily included or excluded. They are usually defined as functional pieces (e.g., a word processor) that make sense from a system administrator perspective because segments are the lowest level components that can be installed on, or removed from, a platform (I&RTS, V3.0, July 1997).

- **Unit:** a separately testable element specified in the design of a computer software component.

- **Version**: an initial release or re-release of a computer software CI, associated with a complete compilation or recompilation of the computer software CI. Also applies to a document, the Software Version Description (SVD), as described in MIL-STD 498 and J-STD-016-1995.

1.5 Configuration Management (CM) Plan Structure

Succeeding sections of this plan address the following CM areas:

- Section 2 provides a list of international, industry, and DoD standards used to develop the DII COE Configuration Management (CM) Plan.
- Section 3 addresses organizational relationships and individuals responsible for CM within the DII COE management and technical community.
- Section 4 describes configuration identification and selection from DII COE declared baselines and addresses guidelines for naming and numbering conventions. It also describes interface management and control of components internal and external to DII COE.
- Section 5 describes DII COE configuration control including policy, process, and change categories, management structure and operations.
- Section 6 describes configuration status accounting, actions, and status reporting. A Consolidated Management Information System (CMIS) is addressed.
- Section 7 describes DII COE reviews.
- Section 8 describes DII COE contractor/vendor control including CM involvement, and product version delivery requirements.

The following appendices included in this plan contain supplementary information for implementing DII COE CM.

- Appendix A contains an acronym list.
- Appendix B contains guidelines on developing the DII COE logical reference partition that describes major DII COE components and clarifies DII COE CI depth of control requirements.
- Appendix C explains CI naming and numbering conventions for DII COE software and interface components.
- Appendix D provides a copy of the Global System Problem Report (GSPR), DISA Form 291, July 94 (EF), and instructions.
- Appendix E provides a copy of the Engineering Change Proposal (ECP) Form, DD Form 1692, and instructions.
- Appendix F provides a copy of the Specification Change Notice (SCN) form, DD Form 1696, and instructions.
- Appendix G provides a sample copy of a Software Change Proposal (SCP) form and instructions.
- Appendix H provides internet World Wide Web (WWW) sites that contain additional information on the DII COE.

SECTION 2

CONFIGURATION MANAGEMENT STANDARDS

DoD Directive 5000.1, DOD-STD-7935A, and DOD-STD-2167A are obsolete. All were replaced by MIL-STD 498, Software Development and Documentation. This plan complies with DoD instruction, MIL-STD 498, and international standards for quality CM.

The standards listed below support modern information systems technology and development practices. The standards for CM were used to enable DoD systems and systems management to derive the benefits of compatibility, reuse, and integration on an international scale in the spirit of the DII COE. Since DII COE does not require standard Major Automated Information Systems Review Council (MAISRC) development phases, some of the standards were tailored to apply to the COE system foundation. This CM plan complies with Guidebook for MIL-STD-498, Overview and Tailoring, 30 January 1995 and with ISO 10007, Quality Management, Guidelines for CM, 1995.

The following list of standards and references were used to develop this CM plan:

- MIL-STD-498, Software Development and Documentation, 5 December 1994
- MIL-STD-2549, Configuration Status Accounting, 30 June 1997
- Guidebook for MIL-STD-498, Overview and Tailoring, 30 January 1995
- J-STD-016-1995, EIA/IEEE Interim Standard, Standard for Information Technology Software Life Cycle Processes Software Development Acquirer-Supplier Agreement, (Issued for Trial Use), September 1995
- IEEE Std 828-1990, (IEEE Standard for Software CM Plans, February 1991; IEEE Standards Collection, Software Engineering, 1994 Edition)
- IEEE Std 610.12-1990, IEEE Standard Glossary of Software Engineering Terminology
- ISO 10007, Quality Management, Guidelines for CM, 1995
- ISO/IEC 12207, Information Technology, Software Life Cycle Processes, February 1995
- ISO 9000-3, Quality Management and Quality Assurance Standards, Part 3, Guidelines for the application of ISO 90001 to the development, supply, and maintenance of software, 1993
- System Requirements Specification for the Global Command and Control System (GCCS) & Defense Information Infrastructure (DII) Consolidated Management Information System (CMIS), 19 June 1997

- Configuration Management Software and Documentation Delivery Requirements, Version 3.0, 8 March 1998, CM-165-60-03
- Defense Information Infrastructure (DII) Common Operating Environment (COE) Developer Documentation Requirements (DDR), Version 2.0, 23 January 1998, CM-400-214-04
- DII COE Integration and Runtime Specifications, Version 3.0, 1 July 1997, CM-400-01-04
- Configuration Review and Control Board (CRCB) Charter, Version 1.0, June 1997
- Architecture Oversight Group (AOG) Charter, Version 1.0, June 1996
- Charter for DII Architecture Oversight Group (AOG) Technical Working Groups, 22 January 1997

Military Handbook 61 (MIL-HDBK-61), CM Guidance. *Note*: This draft dated 31 March 1997, prepared by the Deputy Under Secretary of Defense (DUSD) for Logistics (Continuous Acquisition and Life-Cycle Support (CALS) Office) has not been approved and is subject to modification. This draft is not to be used until approved. For this plan, MIL-HDBK-61 was compared to current approved standards. In addition, Electronic Industries Association (EIA) standard 649 and MIL-STD-2549 are being developed. When approved, these standards will replace MIL-STD-973. J-STD-016 will replace MIL-STD-498 when approved.

SECTION 3

ORGANIZATIONS AND RESPONSIBILITIES

3.1 General

The DII COE CM organizational structure integrates Federal and DoD Offices and Agencies to form a joint level CM control structure for effecting orderly, controlled changes to DII COE software and ensuring that DII COE development is fully supportive of all Joint, Service and Agency requirements.

This section addresses the DII COE software CM organizational relationships and responsibilities required to manage, produce and distribute the DII COE Software Segment and associated documentation. The DII COE functional roles and responsibilities are depicted in Figure 3-1.

3.2 Organizational Relationships and Responsibilities

DoD COE stakeholders to the joint COE management structure are critical to the success of COE developers and subscribers. The COE stakeholder organizations and their relationships and responsibilities are depicted in Figure 3-1 and identified in this section.

3.2.1 Office of the Assistant Secretary of Defense (OASD) / Command, Control, Communications and Intelligence (C3I)

As the DII COE sponsor, OASD (C3I) approves funding requirements and provides support in DII COE program reviews. OASD (C3I) provides guidance and direction to DISA, and approves changes to DII COE mission and requirements. The OASD (C3I) shall also be responsible for:

- Providing overall DII COE policy, standards and guidance,
- Resolving appeals to Configuration Review and Control Board (CRCB) decisions,
- Providing non-voting representation on the CRCB, and
- Providing non-voting representation to all Executive Sessions of the Architecture Oversight Group (AOG).

3.2.2 Joint Chiefs of Staff (J6)

J6 is responsible for providing direction and technical oversight of DII COE development to ensure the interests of the Joint community are considered. J6 shall monitor DII COE development activities and coordinate CINC and Service

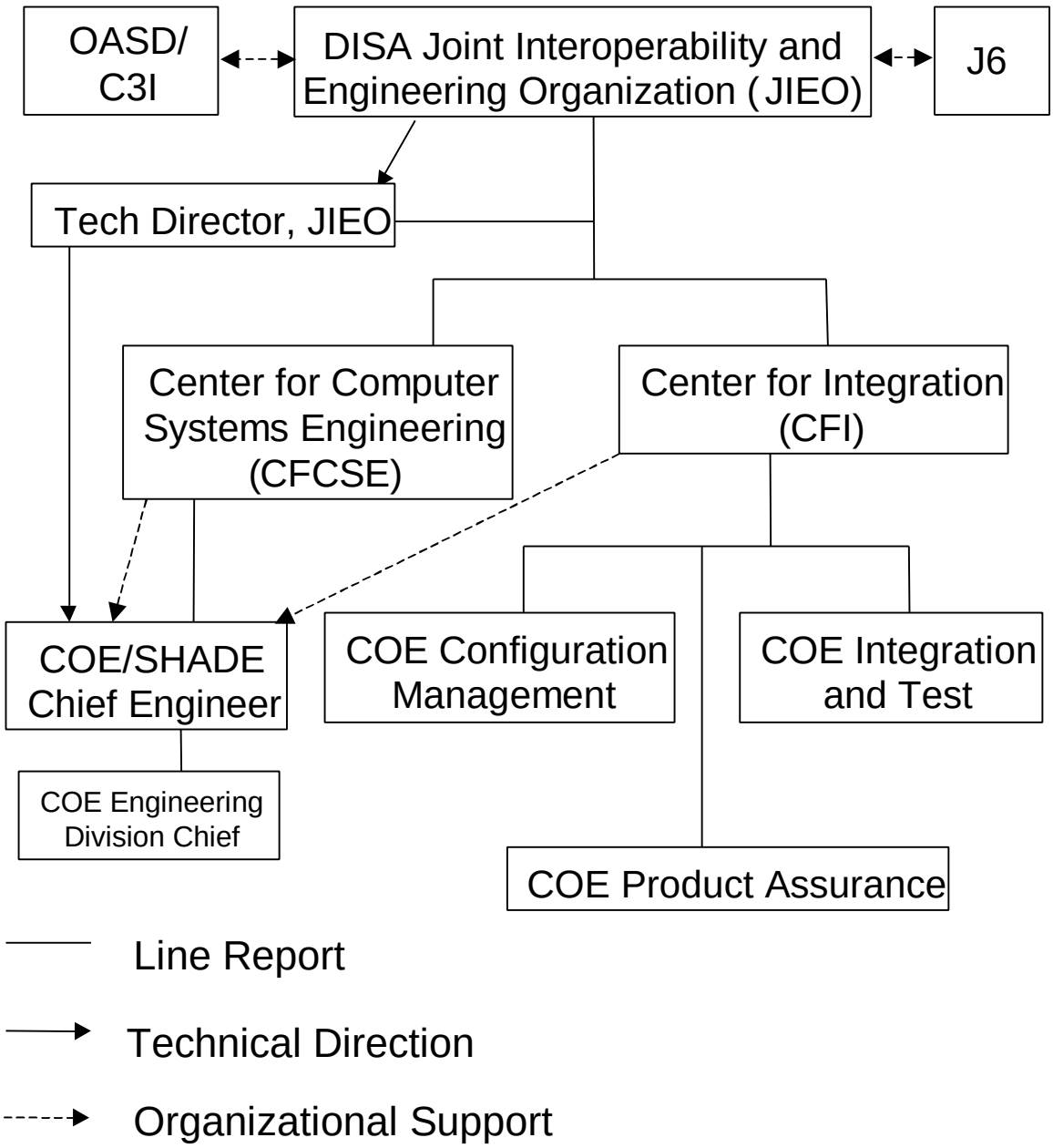

Figure 3-1. DISA COE Production Organizations

recommendations for DII COE changes and enhancements. J6 shall provide voting representation on the CRCB as well as representation to the AOG.

3.2.3 DISA Joint Interoperability and Engineering Organization (JIEO)

DISA JIEO has the programmatic responsibility for acquiring and fielding standards-based DII COE compliant software. As the software manager of the DII COE, DISA JIEO is responsible for the end-to-end management of DII COE software engineering, from requirements identification to DII COE Software Release integration and distribution. Additionally, DISA JIEO shall be responsible for:

- Development, management and life cycle support of DII COE component and segment software. DISA JIEO functions as the lead integration agency for the DII COE and coordinates with C/S/A points of contact (POCs) on customer system issues,
- Maintaining the DII COE under a CRCB which ensures that no software changes occur which impact Application Programmer Interfaces (APIs) or decrease system functionality, unless previously approved by the CRCB,
- Implementation of DII COE Management Policy and Guidelines received from OASD (C3I),
- Exercising final authority for approving overall DII COE objectives and milestones,
- Chairing the CRCB,
- Providing voting representation on the CRCB,
- Development and maintenance management of DII COE CM Tools, processes and databases (CMIS Database),
- Providing Help Desk support and a DII COE Hotline to assist end users in identifying and resolving problems, as well as an emergency action process for DII COE technical problems which impair a unit's mission effectiveness,
- DII COE Production Baseline maintenance,
- Providing operational direction to the Office of the Technical Director, the Center for Computer Systems Engineering (CFCSE) and the Center for Integration (CFI),
- Providing customers with access to DII COE Build status,
- Tracking and providing status of Global System Problem Reports (GSPRs) in the CMIS database,
- Coordination with C/S/As to receive, test, evaluate and approve/disapprove proposed service unique configuration items (CIs) that may impact the DII COE operational environment,
- Providing adequate DII COE specifications, documentation and baseline information to DII COE users.

- Providing management oversight over all working groups (CRCB, AOG, Technical Working Groups (TWGs)), and
- Validating DII COE software operational and developmental plans.

3.2.4 Office of the Technical Director

The Office of the Technical Director is responsible for management and coordination of DII COE engineering efforts and ensuring that DII COE development strategies and new functional requirements are consistent with the DII COE Master Plan. The Office of the Technical Director shall be responsible for:

- Directing DII COE efforts to keep pace with new technology and to meet user needs within fiscal constraints, and
- Coordinating with support groups, including government support organizations, support contractors, and developers for consistent and orderly execution of architecturally-compliant DII COE-based systems.

3.2.5 DISA Center For Computer Systems Engineering (CFCSE)

The DISA Center For Computer Systems Engineering (CFCSE) is responsible for supporting the successful build and release of the DII COE. The CFCSE shall be responsible for:

- Resourcing COE integration and documentation to the levels directed by JIEO, both in terms of dollars and personnel,
- Providing COE hotline support in coordination with CFI,
- Providing COE asset distribution support in coordination with CFI,
- Providing COE training,
- Providing regular representation, as required, to all COE working groups (AOG, TWGs), and
- Providing COE software license support, to include, procurement vehicles for COE subscribers, negotiated terms and conditions, and information on current and future negotiations to leverage C/S/A buying power.

3.2.6 DII COE / Shared Data Environment (SHADE) Chief Engineer

The DII COE / SHADE Chief Engineer is responsible for oversight management of the DII COE Build Management Structure, including the Architecture Oversight Group (AOG) and the Local Configuration Control (LCCB). The DII COE / SHADE Chief Engineer is also responsible for detailed technical and programmatic

management of DII COE common architecture components. The DII COE / SHADE Chief Engineer shall be responsible for:

- Chairing the DII COE AOG and AOG Executive Session (AOG-ES),
- Review and approval of ECPs, SCPs and the DII COE Software Requirements Specification (SRS),
- Identifying new requirements for future builds,
- Proposing out-of-date or rarely used DII COE functions for retirement,
- Proposing DII COE software build plans, and
- Development of DII COE production and release schedules.

3.2.7 DII COE Engineering Division

The DII COE Engineering Division is responsible for developing DII COE engineering specifications for implementing approved DII COE software build plans and the development and management of common architecture components that implement the DII COE. The DII COE Engineering Division finalizes the CRCB-approved DII COE Build plan, distributes the approved plan to developers for DII COE software development and generation of DII COE documentation, and to the DISA CFI for compliance testing and segment integration guidance.

3.2.8 DISA Center for Integration (CFI)

The DISA CFI is responsible for integration, test and product life-cycle management support for the DII COE. CFI CM Division is responsible for maintaining centralized configuration control, status accounting and distribution processes for DII COE Releases. The CFI CM Division is the central CM coordinator, ensuring establishment and maintenance of DII COE software baselines. The CFI shall be responsible for:

- Resourcing COE integration test, product assurance, configuration management, and product support to the levels directed by JIEO, both in terms of dollars and personnel,
- Assessing DII COE development activities and CM procedures,
- Integration of DII COE software,
- Ensuring establishment and maintenance of DII COE documentation baselines,
- Performing compliance testing (including I&RTS compliance) on DII COE components to ensure overall software quality and compliant functionality,

- Tracking DII COE GSPRs and verifying GSPR resolution in DII COE segments,
- Verifying the DII COE Build software matches the approved DII COE Build plan for each release,
- Rejection of any segments not meeting compliance or functionality requirements,
- Disseminating CM information essential for effective life-cycle support,
- Distribution and management of DISA software licenses,
- Distribution and management of COE segments and associated documentation,
- Providing regular representation, as required, to all COE working groups (AOG, TWGs),
- Operating the DII COE Hotline for customer support and problem resolution, and
- Maintaining the DII COE Home Page and asset distribution system.

3.2.9 Commanders-In-Chief (CINCs)/Military Departments (MILDEPs)/Defense Agencies

The CINCs/Services/Agencies (C/S/A), or *COE subscribers,* using the DII COE are responsible for establishing CM policies for their respective projects and for ensuring that their CM policies and procedures are consistent with the policies and requirements described in this CM plan. C/S/As shall be responsible for:

- Providing a single point of contact for the C/S/A for DII COE management and technical issues,
- Nominating appropriate representatives and alternates for the CRCB and AOG which must be empowered to speak for the respective service or organization on technical matters relating to the DII COE for all information technology programs,
- Integration of DII COE with Service/Agency tactical and administrative applications,
- Management and control of their respective communications and computing elements,
- CM of DII COE Baseline software in software systems incorporating the DII COE,
- Supporting DII COE policies, standards and guidance in management, implementation and fielding of systems incorporating the DII COE,

- Providing DII COE compliant systems to the C/S/A's sites and support organizations,
- Restricting access to DII COE components to only authorized users and engineering organizations,
- Submitting DII COE functional requirements and problem reports in accordance with CM procedures prescribed in this CM Plan,
- Monitoring DII COE System sites to ensure that baseline configurations are maintained and pertinent functional, performance, and physical interfaces between DII COE components and software segments are adequately documented, and
- License monitoring management.

SECTION 4

CONFIGURATION IDENTIFICATION AND SELECTION

4.1 General

Configuration identification is the process of defining and documenting the technical description of system components under configuration control throughout their life cycle. Baseline documents identifying the functional, physical and performance characteristics of DII COE software releases plus approved changes to the baseline constitute the current configuration identification.

DII COE configuration identification shall support controlled development and maintenance of DII COE components throughout their respective life cycles. Baseline configuration documentation shall be established and maintained consistent with major DII COE software build releases. Baseline documentation shall clearly identify the specific functional and performance characteristics of DII COE software releases to ensure orderly transition from one major functionality increment to the next in system requirements identification, engineering, design and development processes. The baselines covered within the scope of this plan are the functional, development and product baselines identified in Paragraph 4.3 of this section.

DII COE configuration identification shall accommodate use of Commercial Off-the-Shelf (COTS) and Government Off-the-Shelf (GOTS) software in DII COE software releases. Acceptable COTS and GOTS software documentation and technical descriptions shall be used to support DII COE baseline definition and configuration identification.

4.2 Configuration Identification Process

The CI identification and selection activities described in this section apply to all CI identification types to accommodate expected DII COE CI growth. The AOG-ES controls the following major DII COE CI types:

- Requirements for changes: New requirements and modifications to the installed base
- DII COE kernel required on every workstation: Software
- Common support applications: Software
- Infrastructure support services: Software
- Support Mechanisms: Documentation, standards, test facilities
- Interfaces: APIs
- Developer Toolkits: API libraries and segmentation tools

- Shared Data Environment (SHADE): Standard and common data segments, standard and common metadata segments
- Procedures: e.g., system operations, DII COE compliance test, CM.

The DII COE Engineering Office, in concert with the TWG Chairs, will recommend to the AOG-ES the depth of control needed for each item and the scope of CIs that will initially be identified and selected. CI selection criteria are provided in this section to assist managers in identifying and selecting candidate items that should be controlled. The following standard object/entity criteria shall be applied to CI selection:

- Well-bounded and can be managed separately
- Critical to service and functionality
- New or modified technology used in DII COE design and development
- Interfaces with other CIs
- Meets satisfactory procurement conditions: acquisition vehicle in place, budgeted, and committed funds
- Meets logistics and maintenance requirements for expected service life and compatibility with standard installed base.

Each item under configuration control will be classified according to DII COE software build and baseline (functional, development or product). As additional CI types are required, levels of control shall be defined for each additional type. The DII COE/SHADE Chief Engineer will have final approval of CIs to be controlled under CM. All CI selections must be traceable to requirements in the functional baseline (FBL).

The DII COE/SHADE Chief Engineer, in concert with the AOG-ES, will develop a logical reference partition of the DII COE infrastructure (describes major DII COE components and DII COE CI depth of control requirements) and services to provide context for identifying, selecting, managing and controlling CIs. All DII COE CM governing boards and working groups shall refer to the reference partition as a common index into CI depth of control.

4.2.1 Technical Documentation

DII COE component physical and functional characteristics documentation is required for CI selection and CM database maintenance. The DII COE AOG will decide what descriptive information is required to adequately identify and select CIs for the DII COE. Some of this information resides at sites, some at development facilities, and the rest is maintained by DII COE support organizations and groups. This information will be required to verify that CIs and changes implemented meet requirements.

DII COE software and documentation requirements guidance is available on-line on the DII COE CM Home Page (see Appendix H). Documents available on the CM Home Page include the following:

a. DII COE Version Information
b. Configuration Management Software and Documentation Delivery Requirements, Version 3.0, 8 March 1998
c. DII COE I&RTS Version 3.0, 1 July 1997
d. DII COE Style Guide (User Interface Specification), 8 March 1998
e. DII COE Baseline Specification, Version 3.1, 29 April 1997
f. DII COE 3.0 Software Quality Compliance Plan, 22 January 1997
g. DII COE How to Segment Guide, Version 4.0, 30 December 1996
h. DII COE Developer Documentation Requirements, Version 2.0, 23 January 1998.

Each DII COE segment being submitted to the CFI for test and verification shall be accompanied by the required technical documentation as specified in documents (b) and (h) above.

As DII COE baselines are established, the DII COE/SHADE Chief Engineer shall place approved configuration identification documentation under configuration control. A DII COE configuration library is established under the CM division of CFI for the management and control of approved baseline documentation. The documentation shall be maintained to reflect the approved configuration changes and shall serve as the official source for current CI identification. Documentation to be used in CI identification may include:

- Specifications and plans (SRS and Software Test Plans (STPs))
- Product descriptions (Software Design Description (SDD) and SVD) and operations and maintenance manuals,
- Acceptable COTS specifications and product descriptions,
- Approved change requests and proposals (SCPs, ECPs and Specification Change Notices (SCNs)),
- Configuration Status Accounting Reports,
- DII COE Training material,
- Legal, contract, certification and license information.

The DII COE CM librarian will implement document control procedures with support from the DII COE Engineering Office. All DII COE documents under configuration control are to be provided to the DII COE CM librarian for unique

identification, version control, and storage. All documentation shall be provided on electronic media. Hard copy backup requirements will be performed as required by the DII COE Configuration Manager.

4.2.2 Configuration Item Naming and Numbering

DII COE CM will use conventions for version numbering stipulated in the I&RTS, V3.0, July 1997. These conventions follow COTS software product version numbering with unique naming requirements. CI names are unique identifiers that will be used by all DII COE organizations and will be traceable across the DII COE. Numbering conventions for CIs will denote index, access, and descriptive information for placing and locating the item in the DII COE. CI identifiers will, minimally, allow the following to be correlated:

- CI to domain structure, level of detail or control, documents, and critical interfaces;
- CI to releases, versions, changes, deviations, and waivers;
- CI to vendor equipment/part identifiers;
- CI to DII COE approved, controlled item numbering conventions (it is critical that numbering conventions are consistent with CM control procedures).

Additional CI naming and numbering conventions for DII COE software and interface components are explained in Appendix C.

Initial DII COE baseline components to be placed under formal CM control are software segments, data segments, or collections of segments. Identification and recommendation of DII COE CIs will be completed by the COE Engineering Office and coordinated with the AOG-ES. Appendix B and the I&RTS contain guidelines on developing DII COE logical reference partition such as bundles and configuration definitions. The COE Engineering Office may develop these partitions to initiate thread level integration testing, configuration identification, and component selection. COE subscriber system engineers and architects designated by the AOG will support the COE Engineering Office in defining these partitions and in selecting CIs from partitions. The items will be named and numbered and placed in a DII COE CM repository for continuous CM use. CI identification files and identifier generators will be stored in the CMIS and maintained by the CM Division of the CFI.

All CIs should be incorporated into a build plan for formal release and may be reviewed by the CRCB at the discretion of the CRCB Chair. The DII COE Configuration Manager will be empowered to enforce the CI identification and selection policies and procedures in this plan.

4.3 DII COE Baseline Management

To establish formal CM for DII COE, functional, development and product baselines shall be established, declared and controlled. Recommended documentation is stipulated for each baseline in the reference documentation; however, documentation requirements are tailored to support unique DII COE architecture foundation needs. This tailoring tacitly acknowledges the integration vice development nature of COE CIs. Tailoring of documentation is expected and will be defined in conjunction with the Engineering Office during the CI Design Review. DII COE Products (segments), required documentation and baseline changes shall be managed as directed by the DII COE/SHADE Chief Engineer. Design reviews are conducted to verify baselines and to determine the scope of each baseline. DII COE baseline relationships and responsibilities are shown in Figure 4-1.

4.3.1 Functional Baseline (FBL)

The Functional Baseline (FBL) is the initial step in establishing configuration control and maintaining an accurate software specification and configuration identification program. The FBL consists of approved requirements as documented in the DII COE Software Requirements Specifications (SRSs) and associated Requirements Trace Matrices (RTMs), which match DII COE functional and performance characteristics with COE products. FBL documents shall conform to MIL-STD 498 FBL documentation standards.

4.3.2 Development Baseline (DBL)

The DII COE DBL describes functions of candidate services under development. The DII COE DBL consists of segments being built or modified under approved build plans as well as approved documentation describing the current detailed design of the candidate. This documentation includes:

- System-specific functional and interface characteristics,
- Interface requirements of interconnected CIs,
- Additional design constraints, and
- Required software test plans to demonstrate the achievement of specified functional and interface characteristics.

Under MIL-STD-498, documents required to describe the DBL are: Software Development Plan (SDP), SRS, Software Design Description (SDD), Software Version Description (SVD), and Software Test Plan (STP) for DII COE interoperability tests.

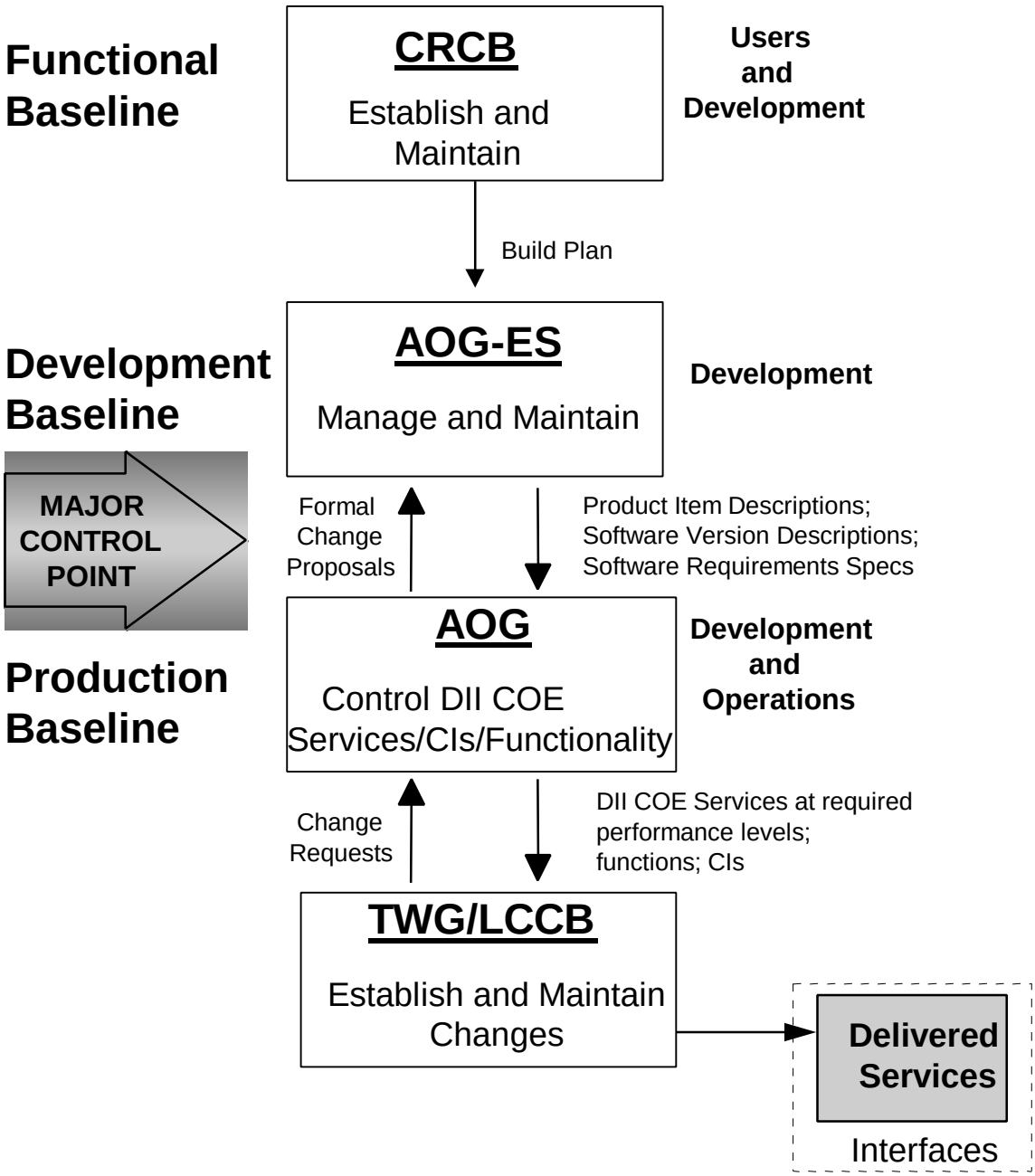

Figure 4-1. DII COE Baseline Relationships

The DII COE Engineering office will control the DII COE DBL upon its approval by the CRCB. The DBL shall be established upon successful completion of either a Critical Design Review (CDR) or Delivery Review and shall be verified during the CI Delivery Meeting. Local program managers are responsible for their internal DBLs that describe detailed characteristics of CIs. The DBL scope will be limited to DII COE level development and control and will exclude local site development CM. The DII COE DBL does not include local project control of evolving products that are not targeted for DII COE use.

4.3.3 Product Baseline (PBL)

The PBL is the most recently fielded version of approved COE segments. It consists of DII COE software segments that have been approved for reuse through interoperability, integration, build verification and DII COE compliance tests. This baseline shall be established upon successful completion of a COE release, acceptance of the build plan, or as designated by the DII COE/SHADE Chief Engineer. The PBL includes approved documentation describing DII COE segment detailed design, all the functional and physical characteristics of CIs, interoperability characteristics of the CI, and the selected functional and physical characteristics designated for acceptance testing.

Detailed design documentation are not expected to be available for COTS or GOTS products used by DII COE. However, DII COE developers and PBL managers are responsible for maintaining current vendor specifications and operations manuals for all COTS and GOTS products. Records of current versions, releases, specifications, and operations manuals will be kept under DII COE CM control. Software segments approved for release will reside in a reuse library, and versions will be controlled for subscriber use and reference.

The COE Engineering Office and DISA CFI managers will work closely with segment providers and the AOG to ensure that documentation is current and adequately describes the PBL.

4.4 Baseline Maintenance

Once established, baseline control will be directed by the DII COE/SHADE Chief Engineer and maintained by the DISA CM Division of the CFI. Established baselines shall be maintained and updated to reflect the incorporation of all approved changes and fixes. Configuration Status Accounting (CSA) Reports shall provide a traceable baseline history reflecting all approved changes and resulting DII COE configurations.

4.5 Interface Management and Control

A dedicated interface control board is optional under ISO and IEEE standards for CM change control activities. However, given the complexity and frequent changes in interface technologies within the DII COE, as well as DII COE growth and expanded customer base within and external to the government, interfaces may be formally controlled by a dedicated engineering review board. Currently, internal critical interfaces are controlled by the DII COE/SHADE Chief Engineer’s office, in coordination with the AOG and TWGs.

Interfaces are a DII COE CI type. Interfaces to DoD Automated Information System (AIS) applications will be placed under change control procedures and tracked in the CMIS Database.

Minimum essential interface CIs that will be identified and tracked are those considered “internal” to the DII COE and critical to computer processing and communications. These are primarily APIs to mission applications. The CRCB, with DII COE/SHADE Chief Engineer coordination, will decide what interfaces are critical to DII COE services and segment functionality. They will also determine those considered “external” that provide input or other support to DII COE. The decision to place other interfaces under a dedicated engineering review board will be made by the COE Engineering Office in conjunction with the AOG-ES.

SECTION 5
CONFIGURATION CONTROL

5.1 General

Configuration control is the establishment of orderly and effective procedures for processing all changes to established configuration baseline software and documentation. Configuration control is required to ensure systematic submission, coordination, evaluation, selection and release of approved changes to the established DII COE Software Baseline. Change requests to the DII COE can be initiated by DII COE users, developers, testing facilities, and DII COE engineering activities. Configuration control shall be exercised by all activities involved in DII COE development, production, distribution and life-cycle support. Configuration control shall be established and implemented throughout the DII COE life-cycle to ensure that only properly evaluated and developed software changes are incorporated and that DII COE compliance and change accountability is maintained. An overview of DII COE configuration control is shown in Figure 5-1.

Configuration control of the DII COE exists at two levels: the DISA DII COE Segment management level and the COE subscriber community system engineering level. The DII COE Segment management level manages development and preparation of the DII COE, providing centralized configuration control, change management, status accounting, and distribution of DII COE Segment releases. The DII COE Segment management level has been established and functions under the authority of the OASD (C3I) in accordance with MIL-STD-498, Software Development and Documentation, and the processes contained in this plan. The DII COE Segment management level shall conduct the Local Configuration Control Board (LCCB), maintain updates to the Consolidated Management Information System (CMIS) data repository, develop and recommend approval of DII COE Segment software build plans, and manage DII COE segment engineering and development. The DII COE AOG-ES is responsible for and has the authority for the disposition of SCNs, ECPs, SCPs and new requirements affecting the DII COE, and review of DII COE Build Plans. Proposed changes deemed beyond the scope of the AOG-ES or requiring significant fiscal commitments are forwarded to the CRCB for approval/disapproval. The CRCB is a Flag-level board responsible for approving DII COE Build Plans and resolving SCP/ECP issues outside the scope of the DII COE AOG-ES.

Configuration control at the COE subscriber level is outside the scope of this plan; however, all C/S/A's share in the responsibility to execute proper configuration control procedures to ensure the compatibility, interoperability, integration, and security of the DII COE.

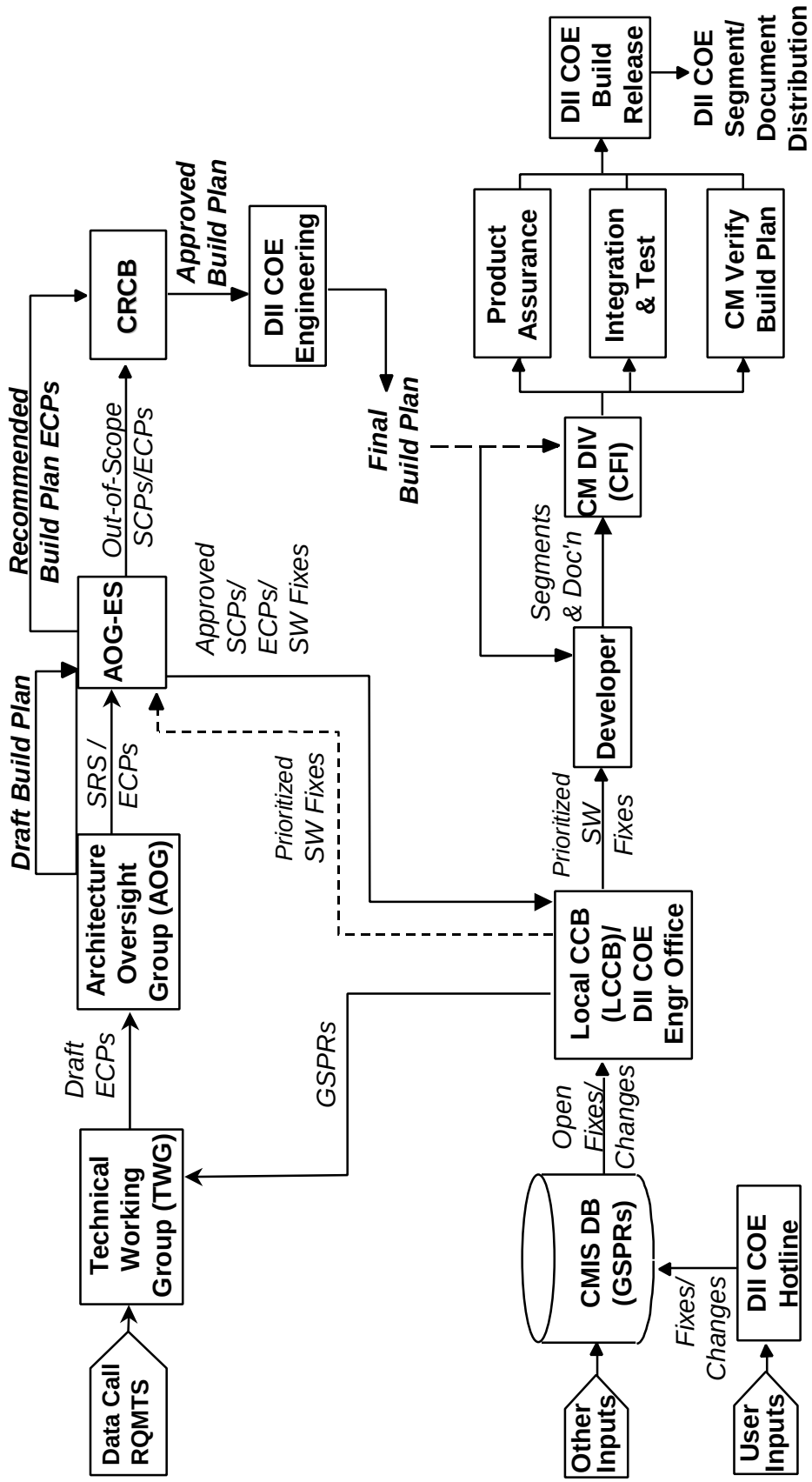

Figure 5-1. DII COE CM Change Process

5.2 Joint COE Configuration Control Oversight Roles and Responsibilities

Configuration control is implemented through the establishment of procedures and policies described in this plan. The Joint DII COE Configuration Control management structure is illustrated in Figure 5-2. This section addresses the DII COE software configuration control responsibilities required to manage, produce and distribute the DII COE software segment and associated documentation. The objective

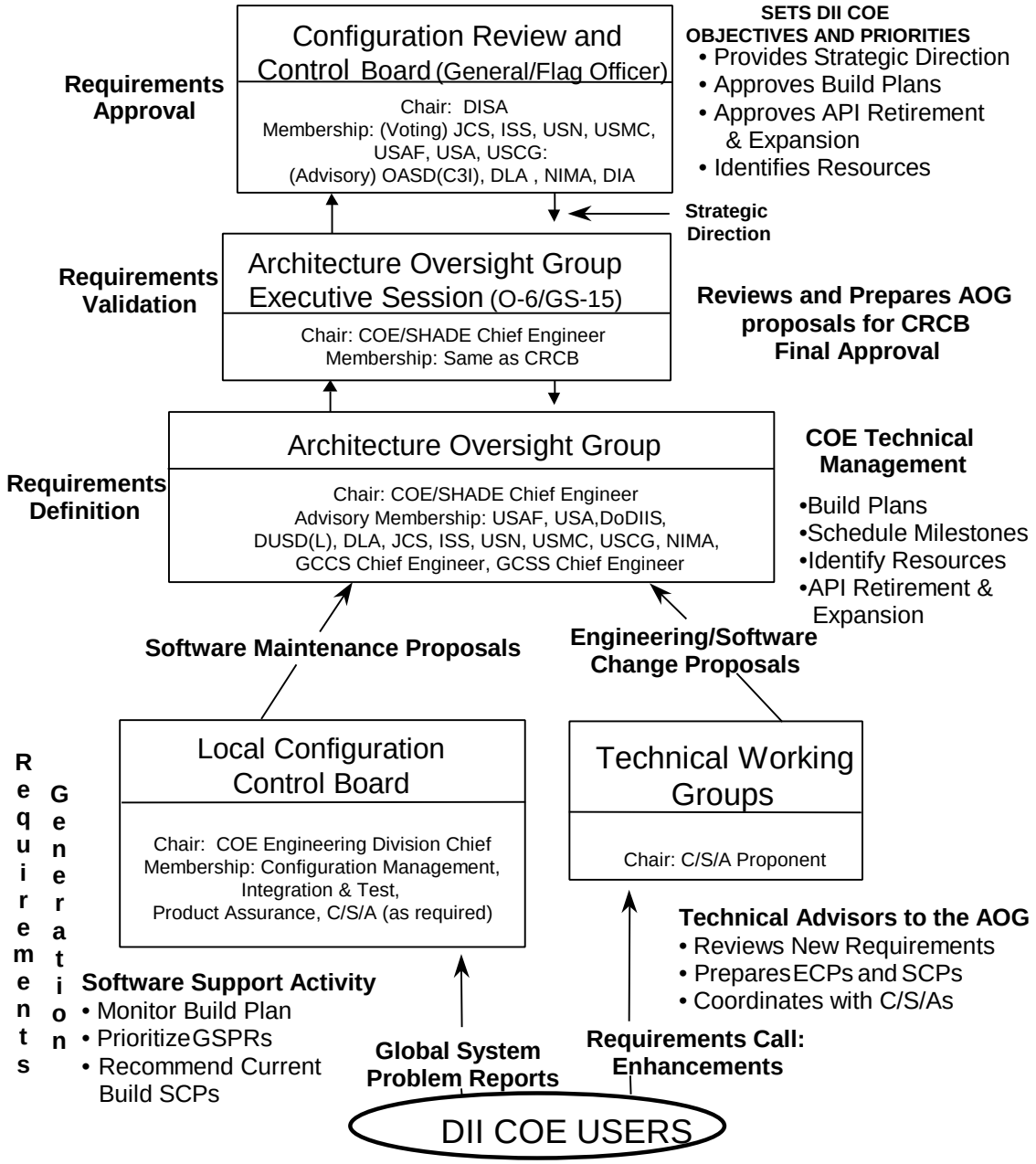

Figure 5-2. Joint DII COE Configuration Management Organization

Of DII COE configuration control is to respond quickly to emergencies and new software requirements to support new joint, coalition and organizational relationships established to support the warfighter.

5.2.1 Configuration Review and Control Board

The Configuration Review and Control Board (CRCB) is the forum for setting objectives, priorities, and strategic direction for the DII COE as well as overseeing processes used for COE development and deployment. The CRCB approves recommended changes to the DII COE, approves build plans, and makes recommendations for the expansion of the software and hardware base for the DII COE. It will approve all retirements and expansions of published Application Programmer Interfaces (APIs). Figure 3-1 illustrates the extensive participation of DoD CINCs, Services and Agencies in the formulation and evolution of the COE and their involvement with requirements generation, definition, validation, and approval. The CRCB Charter, as identified in Section 2, delineates specifically the responsibility and authority of the CRCB and should be referenced as the authoritative source.

The CRCB is chaired by DISA JIEO or his designated representative. Responsibilities of the chair are to lead the CRCB in its mission to approve recommended changes to the DII COE, build plans, and recommendations for the expansion of the software and hardware base for the DII COE.

Board members and alternates are nominated by each service. Participation of all voting members or alternates are required at each CRCB session.

The CRCB meets quarterly and decisions are based on majority vote of all members or their designated alternates with dissenting opinions/substantive positions recorded. In the event of split decisions, the Chair has authority to exercise a tie-breaker vote.

CRCB members shall:

- Provide Strategic Direction
- Participate in CRCB meetings
- Assess proposed build plans and recommend approval, disapproval, or specific modifications or action items
- Approve API retirement or expansion
- Assure program milestones and objectives are identified to support the build plan process
- Coordinate requirements with other CRCB members
- Support subscriber program programmatic reviews
- Identify resources for execution.

5.2.2 Architecture Oversight Group

The Architecture Oversight Group (AOG) is the principal forum for joint technical oversight of the DII COE. In Executive Session, the AOG (AOG-ES) is responsible for developing recommended build plans, enhancing common software products, expanding the supported hardware platform base, and providing approval authority of engineering changes affecting the DII COE. The AOG-ES provides a forum for engineering level discussions to evaluate impacts, cost, and schedule for preliminary ECPs. Upon approval of technical cost and schedule, the AOG assigns each item to a build plan. This board serves as a technical advisor to the CRCB. The AOG Charter, as identified in Section 2, delineates specifically the responsibility and authority of the AOG and should be referenced as the authoritative source.

The AOG chairperson is the DISA COE/SHADE Chief Engineer. The AOG meets as directed by the chair, but not less than monthly. Based on urgency of need, availability of resources and impacts/relationships of efforts, the AOG chair develops a proposed build plan. The proposed build plan is previewed by the AOG-ES on a quarterly basis to identify and resolve issues and concerns. The plan is then presented to the CRCB.

The AOG chair periodically reports Common Software Build status to members of the CRCB. The chair interfaces with other organizations in the community to ensure the common software configuration management process and associated efforts are fully coordinated. The chairperson may charter subordinate working groups as required.

The AOG is a voting body and decisions are made based on consensus. Each Service/Agency participating in the AOG will have one vote for approval/disapproval of recommended changes. After the disposition of a recommended change has been decided, the AOG secretary will note for the record dissenting opinions in the AOG minutes upon request of an AOG member.

Representation to the AOG tracks CRCB membership with the addition of the Global Command and Control System (GCCS) and Global Combat Support System (GCSS) Chief Engineers. AOG members shall:

- Participate in AOG and AOG-ES meetings
- Assess proposed change requests
- Develop recommended build plans and schedules
- Identify resource requirements
- Coordinate requirements with other AOG members
- Support technical reviews
- Assure change requirements are defined and reported in accordance with configuration management procedures
- Propose API retirement or expansion

- Define change requirements.

5.2.3 Technical Working Groups

The primary functions of the Technical Working Groups are to manage a baselined set of requirements for their particular technical area of responsibility, provide traceability between these requirements and the current COE releases and build plans, and provide ECPs and/or SCPs against current COE capabilities in response to AOG-ES direction. Each TWG will be responsible for evaluation of COTS/GOTS products that services sponsor for inclusion in the DII COE. Each TWG will also be responsible for the development of an SRS that describes the requirements of their functional area to be supported by automated software tools. TWG members speak for the Service/Agency they represent and are expected to articulate the technical position of that Service/Agency in working group discussions and decisions. These groups serve as technical advisors to the AOG. The TWG Charter, as identified in Section 2, delineates specifically the responsibility and authority of the TWG and should be referenced as the authoritative source.

A TWG is established at the direction of the AOG Chair to provide technical expertise and advice on a particular area of COE functionality. A TWG is chaired by a recognized technical expert in the specific functional area, with the approval of the AOG. A TWG meets as directed by the chair, but not less than bi-monthly. Based on urgency of need, availability of resources and impacts/relationships of efforts, the working group chair prepares candidate ECPs and SCPs based on joint requirements identified by his TWG. These candidate change proposals are forwarded to the AOG Chair for incorporation in the COE build plan.

A TWG chair will interface with other organizations in the community to ensure the common software configuration management process and associated efforts are fully coordinated. The chairperson may charter subordinate working groups as required.

The TWGs are voting bodies and decisions are made based on consensus. Each Service/Agency participating in the TWG will have one vote for approval/disapproval of recommended changes. After the disposition of a recommended change has been decided, the TWG secretary will note for the record dissenting opinions in the TWG minutes upon request of an TWG member.

Representation to the TWG will track AOG membership. TWG members shall:

- Participate in all TWG meetings
- Assess proposed change requests
- Develop recommended change requests
- Identify change request resource requirements
- Coordinate requirements with other TWG chairs

- Support technical reviews
- Assure change requirements are defined and reported in accordance with configuration management procedures
- Propose API retirement or expansion
- Define change requirements.

5.2.4 Local Configuration Control Board

The primary functions of the Local Configuration and Control Board (LCCB) are to monitor execution of the current build plan, assess proposed changes and known problems reported against the approved product baseline(s), and recommend appropriate action to the AOG-ES Chair. These recommendations will be in the form of approval/disapproval of both SCPs resulting from current build activities, prioritization of SCPs for scheduled functional upgrade builds, and prioritization of Global System Problem Reports (GSPRs) for scheduled maintenance builds. The LCCB will review and recommend appropriate action on each change request to the AOG-ES Chair.

The LCCB shall have cognizance over Common Software including the COE components (kernel, infrastructure services, and common support applications) and COE development and run-time tools. In addition, the LCCB shall review Style Guide and other COE software product documentation designated for joint configuration management.

The LCCB is not a voting body. The LCCB Chairperson recommends final approval/disapproval on all recommended changes brought before the board. Before making a recommendation, the Chairperson may discuss with the members and/or advisors their assessments, positions and recommendations for the items under consideration.

The LCCB chairperson is the DISA DII COE Engineering Division Chief. The LCCB meets as directed by the chair, but not less than weekly. Based on urgency of need, availability of resources, and impacts/relationships of efforts, the working group chair develops all proposed maintenance build plans.

Representation to the LCCB is from each of the following organizations:

- DISA COE Engineering Division Chief (Chairperson)
- DISA COE Product Assurance
- DISA COE Integration and Test
- DISA COE Configuration Management
- Service Representation (as required).

Members of the LCCB are technical area specialists as appointed by the Chairperson, development/maintenance contractor representatives, and ad-hoc

members as designated by the CRCB members. Responsibilities of these members shall include:

- Assess proposed change requests
- Identify inaccuracies
- Identify related or duplicate change proposals
- Recommend approval or deferral with recommended actions
- Develop maintenance build plans and schedules.

5.3 Origination of Change Requests

An overview of DII COE change control document flow from request to resolution of change is shown in Figure 5-3. Each major function follows DII COE CM procedures and uses standard CM documents and formats that must be produced and exchanged with other major functions.

The DII AOG-ES is the controlling organization in the change process cycle. The appropriate TWG analyzes requirements change requests originating from internal and external sources. Once change requests have been coordinated with the DII COE/SHADE Chief Engineer, the TWG Chair prepares formal change proposals. The proposals are evaluated and, if a change proposal is approved, the AOG-ES assigns a priority to the approved request. The priority will determine the order in which changes are implemented. The COE Engineering Office then directs the segment developers and engineers to implement approved changes. When the change is implemented, the CFI CM Division verifies implementations for acceptance of new or updated CIs. If new/updated CIs are approved, the DII COE/SHADE Chief Engineer declares new baselines causing all records and library items affected to be updated.

5.3.1 Global System Problem Report (GSPR)

The GSPR is the primary vehicle for DII COE problem reporting and requesting DII COE changes and fixes. The GSPR is used to request a fix or change to existing DII COE software and may be generated by any organization recognizing the need for a change to the DII COE. Technical change requests originate from users at sites, developers, operational personnel, external sources or vendors. The GSPR, DISA Form 291, July 94 (EF), and instructions for completing the GSPR are provided in Appendix D. GSPRs can be initiated by any one of the following methods:

- Going to the DISA DII COE CM Home Page (see Appendix H) on the internet (password access required) and completing the on-line change request form,
- Calling or e-mailing the DII COE Hotline.

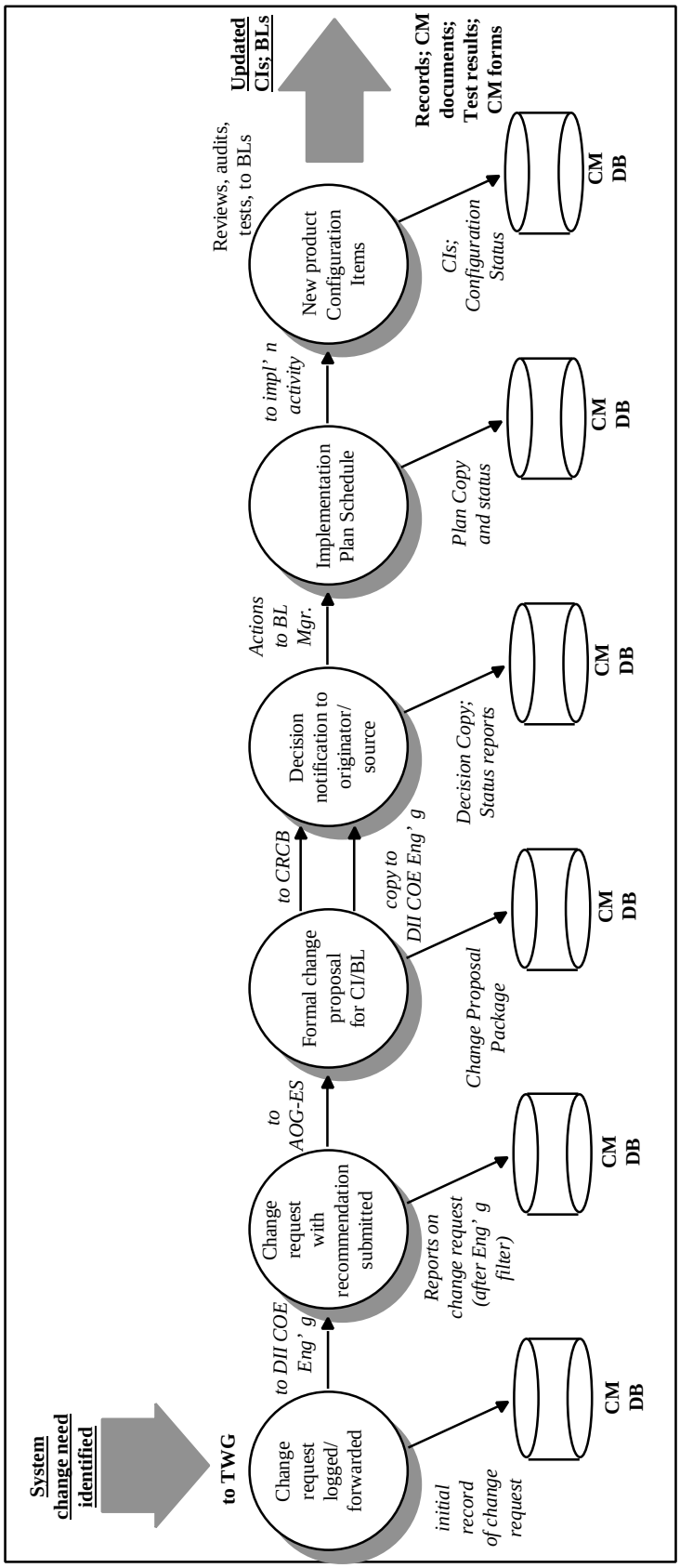

Figure 5-3. DII COE CM Change Control Document Flow

GSPRs are tracked in the GSPR database which resides in the CMIS maintained by DISA CFI. The CMIS enables a user to store, query or report on all relevant problem report information provided in GSPRs. New GSPRs are reviewed by the DII COE LCCB for validity and assigned a priority. If approval is given to proceed with the GSPR, it is then forwarded to the DII COE TWG for evaluation and assessment. Valid GSPRs which impact established DII COE baselines may initiate the generation of a formal ECP (change to developmental baseline) or SCP (change to production baseline) and be forwarded to the AOG-ES for approval and processing. GSPR approval and implementation status is tracked in the GSPR database.

5.3.2 Software Change Proposal (SCP)

SCPs are used to submit proposed software engineering changes and proposed changes to software requirements. The SCP is used to request specific software or DII COE Segment capability changes as well as less specific changes that may involve more than one controlled item. SCPs are also used to consolidate and describe DII COE software changes necessary to resolve approved GSPRs. SCPs are to be prepared and submitted only by direction of the DII COE Chief Engineer. SCP review and approval is the responsibility of the DII COE AOG-ES. SCPs should be prepared in the developer's format. Appendix G provides a sample SCP format and instructions.

5.3.3 Engineering Change Proposal (ECP)

ECPs are used to formally document proposed DII COE software enhancements and new functional requirements that impact the established DII COE developmental baseline. Due to the costs associated with the development of an ECP, ECPs shall be prepared by the DII COE TWG as directed by the DII COE Chief Engineer. An ECP form, DD Form 1692, is provided in Appendix E. The ECP must include the first page of the ECP form as a minimum. The ECP developer should be selective if using any additional pages of the ECP form. Additional pages of the ECP form are provided primarily for guidance and should be submitted only as required to document supplemental information. ECPs shall be supported by data to justify and describe the change and to assess the impact of the change to system operational characteristics. A cost assessment for the ECP shall also be generated and included with the ECP. ECPs shall be forwarded by the DII COE TWG to the DII COE AOG-ES for approval/disapproval as a part of normal build plan generation. Approved ECPs are forwarded to DII COE software developers for implementation. If the DII COE AOG determines that the ECP will have major impact to the DII COE baseline or if the cost associated with the ECP is significant, the ECP shall be forwarded to the CRCB for resolution with a recommendation for execution.

5.3.3.1 Specification Change Notice (SCN)

The SCN is used to propose, transmit and record changes to a DII COE engineering specification or the DII COE Software Requirements Specification (SRS), Section 3. A copy of an SCN form is provided in Appendix F. SCNs are submitted with an ECP to the AOG for appropriate disposition. Approved SRS SCNs shall be implemented by the respective TWG. Proposed changes to a DII COE SRS that do not impact engineering specifications requirements can be approved/disapproved and implemented by the appropriate TWG.

5.3.4 Emergency Changes

Emergency changes result from reported problems that prevent users from performing their assigned mission, or problems that compromise security. The DII COE/SHADE Chief Engineer, as chair of the DII COE AOG-ES, shall have the authority to approve these changes with minimal or no review on the part of the CRCB. The DII COE/SHADE Chief Engineer's office will follow up emergency patches with appropriate documentation so that the DII COE AOG-ES can adjust its audit trails accordingly. Emergency change requests can be reported through the DII COE Hotline.

5.3.4.1 CFI DII COE Hotline

The DISA CFI shall be responsible for maintaining the DII COE Software Hotline to handle system emergencies (e.g., system crashes) related to DII COE software. If the problem reported requires an emergency change, an emergency change request shall be prepared and forwarded to the DII COE/SHADE Chief Engineer for assessment and approval/disapproval. If the problem reported is not an emergency, a GSPR shall be generated and forwarded to the LCCB for validation and prioritization. DII COE Hot Line access is provided for the customer’s C/S/A representative. Operational users must work with their C/S/A representatives and not call the DII COE Hotline directly. The DII COE Hotline number is provided on the DII COE web site on the CM Home Page (see Appendix H).

5.4 DII COE Change Control Process

The DII COE Change Control Process is designed to apply an orderly and disciplined evaluation, impact assessment, approval and implementation process to changes requested to DII COE software. The primary vehicle for initiating change requests to the DII COE is the GSPR.

New DII COE requirements and change requests are also solicited through Data Calls from the Architecture Oversight Group (AOG). Data Call responses are forwarded to the TWG for validation, disposition and prioritization. The DII COE Hotline is also available to C/S/A representatives for initiating emergency change requests and fixes.

Requests for changes and fixes are tracked in the Consolidated Management Information System (CMIS) data repository maintained by the DISA CFI. New changes and fixes entered into the CMIS are reviewed and validated by the DII COE LCCB in coordination with the CFI CM Division-led LCCB. Valid changes are forwarded to the TWG for evaluation and preliminary DII COE software build assignment. The TWG prepares formal change requests, ECPs/SCPs, as required for requested changes, makes a preliminary DII COE software build assignment and forwards the ECPs/SCPs to the DII COE AOG-ES for action. The LCCB forwards prioritized fixes directly to the DII COE AOG-ES for evaluation and approval.

New requirements that have been approved are documented in the DII COE SRS. The TWG reviews the SRS, proposes changes as required, and forwards the SCNs to the DII COE AOG-ES for review and approval.

The DII COE AOG-ES approves/disapproves SCNs, ECPs, SCPs and new requirements affecting the DII COE and reviews DII COE Build Plans developed by the LCCB and the DII COE/SHADE Chief Engineer. Proposed changes deemed beyond the scope of the AOG-ES or requiring significant fiscal commitments are forwarded to the CRCB for approval/disapproval.

When the DII COE build plan is approved, the DII COE Engineering Division generates the engineering and design specifications for implementing approved changes to the DII COE software baseline and produces the Final DII COE Build Plan. After developing the final plan from the CRCB-approved build plan, the DII COE Engineering Division distributes the final build plan and engineering specifications to DII COE software developers for implementation and the CFI for software build verification and compliance testing. DII COE documentation is updated with new software build capabilities and modifications.

All deliverables submitted by developers must be accompanied by required documentation as specified in the "Configuration Management Software and Documentation Delivery Requirements" and the "DII COE Developer Documentation Requirements". Both of these documents are available on the DII COE CM Home Page. (see Appendix H)

The DISA CFI integrates completed/upgraded DII COE segment software and performs assessments on the delivered software. Versions of development items undergo internal test and evaluation before they proceed to compliance testing for DII COE. Compliance testing is performed to ensure the software is DII COE compliant. Verification that the delivered software conforms to the Final DII COE software Build Plan is performed. Based on results of DII COE compliance testing and/or build plan verification, the delivered DII COE software is accepted or rejected. Accepted DII COE software becomes the DII COE Production baseline for the specified DII COE software version and is released to COE subscribers along with the associated software and

configuration control documentation. Rejected software deliveries are returned to the developers for problem resolution and rework.

5.5 Change Implementation

As the requirements for DII COE software build configurations evolve, the changes approved by the DII COE AOG-ES and CRCB and fixes approved by the LCCB are scheduled for implementation. An implementation change can be a simple patch to the production segment or a major new release involving the entire DBL. Approved SCPs and ECPs are submitted to the development contractor for implementation in a specified software release. As deemed necessary by the DII COE / SHADE Chief Engineer, formal ECPs may be required to document new capability requirements to ensure that the engineering aspects of the changes are fully developed and impacts of the change are known and evaluated. Change requests are assigned a priority reflecting the severity of the problem or need for change.

SECTION 6

CONFIGURATION STATUS ACCOUNTING

Configuration status accounting will record and report the current status of CM activities of the DII COE. The DII COE/SHADE Chief Engineer is responsible for status accounting and must execute the procedures needed to accomplish effective status accounting of CM activities.

Configuration status accounting requires proper identification and change control. Records and reports span “cradle to grave” of a product, the entire life cycle. Accounting is status reporting on baselines and changes. Accounting is used for tracking products and provides visibility and traceability across the DII COE.

6.1 Status Accounting System

The DII COE/SHADE Chief Engineer’s office coordinates with the CFI CM Division to establish and implement status accounting procedures. The CFI CMIS will track all DII COE controlled items, baseline products, and documents. The CMIS, managed by DISA CFI CM Division, maintains a database of information for use in managing the development, maintenance, and release of DII COE software and related documentation. It provides information on segments and required documentation delivered to the DISA CFI CM Division, individual problem reports written against those segments (e.g., GSPRs), software licenses, and documents maintained in support of those segments. A developer will be able to electronically input the data pertaining to a segment and supporting objects before delivering it to the CFI. The types of CIs placed under configuration control and the levels of control defined in the DII COE reference partition will be used to determine the DII COE objects and items to be tracked. Minimum essential data to be tracked and recorded at DII COE CM startup are the following:

- **Identification Numbers**: These numbers will be used for documents, releases, changes, revisions, deviations, waivers, configuration baselines, CIs, parts, equipment titles of objects being tracked (unique identifiers will be used for identifying CIs, as recommended under CI identification and selection.)
- **Release status**: Consistent format and identification codes will be established and enforced by the AOG and DII COE/SHADE Chief Engineer for each DII COE release and future releases of the DII COE. The format will address the status of the current declared production release of the DII COE and all succeeding formal releases. Development releases must be formally tested and accepted before the DII COE/SHADE Chief Engineer will declare the release as part of the installed PBL, in effect declaring a “new” baseline.

All other baselines affected by the release must be declared as “new” or changed by the DII COE/SHADE Chief Engineer.

- **Implementation status**: Designed/built/produced standard products with consistent format and codes will be established and enforced by the AOG and the COE Engineering Office. This status will result from CM reviews by teleconference and by site visits as required.

Data recorded and stored will show cross-reference identifiers and relationships to CM status reports that must be generated using the data.

A schema for the CM database of status records and reports will comply with naming and indexing guidance in this plan. DII COE implementing activity and responsibility will be assigned by the DII COE/SHADE Chief Engineer.

Specific reporting requirements for status accounting are the following:

- **Configuration Baseline Documents**: Software, hardware, and communications documents containing detailed descriptions of DII COE CI sub-functions and allocated components will be developed for review by the AOG. Traceability to DII COE CI function and Service will be shown in the descriptions.
- **CIs Cross-Referenced to Baselines**: Item placeholders will be generated to accommodate details and specific names as items are identified and selected by the AOG-ES supported by the TWG.
- **Current Configuration Status**: “As-designed” and “as-built/produced” configuration descriptions specify the differences between designed and built products. This status information must be consistently formatted. The status information will be used for baseline design reviews to be established by the AOG and DII COE/SHADE Chief Engineer’s office.
- **Status Reports On Change Requests**: “Cradle to grave” information will be recorded, tracked, and updated as the request moves through the change process. This includes change proposal packages approved by the AOG-ES and notifications distributed by the CRCB to the organization originating the request.
- **Status Reports On Changes, Deviations, And Waivers**: Files will be kept on exceptions to the standard DII COE change control process. Emergencies and discrepancies, as well as waivers, granted during requirements conversion, development, production, and operations will be documented and recorded by the AOG. Given the evolutionary nature of DII COE development and variables, these status reports and files will be distinct and will warrant a primary key in the database for rapid access and update by the AOG and COE Engineering Office.

- **Status Reports On Implementation And Verification Of Changes**: These reports will be generated by the AOG and COE Engineering Office during reviews. They will record and verify that an implemented change satisfies the requirement and need for change to the baselines. For new requirements, the DII COE/SHADE Chief Engineer and AOG can elect to brief executive leadership on significant baseline changes resulting from implementing new requirements.

6.2 Action Items

All action items will be identified and assigned to appropriate CM activities and organizations for resolution. Action items result from formal reviews, informal reviews, working meetings, and as part of CM activities and DII COE project management. Action items can be a requirement for additional information, a direction for action, or a need for clarification. They will be tracked in the CMIS from identification and assignment to closure. Resolution can require the DII COE/SHADE Chief Engineer, AOG, or TWG for support and detailed information not kept in the CMIS database. Any member of DII COE CM boards or staff can initiate action items. CM action items will focus on CIs, baselines, and technical issues.

When DII COE CM policies and procedures are implemented, other types of action items will be identified and monitored in the tracking system.

6.3 Status Accounting Information Storage

Current baselines, CI functional and physical characteristics, AOG action items, and CM documents will constitute the initial DII COE CMIS database. The database will include CM documents, in addition to required COE documentation. These documents include change management forms, change proposal forms, change tracking forms, and official notifications of approval/disapproval of new requirements and modifications to the baselines. Automated forms management and electronic storage media will be used for CM documentation exchange and processing.

Release procedures for development, test, and field items will be maintained in the CMIS database. Current schedules for development and implementation of item changes will be input and maintained for all baselines. These will be derived or extracted from current build plans.

The CMIS, controlled by the CFI CM Division, will be used by CM Division staff, Chief Engineers, CRCB, AOG, and the TWG. Access permissions and write and update privileges will be designated by the DII COE Configuration Manager. Read permissions will be assigned and password protected. Strict recording and auditing of access and modification to the CMIS database baseline will be implemented. The CMIS will be placed under formal CM administrative control. The DII COE/SHADE

Chief Engineer will appoint the database administrator responsible for CMIS integrity, accuracy, and currency of the data.

SECTION 7

CONFIGURATION REVIEWS

Configuration reviews determine that CIs reflect functional and physical characteristics and that requirements have been met. Reviews will be held by the COE Engineering Office to establish baselines.

7.1 Reviews

During DII COE reusable product selection and preparation, all phases of the DII COE development process -- requirements conversion, implementation, test, installation, retest, formal acceptance--are subject to a series of government reviews. During the operational phase of the DII COE product life cycle, all changes, enhancements, and other modifications to the product are subject to similar reviews by the Government. These reviews, under the authority of the DII COE/SHADE Chief Engineer, will indicate the adequacy of the product under review and will determine product compliance with appropriate requirements and specifications.

Reviews will be formal, such as a Design Review, or will be informal, such as the desktop audit of an interim product or document. The COE Engineering Office and AOG designated representatives will attend all formal reviews and informal reviews as appropriate in tracking the progress of authorized changes. The results of all reviews will be provided to the DII COE/SHADE Chief Engineer and the AOG. Review information will be kept current in the CMIS database.

Reviews topics which must be addressed are defined in detail on the DII COE Home Page (See Appendix H). This Home Page should be referenced for preparation purposes; however, the following items are generally addressed:

- DII COE software items or segments
- Support software
- Current baselines and products
- Supporting CIs from DII COE CI types
- Interfaces (internal and external)
- Critical infrastructure items external to DII COE configuration.

Agendas for mandatory reviews for each CI before its release will include the following:

- Objective of the review
- CIs to be reviewed
- Schedule and frequency
- Participants by title/job

- Documentation required for review or support
- Approval criteria and actions upon approval.

SECTION 8

CONTRACTOR/VENDOR CONTROL

Contractor/vendor depth of control and areas of control will be addressed by the COE Engineering Office and reviewed with the AOG. CM standards compliance requires that contractor/vendor control be applied. The COE Engineering Office will establish control mechanisms for products provided by vendors and contractors. The AOG will carefully review and examine all contracts, policies, and legal aspects of contractor and vendor products that are identified as DII COE CIs.

The following issues that affect contractor and vendor support and provision to the DII COE project will be addressed by DII COE CM:

- **Standards**: Compliance to DoD, DISA, IEEE, and ISO current standards for all products developed and implemented for the DII COEis mandatory; all products will comply with DII COE/SHADE Chief Engineer and AOG interpretations and implementation direction during all phases of reusable product development and throughout the product life cycle.
- **Proprietary Products**: The Government retains ownership and rights to data; modifications and tailoring are allowed and authority to control versions of products under DII COE CM is retained.
- **Product Change Control**: It is the responsibility of contractor and vendor to: comply with the COE Engineering Office decisions concerning reviews; comply with DII COE Engineering Office decisions on custom and COTS products; support emergency and urgent needs for baseline changes that will be unscheduled fixes; support AOG and DII COE/SHADE Chief Engineer's decisions to keep the system operating without loss of data.
- **Monitoring**: Contractors and vendors will accept and support: DII COE CM staff assigned to monitor activities and report findings; status accounting and tracking activities; providing access to records in DBL and access to development library; providing current versions of documents and developed software upon request by the AOG; executive and corporate requests via the AOG/DII COE/SHADE Chief Engineer's office; and providing access to all products developed for all baselines.
- **Agreements**: Contractors and vendors have the responsibility to: abide by CM review results; support establishment of DII COE CM activities including reviews; provide contractor documentation of CI products, and provide physical and functional characteristics of products and CIs in the DII COE.
- **Contracts**: Contractual records of schedules, completed products, and costs of development for the AOG will be made available to the government for use in preparing formal change proposals; any historical data and records concerning staffing, costs, and time to complete will be subject to government

audit and available to the AOG and DII COE/SHADE Chief Engineer upon request; contractual information needed by the AOG will be stored in a protected CM database for reviews. Change implementation planning information will be available to the AOG for reviews.

- **Licenses**: *(as appropriate)* Copies of all DII COE licenses and operating agreements will be kept in the CMIS for status accounting and tracking; contractor certification and registration status information will be stored and monitored in the CMIS and available to the AOG. Periodic status reports will be provided for license renewal and re-certification notices.
- **Product Delivery**: All products delivered by contractors and vendors will conform to content and format required in MIL-STDs and as directed by the Project Manager. Specifically, DII COE Segment packages will include source and executable code, as stipulated under MIL-STD-498. Products will be accompanied by formal and legally supportable letters of transmittal and acceptance by the Government. All components of product delivery packages required by the DII COE/SHADE Chief Engineer and AOG will be reviewed. All product deliveries will be placed under CM and will be tightly controlled. Reproduction and distribution of deliverable products will be directed and approved by the DII COE Engineering Office and the AOG.
- **Authority**: Contractors and vendors who support any DII COE baseline and provide or supply any DII COE product under formal CM control will comply with DII COE/SHADE Chief Engineer's direction and will respond to decisions rendered by the AOG. In extreme cases, the CRCB will appoint an arbitration committee to hear issues and concerns from contractors and vendors. The committee will consist of DII COE government staff or representatives from resources, contracts, systems engineering, legal, development, and operations who will be supported by staff requested from any CI type needed to address contractor/vendor issues concerning government decisions. Contractors and vendors will appoint representatives to brief cases to the committee and will empower these representatives to respond to actions identified and assigned by the government arbitration committee. All actions will be reported and tracked until resolution, and records of actions will be stored in the CMIS database.

APPENDIX A

ACRONYMS

AIS	Automated Information System
AOG	Architecture Oversight Group
AOG-ES	Architecture Oversight Group Executive Session
API	Applications Program Interface
C3I	Command, Control, Communications and Intelligence
CALS	Continuous Acquisition and Life-Cycle Support
CDR	Critical Design Review
CFCSE	DISA Center for Computer Systems Engineering
CFI	DISA Center for Integration
CI	Configuration Item
CINC	Commander-In-Chief
CM	Configuration Management
CMIS	Consolidated Management Information System
COE	Common Operating Environment
Comm	Comunication
COTS	Commercial Off-the-Shelf
CRCB	Configuration Review and Control Board
CSA	Configuration Status Accounting
C/S/A	CINC/Service/Agency
CSC	Computer System Component
CSCI	Computer Software Configuration Item
CUSSW	Custom Software
DBL	Development Baseline
DDR	Developer Documentation Requirements document
DII	Defense Information Infrastructure
DISA	Defense Information Systems Agency
DMC	Defense Megacenter
DoD	Department of Defense
DUSD	Deputy Under Secretary of Defense
ECP	Engineering Change Proposal
EIA	Electronic Industries Association
FBL	Functional Baseline
GCCS	Global Command and Control System
GCSS	Global Combat Support System
GOTS	Government Off-the-Shelf
GSPR	Global System Problem Report

HICD	Hardware Interface Control Designation
HW	Hardware
ICD	Interface Control Designation
IEEE	The Institute of Electrical and Electronics Engineers
I&RTS	Integration and Runtime Specification
ISO	International Standards Organization
JIEO	Joint Interoperability Engineering Organization
JMTK	Joint Mapping Toolkit (GCCS)
JTA	Joint Technical Architecture
LCCB	Local Configuration Control Board
MAISRC	Major Automated Information Systems Review Council
MFR	Manufacturer
MILDEP	Military Department
MIL-HDBK	Military Handbook
MIL-STD	Military Standard
OASD	Office of the Assistant Secretary of Defense
OPR	Office of Primary Responsibility
PBL	Production Baseline
PDL	Program Development Language
POC	Point of Contact
PROD	Product
REL	Release
RTM	Requirements Trace matrix
SCN	Software Change Notice
SCP	Software Change Proposal
SDD	Software Design Description
SDP	Software Development Plan
SEQNO	Sequence Number
SHADE	Shared Data Environment
SICD	Software Interface Control Designation
SRS	Software Requirements Specification
STP	Software Test Plan
SVD	Software Version Description
SW	Software
SYSNM	System Name

TWG	Technical Working Group
VER	Version
WWW	World Wide Web

APPENDIX B

DII COE REFERENCE PARTITION

The purpose of the logical reference partition is to balance and level DII COE CI identification and selection. Deciding DII COE CI depth of control compares to traditional software development decisions on appropriate levels for CSCIs and supporting Computer System Components (CSCs). The reference partition will describe major DII COE components and depth of control required to control DII COE CIs.

When CM is operational for DII COE, additional components and depth of control will be added. The reference partition will be continuously analyzed and adjusted as a living document that includes each current DII COE component considered part of a DII COE baseline under CM change control. The required components versus depths of control will be shown on a matrix with CI types on the horizontal. The cells of the matrix will describe each major DII COE component at the appropriate level of detail within a CI type. Baseline status or phase is another dimension of the matrix. The resulting sets of matrices ordered by baseline placement and status comprise the baseline reference partition for DII COE CIs. Current items that have been selected and are being tracked can provide the starting point for this reference partition.

A well-defined reference partition will expedite the first major CM activity: *identify and select CIs to be placed under formal management and control*. The partition provides a reference structure of major elements integral to and supporting initial DII COE services and segmentation. It represents the functionality accepted into the DII COE installed base. This partition will serve as a mechanism to guide various organizations, viewpoints, and management levels through startup and conduct of CM activities. The partition is a starting point to unify diverse disciplines in the DII COE complex and to describe what the CM process will control.

Table B-1 is an example of a DII COE reference partition with cell definitions. The depth of control ranges from high level services to functions to sub-function and aggregated instances. CIs are usually identified and selected at Level 2, the functional level. This level most likely correlates to DII COE segments since they are derived from common functions. Functional and physical characteristics must be described for each CI and maintained in a controlled baseline database. Sets of matrices can be ordered by DII COE baselines and indexed by CIs.

Table B-1. Basic DII COE CM Reference Partition

	System Domains of Control (Derived from DII COE CI Types)					
Depth of Control Levels	**Requirements**	**Serivce Segments**	**Infrastructure Configurations**	**Support Mechanisms**	**Interfaces**	**Procedures**
Level 1 DII COE Service **(and associated performance)**	system requirements for service: new modifications; upgrades; system/subsystem specification level	critical to system execution; integral to development, operation, and maintenance of product; structured by common functions	common support service software, hardware, and communications components	part of DII COE complex; provide products to support segments; e.g., documentation, standards, and test facility	APIs to mission applications, external interfaces to DoD, DISA, and commercial environments	DII COE, system-wide procedures, e.g., operations manuals, training material, CM control process, compliance test criteria and procedures
Level 2 Functions **- required to support a specific service** **CI identification level**	specific, required performance and behavior of a function in supporting the service; required functionality of the service	multiple functions that make up a critical service at a specified perform-ance level; must be traceable to a service; each function is a CI; functional and phys-ical characteristics	multiple functions of DII COE support services; specified performance level; must be traceable to a service; each function is a CI; functional and physical characteristics	specified function of support to the DII COE complex; must be traceable to a service segment requirement; functional and physical characteristics	specified functions of interfaces: users, customers, development and test facilities; vendors; contractors; networks; other operations and configurations	manuals, guides, standards, specifications, legal documents, con-tracts, bulletins, help tools, and procedure documents required to specify, document, develop, maintain, retire, staff, and fund DII COE services; must be traceable to a service requirement
Level 3 Sub-functions **aggregate to a Level 2 function with their associated components; sub-functions can be multiple instances of a function**	detailed requirement for a system component specified to support a function; software, hardware, and communications specifications and performance parameters	sub-functions that make up a common function; must be traceable to a function; specified software, hardware, and communications components are allocated to a sub-function	sub-functions of the infrastructure; must be traceable to a function; specified software, hardware, and communications components are allocated to an interface subfunction	sub-functions allocated to a support mechanism; detailed specifications on resources, sites, staffing, facilities, and products	sub-functions and instances; detailed interface specifications; specified mission applications	user and operations procedures for delivering and receiving DII COE products and services

Associated CM boards and working groups are shown in Table B-2. The allocation of CM responsibility and function does not depend on DISA organizational structures. The reference partition, when completed, is intended to be all inclusive. Any exclusions should be agreed on and approved by the appropriate CM governing members and boards. The partition is intended to stand up to evolution and change over the life of the DII COE.

Levels of control and manageable logical partition of DII COE CIs are critical to establish CM. The COE Engineering Office, in coordination with the TWGs and the AOG, will decide appropriate levels of control, what constitutes a function, and whether or not sub-functions and associated components should be broken out and controlled. At least three levels of control will be defined for Cis. Level 1 includes the basic DII COE services, such as support for external interfaces, and Level 2 is the level for service oversight and CI control. Level 3 includes the allocated software (SW), hardware (HW), and communications components supporting a sub-function that, in turn, supports a function at Level 2.

Table B-2. Basic Reference Partition Correlated to CM and Technical Oversight

Level 1 Management of Services and associated performance responsible for all domains of system control at service level	**Service Management** -liaison with executive boards, other boards -introduce new requirement upon approval -reject requirement, case, or specification if service is not acceptable or is duplicative of existing service -keep abreast of market and service needs	**Configuration Review and Control Board (CRCB)** -evaluate and approve all new requirements for service -direct CCB to assess requirements at functional CI level -hear change cases for modifications at service level -verify that service change implementation has met required performance level
Level 2 Management of Functions required to support a DII COE service manage *Configuration Items* correlated to functions responsible for all domains of system control at function level	**Service Oversight** -ensure there is not functional duplication -ensure that only standard baseline functions are installed -make recommendations to CRCB on change requests -conduct CM reviews and audits -identify and select CIs placed under CM -establish and declare control points for product releases	**Architecture Oversight Group (AOG)** -review, translate, and convert new functional requirements into technical specifications -compare specifications to services (capabilities) -specify additional information needed for CRCB review and decision on change cases/requests -evaluate service performance demonstrations -assess service capabilities against requirements and audits -witness acceptance test for production status -call for and direct additional testing of change -notify change originator/source of CCB decision
Level 3 Management of Sub-functions aggregated many to one function in level 2; manage associated configuration components; can be multiples of a function or unique for a function	**Operations Management** -responsible for installations and facilities where product items are tested or executed and for installed base -manage operations and maintain SW, HW, and Comm. Components that support each DII COE CI -manage DII COE CI changes at baseline product level	**Working Groups** (as needed by CRCB and AOG) -originate change requests unless directed by CRCB or AOG -make functional and technical cases for change and present consequences if service not changed -assess environment perturbations from change -quantify implementation implications: complexity, job sizing, costing, scheduling

APPENDIX C

IDENTIFICATION NAMING AND NUMBER CONVENTIONS

(Caveat: Conventions in the I&RTS will be followed. The conventions in this appendix are for planning considerations to accommodate growth and expansion in the COE.)

Software Configuration Identification

Two major categories of software are custom and COTS. DII COE custom software is modified and developed specifically for reuse by DoD customers and subscribers. Tailored COTS software will also be implemented in the DII COE. Tailored COTS software changes must be documented the same as custom software.

Custom Software

All custom software must be identified to the software unit level. One or more software units are aggregated into a functionally or logically distinct element called a CSC. The latest standards will be followed in designating software units. New designators are not limited to Software, thus CSC. GOTS software will have separate identification and naming conventions.

The example below shows an identifier for custom software. The required fields are commonly used in CM naming conventions:

COE.SYSNM.CUSSW.CSCI.CSC.SEQNO.REL.PBL.DOMAIN

where

COE	Five alphabetic characters representing the Project, which must be COE. *(Management will elect to change the project name to DII COE.)*
SYSNM	Up to seven alphabetic characters representing the System Name.
CUSSW	Up to seven alphabetic characters representing type of Custom Software.
CSCI	Up to seven alphabetic characters representing the CSCI name to which the software unit belongs. CSCI identifiers will be established by the software development project function from the detailed design description.
CSC	Up to seven alphabetic characters representing the CSC name to which the software unit belongs. CSC identifiers will be established by the software development project function from the detailed design.
SEQNO	Three numeral characters (zero fill) representing the Sequence Number. Incremental numbering of each software unit, as the units are identified. (If DII COE management specifies there is a requirement for four characters, this should be implemented at startup.)
REL	Three numeral characters (zero fill) representing the DII COE Release. Incremental numbering of the approved version of the unit. The initial release of the software unit will initiate the counter.
PBL	Three alphabetic characters representing the baseline identifier, functional (FBL), development (DBL) or production (PBL).
DOMAIN	Alphabetic characters identifying the domain of control of the item.

For example:

COE.CUSSW.DATAFUS.TRKCORR.001.007.PBL.SEGMENT

This identifier represents the DII COE. The CSCI is labeled DATAFUS for Data Fusion, and the CSC is labeled TRKCORR for Track Correlation. The software unit (module) is the first (001) identified in the CSC and is the approved version of the initial release (007) in the PBL. Tracking correlation is a DII COE segment and a Level 2 function of data fusion.

Note that versions (001-006) are in the DBL, and the baseline identifier of (001-006) would be DBL. If release identifiers denoting release 1, 2, ...n, are required, the REL segment of the identifier can be changed to three numeral characters to denote Releases only, and the Version identifier can remain the counter, still allowing for 999 versions of a Release. This plan recommends a simple numbering scheme for initial identification and accounting of software items in the baselines.

COTS Software

COTS software will be identified by the manufacturer's identifiers, including release and version numbers. COTS software that is tailored for the DII COE Project will be identified and controlled like custom software. For unmodified COTS software the identifier would be a commonly used convention:

SYSNM.MFR.PROD.VER.REL.PBL.DOMAIN

for modified COTS software:

COE.SYSNM.MFR.PROD.VER.REL.SEQNO.PBL.DOMAIN

where

COE	Five alphabetic characters representing the Project, which must be COE. *(Management will elect to change the project name to DII COE.)*
SYSNM	Up to seven alphabetic characters representing the System Name.
MFR	Up to 20 alphanumeric characters for the software manufacturer's name. Use of "the", "Company", "Inc.", etc., are wasted characters.
PROD	Up to 20 alphanumeric characters for the manufacturer's assigned name for the product.
VER	Up to three characters for the version number assigned by the manufacturer.
REL	Up to three characters for the release number assigned by the manufacturer.
SEQNO	Three numeral characters (zero fill). Incremental numbering of each change to the software product. Initial issue of the version and release will initialize the sequence number (SEQNO) at one (001).
PBL	Three alphabetic characters representing the baseline identifier, functional (FBL), development (DBL), or production (PBL).
DOMAIN	Alphabetic characters identifying the domain of control of the item.

The definition of the identifier and its specific characters must be provided by managers of each of the three baselines because of variations in products and

configurations that will be used in individual baselines. The conventions given are for guidance and illustrative purposes.

Government Off-The-Shelf Software

Government Off-The-Shelf (GOTS) software will be identified by the manufacturer's identifiers, including release and version numbers. GOTS software that is tailored for the DII COE Project will be identified and controlled like custom software. Modification of GOTS software, if possible, will need strong justification. For unmodified GOTS software the identifier can be these common character segments:

SYSNM.ORG.PROD.VER.REL.PBL.DOMAIN

where

SYSNM	Up to seven alphabetic characters representing the System Name.
ORG:	Up to 20 alphanumeric characters for the government organization providing the software.
PROD	Up to 20 alphanumeric characters for the manufacturer's name for the product.
VER	Up to three characters for the version number assigned by the manufacturer.
REL	Up to three characters for the release number assigned by the manufacturer.
SEQNO	Three numeral characters (zero fill). Incremental numbering of each change to the software product. The initial issue of the version and release initializes the sequence number at one (001).
PBL	Three alphabetic characters representing the baseline identifier, functional (FBL), development (DBL), or production (PBL).
DOMAIN	Alphabetic characters identifying the domain of control of the item.

For example, (unmodified GOTS):

GCCS DMA JMTK 3.0 REL SEQNO.COMAPP

This identifier represents a specific release of the Joint Mapping Toolkit (JMTK) software provided by GCCS, being used in/by the DII COE domain of Common Support Applications.

Hardware Configuration Identification

The DII COE Project is expected to use all COTS hardware products. The DII COE Project does not have hardware development activities. All hardware will be identified using the manufacturer's identification. All standard hardware products must be identified at the level designated by the manufacturer or equipment provider. A standard hardware product will include equipment options that have been installed.

Replacement parts will be identified in the documentation associated with each piece of equipment provided by the manufacturer. The configuration of a standard hardware product will correspond to the manufacturer's identification as much as possible. For those products with installed options that are not uniquely identified by the manufacturer, the option field will be used. Additions and iterations of the initial set of product identifiers will be established with the first installation. The sequence number and product type will be the unique identifier, with the subsequent identifier elements distinguishing specific instances. In general,

COE.SYSNM.SEQNO.PROD.MFR.MODEL.OPTION.DOMAIN

can be the format used where

COE	Five alphabetic characters representing the project which can be COE.
SYSNM	Up to seven alphabetic characters representing the System Name.
SEQNO	Five numeral characters (zero fill). Incremental numbering of each hardware unit, as the units are identified.
PROD	Up to 20 alphanumeric characters representing the common name for the product (e.g., DISKDRIVE)
MFR	Up to 20 alphanumeric characters representing the manufacturer's name.
MODEL	Up to 20 alphanumeric characters representing the specific model type as defined by the manufacturer.
OPTION	Up to 20 alphanumeric characters identifying the option(s) installed with the product that are not uniquely identified by the model designation. The characters used for this field should be related to the option(s). The manufacturer's designation for the option will be used.
PBL	Three alphabetic characters representing the baseline identifier, functional, production, or development.
DOMAIN	Alphabetic characters identifying the domain of control of the item.

For example,

COE.00041.MAINPROCESSOR.HEWLETTPACKARD.XXXSSTT.PBL.INFRSTRUC
TURECONFIG

This represents the forty-first hardware item identified for the DII COE. It is the main processor installed at DISA Defense Megacenters (DMCs). Fields for allocated

functionality at specific sites will also be defined for each baseline. In the Program Development Language (PDL), for example, identifiers for workstation processors, servers, data servers, and hosts will be stipulated and appended with site identifiers. When hardware items are selected, functionality and location must be specified. In addition, equipment quantity must be stipulated.

DII COE Management will decide to add characteristics to identifiers that uniquely identify each hardware item, such as Government property identifiers and site Offices of Primary Responsibility (OPRs). Existing inventory and site codes will be used to expedite establishing baselines and CI control. Site managers are responsible for providing hardware descriptions and characteristics to the DII COE Configuration Manager for the CMIS database.

Interface Configuration Identification

All external interfaces needed to satisfy the functional requirements of the DII COE will be stipulated by the developer. Interface analysis in coordination with requirements, systems engineering, and operations will enable development to indicate all interfaces.

Current identification nomenclature and associated documentation will be used for interfaces that exist as described in the existing interface documentation. For new external interfaces created specifically for the DII COE, the DII COE/SHADE Chief Engineer's office will establish interface identification to comply with established guidelines, or if necessary, through negotiations with the activity responsible for the non-DII COE side of the interface. Interface Control Designations (ICD) will be established at the completion of a critical design review dedicated to DII COE CI identification and selection. This plan recommends that major design reviews be convened with agenda focused on DII COE external interfaces, baselines, and CIs. These reviews will expedite the identification and selection process.

The following formats can be used for the hardware interfaces,

COE.SYSNM.HWICD.COECOM.SITECOM.SEQNO.DOMAIN

and software interfaces,

COE.SYSNM.SICD.CSCI1.CSCI2.SEQNO.INTERFACE

where

COE	Five alphabetic characters representing the project that can be COE.
SYSNM	Up to seven alphabetic characters representing the System Name.
HICD	Four alphabetic characters indicating a hardware ICD that must be HICD.
SICD	Four alphabetic characters indicating a software ICD that must be SICD.
COECOM	Up to 20 alphanumeric characters representing the common name for the component.
SITECOM	Up to 20 alphanumeric characters representing the common name for the component on the site side of the interface. When both components are within DII COE, the detailed design will indicate which of the two components will be indicated first.
CSCI1	Four alphabetic characters representing a CSCI name. The identifier for the CSCI to which one side of the interface belongs. Enumeration of the CSCI identifiers will be established from the Detailed Design. When both components are within DII COE, the detailed design will indicate which of the two components will be indicated first.
CSCI2	Four alphabetic characters representing a CSCI name. The identifier of the CSCI to which the other side of the interface belongs. Enumeration of the CSCI identifiers will be established from the Detailed Design. When both components are within DII COE, the detailed design will indicate which of the two components will be indicated first.
SEQNO	Three numeral characters (zero fill). Incremental numbering of each interface, as the interfaces are identified.
INTERFACE	Alphabetic characters identifying the system domain of control of the item, in this case Interfaces.

APPENDIX D

GLOBAL SYSTEM PROBLEM REPORT (GSPR) FORM AND INSTRUCTIONS

GLOBAL SYSTEM PROBLEM REPORT

I.a. OPERATING ENVIRONMENT INFORMATION | **I.b. APPLICATION SOFTWARE INFORMATION**

1. DPI Number	2. Control Number		8. Reference Number	
3. System Resource Identifier	4. Update	5. Edit Level	9. CSCI / System Name	10. Release Identifier
6. Subsystem and Release	7. Suspect Module / Component		11. Subsystem and Release	12. Publisher, Vendor or Developer

II. GENERAL INFORMATION

13. Priority	14. Date of Problem	15. Date of Report	16. This problem *(Check all that apply.)* ☐ Can be duplicated. ☐ Can not be duplicated. ☐ Is unique to this release. ☐ Is not unique to this release. ☐ Is unique to this edit level. ☐ Is not unique to this edit level.
17. Report Class ☐ PR ☐ CR	18. Report Category ☐ A ☐ B ☐ C	19. Life Cycle Phase ☐ D ☐ I ☐ T ☐ O	
20. Product Category ☐ GCCS Standard ☐ GCCS Registered ☐ GCCS Certified			21. Product Type ☐ GOTS ☐ COTS ☐ Contractor Developed ☐ Government Developed

III. ORIGINATOR / POINT OF CONTACT INFORMATION

22. Last Name	23. First Name	24. Initial
25. Organization		
26. Complete Mailing address		
27. Commercial Phone Number	28. Commercial Fax Number	29. DSN Phone Number	30. DSN Fax Number

IV. PROBLEM DESCRIPTION *(Note test number and step, activity in progress, symptoms, suspected cause, and corrective action(s) taken, as applicable.)*

31. Title

32. Description

☐ Continued on attached sheet.

V. SUPPLEMENTAL MATERIAL ☐ Continued on attached sheet.

33. Type	34. Classification	35. Medium / Identification / Description Information	40. CAD Number

VI. CONTROL INFORMATION *(This section for Control Center Use Only)*

36. Receipt Date	37. PA Code	38. Primary Analyst	39. Secondary Analyst

DISA Form 291, JUL 94 (EF) Previous editions are obsolete.

INSTRUCTIONS

I.a. OPERATING ENVIRONMENT INFORMATION *(Complete applicable items in this section for all reports.)*

Item 1 Enter the Data Processing Installation (DPI) number of the reporting organization.

Item 2 Enter a unique, 6-character (four, for WWMCCS) identification code assigned to this report by the reporting organization.

Item 3 Enter the system release identifier under which the problem was detected.

Item 4 Enter the update level identifier of the system release under which the problem was detected, if applicable.

Item 5 Enter the edit level identifier of the system release under which the problem was detected, if applicable.

Item 6 Enter the name of the release identifier of the software subsystem within which the problem was detected, if applicable.

Item 7 Enter the name of the module / software component within which the problem is suspected to have occurred, if applicable.

I.b. APPLICATION SOFTWARE INFORMATION *(Complete this section only for Application Software problem reports (e.g., JOPES, OSS, GSORTS, etc.).)*

Item 8 Enter the tracking identifier of the problem as identified by an external tracking system, if applicable.

Item 9 Enter the Computer Software Configuration Item (CSCI) or the name of the product within which the problem was detected.

Item 10 Enter the release identifier of the CSCI / product within which the problem was detected, if applicable.

Item 11 Enter the subsystem of the CSCI / product within which the problem was detected, if applicable.

Item 12 Enter the name of the Agency, Publisher, or Vendor which has maintenance responsibility for this product.

II. GENERAL INFORMATION

Item 13 Enter the priority of the problem. Valid values are:

1 - Unable to perform required operational or mission essential capability; personnel safety jeopardized.

2 - Required operational or mission essential capability adversely affected. No alternative work-around available.

3 - Required operational or mission essential capability adversely affected. Alternative work-around available.

4 - Operator or user inconvenience or annoyance. Does not affect required operational or mission essential capability.

5 - All others.

Item 14 Enter the day, month, and year the problem was detected. Format: DD Mon YY (e.g., 12 Mar 94)

Item 15 Enter the day, month, and year this report will be submitted. Format: DD Mon YY (e.g., 12 Mar 94)

Item 16 Mark each box which applies to this problem report.

Item 17 Mark the class of the report being submitted: PR is Problem Report; CR is Change Report

Item 18 Mark the category of report being submitted:

A - Software. The software does not operate according to the supplied documentation and the documentation is correct.

B - Documentation. The software does not operate according to the supplied documentation but the software operation is correct.

C - Design. The software operated according to supplied documentation but a design deficiency exists. The design deficiency may not always result in a directly observable operational symptom but possesses the potential for creating further problems.

Item 19 Mark the life cycle phase during which the problem was detected: D - Development; I - Integration; T - Testing; O - Operational use.

Item 20 Mark the appropriate GCCS category of the product identified in Section I.b., if applicable.

Item 21 Mark the appropriate type of the product identified in Section I.b.

III. ORIGINATOR / POINT OF CONTACT INFORMATION

Item 22 Enter the last name of the originator or designated point of contact for this report.

Item 23 Enter the first name of the person identified in Item 22.

Item 24 Enter the middle initial of the person identified in Item 22.

Item 25 Enter the full organizational name of the site, unit, or organization submitting this report.

Item 26 Enter the official mailing address of the person identified in Item 22.

Items 27 - 30 Enter the commercial telephone and facsimile numbers, and the DSN telephone and facsimile numbers of the person identified in Item 22.

IV. PROBLEM DESCRIPTION

Item 31 Enter a short statement (maximum 60 characters) which characterizes the nature of this problem.

Item 32 Enter a complete, concise description of the problem and any relevant information that may be useful in the analysis and resolution of the problem. Additional sheets may be attached if necessary.

V. SUPPLEMENTAL MATERIAL

Item 33 Enter the type code of any supplemental material submitted with this report. Valid entries are:

A - System Dump	D - Program Listing	G - Trace Listing	J - Screen Display Capture
B - Program Dump	E - Input Listing	H - Console Log	K - Submitted Analysis/Resolution
C - JCL Listing	F - Output Listing	I - Terminal Log	Z - Other *(Specify in Item 35.)*

Item 34 Enter the security classification of the supplemental item.

Item 35 Enter the medium, if item submitted electronically; and/or appropriate identification/description information (maximum 50 characters).

VI. CONTROL INFORMATION *(For Control Center Use Only)*

Items 36 - 40 Leave blank.

APPENDIX E

ENGINEERING CHANGE PROPOSAL (ECP) FORM AND INSTRUCTIONS

ENGINEERING CHANGE PROPOSAL (ECP), PAGE 1

1. DATE (YYMMDD)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to, Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

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2. PROCURING ACTIVITY NO.

3. DODAAC

4. ORIGINATOR
a. TYPED NAME *(First, Middle Initial, Last)*
b. ADDRESS *(Street, City, State, Zip Code)*

5. CLASS OF ECP

6. JUST. CODE

7. PRIORITY

8. ECP DESIGNATION
a. MODEL/TYPE
b. CAGE CODE
c. SYSTEM DESIGNATION
d. ECP NO.
e. TYPE
f. REV

9. BASELINE AFFECTED
☐ FUNCTIONAL ☐ PRODUCT
☐ ALLOCATED

10. OTHER SYS./CONFIG. ITEMS AFFECTED
☐ YES ☐ NO

11. SPECIFICATIONS AFFECTED

	CAGE Code	Specification/Document No.	Rev.	SCN
a. SYSTEM				
b. DEVELOPMENT				
c. PRODUCT				

12. DRAWINGS AFFECTED

CAGE Code	Number	Rev.	NOR

13. TITLE OF CHANGE

14. CONTRACT NO. AND LINE ITEM

15. PROCURING CONTRACTING OFFICER
a. NAME (*First, Middle Initial, Last)*
b. CODE
c. TELEPHONE NO.

16. CONFIGURATION ITEM NOMENCLATURE

17. IN PRODUCTION
☐ YES ☐ NO

18. ALL LOWER LEVEL ITEMS AFFECTED
a. NOMENCLATURE
b. PART NO.
c. NSN

19. DESCRIPTION OF CHANGE

20. NEED FOR CHANGE

21. PRODUCTION EFFECTIVITY BY SERIAL NUMBER

22. EFFECT ON PRODUCTION DELIVERY SCHEDULE

23. RETROFIT
a. RECOMMENDED ITEM EFFECTIVITY
b. SHIP/VEHICLE CLASS AFFECTED
c. ESTIMATED KIT DELIVERY SCHEDULE
d. LOCATION OR SHIP/VEHICLE NUMBERS AFFECTED

24. ESTIMATED COSTS/SAVINGS UNDER CONTRACT

25. ESTIMATED NET TOTAL COSTS/SAVINGS

26. SUBMITTING ACTIVITY
a. AUTHORIZED SIGNATURE
b. TITLE

27. APPROVAL/DISAPPROVAL
a. CLASS I ☐ APPROVAL RECOMMENDED ☐ DISAPPROVAL RECOMMENDED
b. CLASS II ☐ APPROVED ☐ DISAPPROVED
c. CLASS II ☐ CONCUR IN CLASSIFICATION OF CHANGE ☐ DO NOT CONCUR IN CLASSIFICATION OF CHANGE
d. GOVERNMENT ACTIVITY
e. SIGNATURE
f. DATE SIGNED (YYMMDD)
g. APPROVAL ☐ APPROVED ☐ DISAPPROVED
h. GOVERNMENT ACTIVITY
i. SIGNATURE
j. DATE SIGNED (YYMMDD)

DD Form 1692, APR 92 ***Previous editions are obsolete.***

ENGINEERING CHANGE PROPOSAL (ECP), PAGE 2	*Form Approved OMB No. 0704-0188*

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ECP NUMBER

EFFECTS ON FUNCTIONAL/ALLOCATED CONFIGURATION DOCUMENTATION

28. OTHER SYSTEMS AFFECTED	29. OTHER CONTRACTORS/ACTIVITIES AFFECTED

30. CONFIGURATION ITEMS AFFECTED

31. EFFECTS ON PERFORMANCE ALLOCATIONS AND INTERFACES IN SYSTEM SPECIFICATION

32. EFFECTS ON EMPLOYMENT, INTEGRATED LOGISTICS SUPPORT, TRAINING, OPERATIONAL EFFECTIVENESS OR SOFTWARE

33. EFFECTS ON CONFIGURATION ITEM SPECIFICATIONS

34. DEVELOPMENTAL REQUIREMENTS AND STATUS

35. TRADE-OFFS AND ALTERNATIVE SOLUTIONS

36. DATE BY WHICH CONTRACTUAL AUTHORITY IS NEEDED ***(YYMMDD)***

DD Form 1692/1, APR 92 ***Previous editions are obsolete.***

ENGINEERING CHANGE PROPOSAL (ECP), PAGE 3

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OMB No. 0704-0188

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ECP NUMBER

EFFECTS ON PRODUCT CONFIGURATION DOCUMENTATION, LOGISTICS AND OPERATIONS

(X)	FACTOR	ENCL	PAR.	(X)	FACTOR	ENCL.	PAR
	37. EFFECT ON PRODUCT CONFIGURATION DOCUMENTATION OR CONTRACT				**39. EFFECT ON OPERATIONAL EMPLOYMENT**		
	a. PERFORMANCE				a. SAFETY		
	b. WEIGHT-BALANCE-STABILITY *(Aircraft)*				b. SURVIVABILITY		
	c. WEIGHT-MOMENT *(Other equipment)*				c. RELIABILITY		
	d. CDRL. TECHNICAL DATA				d. MAINTAINABILITY		
	e. NOMENCLATURE				e. SERVICE LIFE		
					f. OPERATING PROCEDURES		
	38. EFFECT ON INTEGRATED LOGISTICS SUPPORT (ILS) ELEMENTS				g. ELECTROMAGNETIC INTERFERENCE		
					h. ACTIVATION SCHEDULE		
	a. ILS PLANS				i. CRITICAL SINGLE POINT FAILURE ITEMS		
	b. MAINTENANCE CONCEPT, PLANS AND PROCEDURES				j. INTEROPERABILITY		
	c. LOGISTICS SUPPORT ANALYSIS						
	d. INTERIM SUPPORT PROGRAMS						
	e. SPARES AND REPAIR PARTS				**40. OTHER CONSIDERATIONS**		
	f. TECH MANUALS/PROGRAMMING TAPES				a. INTERFACE		
	g. FACILITIES				b. OTHER AFFECTED EQUIPMENT/GFE/GFP		
	h. SUPPORT EQUIPMENT				c. PHYSICAL CONSTRAINTS		
	i. OPERATOR TRAINING				d. COMPUTER PROGRAMS AND RESOURCES		
	j. OPERATOR TRAINING EQUIPMENT						
	k. MAINTENANCE TRAINING				e. REWORK OF OTHER EQUIPMENT		
	l. MAINTENANCE TRAINING EQUIPMENT				f. SYSTEM TEST PROCEDURES		
	m. CONTRACT MAINTENANCE				g. WARRANTY/GUARANTEE		
	n. PACKAGING, HANDLING, STORAGE, TRANSPORTABILITY				h. PARTS CONTROL		
					i. LIFE CYCLE COSTS		

41. ALTERNATE SOLUTIONS

42. DEVELOPMENTAL STATUS

43. RECOMMENDATIONS FOR RETROFIT

44. WORK-HOURS PER UNIT TO INSTALL RETROFIT KITS

a. ORGANIZATION	b. INTERMEDIATE	c. DEPOT	d. OTHER

45. WORK-HOURS TO CONDUCT SYSTEM TESTS AFTER RETROFIT

46. THIS CHANGE MUST BE ACCOMPLISHED

☐ BEFORE ☐ WITH ☐ AFTER THE FOLLOWING CHANGES

47. IS CONTRACTOR FIELD SERVICE ENGINEERING REQUIRED?

☐ YES ☐ NO

48. OUT OF SERVICE TIME

49. EFFECT OF THIS ECP AND PREVIOUSLY APPROVED ECP'S ON ITEM

50. DATE CONTRACTUAL AUTHORITY NEEDED FOR *(YYMMDD)*

a. PRODUCTION

b. RETROFIT

DD Form 1692/2, APR 92 ***Previous editions are obsolete.***

ENGINEERING CHANGE PROPOSAL (ECP), PAGE 4

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OMB No. 0704-0188

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ECP NUMBER

51. ESTIMATED NET TOTAL COST IMPACT ***(Use parentheses for savings)***

FACTOR	COSTS /SAVINGS UNDER CONTRACT					Other Costs/ Savings to the Government
	Non-Recurring (a)	RECURRING Unit (b)	Quantity (c)	Total *(Recurring)* (d)	Unit (e)	(f)
a. PRODUCTION COSTS/SAVINGS						
(1) CONFIGURATION ITEM/CSCI						
(2) FACTORY TEST EQUIPMENT						
(3) SPECIAL FACTORY TOOLING						
(4) SCRAP						
(5) ENGINEERING, ENGINEERING DATA REVISION						
(6) REVISION OF TEST PROCEDURES						
(7) QUALIFICATION OF NEW TIMES						
(8) SUBTOTAL OF PROD COSTS/SAVINGS						
b. RETROFIT COSTS						
(1) ENGINEERING DATA REVISION						
(2) PROTOTYPE TESTING						
(3) KIT PROOF TESTING						
(4) RETROFIT KITS FOR OPERATIONAL SYSTEMS						
(5) PREP OF MWO/TCTO/SC/ALT/TD						
(6) SPECIAL TOOLING FOR RETROFIT						
(7) INSTALLATION - CONTRACTOR PERSONNEL						
(8) INSTALLATION - GOVERNMENT PERSONNEL						
(9) TESTING AFTER RETROFIT						
(10) MODIFICATION OF GFE/GFP						
(11) QUALIFICATION OF GFE/GFP)						
(12) SUBTOTAL OF RETROFIT COSTS/SAVINGS						
c. INTEGRATED LOGISTICS SUPPORT COSTS/ SAVINGS						
(1) SPARES/REPAIR PARTS REWORK						
(2) NEW SPARES AND REPAIR PARTS						
(3) SUPPLY/PROVISIONING DATA						
(4) SUPPORT EQUIPMENT						
(5) RETROFIT KITS FOR SPARES						
(6) OPERATOR TRAINING COURSES						
(7) MAINTENANCE TRAINING COURSES						
(8) REVISION OF TECH MANUALS						
(9) NEW TECH MANUALS						
(10) TRAINING/TRAINERS						
(11) INTERIM SUPPORT						
(12) MAINTENANCE MANPOWER						
(13) COMPUTER PROGRAMS/ DOCUMENTATION						
(14) SUBTOTAL OF ILS COSTS/SAVINGS						
d. OTHER COSTS/SAVINGS						
e. SUBTOTAL COST/SAVINGS						
(1) SUBTOTAL UNDER CONTRACT						
f. COORDINATION OF CHANGES WITH OTHER CONTRACTORS						
g. COORDINATION CHANGES BY GOVERNMENT						
h. ESTIMATED NET TOTAL COSTS/SAVINGS						

DD Form 1692/3, APR 92 ***Previous editions are obsolete.***

ENGINEERING CHANGE PROPOSAL (ECP), PAGE 5

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OMB No. 0704-0188

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ECP NUMBER

52. ESTIMATED COST/SAVINGS SUMMARY, RELATED ECP'S ***(Use parentheses for savings)***

	CAGE CODE (a)	ECP NUMBER (b)	COSTS/SAVINGS UNDER CONTRACT (c)	OTHER COSTS/SAVINGS TO GOVERNMENT (d)
a. PRODUCTION COSTS/SAVINGS ***(Subtotal of Costs/ Savings Elements from Page 4, Item 4.a., applicable to aircraft, ship, tank, vehicle, missile or its subsystem)***				
(1) SUBTOTAL PRODUCTION COSTS/SAVINGS				
b. RETROFIT COSTS ***(Applicable to aircraft, ship, tank, vehicle, missile or its subsystem)***				
(1) SUBTOTAL RETROFIT COSTS				
c. INTEGRATED LOGISTICS SUPPORT COSTS/ SAVINGS REVISED REQUIREMENTS				
(1) ITEM RETROFIT *(IIf not covered under "b") (Applicable to aircraft, ship, tank,vehicle, missile or its subsystem)*				
(2) ILS SUBTOTAL *(Applicable to aircraft, ship, tank, vehicle, missile or its subsystem)*				
(3) OPERATOR TRAINER *(Net total cost/savings from each ECP covering operator trainer)*				
(4) MAINTENANCE TRAINER *(Net total cost/savings from each ECP covering maintenance trainer)*				
(5) OTHER TRAINING EQUIPMENT				
(6) SUPPORT EQUIPMENT *Net total cost/savings from each ECP on support equipment)*				
(7) ILS PLANS				
(8) MAINTENANCE CONCEPT, PLANS, SYSTEM DOCUMENTS				
(9) INTERIM SUPPORT PLAN				

NEW REQUIREMENTS	CAGE CODE	NON-RECURRING COSTS	RECURRING COSTS UNIT	RECURRING COSTS QTY	RECURRING COSTS TOTAL		
(10) PROVISIONING DOCUMENTATION							
(11) OPER TRNR/TRNG DEVICES/EQUIP							
(12) MANUALS/SPARES, REPAIR PARTS *(For (11))*							
(13) MAINTENANCE TRNR/TRNG DEVICES/EQUIPMENT							
(14) MANUALS/SPARES, REPAIR PARTS *(For (13))*							
(15) SUPPORT EQUIPMENT							
(16) MANUALS *(For (15))*							
(17) PROVISIONING DOCUMENTATION *(For (15))*							
(18) (REPAIR PARTS *(For (15))*							
(19) SUBTOTAL ILS COSTS/SAVINGS *(Sum of c(1) through c(18))*							

	CAGE CODE	ECP NUMBER		
d. OTHER COSTS/SAVINGS **(Total from Page 4, Item 4.d., or related ECP's)**				
(1) TOTAL OTHER COSTS/SAVINGS				
(2) SUBTOTALS OF COLUMNS				
(3) SUBTOTAL UNDER CONTRACT				
e. ESTIMATED NET TOTAL COSTS/SAVINGS ***(a + b + c + d)***				

DD Form 1692/4, APR 92 ***Previous editions are obsolete.***

ENGINEERING CHANGE PROPOSAL (ECP) (HARDWARE), PAGE 6

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OMB No. 0704-0188

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ECP NUMBER

53. CAGE CODE

54. CONFIGURATION ITEM NOMENCLATURE

55. TITLE OF CHANGE

56. DATE AUTHORIZATION TO PROCEED RECEIVED BY CONTRACTOR *(YYMMDD)* ▼

S START DELIVERY C COMPLETE DELIVERY ▼ PROGRESS POINT

	NO. OF MONTHS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
a. CONFIGURATION ITEM	(1) Production																																				
	(2) Tech Manuals																																				
	(3) Retrofit																																				
	(4) MWO/TCTO/SC/ALT/TD																																				
	(5) Spares/Repair Parts																																				
b. SUPPORT EQUIPMENT	(1) Production																																				
	(2) Tech Manuals/Prog. Tapes																																				
	(3) Retrofit																																				
	(4) MWO/TCTO/SC/ALT/TD																																				
	(5) Repair Parts																																				
c. TRAINER	(1) Operator																																				
	(2) Maintenance																																				
	NO. OF MONTHS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

DD Form 1692/5, APR 92

Previous editions are obsolete.

ENGINEERING CHANGE PROPOSAL (ECP) (SOFTWARE), PAGE 7

Form Approved
OMB No. 0704-0188

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ECP NUMBER

57. CAGE CODE

58. COMPUTER SOFTWARE CONFIGURATION ITEM NOMENCLATURE

59. TITLE OF CHANGE

60. DATE AUTHORIZATION TO PROCEED RECEIVED BY CONTRACTOR *(YYMMDD)* ▼

S START DELIVERY C COMPLETE DELIVERY ▼ PROGRESS POINT

	NO. OF MONTHS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
a. CONFIGURATION ITEM	(1) Software Engineering																																				
	(2) Software Documentation																																				
	(3) Software Replication																																				
	(4) Software Distribution																																				
b. SUPPORT EQUIPMENT	(1) Software Engineering Environment Upgrade																																				
	(2) Software Test Environment Upgrade																																				
c. TRAINER	(1) Operator																																				
	(2) Maintenance																																				
	NO. OF MONTHS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

DD Form 1692/6, APR 92 *Previous editions are obsolete.*

INSTRUCTIONS FOR THE PREPARATION OF AN ECP

The ECP is used to formally document proposed software enhancements and new functional requirements that impact the established developmental baseline. The ECP must include the first page of the ECP form as a minimum. It is essential that all required fields on page one of the ECP form are completed and that a complete and accurate description of the problem/change is provided. The ECP developer should be selective if using any additional pages of the ECP form. Additional pages are provided primarily for guidance and should be submitted only as required to document supplemental information.

Block 1. Date. Enter the submittal date of the ECP or of the revision to the ECP.

Block 2. Procuring activity number. To be used by Government for entry of internal processing number, if desired.

Block 3. DODAAC. Enter the DODAAC of the procuring activity.

Block 4. Originator name and address. Enter the name and address of the contractor or Government activity, submitting the ECP. Use Block 4a for the contractor or Government activity name (inclusion of submitting individual's name is optional). Use Block 4b for the contractor or Government activity address.

Block 5. Class of ECP. Enter I or II for the applicable ECP as defined in 5.4.2.2.1 or 5.4.2.4. When ECP short form procedure is specified by the contract, the Government representative identified in the contract shall assign the change classification.

Block 6. Justification code. Enter the justification code which is applicable to the proposed Class I engineering change. When short form procedure is specified in the contract, the Government representative identified in the contract will assign the appropriate justification code for other than VECPs.

CODES

B - Interface
C - Compatibility
D - Deficiency
O - Operational or logistics support
P - Production stoppage
R - Cost Reduction
S - Safety
V - Value engineering

NOTE: Value engineering ECP. When the contract contains a value engineering clause, each value engineering ECP shall be identified both by the "V" in Block 6 and by the entry of the following notation at the top of Page 1 of the ECP form: "VALUE ENGINEERING CHANGE PURSUANT TO CONTRACT CLAUSE."

Block 7. Priority. The contractor shall recommend a priority to the Government and enter an "E", "U", or "R" (Emergency, Urgent or Routine) as defined in 5. When short form procedure is specified by contract, the Government representative will assign the priority.

Block 8. ECP designation.

Block 8a. Model/Type. Enter model or type designation of the CI for which this proposal is being filled out. For CSCIs, enter the CSCI identification number.

Block 8b. CAGE code. Enter the CAGE code for the activity originating the ECP.

Block 8c. System designation. The system or top-level CI designation or nomenclature assigned by the Government shall be entered, if known.

Block 8d. ECP number. Once an ECP number is assigned to the first submission of a change proposal, that number shall be retained for all subsequent submissions of that change proposal. One of the following methods of assigning ECP numbers may be used unless otherwise stated in the contract:

a. ECP numbers shall run consecutively commencing with number 1, for each CAGE Code identified activity, or ECP numbers may be assigned in a separate series for each system that the contractor is producing.

b. When an ECP is split into a basic ECP and related ECPs, the basic ECP shall be identified with the number prescribed above and each related ECP shall be identified by the basic number plus a separate dash number. The number of characters in the ECP number, dash number, type, and revision identification shall not exceed 15.

c. Other systems may be used provided the ECP number is unique for any CAGE Code identified activity, and the 15 character limitation in paragraph (2) above is not exceeded.

Block 8e. Type. Enter either a "P" for preliminary, or "F" for formal.

Block 8f. Revision. If an ECP is being revised, enter the proper identification of the revision, i.e., R1 for the first revision; R.. for subsequent revisions. (The date submitted shall be the date of the revised ECP.)

Block 9. Baseline affected. Place an "X" in the box(es) according to the baseline(s) affected.

Block 10. Other systems/configuration items affected. Enter an "X" in the "yes" or "no" box, as applicable, to indicate whether there is an effect on other systems or CIs which will require the submittal of related Class I ECPs. Supply details in Blocks 28 and 30.

Block 11. Specifications affected. If specifications cited in the contract are affected by the ECP, their identity by the CAGE code of the design activity, document number, revision letter, and the SCN (or NOR) number of the SCN (or NOR) being submitted with the ECP, shall be entered.

Block 12. Drawings affected. Enter the indicated information for all drawings affected by the ECP. The CAGE code to be entered is that of the design activity whose number is assigned to the listed drawing(s). If more than three drawings are affected, enter the information required in the first line for the top-level drawing affected by the ECP and make direct reference on the second line to the enclosure and paragraph containing the list of all the affected drawings.

Block 13. Title of change. Enter a brief title to identify the component or system affected by the ECP. Do not include the purpose or description which are to be entered in Block 16. For example: F-18 Aircraft Air Turbine Start Connector Backshell Replacement; AN/AYK-14(v) CP-1502/CP-1503 Reconfiguration to CP-1799; (CSCI name) Block Update.

Block 14. Contract number(s) and line item(s). Enter the number(s) of all currently active contract(s), and the affected contract line item number(s), at the originating CAGE-coded activity that are affected by the engineering change. If more contracts are affected than can be fit in the block, make reference to the enclosure and paragraph where this information is provided. In the case of a Government-prepared change, the task number under which the ECP will be funded and implemented shall be provided in this block.

Block 15.Procuring contracting officer. Enter the procuring contracting officer's name, code and telephone number applicable to the CI shown in Block 16.

Block 16. Configuration item nomenclature. Enter the Government assigned name and type designation, CSCI name and number if applicable, or authorized name and number of the CI(s) affected by the ECP.

Block 17. In production. The "yes" box shall be marked if deliveries have not been completed on the contract(s). The "no" box shall be marked if the deliveries have been completed. This block is not always applicable to software. If not applicable, so indicate.

Block 18. All lower level items affected.

a. For hardware, an appropriate, complete descriptive name of the part(s) shall be given here without resorting to such terms as "Numerous bits and pieces". The number(s) of the part(s) shall also be entered.

Additionally, applicable NSNs shall be entered. An attached list may be used when necessary.

b. For CSCI's, enter the name and identifier of each lower level CI and computer software unit affected.

Block 19. Description of change. The description of the proposed change shall include the purpose and shall be given in sufficient detail to adequately describe what is to be accomplished. It shall be phrased in definitive language such that, if it is repeated in the contractual document authorizing the change, it will provide the authorization desired. A description as to which part of the item or system is being changed shall be provided. Supplemental drawings and sketches shall be provided to the extent necessary to clearly portray the proposed change. If the proposed change is an interim solution, it shall be so stated. If additional space is needed, use continuation pages for details but provide an overview in this block. Information should be included as to whether the revision is a resubmittal, replacing the existing ECP in its
entirety, or provides change pages to the existing ECP.

Block 20. Need for change. Enter an explanation of the need for the change to include specifically identifying the benefit of the change to the Government. The nature of the defect, failure, incident, malfunction, etc. substantiating the need for the change shall be described in detail. Full utilization shall be made of available failure data. If a new capability is to be provided, improvements in range, speed, performance, endurance, striking power, defensive or offensive capabilities, etc. shall be described in quantitative terms. Correspondence establishing requirements for the change and any testing accomplished prior to the submission shall be identified and summarized. If the ECP is needed to correct maintenance/ logistics problems, that fact will be included with sufficient detail to identify the issues. If the ECP is being submitted as a response to a request for ECP or Government direction, cite that authority herein. Additional pages may be added as required.

Block 21. Production effectivity by serial number.

a. For hardware, enter the contractor's estimated production effectivity point for the production items including serial number, or other item identification (e.g., block or lot number) as approved by the Government. In determining the effectivity point for the proposed change, the contractor shall consider, in addition to the time factors, the availability of all support elements affected and the most economical point of introduction consistent with all the salient factors involved. The earliest production incorporation is not necessarily the singular or most important factor in the establishment of a proposed change effectivity point. The effectivity point will be based on concurrent availability of all logistics support elements and materials affected by the change to the item.

b. For CSCI's, identify the CSCI version number into which the change will be incorporated. Where applicable, the effectivity of the end item CI and vehicle (aircraft, tank, ship, etc.) into which the capability represented by the new version of the software is proposed to be incorporated, shall also be provided. If the impact of the ECP merits the release of a new software version, Block 21 of the ECP submittal shall include a recommendation to this effect. Serial numbers may be used in lieu of version numbers if approved by the Government.

Block 22. Effect on production delivery schedule. State the estimated delivery schedule of items incorporating the change, either in terms of days after contractual approval, or by specific dates contingent upon contractual approval by a specified date. If there will be no effect on the delivery schedule, so state. For a complex ECP, or for related ECPs, this delivery date will be repeated on the milestone chart together with the schedule for other interrelated actions.

Block 23. Retrofit.

Block 23a. Recommended item effectivity. When the contractor recommends that the engineering change be accomplished in accepted items by retrofit, the quantities and serial (or lot) numbers of accepted items in which the change will be incorporated by retrofit shall be entered in Block 23a, or in a referenced enclosure. Such statement regarding items currently in production shall be based upon the estimated approval date of the ECP.

Block 23b. Ship/vehicle class affected. When the delivered CI is installed in one or more ship/vehicle classes, enter the identification of such classes. Not applicable when ECP Short Form procedure is specified by contract.

Block 23c. Estimated kit delivery schedule. State estimated kit delivery schedule by quantity and date. When special tooling for retrofit is required for Government use, reference an enclosure in Block 23c on which is specified the dates of availability of tools, jigs, and test equipment required in conjunction with the kits to accomplish the change.

Block 23d. Locations or ship/vehicle numbers affected. State the location(s) at which retrofit is to be accomplished. If retrofit is to be accomplished in ships (or in vehicles for which the serial numbers are not shown in Block 23), enter the ship hull numbers (or vehicle numbers). Not applicable when ECP Short Form procedure is specified by contract.

NOTE: For CSCI changes which are to be incorporated as part of a hardware or equipment change, and where implementation of the CSCI change is per a hardware retrofit schedule, or the fielded version of the software is to be replaced, the appropriate information will be included in Blocks 23a - 23d either directly or by reference.

Block 24. Estimated costs/savings under contract. Enter the total estimated costs/savings impact of the ECP on the contract for the subject CI. This Figure normally will be the same as that in column 5, line e, of DD Form 1692/3 (Page 4). (Savings shall be shown in parentheses.)

Block 25. Estimated net total costs/savings. Enter the total estimated costs/savings impact of the basic and all related ECPs, including other costs/savings to the Government. This Figure normally will be the same as that in column 6 the bottom line of Page 4 or, if there are related ECPs, in column 4, line e, of Page 5. Not applicable when ECP Short Form procedures are specified by contract.

Block 26. Submitting activity authorized signature. An authorized official of the activity entered in Block 4 shall sign this block and provide title in Block 26b. This indicates the ECP has the official sanction of the submitting activity.

Block 27. Approval/disapproval. This block is for use by the Government. [Note: The Contract Administration Office will review all engineering changes unless otherwise specified in the contract. It will recommend approval or disapproval of Class I ECPs by marking Block 27a and completing Blocks 27d,

27e and 27f. It will concur or non-concur in the classification of Class II engineering changes by marking Block 27c accordingly and by completing Block 27d, 27e and 27f. When the Government requires approval of Class II engineering changes prior to contractor implementation, the designated approval activity will mark Block 27b accordingly and will complete Blocks 27d, 27e, and 27f. For Class I ECPs, the designated Government approval authority will mark Block 27g accordingly and will complete Block 27h, 27i and 27j.]

Instructions associated with Page 2, Effects on Functional/Allocated Configuration Identification. The information for these Blocks is to be completed only if the proposed change affects the system specification or the item development specification(s). If a separate product function specification is used, effects on such specification of changes proposed after the PBL has been established shall be described as required by Block Number 37 through 50.

ECP number. Enter the same ECP number as in Block 8d of DD Form 1692 (Page 1). If the ECP number is assigned on the basis of the system, the system designation also shall be given.

Block 28. Other systems affected. Insert data when Block 7 of DD Form 1692 (Page 1) is checked "yes".

Block 29. Other contractors/activities affected. Identify the other contractors or Government activities which will be affected by this engineering change.

Block 30. Configuration items affected. Enter the names and numbers of all CIs, maintenance and operator training equipment, and support equipment affected.

Block 31. Effects on performance allocations and interfaces in system specification. Describe in this block the changes in performance allocations and in the functional/physical interfaces defined in the system specification.

Block 32. Effects on employment, integrated logistic support, training, operational effectiveness, or software.

a. For hardware, describe the effects of the proposed change on employment, deployment, logistics, and/or personnel and training requirements which have been specified in the approved system and/or CI specifications, including any changes or effects on the operability of the system. In particular, there shall be an entry detailing any effect on interoperability.

b. For CSCIs, the following information shall be entered as applicable to the degree of design development of the CSCI at the time of ECP submission:

(1) Identify any required changes to the data base parameters or values, or to data base management procedures;

(2) Identify and explain any anticipated effects of the proposed change on acceptable computer operating time and cycle-time utilization;

(3) Provide an estimate of the net effect on computer software storage; and,

(4) Identify and explain any other relevant impact of the proposed change on utilization of the system.

Block 33. Effects on configuration item specifications. The effect of the proposed change on performance shall be described in quantitative terms as it relates to the parameters contained in the CI development specifications.

Block 34. Developmental requirements and status.

a. For hardware, when the proposed engineering change requires a major revision of the development program (e.g., new prototypes, additional design review activity, tests to be reaccomplished), the nature of the new development program shall be described in detail, including the status of programs already begun.

b. For CSCIs, the contractor shall identify the scheduled sequence of computer software design and test activities which will be required. ECPs initiated after preliminary design which affect the FBL and/or the ABL shall identify, as appropriate, significant requirements for computer software redesign, recoding, repetition of testing, changes to the software engineering/test environments, special installation, adaptation, checkout, and live environment testing. In addition, the specific impact of these factors on approved schedules shall be identified. The impact of the software change on the hardware design and input/ output cabling shall also be detailed.

Block 35. Trade-offs and alternative solutions. A summary of the various solutions considered shall be included with an analysis showing the reasons for adopting the solution proposed by the ECP.

Block 36. Date by which contractual authority is needed. Enter the date contractual authority will be required in order to maintain the established schedule.

Instructions associated with Page 3, Effects on product configuration documentation, logistics and operations. Certain information required for these blocks may have been required in Blocks 1 through 36 or does not apply to computer software. When this information has already been supplied, a cross-reference to such information will be adequate.

a. For hardware, if any specific logistic interoperability factors are affected, the contractor shall provide information detailing the possible impact on the operational configuration on an attached page.

b. For CSCIs, the software engineering and test environments are usually not affected by changes in the product configuration of a CSCI. In Block 42, the contractor shall provide information about the status of the software redesign and retesting effort. There shall also be a review of the intent of Blocks 40, 41, 45, 46, 47 and 49, to document CSCI impacts in these areas.

ECP number. Enter the same ECP number as in Block 8d of DD Form 1692 (Page 1). If the number is assigned by system, include the system designation.

Block 37. Effect on product configuration documentation or contract. The effects on the approved CI product specifications shall be described by reference to the SCNs, NORs or other enclosure(s) which cover such proposed text changes in detail. The effects on performance, weight, moment, etc., which are covered in the enclosure(s), shall be indexed by proper identification adjacent to the factor affected. The effects on drawings, when not completely covered on Page 1, shall be described in general terms by means of a referenced enclosure. Such enclosure may consist of a list of enclosed NORs if submittal of an NOR for each drawing affected is a requirement of the contract. Indicate any technical data submittal which is not provided for in the CDRL by means of a referenced enclosure. Address nomenclature change when applicable.

Block 38. Effect on integrated logistics support elements. The effects of the engineering change on logistic support of the item shall be indicated by checking the appropriate boxes. These effects shall be explained in detail on an enclosure indexed by appropriate identification adjacent to the subject under discussion. The information required shall indicate the method to be used to determine the integrated logistic support plans and items which will be required for the support of the new configuration as well as retrofitting previously delivered items to the same configuration. The following shall be covered as applicable:

a. Effects on schedule and content of the ILS plan.

b. Effect on maintenance concept and plans for the levels of maintenance and procedures.

c. System and/or CI logistics support analysis (LSA) tasks to be accomplished and LSA data requiring update wherever it exists in the contract.

d. Extension/revision of the interim support plan.

e. Spares and repair parts that are changed, modified, obsoleted or added, including detailed supply data for interim support spares. [NOTE: Failure to include detailed supply data will delay ECP processing.]

f. Revised or new technical manuals.

g. Revised or new facilities requirements and site activation plan.

h. New, revised, obsoleted or additional support equipment (SE), test procedures and software. For items of SE and trainers which require change, furnish a cross reference to the related ECPs, and for any related ECP not furnished with the basic ECP, furnish a brief description of the proposed change(s) in SE and trainers.

i. Qualitative and quantitative personnel requirements data which identify additions or deletions to operator or maintenance manpower in terms of personnel skill levels, knowledge and numbers required to support the CI
as modified by the change.

j. New operator and maintenance training requirements in terms of training equipment, trainers and training software for operator and maintenance courses. This information should include identification of specific courses, equipment, technical manuals, personnel, etc. required to set up the course at either the contractor or Government facility.

k. See paragraph i above for instructions.

l. See paragraph j above for instructions.

m. Any effect on contract maintenance that increases the scope or dollar limitation established in the contract.

n. Effects on packaging, handling, storage, and transportability resulting from changes in materials, dimensions, fragility, inherent environmental or operating conditions.

Block 39. Effect on operational employment. The effects of the engineering change of CI utilization shall be indicated by checking the appropriate factors and providing details by enclosures. Quantitative values shall be used whenever practicable but are required when reliability and service life are impacted. Survivability includes nuclear survivability.

Block 40. Other considerations. The effects of the proposed engineering change on the following shall be identified on an enclosure indexed by appropriate identification adjacent to the factor affected:

a. Interfaces having an effect on adjacent or related items, (output, input, size, mating connections, etc.).

b. GFE or Government Furnished Data (GFD) changed, modified or obsoleted.

c. Physical constraints. Removal or repositioning of items, structural rework, increase or decrease in overall dimensions.

d. Software (other than operational, maintenance, and training software) requiring a change to existing code and/or, resources or addition of new software.

e. Rework required on other equipment not included previously which will effect the existing operational configuration.

f. Additional or modified system test procedures required.

g. Any new or additional changes having an effect on existing warranties or guarantees.

h. Changes or updates to the parts control program.

i. Effects on life cycle cost projections for the configuration item or program, including projections of operation and support costs/savings for the item(s) affected over the contractually defined life and projections of the costs/savings to be realized in planned future production and spares buys of the item(s) affected.

Block 41. Alternate solutions. A summary of the various alternative solutions considered, including the use of revised operation or maintenance procedures, revised inspection or servicing requirements, revised part replacement schedules, etc., shall be included. The contractor shall provide an analysis of the alternatives, identify the advantages and disadvantages inherent in each feasible alternative approach, and show the reasons for adopting the alternative solution proposed by the ECP. When the contractor's analysis addresses new concepts or new technology, supporting data (to include LSA if contractually required) should be presented with the proposal to authenticate the trade-off analysis.

Block 42. Developmental status. When applicable, the contractor shall make recommendations as to the additional tests, trials, installations, prototypes, fit checks, etc., which will be required to substantiate the proposed engineering change. These recommendations shall include the test objective and test vehicle(s) to be used. The contractor shall indicate the development status of the major items of GFE which will be used in conjunction with the change and the availability of the equipment in terms of the estimated production incorporation point.

Block 43. Recommendations for retrofit. When applicable, the contractor shall make recommendations for retrofit of the engineering change into accepted items with substantiating data, any implications thereto, and a brief description of the action required. Where retrofit is not recommended, an explanation of this determination shall be provided. Reference shall be made to any enclosure required to state recommended retrofit effectivity (See Block 23a).

Block 44. Work-hours per unit to install retrofit kits. Complete Blocks 44a through 44d to show the amount of work which must be programmed for various activities to install retrofit kits. Estimate work-hours to install retrofit kits when weapon system is undergoing overhaul.

Block 45. Work-hours to conduct system tests after retrofit. Enter the work-hours required to test the system or the item following installation of the retrofit kit.

Block 46. This change must be accomplished. Where previously approved engineering changes must be incorporated in a specific order in relation to the proposed change, such order should be specified.

Block 47. Is contractor field service engineering required? Check applicable box. If "yes" attach proposed program for contractor participation.

Block 48. Out of service time. Estimate the total time period from removal of the equipment from operational service until equipment will be returned to operational status after being retrofitted.

Block 49. Effect of this ECP and previously approved ECPs on item. The contractor shall summarize the cumulative effect upon performance, weight, electrical load, etc., of this ECP and previously approved ECPs when design limitations are being approached or exceeded. Consequences of ECP disapproval may be stated in this block or in a referenced enclosure.

Block 50. Date contractual authority needed. The contractor shall provide the date by which contractual authority to proceed is needed to maintain the estimated effectiveness specified in the ECP and to provide concurrent ILS and logistics support item deliveries. The contractor should consider the targets for decision allowing additional time for review, mailing, and other incidental handling and processing requirements.

Instructions associated with Page 4, Estimated net total cost impact. Block 51 is intended as the summary of the estimated net total cost/savings impact of a single ECP. In Blocks 51a through d, each cost factor associated with the ECP shall be considered as to whether such cost or portion thereof under the subject contract is recurring or nonrecurring. Enter cost savings in columns (a) and (d) as applicable, using entries in the "unit" and "quantity" columns when appropriate. Savings shall be enclosed with parentheses. Other costs/savings to the Government resulting from approval of this ECP shall be entered in column (f) to the extent these costs can be determined by the contractor. This estimate of cost impact will be used for planning purposes and for a cost reduction or VE ECP analysis as to the net saving that would result. Firm cost proposals shall be submitted on standard form (SF) 1411, together with the appropriate cost breakdown. If an ECP affects items being delivered to more than one service, a separate Block 51 shall be filled out for the quantities to be delivered to each service. Unless otherwise prescribed, costs of special tooling, scrap, redesign, etc. shall be divided between the using services on the basis of the percent of items furnished to each. The cost analysis applicable to each service shall be appropriately labeled on each submission.

ECP number. Enter the same ECP number as in Block 8d of DD Form 1692 (Page 1). If the number is assigned by system, include system designation.

Block 51. Estimated Costs/Savings Summary, Related ECPs.

> Block 51a. Production costs/savings. Enter the estimate of costs/savings applicable to production of the CI resulting from incorporation of the change. Show redesign costs for the CI in the block titled "engineering, engineering data revisions" when the item is in production. Enter the projected life cycle costs/savings applicable to the planned production and spares buys of the item that are not yet on contract on the CONFIGURATION ITEM/CSCI line in column (f). Enter the subtotal of production costs (both nonrecurring and recurring) in the fifth column.
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> Block 51b. Retrofit costs. Enter the estimate of costs applicable to retrofit of the item, including installation and testing costs. When Government personnel accomplish, or are involved in, the installation and/or testing activities, the estimated costs shall be entered in column (f) on the affected lines. Show design costs of the retrofit kit and data revision costs strictly related to retrofit when the CI is in production; show all redesign and data revision costs when the item is not in production. Costs of modifications required to existing GFE and subsequent testing also shall be shown. Enter the subtotal of retrofit costs in the fifth column. If some or all of the retrofit activities and costs will have to be deferred and placed on contract at a future date, show that deferred portion of the cost applicable to each line of Block 51b in column (f).
>
> Block 51c. Integrated logistic support costs/ savings. Enter the estimated cost of the various elements of ILS applicable to the item covered by the ECP. On the line titled "interim support," estimated costs shall be entered based upon the period of time between initial installation/operation of the item (aircraft, tank, etc.) as modified by the ECP and Government attainment of support capability. Such "interim support" costs shall include costs estimates of contractor recommended/provided spares and repair parts, special support equipment, training

equipment and personnel training program. On the line titled "maintenance manpower" shall be entered the estimated costs/ savings for the contracted maintenance support for the remainder of existing maintenance contracts. Other ILS costs/savings associated with ILS elements for which appropriate titles do not appear in Block 51c may be entered in place of a factor not used unless such costs are covered on DD Form 1692/4 (Page 5) or in related ECPs. Enter the subtotal of ILS costs/savings in column (e). Enter the operation and support portion of the life cycle cost/savings on the subtotal line in column (f).

Block 51d. Other costs/savings. If there are other costs under the contract which do not fall under the production, retrofit or ILS headings, enter the total of such costs in Block 51d, column (e). If there are other costs to the Government which do not fall under the production, retrofit or ILS headings or under Block 51g, "coordination changes by Government, enter the total of such costs in Block 51d, column (f).

Block 51e. Subtotal costs/savings. Enter the subtotals of columns (a), (d), (e), and (f) on this line. The subtotal in column (e) shall be the sum of columns (a) and (d). This subtotal under the contract then shall be entered on the line so titled in column (f) and on DD Form 1692 (Page 1), Block 24.

Block 51f. Coordination of changes with other contractors. This term applies to interface changes to items other than GFE, and changes to GFE being covered under 51b. If such coordination changes are covered by related ECPs and summarized on DD Form 1692/4 (Page 5), the estimated costs thereof shall not be entered in Block 51f. However, if Page 5 is not required, or if costs of certain coordination changes are not tabulated on Page 5, an estimate of such costs shall be entered in Block 51f, when available.

Block 51g. Coordination changes by Government. Enter in this block an estimate of the cost to the Government of interface changes which must be accomplished in delivered items (aircraft, ships, facilities, etc.) to the extent such costs are not covered in Block 51b or on DD Form 1692/4 (Page 5).

Block 51h. Estimated net total costs/savings. Enter the sum of all cost savings on column (f) and on DD Form 1692 (Page 1), Block 25.

Instructions associated with Page 5, Estimated costs/savings summary, related ECPs. Block 52 is intended as the summary of the estimated net total cost impact of both the package of related ECPs and other associated new requirements which are needed to support the modified items. A few revised requirements for ILS, such as ILS plans and maintenance concepts do not appear as headings in Block 51. When only a single ECP is involved, these additional costs for revision of ILS plans, etc. should be shown in Block 51 under the ILS heading, and Block 52 may be omitted.

a. Responsibility for preparation:

(1) Prime contractor. The prime contractor shall summarize the costs/savings of all related ECPs for which the contractor is responsible in Block 52. If there is no system integrating contractor, the prime contractor submitting the basic ECP shall include the costs of related ECPs being submitted by other affected contractors to the extent such information is available.

(2) System integrating contractor. When a system integrating contractor (or coordinating contractor) has contractual responsibility for ECP coordination, the contractor shall summarize the costs of related ECPs of the several primes involved in an interface or interrelated ECP on DD in Block 52 and shall attach it to the ECP package.

b. Summarization techniques. The costs of certain related ECPs are entirely ILS costs. Thus costs of ECPs for trainers, other training equipment and SE shall be listed in total

under the "ILS costs" heading. Other ECPs (applicable to weapons, aircraft, tanks, subsystems thereof, etc.) shall be split into the four subtotals of "production," "retrofit," "ILS," and "other costs" for entry in Block 52. The sum of the four subtotals attributed in Block 52, column (c), to an individual ECP should agree with the subtotal of costs/savings under contract, line e, column (e) of Block 51 of that ECP. Cost breakdowns should be arranged in such manner that costs/savings are neither included more than once on the summary nor omitted. The purpose of the grouping on the cost summary is to arrive at a total ILS cost, and a net total cost of all actions for the complete group of related ECPs.

c. Software changes only. Block 52 shall not apply in the case where all related ECPs being summarized refer to software changes only. However, Block 52 shall be provided with the ECP detailing the summary of the individual CSCI costs/savings for each of the related ECPs, grouped by the cost areas, and providing the total costs/savings for all of the related software ECPs.

ECP number. Enter the same ECP number as in Block 8d of DD Form 1692 (Page 1). If the number is assigned by system, include system designation.

Block 52a. Production costs/savings. Enter the ECP number in column (b). Enter the production subtotals from columns (e) and (f) of Block 51a of each ECP applicable to weapons, aircraft, tanks, subsystems thereof, etc. in columns (c) and (d) respectively. (Note that total costs of ECPs on trainers, training equipment, and SE are entered in Block 52c.)

Block 52b. Retrofit costs. Retrofit costs may be charged by the Government to production funds or maintenance funds or may be split between the two. The type of funds used depends upon the phase in the item's life cycle. If the practice of the Government in this regard is known to the originator of Page 5, retrofit costs shall be entered in, or split between, Blocks 52b and 52.c.1, as appropriate. If such practice is unknown, enter in Block 52b the ECP number and the retrofit subtotals from the columns (e) and (f) of Block 51b for each applicable ECP.

Block 52c. ILS costs/savings. Enter retrofit costs in Block 52.c.1, if appropriate. Enter in Block 52.c.2 the ILS subtotals from columns (e) and (f) of Block 51c of each ECP applicable to weapons, aircraft, tanks, subsystems thereof, etc. As stated in D.5.4.4, enter costs of ECPs for ILS items in Blocks 52.c.3, 4, 5 and 6. Enter costs of revision or preparation of ILS plans and LSA records for the CI or complete system in
Block 52.c.7. Enter in Block 52.c.9 costs of revision of the interim support plan to the extent such costs have not already been covered under Block 51c of DD Form 1692/3 (Page 4) of the applicable ECPs. Enter in Blocks 52.c.10 through 52.c.18 the costs of all new requirements for ILS not covered by ECPs, such costs being broken down into nonrecurring and recurring costs, as appropriate, and totaled in column (c).

Block 52d. Other costs/savings. Enter in Block 52d the sum of the "other costs" totals from column (e) and (f) of Block 51d of each ECP applicable to weapons aircraft, tanks, subsystems thereof, etc. Enter the subtotals of columns (c) and (d) on this line. The subtotal under contract(s) shall then be entered on the line so titled in column (d).

Block 52e. Estimated net total costs/savings. Enter the sum of the preceding two lines of column (d).

Instructions associated with Page 6, "Engineering Change Proposal (Hardware)". (An equivalent format may be substituted, when appropriate.) For software-only ECPs, Block 60 shall be used instead to summarize the detailed software events schedule. If the ECP impacts both software and hardware, both Blocks 56 and 60 shall be included, as appropriate.

ECP number. Enter the same ECP number as in Block 8d of DD Form 1692 (Page 1). If the number is assigned by system, include system designation.

Block 53. CAGE code. Enter the CAGE code for the activity originating the ECP.

Block 54. Configuration item nomenclature. Enter the information from Block 16.

Block 55. Title of change. Enter the information from Block 13.

Block 56. Milestone chart. Enter the symbols (see legend on form), as appropriate for the activity, to show the time phasing of the various deliveries of items, support equipment, training equipment, and documentation incorporating the basic and related ECPs. Enter other symbols and notations to show the initiation or termination of significant actions. All dates are based upon months after contractual approval of the basic ECPs.

Instructions associated with Page 7, "Engineering Change Proposal (Software)". For hardware-only ECPs, Block 56 shall be used instead to summarize the detailed hardware events schedule. If the ECP impacts both software and hardware, both Blocks 56 and 60 shall be included, as appropriate.

ECP number. Enter the same ECP number as in Block 8d of DD Form 1692 (Page 1) If the number is assigned by system, include system designation.

Block 57. CAGE Code. Enter the CAGE code for the activity originating the ECP.

Block 58. CSCI nomenclature. Enter the CSCI name and identification number if applicable, or authorized name and number of the CI(s) affected by the ECP.

Block 59. Title of change. Enter the information from Block 10.

Block 60. Milestone chart. Enter the symbols (See legend on form.), as appropriate for the activity, to show the time phasing of the various deliveries of items, training equipment and documentation incorporating the basic and related ECPs. Enter other symbols and notations to show the initiation or termination of significant actions. All dates are based upon months after contractual approval of the basic ECP.

APPENDIX F
SPECIFICATION CHANGE NOTICE (SCN) FORM
AND INSTRUCTIONS

SPECIFICATION CHANGE NOTICE (SCN)	1. DATE *(YYMMDD)*	*Form Approved OMB No. 0704-0188*

Public reporting burden for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to, Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO EITHER OF THESE ADDRESSES. RETURN COMPLETED FORM TO THE GOVERNMENT ISSUING CONTRACTING OFFICER FOR THE CONTRACT/PROCURING ACTIVITY NUMBER LISTED IN ITEM 2 OF THIS FORM.

2. PROCURING ACTIVITY NO.

3. DODAAC

4. ORIGINATOR	**5. SCN TYPE**	
a. TYPED NAME *(First, Middle Initial, Last)*	☐ PROPOSED	☐ APPROVED
	6. CAGE CODE	**7. SPEC. NO.**
b. ADDRESS *(Street, City, State, Zip Code)*	**8. CAGE CODE**	**9. SCN NO.**

10. SYSTEM DESIGNATION	**11. RELATED ECP NO.**	**12. CONTRACT NO.**	**13. CONTRACTUAL AUTHORITY**

14. CONFIGURATION ITEM NOMENCLATURE	**15. EFFECTIVITY**

This notice informs recipients that the specification identified by the number (and revision letter) shown in item 7 has been changed. The pages changed by this SCN are those furnished herewith and carry the approval date of the related ECP listed in item 11. The pages of the page numbers and dates listed in items 16 and 17, combined with non-listed pages of the original issue of the revision shown in item 7, constitute the current approved version of this specification.

16. PAGES AFFECTED BY THIS SCN

PAGE(S) a.	TYPE OF CHANGE* b.	APPROVAL DATE *(YYMMDD)* c.

17. SUMMARY OF PREVIOUSLY CHANGED PAGES

SCN NO. a.	RELATED ECP NO. b.	PAGE(S) c.	DATE SUBMITTED *(YYMMDD)* d.	TYPE OF CHANGE* e.	APPROVAL DATE *(YYMMDD)* c.

*** "S" indicates supersedes earlier page. "A" indicates added page. "D" indicates deletion.**

18.a. GOVERNMENT ACTIVITY	c. SIGNATURE	d. DATE SIGNED *(YYMMDD)*
b. TYPED NAME *(First, Middle Initial, Last)*		

DD Form 1696, APR 92 ***Previous editions are obsolete.***

INSTRUCTIONS FOR THE PREPARATION OF AN SCN

The SCN is used to propose, transmit and record changes to a DII COE engineering specification or the DII COE Software Requirements Specification (SRS), Section 3.

Block 1. Date. Enter the submittal date of the SCN.

Block 2. Procuring Activity No. To be used by the Government for entry of internal processing number, if desired.

Block 3. DODAAC. Enter the DODAAC of the procuring activity.

Block 4. Originator Name and Address. Enter the name and address of the contractor or government activity which is preparing the SCN.

Block 5. SCN Type. Indicate by a “x” in the appropriate block if this is a proposed SCN. If the SCN is being submitted to the Government for final technical approval, prior to distribution according to the contract, both blocks should be left blank. The approved block will be marked by the Government upon approval/contractual implementation.

Block 6. CAGE Code. Enter the CAGE code of the design activity for the specification identified in Block 7. DLA cataloging Handbook H4/H8 contains these codes.

Block 7. Specification Number. Enter the identification number, including revision letter, of the specification being changed.

Block 8. CAGE Code. Enter the CAGE code of the activity preparing the SCN.

Block 9. SCN Number. Enter the identification number for the SCN being submitted. SCN numbers are issued sequentially for each specification and revision, starting with the number “1”.

Block 10. System Designation. Enter the type, model, series (or nomenclature number) for the system (or major item of equipment, if it is not a system) affected.

Block 11. Related ECP Number. Enter the complete ECP number (including dash numbers and revisions) that identifies the related engineering change.

Block 12. Contract Number. Enter the complete contract number(s) affected by this SCN, if applicable.

Block 13. Contractual Authorization. There should be no entry in this block on a proposed SCN. For the approved SCN only, enter the number of the contract modification document used to contractually implement the change. If a unilateral change order is utilized for the initial authorization, it’s number shall be entered in this block.

Block 14. Configuration Item Nomenclature. Enter the nomenclature (name and number) of the CI affected by the change. Normally, this will be different than Block 10.

Block 15. Effectivity.

a. For hardware, enter the serial numbers of the items for which this SCN is effective. Usually this will include the applicable production line items plus items approved for a retrofit or modification program.

b. For CSCIs, enter the revision or version of the CSCI to which the change applies. If a new version is warranted by the incorporation of this ECP, the new version number should be entered here.

Block 16. Pages Affected by This SCN (Indicate Deletions). The entries in this section (upper half) shall provide information about the pages affected by the SCN being submitted. Enter a listing of all pages being changed by this SCN and indicated whether the pages are being superseded or added (by entering an “S” or “A” in the column) or deleted (by printing the word “deleted” after the pages numbers so affected). A separate line should be used for each category of page change. Once the SCN has been approved by the Government, enter the approval date (from Block 18) in this block.

Block 17. Summary of Previously Changed Pages.

Block 17a. SCN Number. For all SCNs previously submitted, enter the identification number of each SCN starting with SCN Number 1 at the top of the column.

Block 17b. Related ECP Number. Enter the identification number (including revision designator and dash numbers) of each ECP effected by each previously issued SCN against this specification revision.

Block 17c. Pages. List the pages changed by each previously issued SCN against this specification. A separate line should be used for each category of page change.

Block 17d. Date Submitted. For a proposed SCN, enter the submittal date for each previously submitted SCN opposite the appropriate SCN number in Block 17. For the approved SCN, enter the submitted date for each previously submitted SCN that has been approved opposite the appropriate SCN number in Block 17.

Block 17e. Type of Change. Indicate whether the pages are being superseded or added (by entering an “S” or “A” in the column).

Block 17f. Approval Date. For each approved SCN previously submitted, enter its approval date on the same line as the SCN number in Block 17.

Block 18. Government Activity. The Government contracting officer, or a duly appointed representative, will affix an approval signature and the date in this block, and will mark an “X” in the approved box, to designate approval of the SCN. The signature denotes technical concurrence with the contents of the DD Form 1696 and attached change pages. When Block 18 has been signed and the approved box has been marked, the status of the SCN changes from a proposed SCN to an approved SCN.

APPENDIX G

SOFTWARE CHANGE PROPOSAL (SCP) FORM AND INSTRUCTIONS

THIS FORM SHALL NOT CONTAIN CLASSIFIED INFORMATION

SOFTWARE CHANGE PROPOSAL (SCP) FORM (Section A)

1. SCP Number	2. System/Configuration Item	3. Component	4. Date
5. Organization/Agency	6. Program	7. Author	8. Telephone
9. S/W Ver. No.	10. Rec. Priority ☐ EMERGENCY ☐ URGENT ☐ ROUTINE	11. Internal Ref. No.	12. Equip. Affected

13. Title of Change:

14. Description of Change:

15. Justification/Need for Change

16. Alternatives/Recommended Solutions

17. Program Manager Sponsorship

Signature _____ Date _____

Local CCB Action (Filled in by CM Division Personnel) (Section B)

1. LCCB Date: _____
2. Assessment: _____
3. AOG-ES Date: _____
4. Assigned Priority: _____
5. Status: _____
6. Impl SW Vers: _____
7. Scheduled Rel: _____
8. Comments: _____

INSTRUCTIONS FOR THE PREPARATION OF AN SCP

The SCP is used to submit proposed software engineering changes and proposed changes to software requirements. The SCP is used to request specific software or DII COE Segment capability changes as well as less specific changes that may involve more than one controlled item. The sample SCP form in this appendix is provided for general guidance. SCPs can be prepared in the developer's format.

Block 1. SCP Number. A number assigned by the configuration control activity to track the SCP from the time of receipt to completion of required action. If desired, initiating activities may assign a local tracking number for their reference; however, this number will be superseded by the SCP Number when assigned.

Block 2. System/Configuration Item. Enter the name of the DII COE system to which the SCP applies (e.g., GCCS, GCSS, etc.)

Block 3. Component. Enter the primary affected component or function concerned with the change.

Block 4. Date. Enter date of SCP preparation.

Block 5. Organization/Agency. Enter the title of the organization or agency submitting the change request.

Block 6. Program. Enter the title of the program requesting the change.

Block 7/8. Author/Telephone. Enter the name and telephone number of the author of the SCP.

Block 9. S/W Ver. No. Identify the software used by the requesting program.

Block 10. Rec. Priority. Check Emergency, Urgent or Routine. Recommendation should be based on severity of impact on operations and time criticality.

Block 11. Internal Ref. No. SCP number assigned to the change request by the initiating activity.

Block 12. Equip. Affected. Enter software platform components that may be affected by the change, if any.

Block 13. Title of Change. Enter a brief description of the change.

Block 14. Description of Change. Describe the change as precisely and detailed as possible. Use a continuation sheet if necessary.

Block 15. Justification/Need for Change. Provide justification supporting need for change.

Block 16. Alternatives/Recommended Solutions. Provide any known alternatives or work-arounds.

Block 17. Program Manager Sponsorship. Program Managers must sponsor SCPs prior to submission to the TWG. By signing the SCP, the Program Manager signs up to the implementation of the requested change if an ECP is generated and approved by the AOG-ES. SCPs without sponsorship will not be processed by the TWG.

APPENDIX H

WEB SITES FOR ADDITIONAL DII COE INFORMATION

DISA DII COE CM Home Page (password access required)
http://204.34.175.79/cm/cm_page.html

- On-line change request form

- DII COE Software Hotline number for reporting system emergencies (e.g., system crashes) related to DII COE software.

- DII COE Review Topics

- Documents available on the CM Home Page include the following:

    a. DII COE Version Information
    b. Configuration Management Software and Documentation Delivery Requirements, Version 2.0
    c. DII COE I&RTS Version 2.0, 6 February 1996
    d. DII COE I&RTS Version 3.0, 1 July 1997
    e. DII COE Style Guide (User Interface Specification), 1 April 1996
    f. DII COE Baseline Specification, Version 3.1, 29 April 1997
    g. DII COE 3.0 Software Quality Compliance Plan, 22 January 1997
    h. DII COE How to Segment Guide, Version 4.0, 30 December 1996
    i. DII COE Developer Documentation Requirements, Version 1.0, 29 April 1997.

DISA DII COE CM Home Page (unrestricted access)
http://spider.osfl.disa.mil/cm/cm_page.html

Documentation listed in a through i above is available for viewing and/or downloading on both restricted access and unrestricted access DII COE CM Home Pages.