



# i2b2 Workbench Developer's Guide

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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 to learn about the developing and understand the requirements for creating i2b2 cells.

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# 1

## Prerequisites

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### Downloads

#### Third Party Software

##### Java JDK 5.0

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.

##### Eclipse

You will need to use version 3.5 of the Eclipse SDK (Galileo), available at:

<http://www.eclipse.org/downloads/> .

To install Eclipse, extract the downloaded zip file into a directory such as C:\

*NOTE: If you install a new version of Eclipse, be sure to install it in an area separate from any previous Eclipse installations.*

Further information regarding the eclipse product can be found on their website

(<http://www.eclipse.org/documentation/>).

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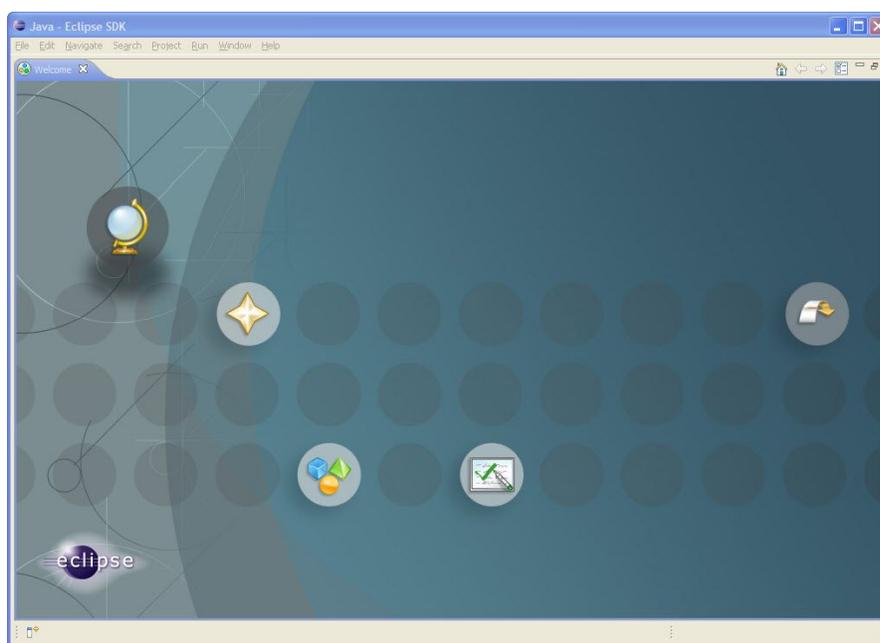
# 2

## Install & Configure

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### Setting up the i2b2 Workbench within Eclipse 3.5

If launching eclipse for the first time, via either an eclipse application shortcut or eclipse.exe, you will be greeted by a Welcome page.



Click on the arrow labeled Workbench to startup the eclipse SDK.

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## i2b2 Workbench Project Files

The project software is contained in the Eclipse “Archive” file called i2b2Workbench-src-132.zip, which can be downloaded from <http://www.i2b2.org>. In this file are the Eclipse projects:

1. BuildAssist
2. edu.harvard.i2b2.common
3. edu.harvard.i2b2.eclipse
4. edu.harvard.i2b2.eclipse.plugins.common\_apache
5. edu.harvard.i2b2.eclipse.plugins.explorer
6. edu.harvard.i2b2.eclipse.plugins.exportData
7. edu.harvard.i2b2.eclipse.plugins.jdnc\_support
8. edu.harvard.i2b2.eclipse.plugins.log
9. edu.harvard.i2b2.eclipse.plugins.ontology
10. edu.harvard.i2b2.eclipse.plugins.previousQuery
11. edu.harvard.i2b2.eclipse.plugins.query
12. edu.harvard.i2b2.eclipse.plugins.srb
13. edu.harvard.i2b2.eclipse.plugins.webservicesAxis2
14. edu.harvard.i2b2.eclipse.plugins.workplace
15. edu.harvard.i2b2.eclipse.plugins.xml\_support\_jaxb
16. edu.harvard.i2b2.eclipse.plugins.xml\_support\_jdom
17. edu.harvard.i2b2.xml

## Importing the i2b2 Workbench projects

The first step in importing the i2b2 Workbench projects is to run eclipse and select a workspace whose pathname does not contain spaces.

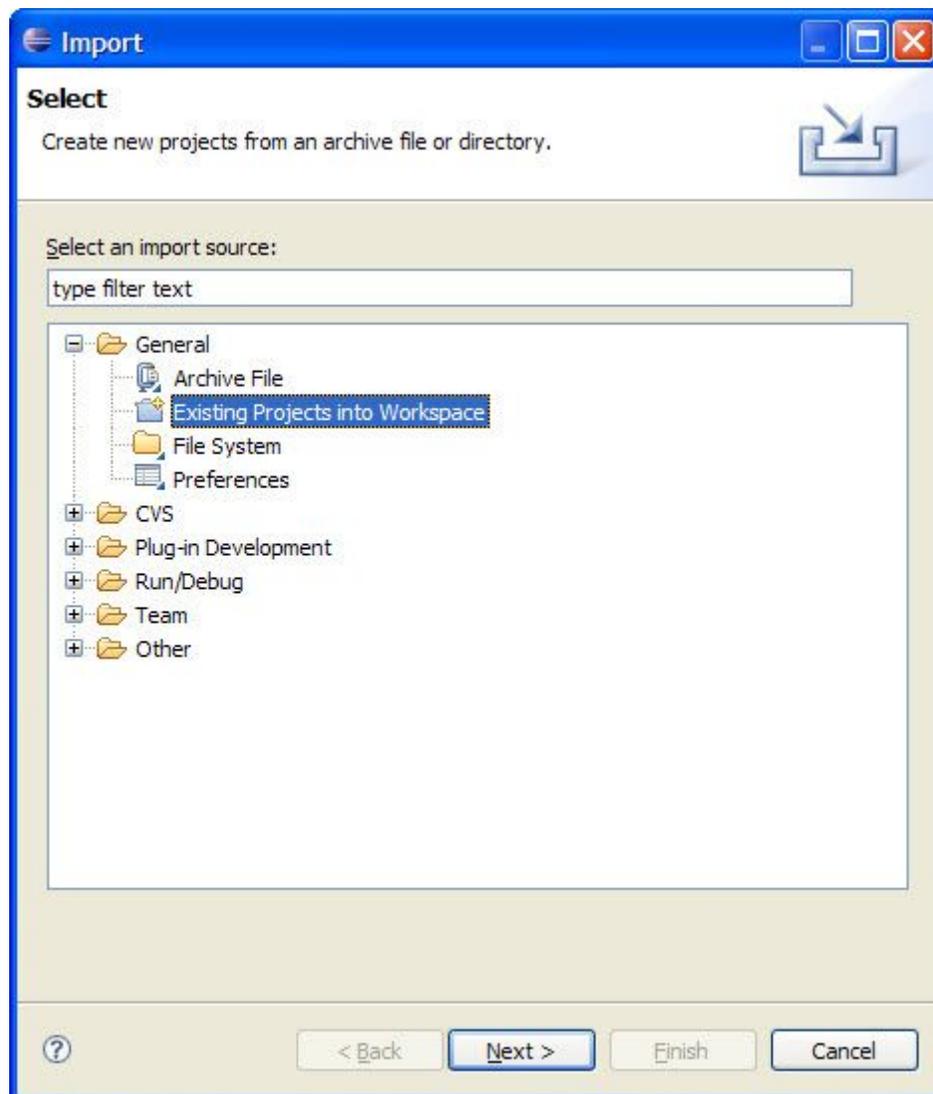
*Example (correct): c:\workspace\i2b2workbench*

*Example (incorrect): c:\eclipse workspace\i2b2workbench*

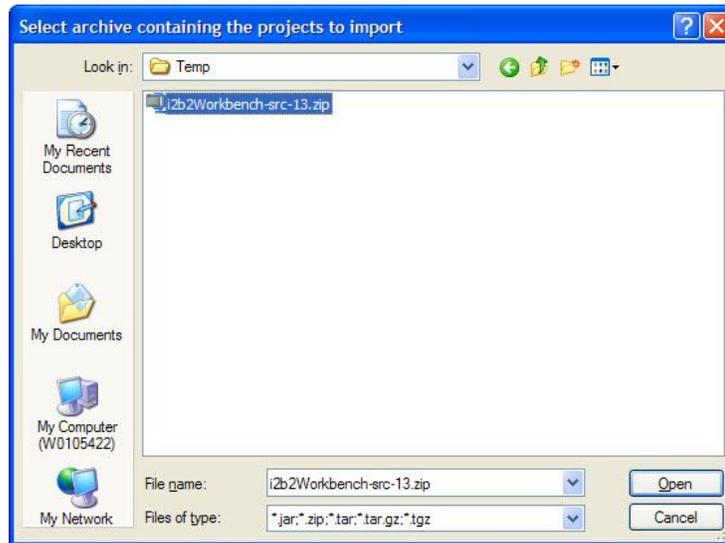
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Select File from the toolbar in Eclipse and then select Import from the drop down menu.

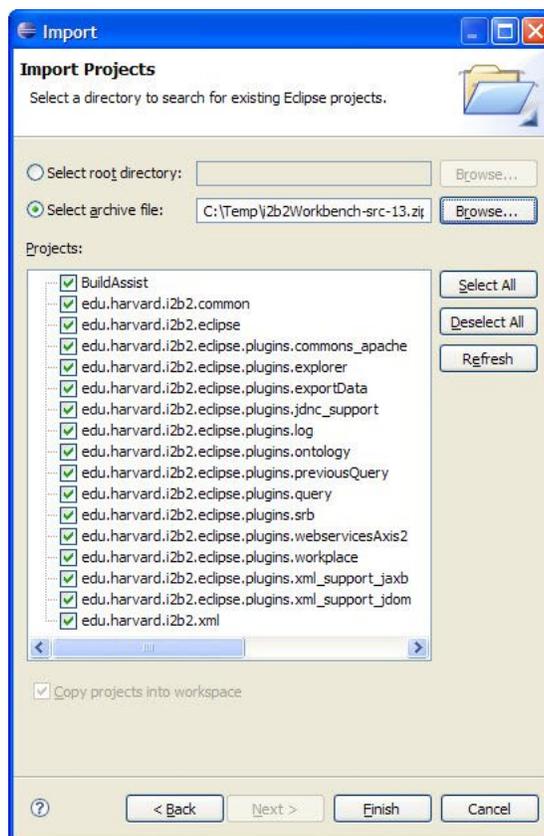
The Import dialog box will open. Double click on the folder called General and then select Existing Projects into Workspace.



Click on the Next button to select the archive file called i2b2Workbench-src-132.zip. Enter the path of the archive file or browse for the location.



Once you open the zip file, the projects will appear in the Import dialog box. Verify all the projects are checked off and click on the Finish button.

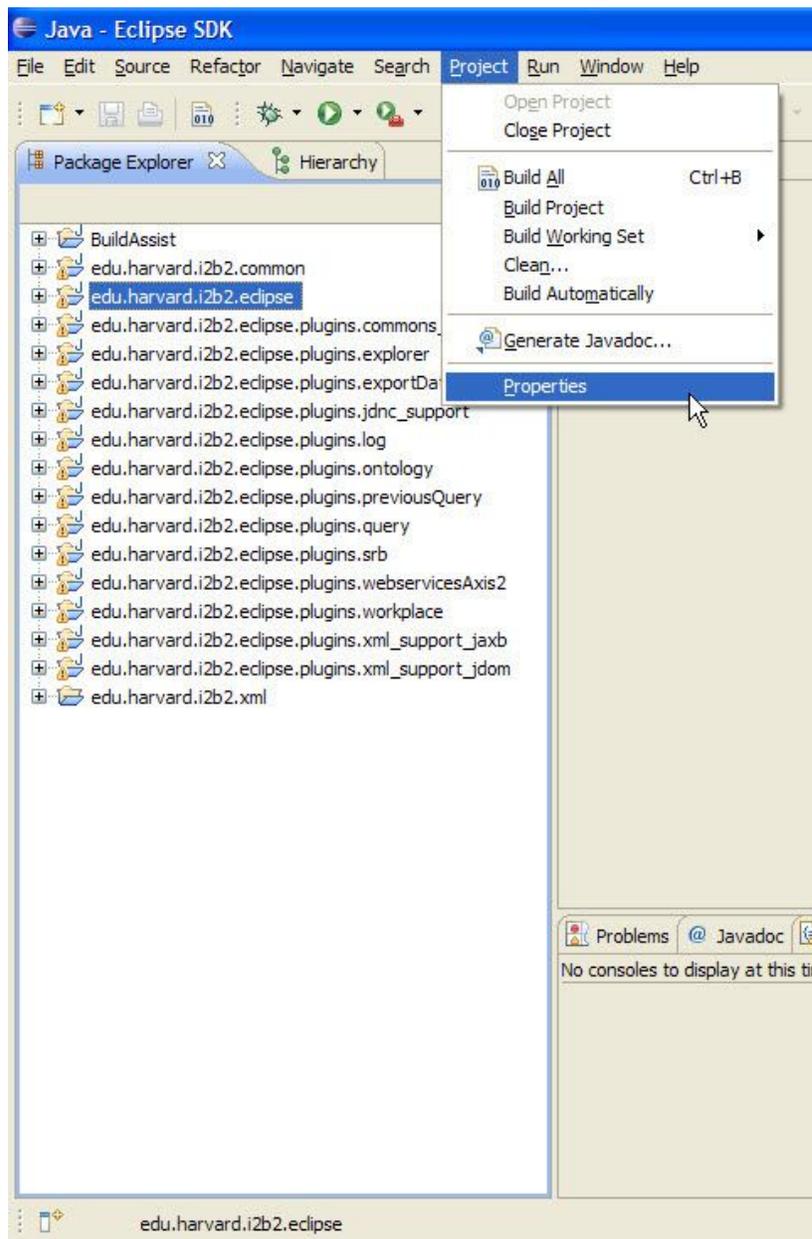


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# Building the i2b2 Workbench within the Eclipse IDE

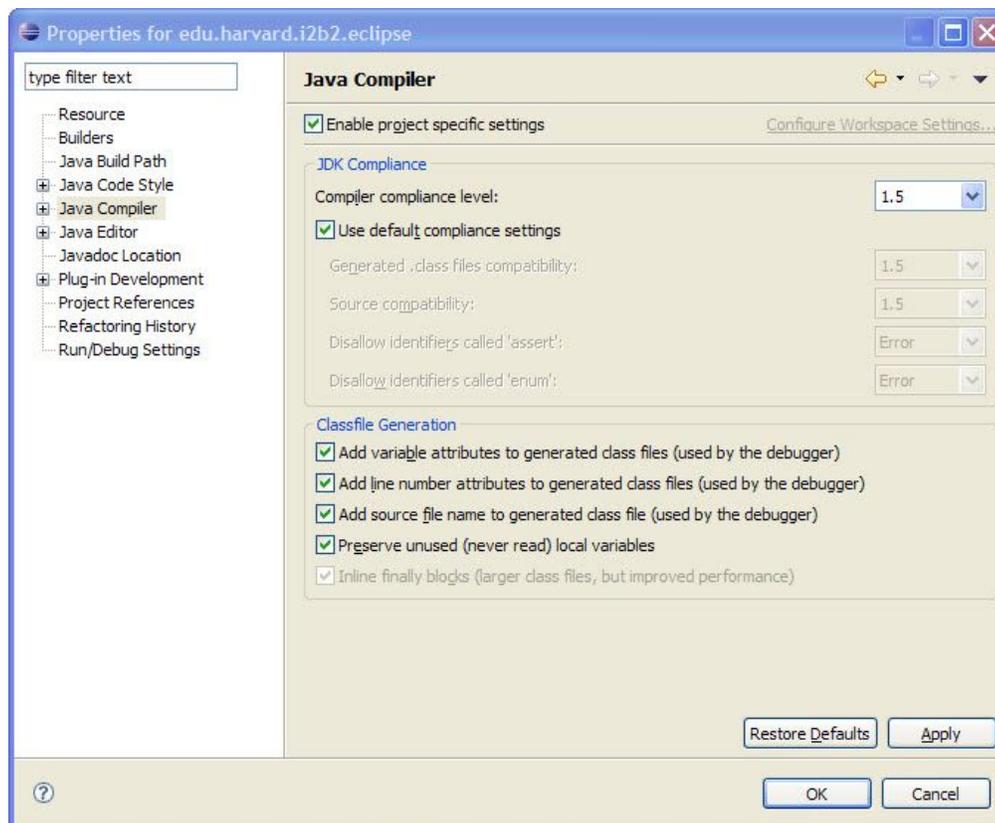
## Java Compiler Settings

Check your Java Compiler settings by clicking on edu.harvard.i2b2.eclipse and then by clicking on Projects located on the Eclipse toolbar. Select Properties from the drop down menu.



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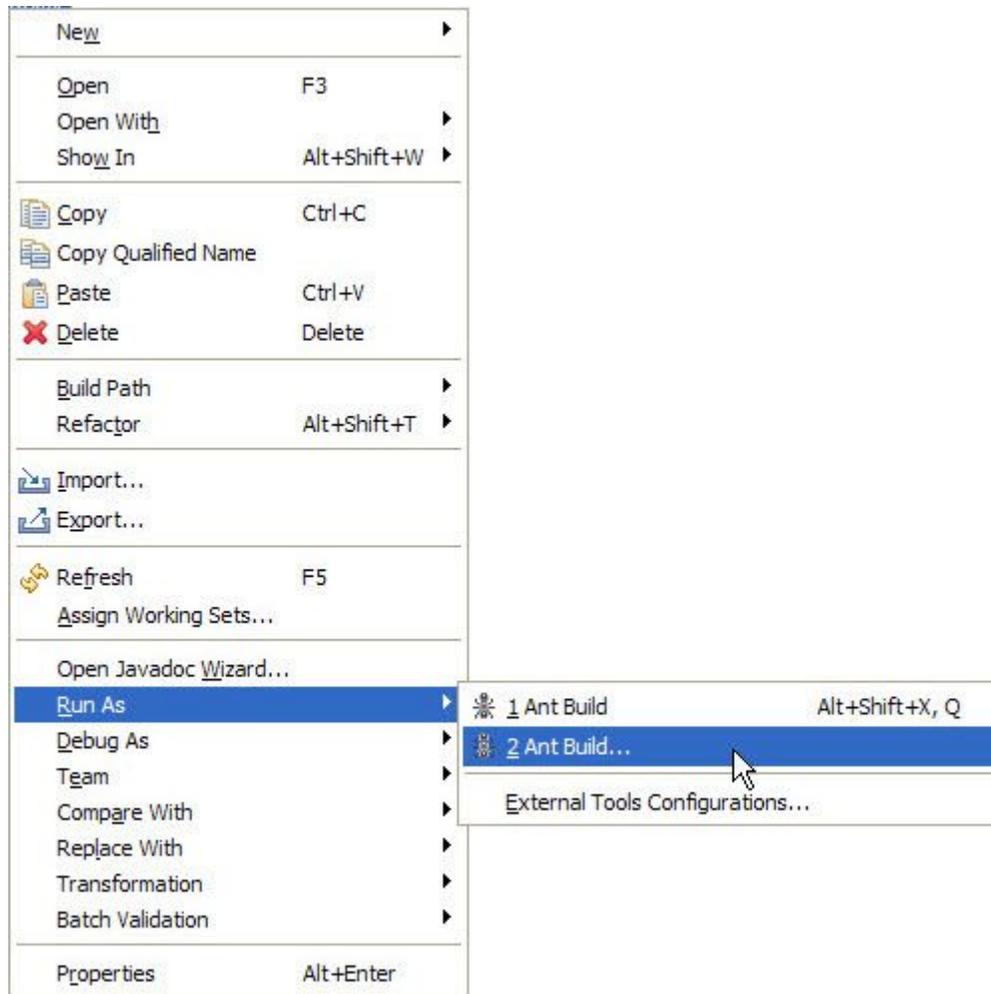
The properties window will open. Click on Java Compiler and verify that the compiler Compliance level is set to 1.5.



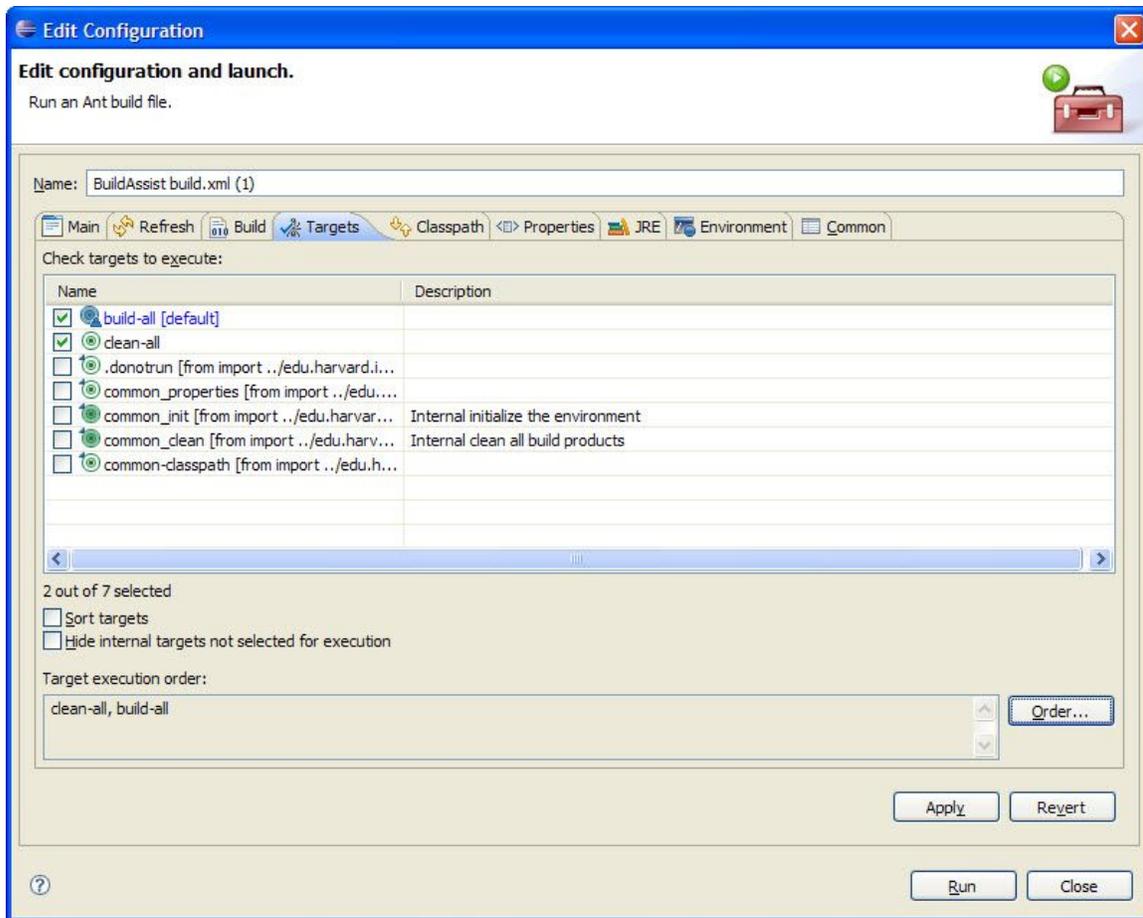
## Cleaning and Building the Projects

The following steps outline the process of cleaning and building the projects.

1. Double click on the project called BuildAssist.
2. Right click on the build.xml file and select Run As from the menu.
3. On the sub-menu there are two Ant-Build options, select the second occurrence.



4. A dialog box will open. Verify the clean-all and build-all boxes are checked.
5. In the Target execution order box make sure the order is “clean-all” and then “build-all”.
6. Click on the Run button to execute.



7. The last step in the build process is to refresh all the projects.
  - Select all the projects.
  - Right click on the projects and select Refresh from the menu.

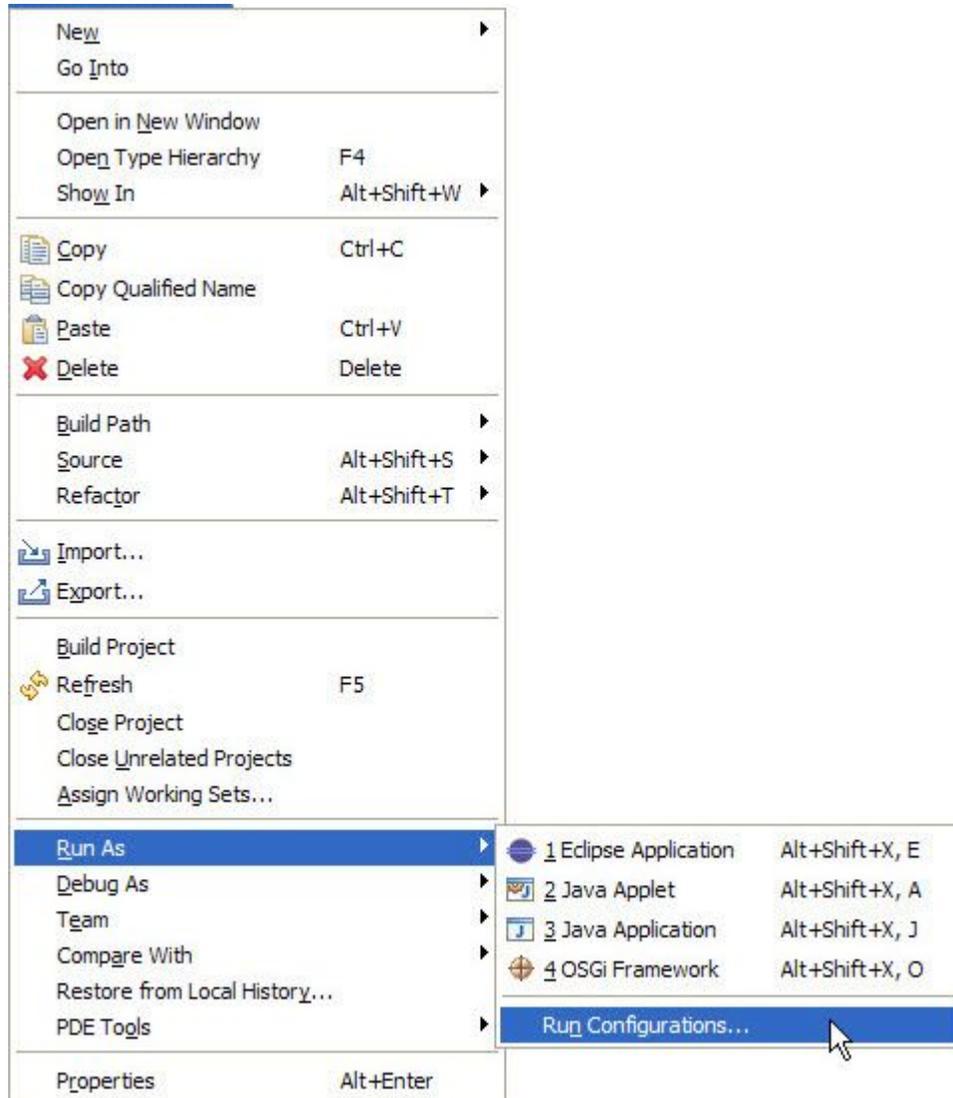
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# Running the i2b2 Workbench within the Eclipse IDE

## Define Run Configurations

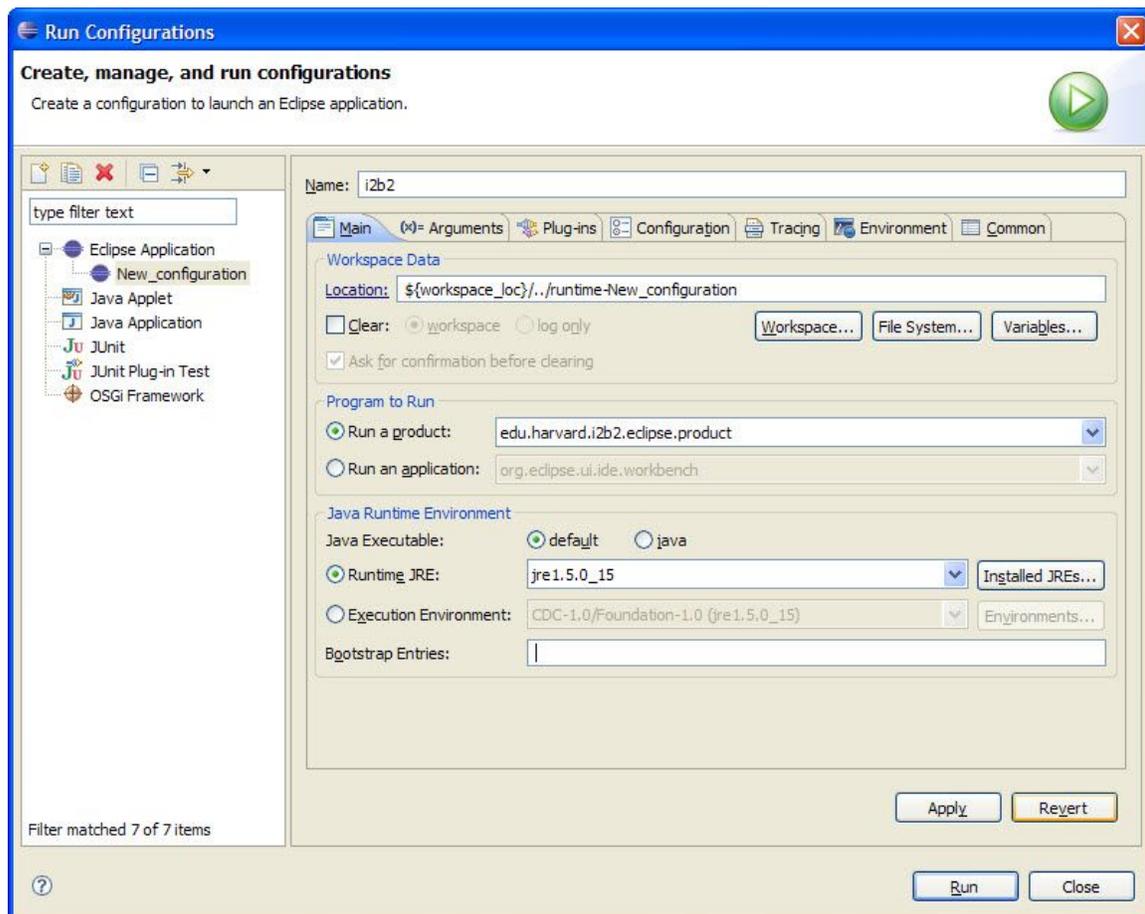
Right click the edu.harvard.i2b2.eclipse project

Select Run As from the menu and Run Configurations from the sub-menu.



## Main Tab

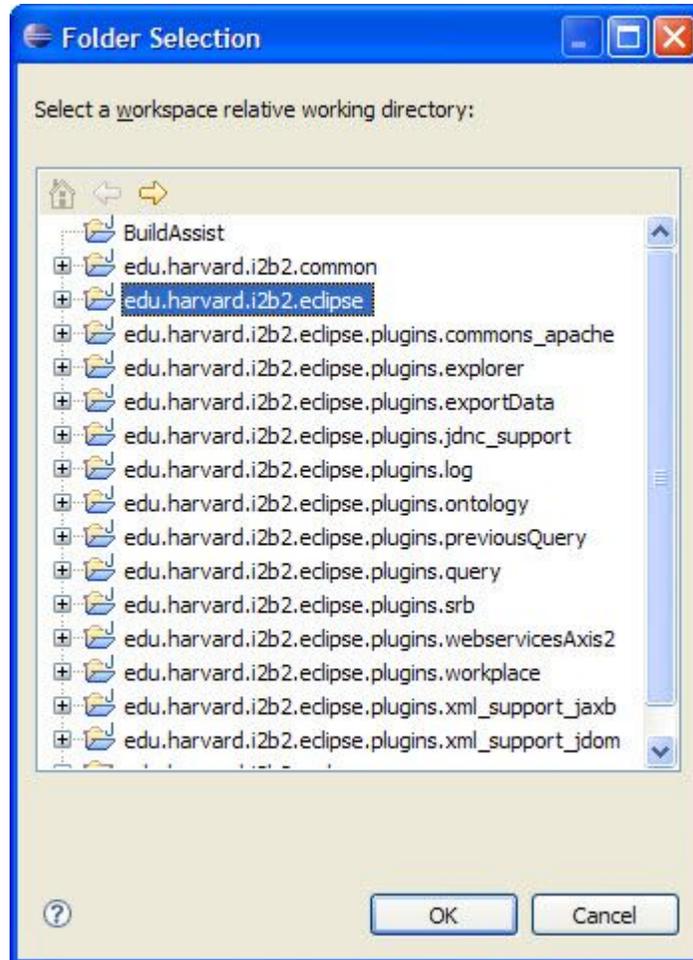
1. Double click on the “Eclipse Application” to create a new Eclipse Application Configuration.
2. Enter a meaningful name at the name field  
*Example: “i2b2”*
3. Verify the dial next to “Run a product:” is selected.
4. Click on the arrow to display the list of products and select edu.harvard.i2b2.eclipse.product from the drop down list.



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## Arguments Tab

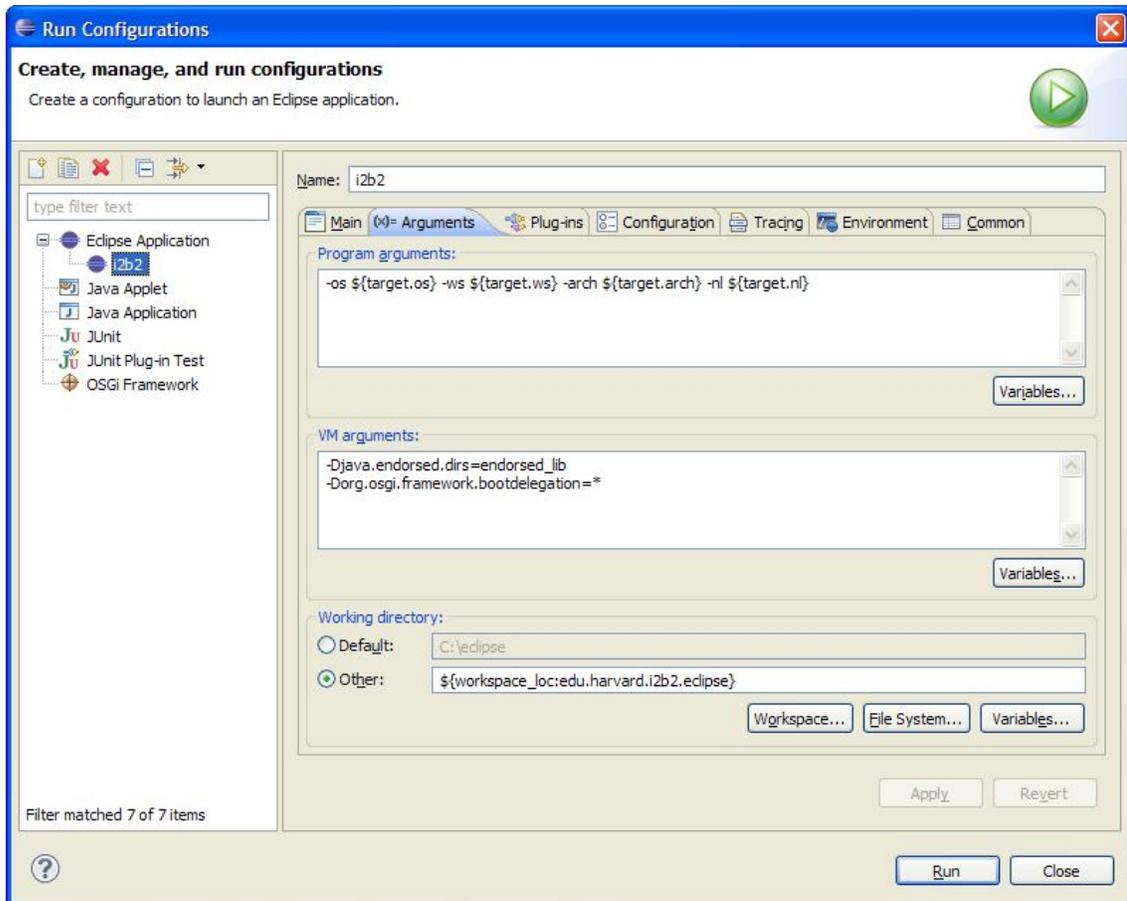
1. Click on the “Arguments” tab.
2. In the “Working directory:” section click on “Other” and then click on the “Workspace” button.
3. Select edu.harvard.i2b2.eclipse and click on the “OK” button.



4. In the “VM arguments:” section include the following:

-Djava.endorsed.dirs=endorsed\_lib

-Dorg.osgi.framework.bootdelegation=\*



## Plug-ins tab

You can configure any combination of workspace plug-ins and target platform plug-ins as your IDE configuration. Default is that all of the workspace and target platform plug-ins are selected.

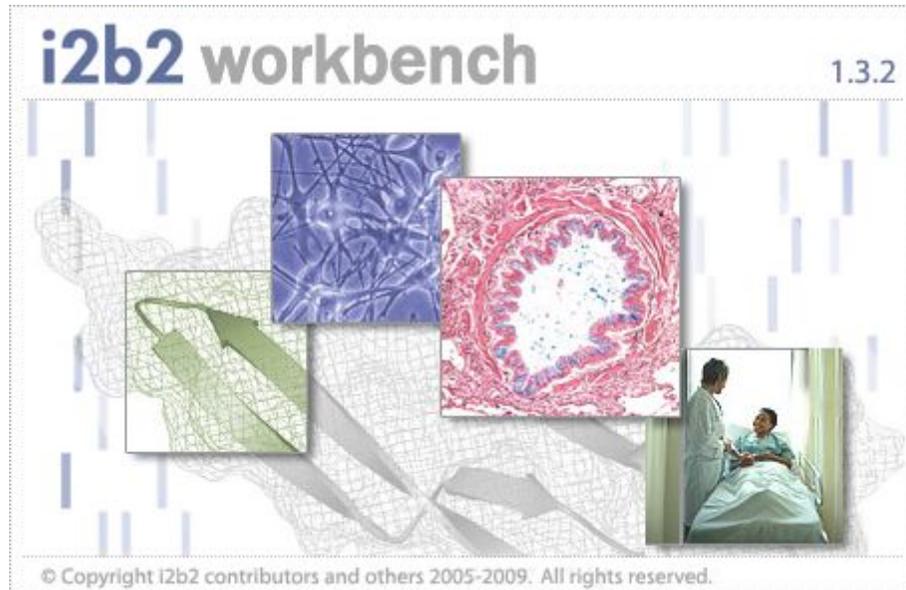
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## Running the i2b2 Workbench Application

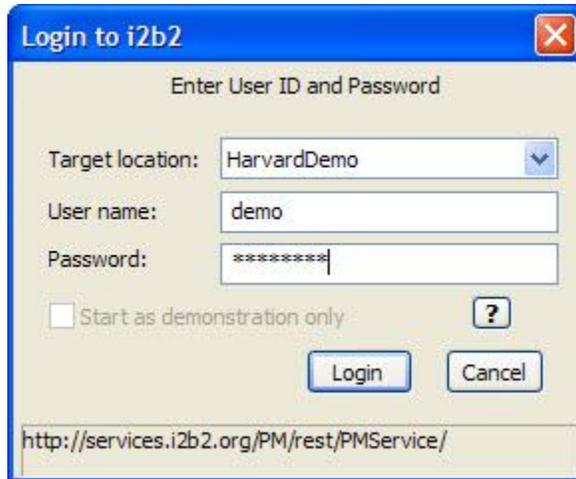
Click on the Apply button to save the new run configurations.

Click on the “Run” button to run the i2b2 Workbench under control of the Eclipse IDE.

- The i2b2 Workbench splash screen will appear.

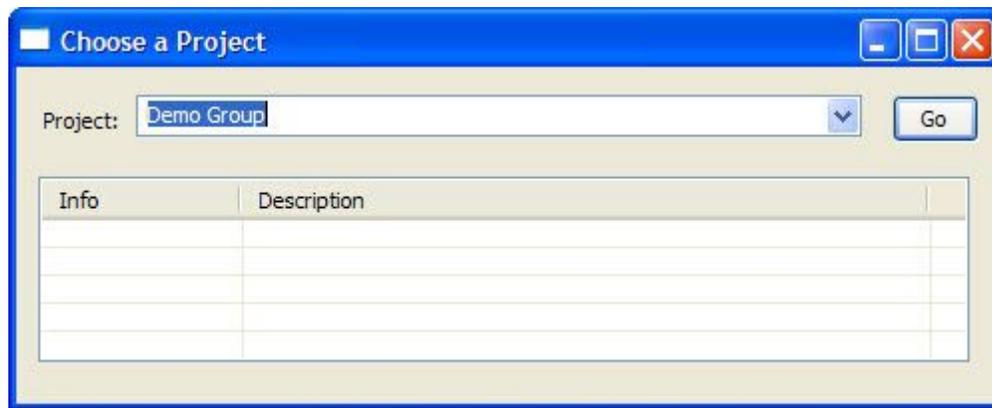


- The login dialog box will open.
- Enter the following information to log in.
  - User name: demo
  - Password: demouser
- Click on the Login button.

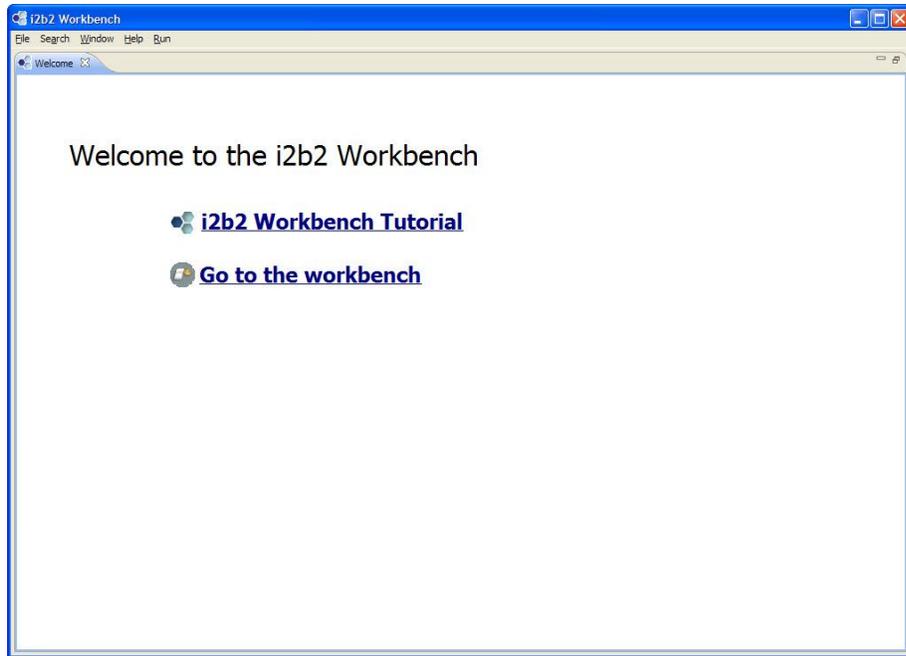


The “Choose a Project” dialog box will open.

Accept the default project by simply clicking on the “Go” button.



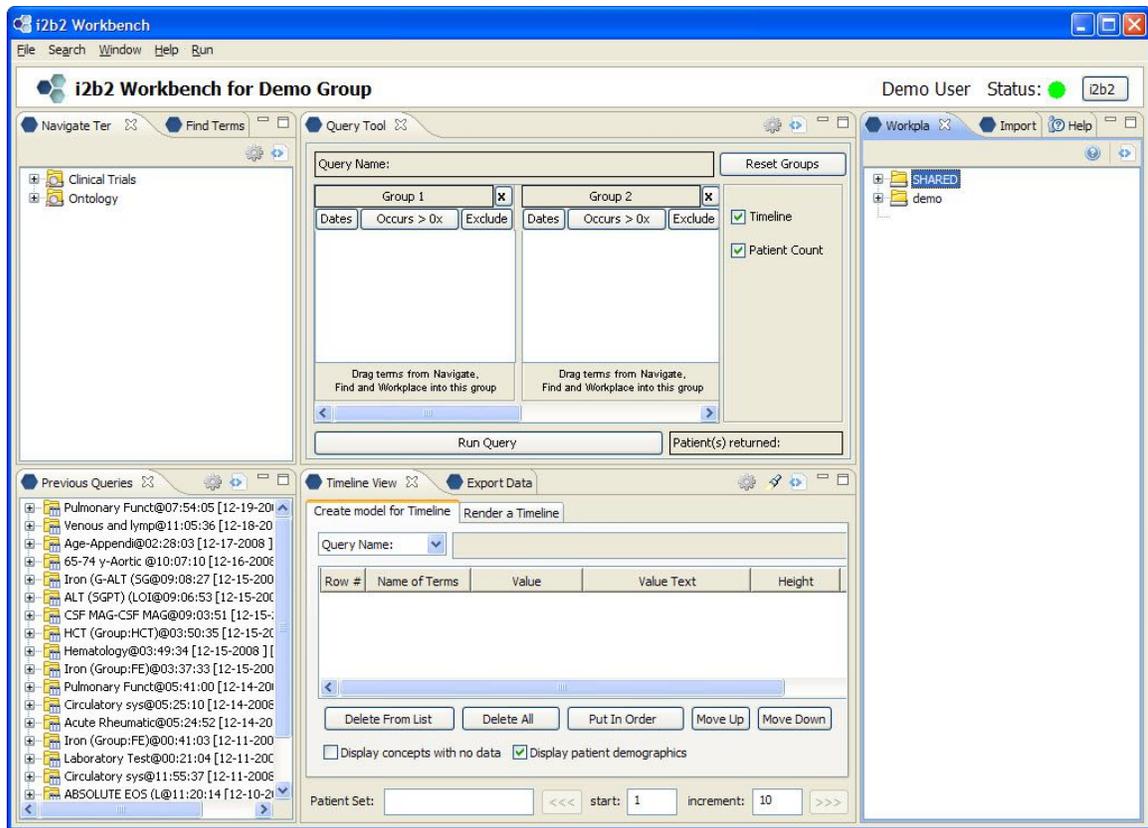
The i2b2 Workbench will open to the Welcome view. To begin using the workbench, simply click on “Go to the workbench”. If at any time you wish to return to this view you can access it by selecting Help from the toolbar and then on the drop down menu click on “Welcome”.



### ***Reconfiguring the default layout***

The default layout can be reconfigured to the users needs.

- On the toolbar, click on Window and select “Show View” from the drop down menu.
- Click on the views you would like to add.
- Move the position of any view by clicking on the view’s tab and dragging it to another position.



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## Package Structure

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The archive file contains the following projects. The project/directory `edu.harvard.i2b2.eclipse` is considered the base plugin for the project and contains project properties files and configuration files.

Directory	Description
<code>edu.harvard.i2b2.eclipse</code>	The base plug-in for our development (namely the UI for the top panel)
<code>edu.harvard.i2b2.eclipse.plugins.common.apache</code>	Third party jars needed for common functions
<code>edu.harvard.i2b2.eclipse.plugins.explorer</code>	UI for the Timeline view
<code>edu.harvard.i2b2.eclipse.plugins.exportData</code>	UI for the Export Data view
<code>edu.harvard.i2b2.eclipse.plugins.jdnc_support</code>	Third party jars needed for UI support
<code>edu.harvard.i2b2.eclipse.plugins.log</code>	Third party jars needed for logging
<code>edu.harvard.i2b2.eclipse.plugins.ontology</code>	UI for the Ontology view
<code>edu.harvard.i2b2.eclipse.plugins.previousQuery</code>	UI for the Previous Query view
<code>edu.harvard.i2b2.eclipse.plugins.query</code>	UI for the Query view
<code>edu.harvard.i2b2.eclipse.plugins.srb</code>	UI for the Import view
<code>edu.harvard.i2b2.eclipse.plugins.webservicesAxis2</code>	Third party jars needed for web service support
<code>edu.harvard.i2b2.eclipse.plugins.workplace</code>	UI for the Workplace view
<code>edu.harvard.i2b2.eclipse.plugins.xml_support_jaxb</code>	Third party jars needed for jaxb/message processing
<code>edu.harvard.i2b2.eclipse.plugins.xml_support_jdom</code>	Third party jars needed for jdom/message processing
<code>edu.harvard.i2b2.xml</code>	XSD for the hive
<code>edu.harvard.i2b2.common</code>	Common core exception, jaxb, and utilities used by i2b2 hive
BuildAssist	Files to build the workbench

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## License

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The i2b2 source code is licensed under the i2b2 Software License 3.0. This includes but is not limited to all code in the `edu.harvard.i2b2.*` package namespace.