

Configuration Management Plan



CENG492
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MINOLUS



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1. INTRODUCTION

1.1 *Purpose*

Purpose of this document is identify and describe methods and policies for Configuration Management which will be used during development process of our software product. During development process, some project material can be changed and updated. CM is applied throughout the software development process and will help us to keep track of changes. Mapping changes in development process gives us ability to control development process and other changes can be done easily. Then, Configuration Management increases quality of product and minimizes mistakes.

1.2 *Scope*

This document is about the Configuration Management Plan of MindUs for the MindGate project. The scope of this document is management of change control, identification of Software Configuration Items, auditing the changes and reporting the changes in order to inform people who involved into the project.

MindUs project team is composed of 5 senior software engineering students and they work on MindGate project which is application level gateway for web access control and accounting. All of team members are curious to web base technologies and try to learn more about web programming.

MindGate project is sufficiently extensive project and has similar products in the market. However, differences of MindGate are reliability and speedy. Therefore, this makes some difficulties to our team members, because all these features require latest technologies. In addition, they are not completely stable and there are not too much tutorials for these technologies. Therefore, some parts of our final design report depend on assumptions.

In addition, our members are all student and they have time limitation to complete project. Therefore, all acts are done according to assumptions; because of there is not enough time to test all the new technologies. Then, we will need to change some documents or some technologies in development process. To follow all these changes we extremely need Configuration Management Plan. Therefore, CMP is essential for our software project.

1.3 *Definitions, Acronyms and Abbreviations*

ACRONYMS	DEFINITIONS
CCB	Configuration Control Board
CI	Configuration Item
CM	Configuration Management
CMP	Configuration Management Plan
CMB	Configuration Management Board
CMBS	Configuration Management Board Staff
SCM	Software Configuration Management
SCMP	Software Configuration Management Plan
CVS	Concurrent Versions System
RA	Requirements Analysis
CA	Configuration Audit

1.4 *Document References*

- IEEE Standard for Software Configuration Management Plans (IEEE Std 828-1998)
- [Web site of CVS project](http://www.cvshome.org)
<http://www.cvshome.org>
- MindUs Final Design Report
- [Software Engineering Roger S. Pressman](http://www.mhhe.com/pressman)
<http://www.mhhe.com/pressman>
- [SCMP plan template](http://sparc.airtime.co.uk/users/wysywig/cmp_1.htm)
http://sparc.airtime.co.uk/users/wysywig/cmp_1.htm

2. CM FRAMEWORK for MindGate Project

Due to the addressed descriptions and limitations, which are mentioned in introduction section of this document, we construct Configuration Management Framework to ease the management process of the changes, which will possibly occur development, and maintenance phase of MindGate Project.

2.1. Organization

MindUs project team structure is defined in Requirement Specification Report and summarized in introduction section of this document. These members are also member of CCB(configuration control board) which is formed by MindUs and responsible for the CM Management. Since project team consist of five people it is relatively small so there is no need for a hierarchic structure, but there exists a committe manager which start and end the meeting and writer who makes appropriate anonouncements via web or written document after the meeting.

The main functions of CCB are:

- Establish baselines
- Form CM policies
- Identify configuration items
- Approve or reject Change Requests
- Ensure implementation of accepted Change Requests
- Update CM schedule and Lively schedule for each SCM activity
- Check the CVS usage activity of members
- Routine backup the snapshot of the CVS storage of the project
- Collecting backups and the files that can not be hold under CVS server(team members have experiences about binary files that are corrupted under CVS server in time)
- Tracking external changes in the used API' s and libraries

2.2. Responsibilities

All members of the CCB is responsible for the effective application of the functions stated in the previous section.

Every decision of the CCB must be announced on the web site as a change log.

CCB is effective during the implementation and maintenance phase of the project.

Conforming CM Schedule

2.3. Policies and Methods

Since change is an expensive decision for a software project, the member who requested change must have the acceptance of all members for a change.

Member who make a request should prepare a document about change reason which will be discussed in CCB.

CVS server which is supplied by the department will be used for version controlling.

Members can use all applications that supports CVS used in the department

(Eclipse IDE is already tested and seems to be working)

3. THE CONFIGURATION MANAGEMENT PROCESS

MindGate Project contains many configuration items; this section of the CM Plan describes these items and relationships of each item with others. Identification of the configuration items is the most important part of the Configuration Management Plan of the MindGate Project, other procedures and methodologies are important but due to our team structure and software methodology we apply, forces us define configuration items in details to ease configuration management process, we dig into the details of major items included in MindGate Project.

3.1. Configuration Identification

Major configuration items of MindGate Project can be grouped into two main parts which are:

- Internal Items: Core Software items which will be developed by team members.
- External Items: Items that will be embedded into Core Software.

3.2. Core System Parts

Module Name	Configuration Item Naming
Interface Control Module	ICM
Database Module	DM
Connection Control Module	CCM
Categorizer Module	CM

ITEM DESCRIPTIONS:

a. ICM:

Interface Control Module will be an interface between whole system and Graphical User Interface of MindGate. It uses services which are provided by core and external modules, with the help of these services it can also configure the working attributes of the utilities and resources of system.

1-Units:

1.1-User Interface :

Direct interaction with:

DM Control Unit

CM Control Unit

CM Control Unit

1.2-DM Control Unit :

Direct interaction with:

DM Services of Interface Control Module.

1.3-CM Control Unit :

Direct Interaction with:

CM Services of Interface Control Module.

1.4-CCM Control Unit :

Direct Interaction with:

CCM Services of Interface Control Module.

b. DM:

Database Module contains resources internal and external files used by system and implement manipulation methods needed to access, backup, modify and other actions can be performed on these data. Items of these Module can be listed as:

1. Units

1.2-Functional Units:

1.2.1-Backup Methods:

Direct Interaction with:

File System

SQL Server

Log Files

Backup Files

1.2.2-Access Methods:

Direct Interaction with:

File System

SQL Server

Indexing and Searching API

Indexed and Files

Unindexed Files

Log Files

Backup Files

1.2.3-Modify Methods:

Direc Interaction with:

File System

SQL Server

Indexing and Seraching API

Indexed and Files

Unindexed Files

1.2.4-Services:

1.2.4.1-CMM Services:

Query Service

1.2.4.2-CM Services:

Query Service

Store Service

1.2.4.3-ICM Services:

Query Service

Store Service

c. CCM:

Connection Control Module of the MindGate Project controls the Proxy Server and Web Server of the System and internal and external resources they use.

Its main responsibility is to gather input and output streams which contain the page sources, and provide a flexible interface to these stream, it does not responsible processing of these streams.

1.Units:

1.1-Proxy Server:

1.1.1-HttpServer

Direct interaction with:

Java Network API

Java Thread API

ByteStreams

1.1.2-HttpClient

Direct interaction with:

Java Network API

Java Thread API

ByteStreams

1.2.-Handlers:

1.2.1-ReplyHandler

Direct interaction with:

HttpClient

HttpStream

1.2.2-RequestHandler

Direct interaction with:

HttpServer

HttpStream

1.3-Filters:

1.3.1-ReplyFilters

Direct interaction with:

ReplyStream

HttpClient

1.3.1-Request Filters

Direct interaction with:

Request Stream

HttpServer

1.4-Interfaces :

1.4.1-Proxy Server Controller Commands :

1.4.1.1-start

1.4.1.2-stop

1.4.1.3-suspend

Direct interaction with:

Proxy Server

Java Threads

1.5-Access to Resources:

1.5.1-Request Stream Access

1.5.2-Reply Stream Access

1.5.3-Html Stream Access

d. CM:

Web Page Categorizer Module is the silver bullet of our project, mainly it is responsible for categorization of the web pages which are requested by clients of the MindGate Gateway Service, it uses many sophisticated algorithms which are developed according to extensive examinations on critical papers and huge data sets constructed by us.

1.Units:

1.1-Html Stream Processor

Direct interaction with:

HtmlStream

HtmlParser

1.2-Page Class

Direct interaction with:

HtmlProcessor

TokenStream

1.3-Category Class

Direct interaction with:

DM Query Services

DM Store Services

File System

1.4-Keyword Analyzer

Direct interaction with:

DM Query Services

DM Store Services

Decider

1.5-Structure Analyzer

Direct interaction with:

DM Query Services

DM Store Services

Decider

1.6-Decider

Direct interaction with:

DM Query Services

1.7-Swing Gui

Direct interaction with:

File System

CCM Interfaces

Java Swing API

3.3. Interfaces between modules and external applications

There exists external items and their interactions with modules which will be developed

External Application	Interaction with modules
SQL Server	Direct interaction with ICM and DM
Proxy Server	Direct interaction with CCM and CM
Web Server	A part of thr ICM is embedded into it
File system	Direct integration with DM

3.4. File Formats

Log Files
Backup Files
Indexed Disk Dumps
URL Index
Log File Index

These have direct interaction with DM

DM be an interface between System Level file manipulation and other modules in MindGate, so file format changes will only affect DM and its DM's responsibility to not reflect these changes to other modules.

3.5. Runtime Data Formats

Html Page Stream
Direct interaction with:
CCM
CM

Category Informations
Direct interaction with:
CM
DM

User Session Tables
DM

These baselines comprise the System, HWCIs and CSCIs, and may be sub-divided in themselves, for convenience.

All changes will be subject to the Formal Configuration Control outlined in Section 5.

3.6. Relationships of Configuration Items

3.6.1 Configuration Control

Change Request: When a user needs a change in one of the configuration item he must fill a formal Change Request form to be posted on MindUs mail group consist of the following fields:

Requester Name :
Configuration Item to be changed :

Configuration Items to be effected:

Request Date :

Description of the requested change:

Request Evaluation: CCB meets every week on Tuesday and makes a decision about the pending change requests and states the new baseline. Every accepted change will be added to change log and will be announced on the web page. For a change request to be accepted all members who implements the effected configuration items must accept the request.

Change Request Implementation: Every change request must be implemented by the developer of that Configuration management item.

3.6.2. Configuration status accounting:

For a successful and beneficial status accounting following items will be prepared and archived:

- A record of the approved configuration documentation and identification numbers.
- The status of proposed changes, deviations, and waivers to the configuration.
- The implementation status of approved changes.
- The configuration of all units of the configuration item in the operational inventory.

3.6.3. Configuration audits and reviews

Development team meets weekly for formal technical reviews. During this reviews team will also check the approved changes and current configuration items as if they meet the project requirement and goals.

4. PROJECT SCHEDULES

4.1. *CM Schedules*

CM Schedule gives information about the sequence of tasks and coordination of the CM activities. Therefore, MindGate Software Configuration Management Schedule contains all of the activities and tasks required to manage the software and its related processes.

4.2. *Schedule for Regular CM Activities*

Team members will meet with Webgw supervisor on every Tuesday. During this meeting, we will discuss current state of our project. In addition, after this meeting our members will come together to discuss the current situation of development cycle and to ensure everything going as it should(Formal Technical Review).

4.3. *Milestones*

CM milestones will be added in the project schedule. During implementing each module, all the CM activities will be made. During testing phase, CM activities will be performed each change.

5. PROJECT RESOURCES

During the development phase, we need some developers, tools and equipments to sustain CM activities. Developers are the most important resource of our project group. MindUs members are responsible with the development and management activities of the project.

CVS is one of the tools that we will use for CM. Project group members can access and modify the latest version of their software. Members can independently and simultaneously work on the same files without any confliction. CVS repository system provides logging

and auditing facilities. In addition, previous versions of the software are available in the system. We use Eclipse that provides connection support to the CENG CVS repository.

Other beneficial equipments for the CM are related documents in the CENG 490 web site, documents and announcements sent by the teaching assistant. In addition, web site of our project group that contains previous analysis and design reports. All of these are guideline for us not to lose our way during the long and difficult project phases.

6. PLAN OPTIMIZATION

During the development process, we will be loyal to these CMP activities, milestones and living schedule. However, software development is an incremental process and everyday changes will happen to our system. In order to keep this plan up to date, at our weekly progress meetings we will debate necessary changes to the software and the approved changes will be done. At this point, CVS will help to our group members about check in and checkout activities without causing confusion. These revisions will provide the plan and the software not to be redundant and outdated.