Informatics for Integrating Biology and the Bedside

i2b2 Installation Guide (Linux)

Hive Cells

Document Version: *1.5.1*

i2b2 Software Version: *1.5*

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ABOUT THIS GUIDE

Informatics for Integrating Biology and the Bedside (i2b2) is one of the sponsored initiatives of the NIH Roadmap National Centers for Biomedical Computing (http://www.bisti.nih.gov/ncbc/).

One of the goals of i2b2 is to provide clinical investigators broadly with the software tools necessary to collect and manage project-related clinical research data in the genomics age as a cohesive entity; a software suite to construct and manage the modern clinical research chart. This guide is intended to assist with installation of all required prerequisite software.

1. PREREQUISITES

1.1 Required Software

1.1.1 Java JDK

JDK 6.0 is recommended and can be downloaded from the java website:
http://java.sun.com/products/

1. Install the SDK into a directory of your choice.

   Example: /opt/java/jdk1.6.0 or *YOUR_JAVA_HOME_DIR*

1.1.2 JBoss 4.2.2GA

Download JBoss (jboss-4.2.2.GA.zip) from the jboss website:
http://labs/jboss.com/jbossas/downloads

1. Unzip jboss-4.2.2.GA.zip into a directory of your choice.

   Example: /opt/jboss-4.2.2.GA or *YOUR_JBOSS_HOME_DIR*

2. Set JBoss JVM to run with 1GB of extended memory.

3. Edit '*YOUR_JBOSS_HOME_DIR*/bin/run.conf' and change the JAVA_OPTS memory setting to those shown below. (-Xms512m -X, x1024m)

```
#
# Specify options to pass to the Java VM.
#
if [ "x$JAVA_OPTS" = "x" ]; then
    JAVA_OPTS="-Xms512m –Xmx1024m
    -Dsun.rmi.dgc.client.gcInterval=3600000
    -Dsun.rmi.dgc.server.gcInterval=3600000"
```

4. If default port 8080 is unavailable because another application is using it then edit the **server.xml** file ('*YOUR_JBOSS_HOME_DIR*/server/default/deploy/jboss-web.deployer/server.xml') to reconfigure the following two items:

   a. The non-SSL HTTP/1.1 Connector to another port such as 9090

```
< ! –Define a non-SSL HTTP/1.1 Connector on port 9090 - >
<Connector port="9090" address="${jboss.bind.address}"
```

```
maxThreads="250" maxHttpHeaderSize="8192"
emptySessionPath="true" protocol="HTTP/1.1"
enableLookups="false" redirectPort="8443"
acceptCount="100" connectionTimout="20000"
disableUploadTimeout="true" />
```

b. The AJP 1.3 Connector to another port such as 9009

```
< ! –Define an AJP 1.3 Connector on port 9009 - >
<Connector port="9009" address="${jboss.bind.address}"
        maxThreads="250" maxHttpHeaderSize="8192"
        protocol="AJP/1.3" emptySessionPath="true"
        enableLookups="false" redirectPort="8443" />
```

5. You may also need to update the run permission of the jboss startup scripts.

   'chmod 775 *YOUR_JBOSS_HOME_DIR*/bin/.sh'

1.1.3 Apache Ant 1.6.5

Download *Apache Ant version 1.6.5* (apache-ant-1.6.5-bin.zip) from the following Apache website: http://archive.apache.org/dist/ant/binaries/

1. Unzip the file into a directory of your choice.

   Example: /opt/apache-ant-1.6.5 or *YOUR_ANT_HOME_DIR*

1.1.4 Apache Axis2 1.1

Download *Apache Axis2 version 1.1* from the following Apache website: http://ws.apache.org/axis2/download/1_1/download.cgi

Select the download type of WAR (Web Archive) Distribution (axis2.war).

1. Create a folder called **i2b2.war** inside '*YOUR_JBOSS_HOME_DIR*/server/default/deploy' folder.
2. Unzip axis2.war inside '*YOUR_JBOSS_HOME_DIR*/server/default/deploy/i2b2.war' folder.

1.1.5 Oracle Express Edition

Download *Oracle Database 10g Express Edition (Universal)* (oracle-xe-univ-10.2.0.1-1.0.i386.rpm) from the following Oracle website: http://www.oracle.com/technology/software/products/database/xe/htdocs/102xelinsoft.html

1. Run rpm –i oracle-xe-univ-10.2.0.1-1.0.i386.rpm as root.
    a. Configure the database by running '*/etc/init.d/oracle-xe configure*' as root
    b. Select HTTP and listener ports (use defaults 8080/1521 if they are available).
    c. Select 'Y'es to start on boot when asked.

2. Verify Oracle was properly installed.
    a. Open a browser
    b. Enter http://*yourHost*:*yourPort*/apex
    c. You should see an Oracle Database Express Edition login screen.

1.1.6 Update Environment Variables

Be sure to set the JAVA_HOME, ANT_HOME, CATALINA_HOME and JBOSS_HOME variables to the JAVA, ANT, TOMCAT and JBOSS home directories you set up in the previous sections.

Example:

```
# Sample environment variables
JAVA_HOME=/opt/java/jdk1.6.0
ANT_HOME=/opt/apache-ant-1.6.5
JBOSS_HOME=/opt/jboss-4.2.2.GA
PATH=$PATH:$ANT_HOME/bin:$JAVA_HOME/bin
export JBOSS_HOME
export ANT_HOME
export JAVA_HOME
```

2. INSTALL HIVE CELLS

The following order is recommended for installing data and the i2b2 Hive cells:

1. Review the *i2b2 Database Strategy* document in preparation for data installation.
2. Data Installation (includes table creation). *Required*
3. Project Management (PM) Cell. *Required*
4. Ontology (ONT) Cell. *Required*
5. Data Repository (CRC) Cell. *Required*
6. Workplace (WORK) Cell. *Required*
7. File Repository (FR) Cell. *Required*
8. PFT Processing (PFT) Cell. Optional
9. Any remaining optional cells. *Optional*

Please refer to the individual installation guides for each cell. If you have followed the *Prerequisites* section in this guide, you may skip the Prerequisite sections for the individual cells.

The installations for the cells listed above (3 – 9) require the data installation be performed first.

LICENSE

The i2b2 source code is licensed under the i2b2 Software License Software. This includes but not limited to all code in the edu.harvard.mgh.i2b2.* package namespace.