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**Software configuration
management**

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IEEE	AS
729 IEEE Standard Glossary of Software Engineering Terminology	—
828 Software Configuration Management Plans	4042 Software configuration management plans

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CONTENTS

SECTION	<i>Page</i>
1. Introduction	5
1.1 Scope	5
1.2 References	6
1.3 Mnemonics	6
1.4 Terms	6
2. SCM Disciplines in Software Management	7
2.1 The Context of SCM	7
2.1.1 SCM is a Service Function	7
2.1.2 SCM is a Part of the Engineering Process	7
2.1.3 SCM Manages all Software Entities	8
2.2 The Process of SCM	10
2.2.1 Management Environment of SCM	10
2.2.2 Dynamics of SCM	10
2.2.3 Role of Source Code in SCM	11
2.2.4 Different Levels of Control	11
2.3 The Implementation of SCM	11
2.3.1 Using Software Libraries	11
2.3.2 Controlling Changes to Libraries	12
2.3.3 Using Configuration Control Boards	13
2.4 The Tools of SCM	13
2.4.1 Basic Tool Set	13
2.4.2 Advanced Tool Set	13
2.4.3 On-Line Tool Set	14
2.4.4 Integrated Tool Set	14
2.5 The Planning of SCM	14
3. Software Configuration Management Plan	15
3.1 Introduction	15
3.1.1 Purpose	15
3.1.2 Scope	15
3.1.3 Definitions	16
3.1.4 References	16
3.2 Management	17
3.2.1 Organization	17
3.2.2 SCM Responsibilities	18
3.2.3 Interface Control	18
3.2.4 SCM Plan Implementation	19
3.2.5 Applicable Policies, Directives, and Procedures	20
3.3 SCM Activities	21
3.3.1 Configuration Identification	21
3.3.2 Configuration Control	23
3.3.3 Configuration Status Accounting	28
3.3.4 Audits and Reviews	29
3.3.5 Release Process	30
3.4 Tools, Techniques and Methodologies	31
3.5 Supplier Control	32
3.5.1 Subcontractor Software	32
3.5.2 Vendor Software	33
3.6 Records Collection and Retention	34

FIGURES		<i>Page</i>
Fig 1	Model of Change Management	10
Fig 2	Three Types of Libraries	12
TABLES		
Table 1	Characteristics of Appendixes	5
Table 2	Hierarchy of Controlled Entities	9
Table 3	Levels of Control in Sample Plans	13
Table 4	Variable Levels of Control	24
APPENDIXES		
Appendix A	Software Configuration Management Plan for Critical Software for Embedded Systems	35
	Fig 1 Program Organization Chart	39
	Table 1 Responsibility Assignments	40
	Table 2 Baseline Objectives	42
	Attachment A System/Software Change Request	46
	Attachment B Software Change Authorization	47
	Attachment C Fig 1 CSES Procedure for Creating Initial Baseline	48
	Attachment D Fig 1 CSES Procedures for Changes to Controlled Software/Documentation	49
	Fig 2 Program Organization Chart	50
Appendix B	Software Configuration Management Plan for Experimental Development Small System	51
	Fig 1 Project Organization Chart	55
	Attachment A Software Promotion Request	59
	Table 1 Data for Software Release	59
	Attachment B IEEE Guide for Processing System Software Change Requests	60
	Attachment C System/Software Change Request Form	61
	Table 1 SCR Data Elements	61
Appendix C	Software Configuration Management Plan for a Software Maintenance Organization	62
	Fig 1 SPLI Facility Organization	66
	Fig 2 Structure of CCB	67
	Table 1 Hierarchy of Elements	68
	Table 2 Problem Criteria	69
	Attachment A System/Software Change Request (SPLIT Form C-1049)	73
	Table 1 Definitions of Elements in SCR	73
	Attachment B Software Change Authorization	74
	Table 1 Definitions of Elements in SCA	74
Appendix D	Software Configuration Management Plan for a Product Line System	75
	Fig 1 PLAS Organization Chart	80
	Table 1 Processing Approved Changes	85
Appendix E	References Bibliography	88

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Software configuration management

1. Introduction

1.1 Scope. This guide describes the application of configuration management (CM) disciplines to the management of software engineering projects. Software configuration management (SCM) consists of two major aspects: planning and implementation. For those planning SCM activities, this guide provides insight into the various factors that must be considered.

Users implementing SCM disciplines will find suggestions and detailed examples of plans in this guide. This guide also presents an interpretation of how ANSI/IEEE Std 828-1983 [2]¹ can be used for planning the management of different kinds of computer program development and maintenance activities.

The guide is presented in two parts. The first part, the main body of the guide, presents issues to consider when planning software configuration management for a project or organization. The second part of the guide presents, for those preparing SCM Plans, a series of sample Plans illustrating different concepts discussed in the body of the guide.

The text of the guide introduces the essential concepts of SCM, particularly those of special significance (for example, libraries and tools) to software engineering. It then presents the planning

¹The numbers in brackets correspond with those of the references in 1.2.

for SCM in terms of documenting a Plan following the outline of ANSI/IEEE Std 828-1983 [2] so that a user who is unfamiliar with the discipline of software configuration management can gain some insight into the issues. For those preparing SCM Plans, the second part of the guide provides sample plans for consideration.

The sample SCM Plans include a variety of software configuration management applications for different types of projects and organizations. Appendix A illustrates a software configuration management plan (SCMP) for a project developing a complex, critical computer system. It describes a Plan for managing a typical software development cycle where the development is contracted to an organization that does not have responsibility for its maintenance or use. Appendix B illustrates a SCMP for a small software development project. It describes a Plan for supporting a prototype development activity where the goal of the project is to demonstrate the feasibility of a concept. Appendix C illustrates a SCMP used by an organization where the emphasis is on maintaining programs developed by other activities or organizations. Appendix D illustrates a SCMP for an organization developing and maintaining computer programs embedded in a hardware product line. It describes a Plan for managing both software development and maintenance of a commercial product line. Some of the different characteristics illustrated are shown in Table 1.

Table 1
Characteristics of Appendixes*

Appendix Number	Emphasis of Control (Life Cycle Phase)	Type of Project	Relative Size (Dollar/Manhour)	SCM Tools Available	Life Span of Plan	Writing for Plan
1	Development	Critical	Medium	Advanced	Short	Highly structured
2	Concept	Prototype	Small	Basic	Short	Informal
3	Operations	Support sw	Large	On-line	Full life cycle	Structured
4	All	Commercial	Small	Integrated	Full life cycle	Organizational Informal

*NOTE: The purpose of the Appendixes is not to provide an illustration for every possible combination of project characteristics but rather to show that the ANSI/IEEE Std 828-1983 [2] can be applied to a wide variety of projects.