RESTful Ontology Metadata Extractor/Storage System Description Document

The need of technical knowledge about the ontology schema to search through the data in the ontology is an essential requirement. In order to have better understanding of an ontology to create efficient query patterns, knowing about the entities, properties and relations will be helpful.

RESTful Ontology Metadata Extractor/Storage System (RESTOMES) is a RESTful system to register an ontology and to extract the ontology metadata for future retrievals. The system extracts and keeps classes, data properties and object properties of an ontology and also it retrieves the corresponding information of a stored ontology.

RESTOMES leverages REST technology, JSON, JAX-RS, Jena Arq and SPARQL to enhance the required functionalities. REST is used to build a resource based system, JSON is utilized for representation of the resources, JAX-RS is an annotation technique in RESTful services to map URIs to corresponding functions and Jena Arq is for ontology querying using SPARQL.

Entities or resources of the system are ontology, class, dataproperty and objectproperty each has its own attributes.

The list of resource-action pairs are as follows (we don't use PUT and DELETE in this system):

Resource/Action	GET	POST
/ontology	A	A
/ontology/{oid}	A	N/A
/ontology/{oid}/class	A	N/A
/ontology/{oid}/class/{cid}	A	N/A
/ontology/{oid}/dataproperty	A	N/A
/ontology/{oid}/dataproperty/{dpid}	A	N/A
/ontology/{oid}/objectproperty	A	N/A
/ontology/{oid}/objectproperty/{opid}	A	N/A

JSON objects for resource-action pairs and the expected results are as follows:

1. /ontology-GET
    - Return all ontology URIs already existing in the system
2. /ontology-POST

    - Register a new ontology URI to the system
    - The system will extract the information from the ontology by querying using SPARQL and creates the meta data for it in the system
3. /ontology/{oid}-GET
    - Return annotation information of a particular ontology such as creator, description etc.
    - Provide URI links to meta data of the ontology (classes, properties)
4. /ontology/{oid}/class-GET
    - Return URIs to classes of a particular ontology
5. /ontology/{oid}/class/{cid}-GET
    - Return the information of a particular class of a particular ontology
6. /ontology/{oid}/dataproperty-GET
    - Return URIs to DataTypeProperties of a particular ontology
7. /ontology/{oid}/dataproperty/{dpid}-GET
    - Return the information of a particular DataTypePropery of a particular ontology
8. /ontology/{oid}/objectproperty-GET
    - Return URIs to ObjectProperties of a particular ontology
9. /ontology/{oid}/objectproperty/{opid}-GET
    - Return the information of a particular ObjectPropery of a particular ontology