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|  |  | PMLC  Project Management Life Cycle |

**The George Washington University**

**[Project Name]**

**Test Plan & Procedures**

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| --- | --- |
| **Prepared By:** | [Name(s) of Preparer(s)] |
| **Version:** | [Version Number #.#] |
| **Date:** | [Date] |
| **Project Owner:** | [Name & Title of Project Owner] [Department] |
| **Project Manager:** | [Name of Project Manager] [Department] [Contact Information] |

|  |  |
| --- | --- |
| **Status:** | **Draft** |
|  | **Routing for Document Approval** |
|  | **Approved** |
|  | **Unapproved** |

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# Revision History

| **Version Number** | **Date** | **Author** | **Notes** |
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\*Begin revision history after first, non-draft release.

***Purpose / Instructions:*** *The purpose of this document is to detail the test plan to allow the project team to adequately test the solution versus the business requirements.* ***This document is merely a guide.*** *Specific projects may warrant a different approach to testing. However, it is important that the test plan be detailed enough to validate that each business requirement has been adequately tested. The instructions in this document are the italicized paragraphs and are meant to be deleted once they are no longer needed.*

# Introduction

## Purpose of Test Plan

The purpose of this document is to summarize the test strategy as it relates to the implementation of *<Project Name>*. This test plan provides managers and test personnel with the necessary approach to validate that each process performs correctly and that the requirements of the system have been satisfied. This test plan will provide the following:

* Detail the approach and strategy for testing of the solution
* Describe the planning, test case preparation and scheduling, including resource requirements
* Explain the execution, results documentation and review of the testing
* Provide the test cases which will be executed for this testing effort

## Scope of Testing

*<Use this section to describe the extent to which the solution will be tested. Mention the test phases and strategy at a high-level. Later sections will provide the detail. Below is a sample of testing scope.>*

Testing for this solution will include System, Stability, User Acceptance and Regression testing. These phases are described in Section 2 of this document. Test cases will be developed for Stability and User Acceptance testing, which will also be used for regression testing.

Development related to fixes identified during testing will be considered part of the testing phase of this project and will be tracked on the schedule as such.

A Requirements Traceability Matrix will be used to track the development, status and execution of the test cases as they relate back to the Business Requirements Document.

## Solution Description

*<Provide a formal description of the solution, with background information as applicable. Information may be obtained from existing project documents. The purpose of this section is to give the reader a working understanding of the solution under test.>*

## Testing Risks, Assumptions & Constraints

*<Detail the assumptions made in order for the testing to be successfully executive. Also detail the constraints affecting the testing phase and activities and any potential risks, including mitigation strategy. Provide a link to the Risks Log if risks are to be described and tracked in that document.>*

# Test Strategy

*<The following subsections detail the specific phases which will occur during testing. This can be highly customized based on the size and scope of the solution. It is important to include what types/phases of testing will occur, the objective of each type of testing, the techniques to be utilized and the owner of each type of testing. The following is provided for sample purposes.>*

## System Testing (software / hardware)

System testing is developer testing of the solution against the Functional Design Specification or the Business Requirements Document. The focus of this testing is to directly validate code.

### Unit Testing

*<Describe the Objectives, Techniques and Owners of Unit Testing. This testing is typically defined as developer testing of a specific module against functional design specifications.>*

### Integration Testing

*<Describe the Objectives, Techniques and Owners of Integration Testing. This testing is typically defined as testing by the development team as a single entity to ensure developed interactions are functioning properly.>*

## Stability Testing (software / hardware)

Stability testing is a suite of tests meant to ensure that the system and/or hardware being utilized for this solution meet the specifications dictated by the business requirements. This testing is typically performed through a joint effort of the functional and technical testers. The testing can be divided into some or all of the following sub-phases:

### Performance Testing

*<Describe the Objectives, Techniques and Owners of Performance Testing. This testing is meant to monitor system performance during normal to high usage and compare to expected benchmarks detailed in the requirements. These benchmarks should be included in the performance requirements listed in the Business Requirements Document.>*

### Load Testing

*<Describe the Objectives, Techniques and Owners of Load Testing. This testing is meant to exercise the solution using a predefined load level, usually the highest load that the system can accept while still functioning properly. >*

### Stress Testing

*<Describe the Objectives, Techniques and Owners of Stress Testing. This testing is meant to allow testers to observe how the system reacts to failure. Stress testing tries to break the system under test by overwhelming its resources or by taking resources away from it.>*

### Availability & Failover Testing

*<Describe the Objectives, Techniques and Owners of Availability & Failover Testing. This testing is meant to exercise the systems availability to users and any failover requirements which dictate a backup sequence and time to recovery.>*

## User Acceptance Testing (UAT)

*<Describe the Objectives, Techniques and Owners of UAT Testing. This testing is performed by the functional end user representatives to ensure that the end users can use the solution as designed per the Business Requirements Document, including full end-to-end testing.>*

## Regression Testing

*<Describe the Objectives, Techniques and Owners of Regression Testing. This testing is meant to retest portions of the solution after modifications are made to ensure no other errors were introduced through the fixes.*>

# Test Preparation & Planning

## Test Schedule & Milestones

*<Provide the schedule from beginning to completion of System, Stability, User Acceptance and/or Regression Testing. This can be a high-level timeline if the detailed testing schedule, including module/scenario testing, is included in either the Appendix section of this document or in a detailed scheduled located elsewhere (with a reference in the Appendix).>*

## Test Resources Required

| Role | Name | Department | Comment |
| --- | --- | --- | --- |
| Test Lead |  |  |  |
| Project Manager |  |  |  |
| Test Case Developer |  |  |  |
| Functional Tester |  |  |  |
| Functional Tester |  |  |  |
| Functional Tester |  |  |  |
| Subject Matter Expert |  |  |  |

## Test Case Preparation

### Test Case Development

*<Describe who will create the test cases (System, Stability & UAT) and where they will be stored. Test cases should normally be developed by a resource not directly involved in the development of the solution. These should be mapped to the business requirements and tied to these in the Requirements Traceability Matrix to ensure complete test coverage of the business requirements.>*

### Test Automation

*<Include a description of any portions or phases of testing which will be automated. Please note the methods and tools to be utilized to develop and execute test scripts.>*

### Test Case Validation

*<State how the team plans to validate test cases prior to execution. For example, “Some or all test cases will be dry run for finalization of procedures at the test location prior to the test period. Corrections to the test cases will be made as required.”>*

## Test Environment

### Facilities

*<Define the available facilities where testing will be done for each phase and any special accommodations that need to be made.>*

### Environment Diagram

*<This section defines and documents the test environment in terms of hardware and software components by providing hardware block diagrams, software block diagrams, interface diagrams and/or additional functional block diagrams as required.>*

### Hardware & Software

*<Provide a list of all hardware and software components required, with descriptions and control information.>*

### Additional Resources

*<List any additional resources required, such as PC access, conference rooms, telephone/teleconference requirements, etc.>*

### Sensitive Data

*< If sensitive data is to be used it should be listed here, and the section should be expanded to include any special precautions to be taken for dealing with this material. If no sensitive data is to be used, state that here.>*

# Test Execution

## Testing Cycles / Workflow

*<Describe any iterations, phases or segmentation of the testing, including the activities and participants for each.>*

## Test Entrance Criteria

*<Define the specific entrance criteria for beginning of testing. This can be done by phase or for the overall testing effort. Keep in mind that the entrance criteria for System Testing usually vary significantly from Stability Testing and UAT. The sections below are provided as an example.>*

### Stability Entrance Criteria

* All required hardware/system components within the test environment have been initialized.
* All required network connectivity between devices has been completed.
* Stability test cases have been documented, reviewed and validated.
* Stability benchmarks are clearly agreed upon based on the Business Requirements Document.
* All required data entry, database population and system configuration has been completed.
* Test facilities are available.

### UAT Entrance Criteria

* All code related to the particular functions under test has been frozen.
* All required hardware/system components within the test environment have been initialized.
* All required network connectivity between devices has been completed.
* All UAT test cases have been documented, reviewed and validated.
* All required data entry, database population and system configuration has been completed.
* Test facilities are available.

## Test Readiness Review

*<Detail how Test Readiness Reviews (TRR) will be utilized. For example, “TRRs will be held prior to each major testing phase/cycle. All entrance criteria for this phase will be met prior to the beginning of testing. A sample checklist for utilization in the TRR is included in the Appendix section of this document.”>*

## Test Case Sequencing

*<Describe the order in which test cases will be executed. If the schedule is included in the appendix, it can be referenced here.>*

## Test Results Documentation

*<Describe how test results will be captured and how fixes will be tracked. This could be columns or a separate tab in the Requirements Traceability Matrix. It is here that definitions are documented for Critical, High, Medium and Low issues, to enable future Go/No Go decisions based on the exit criteria in Section 5 of this document.>*

# Test Review & Reporting

## Test Exit Criteria

*<Define the specific exit (i.e. acceptance) criteria for completing testing. This can be done by phase or for the overall testing effort. Keep in mind that the exit criteria for System Testing usually vary significantly from Stability Testing and UAT. The sections below are provided as an example.>*

### Stability Exit Criteria

* All Stability test cases have been executed.
* All test results are reviewed and approved by team members listed in Section 4 of this document.
* All required benchmarks have been met per the Business Requirements Document
* All *High & Critical* issues discovered during UAT have been fixed and Regression Testing has been performed.
* All remaining *Medium & Low* issues discovered during UAT have been identified, logged and an estimated resolution date has been provided and agreed to by GW.

### UAT Exit Criteria

* All User Acceptance Testing test cases are executed.
* All *High & Critical* issues discovered during UAT have been fixed and Regression Testing has been performed.
* All test results are reviewed and approved by team members listed in Section 4 of this document.
* All remaining *Medium & Low* issues discovered during UAT have been identified, logged and an estimated resolution date has been provided and agreed to by GW.

### Test Completion Sign-Off

<Describe the expectation of sign-off once testing is complete. List which team members will need to

## Test Results Review

*<State the interval and nature of test results reviews. At a minimum, there should be a post-test result review to serve as a Go / No Go for leaving the test phase, based on the exit criteria included in this document. For example, “At the conclusion of each test phase, the team will meet to review the status to date. The degree to which the test objectives were met will be reported and discussed, resulting in a regular evaluation of activities. The final test review will be held to ensure that the testing has met the exit criteria specified in Section 3 of this document.”>*

## Metrics

*<The following list of metrics to be tracked and updated throughout testing is provided for example purposes only. Use supporting project documentation for guidance to determine the appropriate metrics to be tracked for the specific project.>*

*• Number of tests planned*

*• Number of tests executed*

*• Number of tests passed*

*• Total number of requirements*

*• Number of requirements passed*

*• Number of requirements failed*

*• Number of defects found*

## Test Deliverables

|  |  |  |  |
| --- | --- | --- | --- |
| Document | Filename/Location | Owner | Description / Purpose |
| UAT / Functional Test Cases |  |  | Details procedures for performing User Acceptance Testing |
| System Test Cases |  |  | Details procedures for performing System Integration Testing |
| Test Results / RTM |  |  | Capture and summarize results from test procedure execution |
| Test Issues Tracking |  |  | Manage issues captured during test procedure execution |

# Test Scenarios & Cases

*<Test cases can be included in this document or listed in a separate Test Procedures Document. The procedures can be documented here, but the results can be captured in a separate file (.xls for example). If the test cases or results are located in a separate document, please reference the location of this file in this section of this document.>*

## System Test Cases

## Stability Test Cases

## User Acceptance Test Cases

### Test Scenario #1 (i.e. User Login)

#### Sample Test Case #1 – (i.e. Change Password – Normal) <non-error condition - later variation of this test case will test the error conditions>

|  |  |
| --- | --- |
| Test Case Name: | Change Password – Normal State |
| Requirement #: | 3.1.1 – System shall allow user to change password through the Settings Screen. |
| Estimated Time (hours): | 0.25 |
| Object, Function or Procedure Under Test: | System Login Module |
| Setup: | * Access to latest beta software version * Obtain test username and password |
| Procedure: | 1. Launch software application Login Screen 2. Type in test username and password, click “Login” 3. Click on link for “Settings” 4. Click on link for “Change Password” 5. In pop-up text box, type existing password in “Existing Password” field using numbers, letters and symbols 6. In pop-up text box, type new password in “New Password” field 7. In pop-up text box, type new password in “Confirm New Password” field 8. Click “Ok” 9. Click “Exit Application” 10. Launch software application Login Screen 11. Type in test username and modified password, click “Login” |
| Expected Results: | 1. Login Screen appears 2. System accepts login and launches Main Screen 3. Settings screen appears 4. Change Password pop-up text box appears 5. Text box accepts numbers, letters and symbols 6. Text box accepts numbers, letters and symbols 7. Text box accepts numbers, letters and symbols 8. System accepts the password change 9. Application closes 10. Login Screen appears 11. System accepts login and launches Main Screen. |
| Observed Results: |  |
| Approved, Conditionally Approved, or Rejected: |  |
| Failure Type  (Critical, High, Medium, Low) |  |

# Approval

By signing, the individuals listed below have approved this test plan.

|  |  |  |
| --- | --- | --- |
| Name: |  | Name: |
| Title: |  | Title: |
| Role: Project Owner |  | Role: Testing Project Lead |
| Date: |  | Date: |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| Name: |  | Name: |
| Title: |  | Title: |
| Role: Functional Project Lead |  | Role: Technical Project Lead |
| Date: |  | Date: |
|  |

*<For an approval received via electronic means, such as email, please indicate by placing “Electronic Approval” on the approval line. Please then place a copy of the electronic approval in the same project file folder where the approved version of this document is stored.>*

# Appendix A – Testing Schedule

*<Include a text version, screen capture, link or referenced location of the overall schedule for testing including code freezes, functionality completion dates, etc.>*

# Appendix B – Related Documents

*<Link or referenced location of the Project Charter, Project Definition Document, Business Requirements, Project Schedule, Requirements Traceability Matrix and any other related documentation.>*

| **File Name** | **Document Owner** | **Document Location or Link** |
| --- | --- | --- |
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# Appendix C – Glossary

*<List any acronyms or terms which were used in the document and their meaning / definition.>*

| **Term / Acronym** | **Definition** |
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