**Application setup**

**Watershare tools**



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A ten-s  
water



optimizing colour  
and natural organic  
material removal



Valorising water  
treatment residuals



Enhanced network  
performance and reduced  
maintenance cost

from groundwater  
monitoring network  
to final results

Inhoud

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e for residual signing for cleaner water

# Introduction

This document contains an explanation of the application layout of a Watershare tool. The application layout is for every application in the Watershare suite the same and consists of several components. Each component is described in this document.

Watershare tool development environment consists of the next components:

* Development environment (Eclipse Indigo)
* Code repository (SVN)
* Persistency/Database (MySQL)
* Servlet/JSP server (Apache Tomcat) for dev testing

A Watershare tool is a web application make use of the next components

* Components and Building using Maven and SVN
* Persistency/Database using Hibernate and MySQL
* Application framework using Spring
* Presentation Layout using JSP and JQuery
* Styling and Design using CSS

The layout of the application is described in section 3.

Every Watershare tool is designated to run on an Apache Tomcat servlet/JSP server. The tools are planned to be installed on Apache Tomcat version 7.0.32.

## Application Codes

Every application is using a unique application code. This code is used as an abbreviation in file names/property files/comments/etc.

|  |  |  |
| --- | --- | --- |
| **Application code** | **Web Context Name** | **Full application name** |
| CFW | chlorinefree | Chlorine Free Water |
| CBP | cityblueprint | City Blue Print |
| CM | cleanmembrane | Clean membrane |
| EHS | ecohydrologicalstress | Eco Hydrological Stress |
| GM | groundwatermonitor | Ground water monitor |
| NOM | nomatter | NOMatter |
| OPT | optiValves | Optivalves |
| RC | residualcycle | Residual Cycle |
| SCN | selfcleaningnetwork | Self Cleaning Network |
| WUI | wateruseinfo | Water Use Info |

# Development environment

## Eclipse

To develop the Watershare applications, Eclipse Indigo is used. This version of eclipse is available in the KWRTools->Downloads directory. Additionally Maven/Spring/SVN integration is installed by installing the next plug-ins using the Eclipse Marketplace:

* JBoss Tools (Indigo)
* Subclipse

Set Eclipse preferences by importing the EclipsePreferences.epf settings files. The file is located in the KWRTools->Tools->Development directory and can be imported by selected in Eclipse menu File->import->Preferences.

The functionality embedded in the JBoss Maven plug-in is not used. Instead Maven is installed locally on the development PC and a reference is made in Eclipse to this external version of Maven (Preferences->Maven->installations). The version 3.0.4 of Maven can be found in KWRTools->Downloads.

The settings for Maven are included in the Maven\_Settings.xml file located in the KWRTools->Tools->Development directory.

A reference is made to a locally installed Apache Tomcat Servlet/JSP server (currently version 7.0.32, JRE6) (Preferences->Server->Runtime environments). A version can be found in KWRTools->Downloads. The settings for this server are included in the several files included in the KWRTools->Tools->Development directory. Place these files in the Tomcat\conf directory.

## SVN

As described in section 3.1, the Subclipse plug-in in Eclipse is used to access the SVN code repository.

The Watershare code repository URL: <http://snwgats1.nwg.local:8080/svn/KWRTools>

SVN Interface: JavaHL (JNI) 1.7.7 (r1393599)

To have access to SVN without Eclipse, it is also recommended to install TortoiseSVN (KWRTools->Downloads).

On the test server the SVN repository is located in C:/repositories/KWRTools directory and is accessed by a windows service running Subclipse SVNServe.exe

## Database

For development a local version of MySQL 5.5.22 icm MySQL Workbench should be installed. Both applications can be found in KWRTools->Downloads

Create a schema called ‘KWRWater’ using MySQL workbench.

A complete single self-contained dump of 1 April 2013 is available and can be imported using the import functions of MySQL workbench (Home-tab). The dump is available at KWRTools->Server->MySQL Settings

## Servlet/JSP server (Apache Tomcat)

In the lib directory of the Tomcat server the next files:

|  |  |
| --- | --- |
| **Filename** | **Description** |
| Jdbc.properties | JDBC driver properties used by Hibernate |
| mysql-connector-java-5.1.22-bin.jar | JDBC driver classes used by Hibernate |
| Watershare.properties | Watershare properties file. Currently only containing security settings for portal integration.  externalSession.validation.url=http://www.kwrwater.nl/watershare/isloggedin.aspx?external-session-id=%s&user-id=%s&country-id=%s  session.invalid.redirect.url=http://www.kwrwater.nl/watershare  externalSession.validation.turnedOn=true  When the externalSession.validation.turnedOn is set to true, the externalSession.validation.url URL is invoked on the portal to check if the parameters provided by a valid session. If the session is not valid, the Watershare tool is not started and redirected to the URL given in session.invalid.redirect.url |
| Log4j.properties | Log4J settings |
| <application Code>.properties | Properties file for a specific application. Currently only NOM and EHS are using a application properties file. |

# Watershare Web Application

As usual for Maven a list of dependencies is included in the pom.xml file. As groupId for every Watershare tool, KWRWatershare is selected, where the name of the tool is used as artifactId. Please make sure that the artifactId is lower case due to the fact that the artifactId is also used as application context.

An example of a pom.xml file is included in this document as appendix A.

## Application layout

A general web application layout is selected. Please check out an existing version of the application

(preferably: CM, NOM, RC or WUI) to your workspace.

The application layout is always:

|  |  |
| --- | --- |
| **File/Folder** | **Description** |
| src/main/java |  |
| nl.watershare.<application Code>.controller | Package containing the web controller classes |
| nl.watershare.<application Code>.doa | Package containing the Data Access Object classes. These classes should implement the persistency to the database using Hibernate HQL code |
| nl.watershare.<application Code>.entity | Package containing the Hibernate Data entity classes. In most cases this package will only contain a reference to the tables. In some cases the entity class is also used as a form class but this is not recommended. |
| nl.watershare.<application Code>.form | Package containing the Spring form classes and Spring form validators |
| nl.watershare.<application Code>.service | Package containing the service classes as a link between the functionality (in forms) and the persistency |
| nl.watershare.<application Code>.utils | Package containing utility classes |
| src/main/resources |  |
| hibernate.cfg.xml | Hibernate configuration file to link entity classes to the database tables |
| <application Code>\_messages.properties | Translation file containing the Spring translations for the messages/labels in the application |
| src/test/java | JUnit source code directory. Not yet used |
| src/test/resources | JUnit resource directory. Not yet used |
| src/main/webapp |  |
| css | CSS directory |
| fonts | Fonts directory |
| img | Images directory |
| js | Javascript directory. This directory contains JQuery API, Fancy Field API script files.  It also contains the general js-scripts for the application. These scripts are contained in the file ‘ functions.js’ |
| META-INF |  |
| WEB-INF |  |
| jsp | JSP directory |
| Include |  |
| head.jsp | Header jsp file containing references to all the javascript/css files for the entire application. The head.jsp file will be loaded for every page. |
| title.jsp | Title jsp file containg the title image including the title of the application |
| error.jsp | Standard error file used by Spring to display errors. |
| spring-servlet.xml | Spring configuration file. See appendix B for an example |
| web.xml | Web configuration file. See appendix C for an example |
| pom.xml | Maven pom file |

# Appendix A – Pom.xml

<project xmlns=*"http://maven.apache.org/POM/4.0.0"* xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"*

xsi:schemaLocation=*"http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4\_0\_0.xsd"*>

<modelVersion>4.0.0</modelVersion>

<groupId>KWRWatershare</groupId>

<packaging>war</packaging>

<version>1.0.1</version>

<description></description>

<build>

<plugins>

<plugin>

<artifactId>maven-compiler-plugin</artifactId>

<configuration>

<source>1.6</source>

<target>1.6</target>

</configuration>

</plugin>

</plugins>

</build>

<dependencies>

<dependency>

<groupId>KWRWatershare</groupId>

<artifactId>watershare-common</artifactId>

<version>1.0.4</version>

</dependency>

<dependency>

<groupId>javax.servlet</groupId>

<artifactId>servlet-api</artifactId>

<version>2.5</version>

<scope>provided</scope>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-beans</artifactId>

<version>${org.springframework.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-jdbc</artifactId>

<version>${org.springframework.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-web</artifactId>

<version>${org.springframework.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-webmvc</artifactId>

<version>${org.springframework.version}</version>

</dependency>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-orm</artifactId>

<version>${org.springframework.version}</version>

</dependency>

<dependency>

<groupId>org.hibernate</groupId>

<artifactId>hibernate-validator</artifactId>

<version>4.3.0.Final</version>

</dependency>

<dependency>

<groupId>org.hibernate</groupId>

<artifactId>hibernate-entitymanager</artifactId>

<version>3.6.9.Final</version>

</dependency>

<dependency>

<groupId>org.slf4j</groupId>

<artifactId>slf4j-api</artifactId>

<version>1.6.6</version>

</dependency>

<dependency>

<groupId>org.slf4j</groupId>

<artifactId>slf4j-log4j12</artifactId>

<version>1.6.6</version>

</dependency>

<dependency>

<groupId>taglibs</groupId>

<artifactId>standard</artifactId>

<version>1.1.2</version>

</dependency>

<dependency>

<groupId>javax.servlet</groupId>

<artifactId>jstl</artifactId>

<version>1.1.2</version>

</dependency>

<dependency>

<groupId>mysql</groupId>

<artifactId>mysql-connector-java</artifactId>

<version>5.1.10</version>

</dependency>

<dependency>

<groupId>commons-dbcp</groupId>

<artifactId>commons-dbcp</artifactId>

<version>1.4</version>

</dependency>

<dependency>

<groupId>commons-pool</groupId>

<artifactId>commons-pool</artifactId>

<version>20030825.183949</version>

</dependency>

<!-- Gson: Java to Json conversion -->

<dependency>

<groupId>com.google.code.gson</groupId>

<artifactId>gson</artifactId>

<version>2.2.2</version>

<scope>compile</scope>

</dependency>

<dependency>

<groupId>commons-fileupload</groupId>

<artifactId>commons-fileupload</artifactId>

<version>1.2.1</version> <!-- makesure correct version here -->

</dependency>

<dependency>

<groupId>commons-io</groupId>

<artifactId>commons-io</artifactId>

<version>1.4</version>

</dependency>

</dependencies>

<properties>

<org.springframework.version>3.1.2.RELEASE</org.springframework.version>

<project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>

</properties>

<artifactId>qmratreatmentcalculator</artifactId>

</project>

# Appendix B – spring-servlet.xml

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<beans xmlns=*"http://www.springframework.org/schema/beans"*

xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns:aop=*"http://www.springframework.org/schema/aop"*

xmlns:context=*"http://www.springframework.org/schema/context"*

xmlns:mvc=*"http://www.springframework.org/schema/mvc"* xmlns:jee=*"http://www.springframework.org/schema/jee"*

xmlns:lang=*"http://www.springframework.org/schema/lang"* xmlns:p=*"http://www.springframework.org/schema/p"*

xmlns:tx=*"http://www.springframework.org/schema/tx"* xmlns:util=*"http://www.springframework.org/schema/util"*

xsi:schemaLocation=*"http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans.xsd*

*http://www.springframework.org/schema/aop http://www.springframework.org/schema/aop/spring-aop.xsd*

*http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context.xsd*

*http://www.springframework.org/schema/mvc http://www.springframework.org/schema/mvc/spring-mvc-3.0.xsd*

*http://www.springframework.org/schema/jee http://www.springframework.org/schema/jee/spring-jee.xsd*

*http://www.springframework.org/schema/lang http://www.springframework.org/schema/lang/spring-lang.xsd*

*http://www.springframework.org/schema/tx http://www.springframework.org/schema/tx/spring-tx.xsd*

*http://www.springframework.org/schema/util http://www.springframework.org/schema/util/spring-util.xsd"*>

<context:annotation-config />

<mvc:annotation-driven />

<context:component-scan base-package=*"nl.watershare.qmra, nl.watershare.entity, nl.watershare.service, nl.watershare.dao"* />

<bean id=*"propertyConfigurer"* class=*"org.springframework.beans.factory.config.PropertyPlaceholderConfigurer"*>

<property name=*"locations"*>

<list>

<value>classpath:jdbc.properties</value>

<!-- generic KWR watershare property file -->

<value>classpath:watershare.properties</value>

</list>

</property>

</bean>

<util:properties id=*"sessionValidation"*>

<prop key=*"externalSession.validation.url"*>${externalSession.validation.url}</prop>

<prop key=*"session.invalid.redirect.url"*>${session.invalid.redirect.url}</prop>

<prop key=*"externalSession.validation.turnedOn"*>${externalSession.validation.turnedOn}</prop>

</util:properties>

<!-- Configure the multipart resolver -->

<bean id=*"multipartResolver"* class=*"org.springframework.web.multipart.commons.CommonsMultipartResolver"* />

<!-- Set locale to default EN -->

<bean id=*"localeResolver"* class=*"org.springframework.web.servlet.i18n.CookieLocaleResolver"*>

<property name=*"defaultLocale"* value=*"en"* />

</bean>

<bean id=*"jspViewResolver"* class=*"org.springframework.web.servlet.view.InternalResourceViewResolver"*>

<property name=*"viewClass"*

value=*"org.springframework.web.servlet.view.JstlView"* />

<property name=*"prefix"* value=*"/WEB-INF/jsp/"* />

<property name=*"suffix"* value=*".jsp"* />

</bean>

<bean id=*"messageSource"* class=*"org.springframework.context.support.ReloadableResourceBundleMessageSource"*>

<property name=*"basename"* value=*"classpath:qmra\_messages"* />

<property name=*"defaultEncoding"* value=*"UTF-8"* />

</bean>

<bean id=*"dataSource"* class=*"org.apache.commons.dbcp.BasicDataSource"* destroy-method=*"close"*>

<property name=*"driverClassName"*>

<value>${jdbc.driverClassName}</value>

</property>

<property name=*"url"*>

<value>${jdbc.databaseurl}</value>

</property>

<property name=*"username"*>

<value>${jdbc.username}</value>

</property>

<property name=*"password"*>

<value>${jdbc.password}</value>

</property>

<property name=*"validationQuery"*>

<value>${jdbc.validationQuery}</value>

</property>

<property name=*"testOnBorrow"*>

<value>${jdbc.testOnBorrow}</value>

</property>

</bean>

<bean id=*"sessionFactory"*

class=*"org.springframework.orm.hibernate3.LocalSessionFactoryBean"*>

<property name=*"dataSource"* ref=*"dataSource"* />

<property name=*"configLocation"*>

<value>classpath:hibernate.cfg.xml</value>

</property>

<property name=*"configurationClass"*>

<value>org.hibernate.cfg.AnnotationConfiguration</value>

</property>

<property name=*"hibernateProperties"*>

<props>

<prop key=*"hibernate.dialect"*>${jdbc.dialect}</prop>

<prop key=*"hibernate.show\_sql"*>false</prop>

</props>

</property>

</bean>

<tx:annotation-driven />

<bean id=*"transactionManager"* class=*"org.springframework.orm.hibernate3.HibernateTransactionManager"*>

<property name=*"sessionFactory"* ref=*"sessionFactory"* />

</bean>

</beans>

# Appendix C – Web.xml

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<web-app xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns=*"http://java.sun.com/xml/ns/javaee"* xmlns:web=*"http://java.sun.com/xml/ns/javaee/web-app\_2\_5.xsd"* xsi:schemaLocation=*"http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-app\_2\_5.xsd"* id=*"WebApp\_ID"* version=*"2.5"*>

<display-name>QMRA Treatment Calculator</display-name>

<welcome-file-list>

<welcome-file>start.do</welcome-file>

</welcome-file-list>

<context-param>

<param-name>contextConfigLocation</param-name>

<param-value>/WEB-INF/spring-servlet.xml</param-value>

</context-param>

<listener>

<listener-class>org.springframework.web.context.ContextLoaderListener</listener-class>

</listener>

<listener>

<listener-class>nl.watershare.common.security.SessionRegistry</listener-class>

</listener>

<filter>

<filter-name>SessionValidationFilter</filter-name>

<filter-class>nl.watershare.common.security.SessionValidationFilter</filter-class>

</filter>

<filter-mapping>

<filter-name>SessionValidationFilter</filter-name>

<url-pattern>/\*</url-pattern>

</filter-mapping>

<servlet>

<servlet-name>spring</servlet-name>

<servlet-class>org.springframework.web.servlet.DispatcherServlet</servlet-class>

<load-on-startup>1</load-on-startup>

</servlet>

<servlet-mapping>

<servlet-name>spring</servlet-name>

<url-pattern>\*.do</url-pattern>

</servlet-mapping>

<servlet-mapping>

<servlet-name>spring</servlet-name>

<url-pattern>\*.json</url-pattern>

</servlet-mapping>

<error-page>

<error-code>404</error-code>

<location>/WEB-INF/jsp/error.jsp</location>

</error-page>

<error-page>

<exception-type>java.lang.Exception</exception-type>

<location>/WEB-INF/jsp/error.jsp</location>

</error-page>

</web-app>