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| PS2Win |
| Verification & Validation Process |
| Keep Your Time |

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| João Girão;João Martins  23-03-2013 |

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Table 1: List of Contributors

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| **Revision History** | | | | | |
| **Date** | **Description** | **Author** | **Version** | **Approvers** | **State** |
| 23-03-2013 | First Draft | João Martins  &  João Girão | 0.1 |  | Draft |
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Table 2: Version history

# Purpose

The Verification and Validation Process is to confirm that each software work product and/or service of a process or project properly reflects the specified requirements and to confirm that the requirements for a specific intended use of the software work product are fulfilled.

# Inputs and Outputs

# Inputs

Requirements list that is baseline;

Source Code;

Architectural and Design Diagrams;

# Outputs

In the Test Plan is specified acceptance test. This plan will be detail in Test Plan Template.

Acceptance Test Report is specified the results tests. This report will be detail in Report Test Template.

# Activities

* **Verification**:
  + Requirements Verification:
    - The requirements are consistent, feasible and testable;
    - The software requirements related to safety, security, and criticality are correct as shown by suitably rigorous methods;
  + Design Verification:
    - The design is correct and consistent with requirements;
    - The design implements proper sequence of events, inputs, outputs, interfaces, logic flow;
    - Selected design can be derived from requirements;
  + Code Verification:
    - The code is traceable to design and requirements, testable, correct, and compliant with requirements and coding standards;
    - The code implements proper event sequence, consistent interfaces, correct data and control flow;
  + Integration Verification:
    - The software components and units of each software item have been completely and correctly integrated into the software item;
  + Document Verification:
    - Based on Document Management Process and Review Process.
* **Validation**:
  + Prepare selected test requirements, test cases, and test specifications for analyzing test results;
  + Ensure that these test requirements, test cases, and test specifications reflect the particular requirements for the specific intended use.
  + Test software product for its ability to isolate and minimize the effect of errors;
  + Validate that the software product satisfies its intended use;
  + Test the software product as appropriate in selected areas of the target environment;
* **Software Testing Strategy:**
  + **Acceptance Test:** requirements established as part of software requirements analysis are validated against the software that has been constructed;
    - Create test case:
      * Name (TC-Number: Description)
      * Evolved Requirements;
      * Pre-conditions;
      * Several steps;
      * Expected Results;
    - Create Traceability Matrix (test case and functional requirements relationships);
    - Acceptance Test result are specified in Verification and Validation phase;
    - Case the Acceptance Test fail: it should be created a report with the failures (Report Test Template):
      * Specify:
        + Test name;
        + Date;
        + Tester name;
        + Failure;
        + Actions;
        + Correction Date;
        + Developer;
      * If one tester: create unique report;
      * Else: create various reports.
  + **Integration Test:** focus on the design and the construction of the software architecture;
    - After design and architectural phase is:
      * Created new integration plan;

OR

* + - * Updated the test plan.
  + **Unit Test:** concentrates on each unit of the software as implemented in the source code.

# Tools

Documents: MS Office.

# Related Processes

This process has a strong connection with Project Assessment and Control Process, Review Process, Document Management Process and Requirements Analysis Process.

# Measures

* Percentage of approved and disapproved tests;
  + Acceptance Tests;
  + Integration Tests;
  + Unit Tests;
* Tests number planned, executed and passed;