# *Correlation Analysis Cell*:
# Developer's Guide


# Version 1.0

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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.

The guide provides installation and source code compilation and building steps for the *Correlation Analysis Cell* of the i2b2 hive. This specialized analysis cell uses mutual information theory to calculate observed correlations within the data of the hive. This type of cell represents an important achievement of the hive.

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## Prerequisites and Third-Party Software

### *Downloads and Installation*

**a.  i2b2 Workbench version 1.2.1**

Download i2b2 Workbench version 1.2.1 (i2b2Workbench-src-121.zip) from
https://www.i2b2.org/software/repository.html?t=demo&p=14. Follow
installation and configuration instructions as given in the *i2b2 Workbench
Developers' Guide v1.2.1* which can be found under the Docs tab.

**b.  Java JDK 5.0 – needed for i2b2 Workbench**

This version of the DJK is needed for running the Eclipse Workbench.
Download JDK 5.0 Update 11 (jdk-1_5_0_11-windows-i586-p.exe) from
http://java.sun.com/products/archive/

Run the installer. Set up JAVA_HOME and CLASSPATH environment variables
after installation.

**c.  Eclipse**

You will need to use version 3.2.1 of the Eclipse SDK (eclipse-SDK-3.2.1-
win32.zip), which can be found at http://archive.eclipse.org/eclipse/downloads.  If
you install Eclipse, be sure to install it in an area separate from any previous
Eclipse installations.

To install, extract the zip file into a directory on local disk. Create a local desktop
shortcut to eclipse.exe.

**d.  yEd Graph Editor**

The Correlation Analysis Cell uses the yWorks' yED Graph Editor for viewing
and editing Relevance Networks graph files. Download the most recent version
for your platform available at

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http://www.yworks.com/en/products_yed_about.html. After installing, make sure the GRAPHML file format is opened by default by yEd.

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## Install & Configure

### *Setting up the Correlation Analysis Cell within the i2b2Workbench 1.2.1*

You should have already installed the Eclipse 3.2.1 environment and imported the i2b2 Workbench v1.2.1 set of projects into it as detailed in the *i2b2 Workbench Developers' Guide v1.2.1.*
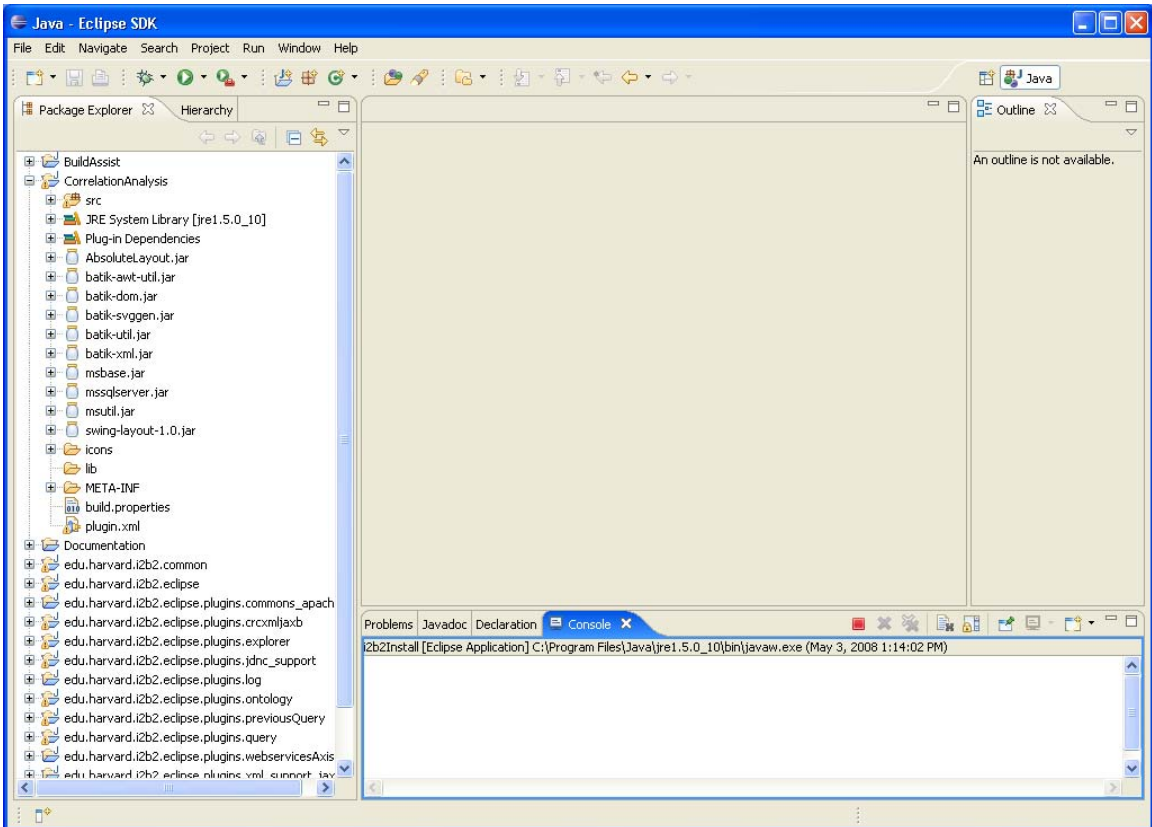
**Importing the Correlation Analysis project**

This project software is contained in the Eclipse archive file called "edu.harvard.i2b2.eclipse.plugins.CorrelationAnalysis.zip" which can be downloaded from the i2b2 web site.

From the File Menu of the i2b2 Workbench select *Import->General->Existing Project into Workspace* and navigate to the place where the archive was saved to disk. The archive contains a single Eclipse plug-in Project called "CorrelationAnalysis".
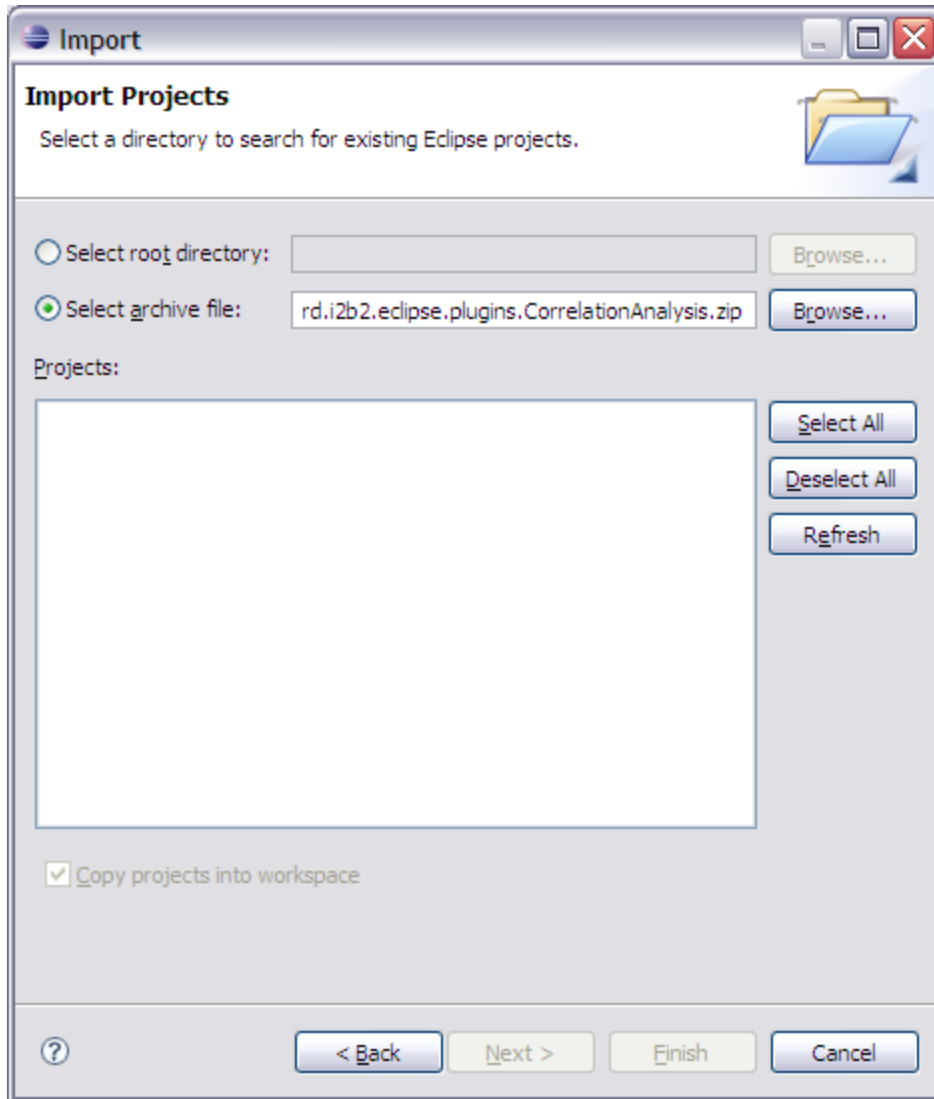
Click *Finish* and let the i2b2 Workbench import the Correlation Analysis archive. When done, you should see something similar to the screen-shot below.

## Building the Correlation Analysis Project within the i2b2 Workbench

Check your Java Complier settings.  Choose Project->Properties from the main drop down menu.  Click on 'Java Compiler' next.  Verify that Compiler compliance level is set to 5.0. If not, select it from the drop-down menu and select Apply->OK.
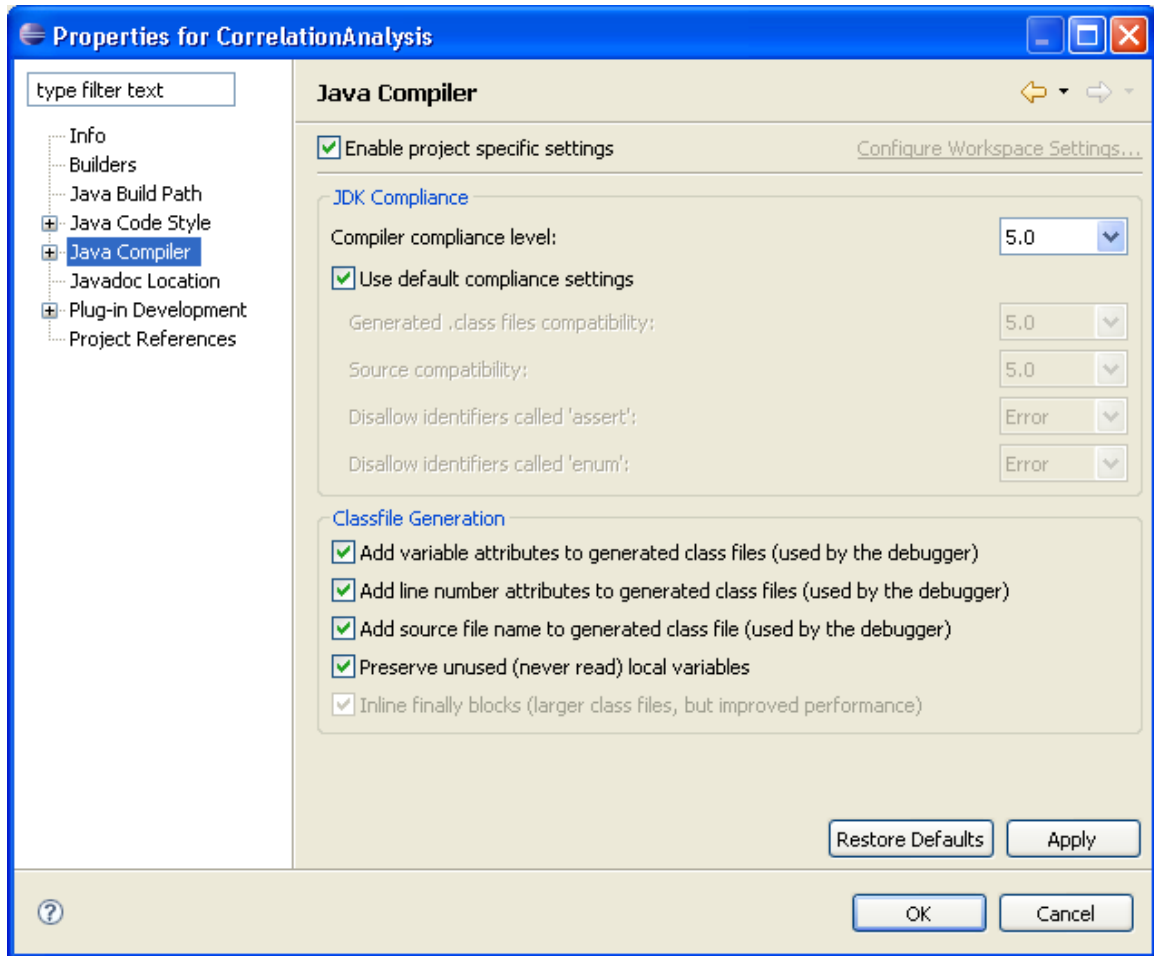
## *Running the Correlation Analysis plug-in within the i2b2Workbench*

**Change amount of memory allocated to JVM**

Display current run-time configuration parameters by selecting Run from the i2b2 Workbench menus and choosing the Run… option. Select the Arguments tab on the right. Add these suggested memory management settings to the VM arguments area:

 **-Xms96M -Xmx1024M**

First corresponds to the starting and second to maximum size of the heap size the JVM operates with. When not enough heap space, JVM will throw following error: Exception in thread "main" java.lang.OutOfMemoryError: Java heap space.

NOTE: the maximum heap size of 1024 M would normally correspond to a total of 1.5 GB or more physical RAM available on a Windows-based platform. For other platforms

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or when different amount of physical memory is available, please make changes to these suggested numbers accordingly.
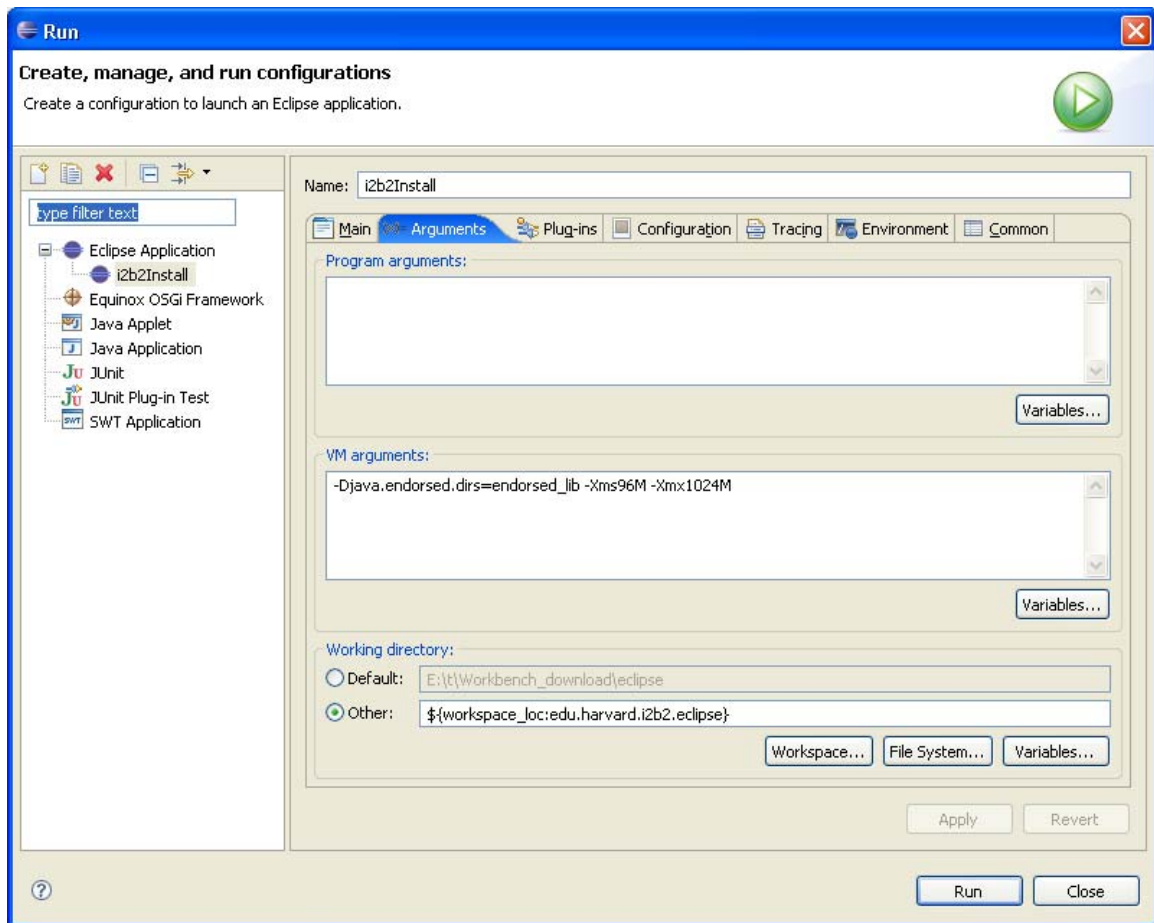


Select Apply and Close.

**Move configuration files to the working directory of edu.harvard.i2b2.eclipse**

Move the following configuration files to the **edu.harvard.i2b2.eclipse** directory:

**corr_cell.properties**
**corr_cell_chronicdgns.txt**
**DEMO_LABS.xml**

The files are be located in the folder Configuration Files under the root of the archive for the Correlation Analysis project or will be supplied as a separate downloadable archive clearly marked "Configuration Files" off the main download URL for the package.

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Update plugin.xml file in **edu.harvard.i2b2.eclipse** directory

Make following change to the plugin.xml file in the main working directory so that the Correlation Analysis Cell is selectable from the Window->Show view menu of the i2b2 Workbench.
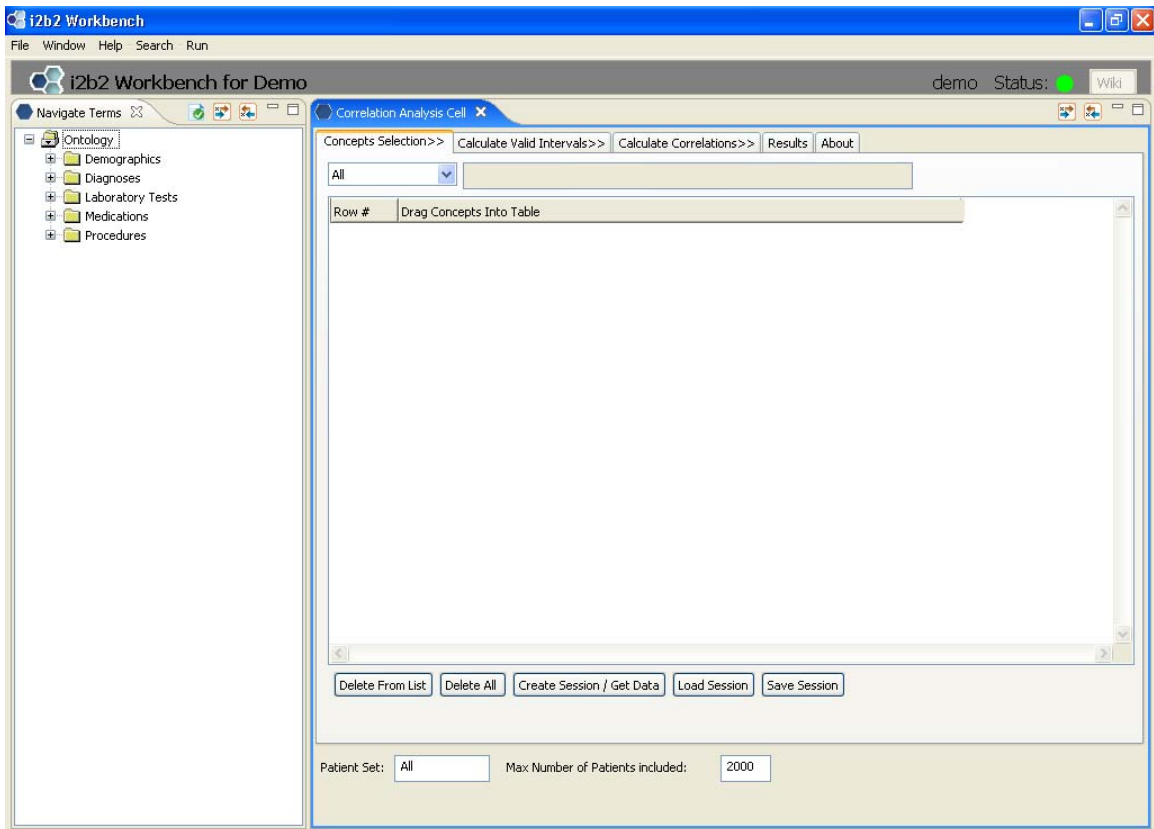
Add

```
<viewShortcut

id="ca.views.CAView"/>
```



in the section

```
<perspectiveExtension
targetID="edu.harvard.i2b2.eclipse.perspective">
```

Run the application by clicking on the **Run** menu button. One should see a similar to this screen shot configuration of windows.

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# License

The Correlation Analysis source code is licensed under the i2b2 Software License Program.

For the i2b2 Workbench source code agreement and coverage consult the *i2b2 Workbench Developers' Guide v1.2.1*.