

## DSpace SEMANTIC SEARCH – DEPLOYMENT INSTRUCTIONS

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### 1. Support for Qualified DC:

- i. Activate QDC Crosswalk by uncommenting related line in file [dspace-source]/config/templates/oaicat.properties:

```
Crosswalks.qdc=org.dspace.app.oai.PluginCrosswalk
```

- ii. Edit DSpace configuration file [dspace-source]/config/dspace.cfg in order to configure the QDCCrosswalk dissemination plugin. You have to declare two new namespaces:

```
...
crosswalk.qdc.namespace.qdc.dspace-ont =
    http://ippocrates.hpclab.ceid.upatras.gr:8998/dc-ont/dspace-ont.owl#
crosswalk.qdc.namespace.qdc.rdf =
    http://www.w3.org/1999/02/22-rdf-syntax-ns#
...
```

and give information about their location by adding in key property `crosswalk.qdc.schemaLocation.qdc` the next two values:

```
...
crosswalk.qdc.schemaLocation.qdc = \
    http://ippocrates.hpclab.ceid.upatras.gr:8998/dc-ont/dspace-ont.owl \
    http://www.w3.org/1999/02/22-rdf-syntax-ns#
...
```

### 2. Library files:

- i. Place in directory [dspace-source]/lib/ the following JAR files:
  - a. aterm-java-1.6.jar
  - b. commons-lang-2.2.jar
  - c. junit.jar
  - d. owlapi-bin.jar
  - e. relaxngDatatype.jar
  - f. xsdlib.jar
- ii. Depending on your preference to support Fact++ or Pellet reasoner respectively, place one of the following JAR files in the previous directory:
  - a. FaCTpp-OWLAPI-v1.1.11.jar (version 1.1.11)<sup>1</sup>
  - b. pellet.jar (version 1.5.2)

### 3. JSP files:

- i. Place in directory [dspace-source]/jsp/search/ the newly created JSP files:
  - a. semantic.jsp

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<sup>1</sup> In case you choose FaCT++ you should set in `JAVA_OPTS` the parameter `-Djava.library.path=[JNIpath]`, where `[JNIpath]` points to the corresponding FaCT++ JNI library.

b. showIndProperties.jsp

- ii. In order to add “**Semantic Search**” link in the home page of DSpace, you should also modify file [dspace-source]/jsp/layout/navbar-default.jsp. In particular, just after the line where the context path for the “**Advanced search**” link is declared:

```
...
<td class="searchBoxLabelSmall" valign="middle" nowrap="nowrap">
  <input type="text" name="query" id="tequery" size="8"/>
  <input type="submit" name="submit"
        value="<fmt:message key="jsp.layout.navbar-default.go"/>" />
  <br/><a href="<%= request.getContextPath() %>/advanced-search">
        <fmt:message key="jsp.layout.navbar-default.advanced"/></a>
...

```

add the following line (marked in bold):

```
...
<td class="searchBoxLabelSmall" valign="middle" nowrap="nowrap">
  <input type="text" name="query" id="tequery" size="8"/>
  <input type="submit" name="submit"
        value="<fmt:message key="jsp.layout.navbar-default.go"/>" />
  <br/><a href="<%= request.getContextPath() %>/advanced-search">
        <fmt:message key="jsp.layout.navbar-default.advanced"/></a>
  <br/>&nbsp;<br/><a href="<%= request.getContextPath() %>/semantic-search">
        <fmt:message key="jsp.layout.navbar-default.semantic"/></a>
...

```

- iii. Update properties files [dspace-source]/config/language-packs/Messages.properties with the necessary values, corresponding to the newly added keys in the previous JSP files:

```
jsp.layout.navbar-default.semantic = Semantic Search

jsp.search.showindproperties.individual = Individual:
jsp.search.showindproperties.classes = Classes
jsp.search.showindproperties.objectproperty = Object Property
jsp.search.showindproperties.field = Property
jsp.search.showindproperties.inverse = inverse
jsp.search.showindproperties.value = Value
jsp.search.showindproperties.type = Type
jsp.search.showindproperties.language = Language
jsp.search.showindproperties.negobjectproperty = Negative Object Property
jsp.search.showindproperties.dataproperty = Data Property
jsp.search.showindproperties.annotation = Annotation

jsp.search.semantic.noresults = No results available for this search
jsp.search.semantic.title = Semantic Search
jsp.search.semantic.ontology = Ontology URL:
jsp.search.semantic.dlquery = DL Query:
```

#### 4. Java Servlets:

- i. Modify variable ont\_URL in the new java servlet DspaceOntologyServlet.java and make it point to the right OAI server. In order to do this, you should alter line:

```
String ont_URL = "http://repository.upatras.gr/dspace-oai/  
request?verb=ListRecords&metadataPrefix=qdc";
```

and replace the first part (`http://repository.upatras.gr/dspace-oai/`) of this string with the URL of the preferable OAI server:

```
String ont_URL = "[YOUR_OAI_SERVER]/request?verb=ListRecords&metadataPrefix=qdc";
```

- ii. Create directory `[dspace-source]/src/gr/upatras/ceid/hpclab/` and place in it all new Java servlets, contained in the zip package:
  - a. `DspaceOntologyServlet.java`
  - b. `Find.java`
  - c. `SemanticSearchServlet.java`
- iii. Configure the new servlets and map them to the proper URL by editing the `[dspace-source]/etc/dspace-web.xml` file. More specifically, in this file the next lines should be added:

```
...  
<servlet>  
  <servlet-name>find</servlet-name>  
  <servlet-class>gr.upatras.ceid.hpclab.Find</servlet-class>  
</servlet>  
<servlet>  
  <servlet-name>semantic-search</servlet-name>  
  <servlet-class>gr.upatras.ceid.hpclab.SemanticSearchServlet</servlet-class>  
</servlet>  
<servlet>  
  <servlet-name>dspace-ont</servlet-name>  
  <servlet-class>gr.upatras.ceid.hpclab.DspaceOntologyServlet</servlet-class>  
</servlet>  
...
```

```
...  
<servlet-mapping>  
  <servlet-name>find</servlet-name>  
  <url-pattern>/find</url-pattern>  
</servlet-mapping>  
<servlet-mapping>  
  <servlet-name>semantic-search</servlet-name>  
  <url-pattern>/semantic-search</url-pattern>  
</servlet-mapping>  
<servlet-mapping>  
  <servlet-name>dspace-ont</servlet-name>  
  <url-pattern>/dspace-ont</url-pattern>  
</servlet-mapping>  
...
```

5. Place in directory `[dspace-source]/jsp/` the following JavaScript files:
  - a. `bsn.AutoSuggest_2.1_multiword.js`
  - b. `default.js`
  - c. `dlquery.js`

6. Update style sheet[dspace-source]/jsp/styles.css.jsp by appending in it the content of the provided text file ss-style.css.txt.
7. Replace file QDC.properties in directory [dspace-source]/config/crosswalks/ by overwriting it with the new one, contained in the zip package.