# INTRODUCTION

## 1.1 Purpose

This document aims to provide more technical information about the eMSP application and its interaction with different components of the eMSP system and the CPMS system of charging stations. In fact, developers of the application use this document as a guide to redevelop the application. In general, the main different features of this document are:

* The high-level architecture
* Main components of the system
* Interfaces provided by the components
* Design patterns adopted
* Implementation, integration, and testing

## 1.2 Scope

eMall is a system that has two kinds of applications. One of them is eMSP, developed for end users, and another is CPMS, implemented for CPOs. CPOs installed and maintained charge stations in charging stations. Also, they can own and operate a set of charging stations or use them for third parties. Some companies made some DSOs that are extra batteries, and they can be used instead of batteries for charging stations. More detailed information can be found on the RASD document.

## 1.3 Definitions, Acronyms, Abbreviations

### 1.3.1. Definitions

Table 1 Definitions

|  |  |
| --- | --- |
| Definition | Description |
| Notification | A message is shown to the user by the system when she/he must be notified about something (ex: the end of the charging process will be shown to him/her). |
| External Status | Number of charging sockets available, their type such as slow/fast/rapid, their cost, if all sockets of a certain type are occupied, the estimated amount of time until the first socket of that type is freed |
| Internal Status | Amount of energy available in its batteries, if any, number of vehicles being charged, and for each charging vehicle, amount of power absorbed, and time left to the end of the charge |
| Time Frame | A specified period in which something occurs or is planned to take place |
| Valid QR code | A QR code is defined as valid in 5 minutes after the end user wants to pay for the services |

### 1.3.2 Acronyms

Table 2 Acronyms

|  |  |
| --- | --- |
| Acronyms | Description |
| CPO | Charging Point Operator |
| CPMS | Charge point Management System |
| DSO | Distribution System Operator |
| eMSP | e-Mobility Service Provider |
| eMall | e-Mobility for All |
| GPS | Global Positioning System |
| API | Application Programming Interface |
| IT | Information Technology |
| HTTP | Hyper Text Transfer Protocol |
| XML | Extensible Markup Language |
| JSON | JavaScript Object Notation |
| REST | Representational State Transfer |
| SOAP | Simple Object Access Protocol |
| RMI | Remote Method Invocation |
| TLS | Transport Layer Security |

### 1.3.3 Abbreviations

Table 3 Abbreviations

|  |  |
| --- | --- |
| Abbreviations | Description |
| G | Goal |
| R | Requirement |
| C | Component |

## 1.4. Revision history

Table 4 Revision history

|  |  |  |
| --- | --- | --- |
| Version | Date | Modification |
| 1.0 | 22/02/2022 | First version |
|  |  |  |

## 1.5. Reference Documents

* Specification Document: “Assignment RDD AY 2022-2023.pdf”
* Course slides
* <https://evroaming.org/app/uploads/2021/11/OCPI-2.2.1.pdf>

## Document Structure

* *Section 1*

*Brief description of DD and introduction of purpose and scope. It also includes definitions, acronyms, and abbreviations.*

* Section2

The main part of DD is this section that contains architectural design choices, including all the components, and the interfaces used for the development of the application. Also, it contains a deployment view and a runtime view. In the end, is explained the architectural patterns chosen with the other design decisions.

* Section3

Contains how should be the user interface on mobile applications.

* Section4

Contains the traceability matrix that shows which components satisfy certain requirements.

* Section 5

The implementation plan, integration plan, and testing plan show how these plans are executed.

* Section 6

Shows how much time is spent by each member of the group.

* Section 7

Includes the reference documents.