



Project FINGERPAINT

ITP-1.0

Integration Test Plan

Authors:

Tessa Belder (0739377)
Lasse Blaauwbroek (0749928)
Thom Castermans (0739808)
Roel van Happen (0751614)
Benjamin van der Hoeven (0758975)
Femke Jansen (0741948)
Hugo Snel (0657700)

Junior Management:

Simon Burg
Areti Paziourou
Luc de Smet

Senior Management:

Mark van den Brand, MF 7.096
Lou Somers, MF 7.145

Technical Advisor:

Ion Barosan, MF 7.082

Customer:

Patrick Anderson, GEM-Z 4.137

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Abstract

This is the Integration Test Plan (ITP) of the FINGERPAINT project, developed in the context of the Software Engineering Project (2IP35). This document contains a detailed specification for the Integration Tests (IT). These tests have to be executed during the Detailed Design (DD) phase of the FINGERPAINT project. It also describes the environment needed to perform these tests. After a test has been performed, a report on the results needs to be written. This document complies with the Software Engineering Standard as specified by the European Space Agency (ESA) [1].

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Chapter 1

Introduction

This chapter lists general information about this document.

1.1 Purpose

The Integration Test Plan (ITP) describes the plan for testing the integrated software against the architectural design, defined in the ADD [2]. The integration tests make sure that FINGERPAINT complies with the design in the Detailed Design (DD) phase of the FINGERPAINT project as described in the ESA Software Engineering Standard [1].

1.2 Overview

Chapter 2 mentions the items to be tested together with the general criteria for the IT. An overview of all test cases is given in chapter 3. The procedures for the execution of the tests are explained in chapter 4. After execution of the tests, reports on the results will be presented in chapter 5.

1.3 List of definitions and abbreviations

1.3.1 Definitions

Ant Tool to build Java applications.

Client Prof.dr.ir. P.D. Anderson.

GWT A Java software development toolkit by Google for building and optimizing browser-based applications.

JUnit A unit testing framework for the Java programming language.

1.3.2 Abbreviations

2IP35	The Software Engineering Project
ADD	Architectural Design Document
ATP	Acceptance Test Plan
DDD	Detailed Design Document
ESA	European Space Agency
IT	Integration Test(s)
ITP	Integration Test Plan
JDK	Java Development Kit
SEP	Software Engineering Project
UTP	Unit Test Plan

1.4 List of references

- [1] ESA, *ESA Software Engineering Standards*. ESA, March 1995.
- [2] Group Fingerprint, “Architectural design document,” *SEP*, 2013.
- [3] Group Fingerprint, “Integration test plan,” *SEP*, 2013.
- [4] Group Fingerprint, “User requirements document,” *SEP*, 2013.
- [5] Group Fingerprint, “Detailed design document,” *SEP*, 2013.
- [6] Group Fingerprint, “Unit test plan,” *SEP*, 2013.

Chapter 2

Test plan

In this chapter it is described what items are tested with the integration tests, and how these items must be tested. Specific information about each test is described in chapters 3 to 5.

2.1 Test items

Fingerprint is designed as described in the ADD [2]. Each component specified in chapter 5 of the ADD [2] is subject to integration tests as described in this document. These components are: the Fortran Module, the Simulator Service, the Application Persistence, the HTTP Server, the Application Service, the Layout, the Client Persistence and the Application State.

2.2 Features to be tested

The features that are explicitly tested with the integration test are all features regarding the saving, loading and removing of distributions, protocols and mixing results. Furthermore all features regarding the execution of mixing runs are tested.

2.3 Test deliverables

Prior to testing, the following items should be completed:

- ADD [2].
- ITP [3], should be finished, except for the test reports (chapter 5).
- The Fingerprint code.

After the tests are concluded, test reports should be written. Problem reports should be written when necessary.

2.4 Testing tasks

Before the integration tests can be executed, the following needs to be done:

- The integration tests need to be written.

- Each component needs to be functional and tested.
- Integration test input data needs to be created.

2.5 Environmental needs

To be able to perform the IT, the following resources are needed:

- One or more web browsers supported by the FINGERPAINT application (see the URD [4] for a list).
- A client device with Ant, JUnit, a JDK and GWT installed.

See also the constraints described in the DDD [5].

2.6 Test case pass/fail criteria

The integration tests as a whole succeed if all the integration tests in it pass. If one test fails, the software is rejected.

Chapter 3

Test case specifications

In this chapter we will specify the different test cases that verify the correctness of the communication between the different components described in figure 4.1 of the ADD [2]. All testcases can be found in the **Fingerprint/test/src/nl/tue/fingerprint/*** package, where * is the name of one of the sections below. We utilize all unit tests who make use of more than one component, thus testing the integration of the different components.

3.1 client.storage

<i>ID</i>	<i>Test name</i>	<i>Integrated Components</i>
IT1	StorageManagerTest.java	Application State - Client Persistence

3.2 shared.simulator

<i>ID</i>	<i>Test name</i>	<i>Integrated Components</i>
IT2	SimulatorServiceTest.java	Application State - Application Service Application Service - Application Persistence Application Service - Simulator Service Simulator Service - Fortran Module

Chapter 4

Test procedures

For a description of the test procedures, see chapter 4 of the UTP [6].

Chapter 5

Test reports

This chapter shows the test reports after executing the integration tests.

5.1 StorageManagerTest

IT1	<i>Date: 19-june-2013</i>
testRemoveDistribution	pass
testRemoveProtocol	pass
testRemoveResult	pass
testSaveInitialDistribution	pass
testSaveProtocol	pass
testSaveResult	pass

5.2 SimulatorServiceTest

IT2	<i>Date: 19-june-2013</i>
testSimulation	pass