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Information Management:
Management of Subdisciplines

Configuration Management for Automated Information Systems

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SUMMARY of CHANGE

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Configuration Management for Automated Information Systems

This revision--

- o Distinguishes automated information systems from other configuration items (app C).
- o It corresponds to life-cycle phases as defined in AR 25-3.

Information Management: Management of Subdisciplines

Management of Subdisciplines Configuration Management for Automated
Information Systems

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History. This UPDATE printing publishes a new DA pamphlet. This publication has been reorganized to make it compatible with the Army electronic publishing database. No content has been changed.

Summary. This pamphlet provides guidance and procedures to implement configuration management for hardware and software of automated information systems as promulgated by AR 25-3. It outlines the key baselines for configuration management of the program or project

and its life-cycle phase(s). It implements applicable public laws and higher level directives, including DODD 5010.19.

Applicability. The provisions of this pamphlet apply to the Active Army, the Army National Guard, and the U.S. Army Reserve, and in instances where the Army is acting as the executive agent for combined initiatives or another organization. This pamphlet does not apply directly to automated information systems acquired under the National Foreign Intelligence Program or for operational support of intelligence and electronic warfare systems. Automated information systems developed and managed under the provisions of AR 70-1 are excluded from the provisions of this pamphlet. This application shall encompass all automated information systems as defined in AR 25-1. Applications of the management requirements of these guidelines does not impose any personnel requirements. Existing systems with approved configuration management plan(s) do not have to comply

with appendix B. No rewriting or reformatting is needed to meet the requirements of this publication. This publication is applicable during mobilization.

Proponent and exception authority. Not applicable.

Interim changes. Interim changes to this pamphlet are not official unless they are authenticated by The Adjutant General. Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

Suggested Improvements. The proponent agency of this pamphlet is the Office of the Director of Information Systems for Command, Control, Communications, and Computers. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to HQDA (SAIS-PS), WASH DC 20310-0107.

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Chapter 1

Introduction

1-1. Purpose

This pamphlet explains uniform policy, guidance, procedures, and techniques for information managers to implement configuration management (CM) for automated information systems (AISs) managed under AR 25-3. CM identifies, controls, and audits the functional and physical characteristics of information systems, equipment, software, and other designated materiel items. CM also provides—

- a.* Management and administrative techniques so that the information manager can identify, control, and change hardware and software.
- b.* Administrative procedures, status accounting, and reports to reduce interface problems between different systems.
- c.* Mechanisms to report problems, implement solutions, and control systems evolution.

1-2. References

Required and related publications are listed in appendix A.

1-3. Explanation of abbreviations and terms

Abbreviations and special terms used in this pamphlet are explained in the glossary.

1-4. Guidelines

a. CM applies the change management principles of basic system engineering. These principles are divided into four basic functions: configuration identification, configuration control, configuration status accounting, and configuration audits. CM practices and procedures are applied to all systems, system segments, hardware and software (including firmware) configuration items (CIs), designated items developed completely or partially with Government funding, and designated nondevelopmental items per requirements detailed in chapters 2 through 5.

b. CM implementation is consistent with the objectives of the program or project and its life-cycle phase. CM requirements are tailored per Department of Defense guidance.

(1) During the need justification phase, CM is used only to identify CM as a requirement in the development process.

(2) During the concepts development phase, CM is used only to identify the draft system-level functional and interface characteristics (functional baseline).

(3) During the design phase, CM controls and accounts for the system-level functional and interface characteristics, identifies the CI-level functional and interface characteristics, and identifies the draft-level detail design characteristics (functional and allocated baselines).

(4) During the development phase, CM controls, accounts for, and audits the system and CI-level functional and interface characteristics, and identifies the detail design characteristics (functional and allocated baselines).

(5) During the deployment and operations phase, CM controls, accounts for, and audits the system- and CI-level functional and interface characteristics, identifies the detail design characteristics (functional and allocated baselines), and controls and accounts for the actual CI (product baseline). CM for approved standard commercial off-the-shelf are initiated when they are acquired.

(6) During the revalidation phase, CM controls, accounts for, and audits the system- and CI-level functional and interface characteristics, and controls and accounts for the actual CI (product baseline).

c. Changes to systems are made expeditiously with the least disruption and with the least cost. Each recommendation or request for change is evaluated for functional, operational, technical, and economic impact on the entire system before the change is validated and implemented. Configuration changes are tracked and controlled throughout the system life cycle.

d. The project or program manager (PM) is responsible for CM during the life cycle through deployment. The configuration management plan (CMP) must address the transition of CM responsibility to the post-deployment operations manager. If CIs are acquired and operated by more than one organization or command, agreements must designate the organization or command responsible for CM and define responsibilities for coordinated CM activities among users.

Chapter 2 Configuration Management

2-1. General

CM applies administrative direction and oversight to—

- a. Identify and document the functional and physical characteristics of a CI.
- b. Control changes to the CI and its documentation.
- c. Record and report change processing and implementation status.

2-2. Configuration items

a. A CI is defined as an aggregate AIS consisting of hardware, firmware, and software, or any of their discrete parts that satisfy an end-use function. CIs vary widely in complexity, size, and type. During the initial life-cycle phases of AIS development, an appropriate CI arrangement must be determined. An AIS may be one CI or a collection of appropriate CIs.

b. The term “configuration item” includes computer program configuration items. The term “computer program configuration item” is used only where it is essential to differentiate between configuration items and computer program configuration items.

2-3. Configuration management plan

AR 25-3 requires that a CMP be incorporated in the management plan required at Milestone 1. (See app B.)

2-4. Baseline configurations

Baseline configurations are employed throughout the AIS life cycle to ensure an orderly transition in the system engineering, production, and logistic support processes. System program management normally employs functional, allocated, and product baselines that define a CI during its life cycle. Baselining is described in detail in chapter 3.

2-5. Engineering change proposals

After baselines have been established, proposed changes are evaluated and recorded by the configuration control board (CCB). When evaluating a proposed change, the CCB considers all aspects of a CI and its associated CIs. Such aspects may include design, performance, reliability, maintainability, security, cost, schedule, operational effectiveness, safety and human factors, logistic support, and training. Hardware engineering change proposals (ECPs) must be prepared using DD Form 1692 (Engineering Change Proposals) series per MIL-STD-480B and MIL-STD-481B. An ECP-software (ECP-S) must be prepared using DA Form 5005-R (Engineering Change Proposal-Software (ECP-S)) per AR 25-3 and figure 4-2. DA Form 5005-R will be locally reproduced on 8½- by 11-inch paper. A copy for local reproduction is located at the back of this pamphlet.

2-6. Configuration control board

a. To provide the proper evaluation for proposed changes to a CI, a CCB is formed and chaired by the functional proponent(s) (FP(s)). The makeup of the CCB is determined by the chairperson, but membership consists of representatives from all areas that have an interest in an AIS, for example, FP, acquisition office, logistic support, test community, user community, servicing software development activity, and the like.

b. The chairperson, members, alternates, and their areas of responsibility are specifically identified by name on all special orders and charters establishing a CCB. These documents are revised as appropriate and become part of the CMP. Once a system has been passed to the post-deployment operations manager, the FP names the CCB's chairperson.

c. The CCB evaluates all proposed changes to an AIS throughout its life cycle. The CCB's functions and responsibilities are described in chapter 4.

2-7. Super configuration control board

A major Army command (MACOM) FP may form a super CCB whose members are general officers and/or from senior executive service levels. If there is a “system of systems,” a program executive officer may also form a super CCB whose members are colonels or highest level commissioned officers or from equivalent civilian levels. The super CCB may change the priorities of lower level CCBs to meet requirements of the MACOM or a program executive officer.

2-8. System interface agreement

The purpose of the system interface agreement is to define formally a mutual understanding of the functional and physical interface established between information systems. (See app C.)

Chapter 3 Configuration Identification

3-1. General

a. Configuration identification is an evolutionary process to identify baseline functional characteristics that define a CI. This process identifies a baseline of physical characteristics that describe the CI and identifies the documentation to define baseline characteristics.

b. Configuration identification constitutes a baseline only when formally designated and fixed at a specific time as a reference point for change control. The starting point is usually at Milestone 1. Baselines are employed throughout a system's life cycle to ensure an orderly transition in the system engineering, production, and logistic support processes.

c. During the acquisition and operation of systems, system program management normally employs functional, allocated, and product baselines. These baselines are documented by approved CIs (prepared per DOD-STD-7935A) and constitute the basis for controlling changes in AIS CIs.

d. Although CM events and actions have a natural order during an AIS CI's life cycle, specific functional and physical characteristics or special program requirements may necessitate variations. For example, in a competitive development program, functional or allocated baselines should be flexible to avoid premature commitment to detailed performance requirements.

3-2. Functional baseline and functional configuration identification

The functional baseline is the approved systems specifications developed per DOD-STD-7935A. The functional baseline is developed during the concepts development phase. The functional baseline and approved changes constitute the current approved functional configuration identification throughout a system's life cycle.

3-3. Allocated baseline and allocated configuration identification

a. An allocated baseline is used when different CIs are part of a total system or a higher level CI. An allocated baseline documents requirements allocated to that particular CI from the total system or higher level CI. The allocated baseline also describes interface requirements with interfacing CIs, additional design constraints, and the verification tests needed to demonstrate that specified functional and interface characteristics have been achieved. The allocated baseline may include process analysis flowcharts for additional clarification. The allocated baseline may be needed because of the complexity of the CI, for ease of project management, and for contractual integration or division of the total task.

b. The allocated baseline is formally established for CIs during the design phase of life-cycle management (LCM). Approved software unit specifications developed per DOD-STD-7935A for CIs in the functional baseline constitute the allocated baseline. The allocated baseline and the approved changes constitute the current approved allocated configuration identification throughout the CI's life cycle. All allocated baselines, including consolidating documentation, constitute the functional configuration identification for a total system or higher level CI. (See MIL-STD-490A.)

3-4. Product baseline and product configuration identification

a. The product baseline is the initially approved documentation developed per DOD-STD-7935A and describes all the necessary physical and functional characteristics of a CI. The product baseline is defined during the LCM design phase.

b. The product baseline and approved changes constitute the product configuration identification. The product configuration identification is documented by a product specification, including drawings, per MIL-STD-490A and MIL-STD-483A.

3-5. Configuration item identification numbering and marking

Documents and items are marked per AR 25-30. Software is identified by an unchanging base number (system identification code) and changing version release and update numbers per TB 18-103. All identification schemes should include the feasibility and applicability of the Department of Defense and Army Computer-Aided Acquisition and Logistics System.

Chapter 4 Configuration Control

4-1. General

Configuration control regulates changes to individual CIs, total systems CIs, and higher level CIs after their baselines

have been established formally. The CMP describes assigned responsibilities for each step of the configuration control process. (See fig 4-1 and app B.) The configuration control process provides—

- a. A great degree of design latitude during development and appropriate and timely control over the design documentation to support each phase of the system's life cycle.
- b. Complete, accurate, and timely evaluation, assignment of priorities, and documentation of a change's impact on a CI's configuration.
- c. Controlled procedures for processing and implementing system changes in response to system requirements or deficiencies.

4-2. Change criteria

A CI may be changed to correct deficiencies, increase effectiveness in operational or logistic support requirements, accomplish substantial life-cycle cost savings, prevent or allow desired slippage in an approved schedule, and implement a regulatory requirement.

4-3. Change classification

- a. Classes of change are defined in MIL-STD-480B as Class I or Class II.
- b. Class I changes affect the functional or technical characteristics of the functional, allocated, or product baselines. Normally, Class I changes require a revision to the system documentation designated as CI. Class I changes are made by using CCB-approved ECPs. Examples of Class I changes are—
 - (1) New or changed functional requirements or the transfer of existing requirements to other organizations or echelons, such as activating new units or eliminating old ones.
 - (2) Changes in schedules or frequency of reports, statistics, updates, and the like.
 - (3) Changes to data elements, codes, and formats.
 - (4) Hardware modifications or reconfiguration of equipment.
- c. Class II changes are minor changes, such as correcting misspellings, adding clarifying notes, and recompiling erroneous codes. These changes do not meet the Class I criteria.

4-4. Change priorities

- a. Initial priority level is determined by the user or operator.
- b. Emergency situations require immediate corrective action by the user or operator in situations where—
 - (1) A cycle halt or abnormal termination in the production environment prohibits mission accomplishment.
 - (2) Usable output critical to mission accomplishment is not produced.
 - (3) Critical CI files are being degraded.
- c. An urgent change category is assigned to effect—
 - (1) A change in operational characteristics that, if not accomplished expeditiously, could seriously impair mission effectiveness.
 - (2) An interface change that, if postponed, could delay the schedule or increase the cost.
 - (3) Life-cycle savings through value engineering or other cost-reduction efforts, so that expediting the change could decrease the cost.
 - (4) A change in operational characteristics to implement a new or changed regulatory requirement that is not date-driven and that is issued by an authority higher than FP.
- d. Urgent date-driven regulatory changes result from decisions or policy directives of an authority higher than the FP, for example, the Office of the Chief of Staff, U.S. Army, the Secretary of the Army, the Department of Defense, the Office of Personnel Management, the Congress, or the Office of Management and Budget, and may be approved by the FP or the proponent agency (PA). Time constraints for implementing the change must justify its development and testing as an interim change package (ICP) instead of a software change package (SCP).
- e. Routine changes include other changes than those classified as emergency, urgent, or urgent date-driven regulatory.

4-5. Preparation of problem reports, engineering change proposals and DD Form 1694

Problem reports, ECPs, ECP-Ss, and DD Form 1694 (Request for Deviation/Waiver) must be prepared per MIL-STD-480B, MIL-STD-481B, or figure 4-2, whichever is appropriate.

4-6. Configuration control board review

- a. The CCB determines all changes, establishes the required implementation date, schedules change reviews in priority with available resources, and recommends the contractual instrument (that is, unilateral change order, bilateral supplemental agreement) for implementation. The CCB chairperson is the final authority to resolve any disagreements or disputes.
- b. The chairperson may designate a configuration manager as the CCB's executive secretary. The configuration

manager administers all CCB procedures and actions and serves as secretary to all CCB meetings. If the CCB creates subgroups for study, the configuration manager coordinates their efforts.

c. Contractors or Government activities that have an interest in the CI may submit change documentation. The chairperson schedules CCB meetings at appropriate times (or at least annually) to review ECPs and deviation or waiver requests. All change documentation must be coordinated with all CCB members before the meeting to provide time for comment.

d. The CCB decision on any change proposal is documented with a CCB directive or equivalent that becomes the formal record of the decision. The CCB directive contains each member's concurrence or nonconcurrence with the chairperson's decision, and the required implementation date. Pertinent comments from the members should be attached to the CCB directive. When issued, the CCB directive or CCB request indicates whether the change has been approved or disapproved and notifies the applicable procuring activity and any other activity affected by the change.

e. If a change is disapproved, the CCB directive documents and records this decision. Initiators of the change proposal are promptly notified of CCB disapproval decisions.

f. The CCB establishes exceptions to the policy and procedures for the CCB review process for emergencies or for other reasons. The requirements of paragraph 4-16*d* stand but may be completed after an action has been taken. At a minimum, exceptions to policy and procedures require that the CCB chairperson or designee be notified if an emergency occurs. Notification, CCB coordination, and CCB meetings may be conducted by electronic means, including facsimile, Defense Data Network, telephone and video teleconferencing, and the like.

4-7. Change evaluation

a. Every proposed change affecting the Government's interest in a CI is critically evaluated. If the proposed change is not made, that decision is also evaluated.

b. The evaluation of all proposed change documentation should consider all effects that the change will have on a CI, its current approved configuration identification, allocated CIs, and CIs with which it interfaces.

c. The CCB chairperson or designee ensures coordination with functional and technical activities interested in the CI. The designee reviews the change documentation to ensure that the complete change impact has been provided. The designee ensures that all supporting data required for the effective evaluation of changes are available to those responsible for change decisions.

d. The designee assigns to functional and technical activities the responsibility of evaluating ECPs for—

- (1) Adequacy of the ECP for translation into detail design to produce a reliable AIS.
- (2) Engineering and scientific aspects of the change, including an evaluation of the ECP compared with other ongoing research and development efforts.
- (3) Effects on interfaces with other equipment and with facilities of other AISs and CIs.
- (4) Effects on overall information systems performance and compatibility requirements, including overall operational and combat environmental compatibility.
- (5) Availability of specifications and proofing requirements.
- (6) Effects on production.
- (7) Effects on life-cycle cost (contractor or in-house), including all aspects of cost growth and cost savings, such as engineering, retrofit, and integrated logistic support effects, as well as current contract and production cost changes.
- (8) Ecological and environmental effects.
- (9) Effects on health and safety.
- (10) Effects on training.
- (11) Effects on security .
- (12) Effects on site preparation.

e. Any of the above evaluation responsibilities may be combined or separately assigned to one or more evaluation activities. All responsibilities must be assigned. When a change occurs and the system is in the maintenance mode, some evaluation responsibilities may be unnecessary or inappropriate.

4-8. Procedures for processing emergency engineering change proposals—software

a. An emergency ECP-S addresses only one problem. The assigned responsible agency (ARA) assigns the highest priority to an emergency ECP-S. (See fig 4-3.)

b. The ARA develops an ICP. With the concurrence of the PM or PA, the ARA may release the approved change in an SCP rather than an ICP.

c. The ARA confirms the ICP lead verification site(s) with the PM or PA. The lead verification site is normally the data processing installation where the problem originated; however, other sites may be selected.

d. The ARA develops and transmits the ICP to the lead verification site. The PM or PA provides the user manual changes to the ARA for transmittal in the change package.

e. The designated lead verification site performs a verification test per TB 18-104 and notifies the ARA of the test's completion within 72 hours of the ICP. The ARA is contacted for guidance and assistance as required. If it is not

possible to perform a verification test within 72 hours, the designated lead verification site should notify the ARA immediately so that the ARA may select another lead verification site.

f. When the lead verification site reports a successful test, the ARA transmits the ICP to all other user sites.

g. All users install the ICP according to instructions and notify the ARA when the first production cycle is completed. If the CI changes by the ICP are not scheduled to be run within 7 days, users notify the ARA of the date of the first expected run involving the ICP.

h. ICP corrections will be included in the next scheduled SCP.

i. When the ICP's urgency warrants immediate implementation, the ARA may, with PA concurrence, transmit the ICP simultaneously to all users without prior testing at the lead verification site. The ARA instructs the lead verification site to test the ICP before it is loaded at the remaining sites, in which case the procedures in *e* through *h* above apply; however, the process is faster. ICP contents are restricted to emergency changes and urgent date-driven regulatory changes. Time constraints for implementing the change must justify its development and testing as an ICP instead of as an SCP. The ICP must be fully tested per TB 18-104.

4-9. Procedures for processing urgent engineering change proposals—software

Urgent ECP-Ss can be received from the problem report procedure or through the routine ECP-S procedure. An urgent ECP-S is prepared using DA Form 5005-R. Until the ARA receives the form, processing an urgent ECP-S is the same as for a routine ECP-S. (See para 4-10.) After the PA approves functional changes and the ARA approves technical changes, an ECP-S is implemented by the ICP (para 4-8) or SCP (para 4-10) as follows:

a. If the change is date-driven regulatory, the ECP-S is implemented by the SCP or ICP, depending on implementation requirements.

b. If not a date-driven regulatory change, an ECP-S is implemented by an SCP. However, an ECP-S may be incorporated in an ICP with emergency ECP-S or urgent date-driven regulatory ECPS, if approved by CCB with ARA concurrence.

4-10. Procedures for processing routine engineering change proposals—software

Figure 4-4 provides a summary flow of the procedures for routine ECP-S processing. Routine ECP-Ss may be originated at any organizational level.

a. Using DA Form 5005-R, the originator or field user initiates an ECP-S.

b. Figure 4-2 shows the originator numbering scheme. To preclude duplicates, each organization establishes central control for assigning numbers.

c. The originator forwards the ECP-S to the parent MACOM. If the originator has no parent MACOM, the originator forwards the ECP-S directly to the PM or PA. If the PM or PA wants the ECP-S forwarded from the originator directly to the PM or PA (and not through MACOM), a waiver of this requirement may be requested from the approving authority.

d. MACOM either—

(1) Recommends approval and forwards the ECP-S to the PM or PA.

(2) Disapproves the ECP-S and returns it to the originator. If the ECP-S is disapproved because the recommended change duplicates a previous ECP-S, MACOM provides the ECP-S originator with the originator number of the previous ECP-S.

e. The PM or PA determines if the change is functional or technical. An ECP-S that requires both functional and technical changes is classified functional. For functional changes, the PM or PA takes one of the following actions:

(1) Disapproves the ECP-S and returns it to the MACOM or to the originator if there is no intermediate command.

(2) Returns the ECP-S for additional information.

(3) Reviews the ECP-S, identifies on the ECP-S form any known or potential interface that may affect other CIs, and forwards the ECP-S to the ARA for an initial or a detail analysis (if approved by the PM or PA) as follows:

(a) For initial impact analysis, the ECP-S approval or disapproval is returned to the PM or PA. Adequate functional guidance must be provided to develop the impact analysis.

(b) The detailed impact analysis as approved by the PM or PA includes an ECP-S that resulted from higher authority, for example, congressional action or regulation. The PM or PA notes the circumstances in the narrative. Functional baseline change pages and test condition requirements are included with the ECP-S. See TB 18-104 for format of test condition requirements. An implementation date is assigned. Other PMs or PAs are notified of any impact that this ECP-S may have on the CI. Implementation date and testing activities should be coordinated.

f. The PM or PA forwards a technical ECP-S to the ARA for review and action.

g. Upon receipt of an ECP-S, the ARA—

(1) Verifies affected baseline(s).

(2) Determines if the change is maintenance or modification.

(3) Identifies or confirms the affected system interface.

(4) Prepares an initial impact analysis. This initial analysis is later developed in detail if approval occurs. The initial

impact analysis should provide sufficient information to permit an approval or disapproval decision and tentatively to classify the change as major or minor. The ECP-S is then returned to the PM or PA for final review.

(5) If the technical ECP-S is approved by the PM or PA, a detailed impact analysis of the change is prepared, and the PM or PA is notified of the results of the analysis. The ARA submits the proposed change and supporting documentation to the CCB. The ARA also—

(a) Prepares an initial impact analysis.

(b) Approves or disapproves the ECP-S. If disapproved, the ECP-S is returned to the MACOM or to the originator if there is no intermediate command. If approved (minor change), a detailed impact analysis is prepared, and the ECP-S and supporting documentation are submitted to the CCB.

(c) If there is a major change, the ECP-S is returned through the PM or PA to the originator for compliance with the automated life-cycle process.

h. A functional ECP-S returned to the PM or PA by the ARA after initial impact analysis is processed as outlined in paragraph 4-10*e*. The PM or PA also confirms if the change is major or minor. For a major change, the PM or PA returns the ECP-S to the originator for compliance with the automated life-cycle process. For a minor change, the ECP-S is returned to the PM or PA. The PM or PA notifies the ARA and the originator about the disapproval.

i. Approved major changes with all attachments are forwarded for action to the ARA. Disapproved major changes are returned to the PM or PA. The PM or PA notifies the ARA and the originator about the disapproval.

j. The chairperson convenes the CCB. CCB members review and evaluate the proposed changes for performance characteristics, cost, delivery, security, interface, and the like, and recommend their organization's position to the chairperson. CCB's review includes all changes implemented by the ICP since the previous SCP. Based on CCB recommendations, the chairperson approves or disapproves the proposed change and, if approved, schedules the change for implementation and issues the CCB directive. If the change is disapproved, all concerned activities are notified. The CCB reviews ECP classification, resolves conflicts, establishes the implementation date, assigns priorities, and reconciles the status of the ECP.

k. In coordination with the PM or PA, the ARA includes an ECP-S in a scheduled SCP.

l. The ARA coordinates with the PM or PA of each CI the implementation dates of ECP-Ss that interface with other CIs.

m. A periodic SCP release schedule is established for each CI tailored to the CI's requirements. SCP releases are scheduled for implementation to provide the least adverse impact on the data processing installation.

n. The ARA prepared and tests the SCP.

o. The SCP includes all changes implemented by the ICP since the previous SCP.

p. For a multicommand standard CI, the PM or PA validates the functional output generated by the changed CI. PM or PA validation is made during development testing.

q. Revised draft user manual or change pages are prepared and distributed by the PM or PA concurrently with SCP shipment. With ARA concurrence, the user manual revision or changes may be sent to the ARA for inclusion in the SCP.

r. The SCP is tested and certified per TB 18-104.

s. Before the SCP is distributed, the ARA notifies all users, data processing installations, and the PM or PA of the upcoming SCP. This notification lists the ECP-Ss included in the SCP. The ECP-Ss are listed by originator number.

t. Users install and run the SCP and notify the ARA of the results. If the run is unsuccessful, the user should contact the ARA for further assistance.

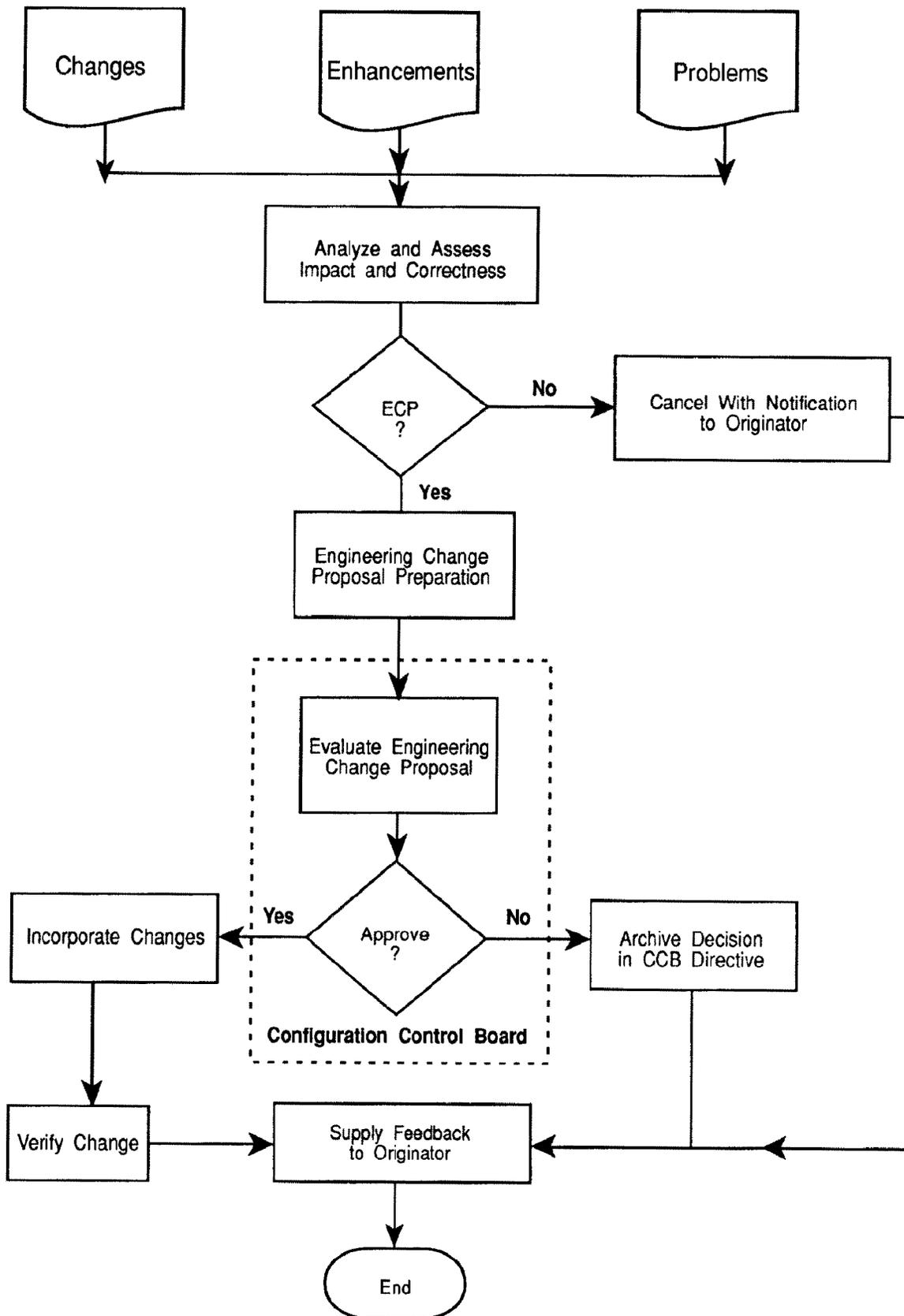


Figure 4-1. Configuration Control Process

-
- 1. To:** Enter address of the supporting Software Development Center for (System Title).
 - 2. From:** Enter mailing address of originator. Include name of individual preparing form if other than point of contact.
 - 3. Originator number.** Enter 10- (or 11-) position number constructed as follows:
 - a. Structure of Originator Number: AIS code (first three characters)–Data processing installation code (next four characters)– Sequence code (next three characters)–Environment (single character, optional).
 - b. The 10-position originator number (plus the optional environment code) is constructed of four distinctive sets of characters with the following definitions:
 - (1) AIS code. This three-position code is used to identify the system with the problem or ECP–S.
 - (2) Data processing installation code. This four-position code is used to identify the activity submitting DA Form 500–R.
 - (3) Sequence number. This three-position code is used with the other two codes to identify the problem or ECP–S being reported on DA Form 5005–R.
 - (4) Environment. This is an alphanumeric code, found in appendix D and used only for a technical ECP–S that is unique to either a particular hardware configuration or software operating system. The PM determines the use of the environment code until the deployment phase is completed. After that event, the ARA determines the use of this code.
 - 4. Point of contact.** Enter the name and telephone number of the person who should be contacted to explain the reported problem or proposed change.
 - 5. Priority.** Complete this block for an ECP–S only. Check appropriate block.
 - 6. Application CI baseline/version.** Enter the baseline number of the SCP when the change was proposed or the problem occurred.
 - 7. Executive software baseline/version.** Enter the release number of the executive software used to control systems processing.
 - 8. Problem date.** Enter date when problem occurred. Date must be all numeric (YYMMDD).
 - 9. Job/cycle/program identification.** Enter the affected program, report, screen, or the like, with the identification assigned per TB 18–103.
 - 10. Title of problem/change.** Enter a short descriptive title of the problem or proposed change.
 - 11. Description of problem/change.** Describe the problem or proposed change in sufficient detail to permit ready identification and evaluation. Include copies of output, if applicable.
 - 12. Effect on user.** Describe adverse effects or improved characteristics that the proposed change may have on the user. Include the effects if the proposed change is not made.
 - 13. Recommended solution/justification.** Enter the recommended solution and justification to support the proposed change or action taken to resolve the problem.
 - 14. Self-explanatory.**
 - 15. Remarks.** Used by the originator to continue items 11, 12, and/or 13, if needed. If necessary, items 11 through 13 may be continued on separate sheets. If separate sheets are used, include the originator number from item 3 at the top of each sheet.
 - 16. MACOM.** Items 16 and 17 are completed by the CCB.
 - 17. Items 13 through 29 are completed by the ARA and/or FP.**

Figure 4-2. Instructions for completing DA Form 5005–R

ENGINEERING CHANGE PROPOSAL—SOFTWARE (ECP-S)			(Check one) # 095		
For use of this form, see AR 25-3; the proponent agency is ODISC4			<input checked="" type="checkbox"/> PROBLEM REPORT <input type="checkbox"/> ECP-S		
1. TO: SIDPERS PFASD		2. FROM: USAISEC-EUR ZWEI BRUECKEN			
3. ORIGINATOR NUMBER P02-A153-002	4. POINT OF CONTACT (Name and telephone no.) CW2 MORPELL 494-6500	5. PRIORITY (Check one if ECP-S) <input type="checkbox"/> EMERGENCY <input type="checkbox"/> URGENT <input type="checkbox"/> ROUTINE			
6. APPLICATION CI BASELINE/VERSION P02-30-00	7. EXECUTIVE SW BASELINE/VERSION Z24-2C-01	8. PROBLEM DATE (YYMMDD) 900518			
9. JOB/CYCLE/PROGRAM ID AACARA00					
10. TITLE OF PROBLEM/CHANGE SIDPERS SAAS SYS35					
11. DESCRIPTION OF PROBLEM/CHANGE (List all attachments and referenced documents) (If additional space is needed, use Item 15, Remarks) SIDPERS SAAS SYS35 DOES NOT CONTAIN DPI CODES FOR USAREUR ADMIN SITES.					
12. EFFECT ON USER (If additional space is needed, use Item 15, Remarks) SIDPERS DEFI CANNOT BE USED IN USAREUR.					
13. RECOMMENDED SOLUTION/JUSTIFICATION (If additional space is needed, use Item 15, Remarks) 90138 INSTALL DPI CODES AND SECURITY CODES FOR ALL USAREUR DPI'S. A COMPLETE LIST OF ALL USAREUR ASIMS SITES AND THEIR DPI CODES WAS SENT TO ASP ON 15 MAY 90 BY PROFS TO SCOTT BLACKWELL.					
14. DATE (YYMMDD) 900518/1138	NAME AND TITLE OF SUBMITTING AUTHORITY LISA M. LANGFORD, SPC, CAO		SIGNATURE Lisa M. Langford		

DA FORM 5005-R, NOV 81

REPLACES DA FORM 4157-R, 1 FEB 76, WHICH IS OBSOLETE.

Figure 4-2. Sample of a completed DA Form 5005-R

15. REMARKS (If additional space is needed, use separate sheet of paper)

095 P02-A153-002

90138

THE NEW DPI CODES NEED TO BE ADDED TO THE SYS 35 PROGRAMS,

ASIMS IHR

USER/MACOM ACTION (ECP-S Only)

16. MACOM (Check one and include any comments)

- APPROVE
- DISAPPROVE

17. DATE (YYMMDD)	NAME AND TITLE	SIGNATURE
-------------------	----------------	-----------

ASSIGNED RESPONSIBLE AGENCY (Problem Report Only)

18. PROBLEM REPORT ACTION TAKEN (Check one)

- RESOLVED BY CUSTOMER ASSISTANCE
- IDENTIFIED AS URGENT OR ROUTINE
- EMERGENCY ECP FORMALIZED
- DUPLICATE OF EXISTING ECP: NO. _____
- CANCELED BY ORIGINATOR
- CANCELED FOR INSUFFICIENT IDENTIFICATION
- CANCELED FOR INSUFFICIENT DOCUMENTATION

19. DATE (YYMMDD)	NAME AND TITLE	SIGNATURE
990525	JAMES ROSENFELDER PROGRAMMER/ANALYST	<i>James Rosenfelder</i>

PROponent AGENCY and/or ASSIGNED RESPONSIBLE AGENCY (ECP-S Only)

20. CLASS OF ECP (Check one)	21. JUSTIFICATION CODE	22. ECP NUMBER
<input type="checkbox"/> I <input type="checkbox"/> II		

23. ECP TYPE (Check one)	24. ESTIMATED COSTS/SAVINGS
<input type="checkbox"/> PRELIMINARY <input type="checkbox"/> FORMAL	

25. OTHER SYSTEM/CI AFFECTED

26. CHANGE IDENTIFICATION (Check one in each column)

- FUNCTIONAL/ALLOCATED MAJOR MAINTENANCE
- TECHNICAL/PRODUCT MINOR MODIFICATION

27. PROJECTED IMPLEMENTATION

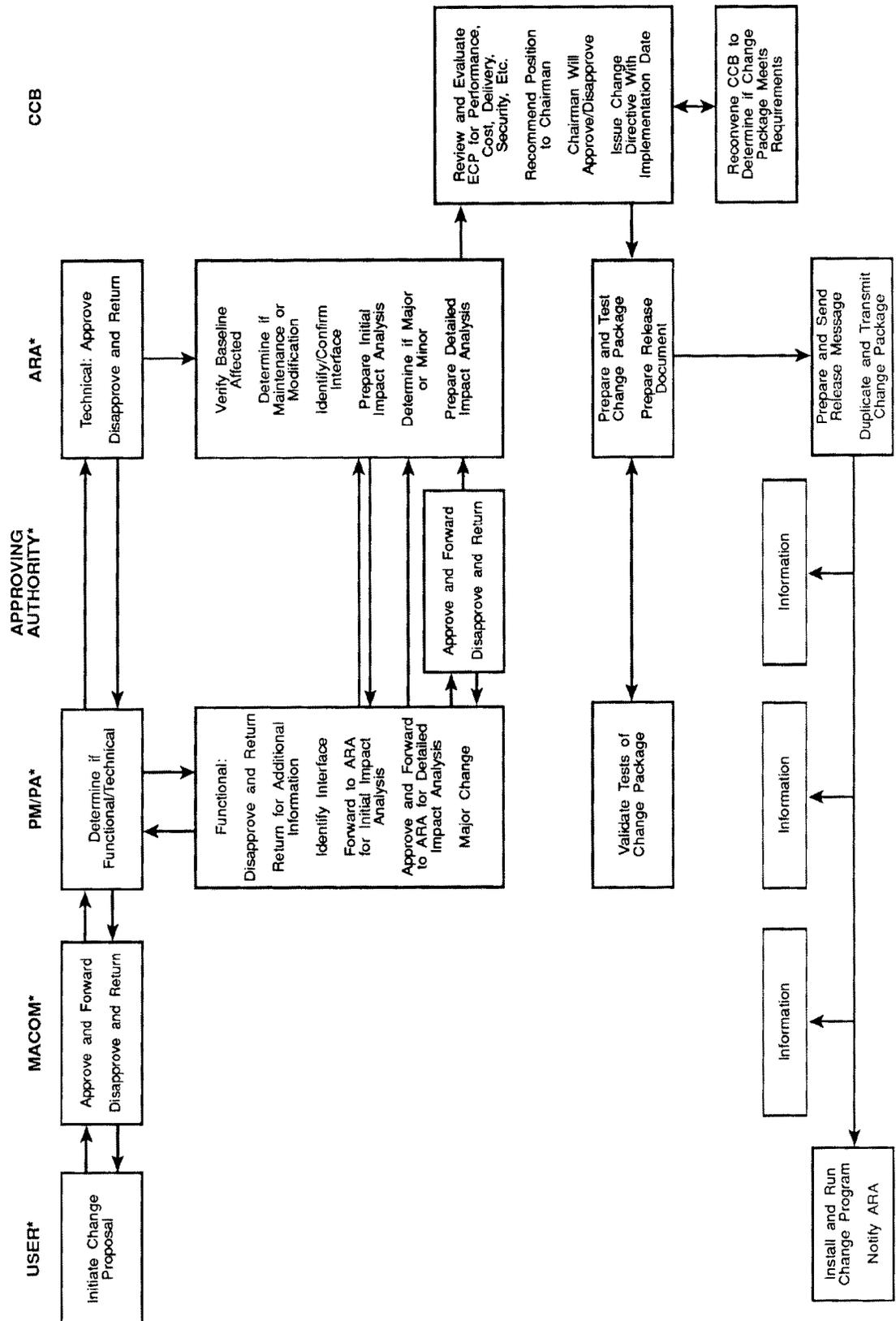
28. APPROVAL AUTHORITY (Check agency and action taken)

- PROPONENT AGENCY ASSIGNED RESPONSIBLE AGENCY APPROVED DISAPPROVED

29. DATE (YYMMDD)	NAME AND TITLE	SIGNATURE
-------------------	----------------	-----------

REVERSE OF DA FORM 5005-R, NOV 81

Figure 4-2. Sample of a completed DA Form 5005-R—Continued



*Any organization can originate a routine ECP

Figure 4-3. Overview of emergency problem reporting, emergency change proposal, and ICP procedures

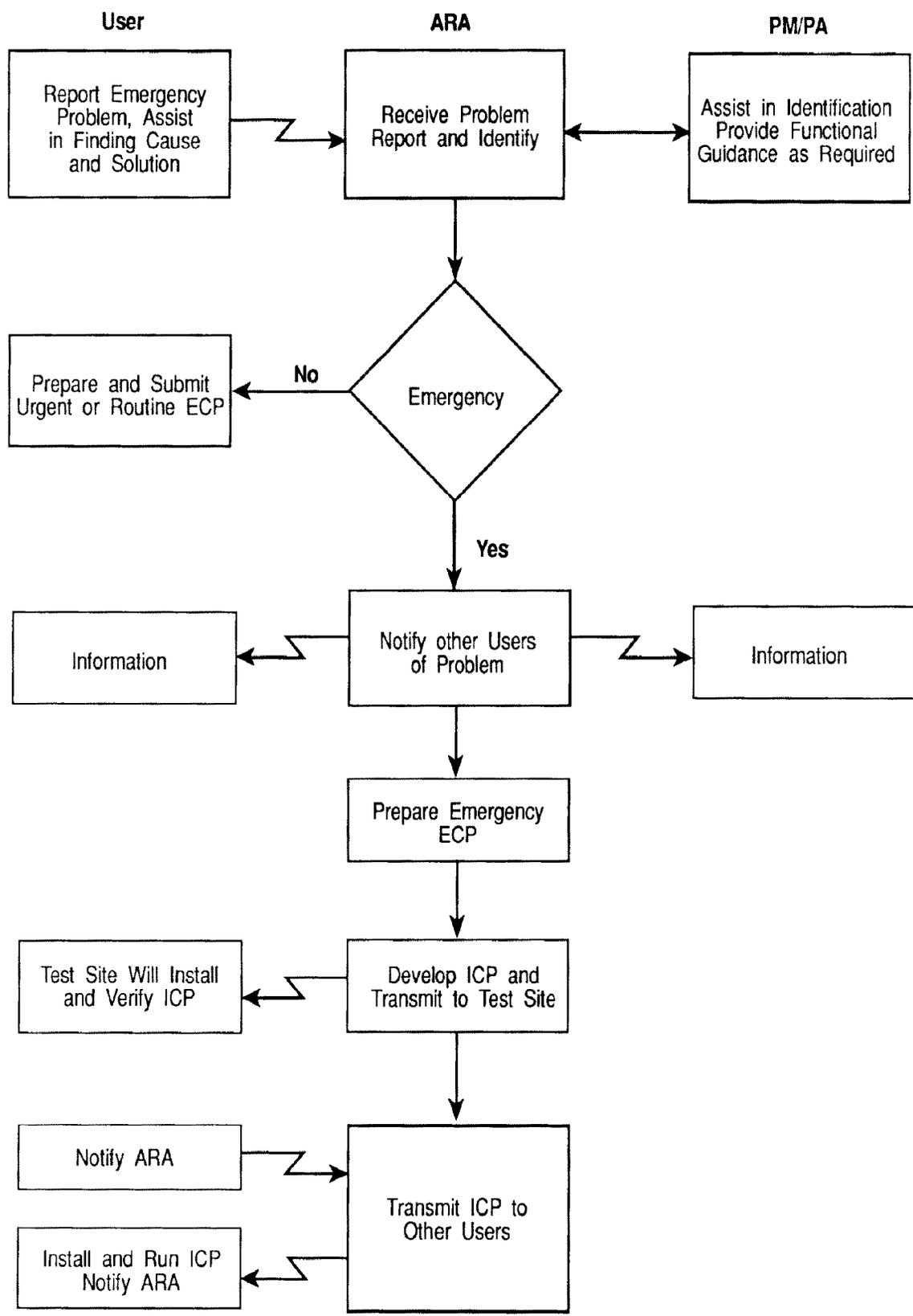


Figure 4-4. Overview of routine ECP processing and SCP development procedures

Chapter 5 Configuration Status Accounting

5-1. General

Configuration status accounting (CSA) tracks the current approved configuration baselines and operational units and changes. CSA also monitors all related tasks resulting from such changes. The function's structure and methods are dictated by the program's needs, the volume of change activity, and imposed constraints.

5-2. Configuration status accounting

The CCB chairperson or the designated configuration manager selects specific data elements, record and report formats, and the recordkeeping methods. These choices should be made during the LCM development phase with the advice and concurrence of the post-deployment operations management. Existing Government and contractor CSA management techniques are used as much as possible. CSA is invoked on contracts by using the applicable sections of MIL-STD-482A. The CMP must address transition of CSA functions to the post-deployment operations management.

5-3. Content of records and reports

a. CSA records and the resultant reports exist in numerous formats and in varying detail. The PM or the designated configuration manager maintains records and reports compiled to track distribution of changes and authorized versions and their location. CSA must be initiated when the functional baseline is established and is expanded as baselines develop into configuration identifications. Contracts must require the maintenance of at least the information about each CI and its component allocated CIs as specified by MIL-STD-482A.

b. The PM or the designated configuration manager adopts CSA standards as they emerge from the Department of Defense. The information system used to perform CSA must, at a minimum, be capable of identifying—

(1) The specification number, drawing number or code identification number, software identification, and configuration identification.

(2) The serial numbers and/or model numbers, nomenclatures, other identification numbers for the system, CIs, and their component parts.

(3) The current status of changes being processed by the procuring activity but not yet incorporated in the contract.

(4) All approved changes to the CI or the system including the production or retrofit serial number and the effective date for each change.

(5) Current part number composition of each unit of a CI in the inventory and its location.

5-4. System allocation document

For each standard system, the PM publishes and continuously updates a system allocation document that shows the standard system hardware and software version status for operational sites, programming support sites, and operational test sites.

Chapter 6 Configuration Audits

6-1. General

a. Configuration audits verify and document that CIs and their configuration identification agree.

b. A functional configuration audit (FCA) formally validates that a CI's development has been completed satisfactorily and that CI has achieved the performance and functional characteristics specified in the functional or allocated configuration identification.

c. A physical configuration audit (PCA) technically examines a designated CI to verify that the as-built CI conforms to the technical documentation that defines the CI.

6-2. Configuration audits

PMs conduct the FCA and PCA.

6-3. Procedures

a. The FCA is a correlated prerequisite to the PCA. The FCA is conducted on a CI to ensure that the CI's technical documentation accurately reflects the CI's functional characteristics and necessary physical characteristics. The FCA is conducted on the CI's final configuration to be released to the program user or procurement agency. When a prototype CI is not produced, the FCA is conducted on the first production CI. The FCA may be conducted on a progressive

basis (when so determined) throughout the CI's development and culminates with qualification testing of the CI and a final review of all FCA discrepancies.

b. The PCA is performed to ensure that the software's technical documentation accurately and adequately describes the software and that the software is supportable and maintainable in operations by programmers and technicians other than the software's developers. To ensure their compatibility, source listings obtained from the software media (tape, disk, diskette) used during the FCA are compared with the software source listing of the product specifications. The PCA also establishes that the acceptance testing of the product configuration identification is valid. To do this, PCA compares the acceptance test procedure and test results with the product configuration identification performance requirements, as specified in the development specification. The PCA and approval of the product CI establish the product baseline.

Appendix A References

Section I Required Publications

AR 25-3

Army Life Cycle Management of Information Systems. (Cited in paras 1-1, 2-3, and 2-5.)

AR 25-30

The Army Integrated Publishing and Printing Program. (Cited in para 3-5.)

DOD-STD-7935A

DOD Automated Information Systems Documentation Standards. (Cited in paras 3-1, 3-2, 3-3, and 3-4.)

MIL-STD-480B

Configuration Control—Engineering Changes, Deviations, and Waivers. (Cited in paras 2-5, 4-3, and 4-5.)

MIL-STD-481B

Configuration Control—Engineering Changes (Short Form), Deviations, and Waivers. (Cited in paras 2-5 and 4-5.)

MIL-STD-483A

Configuration Management Practices for Systems, Equipment, Munitions, and Computer Programs. (Cited in para 3-4.)

MIL-STD-490A

Specification Practices. (Cited in paras 3-3 and 3-4.)

TB 18-103

Army Automation Software Design and Development. (Cited in para 3-5 and fig 4-2.)

TB 18-104

Army Automation Testing of Computer Software Systems. (Cited in paras 4-8 and 4-10.)

Section II Related Publications

AR 25-1

The Army Information Resources Management Program

AR 25-9

Army Data Management and Standards Program

AR 70-1

Systems Acquisition Policy and Procedures

AR 380-5

Department of the Army Information Security Program

AR 380-19

Automation Security

MIL-STD-482A

Configuration Status Accounting Data Elements and Related Features

MIL-STD-1456

Contractor Configuration Management Plan

MIL-STD-1521B

Technical Reviews and Audits for Systems, Equipments, and Computer Software

Section III

Referenced Forms

DA Form 5005-R

Engineering Change Proposal—Software (ECP-S)

DD Form 1692

Engineering Change Proposal, Page 1

DD Form 1692-1

Engineering Change Proposal, Page 2

DD Form 1692-2

Engineering Change Proposal, Page 3

DD Form 1692-3

Engineering Change Proposal, Page 4

DD Form 1692-4

Engineering Change Proposal, Page 5

DD Form 1692-5

Engineering Change Proposal, Page 6

DD Form 1694

Request for Deviation/Waiver

Section IV

Prescribed Forms

This section contains no entries.

Appendix B

Configuration Management Plan Format

B-1. Function

CMPs document all required CM elements and prescribe elements to meet program requirements. CMPs provide continuity of effort and understanding among various Government activities and contractors that may be responsible for allocated CIs; integrating, interfacing, or otherwise related CIs; contractor organizations; test and evaluation activities; and integrated logistics support managers. As a program progresses through its phases, documentation and events are added to the CMP for program continuity. CMPs should not duplicate information contained in regulations, Department of Defense or military standards, military specifications, or any other Government documents unless such information is required to make the document more readable. CMPs should include appropriate information by specific reference.

B-2. Applicability

CM planning is consistent with life-cycle phase(s) and is initiated no later than establishment of the functional baseline. CMPs are prepared per this appendix and are required in establishing the functional baseline. They are undated and approved as part of the planning for each succeeding life-cycle phase.

B-3. Approval authority

After coordination with all activities and interfacing organizations that have a function defined in the CMP, the PM (where assigned) or systems developer approves it. Once approved, the CMP is the operational document throughout the CI's life cycle. CMPs shall be reviewed annually to determine applicability and update requirements; the approval authority is notified of the results. All changes to CMPs are processed as new CMPs.

B-4. Initial format

CMPs are constructed differently from CI to CI or from system to system. (CIs that are primarily nondevelopmental

items do not require as extensive documentation.) Each CMP must be tailored to the particular CI or system. Figure B-1 shows a sample CMP outline. Paragraphs in the sample outline may be further subdivided. When the program is at Milestone 1, the following general information should be incorporated in all CMPs for developmental items.

a. Cover. Name the system or CI and the activity responsible for preparing the CMP, date, and current life-cycle phase on a separate cover page.

b. Approval page. Show the signatures of all activities and interfacing organizations that have a function defined in the CMP and of any or all approval authorities on a separate page.

c. Record of reviews and history. List of chronological record of reviews, decisions, and pertinent dates on a separate page.

d. Table of contents. Include section and page numbers to the second level.

e. Section 1. Introduction. Describe the program to be supported and the acquisition strategy to be employed.

(1) *Subsection 1.1. Purpose.* Describe the functionality of the AIS and its CI(s), the mission, and anticipated capabilities.

(2) *Subsection 1.2. Scope.* Provide a life-cycle phase chart of the project that incorporates CM activities and their relationship to project milestones. Provide information in general terms to avoid security classification of the plan, if possible.

(3) *Subsection 1.3. Applicable documents.* List all forms, regulations, laws, and related documents that support the requirements of the AIS and its CI(s). Describe technologies that will reduce the amount of printing on paper.

f. Section 2. Configuration item. Describe significant plans that will greatly affect CI during its life cycle.

(1) *Subsection 2.1. Description of the CI.* Briefly describe the total AIS or higher level CI to be managed and any anticipated allocated CIs that will constitute the total AIS. Include the mission and anticipated capabilities, the relationship of the allocated CIs supporting software description, and any anticipated Government-furnished equipment.

(2) *Subsection 2.2. Status of the CI.* Optionally, where the information would be useful and not classified, include the number of CIs planned and the deployment schedule in the life-cycle phase chart developed for subsection 1.2. Provide information in general terms to avoid security classification of the plan, if possible.

(3) *Subsection 2.3. Special features.* Describe abnormal conditions, unusual requirements, or special features of the CI or its management program (for example, installation support modules that will result in more than one configuration to be supported in the field with more than one product baseline). Also describe the following: peculiarities of the CM program resulting from participation of numerous organizations; unique contracting methods; use of many commercial items; use of existing drawings and specifications; employment of an integrating contractor; modifications to training devices and simulators required for model differences and improvement programs; innovations to increase the program's effectiveness; and security requirements.

g. Section 3. Organization. Outline the organizational relationships among CM positions and activities in the command activity, related Government organizations, and contractor groups. Define the responsibilities of each, outline their relationships in chart form, and list the policy directives that govern the program. Do not include procedures in this section.

(1) *Subsection 3.1. Structure.* Through charts and narrative descriptions, define the relationships of activities in the program. The charts list the PM, CM officer, and interfacing organizations and offices to contact for related CIs to ensure that the impact of changes is evaluated, procuring and administrative contracting officers, CCB, value engineering office, contractors employed in the programs, and any other elements that are involved.

(2) *Subsection 3.2. Roles and responsibilities.* List the program management structure and relative responsibility of all participants; for example, if the program is managed under a program executive officer, list the program executive officer, PM, materiel developer, FP, end-users, contractors, and others, and their anticipated responsibility for CM.

(3) *Subsection 3.3. Configuration control board.* Describe the relationship of the CCB to change authorization (chap 4), the interrelationship of CCBs if there is more than one level of CCB or separate software CCBs, the membership of the CCB by organization and functional group (para 2-6), and the effective date of operational status of the CCB. Normally, the CCB should be in operational status when the functional baseline is established.

(4) *Subsection 3.4. Policy directives.* List all policy directives directly related to CM, except those published by higher authority, and append copies to the CMP.

h. Section 4. Baseline identification. The initial CMP lists the functional baseline, any supporting allocated baselines, if applicable, and the product baseline, as the starting point in CM.

(1) *Subsection 4.1. Functional baseline.* List the document or documents that establish the functional baseline. Outline the procedure for review and release, and specify the degree of Government control.

(2) *Subsection 4.2. Allocated baseline.* If applicable, list the documents that establish the allocated baseline. Outline plans for preparation, review, control, and release of the product specifications and drawings. Specify the degree of control of the developing activity and/or contractor and techniques for control. Define Government control techniques used before the product baseline was established.

(3) *Subsection 4.3. Product baseline.* List the details of the type, forms, and levels of documents for establishing the product baseline. Outline plans for preparation, review, control, and release of the product specifications and drawings.

Specify the degree of control of the developing activity and/or contractor and techniques for control. Define Government control techniques used before the product baseline was established.

(4) *Subsection 4.4.* Configuration management audits. Outline plans for the conduct, documentation, and approval of the FCA and PCA. Include procedures, and list participating organizations and their responsibilities. These items and the proposed establishment of CM baselines may be shown on a milestone chart and added after the CMP is initially developed as the plan becomes more definitive. Include requirements for follow-on audits, identification of the CI(s) to be used, and the depth of audits.

i. Section 5. Configuration control. Outline procedures for processing ICPs and requests for deviations and for waivers. If value ECPs will follow a different routing or level of approval, describe the differences. Include procedures and responsibilities for approving and recording deviations and waivers.

(1) *Subsection 5.1.* Procedures. Through charts and narrative descriptions, define the routing of ECPs, value ECPs, and requests for deviations and requests for waivers including variations as the life cycle progresses. Include information on each element involved from the original proposer through the contracting officer responsible for the contractual implementing action, if applicable. Include inputs to the CSA system and confirmation of actual production and cost information.

(2) *Subsection 5.2.* Interface control. Describe procedures for all affected elements to participate in change control activities; include actions such as exchange of membership on participant's CCBs. If a separate interface control working group is established, outline its organization and operating procedures. Append all CM interface agreements to the CMP. Delineate the authority, responsibilities, and procedures for releasing and revising interface control documents. Specify the documentation to be generated as part of the interface program. Review interface agreements to ensure that their terms do not conflict with the requirement to perform full impact evaluation of changes, ECPs, requests for deviations, and requests for waivers. Include a statement to that effect.

j. Section 6. Configuration status accounting. Outline plans for collecting, storing, handling, verifying, and presenting configuration status information to management. The CSA description includes techniques to provide a dynamic information system for the management team. Specify the level and degree of CSA.

(1) *Subsection 6.1.* Database location. Describe plans for establishing the CSA database. Indicate whether the database will be manual or automated, whether it will be located at a contractor's facility or at an in-house site, and how inputs and outputs of participating activities will be handled. Specify form, format, and data elements.

(2) *Subsection 6.2.* Database content. Define what information will be stored in the database, and briefly describe the sources and techniques to be used. Chapter 5 gives minimum required information for the CSA database. Define how data will be collected on documentation release and revision; costs of engineering changes, deviations, and waivers; Government rights in data and warranty provisions; publication status; and implementation of changes to hardware. Describe the method of providing information on all confirmed estimates. Indicate whether information will be collected from release and change documents by an in-house activity or by a contractor facility. If an in-house database is planned, indicate database inputs by in-house or contractor-operated database or both.

(3) *Subsection 6.3.* Reporting. Indicate the methods used to present information to management. Cover both ad hoc inquiry capability and periodic milestone reporting. Emphasize the system's ability to produce concise answers to specific inquiries by management. List and briefly describe any planned periodic reports; bulky periodic reports should be minimized.

(4) *Subsection 6.4.* Follow-on audits. Outline plans for periodic verification of the database.

k. Section 7 (optional). Configuration management plan(s) of contractor(s). During the solicitation process, CMP(s) may be acquired from contractor(s) to assess their ability to satisfy the CM provisions of the contract. Following contract negotiations, the CMP is invoked when the contract is awarded. The contractor CMP is prepared according to an appropriate CMP data item description consistent with program needs and this pamphlet. The contractor's CMP includes CM responsibilities, requirements, and procedures of the contractor, subcontractors, and vendors; their method of satisfying CM requirements of the contract, and a description of the contractor's engineering release system and how CM will be applied to Government-furnished material, equipment, and information.

B-5. Appendixes to the configuration management plan

As the development of information systems proceeds, the functional baselines and allocated baselines change and become the functional configuration identification and allocated configuration identification. During the design phase, the production baseline changes and becomes the product configuration identification. The CCB reviews and documents these changes. The following documents become appendixes to the CMP:

- a.* ECPs and DD Form 1694 submitted to the CCB and the supporting decision memoranda.
- b.* Each approved version of the functional, allocated, and product identifications. Clearly identify the latest approved version. At Milestone 2, include the product baseline in the CMP.
- c.* Drawings and specifications of product configuration identifications. Clearly identify all versions.
- d.* Record and delineate reference documents to their appropriate versions of the product configuration identification. Clearly identify the latest version.

Configuration Management Plan Outline

Cover

Approval Page

Record of Reviews and History

Table of Contents

Section 1. Introduction

1.1 Purpose

1.2 Scope

1.3 Applicable documents

Section 2. Configuration Item

2.1 Description of the configuration item

2.2 Status of the configuration item

2.3 Special features

Section 3. Organization

3.1 Structure

3.2 Roles and responsibilities

3.3 Configuration control board

3.4 Policy directives

Section 4. Baseline Identification

4.1 Functional baseline

4.2 Allocated baseline

4.3 Product baseline

4.4 Configuration management audits

Section 5. Configuration Control

5.1 Procedures

5.2 Interface control

Section 6. Configuration Status Accounting

6.1 Database location

6.2 Database content

6.3 Reporting

6.4 Follow-on audits

Section 7 (optional). Configuration Management Plan(s) of Contractor(s)

Appendixes per paragraphs B-5a, b, and c.

Figure B-1. Sample outline of configuration management plan

Appendix C System Interface Agreement Outline

C-1.

This appendix provides a sample system interface agreement. The cover page (see fig C-1) is developed and signed for each iteration of the agreement.

C-2.

A table of contents similar to that in figure C-2 is developed for agreements.

C-3.

Section 1 of the agreement uses the format shown in figure C-3 and contains the information shown there.

C-4.

Section 2 uses the format shown in figure C-4 and contains the information shown there.

C-5.

Section 3 uses the format shown in figure C-5 and contains the information shown there.

Interface Agreement
Between
(System Name1) and (System Name2)

Approved by:

_____	_____	_____
(System Name1 Official)	(Signature)	(Date)
Title	Signature	Date
_____	_____	_____
(System Name2 Official)	(Signature)	(Date)
Title	Signature	Date
<u>(Other Appropriate Officials)</u>		
Title	Signature	Date
_____	_____	_____
(Give title)	(Signature)	(Date)
_____	_____	_____
(Give title)	(Signature)	(Date)
_____	_____	_____
(Give title)	(Signature)	(Date)

Figure C-1. Sample cover page for system interface agreements

Table of Contents

	Page
Section 1. General	
1.1 Purpose	1
1.2 Scope	1
1.3 Functional Requirement	1
1.4 Interface Overview	2
1.5 Responsibilities	3
1.6 Procedural and System Changes	3
1.7 Life-Cycle Maintenance	4
Section 2. (<i>System Name1</i>) Attributes	
2.1 System Description	5
2.2 Hardware	5
2.3 Software	5
2.4 Interface Attributes	5
2.5 Service Levels	5
2.6 Points of Contact	5
2.7 Security	6
2.8 System Problems	6
2.9 Audit Procedures	6
2.10 Data Requirements	6
2.11 Selection Criteria	6
Section 3. (<i>System Name2</i>) Attributes	
3.1 System Description	7
3.2 Hardware	7
3.3 Software	7
3.4 Interface Attributes	7
3.5 Service Levels	7
3.6 Points of Contact	7
3.7 Security	8
3.8 System Problems	8
3.9 Audit Procedures	8
3.10 Data Requirements	8
3.11 Selection Criteria	8
Appendixes	
A <i>System Name1</i> Data Descriptions	A-1
B <i>System Name1</i> Record Layout	B-1
C <i>System Name2</i> Data Descriptions	C-1
D <i>System Name2</i> Record Layout	D-1

Figure C-2. Sample table of contents for system interface agreements

Section 1. General

Section 1 delineates general information about the overall interface, including the purpose, scope, update, and change procedures, responsibilities, maintenance procedures, and the like.

1.1 *Purpose.* Delineate the purpose of the interface agreement. An example of the type of wording that might be used is provided below.

1.1 *Purpose.*

1.1.1 The purpose of this document is to define formally a mutual understanding of the functional and physical interface established between (*System Name1*) and (*System Name2*).

1.2 *Scope.* Provide an overview of the extent and breadth of the interface. An example of the type of wording that might be used is provided below.

1.2 *Scope.*

1.2.1 This agreement applies to all system users, functional proponents, assigned responsible agencies, developers, maintainers, and operators at all *System Name1* and *System Name2* locations.

1.2.2 This agreement encompasses requirements pertaining to data (formats, edits, and content), physical interface (hardware specifications, system software, pertinent application software, and databases), communications (protocols and line speeds), service levels (frequencies and response times), and security (sensitivity and restrictions).

1.3 *Functional Requirement.* Delineate why the interface is required; that is, state how the interface benefits the user(s) or improves functionality. An example of the type of wording that might be used is provided below.

1.3 *Functional Requirement.* This interface is required to provide:

1.3.1 *Data type1* and *data type2* to *System Name1* to:

- Meet requirements of AR XXX–XX.
- Eliminate duplicate manual data collection efforts.
- Ensure timeliness and accuracy of data reported to higher headquarters.
- Meet mobilization requirements.

1.3.2 *Data type3* and *data type4* to *System Name2* to:

- Eliminate high data entry error rates.
- More effectively provide training requirements.
- Enhance support to field activities.
- Adhere to higher headquarters reporting requirements.

1.4 *Interface Overview.* Provide a general overview of interface procedures. Delineate factors such as whether the interface is achieved via direct connection or manually; whether processing is accomplished in a batch or an interactive environment; whether edits will be performed before or after data exchange; and whether systems will retrieve, provide, or be provided data. Include a diagram of the interface if it will help in understanding data flow. An example of the type of wording that might be included is provided below.

1.4 *Interface Overview.*

1.4.1 *System Name1.* At the end of each workday, specific data items required by *System Name2* will be extracted and formatted for transmission via the Defense Data Network to the *System Name2* site located at *site location1*. Data will be grouped by location and will consist of information relating to active enlisted personnel only.

1.4.2 *System Name2.* *System Name2* daily receives specified data and immediately provides verification of receipt. An application program is executed weekly to provide demographic and statistical data to *System Name1*.

1.5 *Responsibilities.* All parties listed in this paragraph sign and date the cover page of the interface agreement.

1.5.1 *System Name1* Personnel. Delineate all obligations and responsibilities that *System Name1* personnel have in ensuring development, implementation, and continued proper functioning of the interface. Unless otherwise mutually

Figure C-3. Sample format and content of section 1 of system interface agreement —Continued

agreed, *System Name1* personnel will be responsible for providing the Manning the Force Automation Architecture Project Office with a copy of the agreement no more than 30 days after completion.

1.5.2 *System Name2* Personnel. Delineate all obligations and responsibilities that *System Name2* personnel have in ensuring development, implementation, and continued proper functioning of the interface.

1.5.3 *Other Parties*. Delineate all obligations and responsibilities that parties other than those specified above have in ensuring development, implementation, and continued proper functioning of the interface. Include individuals and parties, such as Directors of Information Management, Telecommunication Centers, data processing installations, data administrators, and so on.

1.6 *Procedural and System Changes*. Include concise and specific procedures for ensuring that changes to one system that affect the interface are communicated to the interfacing system. These changes may include modification of procedures, hardware, system, or application software, data elements, edit criteria, output formats, frequencies of transmission, and so forth. The procedures must ensure that changes are communicated in sufficient time for the interfacing system to analyze the change and complete any required action. An example of the type of wording that might be used is provided below.

1.6 *Procedural and System Changes*.

1.6.1 Changes will be communicated in writing to all concerned parties not less than XX days before required implementation. Notification will clearly state the changes to be made and will identify potential and actual problems that might affect the interfacing system.

1.6.2 If the change is the result of regulatory change, both parties will mutually agree on required actions and an implementation date.

1.6.3 If the change is the result of a functional or technical change to only one system, that system is responsible for establishing and coordinating required actions and an implementation date that are acceptable to the other system.

1.6.4 Once implemented, all modifications to the interface will be documented in this agreement and a new cover page signed and dated by all concerned parties.

1.7 *Life-Cycle Maintenance*. Bearing in mind that an interface agreement is a "living document" when applied to developing systems, specify intervals or give exact dates when it will be reviewed, updated, or augmented to reflect evolving information. This process is vital from initial interface requirement identification until such time as the interface has been fully defined. An example of the type of wording that might be used is provided below.

1.7 *Life-cycle Maintenance*. This agreement will be reviewed and augmented as indicated below.

1.7.1 Milestone I—A skeleton of the interface agreement will be made reflecting all known information. The functional requirement for the interface agreement (para 1.3 above) should be defined completely.

1.7.2 Milestone II—Specifics of the interface overview (para 1.4 above) will be refined along with any additional system information available.

1.7.3 Milestone III—All sections will be completed in their entirety. The agreement will be signed by proper officials representing each system and promulgated to all concerned parties.

1.7.4 Milestone IV—Once every XX months, *System Name1* will take the lead in ensuring that this agreement is reviewed by both parties. When changes are made, this document will be signed and dated by all concerned parties.

Figure C-3. Sample format and content of section 1 of system interface agreement

Section 2. (System Name1) Attributes

- 2.1 *System Description*. Provide a system description giving a brief functional overview of *System Name1*.
- 2.2 *Hardware*. Delineate pertinent *System Name1* hardware (personal computers, mainframes, front-end processors, communications equipment, and so forth) that is a part of the interface. Include such details as manufacturer and model.
- 2.3 *Software*. Delineate *System Name1* software that is pertinent to the interface, such as operating systems, conversion and application programs, emulation packages, and the like.
- 2.4 *Interface Attributes*.
- 2.4.1 *Local Procedures*. Describe detailed procedures required of *System Name1* to initiate, utilize, and terminate the interface. Define whether transfer and/or receipt is initiated programmatically or by operator intervention.
- 2.4.2 *Communications Link*. Provide an overview of what will occur between the time the data leave *System Name1* and their arrival at *System Name2*. This overview may include determination of appropriate network protocols, routing, access procedures, and internetworking. The assistance of communications personnel may be required to make these determinations properly.
- 2.5 *Service Levels*. Delineate intangible requirements that will be maintained by *System Name1*. Provide items such as transmission and receiving speeds, protocols, expected volume, frequencies, required conversions, line quality, response times, prioritization, and special processing requirements.
- 2.6 *Points of Contact*.
- 2.6.1 *Technical Point of Contact*. Specify the name, address, and telephone number of the individual or office responsible for solving technical problems relating to *System Name1*.
- 2.6.2 *Functional Point of Contact*. Specify the name, address, and telephone number of the individual or office responsible for solving functional concerns relating to *System Name1*.
- 2.6.3 *Communications Point of Contact*. Specify the name, address, and telephone number of the individual or office responsible for solving communications problems relating to *System Name1*.
- 2.7 *Security*. Describe security restrictions and precautions. Include pertinent *System Name1* security procedures, such as password updates, data protection, terminal access, and data encryption.
- 2.8 *System Problems*.
- 2.8.1 *Failure Contingencies*. Delineate alternative courses of action to satisfy the interface requirement in the event of *System Name1* failure.
- 2.8.2 *Restart*. Delineate recovery procedures to restart at the point of failure, instead of starting over, when temporary problems are encountered during transmission or receipt of data.
- 2.8.3 *Continuity of Operations Plan*. Provide variations of normal procedures that will be required of the interfacing system (*System Name2*) when *System Name1* must implement the Continuity of Operations Plan.
- 2.9 *Audit Procedures*. Specify procedures that ensure that all data transmitted were actually received and/or data received were in fact all that were sent. Include notification procedures to be used in the event of discrepancy.
- 2.10 *Data Requirements*. Data attributes (if minimal) can be listed in this paragraph. More involved data requirements should be provided as accompanying appendixes.
- 2.10.1 *Data Description*. Delineate pertinent data attributes for all *System Name1* data that will be passed to or retrieved by *System Name2* via this interface. Generally, the system that stores the data is responsible for delineating the attributes of the data.
- 2.10.2 *Record Layout*. Delineate the order in which data elements will be provided to or made available to *System Name2*. Generally, if selected data items are to be passed, the receiving system is responsible for delineating the layout of those data.
- 2.11 *Selection Criteria*. Specify the criteria that will be used for determining which records or data will be passed to or retrieved from *System Name2*. An appendix may be used if specifications become voluminous or require logic tables, flowcharts, and the like.

Figure C-4. Sample format and content of section 2 of system interface agreement

Section 3. (*System Name2*) Attributes

- 3.1 *System Description*. Provide a system description giving a brief functional overview of *System Name2*.
- 3.2 *Hardware*. Delineate pertinent *System Name2* hardware (personal computers, mainframes, front-end processors, communications equipment, and so forth) that is a part of the interface. Include such details as manufacturer and model.
- 3.3 *Software*. Delineate *System Name2* software that is pertinent to the interface, such as operating systems, conversion and application programs, emulation packages, and the like.
- 3.4 *Interface Attributes*.
- 3.4.1 *Local Procedures*. Describe detailed procedures required for *System Name2* to initiate, utilize, and terminate the interface. Include whether transfer and/or receipt is initiated programmatically or by operator intervention.
- 3.4.2 *Communications Link*. Provide an overview of what will occur between the time the data leave *System Name2* and their arrival at *System Name1*. This overview may include determination of appropriate network protocols, routing, access procedures, and internetworking. The assistance of communications personnel may be required to make these determinations properly.
- 3.5 *Service Levels*. Delineate intangible requirements that will be maintained by *System Name2*. Provide items such as transmission and receiving speeds, protocols, expected volume, frequencies, required conversions, line quality, response times, prioritization, and special processing requirements.
- 3.6 *Points of Contact*.
- 3.6.1 *Technical Point of Contact*. Specify the name, address, and telephone number of the individual or office responsible for solving technical problems relating to *System Name2*.
- 3.6.2 *Functional Point of Contact*. Specify the name, address, and telephone number of the individual or office responsible for solving functional concerns relating to *System Name2*.
- 3.6.3 *Communications Point of Contact*. Specify the name, address, and telephone number of the individual or office responsible for solving communications problems relating to *System Name2*.
- 3.7 *Security*. Describe security restrictions and precautions. Include pertinent *System Name2* security procedures, such as password updates, data protection, terminal access, and data encryption.
- 3.8 *System Problems*.
- 3.8.1 *Failure Contingencies*. Delineate alternative courses of action to satisfy the interface requirement in the event of *System Name2* failure.
- 3.8.2 *Restart*. Delineate recovery procedures to restart at the point of failure, instead of starting over, when temporary problems are encountered during transmission or receipt of data.
- 3.8.3 *Continuity of Operations Plan*. Provide variations of normal procedures that will be required of the interfacing system (*System Name1*) when *System Name2* must implement the Continuity of Operations Plan.
- 3.9 *Audit Procedures*. Specify procedures that ensure that all data transmitted were actually received and/or data received were in fact all that were sent. Include notification procedures to be used in the event of discrepancy.
- 3.10 *Data Requirements*. Data attributes (if minimal) can be listed in this paragraph. More involved data requirements should be provided as accompanying appendixes.
- 3.10.1 *Data Description*. Delineate pertinent data attributes for all *System Name2* data that will be passed to or retrieved by *System Name1* via this interface. Generally, the system that stores the data is responsible for delineating the attributes of the data.
- 3.10.2 *Record Layout*. Delineate the order in which data elements will be provided to or made available to *System Name1*. Generally, if selected data items are to be passed, the receiving system is responsible for delineating the layout of those data.
- 3.11 *Selection Criteria*. Specify the criteria that will be used for determining which records or data will be passed to or retrieved from *System Name1*. An appendix may be used if specifications become voluminous or require logic tables, flowcharts, and so on.

Figure C-5. Sample format and content of section 3 of system interface agreement

Appendix D Authorized Environment Codes

All requests for a new environment code are submitted to HQDA (SAIS-PS), WASH DC 20310-0107. The environment code identifies an ECP-S that will be implemented only in a specific operating environment. (See fig 4-2.) The environment code is entered in block 3 of DA Form 5005-R following the originator number. For example, "I" is the environment code for IBM. The code is applicable only when the form is used for ECP-S purposes; that is, the code is not entered on a problem report. The operating environment of a data processing installation submitting a problem report is identified by the executive software AIS in block 7 of DA Form 5005-R. For example, AIS code Z30 (IBM multiple virtual storage operating system or IBM/MVS) indicates the operating environment at the data processing installation at the time the problem report was originated. Table D-1 gives the currently authorized environment codes.

Table D-1
Authorized environment codes

Code	Operating environment
A	American Telephone and Telegraph 9AT7T0
B	Burroughs
C	Control Data Corp.
D	Digital Equipment Corp.
E	Perkin/Elmer
F	Hewlett Packard
H	Honeywell
I	International Business Machines Corp.
L	Harris Lanier
P	Plexus
T	Intel
U	Unisys
V	ASIMS
W	Wang
Z	Zenith

Glossary

Section I Abbreviations

AIS

automated information system

ARA

assigned responsible agency

CCB

configuration control board

CI

configuration item

CM

configuration management

CMP

configuration management plan

CSA

configuration status accounting

ECP

engineering change proposal

ECP-S

engineering change proposal–software

FCA

functional configuration audit

FP

functional proponent

ICP

interim change package

LCM

life-cycle management

MACOM

major Army command

PA

proponent agency

PCA

physical configuration audit

PM

program manager

SCP

software change package

Section II

Terms

Allocated configuration identification

Approved performance-oriented specifications for developing hardware or computer program CIs that are part of a higher level CI. The specification—

- a.* Defines the functional characteristics allocated for those of a higher level CI.
- b.* Establishes the tests required to demonstrate achievement of the allocated functional characteristics.
- c.* Delineates interface requirements with other associated CIs.
- d.* Establishes any design constraints, such as component standardization and integrated logistic support requirements.

Audits

Configuration audits verify conformance to specifications and other contract requirements. Audits are not reviews. (Reviews are periodically conducted to assess the degree of completion of technical efforts related to identified milestones before proceeding with further technical effort.)

- a.* Functional configuration audit. Formal examination of functional characteristics that tests data for a CI before acceptance to verify that the CI has achieved the performance specified in its functional or allocated configuration identification.
- b.* Physical configuration audit. Formal examination of the as-built configuration of a unit of a CI or computer program CI against its technical documentation to establish the CI or computer program CI initial product configuration identification.

Baseline

A configuration identification document or a set of such documents formally designated and fixed at a specific time during a CI life cycle. Baselines and approved changes constitute the current identification. For CM, there are three baselines—

- a.* Functional baseline. Initial approved functional configuration identification.
- b.* Allocated baseline. Initial approved allocated configuration identification.
- c.* Product baseline. Initial approved or conditionally approved product configuration identification.

Configuration

Functional and physical characteristics of hardware or software stated in technical documentation and achieved in a product.

Configuration control

Systematic evaluation, coordination, approval or disapproval, and implementation of all approved changes in the configuration of a CI or computer program CI after its configuration identification is formally established.

Configuration control board

A board composed of representatives from program or project functional areas, such as engineering, CM, procurement, production, test and logistic support, training activities, and using and/or supporting organizations. The CCB approves or disapproves ECPs; each member records an organization's official position. The PM is normally the CCB chairperson. Unless otherwise directed by command policy, the chairperson makes the final decisions on all changes. The board issues a directive to implement its decisions.

Configuration item

An aggregation of hardware and/or computer programs or any of its discrete portions that satisfies an end-use function and is designated for CM. CIs may vary widely in complexity, size, and type, for example, an aircraft, electronic, or ship system, a test meter, or round of ammunition. During development and initial production, CIs are only those specification items referenced in a contract or an equivalent in-house agreement. During the operation and maintenance period, any reparable item designated for separate procurement is a CI.

Configuration management

A systematic application of technical and administrative direction and oversight to—

- a.* Identify and document a CI's function and physical characteristics.
- b.* Control changes to those characteristics.
- c.* Record and report change processing and implementation status.

Configuration management plan

A CMP defines the contractor's implementation (including policies and methods) of CM.

Configuration status accounting

Recording and reporting information that is needed to manage configurations effectively. This information lists the approved configuration, the implementation status of proposed changes to configuration, and the implementation status of approved changes.

Engineering change proposal

Includes both a proposed engineering change and the documentation that describes and suggests the change.

Functional configuration identification

Current approved technical documentation for a CI that prescribes—

- a.* All necessary functional characteristics.
- b.* Tests required to demonstrate achievement of specified functional characteristics.
- c.* Necessary interface characteristics with an associated CI.
- d.* Key functional characteristics, such as envelope dimensions, component standardization, inventory items, and integrated logistic support policies.

Integrated logistic support

A composite of elements necessary to ensure the effective and economical support of a system or equipment at all maintenance levels for its programmed life cycle. The elements include all necessary resources to maintain and operate equipment and weapons systems and are categorized as planned maintenance logistic support personnel, technical logistic data and information, support equipment, spares and repair parts, facilities, and contract maintenance.

Product configuration identification

Current approved or conditionally approved technical documentation that defines the configuration of a CI or computer program CI during the production, operation, maintenance, and logistic support phases of its life cycle. The product configuration identification prescribes all necessary physical or form, fit, and functional characteristics of a CI or computer program CI, and CI or computer program CI qualification and acceptance tests.

Software

Associated computer programs and computer data required so that computer equipment can perform computational or control functions.

System

Composite of items, assemblies (or sets), skills, and techniques capable of performing and supporting an operational (or nonoperational) role. A complete system includes related facilities, items, material, services, and personnel required for its operation so that the system is a self-sufficient item in its intended operational (or nonoperational) or support environment.

Waiver

Written authorization to accept a CI or other designated items that during production or after inspection are found to depart from specified requirements but are considered suitable "as is" or after rework by an approved method.

Section III**Special Abbreviations and Terms**

This section contains no entries.

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ENGINEERING CHANGE PROPOSAL—SOFTWARE (ECP-S)*(Check one)*

For use of this form, see AR 25-3; the proponent agency is ODISC4

 PROBLEM REPORT ECP-S

1. TO:

2. FROM:

3. ORIGINATOR NUMBER

4. POINT OF CONTACT *(Name and telephone no.)*5. PRIORITY *(Check one if ECP-S)* EMERGENCY URGENT ROUTINE

6. APPLICATION CI BASELINE/VERSION

7. EXECUTIVE SW BASELINE/VERSION

8. PROBLEM DATE (YYMMDD)

9. JOB/CYCLE/PROGRAM ID

10. TITLE OF PROBLEM/CHANGE

11. DESCRIPTION OF PROBLEM/CHANGE *(List all attachments and referenced documents) (If additional space is needed, use Item 15, Remarks)*12. EFFECT ON USER *(If additional space is needed, use Item 15, Remarks)*13. RECOMMENDED SOLUTION/JUSTIFICATION *(If additional space is needed, use Item 15, Remarks)*

14. DATE (YYMMDD)

NAME AND TITLE OF SUBMITTING AUTHORITY

SIGNATURE

15. REMARKS (If additional space is needed, use separate sheet of paper)

USER/MACOM ACTION (ECP-S Only)

16. MACOM (Check one and include any comments)

- APPROVE
 DISAPPROVE

17. DATE (YYMMDD)	NAME AND TITLE	SIGNATURE
-------------------	----------------	-----------

ASSIGNED RESPONSIBLE AGENCY (Problem Report Only)

18. PROBLEM REPORT ACTION TAKEN (Check one)

- RESOLVED BY CUSTOMER ASSISTANCE
 IDENTIFIED AS URGENT OR ROUTINE
 EMERGENCY ECP FORMALIZED
- DUPLICATE OF EXISTING ECP: NO. _____
 CANCELED BY ORIGINATOR
 CANCELED FOR INSUFFICIENT IDENTIFICATION
 CANCELED FOR INSUFFICIENT DOCUMENTATION

19. DATE (YYMMDD)	NAME AND TITLE	SIGNATURE
-------------------	----------------	-----------

PROPONENT AGENCY and/or ASSIGNED RESPONSIBLE AGENCY (ECP-S Only)

20. CLASS OF ECP (Check one) <input type="checkbox"/> I <input type="checkbox"/> II	21. JUSTIFICATION CODE	22. ECP NUMBER
--	------------------------	----------------

23. ECP TYPE (Check one) <input type="checkbox"/> PRELIMINARY <input type="checkbox"/> FORMAL	24. ESTIMATED COSTS/SAVINGS
--	-----------------------------

25. OTHER SYSTEM/CI AFFECTED

26. CHANGE IDENTIFICATION (Check one in each column)

- FUNCTIONAL/ALLOCATED MAJOR MAINTENANCE
 TECHNICAL/PRODUCT MINOR MODIFICATION

27. PROJECTED IMPLEMENTATION

28. APPROVAL AUTHORITY (Check agency and action taken)

- PROPONENT AGENCY ASSIGNED RESPONSIBLE AGENCY APPROVED DISAPPROVED

29. DATE (YYMMDD)	NAME AND TITLE	SIGNATURE
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