SOFTWARE QUALITY & SYSTEMS ENGINEERING PROGRAM

Software Configuration Management Checklist

The following checklist is intended to provide system owners, project managers, configuration managers, and other information system development and maintenance professionals with guidance in identifying and planning software configuration management (SCM) activities. The checklist reflects recognized SCM activities to be performed throughout the information system (IS) life cycle.

Software configuration management is generally characterized as the control of changes to software (inclusive of documentation) during the initiation, development, and operation phases of the IS life cycle.

The objectives of SCM are summarized as follows:

- Ensure the orderly release and implementation of new/revised software and related documentation.
- Implement only approved changes to both new and existing software.
- Verify that software changes comply with approved specifications.
- Reflect changes and updates in project documentation.
- Provide visibility of changes to project management.
- Evaluate and communicate the impact of changes.
- Prevent unauthorized changes from being made.

Implementation of SCM involves four basic mechanics: identification, control, auditing, and status accounting of software configuration items (SCIs).

Note: The degree to which the following SCM activities are applied may vary with the nature, scope, size and complexity of a project.

Software Configuration Management Checklist	SEM Reference	Comments
❒ A SCM procedural guidance/methodology (i.e., ANSI/IEEE Std. 1042, etc.) is identified and followed.	Chapter 3, Develop Software Configuration Management Plan	
❒ Resources necessary to perform software configuration management (SCM) on the project (i.e., estimated staff, CM tools, etc.) are identified.	Chapter 3, Develop Software Configuration Management Plan	
❒ A Software Configuration Management Plan (SCMP) is developed and approved for each software project according to a documented procedure (i.e., ANSI/IEEE Std. 1042, etc.).	Chapter 3, Develop Software Configuration Management Plan	
❒ Configuration identification, control, auditing, and status accounting are addressed by the SCMP.	Chapter 3, Develop Software Configuration Management Plan	
❒ SCM activities comply with a written organizational policy.	Chapter 3, Develop Software Configuration Management Plan	
❒ A controlling authority for managing the project's software baselines (i.e., a software configuration control board - SCCB) exists. Note: The structure of an SCCB depends upon the size and complexity of the project/information system.	Chapter 3, Develop Software Configuration Management Plan	
❒ A group responsible for establishing SCM on the project exists.	Chapter 3, Develop Software Configuration Management Plan	
❒ SCM personnel are trained in the objectives, procedures, and methods for performing SCM activities.		

Software Configuration Management Checklist	SEM Reference	Comments
❒ Members of the software engineering group and other software-related groups are trained to perform their SCM activities.		
❒ Software work products to be placed under SCM are identified.	Chapter 3, Develop Software Configuration Management Plan	
❒ A SCM library system is established as a software baseline repository.	Chapter 3, Develop Software Configuration Management Plan	
❒ Change requests and problem reports for all configuration items/units are developed, initiated, recorded, reviewed, approved, and tracked according to a documented procedure.	Chapter 3, Develop Software Configuration Management Plan	
❒ Changes to baselines are controlled according to a documented procedure.	Chapter 3, Develop Software Configuration Management Plan	
❒ Products from the software baseline library are created and released according to a documented procedure.	Chapter 3, Develop Software Configuration Management Plan	
❒ Configuration item/unit status is recorded according to a documented procedure.	Chapter 3, Develop Software Configuration Management Plan	
❒ Standard reports documenting the SCM activities and the software baseline contents are developed and distributed to affected groups or individuals.	Chapter 3, Develop Software Configuration Management Plan	
❒ Software baselines are audited to verify conformance to baseline definition documents.	Chapter 3, Develop Software Configuration Management Plan	

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❒ Selected software work products are identified, controlled, and available.	Chapter 3, Develop Software Configuration Management Plan	
❒ Software work product changes are controlled.	Chapter 3, Develop Software Configuration Management Plan	
❒ Measurements are developed to determine the status of SCM activities.	Chapter 3, Develop Software Configuration Management Plan	
❒ SCM activities are reviewed with senior management periodically.		
❒ SCM activities are reviewed with the project manager/leader both periodically and as needed.	Chapter 3, Develop Software Configuration Management Plan	
❒ Software Quality Assurance/Improvement periodically reviews and/or audits SCM activities and work products and reports the results.	Chapter 3, Develop Software Configuration Management Plan In-Stage Assessment process (guide) Stage Exit Process (guide)	

REFERENCES

The following resources can be referenced for additional information on Software Configuration Management (SCM) practices and procedures. Note: This check list is in compliance with Software Engineering Institute SCM guidance and most standards.

Systems Engineering Methodology

Software Engineering Institute's Software Capability Maturity Model (SEI CMM)
Software Configuration Management is a Key Process Area in Level 2 of the Model.

Institute of Electrical and Electronic Engineers (IEEE)
The IEEE Guide to Software Configuration Management.

Military Standard - 973 Configuration Management

Organization for Standardization (ISO)
ISO 9001.