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OpenL Tablets Installation Guide

OpenL Tablets 5.9.3

OpenL Tablets BRMS

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Contents

Preface

OpenL Tablets is a Business Rules Management System (BRMS) based on tables presented in Excel documents. Using unique concepts, OpenL Tablets facilitates treating business documents containing business logic specifications as executable source code.

OpenL Tablets provides a set of tools addressing BRMS related capabilities including *OpenL Tablets WebStudio* that can be used for creating, testing and managing business rules and business rule projects, and *OpenL Tablets Web Services* designed for integration of business rules into customer's applications.

The OpenL Tablets Installation Guide provides instructions for installing and customizing OpenL Tablets software. The document describes how to install OpenL Tablets under Apache Tomcat and as Eclipse plugin. If you choose the last way of installation, you will be able to use a set of tutorials and examples designed to help you better understand OpenL Tablets features and functionality. Information on how to deploy and setup OpenL Web Services is provided as well.

How This Book Is Organized

Chapter 1 lists system requirements for installing and using OpenL Tablets software.

Chapter 2 explains how to install OpenL Tablets WebStudio under Apache Tomcat.

Chapter 3 describes the installation of OpenL Tablets WebStudio under Eclipse.

Chapter 4 is designed for developers and describes how to deploy OpenL Tablets Web Services.

Chapter 5 explains how to setup OpenL Tablets WebStudio and Web Services as an integrated environment.

FAQs and Troubleshooting Notes sections provide useful information related to OpenL Tablets installation.

Audience

This guide is mainly targeted at business users and rule experts who will define, view, and manage their business rules and rule projects via OpenL Tablets WebStudio. Developers will also use this document to learn how to install and setup OpenL Web Services.

Basic knowledge of Java, Eclipse, and Apache Tomcat is required to use this guide effectively.

Related Information

The following table lists sources of information related to contents of this guide:

Related information	
Title	**Description**
OpenL Tablets WebStudio User Guide	Document describing OpenL WebStudio, a web application for managing OpenL Tablets projects through web browser.
OpenL Tablets Reference Guide	Provides overview of OpenL Tablets technology, as well as its basic concepts and principles.
http://openl-tablets.sourceforge.net/	OpenL Tablets open source project website.

Typographic Conventions

The following styles and conventions are used in this guide:

Typographic styles and conventions	
Convention	**Description**
Bold	Represents user interface items such as check boxes, command buttons, dialog boxes, drop-down list values, field names, menu commands, menus, option buttons, perspectives, tabs, tooltip labels, tree elements, views, and windows.
	Represents keys, such as **F9** or **CTRL+A.**
	Represents a term the first time it is defined.
Courier	Represents file and directory names, code, system messages, and command-line commands.
Courier Bold	Represents emphasized text in code.
Select **File > Save As**	Represents a command to perform, such as opening the **File** menu and selecting **Save As.**
Italic	Represents any information to be entered in a field.
	Represents documentation titles.
< >	Represents placeholder values to be substituted with user specific values.
Hyperlink	Represents a hyperlink. Clicking a hyperlink displays the information topic or external source.

Chapter 1: Before You Begin

This chapter covers system requirements for installing and running OpenL Tablets software provided in the following table.

Software requirements	
Operating systems	Microsoft Windows XP (SP2 or higher), Vista, Windows 7 x32/64; Ubuntu 9.x; Linux 3.x.
	NOTE: *OpenL Tablets software can potentially run on any Operating System that supports Java Virtual Machine, for example Mac OS. In the table we provided operating systems on which the OpenL Tablets software is tested and supported.*
Browsers	Microsoft Internet Explorer 9.x or later, Firefox 11.x or later, Chrome 19.x or later
Other Software	• Java v6 x32 - JDK 1.6.0_x or later
	• Apache Tomcat 7.0.x or later
	• Eclipse 3.6 or later
	NOTE: *Instructions on how to install and configure these software packages are provided further in this document.*
Hardware requirements	
	• RAM 2 Gb min (4 Gb is recommended)
	• CPU Intel(R) Core (TM) or equivalent
User rights requirements	
	• You must have administrative permissions in order to install the software on Microsoft Windows / UNIX.

NOTE: *We highly recommend you to avoid using spaces and special characters in paths.*

Chapter 2: Install OpenL Tablets WebStudio under Apache Tomcat

This chapter describes how to setup an environment for working with OpenL Tablets software, how to deploy OpenL Tablets WebStudio under Apache Tomcat, and also provides information about settings required for proper functioning of the application.

Follow these steps:

Step 1: Install Java Development Kit (JDK).

Step 2: Install Apache Tomcat

Step 3: Deploy OpenL Tablets WebStudio

Step 1: Installing the JDK

Follow the steps below to install the JDK.

1. Download JDK 1.6.0_x or later from *http://www.oracle.com/technetwork/java/javase/downloads/index.html* to the target directory. Further in the document this catalog is referred as `<JAVA_DIR>`.

   NOTE: We highly recommend you to avoid installing Java in the default Program Files directory because it may cause some problems due to space characters in the path to the folder.

2. Refer to *http://www.oracle.com/technetwork/java/javase/index-137561.html* for installation details if required.

3. Install the JDK according to the instructions.

4. Set the environment variable `JAVA_HOME` to the pathname of the directory where the JDK is installed as follows:

   a. For Microsoft Windows:

      i. Open the **System Properties** dialog: press **<Windows>** + **<Pause>** hotkey or right-click the **My Computer** icon and select **Properties** in the pop-up menu.

      ii. On the Advanced tab, click the Environment Variables button.

      iii. In the **System variables** area, click the **New** button

      iv. Enter *JAVA_HOME* in the **Variable name** field.

      v. Enter the path to the directory where the JDK is installed in the **Variable value** field, for example, *C:\Java\jdk1.6.0_20.*

      vi. Click **OK** to complete.

   b. For Unix/Linux environments (let's assume that the target directory is `/usr/lib/jvm/java-6-sun`):

      To set up `JAVA_HOME` for a single user:

      i. Login to your account and open `.bash_profile`:

```
nano ~/.bash_profile
```
ii.Add the following line:
```
export JAVA_HOME=/usr/lib/jvm/java-6-sun
```
iii.Add/correct system PATH
```
export PATH=$PATH:$JAVA_HOME/bin
```
iv.Press **CTRL+O** to save your work, and then press **CTRL+X** to exit.

To set up `JAVA_HOME` for all users:

i.Login as root and open /etc/profile:
```
nano /etc/profile
```
ii. Add the following line
```
export JAVA_HOME=/usr/lib/jvm/java-6-sun
```
iii.Add/correct system PATH
```
export PATH=$PATH:$JAVA_HOME/bin
```

Step 2: Installing Apache Tomcat

Follow the steps below to install Apache Tomcat 7.0.x (or later):

1. Download Tomcat from *http://tomcat.apache.org/index.html*.
2. Save zip file in a temporary directory.
3. Unpack downloaded zip into target folder on your computer. This folder is referred as `<TOMCAT_HOME>` further in this document.
4. Configure JVM options for Tomcat web server as follows:

   a. For Windows, create `TOMCAT_HOME/bin/setenv.bat` file and write:
   ```
   set JAVA_OPTS=%JAVA_OPTS% -Xms256m -Xmx1024m -XX:+UseParallelOldGC -XX:PermSize=128m -
   XX:MaxPermSize=384m
   ```

   b. For UNIX, create `TOMCAT_HOME/bin/setenv.sh` file and write
   ```
   export JAVA_OPTS="$JAVA_OPTS -Xms256m -Xmx1024m -XX:+UseParallelOldGC -
   XX:PermSize=128m -XX:MaxPermSize=384m"
   ```

5. Locate the `TOMCAT_HOME/conf/server.hml` file and add the `URIEncoding="UTF-8"` attribute for all `<Connector>` elements. For example:
   ```
   <Connector port="8080" protocol="HTTP/1.1" connectionTimeout="20000" redirectPort="8443"
   URIEncoding="UTF-8"/>
   ```

Step 3: Deploying OpenL Tablets WebStudio

This section describes how to deploy and run OpenL Tablets WebStudio under Tomcat on a Windows machine.

1. Go to *http://openl-tablets.sourceforge.net/downloads* page.
2. Click the appropriate WebStudio link.
3. Save the file in the temporary folder.

4. Copy the WebStudio war file (for example, `openl-tablets-webstudio-X.X.X.war`) to the `<TOMCAT_HOME>\webapps` folder.

5. Run Tomcat by clicking the *startup.bat* file in `TOMCAT_HOME\bin`.

   Tomcat will unpack the war file into the `<TOMCAT_HOME>\webapps\<war file name>` folder. For example, for 5.8.1 version the target folder can be `<TOMCAT_HOME>\webapps\openl-tablets-webstudio-5.8.1`. For convenience, you can rename the folder as you need but please remember that you will use this name to launch WebStudio under Tomcat.

6. Run OpenL WebStudio by entering in your browser the following URL *http://localhost:8080/<war file name>.* I.e. for our example you should enter http://localhost:8080/openl-tablets-webstudio-5.8.1.

As a result, OpenLTablets WebStudio opens in your browser. From this point, you can create new projects in the WebStudio or download existing ones.

NOTE: After you have installed new release of the WebStudio, click **CTRL+F5** to reload the page in your browser.

Chapter 3: Install OpenL Tablets under Eclipse

This chapter provides information on how to install OpenL Tablets under Eclipse. You will also learn how to run OpenL Tablets WebStudio under Eclipse.

The installation process consists of the following steps:

Step 1: Install Eclipse SDK.

Step 2: Install and setup OpenL Tablets Wes Studio as Eclipse Plugin.

Step 3: Run OpenL Tablets WebStudio.

NOTE: If you have JDK and Eclipse SDK installed and properly set up on your computer, please skip Step 1 and Step 2.

Prerequisites

- The JDK 1.6.0_x (or later) is correctly installed.
- An environment variable JAVA_HOME is set to the pathname of the directory where the JDK is installed. For more information on how to set up JAVA_HOME see *Installing the JDK*.

Step 1: Installing Eclipse SDK

1. Download Eclipse from *http://www.eclipse.org/downloads/* to the target directory.
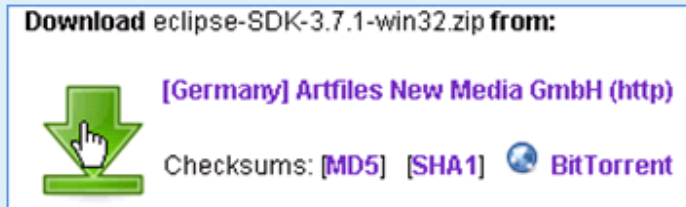
NOTE: We recommend you to install the Eclipse Classic package.

2. Navigate to the `Eclipse` folder and click `eclipse.exe` to run Eclipse. The **Workspace Launcher** dialog appears.

3. In the **Workspace Launcher** dialog, specify your Eclipse workspace - the folder where your will save all OpenL Tablets projects. We recommend you to define the workspace as follows: `\<OPENL_HOME>\local-workspace`, where `<OPENL_HOME>` is the `openl` folder in the root directory of the non-system disk.

   NOTE: Please don't use the `C:\Documents and Settings\` folder that can be shown in the dialog by default. We highly recommend that you don't select the system drive; and the path should not contain spaces. For example, your workspace folder can be `\openl\local-workspace`.

As a result, the **Welcome to Eclipse** window appears. From this point you can install OpenL Tablets under Eclipse as described in Step 2.

Step 2: Installing OpenL Tablets under Eclipse

You can install OpenL Tablets Eclipse Plugin in one of the following ways:

- Remotely from the *Sourceforge.net* site
- From a Zip file

IMPORTANT! If you have OpenL Tablets already installed in Eclipse, you should first remove previously configured settings, uninstall OpenL Tablets, and perform the installation as described below.

You can remove the existing settings in one of the following ways.

1. Delete the `\<OPENL_HOME>\` folder. In this case, all rule projects saved in your workspace will be removed as well.
2. If you want to save your rule projects, proceed as follows:
   a. Locate your workspace folder, for example, `\<OPENL_HOME>\local-workspace`.
   b. Delete the folders: `.metadata, logs, org.openl.rules.webstudio`.
   c. Open the `\<OPENL_HOME>\system-settings` folder and delete the `system.properties` file.

To uninstall Eclipse SDK:

1. Run Eclipse SDK.
2. Select **Help > About Eclipse SDK > Installation Details**.
3. Locate **OpenL Tablets for Eclipse**.
4. Select it and click the **Uninstall** button.
5. Click **Finish** to complete and select **Restart Now** to restart Eclipse.

If you have any problems with uninstalling OpenL Tablets, please delete the existing Eclipse directory, unzip Eclipse zip file, and install a clear Eclipse as described in Step 2.

Remote Installation of OpenL Tablets Eclipse Plugin

Follow the steps below to install the OpenL Tablets Eclipse Plugin remotely:

1. Run Eclipse SDK.
2. In the top line menu, select **Help > Install New Software**. The **Install** dialog appears.
3. In the **Work with** text box, enter the URL: *http://openl-tablets.sourceforge.net/eclipse-site/* and press **Enter***.*
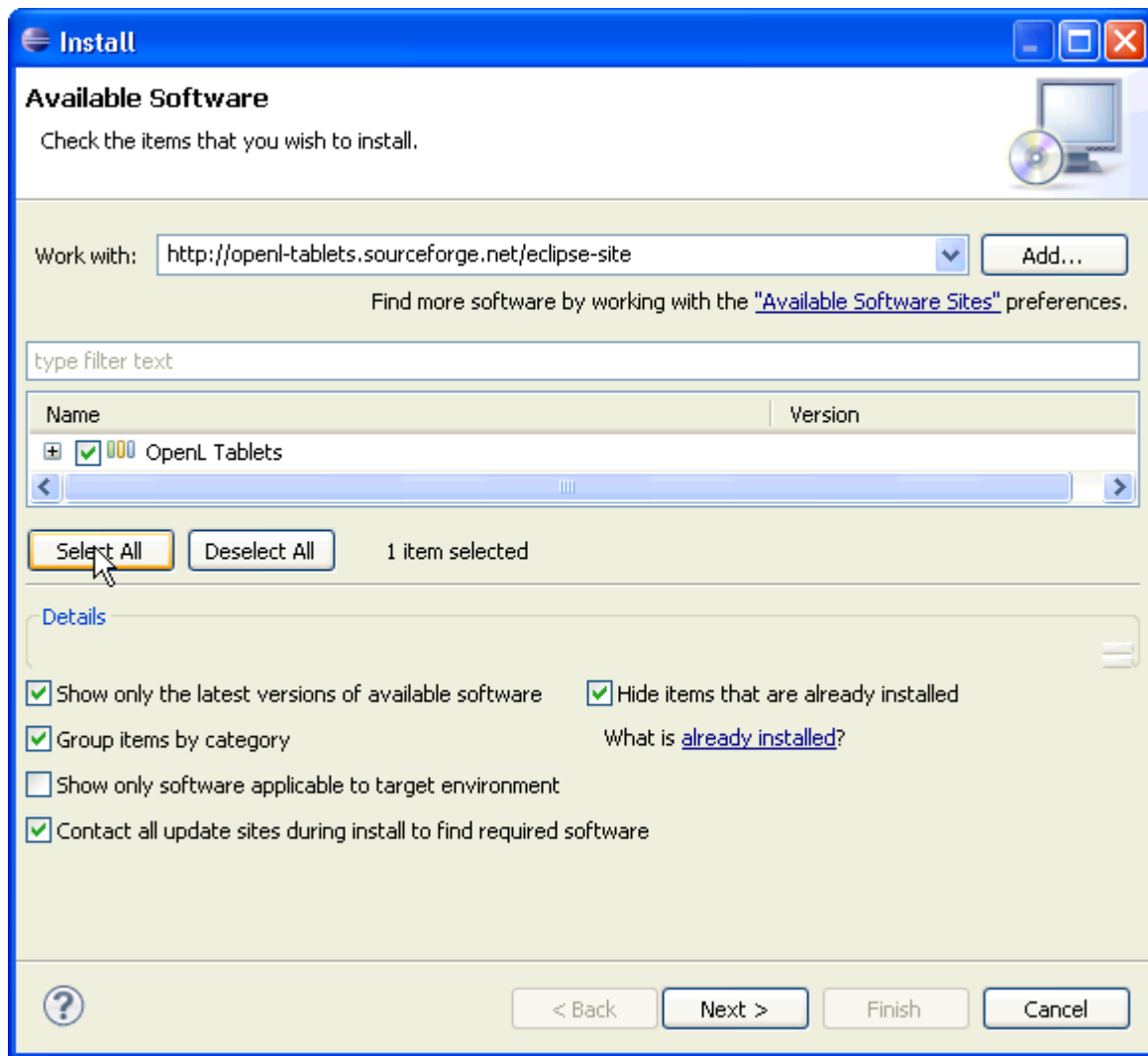4. Click the **Select All** button to select all items:

Figure 1: Remote installation of OpenL Tablets under Eclipse

5. In the Details area, clear the **Contact all update sites during install to find required software** checkbox.

6. Press the **Next** button and follow the installation steps:

    a. Click the **Next** button in the **Install Details** window

    b. Select **I accept** option in the **Review Licenses** dialog to accept license agreements.

    c. Click **Finish** to complete. If the **Security Warning** dialog appears, click **OK** to proceed.

7. After the installation is complete, you will be prompted to restart Eclipse SDK. Click the **Restart Now** button.

Installation of OpenL Tablets Eclipse Plugin from Zip File

1. Download the `Eclipse Update Site` zip file as follows:

    a. Open the *OpenL Sourceforge Project* page
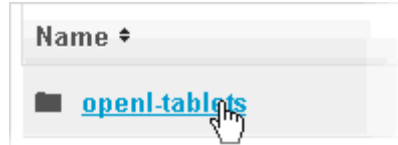
    b. Click the *openl-tablets* link:

Figure 2: Move to OpenL Tablets

c. In the **Name** column, navigate to the latest OpenL Tablets version and click its name. For example, for version 5.8.1 you will click the *OpenL Tablets 5.8.1* link.

d. Locate the `openl-tablets-eclipse-site-<version>.zip` file. For the version 5.8.1 you should click the following link:
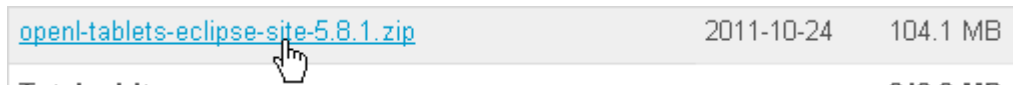

Figure 3: Select ZIP file

e. Click the zip file name and save it in a target folder.

2. Run Eclipse SDK.

3. In the top line menu, select **Help > Install New Software**.

4. Press the **Add** button.

5. Type *OpenL Tablets* in the **Name** field.

6. Press the **Archive** button. The **Repository archive** dialog appears.

7. Locate the downloaded zip file and click the **Open** button.

8. Click **OK** to proceed.

9. Click the **Select All** button to select all items.

10. In the **Details** area, clear the **Contact all update sites during install to find required software** checkbox.

11. Press the **Next** button.

12. Follow the installation dialog windows to download and install OpenL Tablets for Eclipse.

13. Click **OK** in the **Security Warning** dialog.

14. To Restart Eclipse, click the **Restart Now** button in the prompted dialog.

RESULT: The **Java – Eclipse SDK** window appears. From this point, you can launch OpenL Tablets WebStudio as described in the following step.

Step 3: Run OpenL Tablets WebStudio

You should first add OpenL Tablets WebStudio to Eclipse as a new project and then launch it.

1. Add OpenL Tablets to Eclipse as a new project

    a. From the top line menu, select **File > New > Project**.

Figure 4: Add a new project in Eclipse
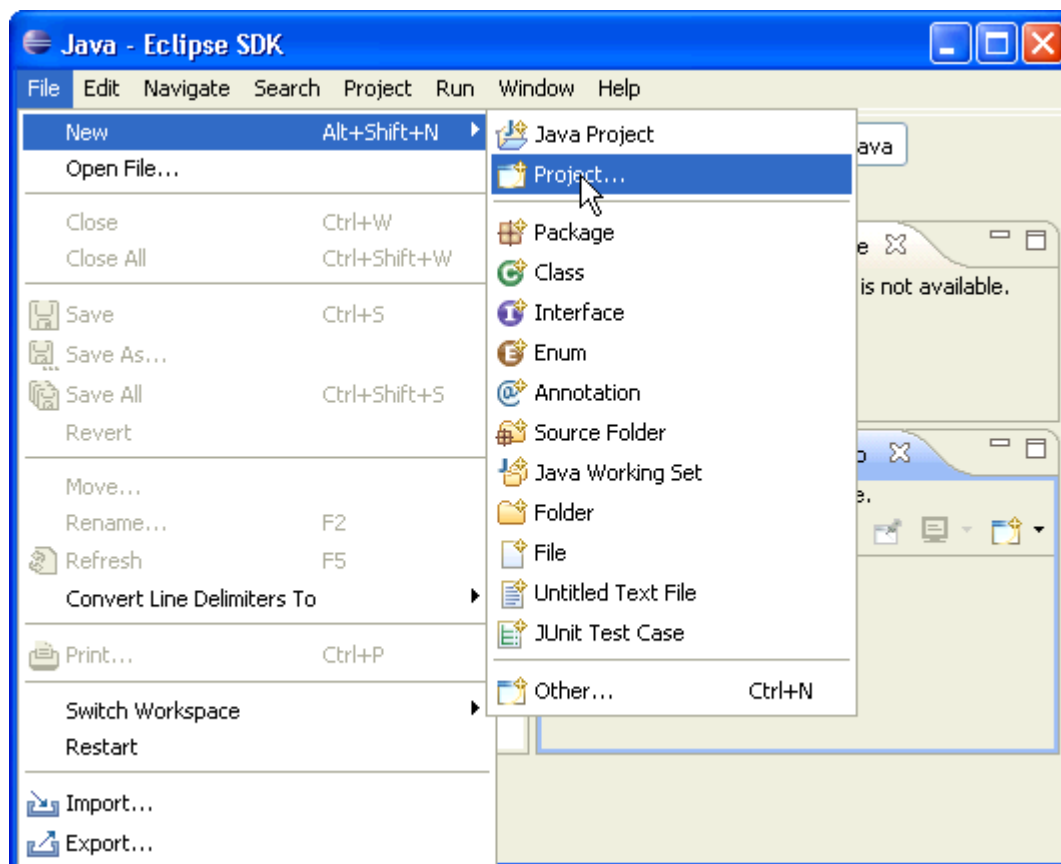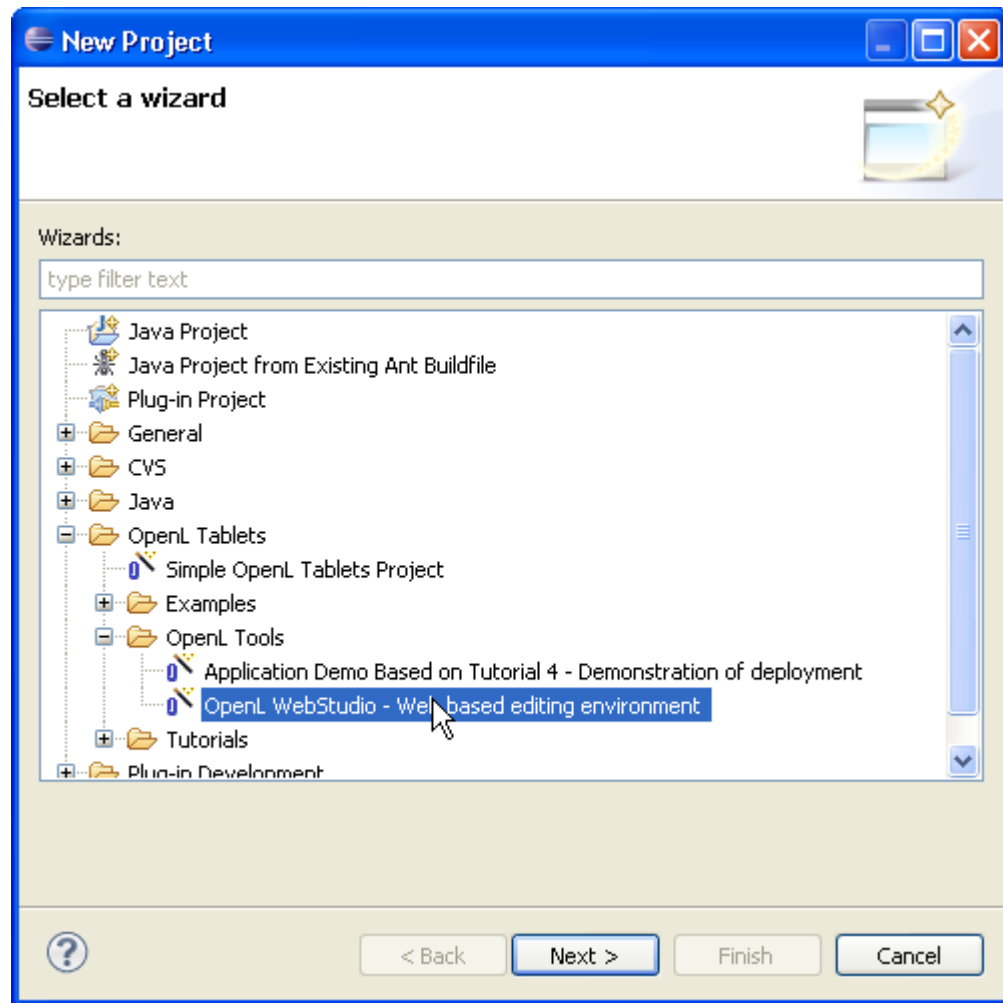
The **New Project** window appears.

Figure 5: Select OpenL Tablets WebStudio as a new project

b. In the tree, expand OpenL Tablets > OpenL Tools and select the OpenL WebStudio – Web based editing environment item.

c. Click **Next** to proceed.

d. In the following window, define where your projects will be located: select the **Use default location** or specify the desired one.

Figure 6: Define workspace for OpenL Tablets projects
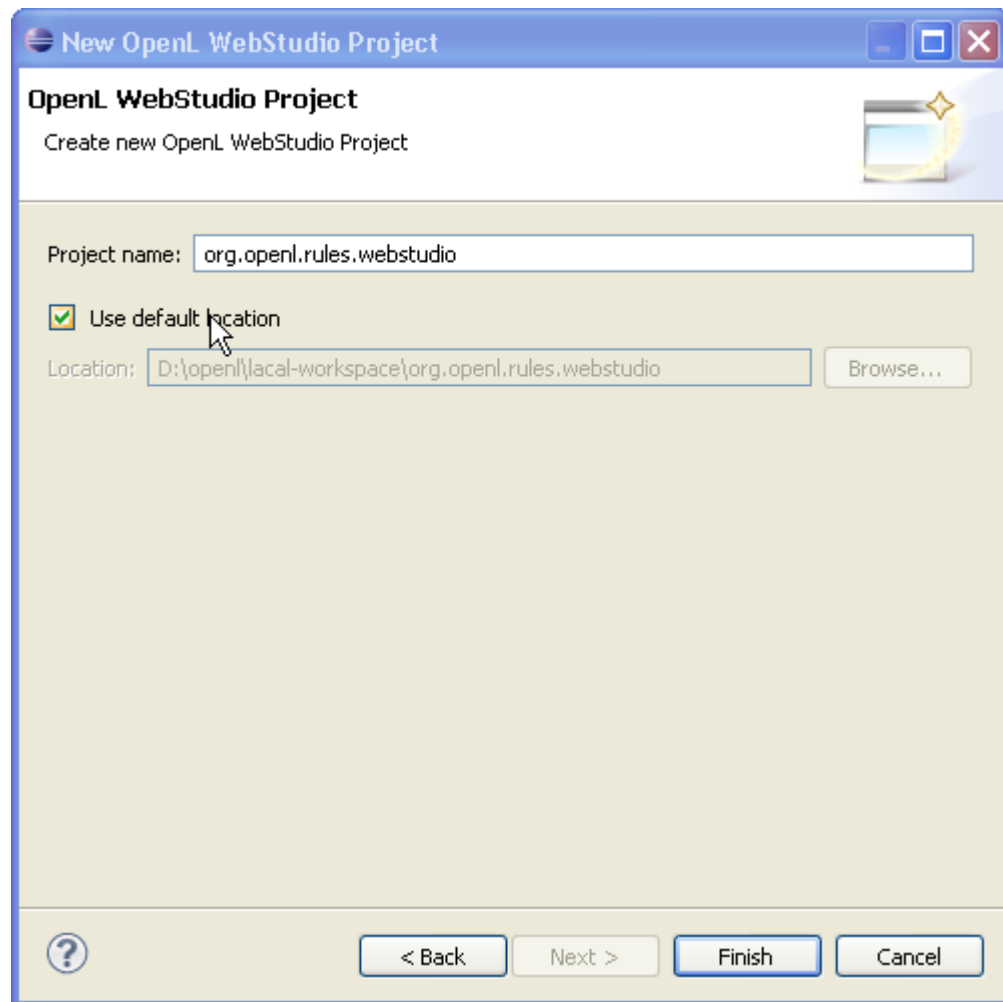
NOTE: Please remember to use paths without spaces or special characters.

e. Click **Finish** to complete.

RESULT: The **org.openl.rules.webstudio** item appears in the Package Explorer as illustrated in the Figure below.
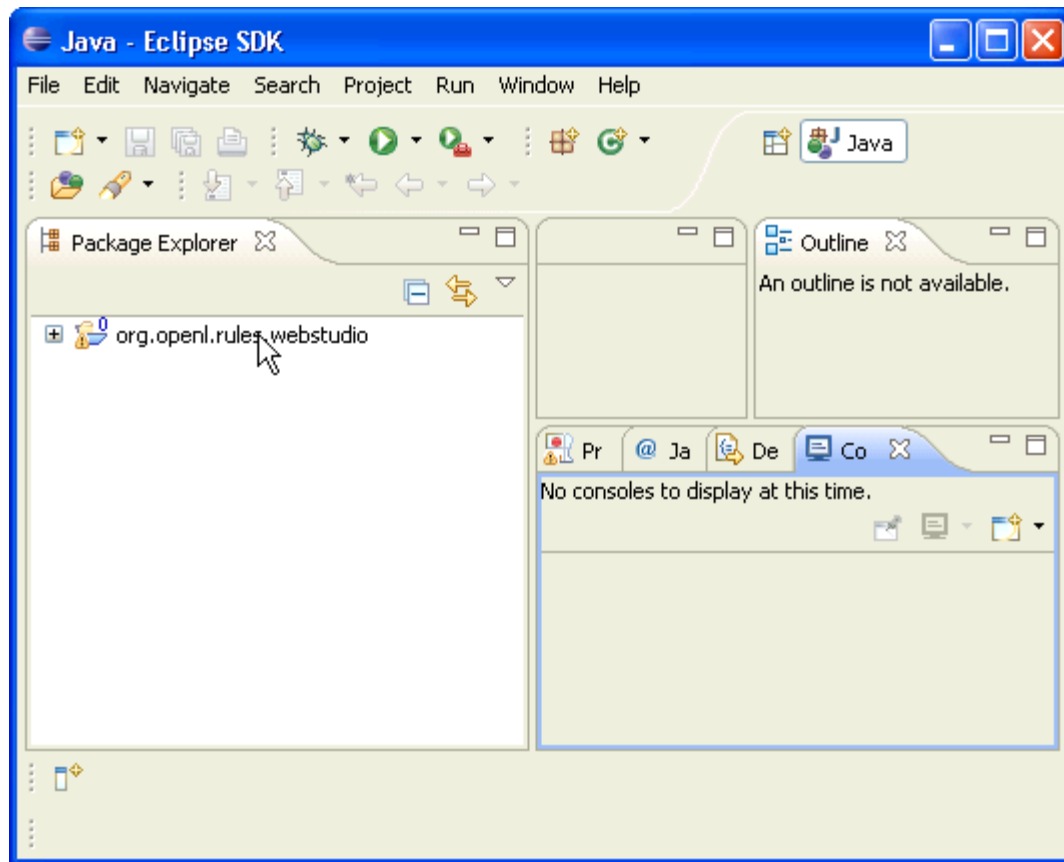
Figure 7: OpenL Tablets package is added to Eclipse

2. Run OpenL Tablets WebStudio:

    a. Expand the **org.openl.rules.webstudio** node.
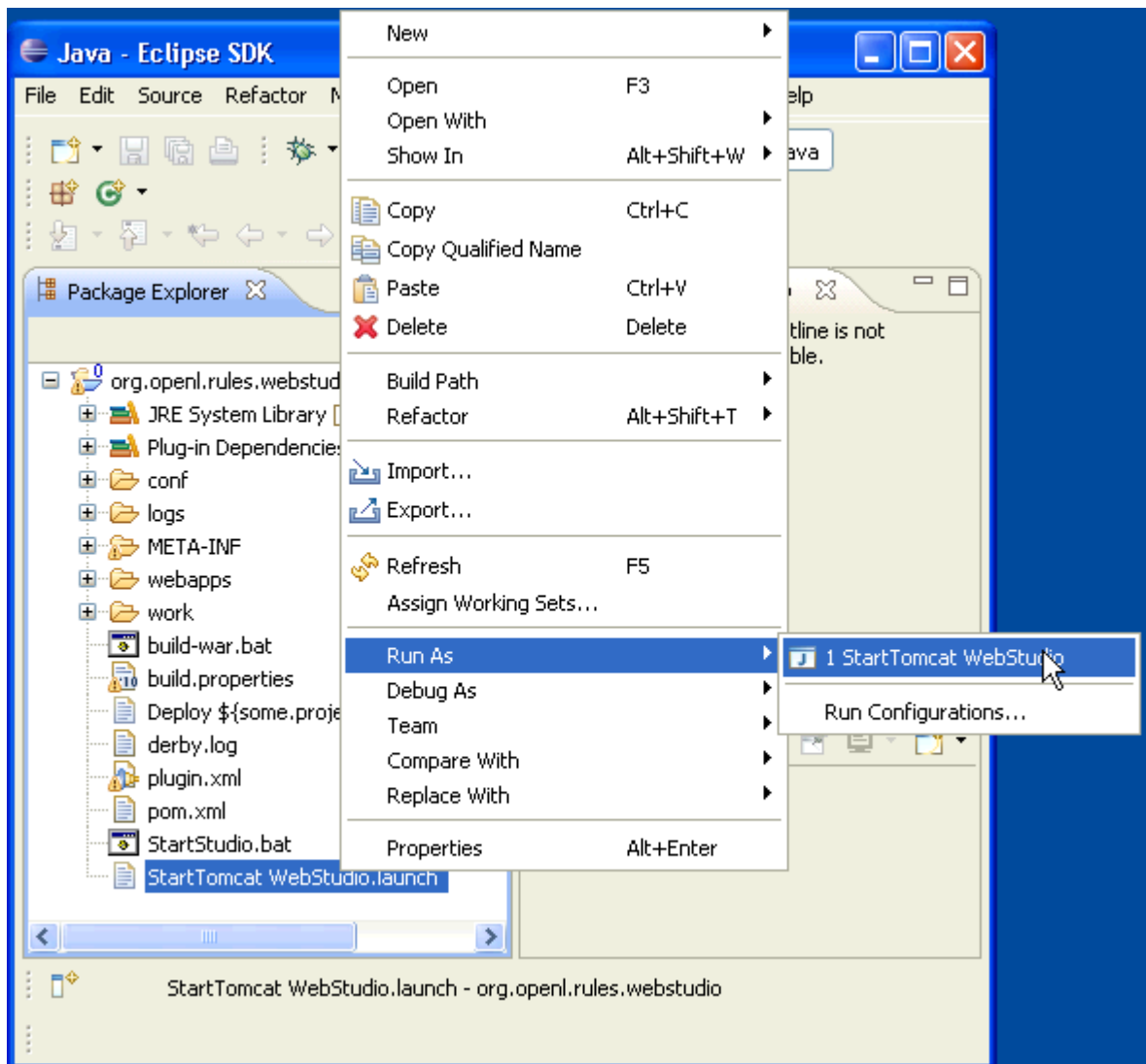
Figure 8: Run OpenL Tablets WebStudio in Eclipse

b. Right-click the **StartTomcat WebStudio.launch** item and select **Run as > StartTomcat WebStudio** in the pop-up menu.

RESULT: OpenL Tablets WebStudio opens in the default browser.

NOTE: After you have installed new release of the WebStudio, click **CTRL+F5** to reload the page in your browser.
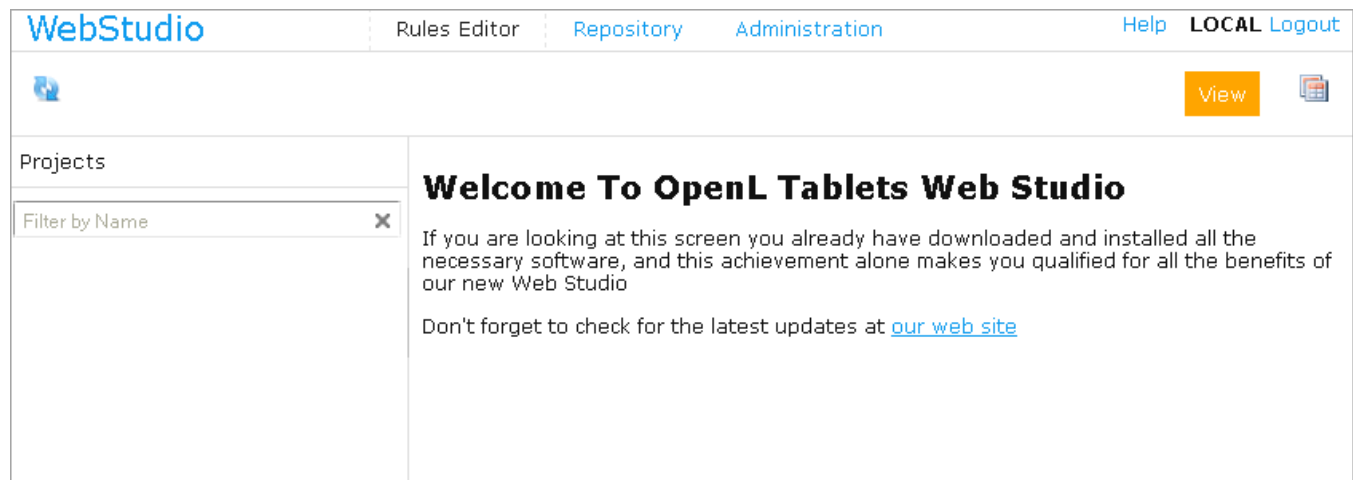
Figure 9: OpenL Tablets WebStudio is open and ready for use

NOTE: OpenL Tablets Eclipse plugin provides several tutorials and example projects. To work with any of these projects, first you need to create them as new projects in the Eclipse SDK. The procedure is similar to described in *Step 3: Run OpenL Tablets WebStudio*. After that the projects are available in OpenL Tablets WebStudio and appear in the **Select Module** list.

Chapter 4: Deploy OpenL Tablets Web Services

This chapter is designed for rule developers who will want to use business rules as separate web services.

NOTE: We will consider a particular case when you will use a file system as a data source for your projects. In such a case all OpenL Tablets projects should be placed into a local folder; this folder will represent a single deployment containing all the projects. In turn, every project should also be represented as a separate folder.

For more information on how to configure OpenL Tablets Web Services see the *OpenL Tablets Web Services Usage and Customization* guide.

Prerequisites

Make sure the following tasks have been performed:

- The JDK 1.6.0_x (or later) and Apache Tomcat 7.0.x (or later) is correctly installed.
- We will refer the folder where Tomcat is installed as `<TOMCAT_HOME>`.
- An environment variable `JAVA_HOME` is set to the pathname of the directory where the JDK is installed.
- JVM options should be set up as described in the *Installing Apache Tomcat* section.

The deployment process consists of the following steps:

1. Download pre-configured OpenL Tablets Web Services application (war-file):
   a. Go to http://openl-tablets.sourceforge.net/downloads page.
   b. Click the appropriate **Services Frontend (war)** link.
   c. Save the chosen war file to the `<TOMCAT_HOME>\webapps` directory. For example, let's assume we saved the `openl-tablets-ws-5.8.1.war` file.
2. Configure a local file system as a data source as follows:
   a. Navigate to the `<TOMCAT_HOME>\webapps` folder and unzip the web services war file. For example, you can right-click the web services war file name and select **7-zip > Open archive**.
   b. Open the `WEB-INF\classes` folders and locate the `openl-ruleservice-datasource-beans.xml` file.
   c. Right click the openl-ruleservice-datasource-beans.xml file and select Edit in the popup menu.
   d. Override the following beans as shown below:
```
<bean id="datasource" class="org.openl.rules.ruleservice.loader.FileSystemDataSource">
     <constructor-arg name="loadDeploymentsFromDirectory" value="… path to the folder
     containing the projects"/>
     <property name="localWorkspaceFileFilter" ref="localWorkspaceFileFilter"/>
     <property name="localWorkspaceFolderFilter" ref="localWorkspaceFolderFilter"/>
</bean>.>
```
   e. Put your rule project to the `/openl/datasource` folder on the drive where you start Tomcat. Every rule project should be represented as a separate folder. As an example you can use OpenL Tablets Tutorial that you can download from the *OpenL Tablets web site*.

f. Run Tomcat by clicking the *startup.bat* file in `<TOMCAT_HOME>\bin`.

To ensure the deployment is successful you can try the web service with a tool at your option.

NOTE: In the Tomcat log file you can find the URL that you should use to run your Web Service. For file system data source, the URL should look like `http://localhost:8080/<ws war file name>/<datasource folder>/<rule project name>?wsdl`, where `<datasource folder>/<rule project name>` can be taken from the Tomcat log file.

Chapter 5: OpenL Tablets WebStudio and Web Services Integration

Earlier in this document we discussed how to install OpenL Tablets WebStudio, and also how to properly deploy and configure OpenL Tablets Web Services.

This section describes how to setup an integrated environment that enables you to work with business rules from OpenL Tablets WebStudio and launch these rules as Web Services. Here we describe how to setup OpenL Tablets WebStudio and Web Services integration via RMI.

NOTE: In the given example OpenL Tablets WebStudio should run under Tomcat. As a repository we will use a common repository which you can download from OpenLTablets site, or request from OpenL Tablets team.

1. If not done earlier, put and unzip jackrabbit and web services war files to the `\<TOMCAT_HOME>\webapps`. We recommend you to use the `jackrabbit-webapp-2.2.8.war` file (you can download it from http://repo1.maven.org/maven2/org/apache/jackrabbit/jackrabbit-webapp/2.2.8/jackrabbit-webapp-2.2.8.war).

   NOTE: You should also add the `jcr-2.0.jar file to the \<TOMCAT_HOME>\webapps\ jackrabbit-webapp-2.2.8\WEB-INF\lib`. You can download this file from http://search.maven.org/remotecontent?filepath=javax/jcr/jcr/2.0/jcr-2.0.jar

2. From OpenL Tablets site, download the common repository zip file containing your rule to any folder. This location will be later used as datasource. In our example we use `\openl\` folder.

3. Set up jackrabbit.zip:

   a. Download the `jackrabbit.zip` file from the OpenL Tablets web site (Currently the file is not accessible from this site. Please refer to OpenL Tablets team for the file). Unpack the file to the `\<TOMCAT_HOME>\bin\jackrabbit` folder (create the `jackrabbit` folder if it does not exist).

   b. Locate `\<TOMCAT_HOME>\webapps\bin \jackrabbit\bootstrap.properties` file. It should contain the following lines:
   ```
   repository.config=jackrabbit/jackrabbit-repository.xml
   repository.home=D:/openl/common-repository
   repository.name=2TR
   # RMI Settings
   rmi.enabled=true
   rmi.port=0
   rmi.host=localhost
   # If the URI is not specified, it's composed as follows:
   #rmi.uri=//${rmi.host}:${rmi.port}/${repository.name}
   rmi.url=//localhost:1099/2TR
   ```

4. Set up Web Services as follows:

   a. Locate the `\<TOMCAT_HOME>\webapps\<ws project name>\WEB-INF\classes\ rules-production.properties` file.

   b. Update the `rules-production.properties` file.

   - Mark as comment these lines:
   ```
   # production-repository.factory =
   org.openl.rules.repository.factories.LocalJackrabbitProductionRepositoryFactory

   # production-repository.local.home=/openl/common-repository
   ```

- Remove the comment mark from these lines:

```
production-repository.factory =
org.openl.rules.repository.factories.RmiJackrabbitProductionRepositoryFactory

production-repository.remote.rmi.url = //localhost:1099/2TR
```

5. Set up OpenL Tablets WebStudio:

   a. Download and copy WebStudio war file to `<TOMCAT_HOME>\webapps`

   b. Locate `<OPENL_HOME>\system-settings` – if the folder does not exist, create it. Create `system.properties` file and store in this folder.

   c. Add properties

   For Design repository:

```
design-repository.factory =
org.openl.rules.repository.factories.RmiJackrabbitDesignRepositoryFactory

design-repository.remote.rmi.url = //localhost:1099/2TR
```

   For Production repository:

```
production-repository.factory =
org.openl.rules.repository.factories.RmiJackrabbitProductionRepositoryFactory

production-repository.remote.rmi.url = //localhost:1099/2TR
```

   d. Run WebStudio by entering in your browser http://localhost:8080/<WEbStudio war file name>.

As a result, OpenL Tablets WebStudio home page appears with your project deployed. From this point you can make any changes in your rule in WebStudio, these change will immediately affect your rule represented as Web Service.

NOTE: In the Tomcat log file you can find the URL that you should use to run your Web Service. The URL should look like *http://localhost:8080/<ws war file name>/<deployment name>/<rule project name>?wsdl*.

Troubleshooting Notes

If you deploy OpenL Tablets WebStudio under Tomcat in Unix/Linux environment, the following troubleshooting recommendations can be taken into account.

1. Before starting tomcat under Linux make sure that no java processes are running:

    `sudo ps -A | grep j` – if found, the process name and number will be displayed

2. If any Java process is running, stop it:

    `kill -9 <process number>`

3. Make sure that port 8080 is available:

    `sudo netstart -an | grep8080`

4. Run Tomcat under Linux:

    `startup.sh`

5. If the 'command not found' error appears, you should run `.sh` file as executable script: `/startup.sh`

6. If one of the errors 'Permission denied' or 'The BASEDIR environment variable is not defined correctly' is shown then make all .sh files in the bin folder executable:

    `chmod 777 *.sh`

7. Verify that all .sh files in the bin folder are executable:

    `ls -l`

8. Run Tomcat

    `/startup.sh`

FAQs

This section provides the most common questions and answer related to OpenL Tablets installation procedure. For detailed Information about working with Java, Eclipse, Tomcat, etc please refer to corresponding sites of the software manufacturers.

1. Q: How can I check if Java is installed on my PC?

1. R: You can do it as follows:

    For Windows XP:

    a. Open **start > Control Panel**

    b. Double click **Add or Remove Programs**

    For Windows 7/Vista:

    a. Open **start > Control Panel**

    b. Click **Programs > Programs and Features**

Look through the list for 'Java(TM)…' or 'Java(TM) Update…' items. If any of them are present then you have Java installed on your PC.

2. Q: During Java installation the page for Java registration appears. Do I have to register Java?

2. R: No, it is optional. You can just close the registration page.

3. Q: How can I check which version of Java is installed on my PC?

3. R: Open the Verify Java Version page and click the **Verify Java Version** button. In just a few seconds a new page appears where you will find the message similar to the following one: "*Your Java version: Version 6 Update 26*".

4. Q: How can I see the error message in the Tomcat console that appears when I start Tomcat? The error screen disappears too quickly.

4. R: Run **catalina.bat run** in the command line window as follows: click **Start > Run**, browse to `<TOMCAT_HOME>\bin` folder, select **catalina.bat** and add **run** in the command line.

5. Q: When I try to start OpenL Tablets WebStudio under Eclipse in the Linux OS, '404 error' occurs.

5. R: Create the 'openl' folder in the root of the disk where Eclipse is installed with 'write' permission:

```
chmod 777 openl
```

To be sure the WebStudio will work properly, set the same permissions for the 'Workspace' folder.

6. Q: When I try to run OpenL Tablets WebStudio in Eclipse, the following error message appears:

    Error occurred during initialization of VM
    Could not reserve enough space for object heap

6. R: Restart your computer and try again.