Testplan

Revision History

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Table of Contents

1. Introduction 5

1.1 Purpose 5

1.2 Scope 5

1.3 Intended Audience 5

1.4 Document Terminology and Acronyms 5

1.5 References 5

1.6 Document Structure 5

2. Evaluation Mission and Test Motivation 6

2.1 Background 6

2.2 Evaluation Mission 6

2.3 Test Motivators 6

3. Target Test Items 6

4. Outline of Planned Tests 7

4.1 Outline of Test Inclusions 7

4.2 Outline of Other Candidates for Potential Inclusion 7

4.3 Outline of Test Exclusions 7

5. Test Approach 7

5.1 Initial Test-Idea Catalogs and Other Reference Sources 7

5.2 Testing Techniques and Types 7

5.2.1 Data and Database Integrity Testing 7

5.2.2 Function Testing 8

5.2.3 Business Cycle Testing 9

5.2.4 User Interface Testing 10

5.2.5 Performance Profiling 11

5.2.6 Load Testing 12

5.2.7 Stress Testing 13

5.2.8 Volume Testing 14

5.2.9 Security and Access Control Testing 15

5.2.10 Failover and Recovery Testing 16

5.2.11 Configuration Testing 18

5.2.12 Installation Testing 19

6. Entry and Exit Criteria 20

6.1 Test Plan 20

6.1.1 Test Plan Entry Criteria 20

6.1.2 Test Plan Exit Criteria 20

6.1.3 Suspension and Resumption Criteria 20

6.2 Test Cycles 20

6.2.1 Test Cycle Entry Criteria 20

6.2.2 Test Cycle Exit Criteria 20

6.2.3 Test Cycle Abnormal Termination 20

7. Deliverables 20

7.1 Test Evaluation Summaries 20

7.2 Reporting on Test Coverage 20

7.3 Perceived Quality Reports 20

7.4 Incident Logs and Change Requests 20

7.5 Smoke Test Suite and Supporting Test Scripts 20

7.6 Additional Work Products 21

7.6.1 Detailed Test Results 21

7.6.2 Additional Automated Functional Test Scripts 21

7.6.3 Test Guidelines 21

7.6.4 Traceability Matrices 21

8. Testing Workflow 21

9. Environmental Needs 22

9.1 Base System Hardware 22

9.2 Base Software Elements in the Test Environment 22

9.3 Productivity and Support Tools 22

9.4 Test Environment Configurations 23

10. Responsibilities, Staffing, and Training Needs 23

10.1 People and Roles 23

10.2 Staffing and Training Needs 25

11. Iteration Milestones 25

12. Risks, Dependencies, Assumptions, and Constraints 26

13. Management Process and Procedures 27

13.1 Measuring and Assessing the Extent of Testing 27

13.2 Assessing the Deliverables of this Test Plan 27

13.3 Problem Reporting, Escalation, and Issue Resolution 27

13.4 Managing Test Cycles 27

13.5 Traceability Strategies 27

13.6 Approval and Signoff 28

# Introduction

## Purpose

The purpose of the Iteration Test Plan is to gather all of the information necessary to plan and control the test effort for a given iteration. It describes the approach to testing the software, and is the top-level plan generated and used by managers to direct the test effort.

This *Test Plan* for supports the following objectives:

* The tests are aligned with the interface and functionality.
* The motivation is to develop an application with the fewest number of bugs.

## Scope

This document addresses the following types and levels of testing:

* JUnit tests
* Functional tests
* Blackbox TestFX tests
* JUnit like GUI tests with TestFX
* Installation test

## Intended Audience

n/a

## Document Terminology and Acronyms

tbd.

## References

|  |  |
| --- | --- |
| SikuliX – Directory |  |
| Junit – Directory |  |
| \_\_\_ - Directory |  |
|  |  |

## Document Structure

n/a

# Evaluation Mission and Test Motivation

## Background

Testing supports all project members with feedback to their work. It ensures that use cases and functionalities are implemented in a correct manner and shows if changes infected the behaviour of the application in a bad way.

## Evaluation Mission

In general, our mission is to improve our design and code quality.

This contains to find as many bugs as possible, find quality risks and so forth.

## Test Motivators

Tests reduce bugs in new features and in existing features. Also tests are good documentation and reduce the cost of work if something needs to be changed.

# Target Test Items

The listing below identifies those test itemssoftware, hardware, and supporting product elements that have been identified as targets for testing. This list represents what items will be tested.

* Desktop application “Nappy, the ingenious”
* Database connection

# Outline of Planned Tests

## Outline of Test Inclusions

Unit test for the game logic and GUI.

## Outline of Other Candidates for Potential Inclusion

Database and Wiki stress-test. It is unlikely that we add more Characters.

## Outline of Test Exclusions

Database (H2) itself

JavaFX library

Java System API (open Browser, Mail client, …)

# Test Approach

## Initial Test-Idea Catalogs and Other Reference Sources

n/a

## Testing Techniques and Types

### Data and Database Integrity Testing

n/a

### Function Testing

Customers can define SikuliX tests in plain text with screenshots and developers implement these in Java.

|  |  |
| --- | --- |
| Technique Objective: | Correct implementation of use-cases. |
| Technique: | Execute each use-case scenario’s individual use-case flows or functions and features, using valid and invalid data, to verify that:   the expected results occur when valid data is used |
| Oracles: | n/a |
| Required Tools: | SikuliX |
| Success Criteria: | SikuliX tests don’t fail |
| Special Considerations: | n/a |

### Business Cycle Testing

n/a

### User Interface Testing

User Interface (UI) testing verifies a user’s interaction with the software. The goal of UI testing is to ensure that the UI provides the user with the appropriate access and navigation through the functions of the target-of-test.

|  |  |
| --- | --- |
| Technique Objective: | Navigation through the target-of-test reflecting business functions and requirements, including window-to-window, field-to- field, and use of access methods (tab keys, mouse movements, accelerator keys).  Window objects and characteristics can be exercised–such as menus, size, position, state, and focus. |
| Technique: | Create or modify tests for each window to verify proper navigation and object states for each application window and object. |
| Oracles: | Maven Test or build fails. |
| Required Tools: | Java  Maven TestFX (loaded by maven automatically) JUnit (loaded by maven automatically) |
| Success Criteria: | Every Unit tests passes without assert fails or unexpected exceptions. |
| Special Considerations: | n/a |

### Performance Profiling

n/a

### Load Testing

n/a

### Stress Testing

n/a

### Volume Testing

n/a

### Security and Access Control Testing

n/a

### Failover and Recovery Testing

n/a

### Configuration Testing

n/a

### Installation Testing

|  |  |
| --- | --- |
| Technique Objective: | [Exercise the installation of the target-of-test onto each required hardware configuration under the following conditions to observe and log installation behavior and configuration state changes:   * new installation: a new machine, never installed previously with * update: a machine previously installed , same version * update: a machine previously installed , older version] |
| Technique: | * [Develop automated or manual scripts to validate the condition of the target machine.   + new: never installed   + same or older version already installed * Launch or perform installation. * Using a predetermined subset of Function Test scripts, run the transactions.] |
| Oracles: | [Outline one or more strategies that can be used by the technique to accurately observe the outcomes of the test. The oracle combines elements of both the method by which the observation can be made and the characteristics of specific outcome that indicate probable success or failure. Ideally, oracles will be self-verifying, allowing automated tests to make an initial assessment of test pass or failure, however, be careful to mitigate the risks inherent in automated results determination.] |
| Required Tools: | [The technique requires the following tools:   * base configuration imager and restorer * installation monitoring tools (registry, hard disk, CPU, memory, and so on)] |
| Success Criteria: | [The technique supports the testing of the installation of the developed product in one or more installation configurations.] |
| Special Considerations: | [What transactions should be selected to comprise a confidence test that application has been successfully installed and no major software components are missing?] |

# Entry and Exit Criteria

## Test Plan

### Test Plan Entry Criteria

[Specify the criteria that will be used to determine whether the execution of the **Test Plan** can begin.]

### Test Plan Exit Criteria

[Specify the criteria that will be used to determine whether the execution of the **Test Plan** is complete or that continued execution provides no further benefit.]

### Suspension and Resumption Criteria

[Specify the criteria that will be used to determine whether testing should be prematurely suspended or ended before the plan has been completely executed, and under what criteria testing can be resumed.]

## Test Cycles

### Test Cycle Entry Criteria

[Specify the criteria to be used to determine whether the test effort for the next Test Cycle of this **Test Plan** can begin.]

### Test Cycle Exit Criteria

[Specify the criteria that will be used to determine whether the test effort for the current Test Cycle of this **Test Plan** is deemed sufficient.]

### Test Cycle Abnormal Termination

[Specify the criteria that will be used to determine whether testing should be prematurely suspended or ended for the current test cycle, or whether the intended build candidate to be tested must be altered.]

# Deliverables

[In this section, list the various artifacts that will be created by the test effort that are useful deliverables to the various stakeholders of the test effort. Don’t list all work products; only list those that give direct, tangible benefit to a stakeholder and those by which you want the success of the test effort to be measured.]

## Test Evaluation Summaries

[Provide a brief outline of both the form and content of the test evaluation summaries, and indicate how frequently they will be produced.]

## Reporting on Test Coverage

[Provide a brief outline of both the form and content of the reports used to measure the extent of testing, and indicate how frequently they will be produced. Give an indication as to the method and tools used to record, measure, and report on the extent of testing.]

## Perceived Quality Reports

[Provide a brief outline of both the form and content of the reports used to measure the perceived quality of the product, and indicate how frequently they will be produced. Give an indication about to the method and tools used to record, measure, and report on the perceived product quality. You might include some analysis of Incidents and Change Request over Test Coverage.]

## Incident Logs and Change Requests

[Provide a brief outline of both the method and tools used to record, track, and manage test incidents, associated change requests, and their status.]

## Smoke Test Suite and Supporting Test Scripts

[Provide a brief outline of the test assets that will be delivered to allow ongoing regression testing of subsequent product builds to help detect regressions in the product quality.]

## Additional Work Products

[In this section, identify the work products that are optional deliverables or those that should not be used to measure or assess the successful execution of the **Test Plan**.]

### Detailed Test Results

[This denotes either a collection of Microsoft Excel spreadsheets listing the results determined for each test case, or the repository of both test logs and determined results maintained by a specialized test product.]

### Additional Automated Functional Test Scripts

[These will be either a collection of the source code files for automated test scripts, or the repository of both source code and compiled executables for test scripts maintained by the test automation product.]

### Test Guidelines

[Test Guidelines cover a broad set of categories, including Test-Idea catalogs, Good Practice Guidance, Test patterns, Fault and Failure Models, Automation Design Standards, and so forth.]

### Traceability Matrices

[Using a tool such as Rational RequisistePro or MS Excel, provide one or more matrices of traceability relationships between traced items.]

# Testing Workflow

[Provide an outline of the workflow to be followed by the Test team in the development and execution of this **Test Plan**.]

The specific testing workflow that you will use should be documented separately in the project's Development Case. It should explain how the project has customized the base RUP test workflow (typically on a phase-by-phase basis). In most cases, we recommend you place a reference in this section of the **Test Plan** to the relevant section of the Development Case. It might be both useful and sufficient to simply include a diagram or image depicting your test workflow.

More specific details of the individual testing tasks are defined in a number of different ways, depending on project culture; for example:

* defined as a list of tasks in this section of the **Test Plan**, or in an accompanying appendix
* defined in a central project schedule (often in a scheduling tool such as Microsoft Project)
* documented in individual, "dynamic" to-do lists for each team member, which are usually too detailed to be placed in the **Test Plan**
* documented on a centrally located whiteboard and updated dynamically
* not formally documented at all

Based on your project culture, you should either list your specific testing tasks here or provide some descriptive text explaining the process your team uses to handle detailed task planning and provide a reference to where the details are stored, if appropriate.

For Master Test Plans, we recommend avoiding detailed task planning, which is often an unproductive effort if done as a front-loaded activity at the beginning of the project. A Master Test Plan might usefully describe the phases and the number of iterations, and give an indication of what types of testing are generally planned for each Phase or Iteration.

**Note**: Where process and detailed planning information is recorded centrally and separately from this Test Plan, you will have to manage the issues that will arise from having duplicate copies of the same information. To avoid team members referencing out-of-date information, we suggest that in this situation you place the minimum amount of process and planning information within the Test Plan to make ongoing maintenance easier and simply reference the "Master" source material.]

# Environmental Needs

[This section presents the non-human resources required for the **Test Plan**.]

## Base System Hardware

The following table sets forth the system resources for the test effort presented in this *Test Plan*.

[The specific elements of the test system may not be fully understood in early iterations, so expect this section to be completed over time. We recommend that the system simulates the production environment, scaling down the concurrent access and database size, and so forth, if and where appropriate.]

[**Note**: Add or delete items as appropriate.]

| **System Resources** | | |
| --- | --- | --- |
| **Resource** | **Quantity** | **Name and Type** |
| Database Server |  |  |
| —Network or Subnet |  | TBD |
| —Server Name |  | TBD |
| —Database Name |  | TBD |
| Client Test PCs |  |  |
| —Include special configuration requirements |  | TBD |
| Test Repository |  |  |
| —Network or Subnet |  | TBD |
| —Server Name |  | TBD |
| Test Development PCs |  | TBD |

## Base Software Elements in the Test Environment

The following base software elements are required in the test environment for this *Test Plan*.

[Note: Add or delete items as appropriate.]

| **Software Element Name** | **Version** | **Type and Other Notes** |
| --- | --- | --- |
| NT Workstation |  | Operating System |
| Windows 2000 |  | Operating System |
| Internet Explorer |  | Internet Browser |
| Netscape Navigator |  | Internet Browser |
| MS Outlook |  | eMail Client software |
| Network Associates McAfee Virus Checker |  | Virus Detection and Recovery Software |

## Productivity and Support Tools

The following tools will be employed to support the test process for this *Test Plan*.

[Note: Add or delete items as appropriate.]

| **Tool Category or Type** | **Tool Brand Name** | **Vendor or In-house** | **Version** |
| --- | --- | --- | --- |
| Test Management |  |  |  |
| Defect Tracking |  |  |  |
| ASQ Tool for functional testing |  |  |  |
| ASQ Tool for performance testing |  |  |  |
| Test Coverage Monitor or Profiler |  |  |  |
| Project Management |  |  |  |
| DBMS tools |  |  |  |

## Test Environment Configurations

The following Test Environment Configurations needs to be provided and supported for this project.

| **Configuration Name** | **Description** | **Implemented in Physical Configuration** |
| --- | --- | --- |
| Average user configuration |  |  |
| Minimal configuration supported |  |  |
| Visually and mobility challenged |  |  |
| International Double Byte OS |  |  |
| Network installation (not client) |  |  |

# Responsibilities, Staffing, and Training Needs

[This section presents the required resources to address the test effort outlined in the **Test Plan**—the main responsibilities, and the knowledge or skill sets required of those resources.]

## People and Roles

This table shows the staffing assumptions for the test effort.

[**Note**: Add or delete items as appropriate.]

| **Human Resources** | | |
| --- | --- | --- |
| **Role** | **Minimum Resources Recommended**  **(number of full-time roles allocated)** | **Specific Responsibilities or Comments** |
| Test Manager |  | Provides management oversight.  Responsibilities include:   * planning and logistics * agree mission * identify motivators * acquire appropriate resources * present management reporting * advocate the interests of test * evaluate effectiveness of test effort |
| Test Analyst |  | Identifies and defines the specific tests to be conducted.  Responsibilities include:   * identify test ideas * define test details * determine test results * document change requests * evaluate product quality |
| Test Designer |  | Defines the technical approach to the implementation of the test effort.  Responsibilities include:   * define test approach * define test automation architecture * verify test techniques * define testability elements * structure test implementation |
| Tester |  | Implements and executes the tests.  Responsibilities include:   * implement tests and test suites * execute test suites * log results * analyze and recover from test failures * document incidents |
| Test System Administrator |  | Ensures test environment and assets are managed and maintained.  Responsibilities include:   * administer test management system * install and support access to, and recovery of, test environment configurations and test labs |
| Database Administrator, Database Manager |  | Ensures test data (database) environment and assets are managed and maintained.  Responsibilities include:   * support the administration of test data and test beds (database). |
| Designer |  | Identifies and defines the operations, attributes, and associations of the test classes.  Responsibilities include:   * defines the test classes required to support testability requirements as defined by the test team |
| Implementer |  | Implements and unit tests the test classes and test packages.  Responsibilities include:   * creates the test components required to support testability requirements as defined by the designer |

## Staffing and Training Needs

This section outlines how to approach staffing and training the test roles for the project.

[The way to approach staffing and training will vary from project to project. If this section is part of a Master Test Plan, you should indicate at what points in the project lifecycle different skills and numbers of staff are needed. If this is an Iteration Test Plan, you should focus mainly on where and what training might occur during the Iteration.

Give thought to your training needs, and plan to schedule this based on a Just-In-Time (JIT) approach—there is often a temptation to attend training too far in advance of its usage when the test team has apparent slack. Doing this introduces the risk of the training being forgotten by the time it's needed.

Look for opportunities to combine the purchase of productivity tools with training on those tools, and arrange with the vendor to delay delivery of the training until just before you need it. If you have enough headcount, consider having training delivered in a customized manner for you, possibly at your own site.

The test team often requires the support and skills of other team members not directly part of the test team. Make sure you arrange in your plan for appropriate availability of System Administrators, Database Administrators, and Developers who are required to enable the test effort.]

# Iteration Milestones

[Identify the key schedule milestones that set the context for the Testing effort. Avoid repeating too much detail that is documented elsewhere in plans that address the entire project.]

| **Milestone** | **Planned Start Date** | **Actual Start Date** | **Planned End Date** | **Actual End Date** |
| --- | --- | --- | --- | --- |
| Iteration Plan agreed |  |  |  |  |
| Iteration starts |  |  |  |  |
| Requirements baselined |  |  |  |  |
| Architecture baselined |  |  |  |  |
| User Interface baselined |  |  |  |  |
| First Build delivered to test |  |  |  |  |
| First Build accepted into test |  |  |  |  |
| First Build test cycle finishes |  |  |  |  |
| [Build Two will not be tested] |  |  |  |  |
| Third Build delivered to test |  |  |  |  |
| Third Build accepted into test |  |  |  |  |
| Third Build test cycle finishes |  |  |  |  |
| Fourth Build delivered to test |  |  |  |  |
| Fourth Build accepted into test |  |  |  |  |
| Iteration Assessment review |  |  |  |  |
| Iteration ends |  |  |  |  |

# Risks, Dependencies, Assumptions, and Constraints

[List any risks that may affect the successful execution of this **Test Plan**, and identify mitigation and contingency strategies for each risk. Also indicate a relative ranking for both the likelihood of occurrence and the impact if the risk is realized.]

| **Risk** | **Mitigation Strategy** | **Contingency (Risk is realized)** |
| --- | --- | --- |
| Prerequisite entry criteria is not met. | <Tester> will define the prerequisites that must be met before Load Testing can start.  <Customer> will endeavor to meet prerequisites indicated by <Tester>. | * Meet outstanding prerequisites * Consider Load Test Failure |
| Test data proves to be inadequate. | <Customer> will ensure a full set of suitable and protected test data is available.  <Tester> will indicate what is required and will verify the suitability of test data. | * Redefine test data * Review Test Plan and modify * components (that is, scripts) * Consider Load Test Failure |
| Database requires refresh. | <System Admin> will endeavor to ensure the Database is regularly refreshed as required by <Tester>. | * Restore data and restart * Clear Database |

[List any dependencies identified during the development of this **Test Plan** that may affect its successful execution if those dependencies are not honored. Typically these dependencies relate to activities on the critical path that are prerequisites or post-requisites to one or more preceding (or subsequent) activities You should consider responsibilities you are relying on other teams or staff members external to the test effort completing, timing and dependencies of other planned tasks, the reliance on certain work products being produced.]

| **Dependency between** | **Potential Impact of Dependency** | **Owners** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

[List any assumptions made during the development of this **Test Plan** that may affect its successful execution if those assumptions are proven incorrect. Assumptions might relate to work you assume other teams are doing, expectations that certain aspects of the product or environment are stable, and so forth].

| **Assumption to be proven** | **Impact of Assumption being incorrect** | **Owners** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

[List any constraints placed on the test effort that have had a negative effect on the way in which this **Test Plan** has been approached.]

| **Constraint on** | **Impact Constraint has on test effort** | **Owners** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

# Management Process and Procedures

[Outline what processes and procedures are to be used when issues arise with the **Test Plan** and its enactment.]

## Measuring and Assessing the Extent of Testing

[Outline the measurement and assessment process to be used to track the extent of testing.]

## Assessing the Deliverables of this Test Plan

[Outline the assessment process for reviewing and accepting the deliverables of this **Test Plan**]

## Problem Reporting, Escalation, and Issue Resolution

[Define how process problems will be reported and escalated, and the process to be followed to achieve resolution.]

## Managing Test Cycles

[Outline the management control process for a test cycle.]

## Traceability Strategies

[Consider appropriate traceability strategies for:

* Coverage of Testing against Specifications — enables measurement the extent of testing
* Motivations for Testing — enables assessment of relevance of tests to help determine whether to maintain or retire tests
* Software Design Elements — enables tracking of subsequent design changes that would necessitate rerunning tests or retiring them
* Resulting Change Requests — enables the tests that discovered the need for the change to be identified and re-run to verify the change request has been completed successfully]

## Approval and Signoff

[Outline the approval process and list the job titles (and names of current incumbents) that initially must approve the plan, and sign off on the plans satisfactory execution.]