



i2b2 Hive
Installation Guide (Linux)

Release 1.3

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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/nbc/>). 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.

Document Version History

Date	Revision	Description	Author(s)
10/26/2007	1.0	Version 1.0	Lori Phillips
08/29/2008	1.1	Updated for Release 1.3	Lori Phillips

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Prerequisites

Required Software

a. Java JDK

JDK 5.0 (recommended)

Download JDK 5.0 Update 11 (jdk-1_5_0_11-linux-i586.bin) from <http://java.sun.com/products/archive/>

a) Install the SDK into a directory of your choice (/opt/java/jdk1.5.0_11 or YOUR_JAVA_HOME_DIR)

b. Apache Tomcat 5.5 + JDK 1.4 Compatibility Package

The PM and PFT cells run under tomcat. Download following 2 files from <http://archive.apache.org/dist/tomcat/tomcat-5/v5.5.23/bin/>

1. apache-tomcat-5.5.23-compat.zip
2. apache-tomcat-5.5.23.zip

a) Unzip into a directory of your choice (/opt/apache-tomcat-5.5.23 or YOUR_TOMCAT_HOME_DIR)

b) If default port 8080 is unavailable (another application is using this port), edit ‘YOUR_TOMCAT_HOME_DIR/conf/server.xml’ file to reconfigure the non-SSL HTTP/1.1 Connector to another port such as 7070 and the AJP 1.3 connector to another port such as 7009.

```
<!-- Define a non-SSL HTTP/1.1 Connector on port 7070 →  
<Connector port="7070" maxHttpHeaderSize="8192"  
    maxThreads="150" minSpareThreads="25" maxSpareThreads="75"  
    enableLookups="false" redirectPort="8443" acceptCount="100"  
    connectionTimeout="20000" disableUploadTimeout="true" />
```

```
<!-- Define an AJP 1.3 Connector on port 7009  
<Connector port="7009"  
    enableLookups="false" redirectPort="8443"  
    protocol="AJP/1.3"/>
```

c) You may also need to update the run permission of the tomcat startup scripts.

```
‘chmod 775 YOUR_TOMCAT_HOME_DIR/bin/*.sh’
```

c. JBoss 4.2.2 GA

Download ‘jboss-4.2.2.GA.zip’, from <http://labs.jboss.com/jbossas/downloads>.

a) Unzip jboss-4.2.2.GA.zip into a directory of your choice (/opt/jboss-4.2.2.GA or YOUR_JBOSS_HOME_DIR)

b) Set JBoss JVM to run with 1GB extended memory.

Edit ‘YOUR_JBOSS_HOME_DIR/bin/run.conf’ and change the JAVA_OPTS memory settings to that 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"  
fi
```

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- c) If default port 8080 is unavailable (another application is using this port), edit ‘YOUR_JBOSS_HOME_DIR/server/default/deploy/jboss-web.deployer/server.xml’ file to reconfigure 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" />
```

```
<!--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"/>
```

- d) You may also need to update the run permission of the jboss startup scripts.

```
‘chmod 775 YOUR_JBOSS_HOME_DIR/bin/*.sh’
```

d. Apache Ant 1.6.5

Download 'Apache Ant version 1.6.5' (apache-ant-1.6.5-bin.zip) from <http://archive.apache.org/dist/ant/binaries/>

- a) Unzip into a directory of your choice (/opt/apache-ant-1.6.5 or YOUR_ANT_HOME_DIR)

e. Apache Axis2 1.1

Download 'Apache Axis2 version 1.1', from http://ws.apache.org/axis2/download/1_1/download.cgi and select the download type WAR (Web Archive) Distribution.(axis2.war)

- a) Create folder i2b2.war inside
‘YOUR_JBOSS_HOME_DIR/server/default/deploy’

- b) Unzip axis2.war inside
‘YOUR_JBOSS_HOME_DIR/server/default/deploy/i2b2.war’ folder.

c) Create folder axis2 inside 'YOUR_TOMCAT_HOME_DIR/webapps'

d) Unzip axis2.war inside 'YOUR_TOMCAT_HOME_DIR/webapps/axis2' folder.

f. Oracle Express Edition

a) Download Oracle Database 10g Express Edition (Universal) 'oracle 10g EE' 'oracle-xe-univ-10.2.0.1-1.0.i386.rpm' from <http://www.oracle.com/technology/software/products/database/xe/htdocs/102xeinsoft.html>

b) Run 'rpm -i oracle-xe-univ-10.2.0.1-1.0.i386.rpm' as root

Run '/etc/init.d/oracle-xe configure' as root to configure the database

Select HTTP and listener ports (use defaults 8080/1521 if they are available)

Select 'Y'es to start on boot when asked

c) To verify that Oracle was properly installed, open a browser and enter <http://yourHost:yourPort/apex>. You should see an Oracle Database Express Edition login screen.

h. Update your 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 steps a-d respectively.

Examples are shown below.

```
# Sample environment variables
JAVA_HOME=/opt/java/jdk1.5.0_11
ANT_HOME=/opt/apache-ant-1.6.5
CATALINA_HOME=/opt/apache-tomcat-5.5.23
JBOSS_HOME=/opt/jboss-4.2.0.GA
PATH=$PATH:$ANT_HOME/bin:$JAVA_HOME/bin
export JBOSS_HOME
export CATALINA_HOME
export ANT_HOME
export JAVA_HOME
```

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Install Hive Cells

The following order is recommended:

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

Please refer to each cell’s installation guide. If you have followed the Prerequisites section in this guide, you may skip the Prerequisite sections for the individual cells. **Installations 4-9 require that the data installation has been performed first.**