

METU
DEPARTMENT OF COMPUTER ENGINEERING

Configuration Management Report

Cennet Elması

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CennetElması

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1. Introduction

This document is prepared to show the Configuration Management Plan of SNMP Agent & Network Simulator project. This project is sponsored by Siemens EC and is prepared by Group *Cennet Elması* whose members are the senior students in Computer Engineering Department of Middle East Technical University.

1.1. Purpose of Configuration Management Plan

The purpose of this document is to help the developers not to make crucial mistakes while implementing the product, due to the fact that, during the development period, the product should be revised constantly by all the group members and any modification made by a developer on a single entity should be notified to all other developers as well. So, this document identifies the functional and physical attributes of our software project at various points in time, and performs systematic control of changes to the identified attributes for the purpose of maintaining software integrity and traceability throughout the software development life cycle.

1.2. Scope of the Document

The scope of this document includes the identification of the configuration management plan which will be applied during the development life cycle of SNMP Agent & Network Simulator project. This plan specifically defines the organization of the team, responsibilities of our team members, milestones of the development life cycle and the tools & infrastructure that will be used.

1.3. Definitions, Acronyms and Abbreviations

SVN: Subversion
TRAC: Bug-tracking Tool
CM: Configuration Management
SNMP: Simple Network Management Protocol
GWT: Google Web Toolkit
CSA: Configuration Status Accounting
IDE: Integrated Development Environment
CCT: Change Control Team
CMP: Configuration Management Plan

1.4. Document References

http://en.wikipedia.org/wiki/Configuration_management
http://en.wikipedia.org/wiki/Software_configuration_management

1.5. Document Overview

This document is divided into six sections: the Introduction, the Organization CM Framework, the Configuration Management Process, the Project Schedules and CM Milestones, Project Resources and the Plan Optimization.

The section 1 consists of purpose and scope of the configuration management (CM), some definitions, acronyms and abbreviations, document references and overview.

Section 2 includes the organization of the development life cycle, responsibilities of the group members and the tools & infrastructure that will be used during development of the software.

Section 3 describes the development progress of the configuration management (CM) process. There are brief explanations about the where the source code, the data and the documents will be stored while the CM process. Moreover, it includes when and how some changes on the software should be done and how the auditing is going to be done.

Milestones and development schedule is stated in section 4.

Section 5 explains the where the project resources are going to be shared and which resources are going to be used.

Finally, section 6 includes how we can optimize CM process and underlines the CM process's importance.

2. The Organizations CM Framework

2.1 Organization

2.1.1. Software Development Team

The software consists of two main parts which are server side of the server and client side of the server. These are held by two separate teams

2.1.2. Server side Development Team

Server side development team handles the main parts of the software including creating SNMP Agent and running SNMP Simulation

2.1.3. Client side Development Team

Client side development team is responsible for graphical user interface.

2.1.4. Testing Team

This team creates valid test cases and tests the software according to these cases. Finally, they report the bugs and errors on the system.

2.1.5. Configuration Control Team

This group administrates other groups. Moreover, configuration control team reviews, discuss, accept or reject specification change reports.

2.1.6. Configuration Management Team

The configuration management team is responsible for keeping configuration management plan up-to-date.

2.1.7. Version Control Team

Version Control Team is going to decide which version will be announced..

2.1.8. Release Control Team

Release Control Team is going to monitor the announced versions that are ready

2.2. Responsibilities

Each member in Cennet Elması has the same status in management and is responsible from all the organizational teams described above. Any part in the system which is subject to change cannot be changed unless it is discussed in a meeting and accepted by the majority.

Software Development Team : All members of group

Server side : Mustafa İlhan, Mehmet Elgin Akpınar, Osman Tahsin Berктаş

Client side : Mustafa İlhan, Mehmet Elgin Akpınar, Osman Tahsin Berктаş

Testing Team: Mehmet Elgin Akpınar, Osman Tahsin Berктаş

Change Control Team: Mehmet Elgin Akpınar, Mustafa İlhan, Osman Tahsin Berктаş

Version Control Team: Mustafa İlhan, Mehmet Elgin Akpınar

Release Control Team: Mehmet Elgin Akpınar, Mustafa İlhan, Osman Tahsin Berктаş

2.3. Tools and Infrastructure

During the development and management of SNMP Agent & Network Simulator, the following tools will be used.

- **Eclipse with Google Plug-in:** Eclipse is an open development platform comprised of extensible frameworks, tools and runtimes for building, deploying and managing software across the lifecycle and the IDE in which we will develop our software. The reason for the decision of using Eclipse is that it is very easy to use and compatible with both Google Web Toolkit and SVN of Appspot. In order to create a GWT application, it requires downloading the Google Plug-in.
- **SVN:** In order to manage the configuration and revision of the software, we use SVN application of Appspot.
- **Appspot:** Appspot enables the group members to build and host web apps on the same systems that power Google applications and offers fast development and deployment; simple administration, without any consideration about hardware, patches or backups; and effortless scalability.
- **Google groups:** Google Groups is used for the communication between group members.
- **Blog:** The main purpose of preparing a blog section is to keep instructors, assistant and the adviser aware of our progress, and give information to those who want to learn about SNMP Agents and Network Simulators.

3. Configuration Management Process

3.1. Identification

3.1.1. Source Code

The source code of the project is kept in the repository of the SVN hosted by Google Appspot, which only three members of the group, Cennet Elması can access and alter. All members, having Eclipse IDE on their local working area, have created a directory for this project which is updated frequently using SVN application.

The code is constructed by using Google Web Toolkit, which is a development toolkit for building and optimizing complex browser-based applications like our software. The reason why we have chosen it is that it's open source, completely free, and used by thousands of developers around the world.

In our project, there are two main parts, which are server side and client side of the software. The server side is written by using Java and snmp class. On the other hand, client side is written by combining HTML, CSS and GWT.

3.1.2. Data

In this project, data tables are stored in XML files and MIB files instead of being stored in a database. Therefore, there is no need to use a database system. Instead, the data files in which the information about devices, nodes and etc. are kept in separate files on the server.

3.1.3. Documentation

All documents of product are in web-site and blog. These documents are;

- Requirements analysis report
- Initial design report
- Detailed design report
- Revised design report
- Configuration management plan

3.2. Configuration Management and Control

While implementing the software, some design parts may supposed to be reconsidered and changed. Any member of our group can make possible changes but he must tell which part is affected by this change and which codes must be modified. He must inform using TRAC. If CCT approves it, designs will be changed. Afterwards, some tests which are specified by Testing Team will be done for the changes. If the new designs satisfies the tests, changes will be reflected to software. However the old version would be still online for any member can access them by using SVN, because of the undesired results possibilities

3.3. Configuration Status Accounting

CSA becomes an important concept as the project advances and includes activities for recording and reporting the CIs of the project. To maintain coordination between members and modules in such huge project, configuration status of all versions of the project is needed. Because each member can access on all comments, he is aware of all changes. Thanks to SVN tool, as it is easy to keep all versions of the project and comments. It is significant to track all change requests, bug reports and release reports for Cennet Elması in the development of project. Therefore, writing a weekly report is responsibility of each member and it is overseen strictly.

3.4. Auditing

Cennet Elması has its own unique auditing which is an important part of CMP. Communication between members is done by through e-mail and weekly meetings. Furthermore there are regular meetings with assistants of course and Siemens EC. Each weekly meeting and its content are organized in the previous weekly meeting. All tasks are assigned to members and reminded via issue track system and weekly meetings. The requests posed at the meetings are evaluated and applied if approved. During meetings, any disagreement is solved with finding an optimized solution. New researches are assigned to members in case of short term unforeseen problems. In addition to weekly meetings, extra meetings are arranged according to baselines.

There are three types of auditing that we have discussed:

- Functional: shows whether the software meets our requirements, in the testing process.
- Physical: indicates whether the software contains all of the required components, documents and data which have been stated in the documentation.
- Process: shows whether the final product is produced according to the procedures in the documentation.

4. Project Schedules and CM Milestones

Obeying the due dates is not easy task in software projects and also these dates are creating too much stress in software developers however in order to increase the efficiency of team, we should set short term goals. For that reason we set the milestones for the project SNMP Agent & Network Simulator. Our milestones are founded on finish date of the Units, Tests and Course Syllabus.

Here are the milestones:

- Sending SNMP Trap
- Creating virtual IP devices
- First Development Snapshot Demo (29 March 2011)
- Parsing Files (XML and MIB)
- Adding, Editing, Removing Devices
- Creating Network
- Adding, Editing, Removing Devices to Network
- Test Specifications Report (19 April 2011)

- Implementing Persistence Component
- Implementing Simulation Engine Component
- Implanting SNMP Component
- Running Simulation for One Device
- First Release (10 May 2011)
- Running simulation for a subnet
- Running simulation for Multiple Subnets
- Final Package, User Manual (23 May 2011)
- Demo (13 June 2011)

5. Project Resources

The resources of the projects can be listed as follows:

- Revision Control System : Google Code Project Hosting - Subversion
- Development Environment : Eclipse with Google plug-in
- Issue Tracking System : Google Code Project Hosting - Issue Tracking
- Project Documents : Web Site
- News : Blog

6. Plan Optimization

It is very possible that a specification or a method of implementing can be change due to the unforeseen circumstances. In these cases, all group members have a meeting and discuss these modifications. In case of positive vote of minority to apply the modification, Configuration Management Team updates the relevant documents, and announces the modification on the blog.