

CENG 492

SENIOR PROJECT

Configuration Management Plan

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1. INTRODUCTION

Configuration Management is the part of software management process which is concerned with the development of procedures and standards for managing an evolving software system. In essence, it is concerned with change: how to control change, how to manage systems which have been subject to change, and how to release these changed systems.

1.1 Purpose of Document

The purpose of this document is to establish an integrated process for identifying, documenting, monitoring, evaluating, controlling, and approving all changes to work products throughout the life cycle of the project. This configuration management plan (CMP) describes the configuration management structure as well as the practices that will be implemented to manage the development and operation of InNoClass.

1.2 Scope of Document

The scope of this document is identification of Software Configuration Items (SCI), management of change control, auditing the changes and reporting the changes in order to inform the involved people who are InnovationTech members, instructors and the supervisor. Hence in this way, incompatibility between group members' works caused by the changes will be prevented.

Next section of the document covers the organizational units which participate in any SCM activity and roles of these organizational units. The third section covers configuration management process such as identification of configuration items, configuration control, configuration status accounting and configuration audits and reviews. Section four covers the configuration management milestones. Fifth section is about project resources which are tools, techniques, equipment needed to implement the SCM activities specified in the SCM plan. Section six covers plan optimization.

1.3 Definitions, Acronyms and Abbreviations

In this section of the document we will explain the meanings of the definitions, acronyms and abbreviations that we used through the document. The following table lists the acronyms and their definitions:

ACRONYMS	DEFINITIONS
CCB	Configuration Control Board
CM	Configuration Management
CSA	Configuration Status Accounting
CVS	Concurrent Versions System
ERB	Engineering Review Board
PCA	Physical Configuration Audit
SCI	Software Configuration Item
SCM	Software Configuration Management

1.4 Document References

This CMP is based on the previous documentations of InNoClass. These documents and the web addresses of them are listed below:

- Requirements Analysis Report
- Initial Design Report
- Detailed Design Report

2. THE ORGANIZATION CM FRAMEWORK

2.1 Organization

The organizational units that exist in InNoClass Virtual Classroom Project are as follows:

- CCB (Configuration Control Board)
- CM (Configuration Management) Group
- Engineering Review Board (ERB)
- Testing Team
- Developer Team

2.2 Responsibilities

Our team consists of five members and since our project is a small sized one, every team member will be responsible for all the roles mentioned above for her package. The responsibility of each role is as follows:

CCB: It reviews, denies or approves all the changes. It follows all the changes and ensures that they are done correctly. Also all CI baselines are approved by this unit.

CM GROUP: This unit is responsible from the creation and management of the CMP. All the CM activities are coordinated and reported by this unit. Also it coordinates the development team for the changes.

ERB: This unit manages the technical analysis and evaluation of the change plans. It also evaluates the change proposals in the base of cost, time and performance and gives recommendation to the CCB.

TESTING TEAM: It makes the change requests after the results of the testing process.

DEVELOPERS: They create the baselines and releases. All the CM activities which are the part of the actual system development are implemented by this unit.

The packages and the responsible members are shown in the following table.

Team Member	Packages
Songül Çeçen	WhiteBoard, Polling
Mesude Eser	Client, Presentation Tool
Gülistan Doğan	GUI, Chat, Polling
Birsen Omay	MainGUI, Audio/Video
Aslıhan Ünal	Server, Presentation Tool

The changes in a package, which will not affect the whole system, will be in the control of the person associated with that package. It is also crucial that no one other than the responsible member can change the source code of that package. In the case of a major change which will affect the whole system, the procedure that will be followed is explained in section 3.2.

2.3 Tools and Infrastructure

CVS allows each team member to check out resources (source code, document etc.) upon which she plans to work and also to check these resources back into repository when they are

finished. Different from the other similar applications CVS does not use a locking strategy but an optimistic merge strategy which allows it to deal with potential conflicts. It also provides extensive logging, auditing, and tracking facilities.

3. CONFIGURATION MANAGEMENT PROCESS

3.1 Identification

In this part, we will identify and describe the characteristics of the code, specification, design, and data elements of the project, which need control during project lifecycle. These are called configuration items that include software, hardware, baselines, and documentation and all affected changes to these items. Firstly, we have to identify the items, which will be obtained in CM control. Documents include all necessary information to provide a full technical description of the characteristics of the configuration items that require control. Configuration identification shall be applied to all developed systems including code, hardware, environment, and related documentation. Baselines are composed of all configuration items describing to a system at a point in time. We use the baselines to maintain traceability of the changes in the configuration items during the project life cycle. Our project baselines are:

- Software Requirements Specification
- System/ Subsystem Design Description
- Software Configuration Management Plan
- System Test Plan
- Unit Test
- Executables
- User Manual
- Installation Plan

The items integrated in system baselines are stored in an electronic media format once changes are made. We will check out configuration items for modification using CVS checkout procedure. When somebody finishes working on the configuration item, changes will be committed with CVS commit procedure.

3.2 Management and Control

In this part we will describe the process of requesting, evaluating, approving or disapproving proposed changes to a baseline.

Whenever a change request comes from one of the group members, we hold a peer review together and discuss whether the requested change is necessary or not. If the change request is accepted, the implementations of changes phase starts. First we check out the baseline configuration item from project database and apply the changes. Next the updated item is tested for quality assurance. Then we make the configuration auditing and finally the new version of the software is checked in to the project database and distributed to every group member.

After the changes are made, the version number of the software should be adjusted. We will use universal version number system in our project. Our version numbering system will be as <major change>.<minor change>

When a minor change happens we will only increase the minor change field the version number. In major changes the major change field will be increased.

3.3 Configuration Status Accounting

Configuration Status Accounting (CSA) is process for recording, monitoring, and reporting information necessary to manage all Configuration Items associated with a specific baseline throughout their life cycle. CSA consists of creating reports and of keeping a history of CM activities. For every change we will make, we will record the following information:

- Detailed description of the change: The change made will be explained. Why do we need this change and how it is made will be recorded.
- Analysis of the change: After the change what changed in the system and how the system works after the change
- Names of people making the change: The names of the group members who make the changes.
- Title, type, release and version, with date: The title, type of the changes and the release and version numbers of the system after the changes.

3.4 Auditing

In this section we will try to determine to what extent the actual SCI reflects the required physical and functional characteristics. We will try to determine whether the specified changes have been made correctly, a formal technical review has been conducted to evaluate technical correctness of the changes, Also it is determined whether the software engineering

standards have been applied correctly, and the information about the changes has been done correctly. We will do functional, physical and process audits. We will do functional audits before acceptance of each functional baseline and after system testing and before delivery of the release. The Physical Configuration Audit (PCA) will be held prior to any system release. And during the change process at each step we will hold process audits.

4. PROJECT SCHEDULES

The schedule for the implementation of the packages is shown below. Also we have a detailed schedule showing the implementation of each class in the website of the group.

InnovationTech 2005 Term Schedule											
Tasks	March			April			May			June	
Server Package				aslihan							
Client Package				mesude							
GUI Package				gulistan							
MainGUI Package				bisen							
Database Design				songul							
WhiteBoard Package				songul							
PresentaionTool Package							aslihan, mesude				
AudioVideo Package				bisen							
Chat Package				gulistan							
Polling Package							songul, gulistan				
System Integration									whole team		
Testing, Bug Fixing										whole team	
Documentation and Product Release											whole team

After implementing each module, we will make all the CM activities. Our milestones are Chat, WhiteBoard, Polling, Audio/Video, and Presentation Tool modules. In our schedule these are shown as different modules. So after completing each module we will perform CM activities. During testing phase, CM activities will be performed for each change.

5. PROJECT RESOURCES

CVS will be used as CM tool. The group members will get the latest version of the project by using check out feature of CVS. After the change has been done, the latest version will be updated to CVS repository so each group member will have access to this version. Since CVS does not lock the resources for updating, members can work simultaneously on the same files. In case of conflicts, CVS warns the developers so that confusion is prevented. It also provides extensive logging and auditing facilities.

6. PLAN OPTIMIZATION

Since we are a group of five people, everybody in the group will be responsible in maintaining the SCM plan. The plan will be updated when needed in order to manage CM activities effectively. After the updates are done to the plan, CCB will control the updates.