Eindhoven University of Technology

OpenACCEL

Unit Test Plan

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June 26, 2014

Abstract

This is the Unit Test Plan (UTP) for the OpenACCEL Software Engineering Project. This document is based on the ESA standard for software development. It provides the main guidance for the Unit Test (UT) during the detailed design (DD) phase for OpenACCEL. It describes the environment needed to perform the UT. When this environment is set up, all test cases must be executed according to their corresponding test procedures. After a test has been performed a report needs to be written.

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Document Status Sheet

Document Status Overview

General

Document title:	Unit Test Plan
Identification:	UTP1.0.pdf
Author:	J.P.H. Snoeren
Document status:	Draft

Document History

Version	*Date*	*Author*	*Reason of change*
0.1	20-6-2014	J.P.H. Snoeren	Initial version
1.0	26-06-2014	J.P.H. Snoeren	Internally approved

Document Change Records since previous issue

General

Datum:	2014-06-26
Document title:	Unit Test Plan
Identification:	UTP1.0.pdf

Changes

Page	*Paragraph*	*Reason to change*
All	All	Initial version

Chapter 1

Introduction

1.1 Purpose

The purpose of this document is to describe the test plan for testing the developed software units against the detailed design, defined in the DDD [3]. The unit tests make sure that OpenACCEL complies with the design in the Detailed Design (DD) phase of the OpenACCEL project as described in the ESA software engineering standard [1].

1.2 Overview

1.3 List of Definitions & Abbreviations

1.3.1 Definitions

ACCEL	A web-based modeling application which is currently hosted at [2]
OpenACCEL	The new and improved application which will be developed by team OpenACCEL, based on ACCEL
Bachelor College	The new format of Bachelor education introduced by the TU/e in 2012

1.3.2 Abbreviations

2IP35	The Software Engineering Course
ATP	Acceptance Test Plan
AT	Acceptance Test
DD	Detailed Design
DDD	Detailed Design Document
SVVP	Software Verification and Validation Plan
TU/e	Eindhoven University of Technology
URD	User Requirements Document
UT	Unit Test
UTP	Unit Test Plan

1.4 List of references

[1] ESA PSS-05-0 Issue 2, Software requirements and architecture engineering process, February 1991.

[2] http://www.keesvanoverveld.com/Accel/accel.htm

[3] OpenACCEL Detailed Design Document, June 2014

[4] OpenACCEL Software Validation and Verification Plan, May 2014.

[5] OpenACCEL Unit Test Plan June 2014

Chapter 2

Test plan

2.1 Test items

The software to be tested is the OpenACCEL application. Information about the detailed design of OpenACCEL can be found in the DDD [3].

2.2 Features to be tested

OpenACCEL must meet the design as stated in the DDD [3]. Each component should adhere to the interfaces given in the DDD [3].

2.3 Test deliverables

Before testing starts, the following documents must be delivered:

- SVVP [4]
- DDD [3]
- This document.
- UT input data.

After completing the testing, the following documents must be delivered:

- UT report (UTP[5] chapter 5).
- UT output data.
- Problem reports (if any).

2.4 Testing tasks

Before any testing in the UT phase can take place, the following tasks need to be done:

- Designing the unit tests.

- Tracing all test cases to components.
- All components mentioned in the DDD [3] need to be covered by test cases.
- Creation of the UT input data.
- Ensuring that all environmental needs for the UT have been satisfied.

When these tasks have been done, a UT can be performed according to the procedures described in chapter 4.

2.5 Environmental needs

The following resources are needed in order to perform the UT:

- A computer connected to the Internet running Firefox version 20 or higher or Chrome version 20 or higher.
- A server running the OpenACCEL application.

See also the constraints described in the DDD [3].

2.6 Test case pass/fail criteria

Every test should describe the criteria that should be met to pass a specific test. An overall UT pass can only be achieved when all tests described in chapter 3 have been performed and passed.

Chapter 3

Test case specifications

The test case specifications can be found in the `/test/` repository.

Chapter 4

Test procedures

The author responsible for the class is also responsible for the test cases. This means tests should be written, specified and run, possibly several times if bugs are found. Only if all tests in a branch pass, we can merge it with the development branch.

4.1 Javascript testing

Test procedure identifier UTJavascript

Purpose These tests are used to test all Javascript functions.

Procedure steps All Javascript functions are tested using Mocha. We can test by simply running `npm test`.

Chapter 5

Test reports

The Mocha test suite prints a simple message to the screen when all tests pass. Any errors that occur are printed in the console. For each test that is performed, a description is given in the console. When we execute all tests, Mocha shows that all 366 tests pass.