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Configuration Management Plan

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DOCUMENT APPROVAL

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1 Introduction

This document is the Configuration Management Plan (CMP) for the project Intelligent Replanning Drone Swarm (IRDS). The CMP describes the systematic approach to manage and control elements of the system and their configurations throughout the project life cycle. As a key component of the Technical Management Processes (TMP), the CMP defines the strategy, management, and technical procedures necessary to ensure that each product remains consistent with its defined configuration.

1.1 Purpose

The purpose of this CMP is to manage the configurations of the system and the elements of the system throughout the project life cycle. The purpose of this management is to ensure consistency, integrity, traceability, and control.

1.2 Related Documents

The standards used to create this CMP are listed in table 2. Other related documents referred to in this management plan are listed in table 1.

Document ID	Document Title
PP-01	Project Plan [1].

Table 1: Related documents.

Standard	Year	Title
ISO/IEC/IEEE 15288	2023	Systems and software engineering — System life cycle processes [2]
ISO/IEC/IEEE 15289	2011	Systems and software engineering — Content of life-cycle information items (documentation) [3]
ISO 9001	2015	Quality management systems — Requirements [4]

Table 2: Standards used to create this CMP.

2 Scope

This CMP applies to all project deliverables, including reports, management plans, test results, safety analyses, and code files. The plan covers creation, review, revision, approval, and baselining (a formally approved version of a configuration) of these items, all stored under version control in a working environment used by the team. Non-controlled items include personal notes and draft versions. The plan mostly follows the standards stated in table table 2.

2.1 Objectives

The objectives of this CMP is to define how configuration management activities will be executed throughout the project's lifecycle. This plan ensures the integrity, traceability, and control of all identified configuration items. Specifically, the CMP details how the team performs key Configuration Management activities, including:

- Configuration Identification: This includes process of identifying and classifying Configuration Items (CI), as well as the process for establishing baselines.
- Configuration Audit and Evaluation: Record deficiencies, initiate corrective actions, and provide reports.

2.2 Deliverables

The Configuration Manager (CM) shall deliver:

ID	Deliverable
CM-01	Configuration Management Plan.
CM-02	Configuration Log Report.
CM-03	Configuration Item List.
CM-04	Change Request Logs/Records.

Table 3: Deliverables.

3 Methodology

The method used to create this CMP began with reviewing standards that define what a CMP is and what it should contain. Based on the project, changes were made to the structure of CMP accordingly. Then additional standards were consulted to determine the content of the individual sections. All standards were accessed through the Mälardalen University online library. Other tools for task allocation, file sharing, and planning were also utilised (refer to the Project Plan [1] for more information about these tools).

4 Activities

To support the successful delivery of this project and maintain high quality standards, it is important to establish clearly defined deliverables under quality supervision, well-defined roles and responsibilities, and structured review processes. Together, these elements promote accountability, consistency, and traceability throughout the project lifecycle.

4.1 Configuration Items

The IRDS project consists of various deliverables from all members of the team. These deliverables fall under configuration management and are referred to as Configuration Items (CIs). The CIs are as follows:

- Safety Manager (SM)
  - Safety Management Plan .
  - Risk Level Analysis.
  - Safety goals and requirements.
  - Safety analysis.
- Requirements Manager (RM)
  - Requirements Management Plan.
  - Requirements Specification.
  - Requirements Review Protocol.
  - Traceability Matrix.
- Validation & Verification Manager (VVM)
  - Validation & Verification Management Plan (VVMP)
  - Risk Analysis.
  - Verification Protocol.
  - Test Specification.
  - Validation Report.
- Chief Engineer (CE)
  - Project Plan.
  - Final Report.
- Configuration Manager
  - Configuration Management.
  - Configuration Item List.
  - Change Request Logs/Records.
- Quality Manager (QM)
  - QMP & QAP
  - Review Reports
  - Quality Impact Report
- Simulation Code

4.2 Configuration Responsibilities & Roles

The configuration-related responsibilities of each manager are defined below. These roles and responsibilities were established after consulting the respective managers and referencing ISO 9001 [4].

- CE
  - Ensure technical deliverables are properly versioned and documented.
  - Notify Configuration Manager when a new baseline should be created.
  - Ensure GitHub workflow (branches, etc.) are used correctly.
- RM
  - Ensure requirements are complete, consistent, and uniquely identified.
  - Provide traceability between requirements.
  - Ensure the specifications and project requirements are under configuration management including state, version and authorization status.
  - Submit requirement reports to QM for review before submitting.
- VVM
  - Ensure test cases, test scripts, and test reports are registered as configuration items.
  - Track versions of test artifacts.
  - Ensure test results link back to correct baselines.
- Quality & Configuration Manager (QCM)
  - Quality
    - Maintain process compliance with applicable standards and regulations.
  - Configuration
    - Ensure all Configuration Items are properly identified, controlled, and documented (maintain traceability and clarity in project materials).
    - Maintain version integrity and baseline control (avoid confusion over which version of a CI is "official").
    - Ensure all changes follow approved processes.

4.3 Working Environment

For the storage of files, links, and relevant information for this project, GitHub is being used. GitHub is a cloud-based platform that enables developers to store, manage, and track changes in their code [5]. The reason it was chosen is becasue it gives integrity, security and safety to the project:

- Integrity - Items cannot be corrupted or altered accidentally.
- Security - Only authorised people can access/change the items.
- Safety – Items are always stored in a way that prevents loss. Even if an accident occurs where an item is accidentally deleted or modified, it is always possible to recover or restore it to a specific point in time.

GitHub is an effective tool for managing code files and other small-sized files, but it is not well suited for large files such as report PDFs. For that purpose, Microsoft SharePoint is used. SharePoint is a platform that allows users to store, organise, share, and access information from any device [6].

For planning and task allocation, Jira is used. Jira is a project management tool that enables teams to track issues, organise projects, and streamline workflows through the project. [7].

Together, these tools provide a structured, collaborative, and secure environment for producing, reviewing, and maintaining all controlled project deliverables.

4.4 Item Identification and Tracking

To identify and track all deliverables created in this project, each deliverable is assigned a unique identification code. These codes are stored on GitHub along with a brief description of their purpose. This system ensures proper tracking of all materials and prevents duplication of identification codes. The codes consist of a combination of letters and numbers (AA-00).

4.5 Version Control and Change Approval

Deliverables may be updated after submission and to track this a version control system is used. The version code is updated whenever a deliverable is modified. Any modification requires prior approval, which involves:

- Conducting an impact analysis to assess the effect of the change on the project.
- Reaching consensus among all team members on changes after discussion.
- Once changes are completed, the Quality Manager performs a quality check and re-reviews the delivery.

Detailed step-by-step instructions for changing a delivery are provided to the managers on GitHub.

To ensure transparency; A revision history table is maintained and updated whenever a new version is created. This table can be found on each delivery.

References

[1] A. Haglund, *Project Plan*, Intelligent Replanning Drone Swarm, Oct. 4 2025, Version 1.0.

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[4] ——, *Quality management systems — Requirements*, ISO 9001:2015, Sep. 2015. [Online]. Available: https://www.iso.org/standard/62085.html

[5] J. Holcombe, "What is github? a beginner's introduction to github," kinsta.com, Aug. 2025, (Accessed: Sep. 23, 2025). [Online]. Available: https://kinsta.com/blog/what-is-github/

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