:me owl:sameAs flickr:33669349@N00 .

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ABSTRACT

In order to release the Social Semantic Web and solve data-portability issues, there is a need from Web 2.0 providers to open their content and deliver it in a machine-readable way. Modeling it with vocabularies such as FOAF, SIOC, as well as reusing data from the Linked Data initiative like DBpedia or GeoNames can help to achieve this task. The goal of this demo is to showcase an RDF exporter for Flickr profiles that acts such a way.

Keywords

Web 2.0, Linked Data, Social Networks, Data Portability, Flickr, FOAF, SIOC

1. EXPORTER OVERVIEW

Describing people, user accounts and content using Semantic Web technologies offers standardized ways to query, browse and reuse it. Moreover, it lets this data enter the Linked Data Web rather than being part of a closed-world, proprietary, data silo. The Flickr wrapper[1] described here provides a way to model a Flickr user account in RDF using well-known vocabularies like FOAF[4] and SIOC[3]. It is a simple application that uses PHP bindings[2] for the Flickr API[3] to retrieve user information and then translates it into RDF.

2. USED VOCABULARIES

The exporter mainly uses the following vocabularies and reference datasets to export user accounts:

- FOAF - as a standard vocabulary to model people and their relationships, FOAF is used to represent the owner of a Flickr account (`foaf:Person`), his proper-

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[1]http://apassant.net/home/2007/12/flickrdf/
[2]http://phpflickr.com/
[3]http://www.flickr.com/services/api/

ties and links with other people (`foaf:knows`) retrieved from his Flickr contacts;

- SIOC - as a model to describe activities of online communities, recently accepted as a W3C submission, SIOC is used to represent user accounts (`sioc:User`) related to their owner (`foaf:holdsAccount`) and groups they may belong to (`sioc:UserGroup` and `sioc:member_of`). Moreover, the SIOC types module[4] is used to represent user galleries (`sioct:ImageGallery` and `sioc:owner_of`);

- GeoNames[5] - since Flickr allows any user to mention his location, the script relies on the GeoNames web-service[6] to find the related place URI, and thus uses the `geonames:locatedIn` property and URI of existing `geonames:Feature` resource to link a user to its location. Since most `geonames:Feature` instances are linked to DBPedia[1] with `owl:sameAs`, it offers an automatic way to link the profile to other URIs. Yet, this feature may give incorrect results if the location has not been precisely defined;

- Lingvoj[7] - since Flickr groups administrators can define the language used in their groups, the Lingvoj vocabulary is used in association with DublinCore to represent the language used within a group (`dc:language` and `lingvoj:Lingvo`).

3. DEFERENCABLE URIS

Each exported people, user, and group is assigned a specific non-informative resource URI. Each URI is deferencable, and uses content-negociation principles to redirect either to the Flickr.com user page if browsed with an HTML browser, or to the RDF file that contains all the statements about the user, account or group if browsed with an RDF browser. Those redirection use 303 and 200 HTTP codes to be compliant with Semantic Web URI principles [5]. Yet, URI of the `ImageGallery` instance is the same as the URL of the gallery webpage, since it is identified as an informative resource.

4. LINKING TO A FLICKR PROFILE

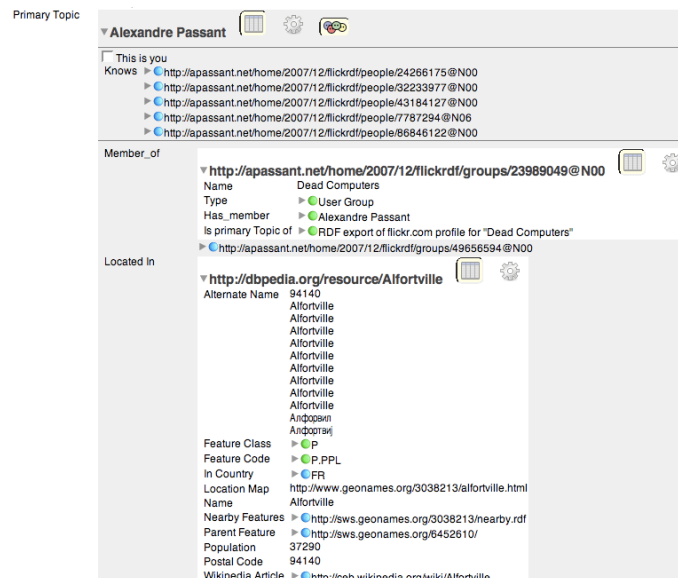Reusing Linked Data principles[2], a good way for anyone to interlink his own FOAF profile to his `foaf:Person`

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[4]http://rdfs.org/sioc/types
[5]http://geonames.org
[6]http://ws.geonames.org
[7]http://lingvoj.org

Figure 1: Browsing a Flickr profile in Tabulator

Figure 2: Interlinked social networks representation

URI created with the exporter is to combine the use of `owl:sameAs` and `rdfs:seeAlso`. Thus, a person that already has a FOAF URI can identify himsemlf as the same than the one described by another URI in a Flickr profile. It also allows tools supporting OWL inference to make such identification when querying various sets of RDF data.

Moreover, in case the user do not have any existing FOAF profile, this script gives him a URI (and a profile) that he can the reuse in other Semantic Web applications like Revyu.com[8] to be uniquely identified in the Semantic Web.

5. BROWSING AND REUSING DATA

Created data can be used as any RDF data, for exemple browsed with the Tabulator[9] extension for Firefox, as shown on Fig.1. Moreover, people can use SPARQL to run query over the data, either on the fly or by crawling it, and in case they already have RDF data exported from services like Twitter[10] or Facebook[11], may merge them and query or view their complete open and machine-readable social network in a uniform manner. Fig.2 displays the output of a simple script[12] that queries a FOAF profile to retrieve all `owl:sameAs` URIs and related RDF documents for a given user to find all his relationships from different social networks. It provides a simple but efficient use-case to see how Semantic Web technologies can achieve the goals of social network and data portability.

6. PRIVACY

In order to respect the Flickr API terms of use and user privacy, only publicy available data can be exported. Yet, in case a user switch his profile from private to public, he curr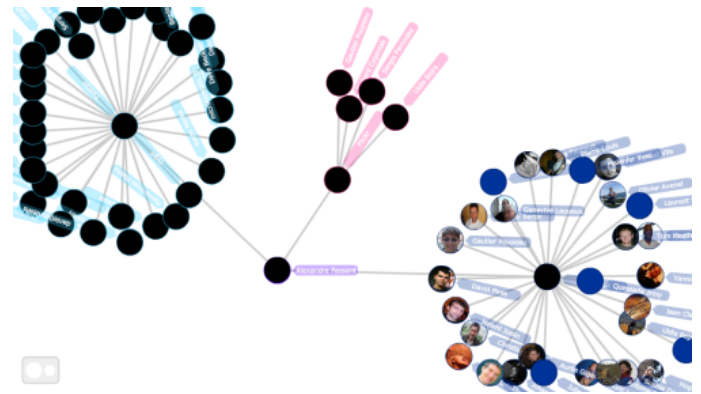ently must recreate his exported profile (in case he wants the old one to be removed), since there is not direct way for the script to be informed of Flickr users changes at the moment.

7. RELATED WORK

Different wrappers to create RDF data from existing sources have been mentioned in this paper. Other exporters may include the AudioScrobller wrapper[13] or OpenLink Virtuoso sponger[14], a more generic way to extract RDF data from non-RDF sources. However, there is not yet agreement on how to export such data and to combine vocabularies. This demo may be used as a basis for best practices to do so.

Finally, regarding Flickr, the Flickcurl API[15] provides a way, among various operations, to get RDF triples from any Flickr picture. A script to interlink this data and the currently described exporter may be available in the future.

8. NOTICE

The work described here is personal work, and is not affiliated with Flickr.com in any way.

9. REFERENCES

[1] S. Auer, C. Bizer, G. Kobilarov, J. Lehmann, R. Cyganiak, and Z. Ives. DBpedia: A Nucleus for a Web of Open Data. *6th International Semantic Web Conference*, November 2007.

[2] C. Bizer, R. Cyganiak, and T. Heath. How to Publish Linked Data on the Web. http://sites.wiwiss.fu-berlin.de/suhl/bizer/pub/LinkedDataTutorial/, November 2007.

[3] J. Breslin, A. Harth, U. Bojars, and S. Decker. Towards Semantically-Interlinked Online Communities. *2nd European Semantic Web Conference*, May 2005.

[4] D. Brickley and L. Miller. FOAF Vocabulary Specification 0.91, November 2007. http://xmlns.com/foaf/0.1/.

[5] L. Sauermann, R. Cyganiak, M. Völkel, and D. Ayers. Cool URIs for the Semantic Web. http://www.w3.org/TR/2007/WD-cooluris-20071217/, December 2007.

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[8] http://revyu.com
[9] http://dig.csail.mit.edu/2007/tab/tabtutorial.html
[10] http://sioc-project.org/node/262
[11] http://www.dcs.shef.ac.uk/ mrowe/foafgenerator.html
[12] http://apassant.net/home/2008/01/foafgear

[13] http://dbtune.org/last-fm/
[14] http://www.openlinksw.com/virtuoso/Whitepapers/html/ VirtSpongerWhitePaper.html
[15] http://librdf.org/flickcurl/