



## i2b2 Installation Guide (Linux)

# Hive Cells

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## DOCUMENT MANAGEMENT

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Revision Number	Date	Author	Description of change
1.6.1	07/22/10	Janice Donahoe	Created 1.6 version of document.

## ABOUT THIS GUIDE

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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 -Xmx1024m)

```
#  
# 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" connectionTimeout="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](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/102xeinstall.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

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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.