# Assessment Report on the first Release of the FAIMS Mobile Application

26 February 2013

This report summarises the state of the FAIMS mobile application v0.1 released on 15 February 2013, after 10 weeks of development.

## Background:

The FAIMS project is assembling modular information systems for archaeology. Our principal activity is the development of Android mobile application to facilitate digital creation of archaeological data. This mobile application will have a number of unique features:

* Customisable data storage and user interfaces, including logic. Data schemas and UIs are created using XML definition files. Customisable logic includes defaults, validation, “repeat any record” (or a selected record), and other automation to speed data entry—another significant advantage over competing systems.
* Full versioning (the ability to review and, if necessary, reverse all changes made to a dataset) achieved through an append-only data store.
* Synchronisation and backup across multiple mobile devices and a local server (which can run on a moderately priced laptop).
* Mapping / lightweight GIS, including the display of vector and raster data, and the manual creation of vector shapes (including linking shapes to records in the database). Includes mathematically constrained creation of vector shapes (e.g., “build me a 5x5 grid of survey units measuring 20m by 20m and create associated records”).
* File management (storing photographs, scanned drawings, digital vector drawings, audio recordings, and other arbitrary files in designated folders on the server, and connecting them to records in the database).
* Dataset compatibility from the moment of creation. As part of project setup, users can alias core concepts in archaeological recording with their own terms. This initial process replaces resource-intensive manual column mapping at the time of ingest into a repository while still producing semantically compatible datasets for regional and comparative research (a process accomplished through a novel application of localisation / internationalisation).
* Full offline functionality (everything works offline and disconnected, including the GIS).

## Definitions

**Server** – the FAIMS project server, administered during the first round of testing by the Brian Ballsun-Stanton, the test manager. Server was accessible over a local network via an access point.

**The Application** – is the FAIMS application on a mobile device that communicates with the Server. The application is downloadable from Intersect webpage (only internally so far). The Application can have a number of stored projects cached and available to users.

**Configuration files** – also a “configuration packet”. The packet refers to three or, eventually, four files that need to be uploaded to create a data recording interface on the mobile device. The configuration files currently in use are : Data Schema, UI Definition, UI logic and Arch16n.

**Project=Digital recording module** – denotes the digital equivalent of a paper recording sheet on a mobile device in an enhanced and interactive form. It is in effect a dynamically designed set of associated fields and functions designed to capture a specific set of research outputs and methodology, including observations and inferences. It is created on the mobile device by the upload and rendering of a particular configuration packet. There are two kinds of projects: stored module and active module.

**Stored module** – a configuration packet for a particular recording module stored on the mobile device that is waiting for rendering.

**Active module** – also referred to as the “digital recording module”. It is the currently rendered project on the device. Only one project can be rendered at a time.

**Dialogue –** is a pop up window that is triggered by a certain operation (such as tapping on a record field to enter a value, or hovering over the record field). It can contain a question or set condition to next operation. It has ‘ok’ and ‘cancel’ buttons that have different behaviour. Dialogues are often associated with onclick Events.

**Onclick Event -** triggers a certain action, such as the pop-up of a dialogue window. Onclick event is activated by clicking on a field or similar action. Its property is settable for any given recording element (record field).

**Toast –** is a small black box that pops up temporarily at the bottom of the screen. It is used to provide simple feedback about an operation (e.g. “you have successfully loaded a picture”)

***NB:*** *Throughout the text, vocabulary entries are* ***bold****.*

## The Aims of the First Release

The goals of the first release of the mobile application were to demonstrate **core functionality of the application**, such as :

* establish and demonstrate connectivity between the FAIMS application on the mobile devices and FAIMS server
* demonstrate that the Application can parse the supplied configuration packet and generate a database and an interactive interface on the mobile device
* demonstrate basic functionality of logic layer in the Application
* demonstrate customisability of the interactive record sheet layout (UI) in the Application
* demonstrate that the interactive record sheet accepts a varied range of data inputs

## 0.1 Release - New Features

The FAIMS mobile application 0.1 has been tested and reviewed with the help of external testers and FAIMS Steering Committee delegate on 1 February 2013. The following features have been successfully implemented, numbers in brackets refer to Intersect Story IDs (see attached table) :

* [FAIMS-9; FAIMS-101] Upon log-in, the user (henceforth “the project director”) can instantiate a “**new project**” (=data recording module) on the FAIMS server by selecting three **configuration files**. These files are:
  + Data schema (which tells the database what data will be stored)
  + UI Definition ( which will define the layout of the recording mobile application)
  + UI Logic (provides interactivity and workflow implementation
* [FAIMS-2; FAIMS-7] The Project director may adjust these configuration files to correspond to their particular research needs, labelling the fields appropriately and adjusting the interface to the field workflow.
* [FAIMS-91, FAIMS-95 through 100] The Project director pushes the FAIMS icon on the tablet. The tablet connects to the FAIMS server, synchronizes and displays a list of available **stored modules**.
* [FAIMS-116] Upon selecting a particular project the app now renders the underlying files, creates a database and generates an interactive digital record sheet (also called the digital recording moduleor the **active module)**
* [FAIMS-106; FAIMS-108; FAIMS-18] The digital recording module has been tested to accept the following data inputs:
  + Time & date ( manually selected or automatically generated values)
  + Free text
  + Numeric fields
  + Check boxes
  + Radio buttons
  + Dropdown values
  + Picture dictionary
* [FAIMS-10; FAIMS-11] The digital recording module allows the creation of relationship between two or more records
* [FAIMS-105; FAIMS-114] The logical layer in the digital recording module assigns each record a unique identifier and allows for saving [FAIMS-111], loading [FAIMS-112], and clearing of records [FAIMS 109]
* The logical layer in the digital recording module allows for displaying [FAIMS-115; FAIMS-137] and cancelling [FAIMS-113; FAIMS-138] of multiple tabs in a tab group.
* [FAIMS-105; FAIMS-107] The digital recording module provides feedback to users upon data entry and other operation by the means of short messages, such as **toasts**.
* [FAIMS-105; FAIMS-107] The digital recording module provides for additional functionality during **onclick events** by means of **dialogue** window.

**Discussion**

The development undertaken on the 0.1 FAIMS Mobile Application was conducted in compliance with the schedule determined during the project Elaboration Phase (and comprised within Intersect development sprints 1-3). All tested stories passed User Acceptance Testing with user acclaim. No stories were rescheduled to later releases. We used the revision period to develop new features instead of rethinking or reimplementing prior stories.

**Summary**

The first prototype of the FAIMS Mobile Application (v0.1) was developed to demonstrate the core functionality of the Application, namely: connectivity with the server, the deployment of configuration packets, the operation of logic and UI customisation and the ability to store a range of data inputs.

The core functionality of the 0.1 FAIMS Mobile Application was subject to external testing and has been validated to the satisfaction of the Steering Committee.

The development of the Mobile Application remains on schedule and will continue in accordance with the schedule determined during the project Elaboration Phase.