
# CONFIGURATION MANAGEMENT PLAN

by

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# 1. INTRODUCTION

This is a document which is prepared to specify development cycle of the software project "XChanger" and steps of configuration management plan.

## *1.1 Purpose*

The purpose of this document is mainly to maintain development period of the software project, "XChanger".

This development process is a long period and a group of four people are working on it. Thus many unexpected things related to software developing can occur during this period. In order to develope and accomplish the project on time, some procedures must be defined before such things occur. Then, things will not be complicated because all the procedure is known before.

Configuration Management Plan is crucial for:

- Enabling developers to work on the same project together.
- Enabling developers to access stable and all previous versions of the system.
- Enabling developers to control and realize the changes done to the system.
- Reducing risk of project developing.

## *1.2 Scope*

This Configuration Management Plan supplies the relevant policies and procedures for the development of XChanger. It describes how the configuration management elements of configuration identification, change control, status accounting, and audits and reviews shall be applied to establish the TraffEdu software configuration throughout the development effort.

This plan applies to all documentation, computer source code, executable

programs, data files, software development tools, hardware, operating systems, and
processes used in support of the implementation of XChanger system. Briefly, this document identifies the responsibilities and authorities for accomplishing the planned activities, it contains details on the items under configuration management process; it
describes the required coordination of Software Configuration Management activities with the other activities in the project and identifies tools and physical and human resources required for execution of the Plan.
Finally it describes the planning of configuration management activities.

## *1.3 References*

This Configuration Management Plan is prepared by the help of formats described in:

- IEEE Std 828-1998 IEEE Standard for Software Configuration Management Plans
  (Revision of IEEE Std 828-1990)

- "Software Configuration Management" Presentation prepared by METU Computer
  Engineering Department for the course CEng 492

- Final Design Report of Xchanger prepared by ThykeTech

- WikiPedia, http://en.wikipedia.org/wiki/

## *1.4 Definitions, Acronyms and Abbrevations*

### *1.4.1 Definitions*

Some items, which are going to appear later in this document, are needed to defined here and definitions of them are below:

| | |
|---|---|
| Microsoft Visual Studio | **Microsoft Visual Studio** is Microsoft's flagship software development product for computer programmers. It centers on an integrated development environment which lets programmers create standalone applications, web sites, web |

| | |
|---|---|
| | applications, and web services that run on any platforms supported by Microsoft's .NET Framework |
| Microsoft SQL Server | **Microsoft SQL Server** is a relational database management system (RDBMS) produced by Microsoft. |
| Windows Service | A **Windows service** is an application that starts when Windows is booted and runs in the background as long as Windows is running. It is very similar in concept to a Unix daemon. |
| Microsoft Windows Server 2003 OS | **Windows Server 2003** is a server operating system produced by Microsoft. Introduced on March 28, 2003 as the successor to Windows 2000 Server, it is considered by Microsoft to be the cornerstone of their Windows Server System line of business server products. |
| Concurrent Versions System | The **Concurrent Versions System** (**CVS**), is an open-source version control system invented and developed by Dick Grune in the 1980's. CVS keeps track of all work and all changes in a set of files, typically the implementation of a software project, and allows several (potentially widely separated) developers to collaborate. |

### *1.4.2 Acronyms and Abbrevations*

Some acronyms, abbrevations and other short words which are refering something and going to appear later in this document, are needed to mention as shown below:

| | |
|---|---|
| XChanger | Software product being developed by ThykeTech which is called |

| | |
|---|---|
| | XChanger |
| VS 2005 | Microsoft Visual Studio 2005 |
| MSSQL 2000 | Microsoft SQL Server 2000 |
| MS Windows Server 2003 | Microsoft Windows Server 2003 OS |
| CVS | Concurrent Versions System |
| CM | Configuraiton Management |
| SCR | Software Change Request |
| CCB | Configuration Control Board |
| SQA | Software Quality Assurance |
| CI | Configuration Item |
| CSA | Configuration Status Accounting |
| QM | Quality Management |

## *1.5 Contact Information*

If one of the developers needs to contact for informational, troubleshooting purposes or anything else related to organizational activities, she/he must use below information:

Contact person:

Fuat Ulubatli,
Project Manager
fuatulubatli@gmail.com
0535 9886439

If one of the developers needs to contact for anything about implementation of the XChanger, she/he must first contact with below people who are classified according to their field of responsibility:

- NNTP Server related problems:

  Nurettin Burak Ömeroğlu
  nbomeroglu@gmail.com
  0505 7983642

- SMTP / POP3 Server related problems:

  Tolga Özaslan
  tozaslan@gmail.com
  0533 6491210

- Web Implementation & Graphical Design & Database related problems:

Fuat Ulubatli
fuatulubatli@gmail.com
0535 9886439

Kaya Özçelik
kayaozcelik@gmail.com
0532 2065874

### *1.6 Document Overview*

In this CM of XChanger, there are three sections:

- Introduction
- CM Framework
- CM Process

"Introduction" is the section in which general information about the document, XChanger and organization of staff.

"CM Framework" is the section in which , the organization structure of the CM framework is explained.

"CM Process" is the section in which actions in configuration management process and requirements of these actions are covered.

## 2. CM FRAMEWORK

Most important parts of the CM are describing the organization, roles and responsibilities of the team members in the SCM organization and selecting useful tools that will ease jobs of the team members. In the following parts, firstly, the CCB structure and the CM team are described. Secondly, the roles and responsibilities are defined. Finally the CM specific tools that is used are summarized.

### *2.1 CM Organization*

All of the team members have roles in CM team of ThykeTech, because there are limited numbers of software developers. CCB structure of XChanger is as follows:

- CM Manager
- Developer Group
- SQA (Software Quality Assurance) Group
- Testing Group

In large projects, there may be more than one Developer Group, SQA Group etc. for each sub-component of project, and each group most probably contains hierarchical models. XChanger is relatively small, so it is decided that democratic decentralized type of management in Developer Group, SQA Group and Testing Group is suitable. As a result, these groups do not have apart leaders and are organized by the CM manager. In these groups ideas are going to be shared, and problems are going to be accomplished in parallel.

Meetings are arranged two times a week and most of the decisions are taken there. Beside of the meetings, all members contact through mail and MSN Messenger.

Mostly, every member of the team takes his problems to the meetings and all the members decide on changes. By taking decisions together, all the members learn the subjects and can help each other effectively. According to the problems, the roles may interchange however there are going to be always some project members that perform each of the roles.

## *2.2 CM Responsibilities*

Responsibilities of each group in the organization are listed below:

### *2.2.1. CCB*

- Creates and maintains the CMP
- Identifies the CI (Configuration Items)
- Reviews, Approves or Denies SCR (System Change Requests)
- Analyses the impacts of the changes
- Informs the team members about changes
- Approves baselines

### *2.2.2. CM Manager*

- Manages CMP
- Organizes and coordinates sub-groups
- Collects the reports of the activities

- Updates living schedule
- Arranges weekly meetings

### *2.2.3. Developer Group*

- Implements all the CM activities
- Creates releases
- Uses CM tools for version management

### *2.2.4. SQA Group*

- Defines Project's standards
- Makes the cost, time and performance analysis on changes
- Selects the best of the multiple choices
- Follows all the changes and ensure that they are done correctly

### *2.2.5. Testing Group*

- Tests the changed parts of the software
- If necessary makes SCR

After describing all responsibilities, below are the people who are responsible for each of above tasks:

- CCB consists of Fuat, Kaya, Burak and Tolga. Each of members has equal statu within the CCB.
- Fuat is the CM Manager as stated in the section 1.5.
- Developer group consists of Fuat, Kaya, Burak and Tolga. Additionally, each of these people are responsible of different field of implementation which are mentioned in the section 1.5.
- SQA has a different structure here. Each member of Developer Group is Software Quality Analyst of his own field of implementation. Furthermore, all tasks of SQA group stated in section 2.2.4 above are under his responsibility. However, general standards of the entire project is manager's responsibility at all. The manager can be thought of the head of SQA Group.

## *2.3 Tools and Infrastructure*

ThykeTech uses some tools to develop XChanger which can be listed as:

√ VS 2005 as development environment,

√ MSSQL 2000 as DBMS,

- √ MS Windows Server 2003 as Operating System on which XChanger runs,
- √ TortoiseCVS as CVS client program,
- √ C# .Net as programming language,
- √ ASP .Net as web programming language,
- √ Microsoft Internet Explorer as client web browser *(recommended)*

The development process is mainly driven on the Windows operating system.
Although most parts of the project is going to be implemented individually, it is always needed to merge files. Group members should be informed about the changes. In order to prevent crashes groups are going to use CVS, one of the CM specific tool throughout the lifecycle our project. This tool is provided by METU CEng492 course.

For other shares, groups can use ThykeTech's Gmail account ( thyketech@gmail.com ) and web site.

## *2.4 Configuration Items*

Configuration items form the basis of configuration management. A CI is a unit of configuration that can be individually *managed* and *versioned*. Typically, a configuration management system will control files, requirements, or another definable unit. These units are managed with a combination of process and tools to avoid the introduction of errors and to maintain high quality results. The units themselves can be considered configuration items, or they may be combined into an overall collection that is managed under the same set of processes and tools.

From the perspective of the implementor of a SCR which is going to be defined later in detail, the configuration item is the "what" of the change. Altering a specific baseline version of a configuration item creates a new version of the same configuration item, itself a baseline. In examining the effect of a change, we first ask:

1. What configuration items are affected?
2. How have the configuration items been affected?

A release (itself a versioned entity) may consist of several configuration items. The set of changes to each configuration item will appear in the release notes, and the notes may contain specific headings for each configuration item.

CIs, which are subject to change by a SCR, are defined for XChanger as below:

⇒ **Database of XChanger**

- A staff can make a SCR related to database design.

⇒ **NNTP Server Module**

- A staff can make a SCR related to NNTP Server.

⇒ **SMTP/POP3 Server Module**

- A staff can make a SCR related to SMTP/POP3 Server.

⇒ **Web Module**

- A staff can make a SCR related to Web Module.

⇒ **Analysis & Design Reports of XChanger**

**-** A staff faces a problem in the analysis / design period or some specifications on XChanger is missing. The reason for this problem can be anything during Analysis or Design periods. Then, staff requests a change; however this case can be considered more serious than other cases because changing something which is decided in analysis or design period is more complicated. A small change can trigger something else. Therefore, staff are required to present a sound analysis of the problem to the CCB.

⇒ **Functional & Organizational Structure of Groups**

- A staff thinks that something is wrong with the functional or organizational structure of a group. Then, he/she requests a change.

All of the above CIs are individually managed and versioned. CCB are responsible for evaluating the SCRs of above items and how to evaluate a SCR is described in the next section.

# 3. CM PROCESS

This section describes how requests for change or problem reports are initiated, processed, and completed. This section outlines configuration management's role in lifecycle reviews and audits, both being the formal mechanism for establishing and reviewing project baselines.

## *3.1 Initiating a SCR*

In order to initiate a SCR, staff are not required to fill a form or do anything else formal. Staff are expected to express it in the meeting which are held twice a week.

## *3.2 Change Classification*

All staff are allowed to make a SCR and all CIs ,on which staff can request a change, are listed before. (*see section 2.4 Configuration Items*) However, as mentioned in section 2.4 some changes can be more complicated and must be considered in detail. In order to be helpful, some criteria, on which staff has to study before making a SCR, are listed below:

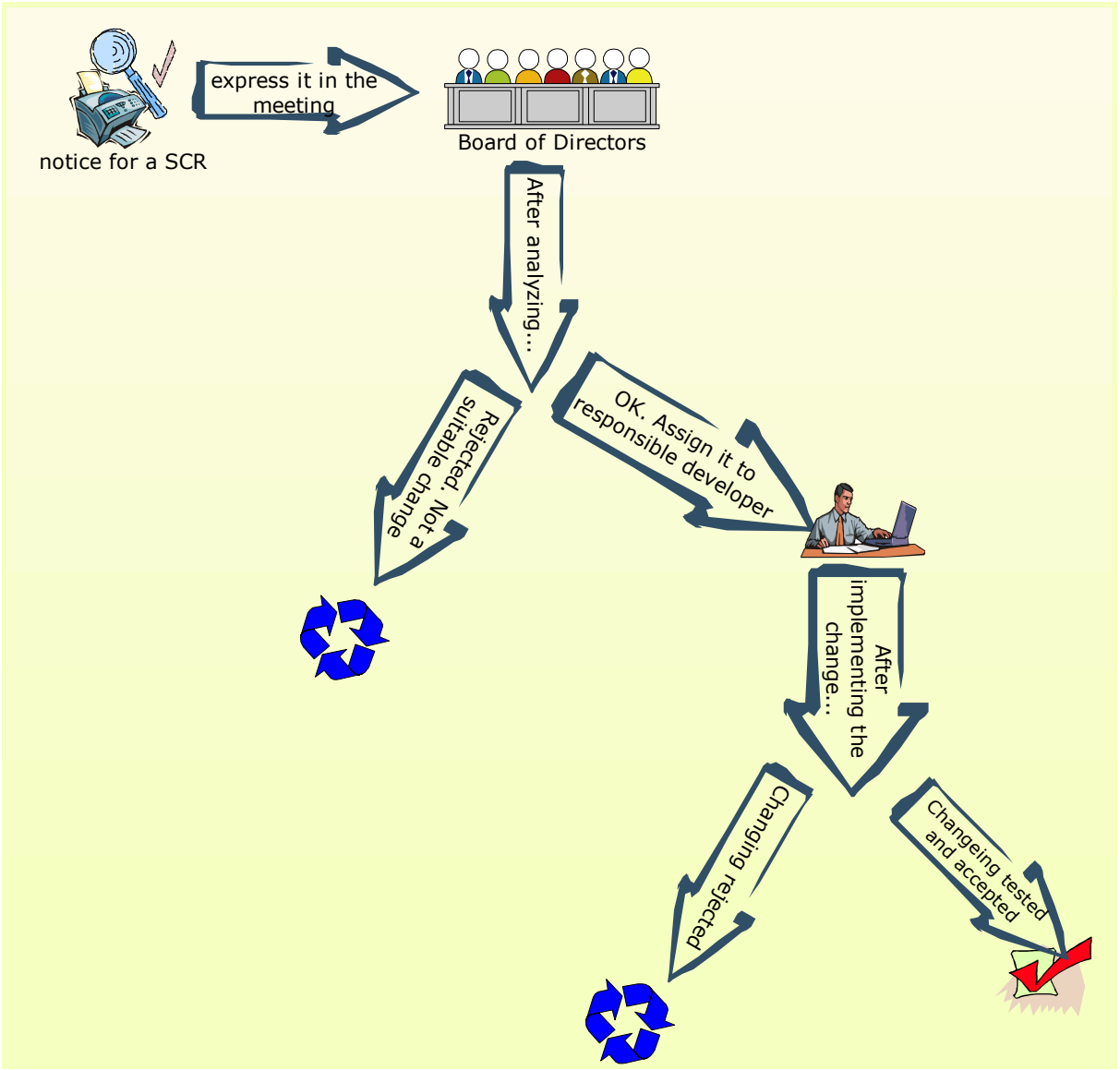
- Criticality
- Interface requirements
- Change sensitivity
- Schedule
- Scope and complexity

## *3.3 Problem Resolution Tracking*

Staff who made a SCR is expected to log project problem requests and initiate resolution. Additionally, please see section 3.5 "Configuration Status Accounting" for details.

## *3.4 Change Control Process*

This process is summriazed in the below diagram:




## *3.5 Configuration Status Accounting*

All CM activities are recorded, stored, and reported by the CSA function. The CSA function is a discipline that provides CCB with feedback to determine whether decisions of the CCB are being implemented as directed. As approved changes are executed, the CSA function records and files data concerning the appropriately modified software, hardware, and documentation. The CSA function is responsible for identifying and issuing the most current approved versions of the CIs to project participants.

In order to keep track of changes, for each CI listed in section 2.4, there is a directory in which files are kept. These files keeps necessary data of a SCR of that CI. These are text files and each file includes only data of one SCR.

The file has the following fields:

- Description of the SCR that is applied.

This description will include:

- The name of the files affected.
- Its CVS version numbers before and after the change.
- The reason of the change and the place where the change is applied in the file.
- The effects of the change to the overall system if there is any.
- Names of the team member who opened SCR and the person who solved the problem.

# 4. PROJECT SCHEDULING

Development process of XChanger is started in February 2007 and milestones are shown below:

| | |
|---|---|
| March,15 2007 | Snapshot Demo |
| April,30 2007 | First Release of XChanger |
| June,11 2007 | Final Release of XChanger |

# 5. TRAINING

This section lists CM training for all project personnel.

| Training Subject | Trainer | Participants |
|---|---|---|
| MSSQL 2000 | Fuat | Tolga, Burak, Kaya |
| ASP .Net | Fuat | Tolga, Kaya, Burak |
| Javascript | Kaya | Fuat, Tolga, Burak |