Rapid Deployment of a RESTful Service for Oceanographic Research Cruises

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The Ocean Data Interoperability Platform (ODIP) seeks to increase data sharing across scientific domains and international boundaries, by providing a forum to harmonize diverse regional data systems. ODIP participants from the US include the Rolling Deck to Repository (R2R) program, whose mission is to capture, catalog, and describe the underway/environmental sensor data from US oceanographic research vessels and submit the data to public long-term archives.

R2R publishes information online as Linked Open Data, making it widely available using Semantic Web standards. Each vessel, sensor, cruise, dataset, person, organization, funding award, log, report, etc, has a Uniform Resource Identifier (URI). Complex queries that federate results from other data providers are supported, using the SPARQL query language. To facilitate interoperability, R2R uses controlled vocabularies developed collaboratively by the science community (eg. SeaDataNet device categories) and published online by the NERC Vocabulary Server (NVS).

In response to user feedback, we are developing a standard programming interface (API) and Web portal for R2R's Linked Open Data. The API provides a set of simple REST-type URLs that are translated on-the-fly into SPARQL queries, and supports common output formats (eg. JSON). We will demonstrate an implementation based on the Epimorphics Linked Data API (ELDA) open-source Java package. Our experience shows that constructing a simple portal with limited schema elements in this way can significantly reduce development time and maintenance complexity.