Getting started with FAIMS - an overview

Background

The arrival of low-cost smartphones and tablets is a game-changing event for mobile data collection, due to a convergence of features:

1. Touch screen/graphics
2. Wireless connectivity
3. GPS
4. Rear facing camera
5. Programmability
6. Ubiquity

As a result of this convergence we can, for the first time, place location-recording electronic data collectors in the hands of every team member at very modest cost. Lots of people have been experimenting with tablets, smart pens etc. but these projects, while often successful in themselves, will not generally be adopted beyond a limited public of connected projects eg. working in the same area or working out of the same institution. That is because they are adapted to specific circumstances / modes of operation; the investment in making systems generic is too high for an individual project - it is not cost effective.

Which is where FAIMS comes in. Through a $1M NeCTAR infrastructure grant plus $1M co-investment (2013) and a $400K ARC LIEF grant (2014), FAIMS has focussed on building generic customisable capabilities at a scale not available to individual projects. FAIMS started with a four day requirements-gathering international workshop (August 2012), which assembled 50 people for the full workshop (80 on the first day), 40+ partners, a very wide cross-section of the archaeological community in Australia plus international participation (ADS, tDAR, Open Context). FAIMS also has an extremely active core team with a dedicated technical lead. The team listened to what people had to say and took things on board, for instance the original plan was to do live mesh synchronisation of tablets and to support measurements using multiple tablets; the workshop suggested this would not work and that it would be better to think in terms of a daily fieldwork cycle and building a synchronisation server which would sync all the tablets in the field house at the end of the day, and that methodology has been adopted.

Components of the system:

You are going to need the following:

Hardware

Android tablet(s)

A decent size for field use, eg. 7", with GPS and camera. Google Nexus 7 Vsn II is optimum at the moment (Oct 2013. around $300)

Synchronisation server

A small portable server (eg. battery operated all-in-one wireless server, possibly with solar recharger) or a laptop with a Wireless Access Point. The server needs to run Ubuntu Linux. You can also use an Internet server if the field house/lab is Internet connected, which today is often the case except in remote locations

.

Software

FAIMS data collection app

http://wiki.fedarch.org:8090/display/FAIMS/App+install+Guide
The free FAIMS app for Android has strong mapping capabilities and internal/external sensor capture (GPS, camera, video, total station etc.), feeding an SQLite database.

FAIMS server application

http://wiki.fedarch.org:8090/display/FAIMS/Server+Install+Guide
The free FAIMS server application for Ubuntu provides database creation and wireless synchronisation of multiple Android tablets running the FAIMS app.

Heurist database system
https://code.google.com/p/heurist/

The Heurist database system, also free, allows you to design a database with several linked entity types, pulldown and checkbox fields, controlled lists, text, numbers, images, video, map data etc. and use this to write a FAIMS Module definition which can be loaded onto the FAIMS server and tablets.

Heurist will also read in a FAIMS database, allow various visualisations and recoding, and publish the data to the tDAR archaeological repository (additional repositories, notably Open Context, are planned for 2014)

Installing the software

Follow instructions at the following web sites:

FAIMS app	http://wiki.fedarch.org:8090/display/FAIMS/App+install+Guide
FAIMS server	http://wiki.fedarch.org:8090/display/FAIMS/Server+Install+Guide
Heurist	https://code.google.com/p/heurist/

Using a FAIMS-Heurist service

FAIMS runs a server on the NeCTAR Research Cloud (http://heurist.fedarch.org) which provides a FAIMS server and a Heurist database service, which may be used to run smaller data collection projects. Two other FAIMS servers aere available: demo.fedarch.org:3000/ provid ing demonstration modules which may be donwloaded to a FAIMS-enabled tablet, and sandbox.fedarch.org:3000/ which may be used for testing developed modules (the sandbox is cleaned out periodically without warning so it should only be used for testing).

Other organisations may also make this combination available for their community. For larger projects please consult FAIMS about setting up your own dedicated physical or virtual server or NeCTAR Research Cloud virtual server.

Getting started

You may now wish to visit Building FAIMS modules from scratch with Heurist: a how-to guide to follow through the workflow for building a new module from scratch using Heurist and the FAIMS server.