ALTF4
Bustalk
Software Configuration Management Plan

General Information

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Change Control

Revision Date	Author	Section(s)	Summary
N/A	N/A	N/A	N/A
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1. Introduction

This Software Configuration Management (SCM) Plan specifically addresses configuration management for software. Configuration management for hardware, telecom, operating systems, and other components managed by Infrastructure Services are addressed by the DTMB Information Technology Infrastructure Library (ITIL) Process and Procedures.

1.1 Purpose

The purpose of Software Configuration Management (SCM), in general, is to establish and maintain the integrity of work products using:

- Configuration Identification
- Configuration Control
- Configuration Status Accounting
- Configuration Audit

A Configuration Item (CI) is an entity designated for configuration management, which may consist of multiple related work products that form a baseline. This logical grouping provides ease of identification and controlled access. The selection of work products for configuration management should be based on criteria established during planning. Section 3 of this SCM Plan contains detailed information about CIs.

Configuration Identification

The purpose of Configuration Identification is to define the functional and physical characteristics of a CI in sufficient detail so that it may be developed, tested, evaluated, produced, competitively procured, accepted, operated, maintained, and supported. Configuration Identification is established by baselines plus approved changes. For purposes of this SCM Plan, Configuration Identification includes the selection, creation, and specification of the following:

- Products that are delivered to the client
- SEM documents requiring Structured Walkthroughs (SWT)

Configuration Control

The process of evaluating, approving or disapproving, and managing changes to controlled items. This includes tracking the configuration of each of the CIs, approving a new configuration if necessary, and updating the baseline.

Configuration Status Accounting

The process of creating and organizing the information necessary for the performance of configuration management. An element of configuration management consisting of the recording and reporting of information needed to manage a configuration effectively. This information includes a listing of the approved configuration identification, the status of proposed changes to the configuration, and the implementation status of approved changes.

Configuration Audit

Audits are conducted to verify that a CI, or a collection of CIs that make up a baseline, conforms to a specified standard or requirement. This includes functional and physical configuration audits.

1.2 Objectives

This SCM Plan defines the configuration management policies and procedures required for this project. This plan has been developed early in the lifecycle to ensure the control of changes as soon as the project requirements are approved. This plan addresses activities that are platform independent, such as identifying the items that will be placed under configuration management. As the project progresses through the lifecycle stages, the plan is expanded to reflect platform specific activities.

Changes in this system affecting other SCM plans are identified and explained in Section 2 (Software Configuration Management Resources) and Section 3 (Software Configuration Management Tasks) of this plan.

1.3 References

Listed here are policies, procedures and standards used in preparing and setting up this SCM Plan.

- State of Michigan's System Engineering Methodology (SEM)

2. Software Configuration Management Resources

This section identifies the roles of individuals and groups that participate in the SCM process. It describes the relationships between individuals and groups.

2.1 Roles and Responsibilities

Only the responsibilities related to SCM are listed here.

2.1.1 Project Manager (PM)

- Establish the overall project schedule for SCM activities with Configuration Management Manager (CMM)
- Make sure team members are knowledgeable of SCM concepts and techniques and that they are applied to project activities
- Ensure compliance with the SCM standards and procedures set by the CMM, the Configuration Control Board (CCB), and any other affected groups as outlined in this plan

2.1.2 Configuration Management Manager (CMM)

The project CMM will prepare the SCM Plan with assistance from the Project Manager. The CMM is responsible for creating and/or updating the SCM Plan, as well as communicating the contents of the plan to the project team.

Responsibilities

SCM Planning

- Identify the Configuration Items (CIs) to be managed under the SCM processes
- Create, manage and maintain the SCM Plan, standards, and procedures
- Communicate any changes to the SCM Plan, standards, and procedures to all stakeholders
- Make sure that all project team members involved in the SCM process receive training on their roles
- Make updates to the SCM Plan, as appropriate
- Make sure that any updates to the SCM Plan are communicated to the appropriate project team members
- Form and lead a SCM Team
- Approve changes to the SCM Plan

Implementing Changes

- Participate as a member of the Configuration Control Board (CCB)
- Create SCM products (baselines, application environments), as authorized by the CCB
- Process and track software change requests
- Function as the point of contact with Infrastructure Services to analyze proposed changes and to insure interoperability between hardware and software components

Tracking, Reporting and Audits

- Make sure that configuration item change requests and problem reports for all CIs are initiated, recorded, reviewed, approved, and tracked according to the SCM Plan
- Ensure all Functional and Physical Configuration Audits are performed
- Respond to requests for status regarding SCM activities from managers and auditors

2.1.3 Configuration Control Board (CCB)

Responsibilities

- Monitor changes and updates to project requirements
- Authorize the establishment of baselines and the identification of CIs
- Ensure that all approved changes and updates to CIs are placed under configuration control
- Use the SCM Plan as its primary decision-making resource
- Support and provide input to Local Change Board (LCB) and Enterprise Change Board (ECB) functions related to the DTMB Service Management Center Request for Change (RFC) process
- Review and authorize changes to the baselines
- Attend regularly scheduled meetings
- Review and discuss new change requests
- Prioritize change requests
- Authorize research on change requests
- Approve the commencement of work on change requests (make active)
- Review the status of active change requests
- Create and communicate minutes from the CCB to affected groups

Roles

Members	Roles
System Owner	Representative from customer agency with decision making authority
DTMB Project Manager (PM)	Project Manager for the application system
DTMB Application Development Functional Manager(s)	Development Manager(s)
Configuration Management Manager (CMM)	Service Provider

2.1.4 Local Change Board (LCB)

Responsibilities

- Authorize changes to the system
- Verify that any changes with statewide impact are marked for Enterprise Change Board (ECB) approval

Roles

Members	Roles
DTMB Agency Services (AS) Client Service Director (CSD)	Stakeholder
DTMB Application Development Functional Manager(s)	Development Manager(s)
DTMB Client Support Specialist	Client Support
DTMB Infrastructure Specialist	Agency Services Support
Configuration Management Manager (CMM)	Service Provider

2.1.5 Enterprise Change Board (ECB)

Responsibilities

- Ensure changes do not adversely affect other systems
- Authorize changes to the systems

Roles

The ECB is primarily staffed with DTMB Infrastructure representatives. Attendance at ECB meetings by the local staff will vary depending on the scope of the change. Typically only one or two of the following will attend.

Members	Roles
DTMB Agency Service (AS) Client Service Director (CSD)	Stakeholder
DTMB Application Development Functional Manager(s)	Development Manager(s)
DTMB Client Support Specialist	Client Support
DTMB Infrastructure Specialist	Agency Services Support
Configuration Management Manager (CMM)	Service Provider
Subject Matter Expert(s) (SME)	Subject Matter Expert(s)

3. Software Configuration Management Tasks

This section consists of the following:

- Identification of Configuration Items
- Configuration Items
- Baseline Identification
- Repository Identification
- Configuration Item Identifier

3.1 Identification of Configuration Items

The terms Configuration Identification and Configuration Item are defined in Section 1.1 of this document.

In this SCM Plan, work products are considered for configuration management based on the following criteria. A work product is any tangible item that results from a project function, activity or task.

- May be used by one or more work groups
- Are expected to change over time either because of errors or change of requirements
- Are dependent on each other in that a change in one mandates a change in another/others
- Are critical to the project

Items in the following categories are selected to be placed under configuration management:

- Project Management documentation, including Project Plan and Project Charter
- SEM documentation, including all deliverables, Structured Walkthroughs (SWT), Stage Exit Position Response form
- Models
- Interfaces
- Process descriptions
- Product/Application data such as lookup tables, system files
- Source code and executable code
- Test scripts
- Test data
- Metrics, status reports, quality review reports, etc.
- Support tools, including compilers, editors, testing tools
- Touch Point documentation including EA solution documents, Infrastructure Services Request (DTMB-0184), and Security Plan and Assessment (DTMB-0170)

3.2 Configuration Items (CIs)

The following table contains CIs that are included in this SCM Plan.

Configuration Items	Description/SUITE Form	Responsible for placing item under control	When item is put under control
Project Charter	PMM-0002	Project Manager	Initiation & Planning Stage Exit
Project Plan	PMM-0003	Project Manager	Initiation & Planning Stage Exit
Security Plan	DTMB-0170	OES Liaison	Initiation & Planning Stage Exit
Software Configuration Management Plan	SEM-0302	CM Manager	Initiation & Planning Stage Exit
Maintenance Plan	SEM-0301	DTMB Analyst/CM Manager	Initiation & Planning Stage Exit
Requirements Specification	SEM-0402	Business Owner	Requirements Stage Exit
Requirements Traceability Matrix	SEM-0401	Project Manager/DTMB Analyst	Requirements Stage Exit
EA Solutions Assessment	SEM Touch Point	Project Manager/DTMB Analyst	Requirements Stage Exit
Infrastructure Services Request (ISR)	SEM Touch Point, DTMB-0184	Project Manager/DTMB Analyst	Requirements Stage Exit
Hosting Solution	SEM Touch Point	Project Manager/DTMB Analyst	Requirements Stage Exit
Functional Design	SEM-0501	Business Owner/Project Manager/DTMB Analyst	Functional Design Stage Exit
Conversion Plan	SEM-0601	Project Manager/DTMB Analyst	System Design Stage Exit
Test Plan	SEM-0602	Business Owner/Test Manager	System Design Stage Exit
Test Type Approach and Report (multiple)	SEM-0603	Business Owner/Test Manager	System Design Stage Exit
System Design	SEM-0604	Project Manager/DTMB Analyst	System Design Stage Exit
System Design Checklist	SEM-0605	Project Manager/DTMB Analyst	System Design Stage Exit
Test Case (multiple)	SEM-0606	Project Manager/DTMB Analyst	System Design Stage Exit
Transition Plan	SEM-0701	Project Manager/DTMB Analyst	Construction Stage Exit
Installation Plan	SEM-0702	Project Manager/DTMB	Construction Stage Exit

Configuration Items	Description/SUITE Form	Responsible for placing item under control	When item is put under control
		Analyst	
Training Plan	SEM-0703	Business Owner	Construction Stage Exit
Training Plan checklist	SEM-0704	Business Owner	Construction Stage Exit
Release Notes	Word/Excel	Project Manager/DTMB Analyst	Implementation Stage Exit
Post Implementation Evaluation Report	PMM-0016	Business Owner/Project Manager/DTMB Analyst	Implementation Stage Exit
Request for Change (RFC)	SEM Touchpoint, SMC website	Project Manager/DTMB Analyst	Construction Stage Exit
Structured Walkthrough Meeting Record	SEM-0187	Business Owner/Project Manager/DTMB Analyst	All Stages
Defect Tracking Log (or equivalent)	SEM-0186 (or equivalent)	Project Manager/DTMB Analyst	All Stages
Stage Exit Approvals	SEM-0189	Business Owner/Project Manager/DTMB Analyst	All Stages
Project Charter	PMM-0002 EXP	Project Manager	Initiation, Requirements & Design Stage Exit
Project Plan	PMM-0003 EXP	Project Manager	Initiation, Requirements & Design Stage Exit
Initiation, Requirements and Design Plan	SEM-0001 EXP	Business Owner/Project Manager/DTMB Analyst	Construction & Testing Stage Exit
Construction and Testing Plan	SEM-0002 EXP	Business Owner/Project Manager/DTMB Analyst	Construction & Testing Stage Exit
Post Implementation Evaluation Report	PMM-0016 EXP	Business Owner/Project Manager/DTMB Analyst	Implementation Stage Exit
C/JAVA Code (Example)	Application Source Code	Developer	Initial unit test
Database Stored Procedures	Database Source Code	DBA	Initial unit test
Cobol Compiler (Example) File Editor (Example)	Support Tools	Infrastructure	After received from vendor
Graphics/Images	User Interface Elements	Graphic Designer	Initial unit test

3.3 Baseline Identification

In this SCM Plan, a software baseline is created by the identification and labeling of CIs at a specific point in time. A baseline represents the current approved configuration.

3.4 Repository Identification

Repository for Bustalk is stored under the a GitHub repository under the user ToraNova.
GitHub repository : https://github.com/ToraNova/bustalk

3.5 Configuration Item Identifier

Configuration Item Identifiers are used to label all of the CIs that make up a particular grouping such as an application release, a project development phase or documentation changes.

This identification scheme preserves all of the files that are used to create each release and exactly which versions of those files were used. This scheme works for the application installations and then for subsequent upgrades.

Identifiers are used to label the documentation deliverables in a project. For instance, at the end of the system design stage, all of the approved deliverables will be labeled and preserved for future reference. After the completion of the project, many of the deliverables will need to be updated to reflect changes to the application. Those deliverables are assigned identification labels so that their current state can be identified and preserved for future reference.

The following tables show how identifiers are assigned to files and baselines.

Examples 1 and 2 show sample baseline release configuration identification labeling schemes using these abbreviations for baseline (BL), major (mm), minor (nn), and revision (rr).

Example 1	
Environment	**Identification Scheme**
Development	N/A
Unit Test	SFSweb.TST.BL.mm.nn.rr
User Acceptance Testing (UAT)	SFSweb.UAT.BL.mm.nn.rr
Production	SFSweb.PRD.BL.mm.nn.rr

Example 2	
Environment	**Identification Scheme**
Development	DEV.BL.00001 through DEV.BL.99999
Test region	TST.BL.00001 through TST.BL.99999
UAT	UAT.BL.00001 through UAT.BL.99999
Production	PRD.BL.00001 through PRD.BL.99999

Table 1 shows three different schemes for identifying documents. The software change request number, document identifies (see Table 2 below), and a status indicator (Initial (I), Final (F)) are used in

combination to form an item scheme.

Table 1	
Document Name	**Document description**
S123.PP.I.doc	Change Request S123 Project Plan Initial
PP.F.S123.doc	Project Plan Final Change Request S123
F.PP.S123.doc	Final Project Plan Change Request S123

Table 2	
Document Identifiers	**Document CI description**
PP	Project Plan
PMC	Project Management Charter
SEC	Security Plan
SCM	Software Configuration Management Plan
MAIN	Maintenance Plan
REQ	Requirements Specification
REQT	Requirements Traceability Matrix
INFRA	EA Solutions Assessment
INFRAR	Infrastructure Request
DESN	Functional Design
HOST	Hosting Solution
CONV	Conversion Plan
TESTP	Test Plan
TTAR	Test Type Approach and Report
SYSD	System Design Document
SYSCH	System Design Checklist
TRAN	Transition Planning
INSTP	Installation Plan
TRAIN	Training Plan
TRAINCH	Training Plan Checklist
IRDEXP	Initiation, Requirements and Design for Express
CTEXP	Construction and Testing for Express
RELEASE	Release Notes
RFC	Request for Change Document
PIER	Post Implementation Evaluation Report

4. Software Configuration Control

The term Configuration Control is defined in Section 1.1 of this document. Software Configuration Control includes the following objectives:

- Procedures for changing baselines
- Change requests approvals
- Responsibilities for change control
- Change control process
- Request for Change process
- Level of control
- Management of release documentation
- Configuration control tools and techniques

4.1 Procedures for Changing Baselines

Activities performed in the SCM Plan for processing changes include:

- Defining the information needed for approving the requested change
- Identifying the review process and how communication of information is completed

4.2 Change Requests and Approvals

This SCM Plan contains documented procedures for originating change requests, enforcing the flow of the change process, capturing CCB decisions, and reporting change process information. Included in this SCM Plan is a prioritization process for software change requests.

The software change request process in this SCM Plan requires the use of supporting tools and procedures. Basic tools used in this SCM Plan are:

- Remedy flow and procedures
- Rational software
- Serena Team Track
- Microsoft Excel
- Microsoft Word

4.3 Change Control Process

The purpose of the CCB/LCB is to control changes that impact schedule, function, and the configuration of the system as a whole.

The change control processes described in this SCM Plan include the following activities:

- Providing direction of the entire configuration management effort
- Resolving all problems and situations that arise during the effort
- Using the SCM Plan as its primary decision-making resource
- Taking into account organizational management considerations for decision making
- Initiating and controlling all activities from the beginning to the approval of the baselines for SCM establishment
- Making decisions on which products should be baselined or managed, the methods to be used, and the order in which they should be done

4.4 Request for Change (RFC) Process

This SCM Plan supports the DTMB RFC process. The Configuration Management Manager (CMM) is responsible for ensuring that all LCB and ECB processes are followed.

4.5 Level of Control

Control of CIs varies depending on environment, action, and responsible party. The following tables define appropriate levels of control:

Development Environment

Action	Control
Check in Source Code	Developers, Librarians
Promote Source Code	Automatic when checked in
Check in Project Documentation	Project Manager, Developers, Librarians
Check in Application Documentation	Project Manager, Developers, Librarians

System Test Environment

Action	Control
Check in Source Code	Check in to system test not allowed
Authorize Code Promotion to system test	CCB
Promote Source Code to system test	Librarian
Define Release	CCB
Authorize Baseline Label	CCB
Label Baseline	Librarian
Authorize Environment Build	CCB

Action	Control
Build Environment	Technical Operations

User Acceptance Test (UAT) Environment

Action	Control
Check in Source Code	Check in to UAT not allowed
Authorize Code Promotion to UAT	CCB
Promote Source Code to UAT	Librarian
Define Release	CCB
Authorize Baseline Label	CCB
Label Baseline	Librarian
Authorize Environment Build	CCB
Build Environment	Technical Operations

Production Environment

Action	Control
Check in Source Code	Check in to production not allowed
Define Release	CCB
Authorize Baseline Label	CCB
Label Baseline	Librarian
Authorize Environment Build	CCB
Build Environment	Technical Operations

4.6 Management of Release Documentation

The following documents are required for the release to production:

- Installation Plan (including a backout plan)
- Release notes
- Updated user documentation
- Training materials

4.7 Configuration Control Tools and Techniques

These SCM processes use a basic tool set to manage access to the repositories, to process change requests and to report status. The basic tool set includes:

- Basic database management systems
- Report generators
- Means for maintaining separate dynamic and controlled repositories
- File system for managing the check in and check out of units, for controlling compilations, and capturing the resulting products

Specific tools include:

- Infrastructure Configuration Management Build Application
- Remedy
- Issue Tracker
- Oracle Repository
- Serena Version Manager

The tools listed in this SCM Plan provide support to the Configuration Control and Release processes.

5. Configuration Status Accounting

The term Configuration Status Accounting is defined in Section 1.1 of this document. Configuration Status Accounting has the following objectives in this SCM Plan:

- Maintain records of the configuration status of all entities that have been placed under configuration control at the project level or higher
- Maintain records for the life of the project
- Produce reports that include the current version, revision, or release status of each CI, a record of changes to the CI since it was placed under configuration control, and the status of problem reports and change requests that affect the CI

6. Configuration Audits and Reviews

The term Configuration Audit is defined in Section 1.1 of this document.

This SCM Plan ensures successful completion of functional and physical audits and is used as a prerequisite for the establishment of the product baseline in the initial SCM process. It is used throughout the project for the review of SCM processes and the audit of the configuration repository.

The functional audit determines whether the CI satisfies the functions defined in the specifications. The physical audit determines that all items identified as part of system configuration are present in the product baseline. Sections 6.1 and 6.2 describe how these audits are used.

6.1 Functional Configuration Audits

The SUITE Key Terms and Acronyms document defines a **Functional Configuration Audit (FCA)** as, "An inspection to determine whether the (software) configuration item satisfies the functions defined in the specifications. Consists of someone acknowledging having inspected or listed each item to determine it satisfies the functions defined in specifications."

The Configuration Management Manager (CMM) is responsible for ensuring that a FCA is performed. Results of the completed audit are used by the Configuration Control Board (CCB) to authorize a new baseline.

The Requirements Traceability Matrix (SEM-0401) includes data required to verify and validate changes against CIs.

The Traceability Matrix contains the following columns:

- Requirement Number
- Requirement Type
- Design Specification Reference No(s)
- Program Module
- Test Reference Number(s)
- Status
- Status Date
- Requirement Modification(s)/Comments

6.2 Physical Configuration Audits

The SUITE Key Terms and Acronyms document defines a **Physical Configuration Audit (PCA)** as "the formal examination of the 'as-built' configuration of a configuration item against its technical documentation to establish or verify the configuration item's product baseline."

The CMM is responsible for ensuring that a PCA is performed. Results of the completed audit are used by the CCB to authorize a new baseline.

7. Archive and Retrieval

This project follows DTMB archive policies as well as the agency's business and continuity planning requirements. The Configuration Control section of this plan contains information regarding the methods for retention and retrieval.

8. Training

The Project Manager is responsible for determining the SCM training needs of the team. Potential training topics include:

- Roles, responsibilities, and authority of configuration management staff
- Configuration management standards, procedures, and methods
- Configuration repository system

9. Related Forms

- Requirements Traceability Matrix (SEM-0401)
- Installation Plan (SEM-0702)

Approval Information

The signatures relay an understanding of the purpose and content of the document by those endorsing it.

	Approve		Approve with Modifications		Reject

Comments:

Approval Signatures

Role	Name/Title	Signature	Date
Client Sponsor			
DTMB Sponsor			
Project Manager			
Configuration Management Manager			