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GoldFolks

*Software Configuration Management Plan*

***Version 1.0***

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*Prepared by Team ElevenDegree*

*Anil Ankitha*

*Chan Shao Jing*

*Chong Yow Lim*

*Lionel Wong Zhi Neng*

*Low Jin Teng Jackson*

*Ng Chi Hui*

*Zachary Varella Lee Zheyu*

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# Identification

## This document is the Configuration Management (CM) Plan of Team ElevenDegree which will define the team’s configuration management plans for their GoldFolks project.

## Document Overview

The CM Plan aims to address responsibilities, procedures, and conventions necessary to provide configuration identification, configuration change, configuration support and configuration control. Other than describing the implementations of CM of processes for our project and programme, the CM Plan will also iterate how to use and maintain CM throughout the lifecycle of our project GoldFolks.

The CM Plan defines:

## Abbreviations and Glossary

### Abbreviations

|  |  |
| --- | --- |
| **Abbreviation** | **Full Form** |
| CM | Configuration Management |
| CMS | Configuration Management System |
| SCM | Software Configuration Manager |
| SCI | Software Configuration Item |
| SOUP | Software of Unknown Pedigree/Provenance |
| VDD | Version Description Document |
| QA | Quality Assurance |

### Glossary

|  |  |
| --- | --- |
| **Word/Phrase** | **Explanation** |
| Version | A particular form of document/application that differs in certain aspects from an earlier form or other forms of the same thing |
| Branch | To develop a document/application independently in parallel, with the possibility of merging in the future. |
| Merge | To combine different branches of work into a main branch |

## References

### Project References

| **#** | **Document Identifier** | **Document Title** |
| --- | --- | --- |
| 1 | SRS | System Requirement Specifications |
| 2 | QP | Quality Plan |
| 3 | RMP | Risk Management Plan |
| 4 | PP | Project Plan |

### Standard and Regulatory References

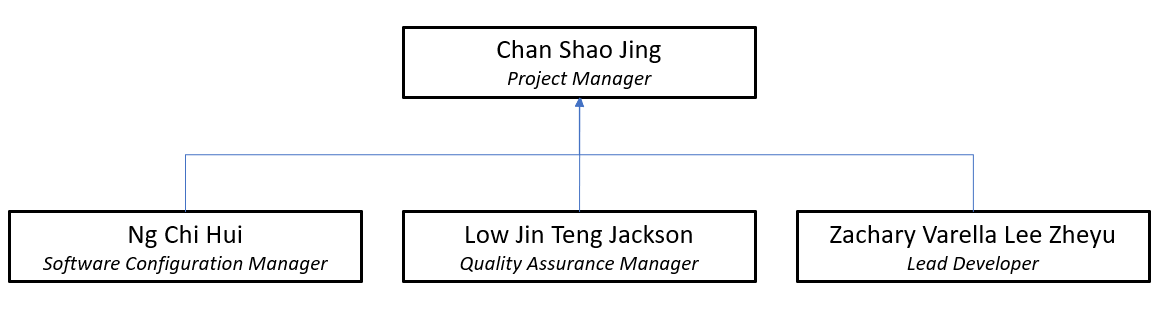
|  |  |  |
| --- | --- | --- |
| # | Document Identifier | Document Title |
| 1 | SCM1 | IEEE 828-2012 – IEEE Standard for Configuration Management in Systems and Software Engineering |
| 2 | SSCM1 | IEEE Standard for Software Configuration Management Plans |

## Conventions

|  |  |  |
| --- | --- | --- |
| **Typeface** | **Usage** | **Example** |
| **Bold** | To assert emphasis on the text. Used in headers and titles as well. | **1.4 Conventions** |
| Underline | To help draw attention to the text. Also used to represent hyperlink. | Refer to Project Plan for more information. |
| Highlighted | To assert special emphasis on important information in a text. | Total Cost: $1500.50 |
| Red | To indicate comments and mark out text that requires changes. | This document … (Maybe change this part to this instead) |
| *Italics* | To assert minor emphasis on the text. Also used to refer to file names. | For more information, you can refer to our *Configuration Management Plan* instead. |

# Organization

The responsibilities of software configuration management are shared by members of the project in the following structure:



## Activities and Responsibilities

The functions required to manage the configuration of the software and responsibilities are listed below.

|  |  |
| --- | --- |
| **Activities when setting up the project** | **Person responsible** |
| Identify the configuration items | SCM |
| Install the bug repository tool and set up the database | SCM |
| Install the software configuration repository tool and set up the database | SCM |
| Manage and structure the reference space | SCM |
| Define the configuration processes | SCM |

| **Activities during the project lifecycle** | **Person responsible** |
| --- | --- |
| Export components for modification, test or delivery | SCM |
| Set under control validated components | SCM |
| Create version, write version delivery document | SCM |
| Approve reference configurations | Project Manager |
| Verify version to be delivered and authorize deliveries | Project Manager |
| Backup spaces | SCM |
| Do configuration audits | QA Manager |
| Inspect configuration records | QA Manager |
| Archive reference version | SCM |

| **Management activities** | **Person responsible** |
| --- | --- |
| Manage versions and archives | SCM |
| Manage configuration records | SCM |
| Produce reports and statistics | SCM |
| Manage reference space and its access control list | SCM |
| Manage spaces backup and archive media | SCM |
| Manage quality reports | QA Manager |

### Decisions’ Process and Responsibilities

Responsibilities during reviews, audits and approvals are listed below:

At the end of an activity of the project:

| **Activities** | **Person Responsible** |
| --- | --- |
| Do a configuration freeze | SCM |
| Present a configuration state of the components impacted by the activity | SCM |
| Present a documentation state of the components impacted by the activity | SCM |

During a configuration management process audit:

| **Activities** | **Person Responsible** |
| --- | --- |
| Do the configuration management process audit | Project Manager |
| Present the records of the configuration management process | SCM |
| Present the quality records of the configuration management process | QA Manager |
| Present the records of the documentation management process | SCM |

# Configuration Identification

The purpose of configuration identification is to maintain control of our project by uniquely identifying revisions of our project and the component parts of each revision. Through configuration identification, we will be able to update and keep track of the statuses of configurations items throughout the development lifecycle. Listed below are additional advantages from a proper configuration identification maintained in a project:

* Swiftly identify the structure of our organization and the relationship between products and configuration documentations
* Proper records of performance, interfaces, and other attributes of a product in the project
* Provide unique and appropriate levels of identification to products/documents in the project
* Simple modifications to identification of products/documents to describe major changes
* Maintain a structured release control of products/documents for baseline management
* Enables users or service personnel to distinguish between products/documents versions comfortably for easy maintenance and development work
* Correlates individual product units to warranties and service life obligations purchased by organization
* Providing a stable reference point for defining changes and corrective actions

To achieve the benefits listed above, we will need to maintain the following conventions in our configuration identification process:

* Selecting configuration items at appropriate levels of the project lifecycle to facilitate documentation, control, and support of the SCIs
* Determining the types of configuration documentation required and appropriate configuration control authority for each SCI
* Issuing unique identifiers for each SCI and their respective documents
* Maintaining configuration identification of SCIs to facilitate effective logistics support of items in service
* Proper and timely release of configuration documentation into project server databases
* Establishing configuration baselines for configuration control of SCIs

## Identification Rules

### Identification Rules of Configuration Items

#### Identification of a Configuration Item

The format for identification of a configuration item is:

XXX\_Vm.n

* where: "XXX" is the configuration item name
* “\_V” is the delimiter for version number
* “m” is a digit indicating the major version category
* “n” is a digit indicating the minor version category

#### Version Number of a Configuration Item

Software versioning is a way to differentiate the different states of computer software and documentation as it is developed and released. The version number consist of 2 number separated by a full stop. It is required for any delivery of any configuration item.

The definition rules of a version number are as follows:

* Major edits will increment the major version digit
  + Adding or removing significant features
  + Redevelopment of document
* Minor edits will increment the minor version digit
  + Bug fixes
  + Small changes to code

### Identification Rules of Documents

#### Description of Documents Identifiers

The identification of documents is described below:

XXX\_<document type>\_<document number>\_<revision index>

where:

* "document type" is the type of document
* "document number" is an incremental number, with a separate list for each document type,
* "revision index" designates the approved iteration of the document. The revision index is V1 for the first iteration, V2 for the second and so on.

#### Definition and Evolution of the Revision Index

The attribution of a revision index is a prerequisite to any delivery of a document or file. This index shall be incremented before the diffusion of a modified document. The definition rules are similar to the rules of Version number of a configuration item.

### Identification Rules of a Media

The only form of media used in the GoldFolks application is exercise videos from YouTube.

#### Internal Identification

The identification of a media is described below:

<configuration item identification>/<media>/<exercise type>/<video title>

where:

"exercise type" is the exercise type classification of the video, and

"video title" is a unique title to distinguish the video if the exercise type contains more than one video

## Reference Configuration Identification

Each reference configuration is defined by:

* An identifier,
* Its content listed in the corresponding Version Delivery Description document,
* The acceptation or validation reviews associated to the building of the reference configuration.

A reference configuration is established for each design review and each test review of the project.

## Configuration Baseline Management

Indicated below are the baselines to be established and when and how they will be defined and controlled.

Examples of baselines:

* functional baseline (FBL), which describes the system functional characteristics;
* allocated baseline (ABL), which describes the design of the functional and interface characteristics,
* product baseline (PBL), which consists of completed and accepted system components and documentation that identifies these products.
* Development baseline, which indicates the state of work products amid development.

The baselines will be defined and controlled after:

* Project Manager’s approval
* Meeting approved standards of QA team
* Project has been completed/tested at least once

# Configuration Control

Configuration control is used for managing configuration changes of our software application and related documents.

## Change Management

It is inevitable for changes to occur in software projects due to changing target users’ demands or bugs and errors. The process for controlling the changes to the baselines and for tracking the implementation of those changes are listed as follows:

Problem resolution:

* When a change request is accepted by the project manager, a branch is created in the CMS
* The branch identification is done as per the configuration item identification protocol
* Branch content is where the required changes will go to, before going through the rest of the change management workflow

Multiple configuration:

* When a change request is accepted by the project manager, a branch is created in the CMS
* The branch identification is also done as per the configuration item identification protocol
* Branch content is where the required changes will go to, before going through the rest of the change management workflow

## Interface Management

GoldFolks will interact with the following 3rd parties:

* YouTube
* Firebase

Thus, it will require respective interfaces for each 3rd party.

Following is the procedure to identify the interface requirements for each interface:

* Identify the interface
* Identify the characteristics of the interface
* Define the interface responsibilities

# Configuration Support Activities

## Configuration Status Accounting

Configuration Status Accounting (CSA) is the process to record, store, maintain and report the status of configuration items during the software lifecycle. All software and related documentation should be tracked throughout the software life. This process helps to ensure traceability and proper storage and maintenance of configuration items.

### Evolutions Traceability

The traceability of modifications of items given their types:

* Document: The modification sheet number identifies the origin of the modification. The modified paragraphs in the document are identified, if possible, by revision marks.
* Source file: The software configuration management tool records, for each source file or group of source files, a comment where is described the modification.
* Configuration item: The Version Delivery Description of the article identifies the modification sheet included in the current version.

The modification sheet describes the modifications done to the components with enough precision to identify the modified parts.

### Setting Up Configuration Status

The SCM sets up the state of all versions and of each configuration article with:

* The label,
* The version number,
* The creation date of the Version Description Document (VDD),

The SCM writes the VDD, which will serve the following purposes:

* Primary configuration control document used to track and control versions of software to be released to the operational environment
* Summary of features and contents for the software build which identifies and describes the version of the software being included, including all changes to the software since the previous VDD was issued.
* Every unique release of the software, starting from the initial release, shall be described by a VDD. Even if there are multiple forms of the same software being released at approximately the same time (e.g., different forms to different clienteles), each must have a unique version number and VDD.
* The VDD is part of the SCI product baseline. When distributed, the version description document should be sent with a cover memo that contains an executive summary, on a single page, the significant changes included in the release.
* The label and version will assist in uniquely identifying each VDD and trace them accordingly.

### Configuration Status Diffusion

The SCM and the QA Manager will write the VDD as described above.

### Configuration Status Records Storage

The records are stored in a configuration folder, which contains:

* The requests sorted by record number,
* The software documents,
* The VDD’s,
* The configuration states sorted chronologically.

## Configuration Audits

Compliance with the CM plan are assessed by the following:

* **Functional Configuration Audit** – to provide an independent evaluation of a software product, verifying that its configuration items' actual functionality and performance is consistent with the relevant requirement specification.
* **Physical Configuration Audit** – to provide an independent evaluation of a software product's configuration items to confirm that all components in the as-built version map to their specifications.
* **In-Process CM Audits**: to provide management with information about compliance to CM policies, plans, processes and systems, and the conformance of software product to their requirements through ongoing evaluations in the SDLC .
* A configuration audit must be performed on a configuration item before it is released. For each planned configuration audit or review, the Audit Plan shall define the following:
  + Its objective
  + The configuration items under audit or review
  + The schedule of audit or review tasks.
  + The procedures for conducting the audit or review
  + The participants by job title
  + Documentation required to be available for review or to support the audit or review
  + The procedure for recording any deficiencies and reporting corrective actions
  + The approval criteria and the specific action(s) to occur upon approval

## Reviews

Technical reviews done during the project help to ensure technical soundness of the product, conformance to specified requirements and standards, consistency between various levels of documents, and traceability. Essentially, technical reviews help to ensure that all baselines are adhered to.

The primary task of a configuration manager is the preparation of complete configuration documentation and overseeing the management of configuration items. This includes reviewing and updating existing configuration management plans and developing configuration management tools.

## Configuration Management Plan Maintenance

The following is the Software CM Plan Maintenance process for the GoldFolks project:

1. SCM is responsible for monitoring this configuration plan.
2. A review and update of the configuration management plan will be conducted monthly to ensure all configurations are adhered to as per the document and updated when there are changes to configurations plans
3. The changes must be approved by the Project Manager before being updated in this document.
4. The changes will be communicated through email to the project team by the SCM upon approval by the Project Manager.

The SCM will maintain the CM Plan as follows:

* Revising CM Organization Structure (Personnel, Resources)
* Revising CM Activities like Identification Methods, Control, Auditing and Reporting Methods
* Revising CM Schedules
* Adjusting CM Resources

All the changes will adhere to the IEEE 828 Standards for Software Configuration Management Plans.