

RAGLD: The Rapid Assembly of Geospatial Linked Data applications

John Goodwin, Jennifer Brooker, Lucy Diamond, Hugh Glaser, Tony Joyce, Don Cruickshank, Mark Lepage, Ian Millard, Mark Pendlington

Introduction

With more and more linked data and open data emerging there is a rising demand for a suite of application developers' tools to make it easier to bring together, use and fully exploit this diverse data.

RAGLD, a collaborative project between Ordnance Survey, Seme4 and the University of Southampton, produced a set of tools, components and services making it easier to develop applications by helping to speed up and enhance the use of linked data and opendata.

Motivation

The ideas and motivation behind the RAGLD project arguably had its origins in two previous pieces of work from Seme4 and the University of Southampton. The first of these pieces of work was sameas.org originally developed by Hugh Glaser and Ian Millard at the University of Southampton. Sameas.org is a very simple service that helps a user find co-references between different datasets. It offers a simple API that takes as its input URIs for various entities on the linked data web, and returns URIs identifying the same thing from different datasets. This simple API helps build additional linkages between disparate datasets on the web of linked data. The core idea behind sameas.org was to offer a simple service that does one thing very well.

The second of these pieces of work was a linked data application called SeeUK (<http://apps.seme4.com/see-uk/>). SeeUK offers a view of some of the opendata offered by data.gov.uk against a geographical background. The application displays various statistical information (crime, education etc.) about different administrative geographies using innovative visualisation techniques, and these statistics can be normalised according to population or area. Although the end application is simple there were many complicated steps involved in its creation. These steps would have been far simpler given a set of tools enabling: data visualisation, data alignment, data cleaning, statistical normalisation etc.

RAGLD

RAGLD was motivated by the need for a suite of tools, services and components to make the construction of applications like SeeUK easier. Furthermore, RAGLD adopted the philosophy of sameas.org by creating tools and services that do one thing very well.

The tools and services created by RAGLD enable data consumers to easily select, filter, manipulate, visualise, transform and communicate data. Furthermore, the RAGLD framework makes it easy for data publishers to create these services as a way to expose their data.

RAGLD offers the following types of service:

- Reconciliation services: RAGLD offers reconciliation services which offer a way to resolve free text and common identifiers to linked data URIs via the OpenRefine tool.
- Relationship management services: These services build upon the sameas.org service to offer simple web services other than just sameAs. These services could be used to serve qualitative spatial relationships. For example, with a 'contains service' a user could enter a URI for a place, and receive back all the URIs for entities within that place.
- Spatial query services: A number of services are offered including quantitative spatial queries and traditional GIS functionality such as buffering.
- Dataset transformation services: These include services offering functionality such as coordinate transformation, data aggregation and statistical normalisation services.
- Visualisation components: These components provide a number of tools to enable the visualisation of geospatial data and interface well with a number of popular mapping APIs.

This is just a small example of the services offered by RAGLD. The real power of RAGLD is that each of the components can be accessed through a common interface allowing the services to be chained together and orchestrated allowing powerful data driven applications to be built with relative ease. Furthermore, RAGLD provides much needed geospatial functionality (taken for granted by users of traditional GIS) to the web of linked data.