
Special Attention of:

Transmittal for Handbook No: 3252.1 Chg 1

Issued: 7/20/08

1. This Transmits: Handbook 3252.1 Chg 1, Software Configuration Management Policy, Chapter 3, Section 3-2, a change to subsection B.
2. Summary: To comply with the Office of the Inspector General (OIG) Audit Report, FY 2007 Review of Information Systems Controls in Support of the Financial Statements Audit (FISCAM), 2008-DP-003, dated March 4, 2008, the Office of the Chief Information Officer (OCIO) has incorporated the following change in section 3-2:

[From]

B. Prepare an SCM plan for each software project according to a documented procedure. The plan shall comply with HUD SDM Software Configuration Plan template.

[To]

B. Prepare a SCM plan for each software project according to the documented procedure for managing the configuration to the software, review it annually, and update it when changes occur. The plan shall comply with HUD SDM Software Configuration Plan template.

3. Filing Instructions:

Remove:

Chapter 3, Section 3-2 (B), dated 1/2002

Insert:

Chapter 3, Section 3-2 (B), dated 7/2008

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LIST OF FORMS REQUIRED BY THIS HANDBOOK

1. Waiver Request Form

CHAPTER 1. BACKGROUND

1-1 Software Configuration Management Background

In order to better create and operate programs that are fully responsive to the Department of Housing and Urban Development's (HUD) needs, while also reflecting the standards of quality that the American public deserves and requires, HUD is transforming itself through Management Reform. Process Innovation and Improvement are key elements of this reform. HUD is tasked by legislation such as the Clinger-Cohen Act, the Government Paperwork Reduction Act (PRA), and the Government Performance and Results Act (GPRA), by organizations like the Office of Management and Budget (OMB) and the General Accounting Office (GAO), and internally by HUD 2020 to renovate inefficient processes, eliminate redundancy, improve data quality, and validate that HUD is actively meeting the needs of its stakeholders.

EIA 649 has been issued as the government and industry guidelines for CM. It states that CM is a management process for establishing and maintaining consistency of a product's performance, functional and physical attributes with respect to its requirements, design and operational information throughout its life. Accordingly, the Department's Software Configuration Management will verify that the current configuration identification has been placed under formal internal controls, will verify that all digital design data have been updated and that all digital design files and models have been captured and inducted into Product Data Management system vaults.

CHAPTER 2. SOFTWARE CONFIGURATION MANAGEMENT PURPOSE AND SCOPE

2-1 Purpose

The purpose of Software Configuration Management (SCM) is to establish and maintain the integrity of the products of software projects throughout the project's software life cycle.

The goal of CM at HUD is improve the management of HUD's computer software and improve computer software delivery through the implementation of standard computer software policies.

There are two major thrusts in the HUD SCM initiative. First, is to instill discipline in the migration of software through the system development and production phases of the life cycle. Second, is to provide a means of cataloguing the history of application software systems, and to be able to retreat to a prior version in the even that should become necessary.

2-2 Scope

The expected outcome of the SCM Policies is to provide oversight to the SCM process and provide an automated toolset for application software development and maintenance personnel.

Additionally SCM Policies shall resolve long-standing Inspector General (IG) audit item and;

- A. Improve the delivery of software.
- B. Provide oversight of the SCM automated tool implementation.
- C. Develop and implement HUD's SCM policies over applications software.
This ensures that standard practices are identified, ensures compatibility of implementation at HUD, and improves HUD's ability to share resources across multiple projects.

CHAPTER 3. SOFTWARE CONFIGURATION MANAGEMENT POLICY

The purpose of Software Configuration Management (SCM) Policies at HUD is to establish and maintain the integrity of software work products throughout the project's software life cycle.

3-1 Components

SCM involves identifying the configuration of the software (i.e., selected software work products and their descriptions) at given points in time, systematically controlling changes to the configuration through the use of version control and check-in/check out processes, and maintaining the integrity and trace ability of the configuration throughout the software life cycle. The work products placed under SCM include the software products that are delivered to the customer (e.g., the Software Development Methodology (SDM) documentation and the software code) and the items that are identified with or required to create these software products (e.g., the compiler).

3-2 HUD Software Configuration Management Policies

Each of HUD's software projects will abide by the same policies. The following are HUD's configuration policies.

Each Configuration Project Shall:

- A. Plan software Configuration Management activities for all of HUD's software products (i.e. SDM documentation, code, libraries, compiler, etc.)
- B. Prepare a SCM plan for each software project according to the documented procedure for managing the configuration to the software, review it annually, and update it when changes occur. The plan shall comply with HUD SDM Software Configuration Plan template.
- C. Use a documented and approved SCM plan as the basis for performing the SCM activities.
- D. Identify, control, and make available selected software work products.
- E. Control changes to identified software work products.
- F. Inform affected groups and individuals of the status and content of software baselines.
- G. Establish a board that has the authority for managing the project's software baselines (i.e., Software Configuration Control Board - SCCB). Guidelines for the SCCB are provided in the SCM Procedures document at HUD website <http://hudweb.hud.gov/po/it/security/cmb/procedures.pdf>
- H. Appoint a group to be responsible for coordinating and implementing SCM for the project (i.e., the SCM group)
- I. Provide adequate resources and funding for performing the SCM activities.
- J. Train members of the software development group and other software-related groups to perform their SCM activities.

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- K. Train members of the SCM group in the objectives, procedures, and methods for performing their SCM activities.
 - L. Establish a Software Configuration Management library system as a repository for the software baselines.
 - M. Identify the software work products to be placed under configuration management.
 - N. Place all HUD's software development and production work products under an approved SCM tool enforcing version control and check-in/check out controls.
 - O. Initiate, record, review, approve, and track change requests and problem reports for all configuration items/units according to a documented procedure.
 - P. Control changes to baselines according to a documented procedure.
 - Q. Create products from the software baseline library and control their release according to a documented procedure.
 - R. Record the status of configuration items/units according to a documented procedure.
 - S. Develop standard reports documenting the SCM activities and the contents of the software baseline and make available to affected groups and individuals.
 - T. Conduct software baseline audits according to a documented procedure. (Refer to the SEI SW-CMM CM Activity 10)
 - U. Make and use measurements to determine the status of the SCM activities.
 - V. Review the SCM activities with senior management on a periodic basis.
 - W. Review the SCM activities with the project manager on both a periodic and event-driven basis.
 - X. Have the SCM group periodically audit software baselines to verify that they conform to the documentation that defines them. (Refer to the SEI SW-CMM CM Verification 3)
 - Y. Conduct reviews or audits by the software quality assurance group on the activities and work products for SCM and reports the results.
 - Z. Comply with HUD SDM standards and procedures for the following items:
 - 1. Names of the Configuration Baseline documents by SDM phase
 - 2. Use of Uniform Labeling Conventions for all configuration Artifacts
 - 3. Use of a hierarchy promotion model for all milestones in a development cycle
 - 4. Use of a uniform project database structure for storing checked-in code
 - 5. Use of a Structured Release process for various types of releases: Unscheduled as well as scheduled releases of different effort, such as: Complex, Moderate, Simple, Maintenance, or Emergency.

3-3 Waiver Requests

A. Deviations and Waivers

Deviations and the handling of deviations such as Commercial-Off-The-Shelf (COTS) systems require submitting waivers to exclude them from compliance with the SCM program.

To be considered for a waiver, a system must fall within these categories:

1. SCM Alternative Tools, where HUD standard CM tools either cannot be used, or do not provide the best SCM solution thus requiring CM alternative Tools
2. Commercial-Off-The-Shelf (COTS) software forms the basis of the system
3. Government Off-The-Shelf (GOTS) software forms the basis of the system
4. The system has no funds available for support, yet remains in production. SCM waivers for unfenced system will be terminated if funding becomes available for system support. If inadequate funding becomes available to provide both system support in response to an urgent requirement and SCM, a new or revised waiver must be submitted and approved.
5. The system has been deactivated and removed from production. If the system is reactivated it must be brought into compliance with applicable HUD SCM policies at that time.

B. Commercial Off the Shelf (COTS) Acquired Software/ Government GOTS Acquired Software

1. Requirements for Software Vendors

Current documentation, matching the revision and release number of the software, will be provided with new and re-engineered software. Documentation is to include installation procedures and user documentation. The number of copies of documentation delivered will conform to contractual specifications.

2. Change Approval

The addition of a new system/support software package or an upgrade of an existing package will be approved via the SCM Software Configuration Control Board (SCCB) change control process.

3. Release Requests

The SCCB Systems Software or Client Server staff as applicable shall prepare formal release requests before the software is placed into production. A release request is prepared using the Request for

Technology Change (RTC) system. The RTC system will reference the plans and procedures to be utilized and the associated SCCB change package number.

4. Testing

All new or modified system/support software packages will undergo system level testing before they are placed in Production. When available, standard test procedures developed for the package are to be used. Testing will be performed in a test environment that is logically isolated from the production environment. The systems software or client server staff will perform initial testing. The HUD system Test team will perform final testing when applicable.

5. Other SCM Tools

Systems that utilize COOL:GEN, LINC, Mapper, CA-Panvalet, Peoplesoft or other SCM tools will be evaluated on a case-by-case basis.

CHAPTER 4. ROLES AND RESPONSIBILITIES

4-1 HUD SA-CMM® Enterprise Initiative

On December 2001, The Office of Chief Information Officer (OCIO), initiated the HUD Software Acquisition Capability Maturity Model (SA-CMM®) Enterprise Initiative to address the review of the management issues at HUD by GAO and to implement the recommendations identified by GAO in their report submitted September 14, 2001. The goal of the HUD SA-CMM® Enterprise Initiative is to apply sound software acquisition principles and practices, as well as continuous improvement disciplines, to the software acquisition process. The SA-CMM® shall serve as a blueprint for software process improvement and shall help HUD focus on the areas it must address in order to advance to the next level of maturity. The SA-CMM® shall build an understanding of the software acquisition process at HUD by describing the practices that contribute to a level of Process Maturity.

4-2 Roles and Responsibilities

The Office of Chief Information Officer (OCIO), Office of Systems Integration and Efficiency (OSIE) is responsible for developing SCM policies according to Carnegie Mellon University's Systems Engineering Institute (SEI) Capability Maturity Model (CMM) principles and assist HUD in implementing policies that will result in all systems development projects adhering to the same SCM practices.

The Office of Chief Information Officer (OCIO), Office of Information Technology is responsible for coordinating the development and refinement of HUD Software Configuration Management standards and procedures; evaluating the assigned SCM environment, including but not limited to the software migration processors and the standards and procedures used to perform SCM; directing the knowledge experts, administrators, and developers in the use and refinement of the assigned SCM toolset; assisting in the training and problem resolution for the developer community; coordinating and directing the SCM User Group specific to the SCM toolset; acting as a specific SCM Administrator, guiding and performing software migrations.

The Office of Chief Information Officer (OCIO), IT Software Development Administrator is responsible for implementing maintenance changes and improvement in software products as directed, approved and coordinated by HUD SCM Manager; performing software migrations from the development stage to the final production stage on the target platform; providing developer training in the use of the SCM toolset; providing problem resolution to the developer community; evaluating the SCM toolset and recommending refinements to the HUD Configuration Manager; recommending and implementing HUD SCM standards and procedures as directed by the HUD Configuration Manager; and participate in SCM Users Group specific to the SCM toolset.

APPENDIX 1. ACRONYMS

The following is a list of acronyms/abbreviations and their definitions that are used in this document.

Acronym/ Abbreviation	Definition
CCB	Configuration Control Board
CM	Configuration Management
CMM	Capability Maturity Model
COTS	Commercial Off the Shelf
GAO	General Accounting Office
GOTS	Government Off-The-Shelf
GPRA	Government Performance and Results Act
HUD	U.S. Department of Housing and Urban Development
IG	Inspector General
OCIO	Office of the Chief Information Officer
OMB	Office of Management and Budget
OSI&E	Office of Systems Integration and Efficiency
PRA	Government Paperwork Reduction Act
RTC	Request for Technology Change
SA-CMM	Software Acquisition Capability Maturity Model
SCCB	Software Configuration Control Board
SCM	Software Configuration Management
SDM	System Development Methodology
SEI	(Carnegie-Mellon University's) Systems Engineering Institute
SW-CMM	Software Development Capability Maturity Model

APPENDIX 2. FORMS REQUIRED BY THIS HANDBOOK

SCM Waiver Request Form



SCM Implementation Waiver Request

Identify System:

System Name:

System Acronym:

SYSID:

Identify Platform:

Hitachi:

Unisys:

LAN/Web/Client Server:

Lotus

Notes:

Identify reason for waiver request:

1. System Retiring? No Yes If Yes, Retirement Date:
2. System Replaced? No Yes If Yes, Replacement System Name:
3. Technical Support/Budget Available: No Yes
4. Utilizes another CM Tool: No Yes If Yes, identify CM tool:
5. COTS applications: No Yes If Yes, please answer the following:
 - Does the COTS application run on any HUD platform? . No Yes
If NO, identify application's platform and location:
 - Does HUD have ownership of the code? No Yes
 - Does the application run under any CM tool? No Yes
 - Has the COTS package been customized for HUD; e.g., new functionality added?
(Do not include installation customization.) No Yes
If YES, explain:
6. Other (please explain)

Sign Off:

System Project Leader

Date:

Program Area,
System Sponsor:
CM Manager **Approve**:.....
CM Manager **Disapprove**:...
CM Manager Signature

Date:

Date: