TEMPLATES
FOR
SOFTWARE CONFIGURATION
MANAGEMENT DOCUMENTS
DELUXE VERSION 2.0

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(Software Configuration Management Policy, Typical Configuration Management Organization charts, Software Configuration Management Plan, Procedure for Performing Software Configuration Management, Procedure for Performing Software Configuration Identification, Procedure for Performing Software Configuration Change Control, Procedure for Performing Software Configuration Status Accounting, Procedure for Performing Software Configuration Audits and Reviews, List of Configuration Management Acronyms)

Author: H. Ronald Berlack

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Introduction:

In the past decade, the need for establishing Software Configuration Management policy and procedure has grown in conjunction with the need for software systems that are complex, fast, accurate and safety-critical. From simple everyday software systems that track our bank accounts to the complex systems in airplanes, cars, medical devices, and industrial, or military machinery; there is a demand for highly reliable, error-free software.

SEPT has developed these templates for software configuration management documents to aid the software engineer and managers in implementing software configuration management requirements. The deluxe version of this document contains the following templates: Configuration Management Policy-Template 1, Configuration Management Organization Charts-Template 2, Software Configuration Management Plan-Template 3, Procedures for Performing Software Configuration Management-Template 4, Procedure for Performing Software Configuration Identification-Template 5, Procedure for Performing Software Configuration Change Control-Template 6, Procedure for Performing Software Configuration Status Accounting-Template 7, and Procedure for Performing Software Configuration Audits and Reviews-Template 8. In addition the deluxe version of this document contains a list of "Configuration Management Acronyms and Abbreviations Used in Technical Writing".

These templates are easy to use, self-explanatory, and do not require expensive training or extensive experience. This set of templates satisfies the requirements of ISO/IEC 12207, *Software Life Cycle Processes (1995*), including Amendment 1:2002 and Amendment 2:2004.

About Software Configuration Management

The inclusion of software configuration management as a top-level element in the software development life cycle process has proven to be necessary and cost effective in producing and delivering quality software on time and within specified time and dollar limitations. Software configuration management is accomplished by:

- Identifying what is to be designed and developed.
- Agreeing to this identification.
- Controlling changes to what has been agreed on.
- Recording the events of the product's evolution through status accounting records.

How to use this document

This document is designed to aid a person with limited knowledge of software configuration management requirements and methods to implement a sound configuration management system. This template may be applied to manual or automated (computer processes) methods and can be easily implemented by one or more persons. It is applicable to small, highly critical 10-line software programs and to a program over 1 million lines of code.

This document contains eight templates. The primary template is the Configuration Management Plan. There are five procedures templates covering performing software configuration management, identification, change control, status accounting, and audits and reviews. In support of these templates, an approval matrix citing *who* approves *what* documents is included. In addition, the contents of a software change request format and a status accounting record format are defined. The order of precedence of these documents is defined below. In

addition there are two others; one for an organizational policy on Configuration Management and another depicting a typical Configuration Management organization and how it would fit within the larger organization.

Organizational Requirements

1.0 Software Configuration Management Policy for conducting software configuration management.

    1.1 Software Configuration Management Plan

        1.1.1 Procedures

            a. Performing software configuration management

            b. Identification

            c. Change Control

            d. Status Accounting

            e. Audits and Reviews

2.0 Supporting References

    2.1. Approvals Matrix

    2.2. Contents of a Change Request

    2.3. Contents of Status Accounting Record

    2.4. Specifications and Standards

Certain organizations may not actually have a designated software configuration management function; however, it is always necessary to recognize the importance of implementing Configuration Management. Steps should be taken to assign the task to an individual on each project; full-time if a large project, part-time if small. It is imperative that the organization have a clear and concise policy on configuration management and it is recommended that the highest level of management in the organization approves this undertaking and approves the final version of the policy, plan and the procedures. The firm's organization charts should clearly identify the configuration management function and how it relates to the other functions within the organization. Configuration management function or functions within an organization are responsible for preparation, implementation, and maintenance of the plan and procedures. Since software configuration management activities invoke the use of organizational resources it should be approved by the highest level of management in the organization. Other functions that should also review and approve this plan include Software Quality Assurance, Software Engineering, Software Testing, Project Management (when applicable), the organization's Software Configuration Management Function (when applicable), and the customer (when applicable).

This template's illustrative text may be used as is, by stripping the tutorial notations underlined in the text. The text can also be modified for requirements and guidance to meet organizational needs, and unique environments. It is not a requirement to use the paragraph numbers contained in this document and additional comments are encouraged whenever appropriate to fully comply with an organization' specific requirements. These templates are applicable to all types of software from information technology, commercial, scientific, and other non-business applications (such as creating a complex web site). The user of these templates should spell out all of the issues that are prevailing regarding the need for software configuration management prior to tailoring these templates to ascertain that all such organizational issues are addressed.

About the Author
H. Ronald Berlack is Principal Consultant of his firm, Configuration Management International, Amherst, New Hampshire. The firm provides seminars and expertise in the establishment and implementation of the hardware and software configuration management process nationally and internationally. Mr. Berlack was manager of Configuration and Data Management at Sanders, A Lockheed Martin Company, Nashua, New Hampshire (1963 to 1992). .

He is a past Chairperson of the Electronic Industries Alliance's Data and Configuration Management and Computer Resources Committees. Mr. Berlack was a Co-Chair of the IEEE Working Function that published IEEE Standard 828-1990, *Software Configuration Management Plans*. He was a Co-Project Editor for the International Organization for Standards (ISO) Standard on Software Configuration Management.

He is author of the text, <u>Software Configuration Management</u>, published by John Wiley and Son, New York, 1992.

Reference Software Configuration Management Standards
International Standards –
- ISO/IEC 12207 – 1995 including Amendment 1:2002 and Amendment 2:2004. Software Life Cycle Processes.
- ISO/IEC TR 15846—1992. Software Engineering-Software Life Cycle Process-Configuration Management for Software

USA Standards – (International application)
- IEEE/EIA 12207.0 – 1996, 12207.1, 12207.2,
- EIA Standard 649, National Consensus Standard for Configuration Management, IEEE Standard 828, 1998 Software Configuration Management Plan.

Standards and Specifications may be procured through SEPT at www.12207.com.

Reference Books
Software Configuration Management, H. Ronald Berlack, John Wiley and Sons, New York, 1992, Japanese translation rights arranged by John Wiley & Sons through Japan UNI Agency Inc, Tokyo. To order this book **click** on to www.12207.com.

Guide to Software Engineering Standards and Specifications, S. Magee and L Tripp. Artech House, 1997. To order this book **click** on to www.12207.com.

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TEMPLATE 1

<u>CONFIGURATION MANAGEMENT POLICY</u>

Introduction

An Organization's policy reflects the objectives to be promulgated to achieve desired results and goals. The policy is the cornerstone of the Organization's mission and business plan.

Policy is applied at all levels of the Organization, from the top level to the bottom level, or in small entities at a single level. Policy is the authority and states what is required and who is responsible such as the "Configuration Management Process". Policy does not describe the "how to"; that is the role of subsequent procedures and instructions.

Absence of a policy (and stated authority) can hinder the effective implementation of the organization's primary functions such as finance, engineering, manufacturing, marketing, quality and configuration management.

An organization desirous of implementing a configuration management process must first determine the organizational policy for the process.

TEMPLATE 1

CONFIGURATION MANAGEMENT POLICY

Enter the Company/Organization Name

Enter date prepared/approved

Enter "prepared by" name and the names of approving executives/manager(s).

Configuration Management Policy 1.0:

Policy:
The (xyz) Company shall provide for the implementation of a Configuration Management process on all projects/programs designed, developed, built or procured, tested and delivered, or sold, whether required by contract or purchase agreement. This process will meet or exceed all applicable industry-wide and organizational standards concerning configuration management.

Objective:
The objective is to know at all times what the designed, developed, built or procured, tested and delivered configuration is on all products produced by the company. There will be traceability from one stage of the product to the next. The customer will have confidence that (xyz) company has a system for controlling all stages of a product throughout the product life cycle.

Responsibility 2.0:

Person	Responsibility
Organization's Chief Executive	Ensure the implementation of the Configuration Management process through this policy and subsequent Configuration Management Procedures.
Persons reporting to the Chief Executive (May or may not be applicable)	Ensure that Configuration Management process is performed on all programs/ projects they are responsible for.
Project/Program Managers	Plan and provide for implementation of the Configuration Management process on their assigned projects/programs.
Configuration Managers	Develop appropriate Configuration Management procedures and instruction in accordance with applicable industry-wide and organizational standards, and implement them.