Linked Vocabulary API for publication of SKOS vocabularies on the web

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Background and Motivation

The Coastal and Marine Spatial Planning Vocabularies (CMSPV) project concerns vocabulary and ontology development within the context of the overall development of the Coastal and Marine Spatial Planning (CMSP) and Ocean and Coastal Mapping (OCM) portals for inter-agency collaboration. These portals utilize controlled data vocabularies to implement search over a multitude of datasets gathered by numerous agencies. The datasets in the portals will be tagged using one of many vocabularies which have been developed by different agencies and for different communities.

To provide complete and accurate search results the portals will need to semantically reconcile (i.e. crosswalk) the different vocabularies in use by datasets accessible through the portal.

Objectives

Provide proof-of-concept to agencies on publishing and consuming controlled research vocabularies on the web

Guidance to agencies on

• Representation
• Access
• Services
• Mapping

Concerns for controlled vocabularies

Simple Knowledge Organization System (SKOS)

• Model for expressing controlled vocabularies in RDF
• Supports mapping between concept schemes
• W3C Recommendation (2009)

Linked Vocabulary API

<table>
<thead>
<tr>
<th>Description</th>
<th>URL Template</th>
</tr>
</thead>
<tbody>
<tr>
<td>get vocabulary resource</td>
<td>GET /vocab/{vocab_id}</td>
</tr>
<tr>
<td>get vocabulary term</td>
<td>GET /vocab/{vocab_id}/term/{term_id}</td>
</tr>
<tr>
<td>get list of all terms in the specified vocabulary</td>
<td>GET /vocab/{vocab_id}/terms</td>
</tr>
<tr>
<td>get list of all terms related to specified term</td>
<td>GET /vocab/{vocab_id}/term/{term_id}/related</td>
</tr>
<tr>
<td>get list of all terms in vocabulary with a label that contains the specified text</td>
<td>GET /vocab/{vocab_id}/term/{term_id}?anyLabelContains={text}</td>
</tr>
<tr>
<td>get list of all terms that are a close match to the specified term and are in a vocabulary with the specified label</td>
<td>GET /vocab/{vocab_id}/term/{term_id}/closeMatch?inScheme.prefLabel={name}</td>
</tr>
<tr>
<td>get list of terms, filtered to only include the specified properties</td>
<td>GET /vocab/{vocab_id}/terms?_properties=prefLabel,altLabel</td>
</tr>
<tr>
<td>get paginated list of terms</td>
<td>GET /vocab/{vocab_id}/terms?page=2&amp;pageSize=25</td>
</tr>
</tbody>
</table>

SKOS published as Linked Data

• RESTful API for interacting with vocabulary
  • get vocabulary or term records
  • get collections of term records
  • find vocabulary mappings
  • text-based searches
  • filter properties in returned records
  • pagination of results

Outcomes

• Developed Linked Vocabulary API
• Published NIMS Data Categories vocabulary as proof-of-concept
• API being evaluated as basis for future vocabulary publications by National Ocean Council Vocabulary (NOCV) effort

Acknowledgments:

• Representation
  • Use existing model
  • Be Semantic
• Access
  • Open License
  • Non-proprietary Format
  • Resolvable Identifiers
• Service
  • Text-based search
  • Aggregations
  • Filtering
  • Reasoning
• Mapping
  • Formally Defined
  • Machine-readable

Built-in support for

• RDF
• JSON
• XML
• HTML

Output templates customizable