**I**ntegration **T**est **P**lan **D**ocument



Version 1.0

Luca Santini 808710

Riccardo Remigio 874939

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# Introduction

## 1.2 Purpose and Scope

This document specifies all the necessary information about the integration test plan for PowerEnJoy.

The purpose of integration testing is to verify functional and non functional requirements placed on RASD and Design Document, by testing the interaction between the different modules composing the whole software.

## 1.3 List of definitions and abbreviations

RASD: Requirements and Specifications Document

DD: Design Document

API: Application Programming Interface

DBMS: Database Management System

## 1.4 List of reference documents

* Assignments AA 2016-2017.pdf
* Verification and validation, part I.pdf
* Verification and validation, part II.pdf
* PowerEnJoy RASD
* PowerEnJoy DD
* Integration testing example document.pdf

# Integration strategy

## 2.1 Entry criteria

Before beginning the integration test phase, there are some other things that have to be necessarily completed.

For example, they must have been issued the RASD and the Design Document, and must already be written part of the code that covers the components that should be integrated.

When will begin integration testing there will still be some incomplete components that will be necessarily completed before finishing the integration testing.

Before starting the integration test must have almost completed all the unit tests, which will continue during the integration test.

We do not write the precise percentage, but we can say that, using a bottom-up approach, the first components to be tested are: Data Manager and Payment Manager.

Then follow Profile Manager and Ride Manager, then Vehicle manager.

Finally, Map Manager and Reservation Manager, and for last Request Manager that is called only by the web browser.

To be able to proceed smoothly so we need to follow this pattern during the writing of code, so completing first the components to be tested first.

In the following chapters will be clearer integration methods and the criteria we will use

## 2.2 Elements to be integrated

In this chapter we list all the components that have to be integrated in the testing phase, following the architecture written in the design document.

Based on the component view of the design document, it’s possible to identify the interaction between the components of the application server, which is the main high level component of our architecture.

These components are:

-Client request manager

-Reserve manager

-Profile manager

-Payment handler

-Data manager

-Car handler

-Position handler

We will test also the integration between the components above and the external interfaces given by outer services.

## 2.3 Integration testing strategy

We decided to use a bottom-up strategy to choose the order of the components to be integrated. This decision was taken as it is a simple solution to effectively applicable to our system that is formed by few and small components.

Using this strategy, we will not need to use stubs but we need to use Drivers for testing the components.

## 2.4 Sequence of component/Function integration

This section is dedicated to the detailed description of the order of integration of the components that had been previously mentioned. Using the bottom-up approach we will use the drivers to make calls from the higher levels even when these are not yet integrated.

### 2.4.1 Software integration sequence

To decide the order of the components to be tested first, we rely on the component view of the design document, respecting the bottom-up method.

In this way we follow the possible interaction between the components as shown in the diagram quoted above.

First of all, we integrate the components that are used by multiple components, and which interact with external services.

These components are:

**-Data manager**, which permits the access to data to the other components.

**-Payment manger**, which manage all the operation involved with payment



In the second step we develop other driver that will be used to test:

**-Profile manager**

**-Ride manager**



In the next step we develop another driver to test:

**-Vehicle Manager**



In the next step we integrate, using two new drivers,

**-Map Manager**

**-Reservation Manager**

The last one is the client request manager, because it is called only by the browser of the client through an interface.

We can now delete all the drivers and we have the whole system integrated.

# Individual Steps and Test Description