

Project Name: PARTool	Version: 1.2
Requirements Definition	Date: 2011-01-08

# **PARTool Requirements Definition**

**Version 1.2**

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## Revision History

<b>Date</b>	<b>Version</b>	<b>Description</b>	<b>Author</b>
2011-10-16	0.01	Section 1 and 2	Inderjeet Singh
2011-10-16	0.02	Section 4 and 5	Davor Peric
2011-10-16	0.03	Section 3	Inderjeet Singh & Davor Peric
2011-10-16	1.0	Merging of sections	Inderjeet Singh
2012-01-01	1.1	Added some use cases and change some requirement, Final revision	Inderjeet Singh
2012-01-08	1.2	Minor changes	Davor Perić

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## 1. Introduction

### 1.1 Purpose of this document

The main purpose of this document is to give clear understanding of PARTool project requirements. It explains general and some specific requirements that need to be fulfilled for the successful completion of the project.

### 1.2 Intended Audience

Intended audiences for this document are:

- Project members
- Supervisor
- Customers (Kapsch TIS d.o.o, Zagreb)

### 1.3 Scope

The scope of this document is to give the initial requirements of the PARTool project. This will cover requirement definition and description with the help of case diagram.

### 1.4 Definitions and acronyms

#### 1.4.1 Definitions

Keyword	Definitions
Visualization	Display of data in graphical order
Debian	Linux operating system
PostgreSql	Object-relational database management system

#### 1.4.2 Acronyms and abbreviations

Acronym or abbreviation	Definitions
CDR	Call details records
PARTool	Profile analysis and reconciliation tool

### 1.5 References

- [1]. User requirements document of PARTool.
- [2]. Kapsch fraud management system: executive summary.

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## 2. Requirements Description

### 2.1 Introduction

A profile analysis and reconciliation tool is for fraud controlling which is happening in telecom industry. There are many companies using such type of tools to combat fraud. Profile analysis is one important technique used widely to develop tools. In profile analysis, fraud agents can detect fraud by visualization of subscriber behavior patterns. Profile of the subscriber would be created from the information in CDR-s (Call Detail Records). The visualization would be made by extracting some collected information in CDR-s and would be helpful in detecting the sudden change in subscriber profiles. It should be possible to integrate the tool in an existing fraud management system [1][2].

### 2.2 General requirements

General requirement of PARTool includes the blend of requirements from customer and team. Below is a list of requirements.

- Authentication is required for agents.
- Graphical visualization of subscriber profiles.
- Application should be compatible with all new web browsers.
- 5-6 seconds for data visualization.
- Extracted CDR data should not be sent to client.
- Maximum concurrent users should not be more than 10.

### 2.3 Specific requirements: Technologies

There are some strict requirements given by customer related to technologies:

- PostGreSql should be used for database.
- Debian will be used as server.

### 2.4 Specific requirements: Interface

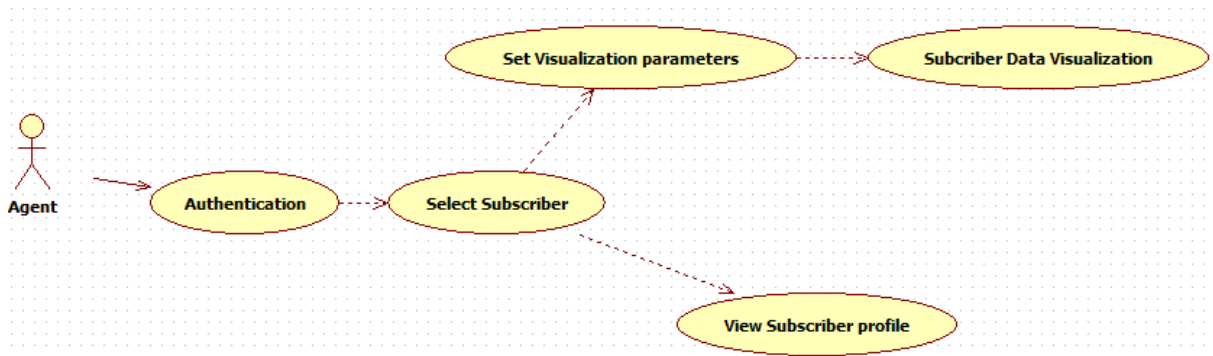
Interface should have the following parts:

- Graph would be between hours and days.
- Different type of data should have different color.
- User can select parameters through list boxes or radio buttons at parameter selection panel.
- By mouse position on graph, popup window will appear to show details (optional).

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### 3. Use Case Models

#### 3.1 Use case model



##### 3.1.1 Use case “authentication”

**Initiator:**

Agent

**Goal:**

*Checking credentials*

**Main Scenario:**

1. Agent opens the home page.
2. Proves his/her credentials.
3. If correct, sent to Agent home page.

**Extensions:**

*No need*

##### 3.1.2 Use case “Set visualization parameters”

**Initiator:**

Agent

**Goal:**

*Setting visualization parameters*

**Main Scenario:**

1. Agent opens the home page and proves credentials.
2. Agent can select parameters from right side pane available in the form of radio and list box.
3. Agent selects the subscriber.
4. Agent sets the parameters (period, search depth etc).

**Extensions:**

*No need*

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### 3.1.3 Use case "View Subscriber Profile"

**Initiator:**

Agent

**Goal:**

*Display Subscriber information*

**Main Scenario:**

1. Agent opens the home page.
2. Proves credentials
3. Moves to Agent homepage
4. Select the subscriber.
5. Select view information link.

**Extensions:**

*No need*

### 3.1.4 Use case "Subscribe Data Visualization"

**Initiator:**

Agent

**Goal:**

*Display visualization of profile*

**Main Scenario:**

1. Agent opens the home page and proves credentials.
2. Agent sets the parameters and selects subscriber.
3. Visual display appears.
4. Different color for each type of data (sms, call etc)

**Extensions:**

*Not for this version*

### 3.1.5 Use case "Re-Set Visualization Parameters"

**Initiator:**

Agent

**Goal:**

*Display visualization after resetting parameters.*

**Main Scenario:**

1. Agent opens the home page and proves credentials.
2. Agent sets the parameters and selects subscriber.
3. Visual display appears.
4. Agent copens link to change properties
5. Set parameters again like cdr type and usage type
6. Visualization appears again with new properties.

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**Extensions:**

*Not for this version*

## 4. Requirements Definition

### 4.1 Requirement Group Definitions

Identification	Requirement Group	Rem.
UI	User Interface	
DVIS	Data Visualization	
NFR	Non-functional requirements	

### 4.2 Requirement Sources

Source	Description	Rem.
CTM	Customer (Branko Beslač, Kapsch TIS d.o.o. Zagreb) defined requirement.	
SYS	Required as a consequence of system design (contractor's requirement).	
DEV	Developer suggestions.	

### 4.3 Requirements definitions

Identity	Status	Priority	Description	Source
User Interface				
UI-1	I	1	Show subscriber profile and information.	CTM
UI-2	I	1	Show data visualization for two subscribers.	CTM
UI-3	I	3	Dialog box for changing properties of respective created tab	DEV
UI-4	I	3	Multiple selection of usage type option	CTM
UI-5	I	1	Enable defining of following parameters for subscriber data visualization in the parameter selection frame: <ul style="list-style-type: none"> <li>• Call type</li> <li>• Usage type</li> <li>• Data display color</li> <li>• Measure type</li> <li>• Aggregation (SUM or AVG)</li> <li>• Start and end date</li> <li>• Visualization generate buttons</li> <li>• Adding and removing parameters</li> </ul>	CTM
Data Visualization				
DVIS-1	I	1	Display subscriber information.	CTM



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DVIS-2	I	1	Visualization dimensions: <ul style="list-style-type: none"> <li>• Time of day (hours)</li> <li>• Day of week</li> <li>• Measure (number or duration of calls, rated amount, discounted amount)</li> <li>• Period (start and end dates)</li> </ul>	CTM
DVIS-3	I	2	User interaction ability (i.e. when agents move a cursor over part of a graph a popup description window appears saying how many calls, sms, mms etc are shown)	DEV
Non-functional requirements				
NFR-1	I	2	Safety and security of all subscriber information.	SYS
NFR-2	I	1	Usability and an intuitive User interface.	DEV
NFR-3	I	3	System should be able to provide service at all time.	DEV
NFR-4	I	2	System should be responsive.	DEV
NFR-5	I	1	Web application should be compatible with all new browser versions.	CTM
NFR-6	I	1	Web application won't have internet access.	CTM

## 5. Future Development

### 5.1 General Overview

This project is just a part of a big fraud monitoring project, so the final goal is to develop a system that in the future can be implemented in an existing FMS (Fraud Monitoring System). The main aspect of the architecture that should be considered is its modularity and the key to the project's success will be the ability to adapt. Modular architecture and very low coupling between system components should allow just that.

### 5.2 Automated comparison of visualized subscriber data

The next step in this project development would be to enable automated comparison of visualized data. For this purpose it is necessary to write algorithms which will compare the visualized data and show the probability of their similarity. In this way it would be easier to detect new fraudsters.