
GDPC: The Genomic Diversity and Phenotype Connection

Installation Guide for 'GDPC Connection' as a web service. Version 1.1

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Prerequisites

- Java SDK version 1.4.2, latest minor release (<http://java.sun.com/j2se/1.4.2/download.html>)
- Jakarta Tomcat version 5.0.x, latest minor release (<http://jakarta.apache.org/tomcat/index.html>)
- Apache AXIS version 1.1, (<http://ws.apache.org/axis/>)

Directory Locations

- \$CATALINA_HOME – Jakarta Tomcat home directory (i.e. /usr/local/jakarta-tomcat-5.0.28)
- \$AXIS_HOME – Apache AXIS home directory (i.e. \$CATALINA_HOME/webapps/axis)

Installing Java Jar Files

Many of these jars can be obtained from <http://www.maizegenetics.net/gdpc/jars>, and should be placed into \$AXIS_HOME/WEB-INF/lib.

File Name	Original Location
Jar to handle compression of both requests and responses.	
2wayfilter-1.2.jar	http://www.osmoticweb.com/soap-compression-howto.htm
Jar containing JDBC Driver for database being used. These are common examples.	
oracle.jar	http://www.oracle.com
pg74.214.jdbc3.jar	http://www.postgresql.org/
mysql-connector-java-3.0.14-production-bin.jar	http://www.mysql.com/
other...	
GDPC jar file. Currently these jars are specific to the database they are accessing. More specifically, the connection class (implementing the gov.usda.gdpc.DBConnection interface) hard codes the parameters for connecting (i.e. url, userid, passwd, etc.). As a result, this jar must be coded and built for each database. Future improvements may have this information read from a configuration file instead of being hard coded. Although, that may mean having the password in plain text within the configuration file.	
panzea.jar	
gramene.jar	
aztec.jar	

Turning on Compression

To turn on two way compression (accepting compressed requests and returning compressed responses), add the following stanza to `$AXIS_HOME/WEB-INF/web.xml`.

```
<filter>
  <filter-name>2WayFilter</filter-name>
  <filter-class>com.osmoticweb.gzipfilter.GZIP2WayFilter</filter-class>
</filter>
<filter-mapping>
  <filter-name>2WayFilter</filter-name>
  <url-pattern>/*</url-pattern>
</filter-mapping>
```

Tuning Tomcat Web Server

To increase the heap size available to the JVM and to execute the JVM in server mode, add the following line to `$CATALINA_HOME/catalina.sh` (linux), `$CATALINA_HOME/catalina.bat` (windows), or some other script that start the Tomcat web server.

```
JAVA_OPTS="-server -Xms128m -Xmx256m"
```

These parameters sets the initial heap size to 128MB and allows a maximum of 256MB. If the machine has the capacity, the maximum can be set to 512MB.

Deploying Web Service into AXIS

- Make sure that the Tomcat web server is running.
- Obtain `deploy.wsdd` and `undeploy.wsdd` files for specific GDPC connection.
- Set the `CLASSPATH` as indicated and execute the `AdminClient` command.

```
CLASSPATH=$CATALINA_HOME/webapps/axis/WEB-INF/lib/axis.jar:
$CATALINA_HOME/webapps/axis/WEB-INF/lib/jaxrpc.jar:
$CATALINA_HOME/webapps/axis/WEB-INF/lib/commons-logging.jar:
$CATALINA_HOME/webapps/axis/WEB-INF/lib/commons-discovery.jar:
$CATALINA_HOME/webapps/axis/WEB-INF/lib/saaj.jar
```

```
java org.apache.axis.client.AdminClient deploy.wsdd
```

- To undeploy, execute this command.

```
java org.apache.axis.client.AdminClient undeploy.wsdd
```