

File Repository Cell

Installation Guide (Linux)

Release 1.4

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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 with the provided source code will help you deploy an i2b2 cell.

Document Version History

Date	Revision	Description	Author(s)
8/18/2008	1.0	Release 1.3	Mike Mendis
9/18/2008	1.1	Updated	Lori Phillips
1/25/2010	1.2	Updated to Release 1.4	Mike Mendis

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Prerequisites

Required Software

If you installed the prerequisite software from the Hive Installation Guide you may skip this section.

a. Java JDK

JDK 6.0 (recommended)

Download JDK 6.0 Update 16 (jdk-1_6_0_16-linux-i586.bin) from http://java.sun.com/products/

b. JBoss 4.2.2GA

Download 'jboss-4.2.0.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
```

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”/>
```

c. 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)

d. 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.

e. Update your environment variables

Be sure to set the JAVA_HOME, ANT_HOME and JBOSS_HOME variables to the JAVA, ANT and JBOSS home directories you set up in steps a-c respectively. Examples are shown below.

```
# Sample environment variables
JAVA_HOME=/opt/java/jdk1.6.0_16
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
```

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Install

Installing the File Repository cell

1. Download and extract the core server source code to a target area.
If this has been downloaded in a previous installation (e.g. PM or ONT), there is no need to repeat this step.

a) Set up a target source_directory.

b) Extract core server source code to the target source_directory.

2. Ensure that JBOSS is not running
a) ./$JBOSS_HOME/bin/shutdown.sh -S

3. Deploy edu.harvard.i2b2.common

If this has been deployed in a previous installation (eg. ONT), there is no need to repeat this step.

a) 'cd source_directory/edu.harvard.i2b2.common'

b) Edit the build.properties file and set jboss.home and axis2.war.name properties

```
jboss.home=YOUR_JBOSS_HOME_DIR
axis2.war.name=i2b2.war
```

c) ‘ant clean deploy jboss_pre_deployment_setup’

4. Deploy edu.harvard.i2b2.fr

a) 'cd source_directory/edu.harvard.i2b2.fr'

b) Edit the build.properties file and set jboss.home, axis2.war.name

```
jboss.home=YOUR_JBOSS_HOME_DIR
axis2.war.name=i2b2.war
```

c) Edit the etc/spring/fr_application_directory.properties file and specify a location for the application properties directory. This location can be anything you desire but must be a directory path that your linux user has access permission for.

```
edu.harvard.i2b2.fr.applicationdir= YOUR_JBOSS_HOME_DIR
/server/default/conf/frapp
```

d) Edit the etc/spring/edu.harvard.i2b2.fr.properties file and set project management properties

Set Project Management property settings

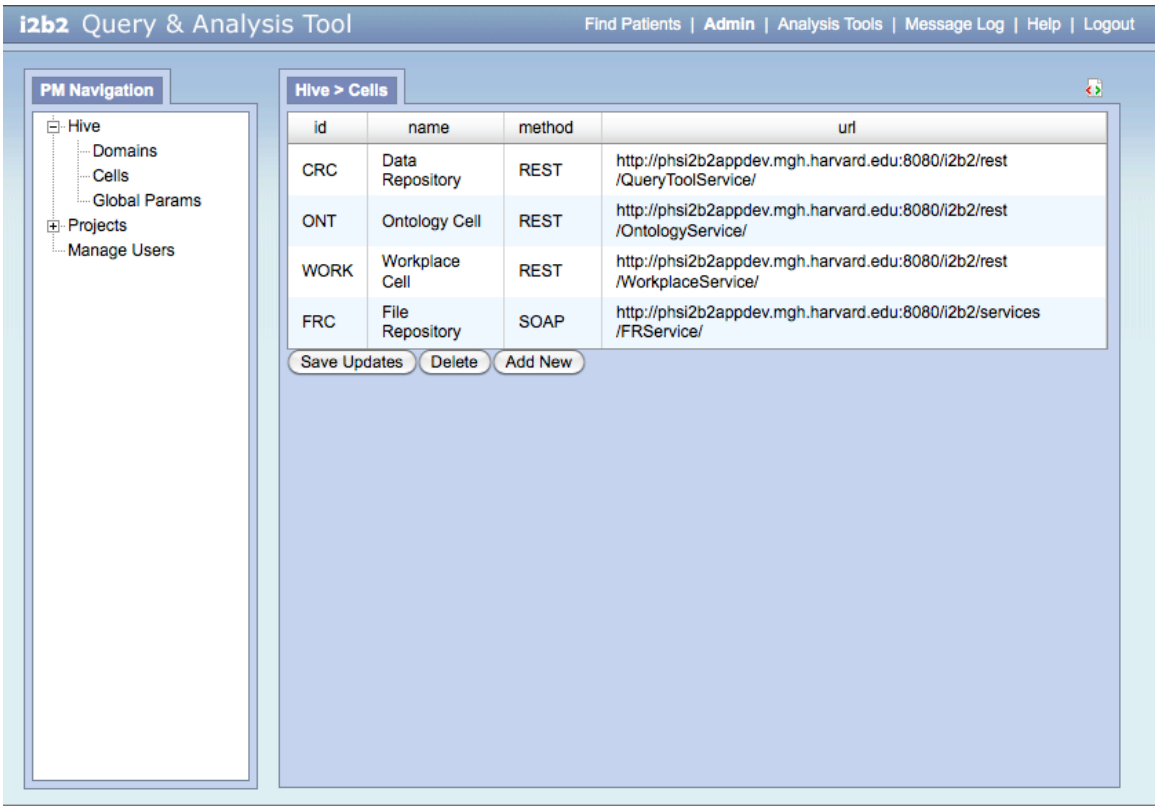
```
edu.harvard.i2b2.fr.ws.pm.url=http://localhost:8080/axis2/rest
/PMService/getServices
# Flag to bypass project management cell
edu.harvard.i2b2.fr.ws.pm.bypass=false
edu.harvard.i2b2.fr.ws.pm.bypass.role=ADMIN
edu.harvard.i2b2.fr.ws.pm.bypass.project=Demo
```

e) 'ant -f master_build.xml clean build-all deploy'

5. Update Project Management

a) Logon to Project Manager Web Interface

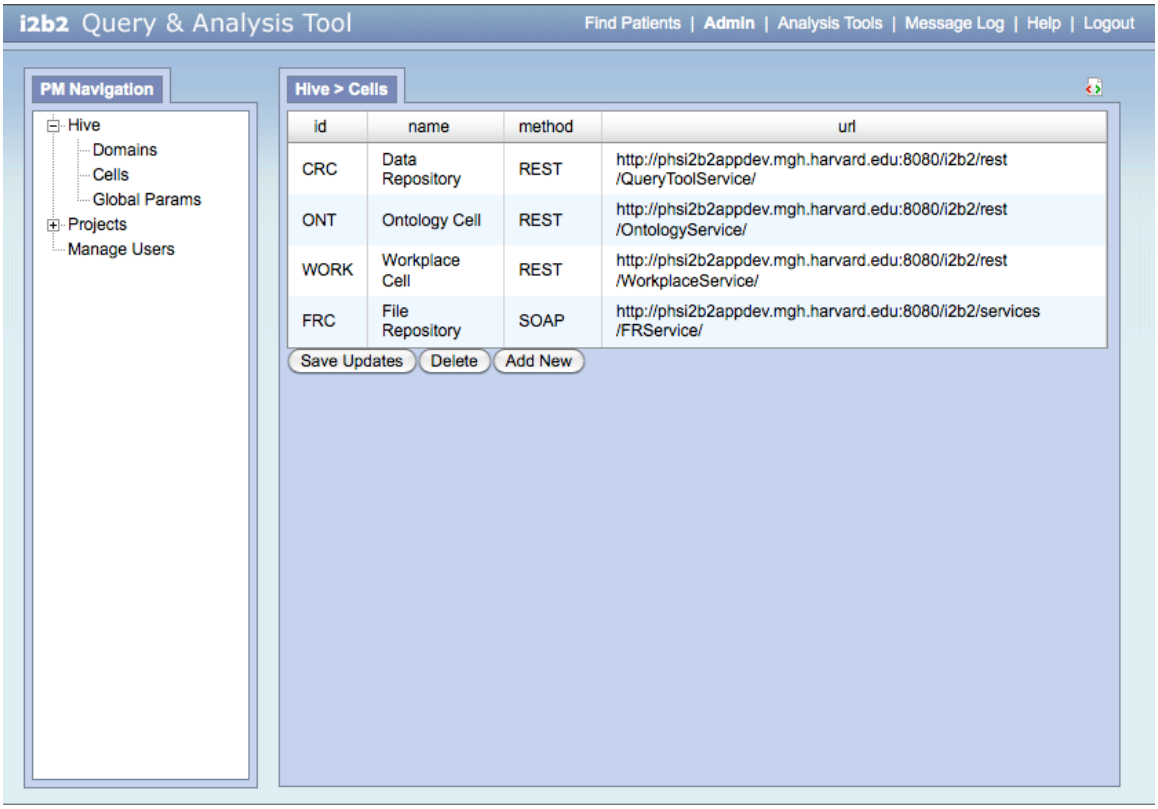
Once logged on, select 'Hive' from the primary navigation tab and 'Cell' from the secondary navigation menu. If the Data Importer Cell (FR Cell) has been configured, please select cell name and click on Edit Cell Info.



Otherwise select the Add New and fill in the required cell information in step 1. Please note that the correct ID for this cell is 'FRC'.

b) Enter the parameters by selecting the row that has the 'FRC' as the ID.

PathSeperator is the default path separator for the host machine running the cell, on Mac OS and Linux is it /, while on Windows it is \
DestDir is the destination where the files will be hosted.



b) (optional) To allow admin users to transfer files directly via SFTP, create a Group Variable called FRMethod with the value of SFTP and FRHost with the name of the machine. FRPort is an optional field, usually set at 22. To allow the CRC loader to retrieve the files locally when it is on the same JBoss as FR, set the FRMethod to 'local'. This will prevent the CRC Loader from accessing the FR via a web service call, resulting in faster responses..

c) To create a directory on the server to host the files, logon as the same user that will be running jBoss.

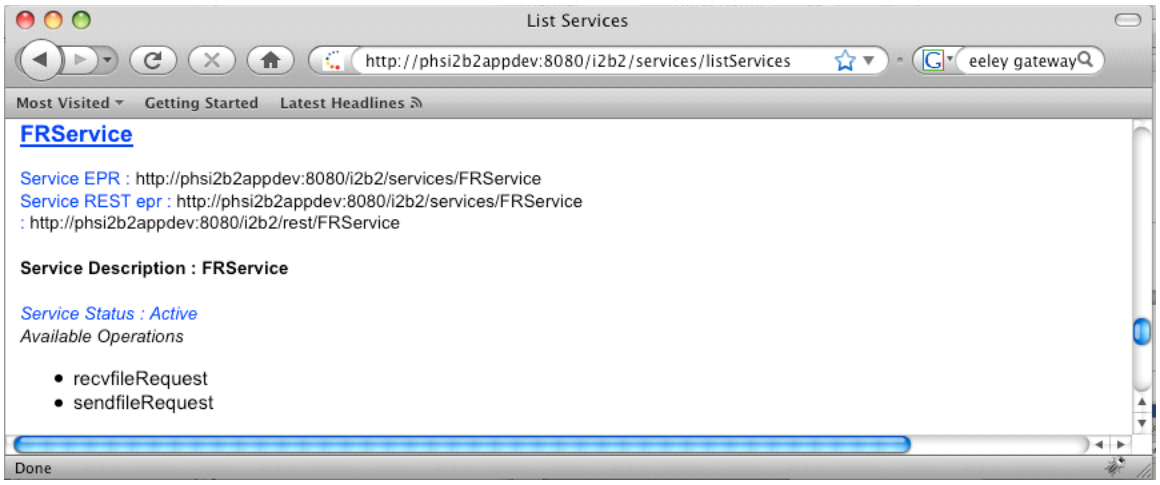
1. 'mkdir /opt/FRC'

6. Start JBOSS

a) Run '$JBOSS_HOME/bin/run.sh –b 0.0.0.0'

7. Verify webservice is running

a) Check url 'http://yourHost:9090/i2b2/services/listServices' in a browser. Verify that FRService is listed as active.


List Services
http://phsi2b2appdev:8080/i2b2/services/listServices
eeley gateway
Most Visited
Getting Started
Latest Headlines
FRService
Service EPR : http://phsi2b2appdev:8080/i2b2/services/FRService
Service REST epr : http://phsi2b2appdev:8080/i2b2/services/FRService
: http://phsi2b2appdev:8080/i2b2/rest/FRService
Service Description : FRService
Service Status : Active
Available Operations
recvfileRequest
sendfileRequest
Done

Changing Server log level

By default JBOSS log will be in DEBUG mode, changing it to INFO mode will increase server performance.

a) Edit $JBOSS_HOME/server/default/conf/jboss-log4j.xml file and add the 'Threshold'<param>.

```
  <appender name="FILE"
class="org.jboss.logging.appender.DailyRollingFileAppender">
      <errorHandler
class="org.jboss.logging.util.OnlyOnceErrorHandler"/>
      <param name="File"
value="${jboss.server.home.dir}/log/server.log"/>
      <param name="Append" value="false"/>
      <param name="Threshold" value="INFO"/>
      <!-- Rollover at midnight each day -->
      <param name="DatePattern" value="'.'yyyy-MM-dd"/>

         <layout class="org.apache.log4j.PatternLayout">
         <!-- The default pattern: Date Priority [Category] Message\n -
->
         <param name="ConversionPattern" value="%d %-5p [%c] %m%n"/>

      . . . . .
      </layout>
   </appender>
```

To switch back to DEBUG mode, comment out the 'Threshold' <param> and wait a minute. THERE IS NO NEED TO RESTART JBOSS.

3

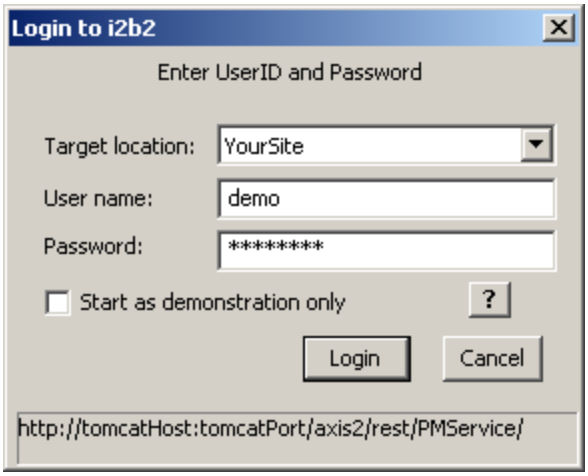
Verify Installation

FR Cell Sanity Test via the i2b2Workbench

1. **Launch the i2b2Workbench (double-click on i2b2Workbench.exe)**

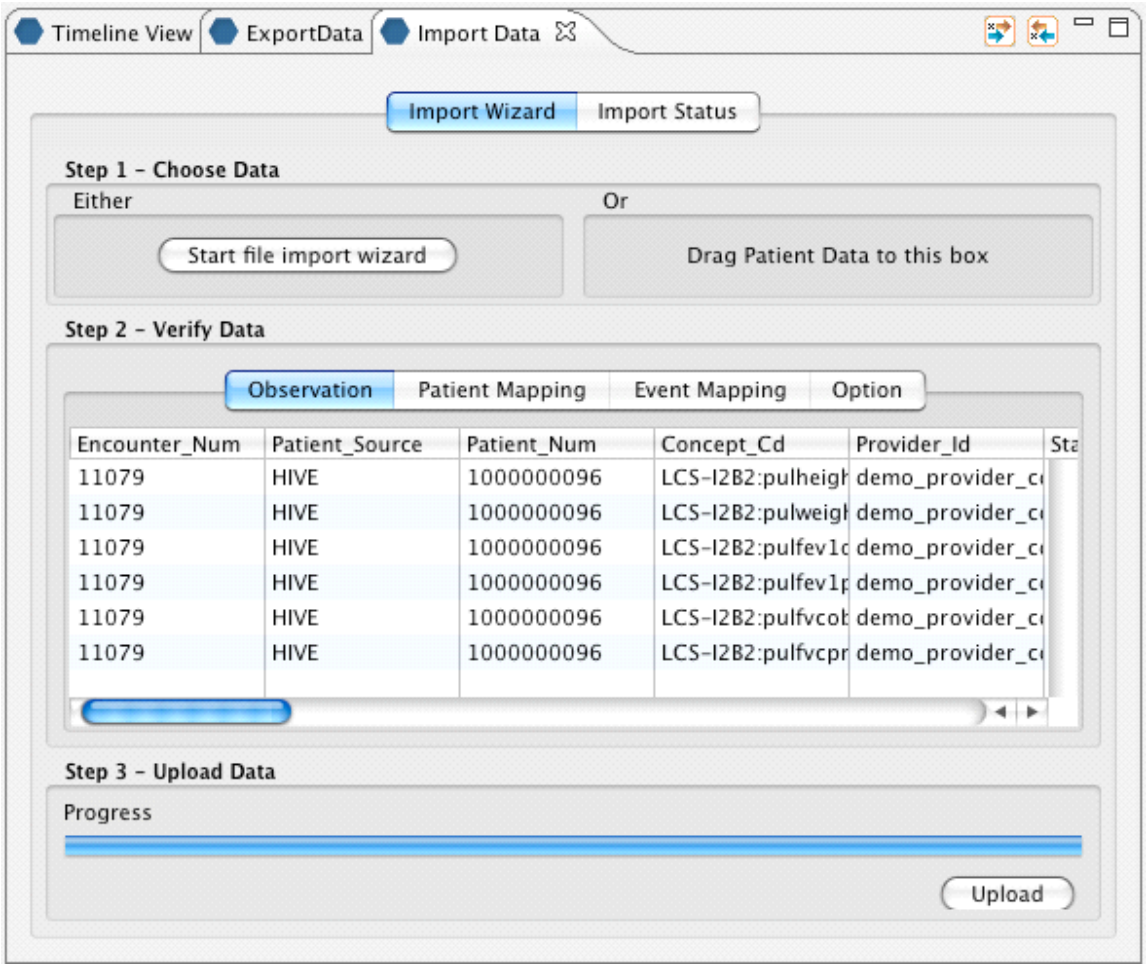
Login to i2b2:

a. Select your target location (YourSite)
b. Enter a valid username and password that you set up in gridsphere (demo/demouser)
c. The URL at the bottom of the login screen should be the address of your PM cell. If not, return to PM Cell installation procedures, section 7, Verify Installation.



2. Open the Import Data view in the workbench

If all is configured properly, you will be greeted with the following



3. Possible problems

a. Error message appears in view window.

4

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.