

Developer's Guide

Version 1.2.1

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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.

Prerequisites

Downloads and Installation

a. 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.

b. Eclipse

You will need to use version 3.2.1 of the Eclipse SDK (eclipse-SDK-3.2.1-win32.zip), available at <u>http://archive.eclipse.org/eclipse/downloads</u>. 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 such as C: $\$

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Install & Configure

Setting up the i2b2Workbench within Eclipse 3.2.1

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.

Importing the i2b2 Workbench projects

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

- 1) BuildAssist
- 2) Documentation
- 3) edu.harvard.i2b2.common
- 4) edu.harvard.i2b2.eclipse
- 5) edu.harvard.i2b2.eclipse.plugins.commons_apache
- 6) edu.harvard.i2b2.eclipse.plugins.crcxmljaxb
- 7) edu.harvard.i2b2.eclipse.plugins.explorer
- 8) edu.harvard.i2b2.eclipse.plugins.jdnc_support
- 9) edu.harvard.i2b2.eclipse.plugins.log
- 10) edu.harvard.i2b2.eclipse.plugins.ontology
- 11) edu.harvard.i2b2.eclipse.plugins.previousQuery
- 12) edu.harvard.i2b2.eclipse.plugins.query
- 13) edu.harvard.i2b2.eclipse.plugins.webservicesAxis2
- 14) edu.harvard.i2b2.eclipse.plugins.xml_support_jaxb
- $15) edu.harvard.i2b2.eclipse.plugins.xml_support_jdom$
- 16) edu.harvard.i2b2.xml

To import them into an Eclipse SDK workspace, first choose a workspace whose pathname does not contain spaces (i.e. C:\Workspace\i2b2Workbench, not C:\Eclipse Workspace\i2b2Workbench)

File->Import->General->Existing Projects into Workspace and select the archive file i2b2Workbench-src-win.zip.

🖶 Import	X
Import Projects Select a directory to search for existing Eclipse projects.	
Select root directory: Select archive file: C:\temp\i2b2Workbench-src-win.zip Projects:	Browse Browse
 Documentation du.harvard.i2b2.common edu.harvard.i2b2.eclipse edu.harvard.i2b2.eclipse.plugins.commons_apache edu.harvard.i2b2.eclipse.plugins.crcxmljaxb edu.harvard.i2b2.eclipse.plugins.explorer edu.harvard.i2b2.eclipse.plugins.jdnc_support edu.harvard.i2b2.eclipse.plugins.log edu.harvard.i2b2.eclipse.plugins.ontology edu.harvard.i2b2.eclipse.plugins.pft edu.harvard.i2b2.eclipse.plugins.previousQuery edu.harvard.i2b2.eclipse.plugins.query edu.harvard.i2b2.eclipse.plugins.query 	Deselect All Refresh
Copy projects into workspace	
<pre></pre>	Cancel

Building the i2b2Workbench within the Eclipse IDE

Check your Java Complier settings. Choose Project->Properties from the main drop down menu. Next click on 'Java Compiler'. Verify that Compiler compliance level is set to 5.0.

🚝 Properties for edu.harva	rd.i2b2.eclipse	
type filter text	Java Compiler	$\leftarrow \star \Rightarrow \star$
 Info Builders CVS Java Build Path Java Code Style Java Compiler Javadoc Location Plug-in Development Project References Refactoring History 	Enable project specific settings JDK Compliance Compiler compliance level: Use default compliance settings	Configure Workspace Settings
	Generated .class files compatibility: Source compatibility: Disallow identifiers called 'assert': Disallow identifiers called 'enum':	5.0 S.0 Error Er
	Classfile Generation Add variable attributes to generated class files Add line number attributes to generated class file Add source file name to generated class file (us Preserve unused (never read) local variables Inline finally blocks (larger class files, but impro	(used by the debugger) files (used by the debugger) sed by the debugger) ved performance)
0	R	OK Cancel

Open the project BuildAssist. Right click on the build.xml file. Select RunAs->Ant Build (second occurrence).

Choose clean-all, build-all (in this target execution order) then execute via the Run button.

Modify attributes and launch. Run an Ant buildfile.	🖶 BuildAssist build.xml	×
Name: BuildAssist build.xml Main	Modify attributes and launch. Image: Comparison of the second s	
2 out of 7 selected Sort targets Hide internal targets not selected for execution Target execution order: Clean-all, build-all Order	Name: BuildAssist build.xml Image: Main Refresh Refres	
Apply Revert	2 out of 7 selected Sort targets Hide internal targets not selected for execution Target execution order:	rt ise

When this has completed, select all the projects and refresh, (Right Click and select Refresh).

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Running the i2b2Workbench within the Eclipse IDE

Right click the edu.harvard.i2b2.eclipse project -> Run As -> Run Create a new Eclipse Application Configuration by double-clicking on "Eclipse Application". Give the configuration a meaningful name: e.g. "i2b2". Select "Run a product:" and edu.harvard.i2b2.eclipse.product from the drop-down menu.

🖨 Run	<u>×</u>
Create, manage, and run con Create a configuration to launch an Ec	figurations lipse application.
Image: Second state sta	Name: i2b2 Main Ø= Arguments 2: Plug-ins Configuration Tracing Environment Common Workspace Data Location: \${workspace_loc}{/runtime-i2b2} Variables Variables Clear workspace data before launching Workspace File System Variables Ask/for.confirmation before iclearing Program to Run Image: Run a product: edu.harvard.i2b2.eclipse.product Image: Run a product: Image: Run a product:
0	Run Close

Go to the Arguments tab.

In Working directory: select 'Other' and click on 'Workspace...'button. Select edu.harvard.i2b2.eclipse and click 'OK'

In VM arguments include the term "-Djava.endorsed.dirs=endorsed_lib".

🖶 Run	×
Create, manage, and run con Create a configuration to launch an Ec	figurations lipse application.
Image: Second system Image: Second system	Name: i2b2 Main Arguments Program arguments: Image: Configuration VM arguments: Image: Variables Vorking directory: Image: Variables Variables Variables Vorking directory: Image: Variables Vorking directory: Image: Variables Image: Variables Variables Variables Variables Image: Variables Image: Variables Image: Variables Variables Image: Variables
0	Run Close

Go to the 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. Select Apply; Run

You are now running the i2b2 Workbench under control of the Eclipse IDE. You will see a splash screen followed by a Login dialog box. Log in; the User name is **demo** and the Password is **demouser**.

Login to i2b2	×	
Enter UserID and Password		
Target location:	Harvard Demo	
User name:	demo	
Password:	****	
Start as demonstration only		
	Login Cancel	
http://webservices.i2b2.org/PM/rest/PMService/		

Select 'Go to the workbench' If at any time you wish to return to the welcome page select Help->Welcome from the menu bar.



If the default layout needs to be reconfigured, select Window->Show View and the view(s) you wish to add to the layout. Move the position of any view by clicking on the view tab and dragging to another position.

i2b2 Workbench fo	Demo Project	Den	no User Status: 😑 🔤 🗰
Previous Queries 22	Query Tool 22 Query Name: Group 1 X Dates Occurs > 0x Exclude Dates x Cancel F Timeline View 23 Create model for Timeline Render a Timeline Query Name: Row # Drag C Value Value	Group 2 X A Groups Group 2 X A Add Occurs > 0x Exclude Add Group Xun Query Text Height Co	All Topics
	Delete From List Delete	Al Put In Order	Go To: % Search % Related Topics

Package Structure

The archive file contains the following projects. The project/directory edu.harvard.2b2.eclipse is considered the base plugin for the project and contains project property files and configuration files.

Directory	Description
edu.harvard.i2b2.eclipse	The base plug-in for our
	development (namely the UI for
	the top panel)
edu.harvard.i2b2.eclipse.plugins.commons_apache	Third party jars needed for
	common functions
edu.harvard.i2b2.eclipse.plugins.crcxmljaxb	Internal jars needed for
	jaxb/message processing
edu.harvard.i2b2.eclipse.plugins.explorer	UI for the Timeline view
edu.harvard.i2b2.eclipse.plugins.jdnc_support	Third party jars needed for UI
	support
edu.harvard.i2b2.eclipse.plugins.log	Third party jars needed for logging
edu.harvard.i2b2.eclipse.plugins.ontology	UI for the Ontology view
edu.harvard.i2b2.eclipse.plugins.previousQuery	UI for the Previous Query view
edu.harvard.i2b2.eclipse.plugins.query	UI for the Query view
edu.harvard.i2b2.eclipse.plugins.webservicesAxis2	Third party jars needed for web
	service support
edu.harvard.i2b2.eclipse.plugins.xml_support_jaxb	Third party jars needed for
	jaxb/message processing
edu.harvard.i2b2.eclipse.plugins.xml_support_jdom	Third party jars needed for
	jdom/message processing
edu.harvard.i2b2.xml	XSD for the hive
edu.harvard.i2b2.common	Common core exception, jaxb, and
	utilities used by i2b2 hive
BuildAssist	Files to build the workbench
Documentation	Project documentation files

License

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