

Software Verification Validation Plan (SVVP)

Intelligent Lifestyle

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Abstract

The Software Verification Validation Plan (SVVP) formally outlines the verification and validation activities and standards to be employed by Team Daedalus throughout the software life-cycle. By following these specified standards and activities plan Team Daedalus is aims to ensure that deliverables produce by the team of a given activity conform to thier requirements as specified in this document and the software satisfies its intended use, application of the system and the user needs.

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1 Introduction

1.1 Purpose

This document states the verification and validation (V&V) activities that will be followed by Team Daedalus during the development life-cycle. V&V activities aim to ensure that the system and all deliverables satisfies the client's requirements and the quality expectation as specified in Team Daedalus SRS.

Planned and documented V&V activities as specified in this document will give Team Daedalus an instruction on how V&V should be achieved during each phase of the project.

V&V techniques such as reviews, audits, inspection, walkthrough, traceability analysis, and testing will be implemented by various sub-teams as required in order to monitor and control the quality of deliverables and product of Team Daedalus.

By periodically performing V&V tasks as specified in the SVVP, Team Daedalus will be able to verify whether the criteria, objectives and checklists as specified in the SVVP (Refer to section 4.1 and appendix) are met and will provide feedback of the current level of quality of Team Daedalus software development.

1.2 Scope

SVVP provides the highest level description of verification and validation efforts. The document specifies:

1. V&V tasks to be carried out at each phase of the software life-cycle.
2. Planned goals for each V&V tasks.
3. Members responsible for V&V tasks.
4. The schedule at which these tasks will be carried out.
5. Methods, tools and techniques which these tasks will be used to be carried out.
6. Inputs and outputs to and from each task.
7. Entry and exit criteria of each task.
8. The processes to be followed in planning, identifying, documenting and varify the result of the V&V tasks.
9. The traceability matrix activities and plan.

There are other plans that are closely related to V&V activities, such as configuration management, risks management, review and audit plan and testing plan. However, these plans will not be covered here, rather they will be specified in detail in Team Daedalus Risk Management Plan (RMP), Team Daedalus Software Configuration Management Plan (SCMP), Team Daedalus Review and Audit Plan (RAP) and Team Daedalus Test Plan (TP) respectively.

As SVVP will only cover the activities involved in the project phases, those activities in operation and maintenance phases, which is outside the project scope, will not be covered.

1.3 Intended Audiences

The ensuring of planing and coordinating of V&V activities are responsible by the QA and Testing sub-teams. However, the intended audiences of this document are the Supervisor and all member of Team Daedalus, as it is the team's responsibility for carrying out the different V&V activities. The important responsibility are listed as follow:

1. The QA sub-team will be responsible for ensuing all review and audit are conducted throughout the lifetime of the project.
2. The Testing sub-team will be responsible for ensuring of the planing and conducting of V&V activities during the implementation and testing phase.
3. The Coding sub-team will be responsible of the quality of the checked in code modules, ensuring that they meet the coding standard and the configuration management critiria.

Different sub-teams are assigned to be responsible for planning and conducting different V&V activities such as following:

V&V Activities	Sub Team
Audits	QA, Risk and Testing
Reviews	Team Daedalus
Workshops	Team Daedalus
Critiques	Design, Coding and Prototyping
Document Inspections	Team Daedalus
Code Inspections	Team Daedalus
Document Walkthroughs	QA and Testing
Design Audit	Design
Design Walkthroughs	Design
Code Walkthroughs	Coding
Testing	Testing
Traceability Analysis	Design

Table 1: Sub-teams V&V responsibilities

1.4 Project Overview

The aim of the Intelligent Lifestyle project is

- **To design and build a system via the ROADMAP methodology comprising of some intelligent agents, for the explicit purpose of providing demonstrations of Intelligent Agents.**

This aim is an attempt to balance the two requirements from the Clients. This is necessary as meeting both fully would be impossible with current time constraints. The individual aims of the Clients are shown below.

1. To provide a demonstration of intelligent agents.

The Clients wish to have something that can demonstrate agents, agent behaviour and intelligence. Scenarios will be used to demonstrate these features.

2. To implement the ROADMAP methodology (section 12.3.2) and create an intelligent agent system.

This Clients wish to test out ROADMAP and produce an example of an intelligent agent system. They believe this methodology will be useful in implementing the project.

1.5 Personnel

This section outline all the personnel and stakeholders of the Intelligent Lifestyle project.

Name	Login ¹	Phone no.
Carol Poon	cyspoon	0401-959-660
Dominic Mendonca	dxm	0411-093-253
Glenn Fry	gmfr	0418-372-176
Simon Youn	hjsy	0403-438-830
Jian Alan Huang	jhua	0402-001-910
Kieran Simpson	kieranjs	0412-821-128
Masyuri Tjhandana	masyurit	0413-150-311
Mei Ling Leong	mlleong	0413-689-314
Nathaporn Eiamvittayakorn	neiam	0407-565-824
Quyen Quach	qlq	0412-122-031
Shirley Soon	sasoon	0407-552-338
Wendy Tsang	wwtsang	0412-049-823
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Table 2: Development Team

1.5.1 Supervisor

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1.5.2 Clients

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1.6 Definitions and Acronyms

This section describes all definitions and acronyms used by Team Daedalus in this document.

1.6.1 Definitions

\$GROUP

/home/se440/s440gf/

\$GROUPCVS

/home/se440/s440gf/Respository

\$GROUPWWW

<http://www.cs.mu.oz.au/SE-projects/s440gf>

Agent

Module in a system that can detect changes in its environment and provides services, which their usage will be restricted by roles.

Code Inspection Checklist

The checklist used in walkthrough and testing as a basis of verification of the coding standard and to help detecting possible faults. (Refer to TP.)

Coding Phase

The software life-cycle phase in which the design is implemented.

Coding Standard

Standard applied for both source code and coding documentation to be followed by all Team Daedalus developers during the coding phase.

Configuration Item

Any deliverables that is required to be stored under configuration management control as referred in SCMP.

Design Phase

The software life-cycle phase in which the design of the system is carried out to meet requirements.

Entry criteria

Criteria that must be met for an activity to commence.

Exit criteria

Criteria that must be met for an activity to be successfully completed.

Input

The set of items necessary to perform the V&V tasks mandated within any life-cycle activity.

Iteration

Repeated one cycle of the spiral model. Team Daedalus have three iterations, iteration 1 (prototyping), iteration 2 and 3.

Output

The set of items produced as a result of performing the V&V tasks mandated within any life-cycle activity.

Procedure

Strict processes that members must follow to achieve a specific goal contributed towards the final outcome of the project.

Process

A sequence of steps, tasks or activities that converts inputs from suppliers to an output.

Requirements Phase

The software life-cycle phase in which all the requirements of the system are analysed and gathered from the client.

Review and Audit Plan (RAP)

Documentation of standards, processes and procedures for reviews and audits which the team shall adopt.

Risk Management Plan (RMP)

Documentation of standards, processes and practices for risk management plan which the team shall adopt.

Role-Oriented Analysis and Design for Multi-Agent Programming (ROADMAP)

A methodology which allows a far more realistic approach to specification, analysis, and design.

Scenario

Contains a list of events inter-related on each other that illustrate the operation of the system.

Software Configuration Management Plan (SCMP)

Documentation of standards, processes and practices for configuration management plan which the team shall adopt.

Software Architecture Design Description (SADD)

Documentation of high-level design of the software, serve as a medium for communicating software design information.

Software Design Document (SDD)

Documentation of software created to facilitate analysis, planning, implementation, and decision making, serve as a medium for communicating software design information, and may be thought of as a blueprint or model of the system.

Software Project Management Plan (SPMP)

Documentation of the team adopt standards, processes, practices and convention for management plan.

Software Quality Assurance Plan (SQAP)

Documentation of the team adopt standards, processes, practices and conventions to be used through out the project life-cycle.

Software Requirements Specification (SRS)

Documentation of the requirements (i.e. functions, performance, design constraints, and attributes) of the software and its external interfaces.

Software Verification and Validation Plan (SVVP)

Documentation describing the conduct of software V&V.

Software Verification and Validation Report (SVVR)

Documentation of V&V results and software quality assessments.

Technology Report (TR)

Document details the technologies which could be employed in implementations of agent systems, especially in regard to an Intelligent Lifestyle.

Technologies Useful in Agent Lablets (TUAL)

Documentation outlining the details of the technologies used which could be employed in implementations of agent systems, especially in regard to Team Daedalus's end products and deliverables.

Test Case

Documentation that specifies inputs, predicted results, and a set of execution conditions for a test item.

Testing Phase

The software life-cycle phase in which the code, design and requirements are validated to be correct.

Traceability Matrix (TM)

A table containing the alignment of the sections of one document with another, which is used to analyse and ensure the correctness and completeness of deliverables and product in transition between phases.

Verification

The activities and processes that assess software products, deliverable and procedures throughout the software development life-cycle in order to verify that quality is built into the software and that the software satisfies the requirements.

Validation

The activities and processes that will provides supporting evidence that the software and deliverables satisfy it's requirements and solves the Client's problem.

1.6.2 Acronyms

<i>CCB</i>	Configuration Control Board
<i>CVS</i>	Concurrent Versions System
<i>EPS</i>	Encapsulated Postscript
<i>PDF</i>	Portable Document Format
<i>PM</i>	Project Manager
<i>PP</i>	Project Plan
<i>QA</i>	Quality Assurance
<i>QAM</i>	Quality Assurance Manager
<i>RMP</i>	Risk Management Plan
<i>ROADMAP</i>	Role-Oriented Analysis and Design for Multi-Agent Programming
<i>SADD</i>	Software Architecture Design Document
<i>SC</i>	Source Code
<i>SCMP</i>	Software Configuration Management Plan
<i>SDD</i>	Software Design Document
<i>SPMP</i>	Software Process Management Plan
<i>SQAP</i>	Software Quality Assurance Plan
<i>SRS</i>	Software Requirements Specifications
<i>SVVP</i>	Software Verification Validation Plan
<i>SVVR</i>	Software Verification Validation Report
<i>TM</i>	Traceability Matrix
<i>TM</i>	Test Manager
<i>TP</i>	Test Plan
<i>TR</i>	Technology Report
<i>TUAL</i>	Technologies Useful in Agent Lablets
<i>UD</i>	User Documentation
<i>V&V</i>	Verification and Validation

1.7 Reference Documents

The documents referenced in the SVVP are as follows:

1. Team Daedalus Review and Audit Plan (RAP)
2. Team Daedalus Risk Management Plan (RMP)
3. Team Daedalus Software Configuration Management Plan (SCMP)
4. Team Daedalus Software Project Management Plan (SPMP)
5. Team Daedalus Software Quality Assurance Plan (SQAP)
6. Team Daedalus Software Requirements Specification (SRS)
7. Team Daedalus Software Verification and Valication Report (SVVR)

1.8 References

1. Software Engineering: Principles and Practice 2nd Edition, Hans Van Vliet, Wiley and Sons Ltd 2000
2. IEEE Std 1012-1986, IEEE Standard for Software Verification and Validation Plans
3. IEEE Std 1059-1993, IEEE Guide for Software Verification and Validation Plans
4. IEEE Std 1012-1998, IEEE Standard for Software Verification and Validation
5. IEEE Std 1028-1988, IEEE Standard for Software Reviews and Audits;
6. IEEE Std 1028-1997, IEEE Standard for Software Reviews.
7. vva.dms0.mil/Ref_Docs/VVTechniques/VVtechniques.htm
8. www.csd.abdn.ac.uk/apreece/research/download/aaai1998.pdf.
9. www.icis.hq.dla.mil/systemdoc/FD/plan/apndx_b.htm

2 Objectives

This section describes the objectives of V&V and the objectives of performing V&V on activities.

2.1 V&V Activities Objectives

This section describes the quality goals and objectives of V&V activities. V&V activities may include:

1. reviews
2. audits
3. inspections
4. walkthroughs
5. workshops
6. traceability analysis
7. testing of the system and the established processes

V&V activities result will:

1. provide insights into the current state of the project, deliverables and the system;
2. allowing for changes in the system and in the software development life-cycle to be quality controlled and monitor;
3. provide some feedback information on what is to be done in order to improve the quality of the deliverables and the system to ensure that the deliverables and system meet Team Daedalus agreed quality standards and goal.

2.1.1 Verification Objectives

The verification process provides supporting evidence that the product and its associated deliverables:

1. comply with quality criteria of the intermediate deliverables and the final system;
2. satisfy standards, practices, and conventions during the life-cycle processes;
3. assess the completion of each life-cycle activity and for initiating other new life-cycle activities.

Verification will be done by performing specified V&V activities to the intermediate deliverables and the final system against each iteration phase entry and exit criteria to assess and provide the early feedback of the team progress through out the project's lifetime.

2.1.2 Validation Objectives

The validation process provides supporting evidence that the software satisfies the Clients' requirements and needs and aims to:

1. ensure that each iteration phase of the life-cycle is completed as planned;
2. provide some confirmation and supported evidence that reflects the Clients' needs;
3. provide some confirmation that the progress of the project are moving towards the specification targets that will satisfy the Clients' requirements.

Validation will be done by validating requirement during the SRS sign-off, validating the final system against Team Daedalus requirements and goals as specified in the SRS and by testing the intermediate and final system with the TP. The testing activities include assessing the system module, intergrate and final system, the operational environment, the hardware and the usability requirements and finally the Cients' acceptance requirement.

2.2 Quality Goals Objectives

The V&V activities carried out by Team Daedalus aim to meet the following quality goals:

1. Completeness:
By conducting requirements V&V and traceability analysis, Team Daedalus will be able to ensure that all requirements and the system soft goals as described in the team SRS within the implementation scope are implemented and also other deliverables agreed are produced and handed in to the Clients'.
2. Correctness:
This quality goal will be ensuring through user validation activities such as verifying the system requirements, soft goals and by demonstrate intermediate prototypes and the final product with the client.
3. Consistency:
By verifying that the output of requirement elicitation, design, implementation and testing are traceable, Team Daedalus will be able to ensure consistency, eliminate contradictions and help in ensuring completeness, correctness and traceability.
4. Feasibility:
By using various methods and techniques such as prototyping and testing, Team Daedalus will be able to perform feasibility study at each new iterative phase of the project in order to determine if the implementation and the design is feasible. Reviews, inspections and audits will be used in order to analyse feasibility of the processes and standards.
5. Portability:
By testing with specified environments and hardwares, verification with the portability requirements will be performed to ensure that the portability requirements conform to the client's expectations.
6. Performance:
By testing and verifying performance against each requirement specification, Team Daedalus will ensure that the system conforms to the client's performance expectations.

7. Reliability:

By testing the system with the specified reliability requirements and measuring time and number of failure occurrence, the reliability criteria of Team Daedalus will be quantified and analysed whether this quality requirement has been met.

8. Traceability:

By performing traceability analysis, tracing from requirements, goals, design, code modules and testing effort, Team Daedalus will be able to ensure the traceability quality goal. This will help with correctness and completeness analysis.

9. Usability:

By performing usability analysis, testing and user validation activities, Team Daedalus will be able to validate that user feedback is incorporated into the design of the system and is reflected in the end product.

These quality requirements will be placed in the Document and Inspection checklist, which will be used as criteria during Reviews and Inspection activities in order to ensure that these quality criteria are assessed by the quality reviewers and inspectors.

3 Overview of Verification and Validation Activities

This section will describe the organisation, schedules, resources, responsibilities, tools, techniques, and methodologies to be deployed in order to perform the V&V activities.

3.1 Organisation

This section details the organisational structure of V&V activities. V&V activities throughout the life-cycle of the project are responsible by all members of Team Daedalus. This is to verify the correctness of the tasks done and the quality standards and goals of all deliverables and products resulting from each iteration met. The quality standards are as set by the QA sub-team in the SQAP, SPMP and SCMP and the quality goals as specified in section 2.2. As for the quality goals of the code, the Coding and Testing sub-teams will be responsible for that. (Please refer to BP, section A.)

3.2 Schedule

This section outlines the schedule planned for V&V activities. The schedule of V&V tasks is documented in the Team Daedalus PP, in the form of Gantt Charts. PP summarises various V&V tasks and defining an order of flow and relationship between project activities and V&V tasks. It contain information about tasks including date, estimated time frames, responsible sub-teams or team members and tasks dependencies. It describes the project's life-cycle, milestones and completion dates. Please refer to the team PP located in:

\$GROUPCVS/Project_plan

The team's PP can also be viewed in the team web site:

\$GROUPWWW

The management procedure for PP documentation can be referred to in Team Daedalus SPMP (Refer to section 3.1 of SPMP).

3.3 Activities

The following section describes the V&V activities to be performed by Team Daedalus.

3.3.1 Reviews

These activities will be conducted to examine the team's deliverables against Team Daedalus document review quality goals in order to criticise or suggest any correction which aims to improve the quality of the final system and deliverables. The types of reviews are as follow:

1. Informal Review: any sub-team member can request for informal review from the Supervisor or the Clients.
2. Internal Review: any sub-team member can be held responsible for reviewing deliverables produced by his or her sub-team.
3. External Review: any designate team member outside the sub-team that requested a review is responsible for reviewing of the requested deliverables.

- Supervisor Review: Supervisor is responsible for reviewing five deliverables as selected by the team.

The deliverables to be reviewed and the sub-team responsible for each deliverable are listed as follow:

V&V Activities	Sub Team
BP	Implementation sub-team
SQAP	QA sub-team
SPMP	QA sub-team
RMP	Risk sub-team
RAP	QA sub-team
SCMP	QA sub-team
SVVP	QA sub-team
SVVR	V&V Manager
SRS	Requirement sub-team
SADD	Design sub-team
SDD	Design sub-team
TM	V&V Manager
TP	Testing sub-team
TR	Implementation sub-team
TUAL	Prototyping sub-team
UD	Release sub-team

Table 3: Deliverables and the Responsible Sub-team

Note: Supervisor Review are only required for SQAP, SPMP, SRS, SADD and TP. (Refer to Team Daedalus RAP, section 9 and 4 for more details of review plan and review procedure.)

The review processes are as documented in the RAP sections 6, 2 and 3.

3.3.2 Audits

Auditors are required to answer each the audit plan checklist question with the result PASS, FAIL or N/A in response to the present of the evidences to the checklist question and criteria. The result of the activity is used in the feasibility evaluation of the processes, if the processes are followed and what improvement can be made to the existing processes. QA sub-team is responsible for conducting the QA related documents audits. While the Risk sub-team also held their sub-team related processes audits. The types of audits are as follow:

- Mini-audits: audits that can be conducted within a short period of time. Each audit will only be focusing on a particular processes as decided by the QA sub-team.
- Managerial Audits: audits that focus on the roles and responsibility and management activities processes as specified in the SPMP and RMP.
- Process Audits: audits that focus on the processes as specified in the SQAP, RAP, RMP and SVVP to provide the processes' feedback and to verify whether the the team has been following these processes.

4. Configuration Audits: audits that focus on the processes related to configuration management as specified in the SCMP to provide the processes' feedback and to verify whether the team has been follow these processes.
5. Design Audits: audits that focus on tracing Team Daedalus system design to implementation in order to verify of what degree of implementation follow the design and to improve the tractability between them.

The review processes are as documented in the RAP sections [8.2](#) and [8.3](#).

3.3.3 Workshops

Workshops are informal task oriented sessions emphasising on interaction, open communication and information exchange among relevant sub-team members involved.

1. Pair Review Workshop: a review conducted by any sub-team designate pair of members.
2. Quiz Workshop: an informal interactive question session that aims to test and ensure the team knowledge on a particular processes or standards.
3. Audit Workshop: an informal session, which auditors discuss the result of the audit and communication of any processes change and follow ups that aims to improve the team performance, efficiency of the processes and raise awareness of the processes.
4. Review Workshop: an informal session that the result of an artifact being reviewed are discussed and the response and follow up decision are made.

The review processes are as documented in the RAP sections [6.2](#).

3.3.4 Critiques

Critique are informal session with the expert of relevant technology field, whom Team Daedalus has requested to give the team some feedback and advice for a particular critique item. The session focus on knowledge exchange among the expert and the team members and the feedback improvement that the team can implement to the request critique item.

The critique processes are as documented in the RAP sections [7](#).

3.3.5 Inspections

Inspections are formal or informal evaluation technique in which deliverables and code are examined in details by a team members or group other than the author to detect any visible faults, problems and violations of development standards.

1. Code Inspections: informal sessions where implemented artifact modules are reviewed and verified against the checklist and standards to improve the quality of the code. (Refer to TP for the checklist and standards.)
2. Document Inspections: proof reading prior to the baseline of documents.
3. Document Quality Inspections: informal document review which focus on the revision of the quality criteria of the document.

The inspection processes are as documented in the RAP sections [5](#), and Code Inspection process in the BP section [6.1](#).

3.3.6 Walkthroughs

Walkthroughs are informal workshops where interaction and communications are enforced through demonstration or presentation to the team or sub-teams to detect faults and other high-level structure or logical problems.

1. Audit Walkthroughs: informal sessions, which audit is conducted by the designated QA or Testing sub-team members. The session is designed to promote the awareness of the audit result, the change of process or procedures that derived from the audit result and the improvement that the them could make to their performance to improve the next audit result.
2. Design Walkthroughs: informal sessions, which designers are required to give presentation of the design to the team in order to verify the design quality goals, foster understanding, raise potential problems and seek feedback and improvement on possible inefficiency and faults in the design from the team.
3. Code Walkthroughs: informal sessions that SC module author are required to go through his/her code to the team or sub-team in order to verify the Code Inspection Checklist quality and criteria and detect other errors and mistakes.
4. Demonstration Walkthroughs: informal sessions to present demos of deliverables to the team so they can give feedback and suggestions on how to improve the products.

The walkthrough processes are as documented in the SPMP sections [6.2](#), and BP section [6.3](#) for Code Walkthrough Process.

3.3.7 Testing Activities

Testing are activities that will be conducted by Testing sub-team, which aim to detect bugs and verify that the implemented system function as specified requirements and quality goals on the specified environments and hardwares. The types of testing are as followed:

1. Unit Testing: Independently testing the lowest-level module. It is conducted to verify the correct implementation of the design and compliance with the project's requirements.
2. Integration Testing: Testing an integrated modules, hardware and software which accomplish one verifiable functional purposes.
3. System Testing: Testing an integrated hardware and software system to V&V whether the system meets its original objectives.
4. Installation Testing: Testing activities, in which the team is required to test their implementations on the client required environments.
5. Usability Testing: Testing, analysis and user validation activities which give the team feedback of how to improve the level of usability of the end product.
6. Reliability Testing: Testing of the reliability criteria of the system against the specified criteria as document in the SRS.
7. Acceptance Testing: Final validation testing activity with the client to confirm that the end product system meet the requirements and the client's needs.

The testing processes are as documented in the TP sections [7](#), [8](#), [9](#), [12](#), [14](#), [13](#), [11](#).

3.3.8 Traceability Analysis

Traceability Analysis are activities that trace system requirements and quality goals through design, implementation and testing materials in order to verify the completeness of deliverables and help to analyse the impact of changes for managerial activities.

1. Traceability Matrix (TM): The document that trace all scenarios, requirements and goals to their designs, implemented source codes and test cases from SRS, SADD and SDD to Testing materials in order to verify the completeness of the system.

3.4 Resources

This section summarises the resources needed to perform V&V tasks.

3.4.1 Human Resource

This section outlines the human resources needed for conducting V&V tasks for Team Daedalus and their roles and responsibility in relation to V&V tasks. (Refer to Team Daedalus SPMP, section 2.3 for a detail description of roles and responsibilities of each sub-team and team members.)

3.4.1.1 Team Daedalus

Each member of Team Daedalus can be assigned to be responsible for performing internal review, walkthroughs and inspections for any document and deliverables that their sub-team are responsible for.

Team members can also be assigned to be perform external reviews by the sub-team leaders as required by Team Daedalus.

3.4.1.2 Admin sub-team

The Admin sub-team is responsible for:

1. discussing and overseeing the top-down V&V activities planned in the PP;
2. making decision and adjusting the V&V activities in PP according to the current progress and the update milestones planned;
3. communicating frequently with the Risk sub-team as the risk analysis will have an impact on the PP;
4. having an Admin sub-team Meeting as a communication channel for any discussion arise for problem encountered planned for V&V activities;
5. communicating frequently between QA sub-team, Testing sub-team and the Team of the PP.

3.4.1.3 QA sub-team

The QA sub-team is responsible for:

1. planning, performing and assigning various V&V tasks to the team;
2. ensuring that all V&V activities that are not related to the end product testing are carried out according to the plan;

3. involving in the process of the generation of SQAP, SPMP, RAP, SCMP and SVVP, which are the document specified the standard and procedures that all V&V tasks have to follow;
4. monitoring the team V&V processes and practices through out the project life-cycle.

3.4.1.4 Risk Management sub-team

The Risk Management sub-team is responsible for:

1. identifying, analysing and correlating identified risks by the team;
2. generating mitigation plan and assign mitigation tasks and monitoring;
3. analysing and prioritising the risks;
4. notifying the Admin sub-team and the PM to exert control, minimise or take prevention of any slippage risks from turning into problems.
5. auditing risk management related processes.

3.4.1.5 Configuration Control Board (CCB)

The CCB is responsible for:

1. reviewing each change requested by team members, including changes for documentations and SC after they has been baselined;
2. analysing the impact and the reason for changes prior to their approval or rejection;
3. controlling and monitoring each changes made to Team Daedalus' deliverables and products.

By controlling changes, the team will be able to verify and validate the impact, effectiveness and the rationale of these changes.

3.4.1.6 Requirement sub-team

The Requirement sub-team is responsible for:

1. ensuring that requirement V&V activities such as SRS reviews are performed and the SRS is clearly and concisely documented;
2. communicating with the Prototyping sub-team in order to determine the feasibility of the requirements in relation to the project time and resources constraints;
3. communicating with the Design and Testing sub-teams in the process of checking the consistency between design and requirements specifications during the traceability analysis period.

3.4.1.7 Prototyping and Coding sub-team

The Prototyping sub-team is responsible for:

1. ensuring that the prototypes V&V activities are performed and the TUAL are documented and reviewed;
2. communicating the feasibility of research results with the Requirement sub-team;
3. coordinating their evaluation of the design with the Design sub-team.

3.4.1.8 Design sub-team

The Design sub-team is responsible for:

1. ensuring that the design V&V activities are performed and the SADD and SDD are clearly and concisely documented and reviewed;
2. communicating with both Requirement and Prototyping sub-team, the requirement scenarios and the feasibility study of research results;
3. ensuring the traceability in translating this information into the design;
4. checking the consistency between design and requirements specifications, evaluating software architecture.

3.4.1.9 Testing sub-team

The Testing sub-team is responsible for:

1. ensuring that all the SC and the end product's testing V&V activities are carried out by performing and assigning various tasks to the its sub-team members;
2. involving with the process of the generation, review and audit activities related to the the TP and test cases;
3. analysing and formalising the appropriate testing strategies, the processes and standards of generating and designing test data
4. generating the test data for both functional and structural testing from the SADD and SDD;
5. ensuing that the test data generated uphold the quality, standard and followed the processes specified in the TP;
6. analysing and formalising the strategy to verify and validate the final product and associate deliverables from the SRS;
7. executing of the testing;
8. ensuring the traceability of testing during the Implementation and Testing phase of the product life-cycle in order to V&V the SC and the end product.

3.4.1.10 Release sub-team

The Release sub-team is responsible for:

1. planning, performing and assigning various V&V tasks to the team;
2. ensuring that all V&V activities that are related to the end product deliverables and presentation are carried out according to the plan;
3. involving in the process of the generation of TM, UD, TR, product packaging and presentation, which will be hand over to the Clients toward the end of the project life time.

3.4.2 Leadership Roles and Responsibilities

This section outlines the roles and responsibilities of relevant managers for Team Daedalus in relation to V&V activities.

3.4.2.1 V&V Manager

V&V Manager is responsible for:

1. maintain the SVVR;
2. communicate with all sub-team leaders of the V&V activities planned during each iteration and their result and outcome;
3. collect and document the detail of V&V activities planned in the SVVR;
4. collect and document the results and outcomes of all V&V activities planned in the SVVR;
5. notify relevant sub-team leaders to produce the iteration report at the end of every iteration;
6. ensure that following up are done for each V&V activities;
7. ensure that V&V activities plan are carried out by responsible members;
8. ensure that the V&V activities done are following the process stated in the SVVP and RAP by regularly communicate the V&V processes documented and their update and inform the team when the processes are not being followed;
9. regularly coordinate and oversee the efficiency evaluation of the V&V processes defined in the SVVR and RAP to improve existing processes.

3.4.2.2 Quality Assurance Manager (QAM)

The QAM is responsible for:

1. ensuring that V&V tasks are completed and conducted according to the SVVP documented processes.
2. conducting tasks of a V&V effort, or assigning specific V&V tasks to the appropriate sub-teams and sub-teams members
3. write an Iteration Summary Report (Refer to section 5).

QAM are required to coordinating and overseeing and monitoring V&V activities planned and effort with all sub-team leaders during all phases except the implementation and testing phase.

3.4.2.3 Implementation Leader

Once the Implementation phase has started, the Implementation Leader is responsible for ensuring that the quality of the code produced is up to the Team standard as documented in the BP.

3.4.2.4 Testing Manager

Once the Testing phase has commenced, the Testing Manager is responsible for conducting all tasks that is related with testing the SC and the system in order to validating the Client's requirements and quality of the end-product.

Testing Manager will have the same responsibility with Quality Assurance Manager during the Testing phase.

3.5 Tools, Techniques and Methodologies

For V&V activities purpose, various tools, techniques and methodologies are selected by Team Daedalus to assist and give a basis of V&V practices, standards and processes.

3.5.1 Tools

This section list all the tools used for V&V activities.

1. Configuration Management tool
 - CVS (Refer to SCMP, section 4.1.)
2. Task tracking tool
 - NetOffice (Refer to SPMP, section 3.2.)
3. Testing Tools
 - (Refer to TP, section 18.)
4. Project Management tool
 - Microsoft Project (Refer to SPMP, section 3.)

3.5.2 Techniques

Various techniques have been identified as part of V&V activities including risk analysis, configuration change control assessments and traceability analysis.

3.5.2.1 Risk Analysis

Risk Analysis identifies critical events that have the potential to impact on the team's deliverables and product development process. In order to control and manage risks involve with the project, risk management process is defined in RMP.

(Refer to Team Daedalus RMP for more information on these procedures and techniques.)

3.5.2.2 Configuration Management

Configuration involves controlling changes made to configuration items through out the project life-cycle. By controlling each change requested, Team Daedalus will be able to verify and validate the impact, effectiveness and the requirement for each change.

(Refer to Team Daedalus SCMP for more information on configuration management process and practices.)

3.5.2.3 Analysis of Traceability

In order to ensure that the end product system has the quality and requirements that satisfy the Clients, the team must ensure that all requirements have been incorporated into the design, implemented and test cases. Traceability analysis involves tracing requirements, design, code and test cases to each other to ensure that all requirements have been designed, implemented, tested and documented at the end of the project.

(Refer to Team Daedalus TM and section 7 for more information of the traceability analysis.)

3.5.3 Methodologies

Since the development process does not follow the waterfall model, Team Daedalus will not employ an phase iteration V&V methodology. Therefore, it is not required that all V&V activities be completed before the commencement of the next phase. However, there will be V&V activities that acts as a trigger to the next phase, which activates that once completed will allow the next phase of the project to commence (Refer to section 4). This therefore allows phases to be commenced before the previous phase has completed, but only when a certain level of quality has been reached.

4 Life-cycle Verification and Validation

This section outlines the plan for all V&V activities for the entire life-cycle of the Intelligent Lifestyle Project. It contains the checklists for all V&V tasks which are to be executed for each life-cycle phase.

The V&V activities defined in this section are further classified and grouped together according to the life-cycle phases they belong to. However, since Team Daedalus has chosen a spiral approach while developing the perspective system, (Refer to Team Daedalus SPMP, section 5.1 for more details.) some phases may be interwoven with each other and overlap with each other. For example, the design phase may interact with the implementation phase such that part of the system is designed and implemented first before the design of the rest of the system is carried out.

For each life-cycle phase in the project, in which V&V activities will be carried out, the following items will be provided:

1. Purpose: The purpose of the V&V activities in the particular phase.
2. Entry Criteria: Criteria that must be met for any V&V activity in this phase to be carried out.
3. Products: The artifact or product to be produced during this phase that will undergo verification and validation activities.
4. V&V Activities: The V&V activities that are planned to be carried out during this phase.
5. Exit Criteria: Criteria that must be met for the V&V activities to be completed to signal the end of this phase.

For each V&V activity undertaken during the course of the project, the following items will be addressed:

1. Goals: The goals this V&V activity are aiming to achieve.
2. Methods and Criteria: The method according to which the V&V activity will be carried out and the criteria against which the V&V activity will be assessed.
3. Inputs: The items that required for the V&V activity.
4. Outputs: The deliverables produced from the V&V activity.
5. Schedule: The date when the V&V activity is planned to happen.
6. Resources: Any related resource that the V&V activity requires, including time and personnel.
7. Roles and Responsibilities: The responsible party by which the V&V activity is to be carried out.

4.1 V&V Life-cycle Model

The V-model is adopted for testing each phase from Requirement to Implementation phase. The V-model outlines the testing to be done to verify and validate previous development activities. It also reflects the relation between the testing activities and the development activities they are aiming for.

It allows the team to be able to validate whether the client's need is satisfied in the Acceptance Testing phase against the team's requirement specification. It also allows verification activities to verify software design against System and Integration testing and enables each model to be verified in Unit testing.

By using this model, testing and other phases can be carried out in parallel and thus reduce the time to complete the project. For example, planning for system testing can be done as soon as the requirement has been gathered. As a result, this will reduce the time and resource required for the activities and provide an early V&V feedback for making improvements.

The V-model is illustrated in the following diagram:

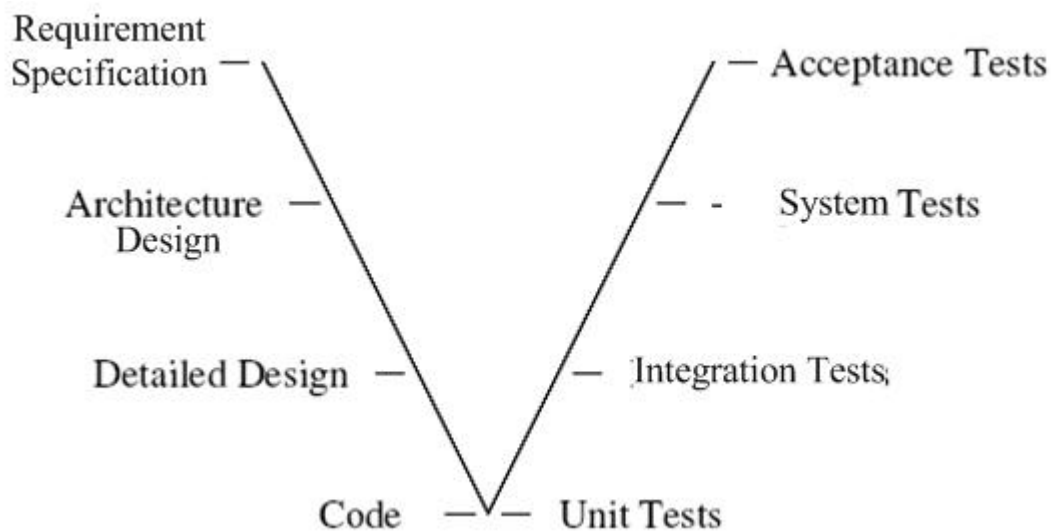


Figure 1: V-Model

The diagram shows the different levels of refinement involved in defining and developing products and deliverables against its' corresponding levels of V&V involved in qualifying the product for the operational use.

4.2 Phase of V&V of the Project

The project V&V activities will be divided into the following phases:

1. Management Phase
2. Requirement Phase
3. Research and Prototyping Phase

4. Architectural Design Phase
5. Detailed Design Phase
6. Implementation Phase
7. Testing Phase
8. Release Phase

4.3 Management Phase of V&V

The management of V&V spans all phases of the development life-cycle. Since software development tends to involve changes, many of the activities in this phase will need to be re-visited through out the life-time of the project.

1. Purpose: Ensuring that activities to be carried out during the course of the project are planned, accurately implemented and evaluated.
2. Entry Criteria: The launch of the project.
3. Products: SQAP, SPMP, SCMP, SVVP, RAP and RMP.
4. V&V Activities:
 - (a) SQAP internal/external/supervisor reviews, workshops and inspections.
 - (b) SPMP internal/external/supervisor reviews and inspections.
 - (c) SCMP internal/external reviews, workshops and inspections.
 - (d) SVVP internal/external reviews, workshops and inspections.
 - (e) RAP internal/external reviews, workshops and inspections.
 - (f) RMP internal/external reviews and inspections.
 - (g) Process/Managerial/Configuration audits and their walkthroughs.
 - (h) Mini Audits on QA processes.
 - (i) Documents' Quality inspections.
5. Exit Criteria: Passed Reviews for all documents.

The details of the planned activities are outlined as follows:

4.3.1 Internal Review of SQAP

1. Goals: To ensure that the standard criteria of the SQAP is met and the processes, practices and conventions are effective and suit the team's need.
2. Methods and Criteria: Refer to RAP section 9 and section 9.2.
3. Inputs: SQAP, criteria described in RAP section 9.2.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: QA sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.2 External Review of SQAP

1. Goals: To ensure that the quality criteria of the SQAP is met and any problematic aspect of the processes and practices that is over seen by the QA sub-team is addressed.
2. Methods and Criteria: As referred to RAP section 9 and section 9.2. See also quality criteria in section 2.2.
3. Inputs: Internal reviewed modified version of the SQAP, criteria described in RAP section 9.2.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated team member outside QA sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.3 Team Workshop (QUIZ) of SQAP processes

1. Goals: To assess the team member on the processes described in the SQAP and enforce the knowledge of the processes and practices.
2. Methods and Criteria: Informal workshop process as referred to in SQAP , section 6.2.
3. Inputs: External review modified version of the SQAP, quiz preparation.
4. Outputs: The individual result of the quiz for each team member.
5. Schedule: Refer to Team PP.
6. Resources: Team Daedalus members.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.4 Process Audits

1. Goals: To ensure that the non-managerial processes such as communication, research, decision making naming convention and standards adopted by the team for the development of the product as stated in the SQAP are consistently being followed.
2. Methods and Criteria: As referred to RAP section 8.3 and section 8.3.2.
3. Inputs: SQAP, team's repository, group directory, team's web site, email archive and the criteria in the audit plan. as described in section A.2.
4. Outputs: Process Audit Report, team meeting scheduled to inform the audit result.
5. Schedule: Refer to Team PP.
6. Resources: QA sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.5 Managerial Audits

1. Goals: To ensure that the management processes and standards adopted by the team for the development of the product as stated in the SPMP are consistently being followed.
2. Methods and Criteria: As referred to RAP section 8.3 and section 8.3.2.
3. Inputs: SPMP, snapshot of the team directory, email archive and criteria as described in section A.2.
4. Outputs: Managerial Audit Report, team meeting scheduled to inform the audit result.
5. Schedule: Refer to Team PP.
6. Resources: QA sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.6 Supervisor Review of SQAP

1. Goals: To get some feedback and advice on how to improve the team processes and standards adopted by the team from the Supervisor.
2. Methods and Criteria: As referred to RAP section 9.
3. Inputs: Baseline version of SQAP.
4. Outputs: The Supervisor Review report.
5. Schedule: Refer to Team PP
6. Resources: Supervisor.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.7 Internal Review of SPMP

1. Goals: To ensure that the standard criteria of the SPMP is met and the processes, practices and conventions are effective and suit the team's need.
2. Methods and Criteria: As referred to RAP section 9 and section 9.3
3. Inputs: SPMP, criteria described in section 9.3.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: QA sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.8 External Review of SPMP

1. Goals: To ensure that the quality criteria of the SPMP is met and any problematic aspect of the processes and practices that is over seen by the QA sub-team is addressed.
2. Methods and Criteria: As referred to RAP and section 9.3. See also quality criteria in section 2.2.
3. Inputs: Internal reviewed modified version of the SPMP, criteria described in section 9.3.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated team member outside QA sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.9 Supervisor Review of SPMP

1. Goals: To get some feedback and advice on how to improve the team managerial processes and standards adopted by the team from the Supervisor.
2. Methods and Criteria: As referred to RAP section 9.
3. Inputs: Baseline version of SPMP.
4. Outputs: The Supervisor Review report.
5. Schedule: Refer to Team PP.
6. Resources: Supervisor.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.10 Internal Review of SCMP

1. Goals: To ensure that the standard criteria of the SCMP is met and the processes, practices and conventions are effective and suit the team's need.
2. Methods and Criteria: As referred to RAP section 9 and section 9.4.
3. Inputs: SCMP, criteria described in section 9.4.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: QA sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.11 External Review of SCMP

1. Goals: To ensure that the quality criteria of the SCMP is met and any problematic aspect of the processes and practices that is over seen by the QA sub-team is addressed.
2. Methods and Criteria: As referred to RAP section 9 and section 9.4.
3. Inputs: Internal review modified version of SCMP, criteria described in section 9.4. See also quality criteria in section 2.2.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated non QA sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.12 Internal Review of RAP

1. Goals: To ensure that the standard criteria of the RAP is met and the processes, practices and conventions are effective and suit the team's need.
2. Methods and Criteria: As referred to RAP section 9 and section 9.5.
3. Inputs: RAP, criteria described in section 9.5.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: QA sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.13 External Review of RAP

1. Goals: To ensure that the quality criteria of the RAP is met and any problematic aspect of the processes and practices that is over seen by the QA sub-team is addressed.
2. Methods and Criteria: As referred to RAP section 9 and section 9.5. See also quality criteria in section 2.2.
3. Inputs: Internal review modified version of RAP, criteria described in section 9.5.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated non QA sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.14 Internal Review of SVVP

1. Goals: To ensure that the standard criteria of the SVVP is met and the processes, practices and conventions are effective and suit the team's need.
2. Methods and Criteria: As referred to RAP section 9 and section 9.7.
3. Inputs: SVVP, criteria described in section 9.7.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: QA sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.15 External Review of SVVP

1. Goals: To ensure that the quality criteria of the SVVP is met and any problematic aspect of the processes and practices that is over seen by the QA sub-team is addressed.
2. Methods and Criteria: As referred to RAP section 9 and section 9.7. See also quality criteria in section 2.2.
3. Inputs: Internal review modified version of SVVP, criteria described in section 9.7.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated non QA sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.16 Internal Review of RMP

1. Goals: To ensure that the standard criteria of the RMP is met and the processes, practices and conventions are effective and suit the team's need.
2. Methods and Criteria: As referred to RAP section 9 and section 9.6. See also quality criteria in section 2.2.
3. Inputs: RMP, criteria described in section 9.6.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Risk sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.17 External Review of RMP

1. Goals: To ensure that the quality criteria of the RMP is met and any problematic aspect of the processes and practices that is over seen by the QA sub-team is addressed.
2. Methods and Criteria: As referred to RAP section 9 and section 9.6. See also quality criteria in section 2.2.
3. Inputs: Internal review modified version of RMP, criteria described in section 9.6.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated non QA sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.18 Mini Audit on QA processes

1. Goals:
 - (a) To test if the team have been followed the QA processes
 - (b) To test if the processes documented in the QA sub-team's documents are feasible for the team current practice.
 - (c) To evaluate the effectiveness of the documented processes and see if there are any area that can improve so that the processes will be more effective and well followed.
2. Methods and Criteria: As referred to RAP section 8.2.
3. Inputs: Audit topic as selected by QA sub-team from the baseline processes, new processes introduced or POW processes.
4. Outputs: Mini Audit Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated members of Team Daedalus.
7. Roles and Responsibilities: Refer to Team SPMP.

4.3.19 Document Quality Inspection of QA sub-team's Documents

1. Goals: To improve the quality of the document and to identify of which quality aspect of the document is lacking.
2. Methods and Criteria: As referred to RAP section 5. See also quality criteria in section 2.2.
3. Inputs: The latest version of the document.
4. Outputs: Quality Inspection Report.
5. Schedule: Refer to Team PP
6. Resources: Team Daedalus member.
7. Roles and Responsibilities: Refer to Team SPMP.

4.4 Requirement Phase V&V

During the requirement phase, the requirements are elicited, evaluated and analysed. The Clients need to be involved with this process in order to determine and communicate with the team whether the requirements specification and scenarios adequately describe their problem and meet their needs.

1. Purpose: Ensuring that the system requirements are accurately defined, documented and prioritised.
2. Entry Criteria: The first client meeting is held.
3. Activities:
 - (a) Client meetings
 - (b) SRS internal/external/supervisor/client reviews
 - (c) Scenario workshops
4. Products: Sign offed SRS and list of scenarios (SS).
5. Exit Criteria: The SRS has been approved and signed off by the Clients.

The V&V activities for this phase are as follows:

4.4.1 Client Meetings

1. Goals: To verify and validate the requirements elicited from the Clients and the requirements that are documented in the SRS that they are correct, complete and reflected the Clients needs.
2. Methods and Criteria: As referred to SPMP section [6.1.1](#).
3. Inputs: Clients Meeting agenda.
4. Outputs: Client Meeting minute.
5. Schedule: As schedule with the Client per week and as required by the Requirement sub-team.
6. Resources: Requirement sub-team, the Clients.
7. Roles and Responsibilities: Refer to Team SPMP.

4.4.2 Internal Review of SRS

1. Goals: To ensure that the standard criteria of the SRS is met and all requirements, deliverables and quality requirements are ranked and described.
2. Methods and Criteria: As referred to RAP section [9](#) and section [9.8](#). See also quality criteria in section [2.2](#).
3. Inputs: SRS, criteria described in section [9.8](#).
4. Outputs: Internal Review Report.

5. Schedule: Refer to Team PP.
6. Resources: Requirement sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.4.3 External Review of SRS

1. Goals: To ensure that the quality criteria of the SRS and problematic or unclear aspects of all design, deliverables and quality requirements are addressed and fixed.
2. Methods and Criteria: As referred to RAP section 9 and section 9.8. See also quality criteria in section 2.2.
3. Inputs: Internal review modified version of SRS, criteria described in section 9.8.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated non Requirement sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP.

4.4.4 Supervisor and Client Informal Review of SRS

1. Goals:
 - (a) To get some feedback and advice on how to improve the quality and contents of the SRS and scenario requirements.
 - (b) To ensure that the quality criteria such as correctness and verifiability are met and addressed.
 - (c) Methods and Criteria: As referred to RAP section 6.
 - (d) Inputs: The current version of the SRS.
 - (e) Outputs: A Modify version of the SRS according to the modifications agreed by the Requirement sub-team.
 - (f) Schedule: Refer to Team PP.
 - (g) Resources: Requirement sub-team, the Supervisor or one of the Clients.
 - (h) Roles and Responsibilities: Refer to Team SPMP.

4.4.5 Scenario Workshop

2. Goals:
 - (a) To give the Requirement sub-team the focus on the scenario requirements generation.
 - (b) To analyse and finalise the requirements.
3. Methods and Criteria: As referred to SPMP section 6.2.
4. Inputs: Scenario and relevant research.

5. Outputs: An analysed and finalised version of scenarios requirement documented in the SS or SRS.
6. Schedule: Refer to Team PP.
7. Resources: Requirement sub-team.
8. Roles and Responsibilities: Refer to Team SPMP.

4.5 Research and Prototyping Phase V&V

During the research and prototyping phase, the feasibility for the requirements will be analysed. The team will research on various technologies that can be used in the implementation of the project. The finding from this phase will influence the decision made in future Design phase so the information found during this phase will need to be analyse and validate.

1. Purpose: Ensuring that the feasibility and suitability of the technologies that will be used during the implementation and to help finalised the requirements.
2. Entry Criteria: The first client meeting is held.
3. Activities:
 - (a) Critiques
 - (b) Prototyping
4. Products: Prototype modules and May 7th Demonstration.
5. Exit Criteria: Prototypes are present in May 7th demonstration.

The V&V activities for this phase are as follows:

4.5.1 Critique

1. Goals: To broader the knowledge of the team, learn from the technology expert and gain feedback to improve the quality of the documents and the understanding of the technologies.
2. Methods and Criteria: As referred to SPMP section 7.
3. Inputs: Negotiate the workshop time with the relevant expert and email the expert what to be discussed during the workshop.
4. Outputs: Workshop Log.
5. Schedule: Refer to Team PP.
6. Resources: Research or Prototype sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.5.2 Prototyping

1. Goals: To perform feasibility analysis on the possible used of researched technologies and to finalised the feasible scenario that could be implemented by the team.
2. Methods and Criteria: There are no procedure or criteria for this.
3. Inputs: Research Report.
4. Outputs: Prototyping modules.
5. Schedule: Refer to Team PP.
6. Resources: Prototype sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.6 Architectural Design Phase V&V

Architectural Design phase finalised the architecture design, design methodologies and goals, which will be used in the Detail Design phase in designing each implementation module. The quality of the SADD will need to be control during this phrase.

1. Purpose: Ensuring that the design are implementation feasible, with software engineer's quality, defined and documented.
2. Entry Criteria: Some scenario are finalised and prototyping are done.
3. Activities:
 - (a) SADD internal/external/supervisor reviews
4. Products: SADD.
5. Exit Criteria: The SADD is baselined.

The V&V activities for this phase are as follows:

4.6.1 Internal Review of SADD

1. Goals: To ensure that the standard criteria of the SADD is met and all architectural style and design methodologies chosen are specified and major modules of the system and their dependencies are described.
2. Methods and Criteria: As referred to SADD section 9 and section 9.9.
3. Inputs: SADD, criteria described in section 9.9.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Design sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.6.2 External Review of SADD

1. Goals: To ensure that the quality criteria of the SADD and problematic or unclear aspects of all architectural style and design methodologies chosen and modules designed are addressed and fixed.
2. Methods and Criteria: As referred to RAP section 9 and section 9.9. See also quality criteria in section 2.2.
3. Inputs: Internal review modified version of SADD, criteria described in section 9.9.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated non Design sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP.

4.7 Detailed Design Phase V&V

During the Detailed Design phase, the architecture design will be decomposed in to a finer detailed design, which will include the information on data structure, variables and methods definitions for each modules. The detailed design should be sufficient enough for the coders to be able to code based on the information documented in the SDD, thus the quality of the document need to be verified and validate.

1. Purpose: Ensuring that the detailed designs are sufficient.
2. Entry Criteria: The SADD is written.
3. Activities:
 - (a) SDD internal/external/supervisor reviews
4. Products: SDD.
5. Exit Criteria: The SDD is baselined.

The V&V activities for this phase are as follows:

4.7.1 Internal Review of SDD

1. Goals: To ensure that the standard criteria of the SDD is met and all required detailed design including data structures, definitions of variables of each modules are specified and the design is detailed and feasible enough for implementation.
2. Methods and Criteria: As referred to SDD section 9 and section 9.10.
3. Inputs: SDD, criteria described in section 9.10.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Design sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.7.2 External Review of SDD

1. Goals: To ensure that the quality criteria of the SDD and problematic or unclear aspects of all detailed design of each modules are addressed and fixed.
2. Methods and Criteria: As referred to RAP section 9 and section 9.10. See also quality criteria in section 2.2.
3. Inputs: Internal review modified version of SDD, criteria described in section 9.10.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated non Design sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP.

4.8 Implementation Phase V&V

Implementation Phase is when, designs are implemented by the coders and modules are integrated into a system. During this phase, the quality of the BP and the code modules need to be controlled. Codes have to follow the coding standard and quality as specified in the processes and criteria as documented in the BP.

1. Purpose: Ensuring that the quality of the codes implement met the team's coding quality standards and that the implementation plan are feasible, defined and documented.
2. Entry Criteria: Required section SADD is written.
3. Activities:
 - (a) BP internal/external reviews
 - (b) Code inspection/walkthrough
4. Products: BP, the System, Code inspection and walkthrough reports.
5. Exit Criteria: The BP is baselined and all modules are implemented and tested.

The V&V activities for this phase are as follows:

4.8.1 Internal Review of BP

1. Goals: To ensure that the criteria of the BP is met, roles and responsibility, schedule, activities, implementation and communication procedure are specified for each builds.
2. Methods and Criteria: As referred to BP section 9 and section 9.11.
3. Inputs: BP, criteria described in section 9.11.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Implementation sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.8.2 External Review of BP

1. Goals: To ensure that the quality criteria of the BP and problematic or unclear aspects of all implementation and communication procedure, their required responsibilities, schedule and activities are addressed and fixed.
2. Methods and Criteria: As referred to RAP section 9 and section 9.11. See also quality criteria in section 2.2.
3. Inputs: Internal review modified version of BP, criteria described in section 9.11.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated non Implementation sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP.

4.8.3 Mini Audit on Implementation Process

1. Goals:
 - (a) To test if the team have been followed the QA processes
 - (b) To test if the processes documented in the QA sub-team's documents are feasible for the team current practice.
 - (c) To evaluate the effectiveness of the documented processes and see if there are any area that can improve so that the processes will be more effective and well followed.
2. Methods and Criteria: As referred to RAP section 8.2.
3. Inputs: Audit topic as selected by QA sub-team from the baseline processes, new processes introduced or POW processes.
4. Outputs: Mini Audit Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated members of Team Daedalus.
7. Roles and Responsibilities: Refer to Team SPMP.

4.8.4 Design Audit

1. Goals: To ensure that the design and implementation are corresponding to each other and easily trace.
2. Methods and Criteria: As referred to RAP section 8.3.7 and section 8.3.8.
3. Inputs: SADD, SDD, code modules in team's repository and the criteria in the audit plan as described in section A.2.
4. Outputs: Design Audit Report, Design sub-team meeting scheduled to inform the audit result.

5. Schedule: Refer to Team PP.
6. Resources: Design sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.8.5 Code Inspection and Walkthrough

1. Goals: To ensure that the coding standard and quality of the code are met for each coding modules.
2. Methods and Criteria: As referred to BP section 6, A and section D.
3. Inputs: TP, criteria described in section 9.11.
4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Testing sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.9 Testing Phase V&V

During the Testing Phase, implemented modules, sub-modules and system will be tested, aiming to find defects and bugs in the implemented system. The quality of the TP will need to be controlled.

1. Purpose: Ensuring the quality of the codes implement, minimised the number of bugs and defects that could be found in the codes and that the testing procedures and criteria are defined and documented.
2. Entry Criteria: The commencement of Implementation Phase.
3. Activities:
 - (a) TP internal/external/supervisor review.
 - (b) unit/agent/integration/system/installation/reliability/usability testing.
4. Products: TP, Testing modules and reports.
5. Exit Criteria: Pass System Testing.

The V&V activities for this phase are as follows:

4.9.1 Internal Review of TP

1. Goals: To ensure that the standard criteria of the TP is met, different types of testing employed, testing objectives, testing methodologies, procedures, testing activities and tools are documented.
2. Methods and Criteria: As referred to TP section 9 and section 9.12.
3. Inputs: TP, criteria described in section 9.12.

4. Outputs: Internal Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Testing sub-team.
7. Roles and Responsibilities: Refer to Team SPMP.

4.9.2 External Review of TP

1. Goals: To ensure that the quality criteria of the TP and problematic or unclear aspects of all testing methodologies, procedures, testing activities and tools are addressed and fixed.
2. Methods and Criteria: As referred to RAP section 9 and section 9.12. See also quality criteria in section 2.2.
3. Inputs: Internal review modified version of TP, criteria described in section 9.12.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated non Testing sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP.

4.9.3 Unit Testing

1. Goals: To maximise the number of bugs found in each low level modules of the system (unit) and hence minimise the total number of bugs found in general as the problem are fixed earlier.
2. Methods and Criteria: As referred to TP section 7.
3. Inputs: Finish module to be tested with no compilation error as requested by the module' author and Unit test cases for that modules are coded by designated tester.
4. Outputs: Unit Testing Report on the team web site.
5. Schedule: Refer to Team PP.
6. Resources: Any designated Testing sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP and TP.

4.9.4 Agent Testing

1. Goals: To test wheter the agent interact with the system as designed by checking each stage of the agent and test the interaction between agents.
2. Methods and Criteria: As referred to TP section 10.
3. Inputs: Finish agent modules to be tested with no compilation error and the agent test cases are coded by the testers.
4. Outputs: Agent Testing Report.

5. Schedule: Refer to Team PP.
6. Resources: Any designated Testing sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP and TP.

4.9.5 Integration Testing

1. Goals: To test the interaction between modules, which formed sub modules, if the interaction are as specified in the designed.
2. Methods and Criteria: As referred to TP section 8.
3. Inputs: Unit tested sub modules required for that integration. and required the integration test cases are coded by the testers.
4. Outputs: Integration Testing Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated Testing sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP and TP.

4.9.6 System Testing

1. Goals: To test whether the system implemented has fulfill all the system requirements as documented in the SRS.
2. Methods and Criteria: As referred to TP section 9.
3. Inputs: Tested modules required for the system and the system test cases are produced by a designated tester.
4. Outputs: System Testing Report and Bug Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated Testing sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP and TP.

4.9.7 Reliability Testing

1. Goals: To test whether or not the reliability of the system met the specified reliability goal in the SRS.
2. Methods and Criteria: As referred to TP section 9.
3. Inputs: Tested modules required for the system and the reliability script coded by a designated tester.
4. Outputs: Reliability Modelling Report.
5. Schedule: Refer to Team PP.

6. Resources: Any designated Testing sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP and TP.

4.9.8 Installation Testing

1. Goals: To test whether the implemented system can be installed according to the UD installation instruction on the system requirement as specified in the SRS and UD.
2. Methods and Criteria: As referred to TP section 13.
3. Inputs: Installation scripted, the finished system and the installation instruction in the UD.
4. Outputs: Installation Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated Testing sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP and TP.

4.9.9 Usability Testing

1. Goals: To test whether the system is usable and user friendly.
2. Methods and Criteria: As referred to TP section 14.
3. Inputs: Usability checklists, the finished system and the presentation modules.
4. Outputs: Usability Checklist Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated Testing sub-team member.
7. Roles and Responsibilities: Refer to Team SPMP and TP.

4.9.10 Mini Audit on Testing Process

1. Goals:
 - (a) To test if the team have been followed the QA processes
 - (b) To test if the processes documented in the QA sub-team's documents are feasible for the team current practice.
 - (c) To evaluate the effectiveness of the documented processes and see if there are any area that can improve so that the processes will be more effective and well followed.
2. Methods and Criteria: As referred to RAP section 8.2.
3. Inputs: Audit topic as selected by QA sub-team from the baseline processes, new processes introduced or POW processes.
4. Outputs: Mini Audit Report.
5. Schedule: Refer to Team PP.

6. Resources: Any designated members of Team Daedalus.
7. Roles and Responsibilities: Refer to Team SPMP.

4.10 Release Phase V&V

During the Release Phase, the team aims to verify and validate all the component of the end products and deliverables, including the UD, TR, system packaging and usability and the presentation artifact.

1. Purpose: Ensuring the quality of the end products and deliverables are acceptable to the Clients and the Supervisor.
2. Entry Criteria: The System testing have started.
3. Activities:
 - (a) UD external review.
 - (b) TR external review.
 - (c) TM external review.
 - (d) Presentation V&V.
 - (e) Acceptance Testing and rehearsal.
 - (f) Final touch on all document.
4. Products: All documents, presentation modules, tested and installed system.
5. Exit Criteria: Client and project hand over.

The V&V activities for this phase are as follows:

4.10.1 External Review of TM

1. Goals: To ensure that the standard and quality criteria of the TM and problematic or unclear aspects of all the traceability from the SRS scenario requirements and goals to the design, implementation and testing are addressed and fixed.
2. Methods and Criteria: As referred to RAP section 9. See also quality criteria in section 2.2.
3. Inputs: A version of TM that Document Maintainer deem ready for review.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated member of team Daedalus who is not the TM Document Maintainer.
7. Roles and Responsibilities: Refer to Team SPMP.

4.10.2 External Review of TR

1. Goals: To ensure that the standard and quality criteria of the TR and problematic or unclear aspects of all the technologies, which could be employed in implementations of agent systems and the project are addressed and fixed.
2. Methods and Criteria: As referred to RAP section 9. See also quality criteria in section 2.2.
3. Inputs: A version of TR that Document Maintainer deem ready for review.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated member of team Daedalus who is not the TR Document Maintainer.
7. Roles and Responsibilities: Refer to Team SPMP.

4.10.3 External Review of UD

1. Goals: To ensure that the standard and quality criteria of the UD and problematic or unclear aspects of all system requirements, installation instruction, the usage of each deliverable documents are addressed and fixed. Also to ensure that the UD conformed to the SRS requirements of it.
2. Methods and Criteria: As referred to RAP section 9. See also quality criteria in section 2.2.
3. Inputs: A version of UD that Document Maintainer deem ready for review.
4. Outputs: External Review Report.
5. Schedule: Refer to Team PP.
6. Resources: Any designated member of team Daedalus who is not the UD Document Maintainer.
7. Roles and Responsibilities: Refer to Team SPMP.

4.10.4 Final Document Quality Inspection All Major Documents

1. Goals: To improve the quality of the document and to improve the degree of consistency between all Team Daedalus' documents.
2. Methods and Criteria: As referred to RAP section 5. See also quality criteria in section 2.2.
3. Inputs: The latest version of the document.
4. Outputs: Quality Inspection Report.
5. Schedule: Refer to Team PP
6. Resources: Team Daedalus member as assigned by QA sub-team leader.
7. Roles and Responsibilities: Refer to Team SPMP.

4.10.5 Presentation Usability Testing

1. Goals: To tested the usability and user friendliness of the presentation.
2. Methods and Criteria: As referred to TP section 14.
3. Inputs: Presentation Usability checklists.
4. Outputs: The system and presentation passing all the point in the checklist.
5. Schedule: Refer to Team PP.
6. Resources: Any designated Team Daedalus members.
7. Roles and Responsibilities: Refer to Team SPMP and TP.

4.10.6 Acceptance Testing Rehearsal

1. Goals: To run through the acceptance testing meeting activities and the acceptance testing procedure prior to the meeting with the Clients.
2. Methods and Criteria: As referred to TP section 11.
3. Inputs: Acceptance Meeting agenda.
4. Outputs: The system and presentation passing all the point in the checklist.
5. Schedule: Refer to Team PP.
6. Resources: Any designated Team Daedalus member.
7. Roles and Responsibilities: Refer to Team SPMP and TP.

4.10.7 Acceptance Testing

1. Goals: To verify if the system fullfill all the requirements agreed to be implemented with the Clients' acceptable quality standard and satisfy the Clients' need.
2. Methods and Criteria: As referred to TP section 11.
3. Inputs: Acceptance checklists, the finished system, the presentation modules and QA quality inspected UD, TR, SRS, SDD and SADD.
4. Outputs: Acceptance Checklist filled in and the SRS signed off by the Clients.
5. Schedule: Refer to Team PP.
6. Resources: Any designated Team Daedalus member.
7. Roles and Responsibilities: Refer to Team SPMP and TP.

5 Verification and Validation Report Requirements

This section describes how the results of all V&V activities outlined in the SVVP will be documented and the requirements for the V&V report to be produced by Team Daedalus. The results of V&V activities and tasks shall be documented in task reports and Team Daedalus' SVVR, the final report that give the complete summary of the V&V effort.

5.1 Task Report

This section describes how task reports will be written and inserted into the SVVR once each V&V task is completed. It is the person who is responsible for the V&V task to keep updating the result of the Task Report and check it in CVS until the result is pass.

The template for Task Report can be found in section [.1](#).

1. Purpose: To formally document the result of the performed V&V activities.
2. Content: Task report shall detail the following items in the following format:
 - (a) Task Name: Name of the V&V task.
 - (b) Task Description: Description of the task performed.
 - (c) Result: Result of the V&V task.
 - (d) Outcome: Whether or not task was successful and follow ups done accordingly.
 - (e) Conclusion: Discussion of findings and opinions, lesson learnt by the team and improvement that can be made for the next V&V activities.
 - (f) Evidence: The location of evidence of the task being performed.
 - (g) Date(s): The date(s) when the task was performed in ;DD/MM/YY;.
 - (h) Personnel: Login of the team members involved in performing the task.
3. Location: \$GROUPCVS/SVVR

Where: DD/MM/YY - Date/Month/Year in two digits.

5.2 Iteration Summary Reports

This section describes the template of each iteration summary reports, which are the responsible of QAM (and TM for Iteration three) to documented the the report for each iteration.

The template for Task Report can be found in section [.2](#).

1. Purpose: To formally document all the V&V activities completed at each iteration's phases and evaluate the usefulness of each V&V activity.
2. Content: Iteration report shall detail the following items in the following format:
 - (a) Iteration name: ;One/Two/Three;
 - (b) Name of sub-team leader responsible: ;QAM or TM logins for Iteration Three;
 - (c) Date of iteration report: ;DD/MM/YY;
 - (d) Summary of the iteration's V&V activities: List of major V&V activities undergoes in that iteration.

- (e) Summary of the iteration's V&V activities' results: Comments on the V&V activities result.
- (f) Major problems encountered: Comments on the problems encountered during this iteration in regarding to V&V activities.
- (g) Major successes: What V&V activities have accomplished in general.

3. Location: \$GROUPCVS/SVVR

Where: DD/MM/YY - Date/Month/Year in two digits.

5.3 Software Verification and Validation Report (SVVR)

SVVR is written by the V&V manager with the input from each sub-team leader who is responsible for each phase.

1. Purpose: SVVR is the document that contains all task reports and the three iteration summaries reports, which identify and summarise all the activities performed and result over the stage of the project, and serves as evidence of how the team has assured quality throughout the project.
2. Content: SVVR must include the following items:
 - (a) the three iteration summaries reports.
 - (b) all task reports under each iteration.
3. Location: \$GROUPCVS/SVVR

6 Verification and Validation Administrative Requirements

This section describes the requirements of V&V administrative activities. It outlines the practices and procedures to be conducted as part of the V&V process for Team Daedalus.

6.1 Task Iteration Policy

A V&V task will have to be repeated if either of the following occurs:

1. When revisiting the iteration phase and the same V&V task is required to be repeated in order to update the progress and changes.
2. The goal or method of the V&V task has been changed.
3. The V&V task has fail to fulfill the exit criteria.
4. A team decision has been reached for the task to be repeated.
5. If V&V activities is currently being conducted and the goal or method has been changed, the current activities will be adjusted according to the QA or Testing sub-team decision.

6.2 Control Procedures

The SVVP and SVVR will be stored as formal configuration items in the team's repository. Members shall follow the configuration management procedure as stated in the SCMP for these configuration items. (Referred to SCMP for further details on baseline and configuration control procedures in section 3.4 and 3.1 respectively).

6.3 Standards, Practices and Convention

This section outline the standards, practices and conventions that apply to V&V activities.

6.3.1 Identification of V&V activities

A new V&V activity may be identified any time prior to, during or at the end of an iteration. The process of identifying V&V activities is outlined as follows:

1. It is the responsibility of any sub-team members associated with the particular V&V activity to identify the task.
2. It is the responsibility of the sub-team leaders of the associated V&V activities to approve their identified task and confirmed their decision with the QA sub-team.
3. Identifying tasks can be done via email or meetings. The initiator of the task shall inform and assign the task identified to the particular sub-team members involved via either one of these two means of communications.
4. In the case that the initiator informs the relevant members via email, the following email tags must be used: [440 QA][440 jsub-team_i], where sub-team is the name of the team the responsible for that V&V activities.
5. It is the V&V Manager responsibility to ensure that all the newly identify V&V tasks are documented in the SVVR and SVVP.

6. The V&V Manager can also confirm in person, requesting an update V&V activities in order to ensure that all activities are documented.
7. The PP and SVVP will be modified by the PM and V&V Manager respectively.

6.3.2 Prior to the Commencement of an Iteration

1. Each new iteration of the project will commence once the Admin sub-team members are aware of the need and has raised and discussed the issue during Admin sub-team meetings. This will be done mainly during the discussion of the PP in the Admin sub-team agenda.
2. It is the responsible sub-team leaders' responsibility to consult with the PM and the relevant sub-team leaders (who are involved with the newly defined iteration) about the plan for all V&V activities' needs, human resource negotiation and time required for those V&V activities. Activities will be broken down into tasks and will be assigned to suitable team members prior to the planned dates.
3. Any negotiation for changing deadline or resources for V&V can be negotiated between the PM, the sub-team leaders and the HR Manager prior to or during the commencement of the V&V activities (Refer to SPMP section 3.2 and 4).
4. Each sub-team leader are responsible in ensuring that all planned activities will be documented in the PP (Refer to SPMP section 3.1).
5. The V&V Manager is responsible to ensure that all identified activities will be documented in the SVVP by either discuss the V&V activities plan in person or via email with the sub-team leaders, documented the plan and notify the QA sub-team via email of the documented plan.
6. The V&V Manager can communicate with the sub-team leaders either via email, in person or through workshop to update the planned and progress of the V&V activities.

6.3.3 During an Iteration

1. It is QA sub-team responsibility to ensure that the V&V activities are carried out according to plan. The QAM needs to measure the progress, quality and monitor if tasks are completed within the planned deadline of the activity.
2. For any resources negotiation and managerial problems encountered that will have a major impact on the completion of the activities, the QAM will discuss the problem with Admin sub-team during Admin meetings to resolve a any problems.
3. For any other general problems encountered, the QAM will discuss the problems with the QA sub-team during QA meetings to resolve the problems.
4. During the QA meeting, the variation of start and end dates of V&V activities, trigger activities, input, output and goals of each activity can be discussed.
5. If any V&V activities meet the iteration policy (Refer to section 6.1) and are needed to be repeated, the QAM will notify the responsible party that the activity needs to be re-performed. The task will be repeated by the relevant members who was held responsible for it.

6. The V&V Manager are responsible for ensuring that the V&V activities are carry out according to the checklist (Refer to section 4.1) by monitoring the tasks progress, controlled and documented result in the SVVR.
7. The V&V Manager is responsible for ensuring that the relevant task reports to the V&V activities has been completed by all personnel involved and recorded in the SVVR.
8. The task reports will follow the report requirements stated in section 5 and templates as stated in .1 and .2.
9. The QAM is responsible for ensuring that the SVVP is modified according to any changes made with the V&V activities planned during the iteration phases.
10. For each iterations testing phase, the responsibility of QAM as described in this section will be transferred to the TM.

6.3.4 Completion and Follow Up of an Iteration

1. It is the V&V Manager responsibility to ensure that all the V&V tasks' outcome and conclusion are documented in the SVVR.
2. The V&V Manager is responsible to monitor whether the completed activity is a trigger to the next iteration. If this is the case, all task reports during the current iteration must be documented, and the result of activities shall be summarised in the SVVR iteration report section.
3. Iteration Report will be written by either QAM or TM when instructed by the V&V Manager either in person or via email using tag [440 QA][440 Release].
4. The V&V Manager needs to monitor if the activity completed was the last activity planned prior to the release of the product. If it is then, the QAM will need to ensure that the V&V final summary in SVVR is completed.
5. Once the final summary has been completed, the V&V Manager will need to write a final summary report and inform the team about the completion of the project via email using tag [440 QA][440 Release].

7 Traceability Procedure and Criteria

This section outlines all procedures and criteria related to traceability process to be followed by Team Daedalus.

7.1 Traceability Procedure Requirements

The Traceability Analysis is conducted by the Release and Design sub-team during iteration two and three. The aim of this activity is to ensure that the complete set of requirements are transferred from the SRS to the design in SADD and SDD, to the implementation and testing.

7.2 Traceability Matrix (TM)

Traceability Matrix aims to trace each requirement from Team Daedalus SRS to the SADD, SDD and TP. By associating requirements with the products and deliverables that satisfy them, we can ensure the requirements are designed and tested, as well as their dependencies being depicted and controlled.

TM will be maintained by the TM Document Maintainer, who is responsible for:

1. the creation, compiling, and version controlling of the TM;
2. finalised the list of requirement to be traced with the Requirement sub-team;
3. consulting with the Design and Implementation Leader in the process of tracing the requirement to design and implementation;
4. requesting for reviews of the document as well as baselining of the document;
5. be aware of any changes that will affect the contents of the document and perform regular update on the document under maintenance if any changes are identified;

.1 Task Report Template

```
\subsubsection{<Name of the V&V activity>}
=====
\begin{enumerate}
\item Task Name: <Name of the V\&V task>
\item Task Description: <Description of the task performed>
\item Result: <Result of the V\&V task>
\item Outcome: <Whether or not task was successful and follow ups done
accordingly>
\item Conclusion: <Discussion of findings and opinions, lesson learnt by the
team and improvement that can be made for the next V\&V activities>
\item Evidence: <The location of evidence of the task being performed>
\item Date(s): <The date(s) when the task was performed in <DD/MM/YY>>
\item Personnel: <Login of the team members involved in performing the task>
\end{enumerate}
=====
```

.2 Iteration Summary Report Template

```
\section{<Name of Iteration> Summary Report}
This section documented summary of finding for V\&V activities in Iteration
<One/Two/Three>.

\begin{enumerate}
\item Iteration name: <One/Two/Three>
\item Name of sub-team leader responsible: <QAM or TM logins for Iteration Three.>
\item Date of iteration report: <List of major V\&V activities undergoes in
that iteration.>
\item Summary of the iteration's V\&V activities: <Comments on the V\&V
activities result.>
\item Summary of the iteration's V\&V activities' results: <Comments on the
problems encountered during this iteration in regarding to V\&V activities.>
\item Major problems encountered: <Comments on the problems encountered during
this iteration in regarding to V\&V activities.>
\item Major successes:
\end{enumerate}

\subsection{The <Name of Iteration> Iteration's Phase}
During the <Name of Iteration> Iteration of Team Daedalus, the V\&V activities
are required to be performed in the following phase:
\begin{enumerate}
\item Management Phase
\item ...
\item ...
\end{enumerate}

\subsubsection{Management Phase}
```

The following V\&V tasks are performed during the <Name of Iteration> Iteration of Team Daedalus' project:

<input task reports for management phase here>

...

...

.3 Change Log

Date	Section	Descriptions
23/07/04 - 22/10/04	all sections	Modification according to neiam quality inspection result and QA document checklist.
25/10/04	2, 3, 6 and appendix	Modification according to csypoon inspection result.

Table 4: Change Log