

**Outsourcing Human Resource Management**

Report #2 – Test Plan

**テスト計画書**

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| **プロジェクトコード** | OHRM | |

**- Hanoi, 01/2016 -**

署名ページ

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**変更履歴**

\*A -追加、M – 修正、D – 削除

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 発効日 | 変更項目 | \*A,M,D | 変更内容 | 版数 |
| 02/03/2016 | Create Test Plan | A | Create Test Plan | 1.0 |
| --/--/--16 | Update Test Plan | M | Update Test Plan | 1.1 |
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# **はじめに**

## 目的

This is the comprehensive test plan of the OHRM project. The purpose of the document describes scopes of test and activities which need to be taken during test process of project. It addresses the following items: Scopes of Testing, Requirements for Testing, Test Strategy, Test Resources, Test Environment, Test Milestones and Deliverables.

## 定義、頭字語および略語

This section describes the definitions, terms, and acronyms that are used in software requirements specification.

|  |  |  |
| --- | --- | --- |
| **定義/頭字語/略語** | **説明** | **備考** |
| OHRM | Outsourcing Human Resource Management |  |
| GUI | グラフィカルユーザインタフェース |  |
| IT | 統合テスト |  |
| KLOC | １０００コードの行 |  |
| PM | プロジェクトマネージャ |  |
| QA | 品質保証 |  |
| SRS | ソフトウェア要求仕様 |  |
| ST | システムテスト |  |
| TC | テストケース |  |
| TL | テストリーダー |  |
| TP | テスト計画 |  |
| TR | テストレポート |  |
| UT | 単体テスト |  |

*Table 1-3: Definition and Acronyms*

## 参照資料

|  |  |  |  |
| --- | --- | --- | --- |
| ドキュメント名 | 作成者 | 版数 | 発行日 |
| OHRM \_Software Requirement Specification\_v1.3\_EN | HiepTQ | v1.0 | 25/02/2016 |
| OHRM\_Project Plan\_v1.1\_EN | MaiNTX | v1.0 | 02/03/2016 |

## 背景情報

The target of testing is ensured all functions will be run correctly as SRS description. In addition, restrict maximum of defect during the user access in the application. To do this target, website will have to:

* Passed the stages of testing: Unit Testing, Component Testing, Integration Testing, System Testing, Acceptance Testing
* Passed the types of testing: Function Testing, User Interface Testing , Data and Data Integrity Testing
* Run normally in required devices/browsers.

## テスト範囲

DDL will be tested by 5 phases:

**Phase 1: Unit testing**

* Unit testing will be done by developers
* Developers user White Box Testing technique to do
* When executing unit testing, if any bugs are found, developers have to log bug on “Defect Log Management” file and fix it until it is correct.

*Rule for filling test result:*

|  |  |
| --- | --- |
| Test result pass | Pass |
| Test result fail | Fail |
| Do not test | Untested |
| Cannot test | N/A (Not available) |

**Phase 2: Integration testing**

* After finishing component testing, integration testing will be performed by testers.
* Material are integration test cases, high- level design and test tools.
* Integration test focuses on specific areas of use cases when all requirements are completed.
* Integration test should be performed to ensure all components incorporate well.
* When executing integration testing, if any bugs are found, testers have to log on “Defect Log Management” file and assign to developer fix it and redo this process until it is correct.

*Rule for filling test result:*

|  |  |
| --- | --- |
| Test result pass | Pass |
| Test result fail | Fail |
| Do not test | Untested |
| Cannot test | N/A (Not available) |

**Phase 3: System testing**

* After finishing integration testing and developers collect all functions and items, testers will be performed system testing, it means doing test whole system.
* Material area system test case, SRS
* If any bugs are found, developers have to fix and testers will verify them. System test is ended only when test cases are passed and no bug is found.

*Rule for filling test result:*

|  |  |
| --- | --- |
| Test result pass | Pass |
| Test result fail | Fail |
| Do not test | Untested |
| Cannot test | N/A (Not available) |

**Phase 4: Acceptance testing**

* Base on customer/user requirement specification, system is tested again, for ensure there is not lacking or mistake any requirement.
* If there is any problem, developers have to fix/update and tester will verify them.
* Acceptance testing is ended only when whole system met requirement specification.

## 制約事項

* There are only 2 testers and tester don’t have experience in testing
* Time of testing is short
* Have more environments should be tested: Window XP, Window 8… and more browsers: Firefox 30 and Google Chrome 40… But Test team can not cover all

## リスク一覧

* Depends on the UI design and develop progress.
* Not enough time to write enough test cases, execute test or re-test for fixed bug.
* Tester can be ill during the testing phase.

## 必要となるトレーニング

OHRM follows V-Model process:



**Figure 2-1**: V-Model

Testing progress is divided to 5 phases include: Unit test, Component test, Integration test, System test and Acceptance test

* Unit test:
  + Unit testing is used to verify a single minimal unit of source code. The purpose of unit testing is to isolate the smallest testable parts of DDL and verify that they function properly in isolation.
  + Unit testing is the first level of testing and is perform prior to component testing
  + Unit testing will be done by developer.
* Component test:
  + Component testing is used to validate a combined many minimal units of source code.
  + Component testing is performed after unit testing and before integration testing
  + Component testing will be done by tester
* Integration test:
  + Integration testing is a level of the software testing process where individual units or component are combined and tested as a group.
  + The purpose is to expose faults in the interaction between integrated units.
  + Integration testing is performed after component testing
  + Integration testing will be done by tester
  + There are two methods of doing integration testing: Bottom-up Integration testing and Top Down Integration testing:

|  |  |
| --- | --- |
| No | Integration Testing Method |
| 1 | Bottom-up integration  This testing begins with unit testing, followed by tests of progressively higher-level combinations of units called modules. |
| 2 | Top- Down integration  This testing, the highest-level modules are tested first and progressively lower-level modules are tested after that |

**Table 1-3:** Integration test

* System test:
  + System Testing is a level of the software testing process where a complete, integrated system is tested
  + The purpose is to evaluate the system’s compliance with the specified requirements
  + System testing is performed after integration testing
  + System testing will be done by tester
* Acceptance test:
  + Acceptance testing is performed after system testing
  + Acceptance testing will be performed by the test leader and team leader.
  + The acceptance test will be done for a period of 1 weeks after completion of the system test process

# **テスト要求**

## テスト項目

|  |  |  |  |
| --- | --- | --- | --- |
| UC No. | Group of Functions | Function | Glossary |
| Guest | | | |
|  |  | Login |  |
| Authenticated user | | | |
|  |  | Edit profile |  |
|  |  | Logout |  |
| Resource manager | | | |
|  | Project | Search project |  |
|  | Create project |  |
|  | Edit project |  |
|  | View project detail |  |
|  | Planning resource |  |
|  | Edit resource plan |  |
|  | Assign engineer to project |  |
|  | Edit project member position |  |
|  | Recruitment | Search recruitment |  |
|  | Create recruitment |  |
|  | View recruitment detail |  |
|  | Edit recruitment |  |
|  | Remove recruitment |  |
|  | Report | Generate busy rate statistic |  |
|  | Generate efficiency statistic |  |
|  | Generate employee’s efficiency statistic |  |
|  | Print report |  |
| Recruitment manager | | | |
|  | Recruitment | View recruitment detail |  |
|  | Change recruitment status |  |
|  | Add recruited engineer |  |
|  | Edit recruited engineer |  |
|  | Remove recruited engineer |  |
|  | Import file |  |
|  | Search recruitment |  |
| Admin | | | |
|  | Account | Search account |  |
|  | Create account |  |
|  | Edit account |  |
|  | System | Edit system configuration |  |

## 受け入れテスト基準

* Criteria for Unit test of Development team, for Test team accepts to start testing:
  + Number of TC/KLOC: 40TC/KLOC
  + Number defects/KLOC: 3-4 defects/KLOC
  + Statement coverage: 100%
  + Branch coverage: 100%
  + Path coverage: 100%
* Criteria for Integration test:
  + Number of TC/KLOC: 30 TC/KLOC
  + Number defects/KLOC: 2-3 defects/KLOC
* Criteria for System test:
  + Number of TC/KLOC: 20 TC/KLOC
  + Number defects/KLOC: 4-6 defects/KLOC
* Criteria for Acceptance test:
  + Number defects/KLOC: 1-2 defects/KLOC

## テストされないフィーチャー

* The stable of website when do not connect internet.
* Over than 5000 users connect to system at the same time.

# **テスト戦略**

## テストタイプ

### 機能テスト

* Functional testing is a type of software testing whereby the system is tested against the functional requirements/specifications.
* Functions are tested by feeding them input and examining the output. Functional testing ensure that the requirements are properly satisfied by the website. This type of testing is not concerned with how processing occurs, but rather, with the results of processing.
* During functional testing, [Black Box Testing](http://softwaretestingfundamentals.com/black-box-testing/) technique is used in which the internal logic of the system being tested is not known to the tester.

|  |  |
| --- | --- |
| **Test Objective:** | The type of this test is to ensure proper target-of-test functionality, including user interaction, all function defined in specification document implemented correctly. |
| **Technique:** | Executing each use case, use-case flow, or function, using valid and invalid data, to verify the following:  - The expected results occur when valid data is used.  - The appropriate error or warning messages are displayed when invalid data is used.  - Each business rule is properly applied. |
| **Completion Criteria:** | - All planned tests have been executed.  - All identified defects have been addressed and closed. |
| **Special Considerations:** | Testing may be stopped when  Time runs out  A certain number of defects found  Test coverage > 97%  Stop when testing becomes unproductive |

**Table 3-1:** Function Testing

### ユーザインタフェーステスト

GUI testing is the process of ensuring proper functionality of the GUI for a given web and making sure it conforms to its written specifications.

GUI testing evaluates design elements such as layout, colors, [fonts](http://whatis.techtarget.com/definition/font), font sizes, labels, text boxes, text formatting, captions, buttons, lists, icons, links, content and more.

|  |  |
| --- | --- |
| **Test Objective:** | Verify the following:  - Navigation through the target-of-test properly reflects 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, such as menus, size, position, state, and focus conform to standards. |
| **Technique:** | Create or modify tests for each window to verify proper navigation and object states for each application window and objects. |
| **Completion Criteria:** | Each window successfully verified to remain consistent with benchmark version or within acceptable standard |
| **Special Considerations:** | Not all properties for custom and third party objects can be accessed. |

**Table 3-2:** GUI Testing

### データおよびデータベース整合性テスト

The databases and the database processes should be tested as a subsystem within the Project. These subsystems should be tested without the target-of-test’s User Interface as the interface to the data.  Additional research into the Database Management System (DBMS) needs to be performed to identify the tools and techniques that may exist to support the testing identified below.

|  |  |
| --- | --- |
| **テスト目的** | Ensure database access methods and processes function properly and without data corruption. |
| **方法** | - Invoke each database access method and process, seeding each with valid and invalid data or requests for data.  - Inspect the database to ensure the data has been populated as intended, all database events occurred properly, or review the returned data to ensure that the correct data was retrieved for the correct reasons. |
| **完了基準** | All database access methods and processes function as designed and without any data corruption. |
| **特記事項** | - Testing may require a DBMS development environment or drivers to enter or modify data directly in the databases.  - Processes should be invoked manually.  - Small or minimally sized databases (limited number of records) should be used to increase the visibility of any non-acceptable events. |

**Table 3-3:** Data and Data Integrity Testing

## テストステージ

Clearly state the stage in which the test will be executed. Identified below are the stages in which common test are executed

| **テストタイプ** | **テストステージ** | | | |
| --- | --- | --- | --- | --- |
| **単位** | **総合** | **システム** | **受け入れ** |
| 機能テスト | X | X | X | X |
| ユーザインタフェーステスト | X |  | X | X |

# **リソース**

## 人間リソース

|  |  |  |
| --- | --- | --- |
| **実行家** | **役割** | **具体的な責任** |
| MaiCTP | Test Leader | Manage Test Resource and assign test tasks.  Create and review Test Plan.  Create and review Test Case.  Execute test.  Create and review Test Report |
| ChinhVC | Tester | Create and review Test Case.  Execute test.  Create Test view points  Create and review Test Report |

**Table 4-1:** Human resource

# **テスト環境**

## ハードウェア

|  |  |  |
| --- | --- | --- |
| **Name** | **Purpose** | **Detail** |
| Laptop HP | Device for create and execute test | Window 8.1 Pro Core i3 |
| Laptop Asus | Device for create and execute test | Window 8.1 Pro Core i3 |

**Table 5-1:** Hardware

## ソフトウェア

|  |  |  |
| --- | --- | --- |
| Name | Purpose | Detail |
| Test Plan | Managing test | Microsoft Word 2016 |
| Test case | Executing test | Microsoft Word 2016 |
| Test report, Test checklist | Tracking test | Microsoft Word 2016 |
| Chrome | Executing test | Chrome |
| Firefox | Executing test | Firefox |

**Table 5-2:** Software

## インフラ

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Purpose** | **Detail** | **Vendor/In-house** | **Version** |
| OHRM\_Defect Log Management\_v1.0\_EN | Tracking bug during testing time | Microsoft Excel 2016 | FPT-University | v1.0 |
| Test Effort | Effort execute test | Microsoft Excel 2016 | FPT-University | v1.0 |

**Table 5-3:** Infrastructure

# **テストマイルストーン**

|  |  |  |  |
| --- | --- | --- | --- |
| **マイルストーンタスク** | **工数（人日）** | **開始日** | **終了日** |
| Create Test Plan | 6 | 02/03/2016 | 03/03/2016 |
| Review & Update Test Plan | 2 |  |  |
| Create Integration Test case | 2 | 02/03/2016 | 03/03/2016 |
| Review & Update Integration Test Case | 2 |  |  |
| Create System Test case | 6 |  |  |
| Review & Update System Test Case | 2 |  |  |
| Execute Integration test phase 1 | 2 |  |  |
| Execute Integration test phase 2 | 2 |  |  |
| Execute Integration test phase 3 | 2 |  |  |
| Execute System test phase 1 | 4 |  |  |
| Execute System test phase 2 | 4 |  |  |
| Execute System test phase 3 | 4 |  |  |

**Table 6.1:** Test milestones

# **納品物**

| **項番** | **納品物** | **責任** | **納品日** |
| --- | --- | --- | --- |
| 1 | Test Plan | Tester |  |
| 3 | Integration Test case | Tester |  |
| 4 | System Test case | Tester |  |
| 5 | Defect Log Management | All members |  |
| 6 | Test report | PM |  |

**Table 7-1:** Deliverables