

**PROCEDUCE**

**FOR**

**CONFIGURATION MANAGEMENT**

**Software Process And Quality Management**

**Team 5 K16T1**



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**REVISIONS**

# INTRODUCTION:

## DOCUMENT PURPOSE:

This document is Configuration Management (CM) of systems and/or software engineering efforts. CM supports the management and control of project requirements and configurations. CM establishes and maintains the integrity of the products of a project throughout the project life cycle. CM involves identifying the configuration of products developed and delivered to the customer, systematically controlling changes to the configuration, and maintaining the traceability of the configuration.

The purpose of Configuration Management:

* Ensure that all CM activities are identified, assigned and planned
* Estimate resources (labor, material, facilities) required to support CM activities
* Define and document how CM will be implemented

NOTE: If starting the project, ensure acceptance by the project team prior to the start of development

## SCOPE:

This document provides information and guidance to personnel involved in SCM of computer software. This document assumes that each project performs the tasks listed below.

* + - Implements SCM for the full life cycle of the product.
    - Assigns a manager with specific SCM responsibilities.
    - Requires contractors who produce software products to implement SCM to at least the same degree as the approved project SCMP and procedures and comply with other instructions of the SCMP.

The activities in the SCM process outlined in this document are not sequential. More than one activity may be accomplished at the same time; an activity begins when the entry criteria are met, controls are imposed on the activity, inputs are provided so that action(s) can be taken, and an identified individual(s) or groups clearly understand their roles and responsibilities for accomplishing the process activity and/or generating an output.

## GUIDELINES

Personnel performing CM may find it necessary or beneficial to tailor the steps defined in this document, depending upon the scope of the project for which CM is being implemented, e.g. where a project involves performing a service versus developing a hardware or software product, certain steps may be tailored or omitted as appropriate.

Project personnel charged with implementing this process shall ensure that completed work products based on this process comply with the process described in this document.

## ABBREVIATIONS AND ACRONYMS

|  |  |
| --- | --- |
| Abbreviations | Acronyms |
| CCB | Configuration Control Board |
| CI | Configuration Item |
| CM | Configuration Management |
| CMP | Configuration Management Plan |
| CMU | Carnegie Mellon University |
| DCR | Document Change Request |
| CSA | Configuration Status Accounting |
| DCR | Document Change Request |
| PM | Project Manager |
| PMP | Project Management Plan |
| SQA | Software Quality Assurance |
| CMM | Capability Maturity Model |
| CRG | Computer Resources Group |
| CSC | Computer Software Component |
| CSCI | Computer Software Configuration Item |
| CSU | Computer Software Unit |
| DTP | Desktop Procedure |
| FCA | Functional Configuration Audit |
| FCD | Functional Configuration Documentation |
| NDS | Nondevelopmental Software |
| PCA | Physical Configuration Audit |
| SCCB | Software Configuration Control Board |
| SCM | Software Configuration Management |
| SCMP | Software Configuration Management Plan |
| SCRB | Software Change Review Board |
| SEI | Software Engineering Institute |
| SRR | Software Requirements Review |
| STD | Standard |

# CONFIGURATION MANAGEMENT INTERFACENT INTERFACE



# CONFIGURATION MANAGEMENT PROCESS OVERVIEW

## PROCESS



## ROLE AND RESPONSIBILITY

|  |  |
| --- | --- |
| Roles | Responsibility |
| Project Manager | The Project Manager (PM) is responsible for establishing the CM Process.  The PM uses the provisions of the Systems/Software Engineering Management Policy, the Project Management Plan Template to define the expectations for successful implementation of CM.  The PM appoints the members of the project CM organization.  The PM assigns the resources and tasking to the CM Manager and CM Group, tracks the effort expended and progress made, and interacts regularly with the CM Manager regarding the performance of assigned individuals.  The PM obtains objective verification of process compliance and process integrity from Quality Assurance (QA), and takes corrective actions as is determined necessary.  The PM reports process progress to higher-level management. |
| CM Manager | The CM Manager is responsible for the execution of the CM Process.  The CM Manager plans and documents the project CM activities in the Project Management Plan (PMP), supporting project schedule, and CM Plan (CMP).  The CM Manager uses Project Management Plan and the CMP Template, as guidance for preparing the CMP.  The CM Manager leads the CM Group, and directs its activities in coordination with the expectations set forth by the PM.  The CM Manager monitors the performance of the process, collects metrics and reports on the process status to the PM. |
| CM Group | The CM group, which includes the CM Manager, is responsible for executing the CM Process.  CM Group members report their progress through weekly measurements and make recommendations for process improvement to the CM Manager as the need arises.  Each team member attends CM training. The training includes instruction on the tasks to be performed and the measurements that each individual will be expected to report on a weekly basis. |
| Configuration Control Board | The Configuration Control Board (CCB) establishes new product baselines, and oversees and adjudicates all proposed changes to existing configuration baselines in accordance with the project CMP and CCB Charter.  The Project CMP documents board membership requirements.  The PM appoints the membership of the CCB that is charged with implementing the provisions of the CMP. Membership in the CCB includes, as much as possible, representation from all project engineering and technical support areas. Customer representation on the CCB may be included. |
| Quality Assurance | QA monitors CM Process performance for adherence to the standards referenced in this process, documents the results of periodic objective verification of process compliance, reports findings to the CM Manager, PM and Senior Management, and works with the CM Manager and PM to resolve process issues. QA also participates with the CM Group in the conduct of formal CM verification activities (e.g. Functional and Physical Configuration Audits) as prescribed by the project CMP. |

## DESCRIPTION

|  |  |  |
| --- | --- | --- |
| Phase | Step | Description |
| *Initiating/Planning Configuration management* |  | Reference Section 4.1.1. |
| *Executing Configuration management* |  | Reference Section 4.1.2. |
| *Control Configuration management* | Monitor and Control the CM Process | The PM and/or CM Manager monitors and controls this process against the CMP or PMP and takes appropriate corrective action to address deviations.  The CM Group documents procedures for conducting periodic reviews, informal audits, and addressing deviations revealed during these activities.  QA reviews these corrective actions to ensure processes are documented and to ensure compliance, and reports the results of these reviews to the PM. |
| Objectively Evaluate Adherence | QA provides objective evaluation of this process against its process description, standards and procedures, and reports and addresses noncompliance.  The PM receives these reports of noncompliance and determines appropriate measures to be taken to resolve these discrepancies.  QA maintains records of these reports and the resolution of them. |
| Review Status with Higher-Level Management | The PM and/or CM Group reviews and reports to higher-level management the activities, status, and results of this process and resolves issues. The CM Group reports performance measures to facilitate reviewing the effectiveness of CM activities.  Higher-level management determines the scope of reporting requirements, and may delegate some reporting and oversight of CM activities to the PM.  The PM schedules formal reviews and status reports of CM activity in the overall project schedule, and documents the requirement for these reviews in the PMP. |
|  | Collect Improvement Information | The CM Group collects work products, measurements and improvement information derived from planning and performing this process to support the future use and improvement of the organization’s CM Process and process assets.  The PM analyzes the results of CM activity performance measures to develop improvement objectives for CM. |

# LEVEL 0: CONFIGURATION PROCESS



|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to establish and maintain a product's integrity throughout its life cycle. SCM support will be provided through implementation of the process included in the tasks listed below.   * Manage SCM. * Perform SCM. | |
| Roles and Responsibilities | |
| Program Management | Provide technical data and requirements to SCM.  Provide resources for SCM. |
| Project Management | Provide technical data and requirements to SCM.  Provide resources for SCM.  Establish (project level) SCCB, appoint chairperson.  Review SCM activity status and aid in problem resolution for audit findings.  Assign SCM manager with specific SCM responsibilities. |
| SCM Manager | Manage SCM.  Establish SCM organization to perform SCM. |
| SCM Organization | Implement and perform SCM throughout the life cycle of the software product. |
| Entry Criteria | |
| SCM support is initiated upon project authorization | |
| Control. | |
| Controls for this activity are listed below.   * Requirements determine the scope and depth of SCM responsibilities. * The Generic SCMP provides a basis for a project SCMP. * The Sample DTP provides the basis for developing detailed instructions required to complete SCM tasks. | |
| Input | |
| Inputs to this activity are listed below.   * CSCI. * Technical Data. * CSCI Requests. * Technical Data Requests. * CRs. * Resources. * Personnel. * SCCB Decisions. * CSA Requests. | |
| Process Activities | |
| The process activities for Provide SCM Support are as follows:   * Technical data, resources, personnel, and SCCB decisions are used to create and implement the project SCMP and DTP. * Technical data, resources, personnel, SCCB decisions, and CRs that affect SCM requirements may require changes to maintain a current SCMP and DTP. * SCCB decisions and CRs are used to identify and track the creation and modification of products. * CSCI and technical data requests are processed by SCM to supply the requested CSCI and technical data. * CSA requests are processed to produce reports. * Technical data, SCMP, tasks, and DTP are audited and reviewed with results documented in audit and review reports. | |
| Output | |
| Outputs of this activity are listed below.   * Project SCMP. * Controlled CSCI. * Controlled CRs. * Controlled Technical Data. * CSA Reports. * Audit Reports. * Review Reports. * SCM Deficiency Reports. * Software Release. * DTP. | |
| Exit Criteria | |
| Retiring a software product satisfies the exit criteria | |

## LEVEL 1: CONFIGURATION MANAGEMENT PROCESS DECOMPOSE



### **LEVEL 2: MANAGE SCM**



|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to manage SCM support. SCM is managed through the functions listed below.   * Create and Maintain the Project SCMP. * Manage Implementation of the SCMP. * Provide SCM Training. | |
| Roles and Responsibilities | |
| SCM Manager | Create and maintain the project SCMP.  Identify tasks to be accomplished.  Oversee generation, implementation, and maintenance of DTP in accordance with the project SCMP.  Provide SCM training.  Evaluate and use measurements gathered against the SCM procedures to improve the processes.  Periodically review and provide status on SCM activities with field activity management.  Respond to audit and review findings on SCM activities.  Interface with appropriate internal and external agencies. |
| Entry Criteria | |
| An individual is assigned the responsibilities of SCM Manager to provide SCM support to the project. | |
| Control. | |
| Controls for this activity are listed below.   * Requirements determine the SCM responsibilities. * The Generic SCMP provides a basis for a project-specific SCMP. * The Sample DTP provides the basis for developing detailed instructions required to complete SCM tasks. | |
| Input | |
| Inputs to this activity are listed below.   * Technical Data. * Resources. * Audit Reports. * Review Reports. * Trained Personnel. * Defined Personnel. * SCM Deficiency Reports. * Identified Tasks. * Defined Resources * Personnel | |
| Process Activities | |
| The process activities for Manage SCM are as follows:   * Oversee the creation, implementation and maintenance of the project SCMP and DTP. Identify the tasks to be accomplished. * Provide for the training of personnel as required for the project to perform the SCM activities | |
| Output | |
| Outputs from this activity are listed below.   * Project SCMP. * Identified Tasks. * DTP. * Defined Resources. * Defined Personnel. * Trained Personnel. | |
| Exit Criteria | |
| Retiring a software product satisfies the exit criteria. | |

#### **Create and Maintain Project SCMP**

|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activityis to document the plan that defines how configuration management will be implemented for a project, submit the plan for program management and SCCB approval, and update the plan to reflect current project requirements, processes, and practices. | |
| Roles and Responsibilities | |
| Program Management | Provide overall approval to the project SCMP as approved by the SCCB. |
| SCCB | Approve the project SCMP and changes to the baselined project SCMP. |
| SCM Manager | Oversee creation, implementation, and maintenance of the project SCMP throughout the product's life cycle.  Place the approved project SCMP under configuration control. |
| Software-Related Groups | Review project SCMP and updates. |
| Entry Criteria | |
| The SCM Manager has the following sources available:   * Identified SCM interfaces within the project organization and within external organizations. * The Generic SCMP is used as a template in the development of a project SCMP. * Technical data outlining project requirements | |
| Control. | |
| Controls of this activity are listed below.   * Requirements determine the scope and depth of SCM responsibilities. * The Generic SCMP provides a basis for the creation and maintenance of a project SCMP. | |
| Input | |
| Inputs to this activity are listed below.   * Technical Data. * Resources. * Audit Reports. * Review Reports. * Trained Personnel. | |
| Process Activities | |
| The process activities for Create and Maintain Project SCMP are as follows:   * Use the inputs of technical data, resources, and personnel as stated by the requirements and the Generic SCMP to manage the creation of a project SCMP. * Review and respond to audit and review reports to maintain the project SCMP. Technical data, resources, and personnel as stated in the requirements and the Generic SCMP are also used to maintain the project SCMP. * Submit the project SCMP to program management and SCCB for approval. Place the approved project SCMP under configuration control. | |
| Output | |
| * A project SCMP. * Identified Tasks. * Configuration item document. * Document control. | |
| Exit Criteria | |
| Approval of the SCMP and subsequent updates throughout the product's life cycle satisfy the exit criteria. | |

#### **Level 3: Manage Implementation of SCMP**



|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to ensure implementation of SCM tasks and DTP in accordance with the project SCMP and to use resources and personnel in accomplishing SCM activities.   * Manage SCM Tasks * Create and Maintain desktop Procedures * Manage Resource and Personnel SCM | |
| Roles and Responsibilities | |
| SCM Manager | Identify, delegate, and monitor the SCM tasks.  Create, implement, and maintain DTP.  Manage SCM resources and personnel. |
| Entry Criteria | |
| An approved SCMP exists. | |
| Control. | |
| The controls for Manage Implementation of SCMP are listed below.   * The project SCMP states the required tasks to be performed by the SCM organization. * The DTP identifies the areas that require documented step-by-step procedures. | |
| Input | |
| Inputs to this activity are listed below.   * Resources. * Defined Personnel. * Audit Reports. * Review Reports. * SCM Deficiency Reports. * Identified Tasks. * Defined Resources. * Personnel. * Trained Personnel. | |
| Process Activities | |
| The process activities for Manage Implementation of Project SCMP are as follows:   * Identify the tasks stated in the project SCMP. * Determine the DTP required to follow the processes stated in the project SCMP. * Define the resources and positions required to implement the project SCMP. * Provide resolution of SCM deficiency reports. | |
| Output | |
| Outputs from this activity are listed below.   * Identified Tasks. * DTP. * Defined Resources. * Defined Personnel | |
| Exit Criteria | |
| Retiring a software product satisfies the exit criteria. | |

##### Manage SCM Tasks

|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to ensure that the tasks stated in the project SCMP are implemented in a consistent, correct, complete, and compliant manner. | |
| Roles and Responsibilities | |
| SCM Manager | Decompose the tasks stated in the project SCMP into manageable components, e.g., work breakdown structure.  Monitor the accomplishment of the identified task.  Review the identified tasks for compliance with the approved project SCMP. |
| Entry Criteria | |
| An approved project SCMP exists | |
| Control. | |
| The approved project SCMP provides control | |
| Input | |
| Inputs to this activity are listed below.   * Resources. * Defined Personnel. * Audit Reports. * Review Reports. * SCM Deficiency Reports | |
| Process Activities | |
| The process activities for Manage SCM Tasks are as follows:   * Clarify the tasks stated in the project SCMP using resources and defined personnel. * Maintain the tasks so that all tasks are current and applicable to the product. Updates to the project SCMP, resources, SCM deficiency reports, and audit and review reports may require tasks to be added, modified, or deleted. * Ensure that the tasks are accomplished and fulfill the requirements stated in the project SCMP. | |
| Output | |
| Output from this activity is composed of identified tasks | |
| Exit Criteria | |
| Identified tasks that reflect the current project SCMP satisfy the exit criteria. | |

##### Create and Maintain Destop Procedures

|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to document the procedures that describe how SCM is performed for a project and update the DTP to reflect the current project SCMP. | |
| Roles and Responsibilities | |
| SCM Manager | Direct the development of DTP, and oversee the implementation and maintenance of DTP.  Identify the functions within the software-related groups, e.g., system engineering, software development, system testing, etc., that the SCM organization must interface with to accomplish a task. |
| Software-Related Groups | Review DTP. |
| SCM Organization | Create, implement and maintain DTP. |
| Entry Criteria | |
| This project SCMP and the Sample DTP satisfy the entry criteria | |
| Control. | |
| The controls for Create and Maintain DTP are listed below.   * The project SCMP identifies all the tasks and the high-level processes that require DTP. * The Sample DTP is used as a guideline in generating specific DTP. | |
| Input | |
| Inputs to this activity are listed below.   * Identified Tasks. * Defined Personnel. * Defined Resources. * Audit Reports. * Review Reports. * SCM Deficiency Reports | |
| Process Activities | |
| The process activities for Create and Maintain DTP are as follows:   * Create DTP for processes identified in the project SCMP using resources, personnel, and guidelines found in the sample DTP. * Maintain the procedures so that the process is repeatable. Written procedures provide the instructions for performing SCM (configuration identification, configuration control, CSA, and configuration audits and reviews). A change in a process may require the written procedures to change. Inputs to this activity include defined resources, SCM deficiency reports, and audit and review reports. Defined resources are resources that are necessary to perform the procedures. SCM deficiency reports, audit and review reports may cause the procedures to be modified or deleted. The process of managing procedures includes monitoring these procedures to ensure that the process as described in the DTP is being followed. Monitoring of the processes is accomplished through audits of SCM processes and internal SCM reviews. | |
| Output | |
| Output of this activity is the accomplishment of written DTP. | |
| Exit Criteria | |
| Written DTP and subsequent updates throughout the product’s life cycle satisfy the exit criteria. | |

##### Manage Resources and Personnel to Perform SCM

|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to use appropriate resources and personnel to accomplish the SCM task(s) in accordance with the project SCMP and DTP. | |
| Roles and Responsibilities | |
| SCM Manager | Identify and manage the resources and personnel needed to accomplish tasks identified in the project SCMP. |
| Entry Criteria | |
| DTP satisfy the entry criteria. | |
| Control. | |
| The controls for Manage Resources and Personnel to Perform SCM are listed below.   * The project SCMP states the required tasks to be performed by the SCM organization. * The DTP provide step-by-step guidance for personnel required to complete tasks using given resources. * Resources define the budget and schedule constraints placed upon SCM. | |
| Input | |
| Inputs to this activity are listed below.   * Resources. * Personnel. * Audit Reports. * Review Reports. * Trained Personnel * SCM Deficiency Reports. | |
| Process Activities | |
| The process activities for Manage Resources and Personnel to Perform SCM are as follows:   * Identify, define and direct the resources (i.e., SCM tools, allocated funds, tasking priorities to meet schedules) and personnel (both prior to and after training) needed to follow processes described in the project SCMP. SCM deficiency reports, and audit and review reports are inputs which may require the SCM Manager to re-identify resources, personnel, and training needed to support the processes and/or DTP. | |
| Output | |
| Outputs of this activity are listed below   * Defined Resources. * Defined Personnel. | |
| Exit Criteria | |
| The exit criteria for this process activity are defined resources and defined personnel necessary to support the SCMP and DTP.. | |

#### **Provide SCM Training**

|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to train the SCM organization and software-related groups on processes as described in the project SCMP, DTP, and SCM tools to accomplish tasks stated in the project SCMP. | |
| Roles and Responsibilities | |
| SCM Manager | Identify, establish, coordinate, and maintain training as required to ensure effective performance of SCM activity by the SCM organization and software-related groups. |
| Entry Criteria | |
| DTP satisfy the entry criteria | |
| Control | |
| The control for Provide SCM Training is listed below.   * DTP provide detailed information on the activities, personnel, SCM tools, skills, and knowledge required to complete a given task. This information can be used to determine training requirements. | |
| Input | |
| Inputs to this activity are listed below.   * Defined Resources. * Defined Personnel. | |
| Process Activities | |
| The process activity for Provide SCM Training is to use defined personnel and resources to produce personnel trained in SCM processes as described in the project SCMP, DTP and SCM tools. Defined personnel include both those providing training and those receiving the training. | |
| Output | |
| The output of this activity is trained personnel | |
| Exit Criteria | |
| Trained personnel satisfy the exit criteria. | |

### **LEVEL 2: PERFORM SCM**



|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to apply configuration identification, control, status accounting, and audits and reviews throughout the life cycle of a product in order to ensure the integrity of the software release and associated documentation | |
| Roles and Responsibilities | |
| SCM Organization | Perform configuration identification, control, status accounting, and internal SCM reviews.  Assist in performing the configuration audit(s).  Assist in the independent audit of SCM activities. |
| Entry Criteria | |
| The SCM Manager has identified and trained personnel and current DTP exist. | |
| Control | |
| The current DTP provide control of this activity | |
| Input | |
| Inputs to this activity are listed below.   * CSCI. * Technical Data. * CRs. * Defined Resources. * Trained Personnel. * Audit Reports. * Review Reports. * CSCI Requests. * Technical Data Requests. * Identified Technical Data. * SCCB Decisions. * Identified CR. * Identified CSCI. * CSA Request. * Controlled CR. * Controlled Technical Data. * Controlled CSCI. * CSA Reports. * Project SCMP. * DTP. | |
| Process Activities | |
| The process activities for Perform SCM are as follows:   * Take receipt of and assign tracking identifiers to the CSCI and its related technical data. * Control changes to the CSCI and its technical data through the use of CRs and board decisions, e.g. CCB, SCCB, Software Configuration Review Board (SCRB), and Operational Advisory Group (OAG). * Provide status information and technical data to management and related organizations. * Participate in the auditing of software products to ensure correct, complete, consistent, and compliant products. * Perform internal review of SCM activities | |
| Output | |
| Outputs from this activity are listed below.   * Identified CR. * Identified CSCI. * Identified Technical Data. * SCM Deficiency Report. * Controlled CR. * Controlled Technical Data. * Controlled CSCI. * CSA Reports. * Audit Reports. * Review Reports. * Software Release | |
| Exit Criteria | |
| Retiring a software product satisfies the exit criteria. | |

#### **Perform Configuration Identification**

|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to issue unique identifiers to each CSCI and related technical data and assign tracking numbers to CRs so that they may be tracked through each baseline release. Throughout the following sections, any reference to CSCI includes Software Units. | |
| Roles and Responsibilities | |
| SCM Manager | Oversee the establishment of the configuration management libraries. |
| SCM Organization | Issue the configuration identifier to the CSCI and related technical data. Verify that the correct project identifier has been used. Identify and assign a tracking number to the CR.  Establish the CM libraries. |
| SCCB | Support the project manager recommending approval or disapproval of proposed engineering changes to a CSCI’s current approved configuration and its documentation. |
| Entry Criteria | |
| CSCI, technical data, or CRs have been submitted to the SCM organization. | |
| Control. | |
| Control is provided by the DTP for configuration identification | |
| Input | |
| Inputs to this activity are listed below.   * CSCI. * Technical Data. * CRs. * Defined Resources. * Trained Personnel. * Audit Reports. * Review Reports. | |
| Process Activities | |
| The process activities for Perform Configuration Identification are as follows:   * Assign a unique identifier to project CSCIs and technical data that includes identification of the associated baseline. * Verify project identification for CSCIs and technical data. * Establish and oversee the establishment of CM libraries. * Assign tracking numbers to CRs. * Report any deficiency against this activity using the SCM deficiency report. | |
| Output | |
| Outputs from this activity are listed below.   * Identified CR(s). * Identified CSCI. * Identified Technical Data. * SCM Deficiency Reports | |
| Exit Criteria | |
| Each CSCI and associated documentation have been formally identified. All required data has been collected, recorded, processed, and maintained for producing CSA reports. The CM libraries have been established.. | |

#### **Perform Configuration Control**

|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to maintain the integrity of the product's technical data and CSCI throughout its life cycle. | |
| Roles and Responsibilities | |
| SCM Manager | Manage expeditious processing of proposed changes against approved baselines.  Manage processing of authorized changes into approved baselines. |
| SCM Organization | Prevent incorporation of unauthorized changes into the baselines.  Ensure integrity of baseline releases (e.g., of executable software, source code).  Perform library functions of CSCI and technical data.  Perform the administrative functions to support the software boards (e.g., SCCB, SCRB, OAG). |
| SCCB | Represent the interests of the project management and all project groups who may be affected by changes to the software baselines.  Authorize the establishment of software baselines, review and approve the changes, and authorize the creation of software baseline products. |
| Entry Criteria | |
| One of the following criteria must be met to initiate this activity.   * Receive the approved functional baseline and any further configuration baselines for the CSCIs. * Receive the CSCI and technical data to be placed under library control. * Receive the CRs | |
| Control | |
| The DTP provide control of this activity | |
| Input | |
| Inputs to this activity are listed below.   * CSCI Requests. * Technical Data Requests. * Identified Technical Data. * SCCB Decisions. * Identified CR. * Defined Resources. * Identified CSCI. * Trained Personnel. | |
| Process Activities | |
| The process activities for Perform Configuration Control are as follows:   * Receive CSCI and technical data. * Place CSCI and technical data in the libraries. * Process CSCI and technical data requests. * Provide CRs to board members. * Provide administrative support to the boards. * Deliver software releases from controlled CSCIs and technical data, including associated changes to authorized baselines. * Report any deficiencies against this activity using the SCM deficiency report. | |
| Output | |
| Outputs from this activity are listed below.   * Controlled CR. * Controlled Technical Data. * Controlled CSCI. * SCM Deficiency Report. * Software Release. | |
| Exit Criteria | |
| Retiring a software product satisfies the exit criteria. | |

#### **Perform Configuration Status Accounting**

|  |  |
| --- | --- |
| Purpose: | |
| The purpose of this process activity is to ensure reporting of accurate identification of each CSCI and associated technical data so that the necessary logistics support elements can be correctly programmed and made available in time to support the CSCI and its technical data. A well designed and proven CSA will enhance management's capability to identify, produce, inspect, deliver, operate, and maintain CSCIs and associated technical data in a timely, efficient, economical manner. | |
| Roles and Responsibilities | |
| SCM Organization | Maintain and verify the data entered into the CSA system. |
| Entry Criteria | |
| Entry criteria for this activity is the receipt of information on CSCIs, technical data, board decisions (e.g., CCB, SCCB, SCRB, or OAG) and CRs. | |
| Control. | |
| Control of this activity is provided by the DTP. | |
| Input | |
| Inputs to this activity are listed below.   * CSA Request. * SCCB Decisions. * Controlled CR. * Controlled Technical Data. * Defined Resources. * Trained Personnel. | |
| Process Activities | |
| The process activities for Perform CSA are as follows:   * Receive CSCI and technical data for entry into the CSA system. * Generate CSA reports. * Report any deficiencies against this activity using the SCM deficiency report. | |
| Output | |
| Outputs from this activity are listed below.   * CSA Reports. * SCM Deficiency Report | |
| Exit Criteria | |
| Retiring a software product satisfies the exit criteria. | |

#### **Perform Configuration Audits and Reviews**

|  |  |
| --- | --- |
| Purpose: | |
| The purposes of this process activity are to:   * Report deficiencies in the CSCI and associated technical data found in a configuration audit. * Track resolution of those reported deficiencies found in a configuration audit. * Report deficiencies in SCM activities or products. * Track and provide resolution to deficiencies against SCM activities and products as a part of process improvement efforts. | |
| Roles and Responsibilities | |
| SCM Manager | Provide resolution to reported deficiencies against SCM activities or products as part of process improvement efforts. |
| SCM Organization | Support the configuration audits (FCA and PCA) of CSCIs and their technical data, including tracking resolution of reported deficiencies.  Provide the auditing activity or independent auditor (e.g., SQA) with the requested data to perform an audit of SCM activities.  Perform informal review of SCM tasks and products to ensure conformance of SCM procedures. |
| SQA or Independent Auditor | Perform configuration audits (FCA and PCA) of CSCI and associated technical data.  Perform audit of SCM activities.  Report audit findings. |
| Entry Criteria | |
| Configuration audits and independent audits of CSCI and associated technical data and SCM activities are scheduled. Informal reviews of SCM activities and products are planned | |
| Control | |
| The DTP provide control for this activity. | |
| Input | |
| Inputs to this activity are listed below.   * Controlled CSCI. * Controlled Technical Data. * Defined Resources. * Trained Personnel. * CSA Reports. * Project SCMP. * DTP. | |
| Process Activities | |
| The process activities for Perform Configuration Audits and Reviews are as follows:   * Support SQA or independent auditor requests for technical data and for CSCI and associated data. * Perform informal reviews of SCM tasks, DTP, and CSA reports. * Use DTP to generate or assist in the preparation of audit and review reports. * Report deficiencies against this activity using the SCM deficiency report. | |
| Output | |
| Outputs from this activity are listed below.   * Audit Reports. * Review Reports. * SCM Deficiency Report. | |
| Exit Criteria | |
| The configuration audit and review is completed, results are documented, and deficiencies have been resolved.  The audit and review of SCM activities and products is completed, results are documented, and deficiencies have been resolved. | |

# CONFIGURATION MANAGEMENT PROCESS MESURES

The CM Group collects the following measures to analyze the CM Process:

* Effort and funds expended for CM tasks (planned vs. actual).
* Impact of requirements changes on project cost and schedule (this measure may be collected collaboratively with project development personnel).
* Number of configuration audits completed (planned vs. actual).
* Numbers of CIs, CRs (by status), Trouble Reports (by status), Waivers & Deviations.
* The CM Group may collect other performance measures to review CM performance:
* Age of high priority Trouble Reports (duration from date submitted to date resolved).
* Number of CM audit discrepancies identified.
* Number of CRs against specific Requirements Specifications (a Requirements Management metric).
* Number of Trouble Reports (by severity of trouble reports).

# REFERENCE DOCUMENT

Project Management Plan Template

CM Plan Template

Change management process