


Space Details

Key:	WW
Name:	WebWork
Description:	
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Last Modifier (Mod. Date):	matthew (Feb 08, 2005)

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WebWork

This page last changed on Oct 05, 2005 by [digi9ten](#).

Welcome to the **WebWork** wiki. WebWork's official homepage is <http://www.opensymphony.com/webwork/>. There you can find documentation for the latest released version of WebWork. This wiki is used for additional information as well as documentation for the latest developing version (see [Previous releases](#)).

- [Documentation](#)
 - [API JavaDocs](#)
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- [Download Binaries](#)
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Documentation

This page last changed on Oct 07, 2005 by [plightbo](#).

Note: for anyone contributing to the documentation, please read the [Style Guide](#) and make sure you follow it. Also, please look in to [JIRA](#) for a list of open items to do related to documentation (search for items in the Documentation component).

*If you're new to WebWork, please read the **Overview** and proceed to the **Tutorial** to get started. Experienced users can refer to the **Cookbook** for advanced topics. Use the **Reference** on an as-needed basis for more specific details. For detailed information about WebWork project, read the section **Project Information**. Information about many projects related to WebWork can be found in **Related Projects***

*If you have any questions, you can ask them at the user forum/ mailing list. Please be sure to read the **FAQ** before asking any questions.*

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2. [Project Information](#)
3. [FAQ](#)
4. [Tutorial](#)
5. [Cookbook](#)
6. [Reference](#)
7. [Related Projects](#)



The cookbook currently contains a lot of information that may be out of date. These pages will be updated over time and this warning will eventually be removed when the WebWork team feels that the content is 100% correct.

Webwork Cookbook

Welcome to the Webwork Cookbook. This page is geared towards providing an exchange of information for developers. Your welcome to share knowledge and any helpful tips here. Don't forget to check out the Jira (<http://jira.opensymphony.com/browse/WW>), which contains several contributions for WW which may not be listed here.

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Access to Webwork objects from JSP 2.0 EL

This page last changed on Aug 29, 2005 by [plightbo](#).

To access Webwork ValueStack from third party JSP taglibs you have to expose property values to JSP.

You can use Webwork2 tag `<ww:set/>` to set named parameter in a JSP page, request, session or application scope. Following example, sets a request scoped parameter 'a' to list of integers:

```
<ww:set name="'a'" value="{ 1, 2, 3, 4 }" scope="request"/>
```

After setting parameter, third party JSP taglibs can access variables, or you can use JSP 2.0 EL (Expression Language). This is convenient as short hand EL expression syntax

\$

Unknown macro: {expression}

can be used in a text or inside of tag attributes:

```
a[0] = ${a[0]}  
  
<sample:tag value="${a[1]}" />
```

In practice, you've got to expose a lot of different variables to make effective use of third party taglibs like `displaytag` or `wurfl`. This leads to a lot of `<ww:set/>` tags what made me investigate how to make access to ValueStack and OGNL more transparent.



Why can't we just replace EL with OGNL?

Unfortunately, it isn't that simple. I've tinkered with `JSPFactory.setDefault()` to wrap around `getPageContext()` and create `ExpressionEvaluator` that would use OGNL.

This works in practice, but code generated by Jasper2 doesn't call

	<p>JSPFactory.getPageContext().getExpressionEvaluator() but goes directly to static method that is hardwired to jakarta commons-el implementation.</p> <p>Even if it would work it wouldn't be <i>clean</i> as JSPFactory.setDefault() should only be called by JSP implementation.</p>
--	---

There is a simple, if not elegant, solution available in JSP 2.0 EL, for exposing ValueStack to OGNL. It is possible to create custom functions that can be called from EL expressions. Functions have to be 'public static' and specified in a TLD file. Just import TLD in a JSP file where you've want to use a function.

For example, you could access action properties by evaluating OGNL expression by a function 'vs' (for valuestack) in EL:

```
<%@ taglib uri="/WEB-INF/tld/wwel.tld" prefix="x" %>

a[0] = ${x:vs('a[0]')}
a[0] * 4 = ${x:vs('a[0] * 4')}

Current action name: ${x:name()}
Top of ValueStack: ${x:top()}
```

To use this code you've got to add wwel.tld and Functions.java to your webapp project.

I would urge webworkers to define a set of functions that would be usable to wide community and include this in some future Webwork release.

wwel.tld
<pre><?xml version="1.0"?> <taglib xmlns="http://java.sun.com/xml/ns/j2ee" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://java.sun.com/xml/ns/j2ee http://java.sun.com/xml/ns/j2ee/web-jsptaglibrary_2_0.xsd" version="2.0"> <description> This taglib enables access to WebWork2 ValueStack</pre>

```

from JSP 2.0 Expression Language
</description><tlib-version>1.0</tlib-version><short-name>wwel</short-name><function><name>vs</name><function-class>com.nmote.wwel.Fun
    java.lang.Object findOnValueStack(java.lang.String)
</function-signature></function><function><name>name</name><function-class>com.nmote.wwel.Fun
    java.lang.Object getActionName()
</function-signature></function><function><name>top</name><function-class>com.nmote.wwel.Fun
    java.lang.Object getTopOfValueStack()
</function-signature></function></taglib>

```

Functions.java

```

package com.nmote.wwel;

import com.opensymphony.xwork.ActionContext;

/**
 * Utility functions for accessing webwork value stack and action context
 * from JSP 2.0 EL taglibs.
 *
 * @author Vjekoslav Nesek (vneseek@nmote.com)
 */
public class Functions {

    public static Object findOnValueStack(String expr) {
        ActionContext a = ActionContext.getContext();
        Object value = a.getValueStack().findValue(expr);
        return value;
    }

    public static Object getTopOfValueStack() {
        ActionContext a = ActionContext.getContext();
        Object value = a.getValueStack().peek();
        return value;
    }

    public static Object getActionName() {
        ActionContext a = ActionContext.getContext();
        Object value = a.getName();
        return value;
    }
}

```

Accessing application, session, request objects

This page last changed on Nov 10, 2005 by [tm_je](#).

Webwork provides several access helpers to access Session, Application, Request scopes.

Web agnostic (independent of the servlet API) with calls:

```
Map session = (Map) ActionContext.getContext().get("session");
session.put("myId", myProp);
```

The following gives you the same thing as above:

```
ServletActionContext.getRequest().getSession()
```

Note: Be sure not to use `ActionContext.getContext()` in the constructor of your action since the values may not be set up already (returning null for `getSession()`).

Note also: `ActionContext.getContext().get("session")` is the same as `ActionContext.getContext().getSession()` with a cast to `Map`.

If you really need to get access to the `HttpSession`, use the `ServletConfigInterceptor` (see [Interceptors](#)).

In your views, you can access with your jsps as such

```
<ww: property value="#session.myId" />

<ww: property value="#request.myId" />
```

All the servlet scopes can be accessed like above.

```
Map request = (Map) ActionContext.getContext().get("request");
request.put("myId", myProp);
Map application = (Map) ActionContext.getContext().get("application");
application.put("myId", myProp);
Map session = (Map) ActionContext.getContext().get("session");
session.put("myId", myProp);
Map attr = (Map) ActionContext.getContext().get("attr");
attr.put("myId", myProp);
```

The 'attr' map will search the `javax.servlet.jsp.PageContext` for the specified key. If

the PageContext doesn't exist, it will search request,session,application maps respectively.

App Servers

This page last changed on Jun 06, 2005 by [plightbo](#).

- [WebLogic](#)
- [WebLogic 6.1](#)
- WebSphere
- JRun
- Jetty
- Tomcat/JBoss
- Resin
- Orion
- OC4J

```
> The classloaders of WLS seem not to play nice with velocity when
> deploying this way.
>
> If you haven't already tried, do the following, it makes it all work
> for us:
>
> 1) In the webwork.properties file (which should be in your
> WEB-INF/classes directory) put a line like this:
>
> webwork.velocity.configfile = my-velocity.properties
>
> 2) create a "my-velocity.properties" file under WEB-INF/classes and
> put into it the contents of the velocity.properties file that is in
> webwork's velocity-dep.jar
>
> 3) in your new "my-velocity.properties" file, find the section titled
> "T E M P L A T E L O A D E R S", and change this section to look like
> this:
>
> =====
> resource.loader = class
>
> file.resource.loader.description = Velocity File Resource Loader
> file.resource.loader.class =
> org.apache.velocity.runtime.resource.loader.FileResourceLoader
> file.resource.loader.path = .
> file.resource.loader.cache = false
> file.resource.loader.modificationCheckInterval = 2
>
> class.resource.loader.class =
> org.apache.velocity.runtime.resource.loader.ClasspathResourceLoader
> class.resource.loader.cache = true
> =====
>
```

```
> ... which straightens out the class resource loading problems (for us  
> at least).  
>  
> hope this helps,  
> james
```

Note: The "when deploying this way" comment above refers to deploying a war file (not expanded) into the deployment directory of WebLogic; with WL 8.x, this is typically at <bea_home>/user_projects/domains/mydomain/.

Running WebWork 2 on Weblogic Server 6.1

This document describes why WebWork 2 doesn't work "as-is" on Weblogic Server 6.1 and shows how to build an additional JAR that will fix the problems.

Note: the service pack of Weblogic Server 6.1 used is SP4.

The first part of this document describes the technical problems and the theoretical solution.

Why WebWork Doesn't Work

Weblogic 6.1 was published just prior to the finalization of the Servlet 2.3 specification. The incompatibility is that servlet filters and listeners in Weblogic 6.1 do not work with the 2.3 spec primarily because the servlet context is not retrieved in the same way. This causes virtually all filter initialization operations to fail with an `AbstractMethodError` exception.

How WebWork Is Modified

In Servlet 2.3, the servlet context is available from the session object; this is not true for Weblogic Server 6.1. Hence, filters and listeners must be modified to retrieve the servlet context from a different source; this is accomplished by retrieving the servlet context from the `FilterConfig` passed to the servlet filters during initialization.

However, the WebWork code cannot be modified to do this, because this will break the Servlet 2.3 specification. The goal is to leave the "original" WebWork modified so that

it is still Servlet 2.3 compatible, and then to add an additional JAR that "breaks" WebWork to work on Weblogic Server 6.1.

Hence, if you want to run WebWork under Servlet 2.3, the default, then simply build WebWork as usual.

But if you want to run WebWork under Servlet 2.3, you need to build the additional JAR and put it into your WAR file, and then modify your web.xml to use the new classes instead of the standard ones.

The standard WebWork has already been modified slightly to make the above effort possible:

1. RequestLifecycleFilter is modified to retrieve its servlet context from the method `getServletContext()`. This method, `getServletContext()`, is then implemented to return the servlet context from where it is available in Servlet 2.3: the session object. The logical operation is unchanged, but now subclasses can override `getServletContext()` to retrieve the servlet context from a different location as we'll see below.
2. SessionLifecycleListener is modified in the same way as RequestLifecycleFilter. The method, `getServletContext()`, is implemented to return the servlet context, in this case also from the session object. Again, subclasses can override the `getServletContext()` method to restore the servlet context from a different source. Again, this class's functionality is unchanged.

Now, in a separate project, the following classes are added and compiled into a separate JAR:

RequestLifecycleFilterCompatWeblogic61

This subclass of RequestLifecycleFilter simply overrides `getServletContext()` to retrieve the servlet context from the filter config, creates a singleton class, SessionContextSingleton, and assigns the servlet context to the singleton so that the listeners will have the ability to retrieve it.

SessionLifecycleListenerCompatWeblogic61

This subclass of `SessionLifecycleListener` simply overrides `getServletContext()` to retrieve the servlet context from the singleton created above.

FilterDispatcherCompatWeblogic61

Although the superclass of this class, `FilterDispatcher`, is commented out, this subclass retrieves the servlet context in the same way as `RequestLifecycleFilterCompatWeblogic61` in case it is ever resurrected. At this time, this class is unnecessary.

ServletContextSingleton

A singleton class whose sole purpose is to hold the servlet context so that listener classes have access to it.

Setting Up WebWork 2 to Run on Weblogic 6.1

Building Your Own Project

In the `web.xml` file, make the following class name substitutions:

Old Class Name	New Class Name
<code>RequestLifecycleFilter</code>	<code>RequestLifecycleFilterCompatWeblogic61</code>
<code>SessionLifecycleListener</code>	<code>SessionLifecycleListenerCompatWeblogic61</code>
<code>FilterDispatcher</code>	<code>FilterDispatcherCompatWeblogic61</code>

FAQ

I still get the `AbstractMethodError` Exception when Weblogic Server starts up. What am I doing wrong?

1. Check to see if a webwork-example.war is still lingering in your mydomain/applications folder and delete it if it is there.
2. See next FAQ question.

The server behavior seems like it is from a previous source code base; I can't debug it. What's the clue?

Sometimes BEA Weblogic Server doesn't "rebuild" its temporary files. Do the following to force the temporary files to rebuild:

1. Stop the server.
2. Delete the .wlnotdelete folder in mydomain/applications.
3. Restart the server.

Application, Session, Request objects in jsp

This page last changed on Nov 30, 2004 by [jcarreira](#).

The application, session and request objects are available from within ww tags in jsp wherever ognl can be evaluated. Use the #session syntax to get the object and access values by their keys using ['key'].

```
<ww:property value="#application\['foo'\]"/>
<ww:property value="#session\['baz'\]"/>
```

Conversely, if you would like to make webwork objects available to say the jsp/jstl request scope. The property tag can be used like this.

```
<ww:set name="jobz" value="jobs" scope="request" />
```

A full example below shows a webwork variable "jobs" being exposed as "jobz" and being used with jstl and the display tag.

[WW:Exposing webwork objects to JSTL, with a JSTL and DisplayTag Example](#)

Application, Session, Request objects in vm

This page last changed on Nov 30, 2004 by [jcarreira](#).

```
$req.session.servletContext.getAttribute(...)  
$req.session.getAttribute(...)  
$req.getAttribute(...)
```

To get parameters from the QueryString or from a POSTed form, do not use `getAttribute`, use:

```
$req.getParameter(...)
```

But that's quite obvious, since `$req` is the request object and we all know how it works.

Example:

`_test.jsp_`:

```
<html><head></head><body>  
<%  
session.setAttribute("sessionFoo", "sessionBar");  
session.getServletContext().setAttribute("applicationFoo", "applicationBar");  
%>  
  
<p>The following information should be available when sending the form below:  
  
<ul>  
  <li>Request parameter 'queryStringFoo' with value 'queryStringBar';</li>  
  <li>Request parameter 'formFoo' with value 'formBar';</li>  
  <li>Session attribute 'sessionFoo' with value 'sessionBar';</li>  
  <li>Application attribute 'applicationFoo' with value 'applicationBar'.</li>  
</ul>  
</p>  
  
<form action="test.vm?queryStringFoo=queryStringBar" method="post">  
<input type="hidden" name="formFoo" value="formBar">  
<p><input type="submit" value="Test!"></p>  
</form>  
</body></html>
```

`_test.vm_`:

```
<html><head></head><body>  
  
#set ($ses = $req.getSession())
```

```
#set ($app = $ses.getServletContext())

<p>applicationFoo = $!app.getAttribute("applicationFoo")
<code>(app.getAttribute("applicationFoo"))</code></p>
<p>sessionFoo = $!ses.getAttribute("sessionFoo")
<code>(ses.getAttribute("sessionFoo"))</code></p>
<p>formFoo = $!req.getParameter("formFoo")
<code>(req.getParameter("formFoo"))</code></p>
<p>querystringFoo = $!req.getParameter("querystringFoo")
<code>(req.getParameter("queryStringFoo"))</code></p>

</body></html>
```

Describing a bean in velocity

This page last changed on Dec 10, 2004 by [sutter2k](#).

The follow snippet might be useful during debugging to list the properties inside an arbitrary bean. Or for handing to a UI developer that use unaware of the getters/setters inside an object.

```
## prints out the property names for a bean
#macro (describeBean $name)
#set($bu = $webwork.bean("com.opensymphony.util.BeanUtils"))
  #foreach($propName in $bu.getPropertyNames($name))
    <li>$propName</li>
  #end
#end
```

i.e. assuming \$obj is a PersonObject that has properties(firstName, lastName, and zip).

```
#describeBean($obj)
```

would print

```
<li>firstName</li>
```

```
<li>lastName</li>
```

```
<li>zip</li>
```

One might also expand upon this to build a dynamic interface with via reflection. e.g.

```
$webwork.evaluate("$obj.${propName}")
```

Exposing webwork objects to JSTL, with a JSTL and DisplayTag Example

This page last changed on Nov 30, 2004 by jcarreira.

```
<ww:set name="jobz" value="jobs" scope="request" />
```

The full example below shows a webwork variable "jobs" being exposed as "jobz" to the request scope and being used with jstl and the display tag.

```
<%@ taglib uri="/WEB-INF/tlds/c.tld" prefix="c" %>
<%@ taglib uri="/WEB-INF/tlds/fmt.tld" prefix="fmt" %>
<%@ taglib uri="/WEB-INF/tlds/displaytag-el-12.tld" prefix="display" %>
<%@ taglib uri="/WEB-INF/tlds/webwork.tld" prefix="ww" %>

<ww:set name="jobz" value="jobs" scope="request" />

<h1><fmt:message key="title.listAllJobs"/></h1>
<display:table name="jobz" class="simple" id="row" >
  <display:column titleKey="label.global.actions" >
    <c:url var="viewurl" value="/viewJobDetail.action">
      <c:param name="name" value="${row.name}"/>
      <c:param name="groupName" value="${row.group}"/>
    </c:url>
    <c:url var="exeurl" value="/viewJobDetail.action">
      <c:param name="name" value="${row.name}"/>
      <c:param name="groupName" value="${row.group}"/>
      <c:param name="executeJobAction" value="execute"/>
    </c:url>
    <c:url var="editurl" value="/viewJobDetail.action">
      <c:param name="name" value="${row.name}"/>
      <c:param name="groupName" value="${row.group}"/>
      <c:param name="editAction" value="edit"/>
    </c:url>
    <a href='<c:out value="${viewurl}"/>'><fmt:message key="label.global.view"/></a>
    |
    <a href='<c:out value="${editurl}"/>'><fmt:message key="label.global.edit"/></a>
    |
    <a href='<c:out value="${exeurl}"/>'><fmt:message
key="label.global.execute"/></a> &nbsp;
  </display:column>

  <display:column property="group" titleKey="label.job.group" sortable="true" />
  <display:column property="name" titleKey="label.job.name" sortable="true" />
  <display:column property="description" titleKey="label.job.description" />
  <display:column property="jobClass" titleKey="label.job.jobClass" sortable="true"
/>

</display:table>
```

Please note, at the time of this writing the "titleKey" attribute of the display tag's column tag is not yet released into a final version. It is a feature that is currently, only available through cvs.

File Upload Interceptor

This page last changed on Nov 07, 2005 by [marian](#).

Interceptor that is based off of `MultiPartRequestWrapper`, which is automatically applied for any request that includes a file. It adds the following parameters, where [File Name] is the name given to the file uploaded by the HTML form:

-
- [File Name] : File - the actual File
-
- [File Name]ContentType : String - the content type of the file
-
- [File Name]FileName : String - the actual name of the file uploaded (not the HTML name)
-

You can get access to these files by merely providing setters in your action that correspond to any of the three patterns above, such as `setDocument(File document)`, `setDocumentContentType(String contentType)`, etc.

This interceptor will add several field errors, assuming that the action implements `ValidationAware`. These error messages are based on several `i18n` values stored in `webwork-messages.properties`, a default `i18n` file processed for all `i18n` requests. You can override the text of these messages by providing text for the following keys:

-
- `webwork.messages.error.uploading` - a general error that occurs when the file could not be uploaded
-
- `webwork.messages.error.file.too.large` - occurs when the uploaded file is too large
-
- `webwork.messages.error.content.type.not.allowed` - occurs when the uploaded file does not match the expected content types specified
-

Parameters

-
- maximumSize (optional) - the maximum size (in bytes) that the interceptor will allow a file reference to be set on the action. Note, this is **not** related to the various properties found in webwork.properties. Default to approximately 2MB.
-
- allowedTypes (optional) - a comma separated list of content types (ie: text/html) that the interceptor will allow a file reference to be set on the action. If none is specified allow all types to be uploaded.
-

Extending the Interceptor

You can extend this interceptor and override the #acceptFile method to provide more control over which files are supported and which are not.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref name="fileUpload"/><interceptor-ref name="basicStack"/><result name="success">good_result.ftl</result></action>
```

Setting parameters example:

```
<interceptor-ref name="fileUpload"><param name="allowedTypes">
  image/png,image/gif,image/jpeg
</param></interceptor-ref>
```

GroovyResult - Groovy scripts as a view

This is an attempt to create a Result type that uses Groovy (<http://groovy.codehaus.org>) files as a view. It exposes the current ActionContext to a groovy script. This doesn't really have much practical use, but it's fun nonetheless and shows how easy creating Webwork Results is. There is another Result (JFreeChartResult) in the [Cookbook](#)

Installation

Not much - just make sure you have Groovy in your classpath, and the antlr, asm-* and groovy jars available to your webapp.

Configuration

xwork.xml - result-types definitions

```
<result-types>
  <result-type name="groovy" class="myapp.webwork.extensions.GroovyResult"/>
</result-types>
```

xwork.xml - action definitions

```
<action name="MyAction" class="myapp.webwork.actions.MyAction">
  <result name="success" type="groovy">
    <param name="file">test.groovy</param>
  </result>
</action>
```

The result type takes one parameter (for now), namely 'file', which contains the name of the groovy script in our script directory.

Show me the code !

Here's the code of the actual GroovyResult. This is a verbose version, with a lot of error checking.

GroovyResult.java - source code

```
public class GroovyResult implements Result {

    publicfinalstaticString GROOVY_DIR_NAME = "groovy";

    privatefinalstatic Logger logger = Logger.getLogger(GroovyResult.class);
    //our groovy source file name
    privateString file;
    //a groovy shell
    private GroovyShell shell;
    //our parsed script
    private Script script;
    //the outputstream that will replace the 'out' in our groovy stream
    private OutputStream out;
    //directory containing groovy scripts
    privateString scriptDirectory;
    /*
     * (non-Javadoc)
     *
     * @see
     * com.opensymphony.xwork.Result#execute(com.opensymphony.xwork.ActionInvocation)
     */
    public void execute(ActionInvocation inv) {

        //check the scriptDirectory - if it doesn't exists, use the default one
        //WEBAPP + Groovy files directory
        if (scriptDirectory == null) {
            //not pretty, but this allows us to get the app root directory
            String base = ServletActionContext.getServletContext().getRealPath(
                "/");
            //iffor some reason (.war, apache connector, ..) we can't get the
            // base path
            if (base == null) {
                logger
                    .warn("Could not translate the virtual path \"/\\" to set the
                        default groovy script directory");
                return;
            }
            scriptDirectory = base + GROOVY_DIR_NAME;
            //issue a warning that this directory should NOT be world readable
            // !!
            logger
                .warn("Please make sure your script directory is NOT world
                    readable !");
        }

        // first of all, make sure our groovy file exists, is readable, and is
        // an actual file

        File groovyFile = new File(scriptDirectory, file);
```

```

        if (!groovyFile.exists()) {
            //log an error and return          logger.warn("Could not find
destination groovy file: "
            + groovyFile.getAbsolutePath());
            return;
        }
        if (!groovyFile.isFile()) {
            //log an error and return          logger.warn("Destination is not a
file: "
            + groovyFile.getAbsolutePath());
            return;
        }
        if (!groovyFile.canRead()) {
            //log an error and return          logger.warn("Can not read file: " +
groovyFile.getAbsolutePath());
            return;
        }

        if (logger.isDebugEnabled())
            logger.debug("File " + groovyFile.getPath()
                + " found, going to parse it ..");

        /*
        * Here we create a Binding object which we populate with the webwork
        * stack
        */
        Binding binding = new Binding();

        binding.setVariable("context", ActionContext.getContext());

        /*
        * We replace the standard OutputStream with our own, in thiscase the
        * OutputStream from our httpResponse
        */
        try {
            //the out will be stored in an OutputStream
            out = ServletActionContext.getResponse().getOutputStream();
        } catch (IOException e1) {
            logger.error("Could not open outputstream", e1);
        }
        if (out != null){
            binding.setVariable("out", out);
        }
        else {
            logger
                .warn("OutputStream not available, using defaultSystem.out
instead");
            binding.setVariable("out", System.out);
        }

        //create a new shell to parse and run our groovy file
        shell = new GroovyShell(binding);
        try {
            //try to parse the script - the returned script could be cached
for//performance improvent
            script = shell.parse(groovyFile);
        } catch (CompilationFailedException e) {
            logger.error("Could not parse groovy script", e);
            return;
        } catch (IOException e) {
            logger.error("Error reading groovy script", e);
            return;
        }

```

```

    }
    //the binding is set, now run the script
Object result = script.run();

    if (logger.isDebugEnabled()) {
        logger.debug("Script " + groovyFile.getName()
            + " executed, and returned: " + result);
    }
    try {
        out.flush();
    } catch (IOException e2) {
        logger.error("Could not flush the outputstream", e2);
    }
}

/**
 * @return Returns the script.
 */
public Script getScript() {
    return script;
}

/**
 * @param file
 *          The file to set.
 */
public void setFile(String file) {
    this.file = file;
}

/**
 * @param out
 *          The out to set.
 */
public void setOut(OutputStream out) {
    this.out = out;
}

```

Explanation

The first part of the result is little more than:

- determining the script directory - defaults to MYWEBAPP/groovy/
- checking the file - make sure it exists, is readable, ..



Make sure the groovy scripts directory is not world readable !

The groovy part starts at:

```

Binding binding = new Binding();
binding.setVariable("context", ActionContext.getContext());

```

A Binding object allows us to 'bind' objects to a groovy script, so they can be used as variables. In this case, I took the ActionContext and exposed it as 'context'.

```
out = ServletActionContext.getResponse().getOutputStream();
...
binding.setVariable("out", out);
```

We also bind an OutputStream to the groovy script (as 'out') - it simply serves as a replacement for the standard System.out, so any printing goes directly to the http response outputstream.

```
shell = new GroovyShell(binding);
```

Next step; we create a GroovyShell, and pass our populated Binding to the constructor. Any script ran by this shell will have access to the passed variables (ActionContext and OutputStream).

```
script = shell.parse(groovyFile);
```

Before you can run a groovyFile, you need to parse it. Any syntax errors will be reported here - I also suggest adding a better error reporting in this case if you actually want to use this Result.

Upon successful parsing, a Script is returned (which could be cached if you want to increase performance) which will be run by our Shell.

```
Object result = script.run();
```

As a test, you might want to create a little 'groovy' script to test our Result.
test.groovy - a simple groovy script

```
for (item in context.contextMap){
    println "item: ${item}"
}
```

Place the test.groovy file in your groovy scripts directory. You should now see the result when you invoke MyAction.action in your browser.

Possible improvements are binding all objects on the stack so they become available to the groovy script, refactoring to an InputStream instead of a File, etc .. Comments welcome !

Reason for use

I have recently found the need for my Interceptors and Validators to be able to access Components - such as a Validators which is UserAware and checks the UserManager to see if the user exists. Or a Interceptor which is ApplicationAware and asks the ApplicationManager if it is setup yet - if not, then redirecting to a setup action instead.

Currently WebWork (at version 2.1.7) only supports component management of Action, but this can be changed quite easily - if you know where to look.

Extending the Object Factorys

WebWork uses a **com.opensymphony.xwork.ObjectFactory** object instance to generate the various objects that WebWork utilises - Validators, Interceptors, Actions, and Results for example. This is the object we are going to extend to add some of this functionality.

The methods **buildInterceptor** and **buildValidator** do what they say on the tin. I have overridden them to do the following:

```
public Interceptor buildInterceptor(InterceptorConfig ic, Map map) throws
ConfigurationException {
    Interceptor i = super.buildInterceptor(ic, map);
    cm.initializeObject(i);
    return i;
}

public Validator buildValidator(String string, Map map) throws Exception {
    Validator v = super.buildValidator(string, map);
    cm.initializeObject(v);
    return v;
}
```

Creating a Component Manager

The variable **cm** is a **ComponentManager**. As I am unsure of how to access the ComponentManager that is used in the ComponentInterceptor (or used when initializing Action objects), we have to create our own. As the ObjectFactory is a singleton the overhead of this is relatively minor, even though not ideal.

The ComponentManager is created in the constructor like this:

```
private static final Log log = LoggerFactory.getLog(ObjectFactory.class);

private ComponentConfiguration cc;
private ComponentManager cm;

public ObjectFactory() {
    super();
    cm = (ComponentManager) ActionContext.getContext().get(
        ComponentInterceptor.COMPONENT_MANAGER );

    if (cm == null) {
        cc = new ComponentConfiguration();
        InputStream configXml =
            Thread.currentThread().getContextClassLoader().getResourceAsStream("components.xml");
        try {
            cc.loadFromXml(configXml);
        } catch (Exception e) {
            log.info("No component.xml found. They test will continue without
initializing components.");
            cc = null;
        }
    }

    cm = new DefaultComponentManager();
    if (cc != null) {
        cc.configure(cm, "session");
        cc.configure(cm, "application");
        cc.configure(cm, "request");
    }
}
```

Using our new ObjectFactory

The ObjectFactory is a singleton which allows you to set the object it hands out. To do this I have chosen to override the **init** method of the **com.opensymphony.webwork.dispatcher.ServletDispatcher** class. The method

looks something like this:

```
public void init(ServletConfig servletConfig) throws ServletException {
    ObjectFactory.setObjectFactory( new planb.jobsite.xwork.ObjectFactory() );
    super.init(servletConfig);
}
```

Code Results

The following full files result from this article.

Object Factory

ObjectFactory.java

```
import com.opensymphony.xwork.interceptor.Interceptor;
import com.opensymphony.xwork.interceptor.component.ComponentManager;
import com.opensymphony.xwork.interceptor.component.DefaultComponentManager;
import com.opensymphony.xwork.interceptor.component.ComponentInterceptor;
import com.opensymphony.xwork.interceptor.component.ComponentConfiguration;
import com.opensymphony.xwork.config.entities.InterceptorConfig;
import com.opensymphony.xwork.config.ConfigurationException;
import com.opensymphony.xwork.validator.Validator;
import com.opensymphony.xwork.ActionContext;

import java.util.Map;
import java.io.InputStream;

import org.apache.commons.logging.Log;
import org.apache.commons.logging.LogFactory;

public class ObjectFactory extends com.opensymphony.xwork.ObjectFactory {

    private static final Log log = LogFactory.getLog(ObjectFactory.class);

    private ComponentConfiguration cc;
    private ComponentManager cm;

    public ObjectFactory() {
        super();
        cm = (ComponentManager) ActionContext.getContext().get(
            ComponentInterceptor.COMPONENT_MANAGER );

        if (cm == null) {
            cc = new ComponentConfiguration();
            InputStream configXml =
                Thread.currentThread().getContextClassLoader().getResourceAsStream("components.xml");
            try {
                cc.loadFromXml(configXml);
            } catch (Exception e) {
                log.info("No component.xml found. They test will continue without");
            }
        }
    }
}
```



```

initializing components.");
        cc = null;
    }

    cm = new DefaultComponentManager();
    if (cc != null) {
        cc.configure(cm, "session");
        cc.configure(cm, "application");
        cc.configure(cm, "request");
    }
}

public Interceptor buildInterceptor(InterceptorConfig ic, Map map) throws
ConfigurationException {
    Interceptor i = super.buildInterceptor(ic, map);
    cm.initializeObject(i);
    return i;
}

public Validator buildValidator(String string, Map map) throws Exception {
    Validator v = super.buildValidator(string, map);
    cm.initializeObject(v);
    return v;
}
}

```

Servlet Dispatcher

ServletDispatcher.java

```

import com.opensymphony.xwork.ObjectFactory;

import javax.servlet.ServletConfig;
import javax.servlet.ServletException;

public class ServletDispatcher extends
com.opensymphony.webwork.dispatcher.ServletDispatcher {

    public void init(ServletConfig servletConfig) throws ServletException {
        ObjectFactory.setObjectFactory( new planb.jobsite.xwork.ObjectFactory() );
        super.init(servletConfig);
    }
}

```

web.xml

Replace the reference to the webwork ServletDispatcher to point to the above ServletDispatcher class.

Important Notes

You should find your Interceptors and Validators are now componentized just like Actions, however there are some important notes to be made.

Lifecycle Issues

Interceptors and Validators are both cached by webwork and reused instead of being reinstanciated - this will mean that you may experience issues with components outside of the application scope. As all of my Interceptor / Validator required components are in this scope, this isn't an issue to me.

One solution to this constraint would be to investigate how webwork caches its Interceptors and Validators, then check to see if the objects use session / request scoped components and cache accordingly. Maybe a thought for the guys planning the next release of webwork!

Conclusion

For now this concludes this article - feel free to add your ideas!

How do I populate a form bean and get the value using the taglib

This page last changed on Nov 12, 2005 by [tm_je](#).

First off, if you're coming from Struts, you may feel more comfortable using FormBeans instead of using the Action as your form bean. Be aware, though, that in Webwork you DO have the option of having the properties directly in the Action class. If you want to use a FormBean, here's an example:

```
public class TestAction extends ActionSupport {
    private TestBean myBean;

    public TestBean getMyBean() {
        return myBean;
    }

    public void setMyBean(TestBean myBean) {
        this.myBean = myBean;
    }

    protectedString doExecute() throws Exception {
        myBean = new TestBean();
        BeanUtil.setProperties(ActionContext.getContext().getParameters(), myBean);
        return SUCCESS;
    }
}
```

Then, in your success.jsp, which is mapped as the success result of TestAction in the views.properties or actions.xml (see the docs for how to configure actions and view mappings), you can do this:

```
<!-- This will call getMyBean() on your action and put it on the top of the value
stack -->
<webwork:property value="myBean">
<!-- This will call getName() on your TestBean and print it to the page -->
The name is: <webwork:property value="name"/>
</webwork:property>
```

This is a good way to do it if you have several parameters from the TestBean that you want to display, but, if you have just one, like in this case, it's probably better to do this:

```
<webwork:property value="myBean/name"/>
```

NOTE:

As of WW2.2, the following should be used

```
<webwork:property value="myBean.name" />
```

Which will call `getMyBean.getName()` and print that out to the page.

How to format dates and numbers

This page last changed on Jan 23, 2005 by [mgreer](#).

A frequently asked question is how best to display dates and numbers using a specified format. There are a number of approaches for this, the most naive of which would be to add a method to your action class to do the formatting for you. This method would take in a `Date` (or subclass) object as a parameter, and return a formatted `String`.

That approach however suffers from a number of flaws. For example, it is not i18n aware. The date format specified is rigid, and will not adapt to different locales easily (assuming you're not using a default formatter that is). It also clutters up your actions with code that has nothing to do with the action itself.

Instead, the recommended approach is to use Java's built-in date formatting features via use of the `webwork:text` tag.

The `webwork:text` tag should be used for all i18n values. It will look up the properties file for your action, and from that select the value for the key that you specify. This is best illustrated in an example:

```
<!-- display the number of items in a cart -->
<webwork:text name="'cart.items'" value0="cartItems" />
```

The above tag will work as follows. `value0` will result in a call to **`getCartItems()`** on your action class. The **`cart.items`** name is escaped, so it is treated as a literal key into the actions' properties file. Your `MyAction.properties` file will contain the following:

`cart.items=You have {0} items in your cart.`

Normal Java **`MessageFormat`** behaviour will correctly substitute `{0}` with the value obtained from `getCartItems`.

Needless to say, this can get a lot more elaborate, with the ability to specify both date and number formatting. Let us consider another example. The goal here is to display a greeting to the user, as well as the date of their last visit.

```
<webwork:text name="'last.visit'" value0="userName" value1="lastVisit(userName)" />
```

MyAction.java contains:

```
publicString getUsername() { ... };  
public Date getLastVisit(String userName) { ... };
```

Your **MyAction.properties** file will then contain:

last.visit=Welcome back {0}, your last visit was at {1,date,HH:mm dd-MM-yyyy}

As you can see, this is a very powerful mechanism and allows you to easily display numbers and dates using any formatting rules that Java allows.



value0 interface deprecated

The examples above pass in the values as:

```
<webwork:text name="'text.message'"  
value0="userName" />
```

These values should now (>2.1.7?) be passed as params:

```
<webwork:text name="'text.message'">  
  <webwork:param  
value="'userName'" />  
</webwork:text>
```



Some message format examples

Here are some examples of formatting in the properties file:

```
format.date = {0,date,MM/dd/yy}  
format.time = {0,date,MM/dd/yy ha}  
format.percent = {0,number,##0.00'%'}
```

```
format.money = {0,number,$##0.00}
```

How to validate field formats, such as a phone number

This page last changed on Sep 23, 2005 by [jhouse](#).

Validating the format of String fields for patterns (such as a phone number) is easy with StringRegexValidator (named "regex" in the default validator configuration).

Simply add the validator the field in question, and supply a regular expression to match it against.

```
<validators>
  <field name="phone">
    <field-validator type="regex">
      <param name="regex">\\([\\d][\\d][\\d])
[\\d][\\d][\\d]-[\\d][\\d][\\d][\\d]</param>
      <message>Phone number must be in the format (XXX) XXX-XXXX</message>
    </field-validator>
  </field>
</validators>
```

If your expression tests against alpha characters, you may be interested in the "caseSensitive" parameter of with Validator as well. It defaults to "true".

Interceptor Order

This page last changed on Nov 30, 2004 by [jcarreira](#).

Interceptors provide an excellent means to wrap before/after processing. The concept reduces code duplication (think AOP).

Order of interceptors...

```
<interceptor-stack name="xaStack">
  <interceptor-ref name="thisWillRunFirstInterceptor"/>
  <interceptor-ref name="thisWillRunNextInterceptor"/>
  <interceptor-ref name="followedByThisInterceptor"/>
  <interceptor-ref name="thisWillRunLastInterceptor"/>
</interceptor-stack>
```

Note that some interceptors will interrupt the stack/chain/flow... so the order is very important.

Interceptors implementing `com.opensymphony.xwork.interceptor.PreResultListener` will run after the Action executes its action method but before the Result executes

```
thisWillRunFirstInterceptor
  thisWillRunNextInterceptor
    followedByThisInterceptor
      thisWillRunLastInterceptor
        MyAction1
        MyAction2 (chain)
        MyPreResultListener
        MyResult (result)
      thisWillRunLastInterceptor
    followedByThisInterceptor
  thisWillRunNextInterceptor
thisWillRunFirstInterceptor
```

Iterator tag examples

This page last changed on Nov 10, 2005 by [tm_je](#).

This follows on from [Iteration Tags](#) which you should read first, but beware of references to '0' and 'that'; what you really want in WW2 is 'top', as illustrated below. (I finally worked this out from the source code - hopefully this page means you won't have to.)

Referencing the current value

The simple examples print out values from the list using the property tag, which uses the value at the top of the stack by default:

```
Days:
<ul>
<ww:iterator value="days">
  <li><ww:property/>
</ww:iterator>
</ul>
```

But if you're doing anything other than print the value, you probably need to refer to it specifically. Do this:

```
Most days:
<ul>
<ww:iterator value="days">
  <ww:if test="top != 'Monday'">
    <li><ww:property/>
  </ww:if>
</ww:iterator>
</ul>
```

Iterating over a list of objects

```
<ww:iterator value="employees">
  <ww:property value="name"/> is the <ww:property value="jobTitle"/><br>
</ww:iterator>
```

For 'name' and 'jobTitle' you could be more explicit and write 'top.name' and 'top.jobTitle', as 'top' refers to the object on the top of the stack. It's not necessary here, but it is in the next example.

Iterating over a list of lists

```
<table>
  <ww:iterator value="grid">
    <tr>
      <ww:iterator value="top">
        <td><ww:property/></td>
      </ww:iterator>
    </tr>
  </ww:iterator>
</table>
```

The trick here is to use 'top' as the value for the inner iterator. This example probably uses a two-dimensional array, but you can use the pattern for any list of lists.

A more complex example

In this example, 'countries' is a list of country objects, each of which has a name and a list of cities. Each city has a name.

```
<ww:iterator value="countries">
  <ww:iterator value="cities">
    <ww:property value="name"/>, <ww:property value="[1].name"/><br>
  </ww:iterator>
</ww:iterator>
```

The output looks like

```
Wellington, New Zealand
Auckland, New Zealand
Moscow, Russia
Glasgow, Scotland
Edinburgh, Scotland
Stockholm, Sweden
```

Both the country and city objects have a 'name' property. As you'd expect, the reference to 'name' on its own gives you the city name. To access the country name - effectively "hidden" by the city name - we refer to a specific position on the stack: '1'. The top of the stack, position 0, contains the current city, pushed on by the inner iterator; position 1 contains the current country, pushed there by the outer iterator.

Actually, as Patrick points out in his comment on [Iteration Tags](#), the 'n' notation refers

to a sub-stack beginning at position n, not just the object at position n. Thus '0' is the whole stack and '1' is everything except the top object. In our example, we could have been more specific about getting the country name and said '1.top.name'.

Misc

If no value is specified, iterator will try to grap object from the 'top' of the stack. If it is not iterable, `ClassCastException` will be thrown in the process. @see `com.opensymphony.webwork.views.jsp.IteratorTag#doStartTag`

Intro

I am rendering a chart to the output stream. Instead of streaming it directly to the `response.out`, I create a `ChartResult`, and let webwork do the chaining for me.

I generate the chart in one class, and I render it out in another class, effectively decoupling the view from the actions. You can easily render it out to a file or some view other than a web `response.out` if you wish.

Configuration

xwork.xml - result-types definitions

```
<result-types>
  <result-type name="chart" class="myapp.webwork.extensions.ChartResult"/>
</result-types>
```

xwork.xml - action definitions

```
<action name="viewModerationChart"
class="myapp.webwork.actions.ViewModerationChartAction">
  <result name="success" type="chart">
    <param name="width">400</param>
    <param name="height">300</param> </result>
</action>
```

Source Codes

My result class searches for a "chart" in the `ValueStack` and renders it out...

```
public class ChartResult implements Result {
    private int width;
```

```

private int height;

public void execute(ActionInvocation invocation) throws Exception {
    JFreeChart chart =
        (JFreeChart) invocation.getStack().findValue("chart");
    HttpServletResponse response = ServletActionContext.getResponse();
    OutputStream os = response.getOutputStream();
    ChartUtilities.writeChartAsPNG(os, chart, width, height);
    os.flush();
}

public void setHeight(int height) {
    this.height = height;
}

public void setWidth(int width) {
    this.width = width;
}
}

```

My action class creates the JFreeChart to render...

```

public class ViewModerationChartAction extends ActionSupport {

    private JFreeChart chart;

    public String execute() throws Exception {
        // chart creation logic...
        XYSeries dataSeries = new XYSeries(null);
        for (int i = 0; i <= 100; i++) {
            dataSeries.add(i, RandomUtils.nextInt());
        }
        XYSeriesCollection xyDataset = new XYSeriesCollection(dataSeries);

        ValueAxis xAxis = new NumberAxis("Raw Marks");
        ValueAxis yAxis = new NumberAxis("Moderated Marks");

        // set my chart variable
        chart =
            new JFreeChart(
                "Moderation Function",
                JFreeChart.DEFAULT_TITLE_FONT,
                new XYPlot(
                    xyDataset,
                    xAxis,
                    yAxis,
                    new StandardXYItemRenderer(StandardXYItemRenderer.LINES)),
                false);
        chart.setBackgroundPaint(java.awt.Color.white);

        return super.SUCCESS;
    }

    public JFreeChart getChart() {
        return chart;
    }
}

```

Explanation

```
public JFreeChart getChart() {  
    return chart;  
}
```

makes the chart available on the ValueStack, which the result gets via

```
JFreeChart chart = (JFreeChart) invocation.getStack().findValue("chart");
```

From what I can deduce, the webwork pulls in the height and width variables from the xwork.xml definitions for that particular action...

```
<param name="width">400</param>  
<param name="height">300</param>
```

Suggestions for the next developer...

Currently the "chart" property is hardcoded. There should be a better way of transferring data from the Action to the Result, via some externally defined variable or something.

As mentioned by John Patterson (mailing list), the Action is still dependant on a JFreeChart Chart class. This can be improved. The separation between Action and View can be made cleaner. A chart-agnostic List or Array can be used as the data, and the configuration of the chart details (font, axis, etc...) be done via the result properties in the xwork.xml.

But hey, the above works for now. Any suggestions are welcome.

Creating charts via CeWolf directly in Velocity templates

See [WW:CeWolf charts using Velocity templates.](#)


redirect after post

This page last changed on Jan 07, 2006 by [plightbo](#).

The redirect-after-post technique is a common pattern in web application development. It simply means making your action, after it has successfully executed, result in a redirect. You can do this by using the [Redirect Result](#) or the [Redirect Action Result](#).

Introduction

A couple of days ago I quickly had to create a WW result type that would transform a Rome (<https://rome.dev.java.net/>) SyndFeed to several news feeds. WW makes this very, very easy.

	Used versions WebWork 2.2 beta 4 Rome 0.7 beta
---	---

The code

com.acme.result.RomeResult.java

```
/**
 *
 */
package com.acme.result;

import java.io.Writer;

import org.apache.log4j.Logger;

import com.opensymphony.webwork.ServletActionContext;
import com.opensymphony.xwork.ActionInvocation;
import com.opensymphony.xwork.Result;
import com.sun.syndication.feed.synd.SyndFeed;
import com.sun.syndication.io.SyndFeedOutput;

/**
 * A simple Result to output a Rome SyndFeed object into a newsfeed.
 * @author Philip Luppens
 */
public class RomeResult implements Result {

    privateString feedName;

    privateString feedType;

    privatefinalstatic Logger logger = Logger.getLogger(RomeResult.class);

    /**
```

```

    * (non-Javadoc)
    *
    * @see
    com.opensymphony.xwork.Result#execute(com.opensymphony.xwork.ActionInvocation)
    */
    public void execute(ActionInvocation ai) throws Exception {
        if (feedName == null) {
            // ack, we need this to find the feed on the stack
            logger
                .error("Required parameter 'feedName' not found. "
                    + "Make sure you have the param tag set and "
                    + "the static-parameters interceptor enabled in your
interceptor stack.");
            // no point in continuing ..
            return;
        }

        // don't forget to set the content to the correct mimetype
        ServletActionContext.getResponse().setContentType("text/xml");
        // get the feed from the stack that can be found by the feedName
        SyndFeed feed = (SyndFeed) ai.getStack().findValue(feedName);

        if (logger.isDebugEnabled()) {
            logger.debug("Found object on stack with name '" + feedName + "': "
                + feed);
        }
        if (feed != null) {
            if (feed.getType() != null) {
                // Accepted types are: rss_0.90 - rss_2.0 and atom_0.3
                // There is a bug though in the rss 2.0 generator when it checks
                // for the type attribute in the description element. It's has a
                // big 'FIXME' next to it (v. 0.7beta).
                feed.setFeedType(feed.getType());
            }
            SyndFeedOutput output = new SyndFeedOutput();
            //we'll need the writer since Rome doesn't support writing to an
            outputStream yet
            Writer out = null;
            try {
                out = ServletActionContext.getResponse().getWriter();
                output.output(feed, out);
            } catch (Exception e) {
                // Woops, couldn't write the feed ?
                logger.error("Could not write the feed", e);
            } finally {
                //close the output writer (will flush automatically)
            }
            if (out != null) {
                out.close();
            }
        }
        else {
            // woops .. no object found on the stack with that name ?
            logger.error("Did not find object on stack with name '" + feedName
                + "'");
        }
    }

    public void setFeedName(String feedName) {
        this.feedName = feedName;
    }

```

```

    public void setFeedType(String feedType) {
        this.feedType = feedType;
    }
}

```

Code Explanation

Easy enough. We try to find the SyndFeed object on the WW stack. If we can find it, we will set the feed type (rss v0.9 +, atom 0.3) if it has been specified in the result parameters (see below). Then we use a SyndFeedOutput to write our newsfeed to our PrintWriter from our response.

XWork configuration

Before you can use this result, you will need to register it in your xwork.xml:

```

<package name="default" extends="webwork-default"><result-types><result-type
name="feed" class="com.acme.result.RomeResult"/></result-types><interceptors>
..

```

You can now use this result type. So, create an Action that will create and populate the Rome SyndFeed, and make sure you provide a getter for your populated SyndFeed. The actual creation of your feed is beyond this recipe, but you can find plenty of examples in the Rome Wiki (<http://wiki.java.net/bin/view/Javawsxml/Rome05Tutorials>).

```

<action name="feed" class="com.acme.action.CreateFeedAction"><result name="success"
type="feed"><param name="feedName">feed</param><param
name="feedType">rss_1.0</param></result></action>

```

Concluding thoughts

This is a simple feed result using Rome as a news feed generator. You might want to make sure you don't generate your feed on every request, but there are lots of ways to deal with such problems. You can also provide additional setters in the Result to set

your feed title, url, etc, but this should suffice for a quickstart.

Sometimes you need a way to enter tabular data such as list of quantity for products in a shopping cart, marks from a list of examination candidates, etc. If you just have one input value per line item, you can use a HashMap to store the value. This can be expanded to support multiple input values by having multiple HashMap. This describes a number of alternatives using some of more advanced features of WebWork. Assume you want to capture the quantity and a gift note for a list of products in a shopping cart (i.e Amazon).

1. When the number of line items is known

If you are using JSP:
the cart.jsp file in altSyntax

```
<ww:iterator value="cart.items">
  <ww:hidden name="cart.items[%{#rowstatus.index}].productId" value="{productId}">
  <ww:textfield name="cart.items[%{#rowstatus.index}].qty" value="{qty}" />
  <ww:textfield name="cart.items[%{#rowstatus.index}].note" value="{note}" />
</ww:iterator>
```

the cart.jsp file (non altSyntax)

```
<ww:iterator value="cart.items">
  <ww:hidden name="'cart.items[' + #rowstatus.index + '].productId'"
value="productId">
  <ww:textfield name="'cart.items[' + #rowstatus.index + '].qty'" value="qty" />
  <ww:textfield name="'cart.items[' + #rowstatus.index + '].note'" value="note" />
</ww:iterator>
```

Alternatively, if you use Velocity as your view technology of choice:
the cart.vm file

```
#foreach ( $item in $cart.items )
  #set($index = $velocityCount - 1)
  <input type="hidden" name="cart.items[$index].productId" value="$item.productId">
  <input type="text" name="cart.items[$index].qty" value="$item.qty">
  <input type="text" name="cart.items[$index].note" value="$item.note">
#end
```

the UpdateCartAction.class

```
public class UpdateCartAction extends ActionSupport {

    public Cart getCart() {
        // Lazy initialization
        Cart result = ActionContext.getContext().getSession.get("cart.key");
        if ( result == null ) {
            result = new Cart();
            ActionContext.getContext().getSession.put("cart.key",
result);
        }
        return result;
    }

    public String execute() throws Exception {
        // Just ensuring our cart is initialized...
        Cart cart = getCart();

        // loop through a
    }
}
```

the Cart.class

```
public class Cart implements Serializable {
    private List items = new ArrayList();

    public List getItems() {
        return items;
    }

    public void addItem(CartItem item) {
        ...
    }
}
```

the CartItem.class

```
public class CartItem implements Serializable {
    private int qty;
    private int productId;
    private String note;

    // getters/setters...
}
```

Explanation

The resulting html code is rendered as

```
<input type="hidden" name="cart.items[0].productId" value="1">
<input type="text" name="cart.items[0].qty" value="2">
<input type="text" name="cart.items[0].note" value="This is a fun book!">

<input type="hidden" name="cart.items[1].productId" value="2">
<input type="text" name="cart.items[1].qty" value="2">
<input type="text" name="cart.items[1].note" value="You love this one">

<input type="hidden" name="cart.items[2].productId" value="3">
<input type="text" name="cart.items[2].qty" value="$item.qty">
<input type="text" name="cart.items[2].note" value="">
```

Webwork will populate all the entries in Cart with the correct values.

In depth, the ParametersInterceptor would apply the form results to our model, leading to the call similar like

```
((CartItem) updateCartAction.getCart().getItems().get(0)).setProductId(1);
```

for the first shown line in the rendered result.

2. When the number of line items is unknown

For example, you want to allow the user to enter any number of ISBN, quantity and a note. You can replace ArrayList with XWorkList, which will automatically create new items if the index is greater than the size of the list.

3. Use Type Conversion

If you want more advanced way to do this, check out [Type Conversion](#) documentation.

Transparent web-app I18N

This page last changed on Dec 19, 2005 by [plightbo](#).



As of WebWork 2.2, this interceptor is included with the normal distribution as the [I18n Interceptor](#)

Consider adding transparent i18 with simple on-the-fly locale switching to your application via I18NInterceptor.

The main idea:

Interceptor could track locale switch requests, persist selection in current session and set locale for all (or appropriate) actions invoked.

```
package neuro.util.xwork;

import com.opensymphony.xwork.ActionSupport;
import com.opensymphony.xwork.ActionInvocation;
import com.opensymphony.xwork.interceptor.Interceptor;

import java.util.Locale;

import org.apache.commons.logging.Log;
import org.apache.commons.logging.LogFactory;

/**
 * I18nInterceptor
 * @author Aleksei Gopachenko
 */
public class I18nInterceptor implements Interceptor
{
    protectedstaticfinal Log log = LogFactory.getLog(I18nInterceptor.class);

    publicstaticfinalString DEFAULT_SESSION_ATTRIBUTE = "WW_TRANS_I18N_LOCALE";
    publicstaticfinalString DEFAULT_PARAMETER = "request_locale";

    protectedString parameterName = DEFAULT_PARAMETER;
    protectedString attributeName = DEFAULT_SESSION_ATTRIBUTE;

    /**
     */
    public I18nInterceptor()
    {
        if(log.isDebugEnabled()) log.debug("new I18nInterceptor()");
    }

    public void setParameterName(String parameterName) {
        this.parameterName = parameterName;
    }

    public void setAttributeName(String attributeName) {
        this.attributeName = attributeName;
    }
}
```

```

    }

    /**
     */
    public void init() {
        if(log.isDebugEnabled()) log.debug("init()");
    }

    /**
     */
    public void destroy() {
        if(log.isDebugEnabled()) log.debug("destroy()");
    }

    /**
     */
    public String intercept(ActionInvocation invocation) throws Exception {
        if(log.isDebugEnabled()) log.debug("intercept '"
            +invocation.getProxy().getNamespace()+"/"
            +invocation.getProxy().getActionName()+"' { ");

        //get requested locale
        Object requested_locale =
        invocation.getInvocationContext().getParameters().get(parameterName);
        if(requested_locale!=null && requested_locale.getClass().isArray() &&
        ((Object[])requested_locale).length==1) {
            requested_locale=((Object[])requested_locale)[0];
        }
        if(log.isDebugEnabled()) log.debug("requested_locale="+requested_locale);
        //save it in session
        if (requested_locale!=null) {
            Locale locale = (requested_locale instanceof Locale)?
                (Locale) requested_locale :
            localeFromString(requested_locale.toString());
            if(log.isDebugEnabled()) log.debug("store locale="+locale);
            if(locale!=null)invocation.getInvocationContext().getSession().put(attributeName,locale);
        }
        //set locale for action
        Object locale = invocation.getInvocationContext().getSession().get(attributeName);
        if (locale!=null && locale instanceof Locale) {
            if(log.isDebugEnabled()) log.debug("apply locale="+locale);
            invocation.getInvocationContext().setLocale((Locale)locale);
        }

        if(log.isDebugEnabled()) log.debug("before
Locale="+((ActionSupport)invocation.getAction()).getLocale());
        final String result = invocation.invoke();
        if(log.isDebugEnabled()) log.debug("after
Locale="+((ActionSupport)invocation.getAction()).getLocale());

        if(log.isDebugEnabled()) log.debug("intercept } ");
        return result;
    }

    Locale localeFromString(String localeStr) {
        if ((localeStr == null) || (localeStr.trim().length() == 0) ||
        (localeStr.equals("_"))) {
            return Locale.getDefault();
        }
        int index = localeStr.indexOf('_');
        if (index < 0) {
            return new Locale(localeStr);
        }
    }

```

```

    }
    String language = localeStr.substring(0,index);
    if (index == localeStr.length()) {
        returnnew Locale(language);
    }
    localeStr = localeStr.substring(index +1);
    index = localeStr.indexOf('_');
    if (index < 0) {
        returnnew Locale(language,localeStr);
    }
    String country = localeStr.substring(0,index);
    if (index == localeStr.length()) {
        returnnew Locale(language,country);
    }
    localeStr = localeStr.substring(index +1);
    returnnew Locale(language,country,localeStr);
}
}

```

Can be enabled for whole package via something like:

```

<interceptor name="i18n" class="neuro.util.xwork.I18nInterceptor">
    <!-- on which request parameter we should react, optional, defaults to
    "request_locale" -->
    <param name="parameterName">set_locale</param>
    <!-- under which session attribute locale should be stored, optional, defaults to
    "WW_TRANS_I18N_LOCALE" -->
    <param name="attributeName">ww_locale</param>
</interceptor>

<interceptor-stack name="i18nStack">
    <interceptor-ref name="i18n"/>
    <interceptor-ref name="defaultStack"/>
</interceptor-stack>

<default-interceptor-ref name="i18nStack"/>

```

...and invoked in web-app just by adding few links to menu:

```

<a href="?set_locale=en">EN</a>
<a href="?set_locale=ru">RU</a>
<!-- etc -->

```

Of course you still need to move all explicitly defined messages or labels to appropriate ResourceBundles and make translations. Be sure to check out your

- Actions - to use getText(...)
- *-validation.xml files - to use <message key=...>
- results/views - to use WW i18n services by <webwork:text ...> tag, or directly by evaluating getText(...) OGNL expression on current stack.

If this Interceptor is generally useful, may be it should go into codebase?

Using Checkboxes (General)

The biggest gotcha for newbies is that you must set the 'value' attribute in the html `<input>` field to use Checkboxes with WW. By default your browser will set this to some value. Firefox uses "on" - not sure what IE or others use. You must make this a sensible value for whatever property you are setting.

Using Checkboxes to set boolean fields

HTML:

```
<input type="checkbox" name="user.lockedOut" value="true"/>
```

If the user checks this box, the browser will send "user.lockedOut=true" in the QueryString and `action.getUser().setLockedOut(true)` will be called. If the user does not check the box, the browser will not send anything, so make sure that you have initialised `lockedOut` to false to start with.

```
private boolean m_lockedOut = false;

public void setLockedOut(boolean lockedOut) { m_lockedOut = lockedOut; }
```

Using Checkboxes to set a collection

Our user has a number of privileges that are stored as a Set of strings. To use checkboxes for these, we have HTML that looks like:

```
<input type="checkbox" name="user.priv" value="boss"/>
<input type="checkbox" name="user.priv" value="admin"/>
<input type="checkbox" name="user.priv" value="manager"/>
```

Say a user checks the first 2; the browser will send the query string:
user.priv=boss&user.priv=admin.

OGNL will end up calling

```
action.getUser().setPriv(String[] {"boss", "admin"})
```

You can write this method like:

```
Set m_privileges = new HashSet();

public void setPriv(String[] privs) {
    for (int i = 0; i < privs.length; i++) {
        m_privileges.add(privs[i]);
    }
}
```

Full Detailed example:

This example uses a kind-of model-driven action (see [Model Driven Interceptor](#)). The action returns a single getter for the User object whose values are populated.

- [Using Checkboxes - EditAction.java](#)
- [Using Checkboxes - Velocity and HTML](#)
- [Using Checkboxes - User.java](#)

Using Checkboxes - EditAction.java

This page last changed on Jun 18, 2004 by [plightbo](#).

```
package cash.action;

import org.apache.log4j.Logger;

import cash.config.ConfigManager;
import cash.model.User;
import cash.util.HibernateUtil;
import cash.validator.PasswordFormatValidator;

import net.sf.hibernate.LockMode;

/**
 * Edit a user
 * @author Joel Hockey
 * @version $Id: $
 */
public class EditAction extends HibernateAction {
    private static final Logger LOG = Logger.getLogger(EditAction.class);

    private User m_user = new User();
    private String m_repeatPassword;

    /** return user to be edited. */
    public User getUser() { return m_user; }

    /** @param pwd repeat of password */
    public void setRepeatPassword(String pwd) { m_repeatPassword = pwd; }
    /** @return repeat password */
    public String getRepeatPassword() { return m_repeatPassword; }

    /** override super */
    public String execute() throws Exception {
        LOG.debug("EditAction started");

        // get original user from session, check that password is valid, update and
        save.
        User u = (User)get("user");
        HibernateUtil.currentSession().lock(u, LockMode.NONE);

        // check that password has actually changed before updating
        if (!PasswordFormatValidator.PASSWORD_MASK.equals(m_user.getPassword())) {
            if (!u.changePassword(m_user.getPassword())) {
                addFieldError("user.password", "password must be different to
previous "
                                + ConfigManager.getConfig().getUser().getNoRepeatHistory() + "
passwords");
                return INPUT;
            }
        }

        m_user.copy(u);
        HibernateUtil.currentSession().save(u);
        User loginUser = (User)get(LoginAction.LOGIN_USER);
        if (u.getId() == loginUser.getId()) {
            set(LoginAction.LOGIN_USER, u);
        }
        return SUCCESS;
    }
}
```

```
}  
}
```


Using Checkboxes - User.java

This page last changed on Jun 18, 2004 by [plightbo](#).

```
package cash.model;

import net.sf.hibernate.HibernateException;

import org.apache.log4j.Logger;

import java.security.GeneralSecurityException;
import java.security.MessageDigest;
import java.security.SecureRandom;
import java.util.ArrayList;
import java.util.Date;
import java.util.HashSet;
import java.util.Iterator;
import java.util.List;
import java.util.Locale;
import java.util.Set;
import java.util.SortedSet;
import java.util.TimeZone;
import java.util.TreeSet;

import cash.config.ConfigManager;
import cash.util.Hex;
import cash.util.HibernateUtil;
import cash.util.UtcDate;
import cash.validator.PasswordFormatValidator;

/**
 * Represents a User object.  Clients of this class should instantiate a User object
 * with the
 * multi-arg constructor rather than using setters.
 *
 * @author Joel Hockey
 * @version $Id: $
 * @hibernate.class
 *     table="user"
 *     dynamic-update="true"
 *     optimistic-lock="version"
 */
public class User implements java.io.Serializable {
    private static final Logger LOG = Logger.getLogger(User.class);

    private static MessageDigest s_md5;
    private static SecureRandom s_random;

    private static final int MAX_LOGIN_FAILURE_COUNT = 20;
    private static final boolean RESET_LOCKED_OUT_AFTER_TIME = true;
    private static final long RESET_LOCKED_OUT_TIME = 1 * 60 * 60 * 1000; // 1 hour
    private int m_id;
    private int m_version;
    private String m_username;
    private String m_password;
    private Date m_passwordChangeDate;
    private String m_hashedPassword;
    private SortedSet m_passwordHistory = new TreeSet();
    private String m_salt;
    private byte[] m_saltBytes;
    private Date m_createDate;
```

```

privateString m_email;
private Locale m_locale;
private TimeZone m_timeZone;
privateString m_telephone;
private Date m_lastSuccessfulLogin;
privateString m_lastSuccessfulLoginIp;
private Date m_lastFailedLogin;
privateString m_lastFailedLoginIp;
privateint m_loginFailureCount;
privateint m_maxLoginFailureCount = MAX_LOGIN_FAILURE_COUNT;
privateboolean m_resetLockedOutAfterTime = RESET_LOCKED_OUT_AFTER_TIME;
privatelong m_resetLockedOutTime = RESET_LOCKED_OUT_TIME;
privateboolean m_lockedOut = false;
privateboolean m_disabled = false;
privateboolean m_isSuperUser = false;
privateboolean m_passwordNeverExpires = false;
private Set m_privileges = new HashSet();

static {
    try {
        s_md5 = MessageDigest.getInstance("MD5");
        s_random = SecureRandom.getInstance("SHA1PRNG");
    } catch (GeneralSecurityException gse) {
        // shouldn't happen
        LOG.error("Error creating MD5 or SHA1PRNG", gse);
        thrownew RuntimeException("Error creating MD5 or SHA1PRNG");
    }
}

/** default constructor for Hibernate */
public User() { }

/**
 * Create a User.
 *
 * @param username The username for logging in
 * @param password The user's password
 * @param email The user's email
 * @throws InvalidPasswordException if password is invalid.
 */
public User(String username, String password, String email) throws
InvalidPasswordException {

    m_username = username;

    // password
    initSalt();
    if (!PasswordFormatValidator.checkPasswordFormat(password)) {
        thrownew InvalidPasswordException();
    }
    m_hashedPassword = hashPassword(password);

    m_createDate = UtcDate.createUtcDate();
    m_email = email;
    m_locale = Locale.getDefault();
    m_timeZone = TimeZone.getDefault();
}

/** @param id The id to set */
public void setId(int id) { m_id = id; }

/**

```

```

    * @return unique id of this User. Generated by DB.
    * @hibernate.id
    *     generator-class="native"
    */
    public int getId() { return m_id; }

    /** @param version The version of this object */
    public void setVersion(int version) { m_version = version; }

    /**
     * @return version of this object
     * @hibernate.version
     */
    public int getVersion() { return m_version; }

    /** @param username The username to set */
    public void setUsername(String username) { m_username = username; }

    /**
     * @return username
     * @hibernate.property
     *     length="32"
     *     unique="true"
     *     not-null="true"
     */
    public String getUsername() { return m_username; }

    /**
     * Set's the user's password without updating history or checking validity.
     * This should only be used at User creation time, and password validity
     * should be checked externally to this method.
     * Do not use to update password, see {@link #changePassword(String)}
     * @param password user's password
     */
    public void setPassword(String password) {
        m_password = password;
        if (m_salt == null) {
            initSalt();
        }
        m_hashedPassword = hashPassword(password);
        m_passwordChangeDate = UtcDate.createUtcDate();
    }

    /**
     * This method is provided to help at User creation time. It will only return
     * valid values if {@link #setPassword(String)} has already been called.
     * @return plaintext password.
     */
    public String getPassword() { return m_password; }

    /** @param time Date (UTC) user last changed password. */
    public void setPasswordChangeDate(Date time) { m_passwordChangeDate = time; }

    /**
     * @return UTC date of last password change
     * @hibernate.property
     *     type="cash.model.TimestampType"
     *     length="23"
     */
    public Date getPasswordChangeDate() { return m_passwordChangeDate; }

    /**

```

```

    * Sets the user's hashed password. This method is provided only for the use
    * of hibernate. Users of this class should not call this method.
    * Use the {@link #setPassword(String)} method to set the plaintext password.
    * @param hash The hashed password to set
    */
    public void setHashedPassword(String hash) {
        m_hashedPassword = hash;
    }

    /**
     * @return hashed password
     * @hibernate.property
     *     column="pwd"
     *     length="32"
     *     not-null="true"
     */
    public String getHashedPassword() { return m_hashedPassword; }

    /**
     * @param oldPasswords The last n passwords, where n
     * is defined as noRepeatHistory in User configuration. Passwords are ordered
     * in descending order of creation.
     */
    public void setPasswordHistory(SortedSet oldPasswords) { m_passwordHistory =
oldPasswords; }

    /**
     * @return Password history
     * @hibernate.set
     *     lazy="true"
     *     sort="cash.model.PasswordHistory"
     *     inverse="true"
     *     cascade="all"
     * @hibernate.collection-key
     *     column="userId"
     * @hibernate.collection-one-to-many
     *     class="cash.model.PasswordHistory"
     */
    public SortedSet getPasswordHistory() { return m_passwordHistory; }

    /** @param random The random salt to be used with password */
    public void setSalt(String random) {
        m_salt = random;
        m_saltBytes = Hex.fromString(random);
    }

    /**
     * @return random salt used with password
     * @hibernate.property
     *     length="32"
     *     not-null="true"
     */
    public String getSalt() { return m_salt; }

    /** @param time create date */
    public void setCreateDate(Date time) { m_createDate = time; }

    /**
     * @return Date in UTC user was created.
     * @hibernate.property
     *     update="false"
     *     not-null="true"

```

```

        *         type="cash.model.TimestampType"
        *         length="23"
    */
    public Date getCreateDate() { return m_createDate; }

    /** @param email User's email */
    public void setEmail(String email) { m_email = email; }

    /**
     * @return User's email
     * @hibernate.property
     *         length="255"
     *         not-null="true"
     */
    public String getEmail() { return m_email; }

    /** @param locale The User's locale. This should be a 2 character field. */
    public void setLocale(Locale locale) { m_locale = locale; }

    /**
     * @return User's locale. Uses 2 character ISO-something value.
     * @hibernate.property
     *         not-null="true"
     */
    public Locale getLocale() { return m_locale; }

    /** @param timeZone User's time zone */
    public void setTimeZone(TimeZone timeZone) { m_timeZone = timeZone; }

    /**
     * @return User's timezone
     * @hibernate.property
     *         not-null="true"
     */
    public TimeZone getTimeZone() { return m_timeZone; }

    /** @param telephone User's telephone */
    public void setTelephone(String telephone) { m_telephone = telephone; }

    /**
     * @return Telephone of user
     * @hibernate.property
     *         length="16"
     */
    public String getTelephone() { return m_telephone; }

    /** @param time user's last successful login date in UTC. */
    public void setLastSuccessfulLogin(Date time) { m_lastSuccessfulLogin = time; }

    /**
     * @return UTC date of last successful login
     * @hibernate.property
     *         type="cash.model.TimestampType"
     *         length="23"
     */
    public Date getLastSuccessfulLogin() { return m_lastSuccessfulLogin; }

    /** @param ip IP address used for user's last successful login. */
    public void setLastSuccessfulLoginIp(String ip) { m_lastSuccessfulLoginIp = ip; }
}

/**

```

```

    * @return IP address used for last successful login
    * @hibernate.property
    */
    public String getLastSuccessfulLoginIp() { return m_lastSuccessfulLoginIp; }

    /** @param time user's last failed login date in UTC. */
    public void setLastFailedLogin(Date time) { m_lastFailedLogin = time; }

    /**
     * @return UTC date of last failed login
     * @hibernate.property
     *     type="cash.model.TimestampType"
     *     length="23"
     */
    public Date getLastFailedLogin() { return m_lastFailedLogin; }

    /** @param ip IP address used for user's last failed login. */
    public void setLastFailedLoginIp(String ip) { m_lastFailedLoginIp = ip; }

    /**
     * @return IP address used for last failed login
     * @hibernate.property
     */
    public String getLastFailedLoginIp() { return m_lastFailedLoginIp; }

    /**
     * Sets the number of times that a user has failed when attempting to login.
     * This value is reset when a user logs in successfully, or their account is
    reset.
     * @param count the value to set.
     */
    public void setLoginFailureCount(int count) { m_loginFailureCount = count; }

    /**
     * @return The number of times that a user has failed when attempting to login.
     * This value is reset when a user logs on successfully, or their account is
    reset.
     * @hibernate.property
     */
    public int getLoginFailureCount() { return m_loginFailureCount; }

    /**
     * @param count The maximum number of times that a user may fail to login before
     * their account is locked out
     */
    public void setMaxLoginFailureCount(int count) { m_maxLoginFailureCount = count;
}

    /**
     * @return The maximum number of times that a user may fail to login before
    their account
     * is locked out.
     * @hibernate.property
     */
    public int getMaxLoginFailureCount() { return m_maxLoginFailureCount; }

    /**
     * @param reset Whether this user's account will be unlocked after a specified
    time when it is locked
     * due to login failure.
     * @see #setResetLockedOutAfterTime(boolean) setResetLockedOutAfterTime
     */

```

```

    public void setResetLockedOutAfterTime(boolean reset) {
m_resetLockedOutAfterTime = reset; }

    /**
     * @return Whether this user's account will be unlocked after a specified time
when it
     * is locked out due to login failure.
     * @see #getResetLockedOutAfterTime getResetLockedOutAfterTime
     * @hibernate.property
     */
    public boolean getResetLockedOutAfterTime() { return m_resetLockedOutAfterTime; }

    /**
     * @param time The time in millis between login attempts before login failure
count is reset. Login failure
     * count will only be reset if the Reset Locked Out After Time boolean is set to
true.
     */
    public void setResetLockedOutTime(long time) { m_resetLockedOutTime = time; }

    /**
     * @return Time in milliseconds before account is auto-reset after login
lockout.
     * @hibernate.property
     */
    public long getResetLockedOutTime() { return m_resetLockedOutTime; }

    /** @param lockedOut User's locked out status. */
    public void setLockedOut(boolean lockedOut) { m_lockedOut = lockedOut; }

    /**
     * @return Whether this user's account is locked out
     * @hibernate.property
     */
    public boolean isLockedOut() { return m_lockedOut; }

    /** @param disabled User's disabled status. */
    public void setDisabled(boolean disabled) { m_disabled = disabled; }

    /**
     * @return Whether this user's account disabled
     * @hibernate.property
     */
    public boolean isDisabled() { return m_disabled; }

    /** @param superUser True if user is super user */
    public void setSuperUser(boolean superUser) { m_isSuperUser = superUser; }

    /**
     * @return Whether this user is a super user
     * @hibernate.property
     */
    public boolean isSuperUser() { return m_isSuperUser; }

    /** @param expires True if user's password never expires */
    public void setPasswordNeverExpires(boolean expires) { m_passwordNeverExpires =
expires; }

    /**
     * @return Whether this user's password ever expires
     * @hibernate.property
     */

```

```

    public boolean getPasswordNeverExpires() { return m_passwordNeverExpires; }

    /** @param privs Set of privileges for this user */
    public void setPrivileges(Set privs) { m_privileges = privs; }

    /**
     * @return Set of Privileges for this User.
     * @hibernate.set
     *     table="user_priv"
     *     lazy="true"
     *     cascade="all"
     * @hibernate.collection-key
     *     column="userId"
     * @hibernate.collection-element
     *     column="priv"
     *     type="string"
     */
    public Set getPrivileges() { return m_privileges; }

    /** convenience method of OGNL */
    public void setPriv(String[] privs) {
        for (int i = 0; i < privs.length; i++) {
            m_privileges.add(privs[i]);
        }
    }

    // other methods

    /**
     * Changes the user's password. Password must meet criteria
     * defined in configuration. The user's password will be appended to
     * a random 20 byte salt and then hashed using MD5 to create the
     * value that will be stored in the DB. The current Hibernate Session
     * will be used to update pwd history.
     *
     * @param password The password to set
     * @return true if password is changed, false if password was not changed
     * because it did not meet password requirements.
     * @throws HibernateException if error updating password history
     */
    public boolean changePassword(String password) throws HibernateException {
        // check format
        if (!PasswordFormatValidator.checkPasswordFormat(password)) {
            return false;
        }

        // check history
        // first check current password
        String hashedPwd = hashPassword(password);
        LOG.debug("checking if password is same as current");
        if (hashedPwd.equals(m_hashedPassword)) {
            LOG.info("password is same as current password");
            return false;
        }

        LOG.debug("checking if password exists in history. History size is " +
            m_passwordHistory.size());
        for (Iterator i = getPasswordHistory().iterator(); i.hasNext(); ) {
            PasswordHistory ph = (PasswordHistory) i.next();
            if (hashedPwd.equals(ph.getHashedPassword())) {
                LOG.info("password already used as one of last "

```



```

        + ConfigManager.getConfig().getUser().getNoRepeatHistory());
        return false;
    }
}

// add current pwd to history and truncate history if it is too long now
PasswordHistory ph = new PasswordHistory(this, m_hashedPassword);
m_passwordHistory.add(ph);
LOG.debug("saving old password into password history");
HibernateUtil.currentSession().save(ph);
// compare to (noRepeat - 1) because we are checking current as part of
history
if (m_passwordHistory.size() >
    ConfigManager.getConfig().getUser().getNoRepeatHistory() - 1) {
    PasswordHistory toRemove = (PasswordHistory)m_passwordHistory.first();
    LOG.info("Removing password history object for user " + m_username
        + " created: " + toRemove.getCreateDate());
    m_passwordHistory.remove(toRemove);
    HibernateUtil.currentSession().delete(toRemove);
}

// now set password and date
m_hashedPassword = hashedPwd;
m_passwordChangeDate = UtcDate.createUtcDate();
return true;
}

/**
 * Hashes input pwd to see if it equals stored pwd hash value.
 * @param pwd Password to check
 * @return true if passwords are equal.
 */

public boolean passwordEquals(String pwd) {
    String hash = hashPassword(pwd);
    return m_hashedPassword.equalsIgnoreCase(hash);
}

/**
 * Hashes salt and password to produce hashed password.
 * @param pwd Password to hash
 * @return Hex encoding of MD5 hash of salt and pwd
 */
private String hashPassword(String pwd) {
    byte[] pwdBytes = pwd.getBytes(); //TODO: should an encoding be specified
here?
    byte[] in = new byte[OS.m_saltBytes.length + pwdBytes.length];
    System.arraycopy(m_saltBytes, 0, in, 0, m_saltBytes.length);
    System.arraycopy(pwdBytes, 0, in, m_saltBytes.length, pwdBytes.length);
    byte[] out = s_md5.digest(in);
    return Hex.toString(out);
}

/** initialises salt */
private void initSalt() {
    m_saltBytes = new byte[OS.m_saltBytes.length];
    s_random.nextBytes(m_saltBytes);
    m_salt = Hex.toString(m_saltBytes);
}

/** @return String representation of User */
public String toString() {

```

```

        StringBuffer sb = newStringBuffer(500);
        sb.append("[").append("ID:").append(m_id)
            .append(",version:").append(m_version)
            .append(",hashedPassword:").append(m_hashedPassword)
            .append(",salt:").append(m_salt)
            .append(",createDate:").append(m_createDate)
            .append(",email:").append(m_email)
            .append(",locale:").append(m_locale)
            .append(",timeZone:").append(m_timeZone)
            .append(",telephone:").append(m_telephone)
            .append(",lastSuccessfulLogin:").append(m_lastSuccessfulLogin)
            .append(",lastSuccessfulLoginIp:").append(m_lastSuccessfulLoginIp)
            .append(",lastFailedLogin:").append(m_lastFailedLogin)
            .append(",lastFailedLoginIp:").append(m_lastFailedLoginIp)
            .append(",loginFailureCount:").append(m_loginFailureCount)
            .append(",maxLoginFailureCount:").append(m_maxLoginFailureCount)
            .append(",resetLockedOutAfterTime:").append(m_resetLockedOutAfterTime)
            .append(",resetLockedOutTime:").append(m_resetLockedOutTime)
            .append(",lockedOut:").append(m_lockedOut)
            .append(",disabled:").append(m_disabled)
            .append(",isSuperUser:").append(m_isSuperUser)
            .append(",passwordNeverExpires:").append(m_passwordNeverExpires)
            .append(",passwordChangeDate:").append(m_passwordChangeDate)
            .append(",privs:").append(m_privileges);
        return sb.toString();
    }

    /**
     * Copies editable data from this object to User object provided. This is used
     * in Edit actions. Not all fields are copied, only those that are editable
     * @param user Object to copy to
     */
    public void copy(User user) {
        user.setUsername(m_username);
        user.setEmail(m_email);
        user.setLocale(m_locale);
        user.setTimeZone(m_timeZone);
        user.setTelephone(m_telephone);
        user.setLockedOut(m_lockedOut);
        user.setDisabled(m_disabled);
        user.setPasswordNeverExpires(m_passwordNeverExpires);

        // do some smarts for privs removal. Clear all if more than half are
        removed
        if (m_privileges.size() <= user.getPrivileges().size() / 2) {
            LOG.debug("detected that many privs are removed, clearing all");
            user.setPrivileges(m_privileges);
        } else {
            // find which ones should be removed
            List toRemove = new ArrayList();
            for (Iterator i = user.getPrivileges().iterator(); i.hasNext(); ) {
                String priv = (String)i.next();
                if (!m_privileges.contains(priv)) {
                    toRemove.add(priv);
                }
            }

            // remove them
            for (int i = 0; i < toRemove.size(); i++) {
                user.getPrivileges().remove(toRemove.get(i));
            }
        }
    }

```

```
        // add all new privs
    for (Iterator i = m_privileges.iterator(); i.hasNext(); ) {
        user.getPrivileges().add(i.next());
    }
}
}
```

Using Checkboxes - Velocity and HTML

This page last changed on Jun 18, 2004 by [plightbo](#).

Velocity View - edit.vm:

```
<html>
<body onload="document.forms[0].elements[0].focus()">

<a href="home.vm">Home</a><br/>

#if ($fieldErrors)
  #foreach ($error in $fieldErrors)
    $error<br>
  #end
#end
#if ($actionErrors)
  #foreach ($error in $actionErrors)
    $error<br>
  #end
#end

<form name="edit" action="edit.action" method="post">
<table>
<tr><td>Name</td><td>$user.username</td></tr>
#formRowText("Password" "user.password"
$stack.findValue("@cash.validator.PasswordFormatValidator@PASSWORD_MASK"))
#formRowText("Repeat Password" "repeatPassword"
$stack.findValue("@cash.validator.PasswordFormatValidator@PASSWORD_MASK"))
#formRowText("Email" "user.email" $!user.email)
#formRowSelect("Language" "user.locale"
$stack.findValue("@cash.util.Html@getInstance()").getLocales($locale)
$!user.locale.toString())
#formRowSelect("Time Zone" "user.timeZone"
$stack.findValue("@cash.util.Html@getInstance()").getTimeZones($locale)
$!user.timeZone.ID)
#formRowText("Telephone" "user.telephone" $!user.telephone)
#formRowCheckbox("Locked Out" "user.lockedOut" "true" $user.lockedOut)
#formRowCheckbox("Disabled" "user.disabled" "true" $user.disabled)

#set ($privs = [OS:"boss", "admin", "early", "late", "train"])

#foreach ($priv in $privs)
  #set ($checked = $user.privileges.contains($priv))
  #formRowCheckbox($priv "user.priv" $priv $checked)
#end
<tr><td>&nbsp;</td><td><input type="submit" name="submit" value="submit"></td></tr>
</table>

<input type="hidden" name="user.username" value="$user.username">
</form>

</body>
</html>
```

Velocity Macros - macros.vm:

```

#macro (formRowText $label $name $value)
  <tr><td><label for="$name">$label</label></td><td><input id="$name" type="text"
name="$name" value="$!value"></td></tr>
#end

#macro (formRowSelect $label $name $options $selectedValue)
  <tr><td><label for="$name">$label</label></td><td><select id="$name" name="$name">
#foreach ($option in $options)
  <option#if ($option.get(0).equals($selectedValue)) selected#end
value="$!option.get(0)">$!option.get(1)</option>
#end
</select></td></tr>
#end

#macro (formRowCheckbox $label $name $value $checked)
  <tr><td><label for="$name.$value">$label</label></td><td><input id="$name.$value"
type="checkbox" name="$name" value="$value"#if ($checked) checked#end ></td></tr>
#end

```

Note that I don't use the webwork UI tags. (The HTML that comes out of them looks like vomit.)

The HTML generated from above looks like:

```

<html>
<body onload="document.forms[0].elements[0].focus()">

<a href="home.vm">Home</a><br/>

<form name="edit" action="edit.action" method="post">
<table>
<tr><td>Name</td><td>user</td></tr>
  <tr><td><label for="user.password">Password</label></td><td><input
id="user.password" type="text" name="user.password" value="*****"></td></tr>
  <tr><td><label for="repeatPassword">Repeat Password</label></td><td><input
id="repeatPassword" type="text" name="repeatPassword" value="*****"></td></tr>

  <tr><td><label for="user.email">Email</label></td><td><input id="user.email"
type="text" name="user.email" value="user@example.com"></td></tr>
  <tr><td><label for="user.locale">Language</label></td><td><select id="user.locale"
name="user.locale">
<option value="en">English</option>
<option selected value="en_AU">English (Australia)</option>
<option value="en_US">English (United States)</option>
<option value="en_GB">English (United Kingdom)</option>
<option value="es">Spanish</option>
<option value="fr">French</option>

<option value="de">German</option>
</select></td></tr>
  <tr><td><label for="user.timeZone">Time Zone</label></td><td><select
id="user.timeZone" name="user.timeZone">
<option selected value="America/Los_Angeles">(GMT-08:00) Los Angeles</option>
<option value="Europe/London">(GMT+00:00) London</option>
<option value="Australia/Brisbane">(GMT+10:00) Brisbane</option>

```

```

</select></td></tr>
  <tr><td><label for="user.telephone">Telephone</label></td><td><input
id="user.telephone" type="text" name="user.telephone" value="134"></td></tr>
  <tr><td><label for="user.lockedOut.true">Locked Out</label></td><td><input
id="user.lockedOut.true" type="checkbox" name="user.lockedOut" value="true"
></td></tr>

  <tr><td><label for="user.disabled.true">Disabled</label></td><td><input
id="user.disabled.true" type="checkbox" name="user.disabled" value="true"
></td></tr>

  <tr><td><label for="user.priv.boss">boss</label></td><td><input
id="user.priv.boss" type="checkbox" name="user.priv" value="boss" ></td></tr>
  <tr><td><label for="user.priv.admin">admin</label></td><td><input
id="user.priv.admin" type="checkbox" name="user.priv" value="admin" ></td></tr>
  <tr><td><label for="user.priv.early">early</label></td><td><input
id="user.priv.early" type="checkbox" name="user.priv" value="early" ></td></tr>
  <tr><td><label for="user.priv.late">late</label></td><td><input
id="user.priv.late" type="checkbox" name="user.priv" value="late" ></td></tr>

  <tr><td><label for="user.priv.train">train</label></td><td><input
id="user.priv.train" type="checkbox" name="user.priv" value="train" ></td></tr>
<tr><td>&nbsp;</td><td><input type="submit" name="submit" value="submit"></td></tr>
</table>

<input type="hidden" name="user.username" value="user">
</form>

</body>
</html>

```

This page last changed on Aug 29, 2005 by [plightbo](#).

WW2/WX1 and its taglib is oriented towards OGNL, which is using a value stack for all action properties. These values are not directly available for the expression language of JSP2/JSTL1.1.

However, it's easy to populate the request attribute set, with all gettable properties of an action object. You need to provide an interceptor that does the job, by registering a `PreResultListener` which is invoked after the return of `Action.execute()` but before the rendering of the result.

The interceptor below is using Jakarta BeanUtils. It first extracts all getters of the current action, invokes them one at a time and stores the values into a map. Then it iterates over the map and populates the request attribute set. *The double iteration is not needed, it's just there for clarity.*

class ActionPropertyExportInterceptor

```
package com.whatever.interceptors;

import com.opensymphony.webwork.WebWorkStatics;
import com.opensymphony.xwork.Action;
import com.opensymphony.xwork.ActionInvocation;
import com.opensymphony.xwork.interceptor.AroundInterceptor;
import com.opensymphony.xwork.interceptor.PreResultListener;
import org.apache.commons.beanutils.PropertyUtils;
import javax.servlet.http.HttpServletRequest;
import java.beans.PropertyDescriptor;
import java.util.*;

/**
 * Populates HTTP Request Attributes with all gettable properties of the current
 * action.
 */
public class ActionPropertyExportInterceptor extends AroundInterceptor {
    protected void before(ActionInvocation invocation) throws Exception {
        invocation.addPreResultListener( new PropertyExporter() );
    }
    protected void after(ActionInvocation dispatcher, String result) throws
    Exception { }

    public static class PropertyExporter implements PreResultListener {
        private static final List ignore = Arrays.asList(new String[] { "class",
        "texts" }); //skip getClass,...
        //Invoked after Action.execute() but before Result
    }
}
```

```
//Calls all getters of the action and insert the values into the request
public void beforeResult(ActionInvocation invocation, String resultCode) {
    Map props = extractGetterPropertyValues(
invocation.getAction() );
    HttpServletRequest request = getRequest(invocation);
    for (Iterator it = props.entrySet().iterator(); it.hasNext();) {
        Map.Entry e = (Map.Entry) it.next();
        request.setAttribute((String) e.getKey(), e.getValue());
    }
}

public Map extractGetterPropertyValues(Object bean) {
    PropertyDescriptor[] descr =
PropertyUtils.getPropertyDescriptors(bean);
    Map props = new HashMap();
    for (int i = 0; i < descr.length; i++) {
        PropertyDescriptor d = descr[i];
        if (d.getReadMethod() == null) continue;
        if (ignore.contains(d.getName())) continue;

        try {
            props.put(d.getName(), PropertyUtils.getProperty(bean,
d.getName()));
        } catch (Exception e) { }
    }
    return props;
}

public HttpServletRequest getRequest(ActionInvocation invocation) {
    return (HttpServletRequest)
invocation.getInvocationContext().get(WebWorkStatics.HTTP_REQUEST);
}
}
```

Don't forget to *declare* the interceptor in your xwork.xml file and *insert* it into your interceptor stack.

xwork.xml snippet

```
<interceptor name="export"
class="com.whatever.interceptors.ActionPropertyExportInterceptor" />
. . .
<interceptor-stack name="standard-interceptors">
    <interceptor-ref name="timer" />
    <interceptor-ref name="logger" />
    <interceptor-ref name="params" />
    * <interceptor-ref name="export" /> *
    <interceptor-ref name="validateParams" />
    <interceptor-ref name="awarePluggger" />
</interceptor-stack>
```

Your action need to provide getters for all properties that should be exported into the

request attribute set.

class ViewUser

```
public class ViewUser extends ActionSupport {
    private int id;
    private User user;

    public String execute() throws Exception {
        user = findUser( getId() );
        return Action.SUCCESS;
    }

    public int getId() {return id;}
    public void setId(int id) {this.id = id;}
    * public User getUser() {return user;} *

    private User findUser(int id) {...}
}
```

The User class might look like this

class User

```
import java.util.Date;
public class User {
    private int id;
    private String firstName, lastName, email;
    private String street, zip, city;
    private Date date;

    public String getFirstName() {return firstName;}
    //..._getters and setters_...
}
```

Finally, using the samples above you can write your JSP2 page like this.

ViewUser.jsp

```
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<%@ taglib prefix="fmt" uri="http://java.sun.com/jsp/jstl/fmt" %>
<%@ taglib prefix="fn" uri="http://java.sun.com/jsp/jstl/functions" %>
<html>
<head>
```

```

    <title>Info about ${user.firstName}</title>
</head>
<body>
    <h1>Info about ${user.firstName} ${user.lastName} [OS:ID=${user.id}]</h1>
    <table border="1" cellspacing="0" cellpadding="2" width="90%" >
        <tr>
            <th>Name</th> <td>${user.firstName} ${user.lastName}</td>
        </tr>
        <tr>
            <th>Created</th> <td><fmt:formatDate value="${user.date}"
pattern="yyyy-MM-dd HH:mm"/></td>
        </tr>
        <tr>
            <th>Email</th> <td>${user.email}</td>
        </tr>
        <tr>
            <th>Address</th> <td>${user.street} ${user.zip}
${fn:toUpperCase(user.city)}</td>
        </tr>
    </table>
</body>
</html>

```

Displaying validation errors with JSTL

```

<c:if test="${!empty fieldErrors || !empty actionErrors}">
    <div class="red">
        <ul>
            <c:forEach items="${fieldErrors}" var="fieldError">
                <c:forEach items="${fieldError.value}" var="error">
                    <li>${error}</li>
                </c:forEach>
            </c:forEach>
            <c:forEach items="${actionErrors}" var="actionError">
                <li>${actionError}</li>
            </c:forEach>
        </ul>
    </div>
</c:if>

```

Using WebWork Components

This page last changed on Nov 30, 2004 by [jcarreira](#).

A simple example of using WebWork components is available in the webwork-example.war that comes with the WebWork 2.0 Beta 1 distribution. You can download the distribution from <https://webwork.dev.java.net/servlets/ProjectDocumentList>.

Components are defined `_/WEB-INF/classes/components.xml_`.

The example consists of one component, which is defined by

```
<component>
  <scope>session</scope>
  <class>com.opensymphony.webwork.example.counter.Counter</class>
  <enabler>com.opensymphony.webwork.example.counter.CounterAware</enabler>
</component>
```

`com.opensymphony.webwork.example.counter.Counter` is just a POJO.

`com.opensymphony.webwork.example.counter.CounterAware` is an interface which your `*Action` classes have to implement.

```
publicinterface CounterAware {
    public void setCounter(Counter counter);
}
```

Additionally, you need to tag your actions with the interceptor, for example,

```
<action name="SimpleCounter"
class="com.opensymphony.webwork.example.counter.SimpleCounter">
  <result name="success" type="dispatcher">
    <param name="location">/success.jsp</param>
  </result>
  <interceptor-ref name="defaultComponentStack"/>
</action>
```

WebWork will call the interface and set the Counter bean. The Counter bean would then be subsequently be available to be used by your `*Action` classes.

This page last changed on Nov 14, 2005 by [tm_jee](#).

As Matt Ho explained on the mailing list:

A value stack is essentially a List. Calling [1] on the stack, returns a substack beginning with the element at index 1. It's only when you call methods on the stack that your actual objects will be called.

Said another way, let's say I have a value stack that consists of a model and an action as follows:

```
[ model, action ]
```

here's how the following ognl would resolve:

[0] - a CompoundRoot object that contains our stack, [model, action]

[1] - another CompoundRoot that contains only [action]

[0].toString() - calls toString() on the first object in the value stack (excluding the CompoundRoot) that supports the toString() method

[1].foo - call getFoo() on the first object in the value stack starting from [OS:action] and excluding the CompoundRoot that supports a getFoo() method

I hope this doesn't sound too confusing :\

If you're using Velocity, this can most easily be written as:

```
$stack.findValue("[0]").peek()
```

Unfortunately, `<ww:property value="[0].peek()"/>` won't work as this

would translate into "starting at the top of the value stack (and excluding the CompoundRoot), find the first object that has a method called peek()"

-----thanks Matt!

here is the com.opensymphony.xwork.util.CompoundRoot class which Matt mentions:

```
public class CompoundRoot extends ArrayList {
    //~ Constructors //////////////////////////////////////
    public CompoundRoot() {
    }

    public CompoundRoot(List list) {
        super(list);
    }

    //~ Methods //////////////////////////////////////
    public CompoundRoot cutStack(int index) {
        return new CompoundRoot(subList(index, size()));
    }

    public Object peek() {
        return get(0);
    }

    public Object pop() {
        return remove(0);
    }

    public void push(Object o) {
        add(0, o);
    }
}
```

What's on the stack?

NOTE: When rendering Freemarker / Velocity templates or result, WebWork2 contains the following items by default in the ValueStack:

- req - the current HttpServletRequest
- res - the current HttpServletResponse
- stack - the current OgnlValueStack
- ognl - an instance of OgnlTool
- ui - a (now deprecated) instance of a ui tag renderer

@See com.opensymphony.webwork.views.util.ContextUtil

HTML Form Buttons and Webwork2

This Howto will describe the usage of HTML form buttons to invoke different behavior in actions.

Determine which button was pressed

The trick is that the type conversion of XWork can be used to test which button was pressed in a simple way. When a button is pressed, a parameter is set in webwork with the name and value that are specified as the *name* and *value* attributes of your HTML button. XWork converts this automatically to boolean value if an appropriate property of the Action is found.

These boolean Properties can be tested to determine which button was pressed:

```
<form action="MyAction.action">
<input type="submit" name="buttonOnePressed" value="First option">
<input type="submit" name="buttonTwoPressed" value="Alternative Option">
</form>
```

```
public class MyAction extends Action {

    /**
     * Action implementation
     *
     * Sets the message according to which button was pressed.
     */
    public String execute() {
        if (buttonOnePressed) {
            message="You pressed the first button";
        } elseif (buttonTwoPressed) {
            message="You pressed the second button";
        } else {
            return ERROR;
        }
        return SUCCESS;
    }

    // Input parameters
    private boolean buttonOnePressed=false;
    private boolean buttonTwoPressed=false;

    public void setButtonOnePressed(boolean value) {
```

```

        this.buttonOnePressed = value;
    }

    public void setButtonTwoPressed(boolean value) {
        this.buttonTwoPressed = value;
    }

    // Output parameters
    privateString message;
    publicString getMessage() {
        return message;
    }
}

```

**Note_: Do not use String properties with buttons and test for the value that's set. This will break as soon as the `_value` attribute of the HTML button changes! This is likely because the `value` attribute used as the text shown to the user.*

Dynamic set of buttons

Consider a web page showing a shopping cart or similar tabular data. Often there is a button belonging to each row, in case of the shopping cart a delete button to remove the item from the cart. The number of buttons is dynamic and the id that couples the button to an item cannot go to the `value` attribute because all buttons should read "delete".

The solution is to `__name*` the buttons like `delete[123]`, `delete[594]`, `delete[494]` where 123, 594 and 494 are e.g. the items' ids:

```

<form action="UpdateCart.action">
  <ww:iterate value="items">
    <ww:property value="name">
      <input type="submit" name="delete[<ww:property value='id'>]" value="delete" />
    <br/>
  </ww:iterate>
</form>

```

When e.g. the button for the item with the property `id == "27"` is pressed, a parameter named `delete[27]` and value "delete" is set in your action. The trick is to us declare your action's property "delete" as `java.util.Map`. Then, a key will exist for the button that was pressed:

```

public void class UpdateCart implements Action {
    // must be initialized to be usable as a webwork input parameter
    private Map delete = new HashMap();

    /** This is somewhat counter intuitive. But a property like "delete[OS:27]"
     * that is set to "delete" by webwork will be interpreted by the underlying
     * OGNL expression engine as "set the property 27 of the action's property
     * "delete" to the value "delete". So we must provide a getter forthis
     */ action. A setter is not needed.
    public Map getDelete() {
        return delete;
    }

    public String execute() {
        for(Iterator i = delete.keySet().iterator(); i.hasNext(); ) {
            String id = (String) i.next();
            ...
            // do what ever you want
            ...
        }
        ...
    }
}

```

In this case it would not be necessary to iterate the whole keySet because it contains only one key but the same code can be use to handle sets of checkboxes if this is preferred later:

```

<form action="UpdateCart.action">
    <ww:iterate value="items">
        <ww:property value="name">
            <input type="checkbox" name="delete[<ww:property value='item'/>]"
value="delete"> <br/>
        </ww:iterate>
        <input type="submit" name="updateCart" value="Update the cart"/>
    </form>

```

The two implementations can even be combined two provide a quick "delete this item" button and a set of checkboxes for "mass updates". All with the above code, cool eh?

Webwork 2 skinning

This page last changed on Nov 30, 2004 by [jcarreira](#).

Skinning in Webwork 2 can be done more than one way. We will show how to use two skins called "html" and "wml", and we'll be working with the following directory structure:

```
/WEB-INF
  /web.xml
/html
  /index.jsp
  /Register.jsp
/wml
  /index.jsp
  /Register.jsp
/index.jsp
```

Classic Approach

If you want to go the Webwork 1.3 route, simply place all actions in the default namespace so that they are accessible from any URL path. When you create your views, place them in the sub-directory that corresponds with the skin's identifier.

Your action configuration would look like this (simplified, without defined interceptors):

```
<package name="default">
  <action name="registration" class="x.actionset.Register">
    <result name="success" type="dispatcher">
      <param name="location">Register.jsp</param>
    </result>
    <interceptor-ref name="defaultStack"/>
  </action>
</package>
```

If a user requested <http://yoursite/html/register.action>, he would see the JSP located at /html/Register.jsp.

Namespace Defined

If you require the use of namespaces, you can do the following:

Simplified configuration example:

```
<package name="user" extends="default">
  <action name="register" class="x.x.actionset.Register">
    <result name="success" type="dispatcher">
      <param name="location">Register.jsp</param>
    </result>

    <interceptor-ref name="defaultStack"/>
  </action>
</package>

<package name="user-html" extends="user" namespace="/user/html" />
<package name="user-wml" extends="user" namespace="/user/wml" />
```

The last two package definitions extend the first package, changing only the namespace. The view result defined in the "register" action has a relative path. Because of this, you'll get the same behavior as the Classic Approach, but with the security of knowing that ONLY those two paths can be accessed for the action, instead of ANY path.

File upload using WebWork

Webwork comes with built in file upload support. Uploading a file is simple. When `ServletDispatcher` begins it checks to see if the request contains multipart content. If it does the dispatcher creates a `MultipartWrapperRequest`. This wrapper handles receiving the file and saving to disk. It is important for the action programmer to check to see if any errors occurred during processing. Three properties can be set that effect file uploading.

Properties

Webwork properties can be set by putting a file 'webwork.properties' in WEB-INF/classes. Any property found there will override the default value.

1. `webwork.multipart.parser` - This should be set to a class that extends `MultiPartRequest`. Currently WebWork ships with two implementations. "`com.opensymphony.webwork.dispatcher.multipart.PellMultiPartRequest`" and "`com.opensymphony.webwork.dispatcher.multipart.CosMultiPartRequest`" If the property is not found the Pell parser is used.
2. `webwork.multipart.saveDir` - The directory where the uploaded files will be placed. If this property is not set it defaults to `javax.servlet.context.tempdir`.
3. `webwork.multipart.maxSize` - The maximum file size in bytes to allow for upload. This helps prevent system abuse by someone uploading lots of large files. The default value is 2 Megabytes and can be set as high as 2 Gigabytes (higher if you want to edit the Pell multipart source but you really need to rethink things if you need to upload files larger then 2 Gigabytes!) If you are uploading more than one file on a form the `maxSize` applies to the combined total, not the individual file sizes.

If you're happy with the defaults there is no need to put any of the properties in `webwork.properties`. Here is my current `webwork.properties`

```
# don't really need to set this but I put it here for testing
# various values
```

```
webwork.multipart.parser=com.opensymphony.webwork.dispatcher.multipart.PellMultiPartRequest

# put the uploaded files in /tmp. My application will move them to their
# final destination
webwork.multipart.saveDir=/tmp
```

Note, while you can set these properties to new values at runtime the MultiPartRequestWrapper is created and the file handled before your action code is called. So if you want to change values you must do so before this action.

Sample form

```
<%@ taglib uri="webwork" prefix="ww" %><html><head><title>File Upload
Test</title></head><body><h1>File Upload</h1><form action="FileUpload.action"
method="POST" enctype="multipart/form-data"><center><table width="350" border="0"
cellpadding="3" cellspacing="0"><tr><td colspan="2"><input type="file"
name="FileName" value="Browse..." size="50"/></td></tr><tr><td colspan="2"
align="center"><input type="submit"
value="Submit"></td></tr></table></center></form></body></html>
```

That's all you have to do to upload a file. No coding required, the file will be placed in the default directory. However, that leaves us with no error checking among other things. So let's add some code to the Action.

FileUploadAction.java

Before the action method is called the dispatcher will upload the file. Then we can get access to information about the file from MultiPartRequestWrapper.

```
MultiPartRequestWrapper multiWrapper =
    (MultiPartRequestWrapper) ServletActionContext.getRequest();
```

The first thing you should always do is check for errors. If there were any there's no point in continuing, most methods will return null. Unfortunately, currently there is no easy way to distinguish what error occurred making it more difficult to route to different error pages. (I have improving error handling for file uploads on my stack of things I'd like to do sometime).

```
if (multiWrapper.hasErrors()) {
    Collection errors = multiWrapper.getErrors();
```

```

    Iterator i = errors.iterator();
    while (i.hasNext()) {
        addActionError((String) i.next());
    }
    return ERROR;
}

```

Now get the input tag name for the uploaded file and use that to get information on the transfer. Since you can upload multiple files (just add multiple input tags) at a time `getFileNames` returns an Enumeration of the names.

```

Enumeration e = multiWrapper.getFileNames();

while (e.hasMoreElements()) {
    // get the value of this input tag
    String inputValue = (String) e.nextElement();

    // get the content type
    String contentType = multiWrapper.getContentType(inputValue);

    // get the name of the file from the input tag
    String fileName = multiWrapper.getFilesystemName(inputValue);

    // Get a File object for the uploaded File
    File file = multiWrapper.getFile(inputValue);

    // If it's null the upload failed
    if (file == null) {
        addActionError("Error uploading: " +
            multiWrapper.getFilesystemName(inputValue));
    }

    // Do additional processing/logging...
}

```

Further improvements.

Code above may be packed into one nice reusable component (Interceptor) that handles 90% of all typical file upload tasks. And Action does not know anything about web-app and just gets its files. Neat. See [WW:File Upload Interceptor](#)

FAQ

This page last changed on Jan 10, 2006 by [plightbo](#).



Each question should be a new page. Typically answers should link to content in the [Reference](#). If the answer isn't in the [Reference](#), then it should probably be added there and then linked to from the FAQ. Also note that some of the questions are current'y too verbose and should be broken down given that they have already been categorized (ie: Validation, Internationalization, etc).

General

- [How do I get the latest version of WebWork](#)
- [What are the default variables in the value stack](#)
- [How do I get access to the session](#)
- [How can I see all request parameters passed into the action](#)
- [How can I get the HttpServletRequest](#)
- [How can I get the HttpServletResponse](#)
- [Can I break up my large XWork.xml file into smaller pieces](#)
- [I'm trying to run the webwork example in the tutorial on Tomcat, and it can't instantiate the VelocityEngine](#)
- [How do I handle files upload](#)
- [How do I get JEE J2EE security info](#)
- [How do I get static parameters into my action](#)
- [Can I access my action's Result](#)
- [Can I enable ww altSyntax on a per-page basis](#)
- [Can I change theme on a per-page basis](#)
- [Can I change templateDir on a per-page basis](#)
- [How can I display image that are contained as bytes in my action](#)
- [How to reload xwork configuration](#)

Tags

- [How can I put a String literal in a Javascript call, for instance in an onChange attribute](#)
- [Why won't the 'if' tag evaluate a one char string](#)

- [Why does FreeMarker complains that there's an error in my user-directive when I used JSP Tag](#)

Inversion of Control

- [How can I integrate WebWork IoC in to an object that is not an action](#)

Validation

- [How do I use messages from within the validator](#)
- [Why do I get error message saying Attribute 'short-circuit' must be declared for element type 'field-validator'](#)

Internationalization

- [How do I set a global resource bundle](#)
- [How do I decouple XWork LocalizedTextUtil global resource bundle loading from serlvets](#)
- [How do I add I18N to a UI tag, like the textfield tag](#)
- [Can I add I18N outside the Action's context](#)
- [How to support UTF-8 URIEncoding with Tomcat](#)

Type Conversion

- [How do I change the error message for invalid inputted fields](#)

Can I access my action's Result

This page last changed on Nov 21, 2005 by [tm_je](#).

Yes, that could be done with the help of an interceptor.

+ Method One +

```
public class MyInterceptor implements Interceptor {
    ...
    publicString intercept(ActionInvocation invocation) throws Exception {
        Map<String, ResultConfig> resultsMap =
        invocation.getProxy().getConfig().getResults();

        // do something with ResultConfig in map
        return invocation.invoke();
    }
    ...
}
```

+ Method Two +

```
public class MyInterceptor implements Interceptor {
    ...
    publicString intercept(ActionInvocation invocation) throws Exception {
        invocation.addPreResultListener(new PreResultListener() {
            public void beforeResult(ActionInvocation invocation, String resultCode)
            {
                Map<String, ResultConfig> resultsMap =
                invocation.getProxy().getConfig().getResults();
                ResultConfig finalResultConfig =
                resultsMap.get(resultCode);

                // do something interesting with the 'to-be'
                executed result
                }
            });
        return invocation.invoke();
    }
    ...
}
```

The difference between Method One and Two is that method two gives one, the final result to be executed.

Can I add I18N outside the Action's context

This page last changed on Nov 05, 2005 by [digi9ten](#).

Yes, use the `<ww:i18n>` tag to push a resource bundle on to the stack. Now calls with `<ww:text/>` or `<ww:property value="getText(...)"/>` will read from that resource bundle.

Can I break up my large XWork.xml file into smaller pieces

This page last changed on Nov 09, 2005 by [rgielen](#).

Sure, that's what the `<include>` element is for. Most `xwork.xml` files already have one:

```
<xwork><include file="webwork-default.xml"/><include
file="config-browser.xml"/><package name="default" extends="webwork-default">
....
</package><include file="other.xml"/></xwork>
```

This tells it to load the `webwork-default.xml` from the `webwork` jar file to get all of those interceptor and result definitions.

You can put your own `<include>` in your `xwork.xml` interchangeably with `<package>` elements... They will be loaded in the same order as it reads from top to bottom and adds things as it reads them.

@see `com.opensymphony.xwork.config.ConfigurationManager`

@see `com.opensymphony.xwork.config.Configuration`

@see `com.opensymphony.xwork.config.impl.DefaultConfiguration`

@see `com.opensymphony.xwork.config.ConfigurationProvider`

@see `com.opensymphony.xwork.config.providers.XmlConfigurationProvider`

Can I change templateDir on a per-page basis

This page last changed on Jan 10, 2006 by [tm_je](#).

Yes, by using the `<ww:set name="templateDir" value="myTemplateDir" scope="page" />`.



This will set the attribute 'templateDir' in the page scope, with the value of what that is returned by 'myTemplateDir' in the stack, eg. the action class might have a `getMyTheme` method that return a String called `template`, to indicate what the template directory is within the classpath.

Another way would be `<ww:set name="templateDir" value="'template'" scope="page" />`



This will set the attribute 'templateDir' in the page scope with the value 'template' to indicate what the template directory is within the classpath.

Can I change theme on a per-page basis

This page last changed on Jan 10, 2006 by [tm_jee](#).

Yes, by using the `<ww:set name="theme" value="myTheme" scope="page" />`.



This will set the attribute 'theme' in the page scope, with the value of what that is returned by 'myTheme' in the stack, eg. the action class might have a `getMyTheme` method that return a String called simple, to indicate simple theme.

Another way would be `<ww:set name="theme" value="'simple'" scope="page" />`



This will set the attribute 'theme' in the page scope with the value 'simple' to indicate a simple theme.

Can I enable ww altSyntax on a per-page basis

This page last changed on Dec 11, 2005 by [plightbo](#).

Yes, by using the `<ww:set name="useAltSyntax" value="true" />`. see [Alt Syntax](#)

How can I display image that are contained as bytes in my action

This page last changed on Dec 07, 2005 by [tm_je](#).

With the html as follows:

```

```

xwork.xml could be as follows:

```
<xwork>
  ...
  <result-types><result-type name="myBytesResult" class="foo.bar.MyBytesResult"
/></result-types>
  ...

  <action name="myAction" class="..."><result name="myImageResult"
type="myBytesResult"><param name="contentType">${myContentType}</param><param
name="contentDisposition">${myContentDisposition}</param><param
name="contentLength">${myContentLength}</param><param
name="bufferSize">${myBufferSize}</param><result></action>

  ...
</xwork>
```

the action could be as follows:

```
public class MyAction extends ActionSupport {
    publicString doDefault() {
        return"myImageResult";
    }
    publicbyte[] getMyImageInBytes() { .... }

    publicString getMyContentType() { ... }
    publicString getMyContentDisposition() { ... }
    publicint getMyContentLength() { .... }
    publicint getMyBufferSize() { ... }
}

public class MyBytesResult implements Result {

    public void execute(ActionInvocation invocation) throws Exception {
        MyAction action = (MyAction) invocation.getAction();
        HttpServletResponse response = ServletActionContext.getResponse();

        response.setContentType(action.getContentType());
        response.setContentLength(action.getContentLength());

        response.getOutputStream().write(action.getImageInBytes());
        response.getOutputStream().flush();
    }
}
```

}

How can I get the HttpServletRequest

This page last changed on Nov 09, 2005 by [rgielen](#).

Method A:

`ServletContext.getRequest()` (works internally using a `ThreadLocal`)

Method B:

Have the action implements `ServletRequestAware` and the servlet request will be set through `setServletRequest(HttpServletRequest)` method. This requires the action to have a 'servlet-config' interceptor added.

@see [webwork-default.xml](#)

@see `com.opensymphony.webwork.interceptor.ServletRequestAware`

@see `com.opensymphony.webwork.interceptor`.[ServletConfigInterceptor](#)

How can I get the HttpServletResponse

This page last changed on Nov 09, 2005 by [rgielen](#).

Method A:

`ServletActionContext.getResponse()` (works internally using a `ThreadLocal`)

Method B:

Have the action implements `ResponseAware` and the response will be set through `setServletResponse(HttpServletResponse)`. The action needs to have 'servlet-config' interceptor added to it.

@see [webwork-default.xml](#)

@see `com.opensymphony.webwork.interceptor.ServletResponseAware`

@see `com.opensymphony.webwork.interceptor.`[ServletConfigInterceptor](#)

How can I integrate WebWork IoC in to an object that is not an action

This page last changed on Nov 05, 2005 by [digi9ten](#).

Obtain the ComponentManager from the request: `ComponentManager cm = (ComponentManager) ServletActionContext.getRequest().getAttribute("DefaultComponentManager");`
then you need to initialize it using: `cm.initializeObject(Object)`

How can I put a String literal in a Javascript call, for instance in an onChange attribute

This page last changed on Nov 05, 2005 by [digi9ten](#).

The problem is in escaping quotes and getting the double quotes around the final value, like we expect in HTML attributes. Here's an example of the right way to do this (thanks to John Brad):

```
onChange=' "someFunc(this.form, \'abc\') "'
```

Notice here that there are single quotes surrounding the double quotes, and then the single quotes inline in the Javascript are escaped. This produces this result:

```
onChange="someFunc(this.form, 'abc')"
```

How can I see all request parameters passed into the action

This page last changed on Nov 20, 2005 by [tm_je](#).

Method A:

ActionContext.getParameters() (returns Map, works internally using a ThreadLocal)

Method B:

Have the action implements ParameterAware interface and the parameters will be set through the setParameters(Map) method. This requires that the 'servlet-config' interceptor being added to that particular action.

@see [webwork-default.xml](#)

@see com.opensymphony.webwork.interceptor.ParameterAware

@see com.opensymphony.webwork.interceptor.[Servlet Config Interceptor](#)

How do I add I18N to a UI tag, like the textfield tag

This page last changed on Nov 05, 2005 by [digi9ten](#).

```
<ww:textfield label="'i18n.label'" name="'label1'" value="''">
```

This will get the localized text message for the key "i18n.label" and put it in the label.

```
<ww:textfield label="getText('i18n.label')" name="'label1'" value="''">
```

Alternatively, you could modify controlheader.vm and copy it to /template/xhtmll. There you could make it so that it automatically does a call to `$stack.findValue("getText($parameters.label)")`, making the first example actually work for i18n.

How do I change the error message for invalid inputted fields

This page last changed on Nov 05, 2005 by [digi9ten](#).

You need to create a message for that field, for example if you have a user.dob field you would use this in your messages file (see above for example on setting a global messages file):

`invalid.fieldvalue.user.dob=Please enter Date of Birth in the correct format.`

How do I decouple XWork LocalizedTextUtil global resource bundle loading from serlvets

This page last changed on Nov 05, 2005 by [digi9ten](#).

If you're using XWork outside a Web context, then use whatever startup hooks you have in that context (i.e. application start for a desktop app) to add the global resource bundle. This is a startup activity, so use whatever mechanisms are provided in the context you're running in.

How do I get access to the session

This page last changed on Nov 09, 2005 by [rgielen](#).

Method A:

ActionContext.getContext().getSession() (returns Map, works internally using a ThreadLocal)

Method B (Recommended):

Have the action implements SessionAware, and the Session (as a Map) will be set through the setSession(Map) method. This requires that the 'servlet-config' interceptor being included when the particular action is processed.

@see [webwork-default.xml](#)

@see com.opensymphony.webwork.interceptor.SessionAware

@see com.opensymphony.webwork.interceptor.[Servlet Config Interceptor](#)

How do I get JEE J2EE security info

This page last changed on Nov 10, 2005 by [tm_je](#).

Method A:

```
HttpServletRequest request = ....    // get HttpServletRequest
request.getAuthType()                // http or https
request.getRemoteUser()              // the user principal (in string)
request.getUserPrincipal()           // get a Principal object
request.isUserInRole(String)
```

Method B: (Recommended)

- Not tied to Servlet spec
- Help in unit testing

Have the action implements PrincipalAware and add 'servlet-config' interceptor to it. a PrincipalProxy object will be set to method setPrincipalProxy(PrincipalProxy). With PrincipalProxy, one could have access to methods such as isUserInRole(), getUserPrincipal(), getRemoteUser(), isRequestSecure() etc.

@see com.opensymphony.webwork.interceptor.PrincipalProxy

@see com.opensymphony.webwork.interceptor.PrincipalAware

@see com.opensymphony.webwork.interceptor.ServletConfigInterceptor

How do I get static parameters into my action

This page last changed on Nov 20, 2005 by [tm_je](#).

Static parameters could be defined into an action through xwork.xml like bellow:

```
<action name="myAction" class=" ... ">
  <param name="myStaticParam1">myStaticValue1</param>
  <param name="myStaticParam2">myStaticValue2</param>
  <param name="myStaticParam3">myStaticValue3</param>
</action>
```

+ Method A +

Have the action class itself implements `com.opensymphony.xwork.config.entities.Parameterizable` and the static parameters will be set into it through the `setParams(Map)` method. In the example above, the key and value will be as tabulated below:

key	value
myStaticParam1	myStaticValue1
myStaticParam2	myStaticValue2
myStaticParam3	myStaticValue3

+ Method B +

Have the action class itself define getter/setter for the static parameter itself and those static parameter will be set through those setter and getter. In the case above, the action class could be as follows:

```
public class MyAction extends ActionSupport {
    ...

    publicString getMyStaticParam1() { ....}
    public void setMyStaticParam1(String myStaticParam1) { ... }

    publicString getMyStaticParam2() { ... }
    public void setMyStaticParam2(String myStaticParam2) { ... }

    publicString getMyStaticParam3() { ... }
    public void setMyStaticParam3(String myStaticParam3) { ... }

    ...
}
```

The getter and setter, will be set appropriately.

NOTE: For this to work, 'static-params' interceptor must be added to the action.

@see com.opensymphony.xwork.interceptor.StaticParametersInterceptor

@see com.opensymphony.xwork.config.entities.Parameterizable

Distribution package

The latest distribution packages including official beta versions are found on [Java DevNet](#).

From CVS (The Bleeding Edge)

Short answer:

```
cvcs -d :pserver:guest@cvs.dev.java.net:/cvs login
(Use an empty password, just hit enter..)
cvcs -d :pserver:guest@cvs.dev.java.net:/cvs checkout opensymphony
cvcs -d :pserver:guest@cvs.dev.java.net:/cvs checkout webwork
```

optional:

```
cvcs -d :pserver:guest@cvs.dev.java.net:/cvs checkout xwork
```

Note: One needs to have ivy in \$ANT_HOME/lib, cause WebWork uses ivy to manage its library dependencies.

Long answer:

See [Building Webwork](#) for a detailed description, including information on Ivy and JDK compatibility.


```
public void setMyDocFileName(String[] fileNames) { ... }
```

Extra Information:

The following properties in `webwork.properties` affect the file upload.

`webwork.multipart.parser` (as of WW2.2 its jakarta by default)

`webwork.multipart.saveDir` (default to `javax.servlet.context.tempdir` defined by container)

`webwork.multipart.maxSize` (approximately 2M by default)

@see `webwork.properties`

@see

`com.opensymphony.webwork.dispatcher.FilterDispatcher#doFilter(ServletRequest, ServletResponse, FilterChain)`

@see

`com.opensymphony.webwork.dispatcher.DispatcherUtil#wrapRequest(HttpServletRequest, ServletContext)`

@see `com.opensymphony.webwork.dispatcher.multipart.MultipartRequestWrapper`

@see `com.opensymphony.webwork.interceptor.FileUploadInterceptor`

How do I set a global resource bundle

This page last changed on Nov 10, 2005 by [plightbo](#).

In webwork.properties(as of Webwork 2.1.1),
you can now use:

```
webwork.custom.i18n.resources=global-messages
```

Several resource bundles can be specified by comma separating them.

for example see webwork.properties :

<http://wiki.opensymphony.com/display/WW/webwork.properties>

Java class (thanks Drew McAuliffe):

```
public class WebworkGlobalMessagesListener implements ServletContextListener {
    private static Logger log =
    Logger.getLogger(WebworkGlobalMessagesListener.class);
    private static final String DEFAULT_RESOURCE = "global-messages";

    /**
     * Uses the LocalizedTextUtil to load messages from the global
     * message bundle.
     * @see
     * javax.servlet.ServletContextListener#contextInitialized(javax.servlet.Servle
     * tContextEvent)
     */
    public void contextInitialized(ServletContextEvent arg0) {
        log.info("Loading global messages from " + DEFAULT_RESOURCE);
        LocalizedTextUtil.addDefaultResourceBundle(DEFAULT_RESOURCE);
        log.info("Global messages loaded.");
    }

    /**
     * @see
     * javax.servlet.ServletContextListener#contextDestroyed(javax.servlet.ServletContextEvent)
     */
    public void contextDestroyed(ServletContextEvent arg0) {

        // do nothing
    }
}
```

web.xml:

(under listeners section)

```
<listener><listener-class>mypackageName.WebworkGlobalMessagesListener</listener-class></listener>
```

How do I use messages from within the validator

This page last changed on Nov 05, 2005 by [digi9ten](#).

```
<validators><field name="name"><field-validator type="requiredstring"><message  
key="template.name.errors.required">A default message in case the key is not  
found</message></field-validator></field></validators>
```


How to reload xwork configuration

This page last changed on Dec 07, 2005 by [victorsosa](#).

If you are finding that the xwork configuration is not reloaded when you redeploy your war. Is there a way to tell webwork to unload its configuration when the context is destroyed.

Try to call

```
com.opensymphony.xwork.config.ConfigurationManager.destroyConfiguration()
```



Useful Information

This should destroy the current configuration and perform a config reload on next **request**. You can use a action for do it.

How to support UTF-8 URLEncoding with Tomcat

This page last changed on Nov 24, 2005 by [rainerh](#).

If your POST and GET parameters are not UTF-8 encoded when using Tomcat 5.x, try to adjust the Connector configuration in Tomcats server.xml like this:

```
<!-- Define a non-SSL HTTP/1.1 Connector on port 8080 -->
<Connector port="8080" maxHttpHeaderSize="8192"
    maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
    enableLookups="false" redirectPort="8443" acceptCount="100"
    connectionTimeout="20000" disableUploadTimeout="true"
    URLEncoding="UTF-8"
/>
```

I'm trying to run the webwork example in the tutorial on Tomcat, and it can't instantiate the VelocityEngine

This page last changed on Nov 05, 2005 by [digi9ten](#).

Tomcat says:

```
javax.servlet.ServletException: Servlet.init() for servlet webwork threw exception at  
org.apache.catalina.core.StandardWrapper.loadServlet(StandardWrapper.java:963)
```

```
...
```

root cause

```
java.lang.RuntimeException: Unable to instantiate VelocityEngine!
```

```
at
```

```
com.opensymphony.webwork.views.velocity.VelocityManager.newVelocityEngine(VelocityManager.java:146)
```

```
at
```

```
com.opensymphony.webwork.views.velocity.VelocityManager.init(VelocityManager.java:146)
```

```
at
```

```
com.opensymphony.webwork.dispatcher.ServletDispatcher.init(ServletDispatcher.java:177)
```

```
at
```

```
org.apache.catalina.core.StandardWrapper.loadServlet(StandardWrapper.java:935)
```

Solution: **(thanks to Keith Lea)**

It turns out Velocity's Avalon logging system was trying to write to my tomcat folder.

So that it's on file somewhere for other people, I will describe the solution:

I created a file "velocity.properties" and placed it in my WEB-INF/classes folder. Inside the file I wrote:

```
runtime.log.logsystem.class=org.apache.velocity.runtime.log.NullLogSystem
```

This stops velocity from logging, and makes webwork work again.

What are the default variables in the value stack

This page last changed on Nov 08, 2005 by [tm_je](#).

Variables	Description
attr	scans the request, session, and application attributes, in that order
request	request attributes
session	session attributes
application	application attributes
parameters	request params

Defining Java Constant	Variables	Description
ActionContext.PARAMETERS	com.opensymphony.xwork.ActionContext.parameters	Same as parameters above
ActionContext.SESSION	com.opensymphony.xwork.ActionContext.session	Same as session above
ActionContext.APPLICATION	com.opensymphony.xwork.ActionContext.application	Same as application above
ActionContext.LOCALE	com.opensymphony.xwork.ActionContext.locale	ActionContext default in webwork.properties else from the request object
ActionContext.DEV_MODE	__devMode	true or false if in development mode or otherwise whereby resource bundle webwork.properties, xwork.xml, converters, validators will be refreshed when changes
ActionContext.HTTP_REQUEST	com.opensymphony.xwork.dispatcher.HttpServletRequest	Same as HttpServletRequest
ActionContext.HTTP_RESPONSE	com.opensymphony.xwork.dispatcher.HttpServletResponse	Same as HttpServletResponse
ActionContext.SERVLET_CONTEXT	com.opensymphony.xwork.dispatcher.ServletContext	Same as ServletContext object
ActionContext.COMPONENT_MANAGER	com.opensymphony.xwork.interceptor.OgoneComponentManager	Webwork's OGone ComponentManager

For further information

@see `com.opensymphony.webwork.dispatcher.DispatcherUtils#createContextMap`

@see `com.opensymphony.xwork.interceptor.component.ComponentInterceptor`

@see `com.opensymphony.webwork.WebWorkStatics`

Why do I get error message saying Attribute 'short-circuit' must be declared for element type 'field-validator'

This page last changed on Jan 10, 2006 by [plightbo](#).

The DTD needs to be of version 1.0.2 instead of 1.0, as the short-circuit is introduced in the 1.0.2 version

```
<!DOCTYPE validators PUBLIC
    "-//OpenSymphony Group//XWork Validator
    1.0.2//EN" "http://www.opensymphony.com/xwork/xwork-validator-1.0.2.dtd">
```

Why does FreeMarker complains that there's an error in my user-directive when I used JSP Tag

This page last changed on Nov 14, 2005 by [tm_je](#).

To use JSP Tags in FreeMarker template, the following needs to be included in the web.xml

```
<servlet><servlet-name>jspSupportServlet</servlet-name><servlet-class>com.opensymphony.webwork.v
```

The snippets above, register a JspSupportServlet with the webapp, and requires that the container load it upon startup. It provides access to the servlet instance itself where valuable information like ServletContext could be obtained. This is needed for FreeMarker template rendering that contains JSP tags.

Why won't the 'if' tag evaluate a one char string

This page last changed on Nov 05, 2005 by [digi9ten](#).

```
<ww:if test="#myObj.myString == 'A'">
Why doesn't this work when myString is equal to A?
</ww:if>
```

OGNL will interpret 'A' as a char type and not a string. Simple solution - flip the double and single quotes.

```
<ww:if test='#myObj.myString == "A"'>
This works!
</ww:if>
```

Alternatively, you can escape the double quotes in the String:

```
<ww:if test="#myObj.myString == \"A\"">
This works!
</ww:if>
```


Overview

This page last changed on Dec 02, 2005 by [plightbo](#).

1. [WebWork Overview](#)
2. [Comparison to other web frameworks](#)
3. [Articles and press](#)
4. [Projects using WebWork](#)
5. [Testimonials](#)

WebWork is a very popular framework and community. As such, there are many articles, presentations, and books about WebWork. Here is just a sample.

Books

- [WebWork in Action](#) - Patrick Lightbody, Jason Carreira; Manning; September 2005
- [Java Open Source Programming](#) - Joseph Walnes, Ara Abrahamian, Mike Cannon-Brookes, Patrick Lightbody; Wiley; November 2003
- [Art of Java Web Development](#) - Neal Ford; Manning; November 2003
- [WebWork Live](#) - Matthew Porter; SourceBeat; N/A

Presentations

- WebWork + AJAX: A winning combination ([video](#), [slides](#)) - Patrick Lightbody; JavaZone; August 2005
- WebWork in Action: An introduction to WebWork ([video](#), [slides](#)) - Patrick Lightbody; JavaZone; August 2005
- [WebWork 2.0: Strutting the OpenSymphony way](#) - Jason Carreira; TheServerSide Symposium; April 2004
- [Strutting the OpenSymphony way](#) - Mike Cannon-Brookes; TheServerSide Symposium; July 2003
- [WebWork 2.0 Overview](#) - Rick Salsa; [Groove Systems](#)

Articles

- [Working wit the WebWork Framework](#) - Vlad Kofman
- [Building with WebWork](#) - Kris Thompson; TheServerSide; November 2003
- [Tutorial and article in Brazilian Portuguese](#) - January, 2004

Blogs

The official WebWork Blog can be found [here](#).

Additionally, the blogs of the developers of WebWork may provide some useful information:

- [Blogbody](#) - Patrick Lightbody
- [Jason Carreira](#)

Blog entries:

- [A summary of what is new in WebWork 2.0](#) - Mike Cannnon-Brookes

WebWork: Strutting the OpenSymphony way – Mike Cannon-Brookes

- [An overview of Mike's thoughts from the conference](#)
- [Mike's original PPT](#)

[WebWork](#) is a pull-based MVC framework focused on componentization and code reuse. It is currently in beta, but is being used by several opensource projects and a few commercial projects in development. This is the second generation of WebWork, which was originally developed by Rickard Oberg, and in this release, what was WebWork has been broken into two projects, [XW:XWork](#) and [WebWork](#).

XWork is a generic command pattern implementation with absolutely NO ties to the web. XWork provides many core services, including interceptors, meta-data based validation, type conversion, a very powerful expression language (OGNL – the Object Graph Notation Language) and an Inversion of Control (IoC) container implementation.

WebWork provides a layer on top of XWork to do HTTP request / response handling. It includes a ServletDispatcher to turn HTTP requests into calls to an Action, session and application scope mapping, request parameter mapping, view integration with various web view technologies (JSP, Velocity, FreeMarker, JasperReports), and user interface components in the form of JSP tags and Velocity macros wrapped around reusable UI components.

An Action is the basic unit of work in WebWork. It is a simple command object that implements the Action Interface, which has only one method: `execute()`. Action implementers can extend the ActionSupport class, which provides i18n localization of messages (with one ResourceBundle per Action class and searching up the inheritance tree) and error message handling including class level and field level messages.

Actions can be developed in one of two styles: Model driven or field driven. Model driven Actions expose a model class via a `get` method, and the form fields refer directly to the model properties using expressions like `"pet.name"`. XWork uses Ognl (the Object Graph Notation Language) as its expression language, and when

rendering the page, this expression will translate to `getPet().getName()`. When setting properties, this will translate to `getPet().setName()`. This style of development allows for a great deal of model reuse and can allow you to directly edit your domain objects in your web pages, rather than needing a translation layer to form beans. Field driven Actions have their own properties which are used in the view. The action's `execute()` method collates the properties and interacts with the model. This can be very useful when your form and model are not parallel. Even in this case, the powerful expression language in WebWork can allow you to compose your form fields into aggregate beans, such as an address bean, which you can reuse to simplify your action classes.

WebWork allows you to build your own reusable UI components by simply defining a Velocity template. This is how the pre-built components of WebWork are built for common components such as text fields, buttons, forms, etc. and made available from any view type (either JSP or Velocity at the moment). These components are skinnable by defining multiple templates for the same component in different paths. If your components include the default header and footer templates that are used in the pre-built templates, then they will inherit the ability to automatically handle displaying error messages beside the problem form field. These custom UI components are especially handy for reusing templates which handle your custom model types or for things like date pickers, which Mike showed as an example.

Interceptors in XWork allow common code to be applied around (before and/or after) action execution. This is what Mike calls "Practical AOP". Interceptors help to decouple and componentized your code. Interceptors can be organized into stacks, which are lists of interceptors to be applied in sequence, and can be applied to actions or whole packages. Much of the core functionality of XWork and WebWork is implemented as Interceptors. The common basic examples of Interceptors are timing and logging, and these are built in with XWork. Mike went through an example of an interceptor to identify users of events via email. This interceptor has its own external configuration file which specifies which users are interested in which events, and it compares this configuration with the action invocations passing through it to determine if any messages should be sent.

XWork's validation framework allows for decoupled validation of action properties. It is implemented as an Interceptor and reads external XML files which define the validations to be applied to the Action. Error messages are loaded from the Action's localized messages and flow through to the UI. Validator classes can be plugged in to

add to the set of bundled validators. The bundled validators include required field and required String validators, range validators for Dates and numbers, and email and URL validators. XWork also includes expression validators at both the Action and field level which allow you to use any Ognl expression as the validation.

Inversion of Control (IoC) removes the burden of managing components from your code and puts it on the container. The container takes care of managing component lifecycle and dependencies. EJB is an example of IoC, but with limited services. IoC promotes simplicity and decoupling of your components and encourages your classes to be smaller and more focused. Unit testing is also simplified, as you can just supply MockObject instances of the services your code depends upon during testing. XWork and WebWork provide a web-native IoC container which manages component dependencies. In WebWork IoC is implemented as lifecycle managers (SessionLifecycleListener, etc) and an Interceptor. There are 4 component scopes in WebWork IoC: Application, HTTP Session, HTTP Request, and Action invocation. IoC in XWork / WebWork is purely optional, so you can use it if you want it.

XWork / WebWork allows for sets of Actions and their views to be bundled as a jar file and reused. Your main xwork.xml file can include the xml configuration file of the jar file because they are included from the classpath. Similarly, if your views are [Velocity](#) templates, you can bundle your views in the jar file and they will be loaded from the classpath when rendering. This allows for componentization of your application and reuse of bundled Actions across applications.

I have to admit, when Mike mentioned this feature, I thought he was crazy. I didn't say anything at the session, but asked him about it later, and he said "didn't you write the package include stuff?" I'll take it as a good sign that things can be used in a different way than was imagined. 😊

Mike finished up with a comparison of WebWork vs. [Struts](#) . Struts is obviously the 500 lb gorilla in the web MVC space, so why use WebWork? WebWork's pros include being a smaller, simpler framework, not having to build ActionForm beans, making it very simple to test your Actions, having multiple well-supported view technologies, simpler views with less JSP tags and a more powerful expression language, not having to make your Actions thread-safe, not having your Actions tied to the web, and not being part of [Jakarta](#) . WebWork also adds many new features such as Interceptors,

packages, IoC, etc. WebWork's cons include being a smaller project with fewer books and less tool support, having less standards support for specs like JSTL and JSF, and not being part of [Jakarta](#) .

Comparison to other web frameworks

This page last changed on Aug 03, 2005 by [plightbo](#).

- [Comparison to Struts](#)
- [Comparison to JSF](#)
- [Comparison to Tapestry](#)
- [Comparison to Spring MVC](#)
- [Comparison to Ruby on Rails](#)

Comparison to JSF

This page last changed on Oct 30, 2005 by [plightbo](#).

TODO: a brief write-up comparing WebWork to JSF

Comparison to Ruby on Rails

This page last changed on Oct 30, 2005 by [plightbo](#).

WebWork's architecture is very similar to Ruby on Rails. The biggest difference between WebWork and Rails is actually more of a difference between Java and Ruby than anything. Using [FreeMarker](#) and [QuickStart](#), developers can achieve the same level of productivity as developers who use Rails and the fact that Ruby is a scripting language.

Comparison to Spring MVC

This page last changed on Oct 30, 2005 by [plightbo](#).

TODO: a brief write-up comparing WebWork to Spring MVC

Comparison to Struts

This page last changed on Jan 07, 2006 by [plightbo](#).



As of December, 2005 the Struts and WebWork teams have agreed to combine their efforts to create Struts Action 2.0. Struts Action 2.0 will be based on WebWork 2.2. Therefore this comparison is less relevant as the two communities cooperate more.

Feature Comparison

Feature	Struts	WebWork 1.x	WebWork 2.x
Action classes	Struts requires Action classes to extend an Abstract base class. This shows a common problem in Struts of programming to abstract classes instead of interfaces.	Action classes must implement the webwork.Action Interface. There are other Interfaces which can be implemented for other services, such as storing error messages, getting localized texts, etc. The ActionSupport class implements many of these Interfaces and can act as a base class. WebWork is all written to Interfaces, which allows for plugging in your own implementations.	An Action must implement the com.opensymphony.xwork.Action interface, with a series of other Interfaces for other services, like in WebWork 1.x. WebWork2 has its own ActionSupport to implement these Interfaces.
Threading Model	Struts Actions must	WebWork Actions are	ditto


	<p>be thread-safe because there will only be one instance to handle all requests. This places restrictions on what can be done with Struts Actions as any resources held must be thread-safe or access to them must be synchronized.</p>	<p>instantiated for each request, so there are no thread-safety issues. In practice, Servlet containers generate many throw-away objects per request, and one more Object does not prove to be a problem for performance or garbage collection.</p>	
Servlet Dependency	<p>Struts Actions have dependencies on Servlets because they get the ServletRequest and ServletResponse (not HttpServletRequest and HttpServletResponse, I've been told) when they are executed. This tie to Servlets (although not Http*) is a defacto tie to a Servlet container, which is an unneeded dependency. Servlets may be used outside a Web context, but it's not a good fit for JMS, for instance.</p>	<p>WebWork Actions are not tied to the web or any container. WebWork actions CAN choose to access the request and response from the ActionContext, but it is not required and should be done only when ABSOLUTELY necessary to avoid tying code to the Web.</p>	ditto
Testability	<p>Many strategies have sprung up around testing Struts</p>	<p>WebWork actions can be tested by instantiating your</p>	ditto, but the emphasis on Inversion of Control

	<p>applications, but the major hurdle is the fact that Struts Actions are so tightly tied to the web (receiving a Request and Response object). This often leads people to test Struts Actions inside a container, which is both slow and NOT UNIT TESTING.</p> <p>There is a Junit extension : Struts TestCase (http://strutstestcase.sourceforge.net/)</p>	<p>action, setting the properties, and executing them</p>	<p>makes testing even simpler, as you can just set a Mock implementation of your services into your Action for testing, instead of having to set up service registries or static singletons</p>
FormBeans	<p>Struts requires the use of FormBeans for every form, necessitating either a lot of extra classes or the use of DynaBeans, which are really just a workaround for the limitation of requiring FormBeans</p>	<p>WebWork 1.x allows you to have all of your properties directly accessible on your Action as regular Javabeans properties, including rich Object types which can have their own properties which can be accessed from the web page. WebWork also allows the FormBean pattern, as discussed in "WW1:Populate Form Bean and access its value"</p>	<p>WebWork 2 allows the same features as WebWork 1, but adds ModelDriven Actions, which allow you to have a rich Object type or domain object as your form bean, with its properties directly accessible to the web page, rather than accessing them as sub-properties of a property of the Action.</p>
Expression Language	<p>Struts 1.1 integrates with JSTL, so it uses the JSTL EL. This EL</p>	<p>WebWork 1.x has its own Expression language which is</p>	<p>WebWork uses Ognl which is a VERY powerful expression</p>

	has basic object graph traversal, but relatively weak collection and indexed property support.	built for accessing the ValueStack. Collection and indexed property support are basic but good. WebWork can also work with JSTL	language, with additions for accessing the value stack. Ognl supports very powerful collection and indexed property support. Ognl also supports powerful features like projections (calling the same method on each member of a collection and building a new collection of the results), selections (filtering a collection with a selector expression to return a subset), list construction, and lambda expressions (simple functions which can be reused). Ognl also allows access to static methods, static fields, and constructors of classes. WebWork2 may also use JSTL as mentioned in WW1:Using JSTL seamlessly with WebWork
Binding values into views	Struts uses the standard JSP	WebWork sets up a ValueStack which the	ditto

	mechanism for binding objects into the page context for access, which tightly couples your view to the form beans being rendered	WebWork taglibs access to dynamically find values very flexibly without tightly coupling your view to the types it is rendering. This allows you to reuse views across a range of types which have the same properties.	
Type Conversion	Struts FormBeans properties are usually all Strings. Struts uses Commons-Beanutils for type conversion. Converters are per-class, and not configurable per instance. Getting a meaningful type conversion error out and displaying it to the user can be difficult.	WebWork 1.x uses PropertyEditors for type conversion. PropertyEditors are per type and not settable per Action, but field error messages are added to the field error map in the Action to be automatically displayed to the user with the field.	WebWork2 uses Ognl for type conversion with added converters provided for all basic types. Type converters default to these converters, but type conversion can be specified per field per class. Type conversion errors also have a default error message but can be set per field per class using the localization mechanism in WW2 and will be set into the field error messages of the Action.
Modular Before & After Processing	Class hierarchies of base Actions must be built up to do processing before	Class hierarchies	WebWork 2 allows you to modularize before and after processing in

	and after delegating to the Action classes, which can lead deep class hierarchies and limitations due to the inability to have multiple inheritance WW:Comparison to Struts#1		Interceptors. Interceptors can be applied dynamically via the configuration without any coupling between the Action classes and the Interceptors.
Validation	Struts calls validate() on the FormBean. Struts users often use Commons Validation for validation. I don't know a lot about this, so I'll put some questions here: Because FormBean properties are usually Strings, some types of validations must either be duplicated (checking type conversion) or cannot be done? Can Commons Validation have different validation contexts for the same class? (I've been told yes, so that's a good thing) Can Commons Validation chain to validations on sub-objects, using	WebWork1.x calls the validate() method on Actions, which can either do programmatic validations or call an outside validation framework (this is apparently the same as Struts)	WebWork can use the validate() method of WebWork and Struts and / or use the Validation framework, which is activated using an XWork Interceptor. The Xwork Validation Framework allows you to define validations in an XML format with default validations for a class and custom validations added for different validation contexts. The Xwork Validation Framework is enabled via an Interceptor and is therefore completely decoupled from your Action class. The Xwork Validation Framework also allows you to chain the validation

	the validations defined for that object properties class?		process down into sub-properties using the VisitorFieldValidator which will use the validations defined for the properties class type and the validation context.
Control Of Action Execution	As far as I know Struts sets up the Action object for you, and you have very little control over the order of operations. To change them I think  you need to write your own Servlet to handle dispatching as you want	The ActionFactory chain controls the order in which an Action is constructed and initialised, but this requires writing a class	The interceptor stacks in WebWork 2 are hugely powerful in this regard. All aspects of Action setup have been moved into Interceptor implementations (ie setting paramters from the web, validation etc), so you can control on a per action basis the order in which they are performed. For example you might want your IOC framework to setup the action before the parameters are set from the request or vice versa - you can thusly control this on a per package or per action basis with interceptor stacks.

References

- <http://www.mail-archive.com/opensymphony-webwork@lists.sourceforge.net/msg00995.htm>
 - compares Struts development to WebWork 1.x development from the point of view of a Struts developer who switched to WebWork
- <http://www.mail-archive.com/opensymphony-webwork@lists.sourceforge.net/msg04700.htm>
 - Kind of the first draft of this comparison

Footnotes

1. Some Struts users have built the beginnings of an Interceptor framework for Struts (<http://struts.sourceforge.net/saif/>). It currently has some serious limitations (no "around" processing, just before and after) and is not part of the main Struts project

Comparison to Tapestry

This page last changed on Oct 30, 2005 by [plightbo](#).

TODO: a brief write-up comparing WebWork to Tapestry

Projects Using WebWork

This page last changed on Nov 09, 2005 by [pmolettieri](#).

- [Atlassian Confluence](#) - Commercial Wiki and knowledge management system using WebWork 2.0, Hibernate, Spring, and Velocity
- [Jive Software](#) - With over 1100 customers, Jive Software's Forums and Knowledge Base products both use WebWork 2.1+ and are some of the largest deployments of WebWork
- [Midwinter](#) - an open source rapid web application develop system using WebWork 2.0, Hibernate, Spring, and Velocity
- [Chemist Australia](#) - Online Pharmacy
- [DriveNow](#) - last minute Australian car rentals
- [OpenReports](#) - an open source web based reporting application that uses WebWork 2.0, Velocity, and Hibernate
- [eSage Group](#) is a consulting company that uses it for all their client engagements. Additionally, its used for their internal systems
- [Filmweb](#) - Polish Film Portal
- [TeraMEDICA](#) - WebWork is used in TeraMEDICA's commercial TI2m product, which performs intelligent image management for the healthcare enterprise. Specifically, WebWork is a key component of the system's management interface.
- [EBIA COBRA and 401K Benefits Site](#) provides law reviews for employee benefits like COBRA and 401K. The site moved from all struts to a current architecture of about 50% WebWork and 50% Struts. We are trying to move it all over to WebWork. This site is also a great example of porting from Tiles to SiteMesh.
- [Valtira Rolecall](#) - Identity Management Framework that provides single sign-on for J2EE and .NET web applications.
- [Orange Blossom Indian River Citrus](#) - Retail site of shipper of fresh Florida (USA) citrus.
- [JavaEye Reporting Tool](#) - An open-source, web-based database reporting tool. It allows you to create reports without any programming (though you'll need SQL

knowledge). It's a lightweight reporting environment, the report can be created to quickly share information via web.

- [Dating-site](#) - Commercial dating site (BE, dutch) ww2.1.7, hibernate
- [No Fluff, Just Stuff](#) - Java/Open Source Conferences delivered locally.
- [JavaBB](#) - phpBB like forum system. Written and used at [Javafree](#) brazilian community.
- [CRI](#) - A pharmaceutical marketing compliance application.
- [Logicd.com](#) - A logistics, shipping management, tracking, supply-chain management application.
- [Green Array](#) - Green Array empowers managers at every level, in every organization. Green Array's web-hosted software solution is a simple, fast, scalable way to improve visibility, collaboration and to accelerate team performance. Integrated SWT client and WebWork 2.2 html dashboard with Hibernate persistence.

Testimonials

This page last changed on Oct 30, 2005 by [plightbo](#).

WebWork rocks! We use it for our [Bug Tracking](#) and for several of our clients. We have moved several sites from Struts to WebWork. I love it. Another site we work with for [Survey Software](#) is also moving off of Struts to WebWork. Everything is easier in WW, especially with the power of Interceptors!!!

Again... another site in 1 week with Site Mesh and WebWork. Its a [blog community](#) site. The one I manage... being a cyclist is the [Cycling Community](#)

Mike Porter, Architect, eSage Group

<http://www.esagegroup.com>

Two years ago we dediced to use WebWork instead of Struts because of it's technical superiority and it proved to be an excellent decision. WebWork is successfully used by productive customer applications running with WebLogic and Tomcat. A major project will be migrated to the newest XWork/WebWork versions in the next 6 months. Besides it's technical advantages, XWork/WebWork has a smart and extremely skilled developer team and a healthy community.

Lars Fischer, Project Manager, Compudata AG Switzerland

<http://www.compudata.ch>

WebWork is a very versatile web framework. After using solutions ranging from home-grown to Struts, WebWork is truly a breath of fresh air. XWork/WebWork not only used advanced techniques and technology, but brought concepts to the table that actually made development easier. These include built-in IOC, easy to use Spring integration, and null-property handling, and of course, type conversion.

I'm definitely looking forward to utilizing the newest features in my future projects. Keep up the good work!

Jay Bose, Sr. Engineer, Notiva Corporation

<http://www.notiva.com>

WebWork is a powerful web-based MVC framework built on top of a command pattern framework API called [XWork](#). The true power of Webwork is its underlying concept of simplicity and interoperability. Using WebWork will help minimize code and allow developers to concentrate more on business logic and modeling, rather than the plumbing often required when building web-based applications.

Features

- A flexible [Validation](#) framework allowing you to decouple validation rules from your action code.
- [Type Conversion](#) allowing you to easily convert objects from one class to another, solving one of the most tedious efforts when creating web apps.
- A powerful **Expression Language** based on [OGNL](#) allowing dynamic object graph traversal and method execution and transparent access to properties from multiple beans using a ValueStack. Webwork also has the ability to use [JSTL](#).
- [Inversion of Control](#) integration that manages component lifecycle and dependencies without the need to build registry classes that clients must call to obtain a component instance. WebWork recommends [Spring](#) for IoC.
- Reusable [Tags](#) that allow for easy and reusable component-oriented web development using [Themes and Templates](#)
- Advanced [Interceptors](#) that provide for various rich functionality, including preventing multiple form submissions and executing long running queries in the background.
- Hierarchical and pluggable support for [Internationalization](#).
- Easy integration with third party software including [Hibernate](#), [Spring](#), [Sitemesh](#), and [JSTL](#).
- Support for many view technologies such as [JSP](#), [FreeMarker](#), and [JasperReports](#).
- Modular [Configuration Files](#) using packages and namespaces to manage hundreds of actions.
- Advanced AJAX features provided by the [ajax theme](#).

Project Information

This page last changed on Nov 05, 2005 by [digi9ten](#).

1. [License](#)
2. WebWork versions
 - Current release - [WebWork 2.2](#)
 - [Previous releases](#)
3. [Dependencies](#)
4. [Building WebWork](#)
5. [WebWork Team](#)
6. [How to contribute](#)
7. Services
 - [User forums / mailing list](#)
 - [Developer forums / mailing list](#)
 - [Reporting issues](#)
 - [Documentation and wiki](#)

Getting the Sources

Distribution

The current distribution packages of webwork contain all sources, as well as all needed libraries for building jars and running. Distribution packages are found [here](#). The dependency resolution via Ivy is disabled by default for build from distribution package (> Webwork 2.2 Beta 4). If you need to work with the Clover and Ivy related buildfile tasks, you might want to follow the instructions below.

CVS

The sources are are hosted via CVS on java.net. So getting your sources is quite standard:

1. If you have not already done, login to repository:
`cvcs -d :pserver:guest@cvcs.dev.java.net:/cvcs login`
2. Checkout the the webwork sourcetree:
`cvcs -d :pserver:guest@cvcs.dev.java.net:/cvcs checkout webwork`
3. Checkout the the opensymphony common sourcetree:
`cvcs -d :pserver:guest@cvcs.dev.java.net:/cvcs checkout opensymphony/common`

If you are a registered user at Java.net, you might use your username instead of anonymous *guest* account.

For detailed information on how to setup different clients, visit <https://webwork.dev.java.net/servlets/ProjectSource>.

Building

We assume that you are familiar with ant as the standard build tool in the Java world.

What is Ivy?

If you checked out the sources from CVS, you might have noticed that the *lib* directory is empty. Unfortunately this does not mean that webwork has no external dependencies at all. To be honest, as a full featured MVC framework it has lots of dependencies, which in turn means that there has to be some dependency management. This is where Ivy comes to play.

Ivy is a free java based dependency manager, with powerful features such as transitive dependencies, maven repository compatibility, continuous integration, html reports and many more. Ivy is fully integrated with ant, so you do not have to get into a complicated tool. See <http://jayasoft.org/ivy> for details.

Installing and using Ivy

The installation is quite trivial: Put a copy of the *ivy-1.x.jar* found in the *common* directory of the opensymphony module in your *\$ANT_HOME/lib* directory.

If you want to test the Ivy functionality, ensure you have an internet connection. Change into the webwork module directory and execute *ant init* (as you might guess, any other task depends on *init*). Ivy will now resolve all dependencies and (hopefully) download all required jars and put it into the *lib* directory.

See [Dependencies](#) for informations on how to integrate Ivy in your own Webwork2 based projects.



Skipping dependency resolution (> Webwork 2.2 Beta 4)

Build now knows the property "skip.ivy". May be specified from build.properties file or from commandline ant execution with *-Dskip.ivy=true*. If set, dependency resolution via Ivy is omitted and build is done with current jars found in *lib* directory.

	This behaviour is turned on by default for builds from the distribution package.
--	--

JUnit and Clover

The full build process will require JUnit and Clover.

Place a copy of `junit.jar` ($\geq 3.8.1$) and `clover.jar` ($\geq 1.3.9$) into your `$ANT_HOME/lib` directory (if not already exists). If you haven't got these jars at hand, look into the `lib/build` directory of your webwork module after you called `ant init` in the step before...

Opensymphony Clover license is found in the `common` directory of the opensymphony module. Place the `clover-license.jar` into your `$ANT_HOME/lib` directory as well. Now you are ready to ...

Build

Call `ant jar` or simply `ant` to build the webwork jars. Play around with other targets, as you like.



JDK/JRE Compatibility

Webwork requires JDK 1.4.2+ to build. JDK 5.0 is not required for building.

Webwork based applications require JRE 1.4.2+ to run. JRE 5.0 is not required to run unless your application uses the optional [xwork-tiger](#) module, which adds some Java 5.0 specific features to XWork/WebWork functionality.

General information on dependencies

As with most modern and robust frameworks, WebWork has a number of external dependencies. However, in the case of WebWork, only a fraction of them are required. You can determine exactly what these dependencies are by looking in the **docs/dependencies** directory of the distribution, or by [clicking here](#). The required dependencies are all the libraries listed in the **default** configuration.

	UI Tags + Freemarker If you plan to use the out-of-box UI tags, you will also need the jars in the freemarker configuration (unless you plan to write all your UI templates from scratch in a different language, such as Velocity or JSP, which is not recommended)
	IoC Container dependencies As of Webwork 2.2, Spring is the default IoC container. You will need the jars of the spring configuration unless you plan to use the deprecated integrated IoC container.

Below is a brief table of configurations and the functionality each will provide.

Dependency functionalities configuration

Configuration	Required to...
ajax	enable AJAX-related features in the UI tags
build	build WebWork from source
default	run the bare minimum support for WebWork
spring	use Spring integration
fileupload	support file uploads when the "jakarta" parser is selected in webwork.properties (recommended)
fileupload-cos	support file uploads when the "cos" parser is selected in webwork.properties
fileupload-pell	support file uploads when the "pell" parser is selected in webwork.properties
freemarker	use the UI tags and render results in FreeMarker
jasperreports	generate reports using JasperReports
jfree	generate reports using JFreeCharts
portlet	support for WebWork-enabled porlets
quickstart	start your applications using QuickStart
sitemesh	use FreeMarker- and Velocity-enabled decorators with SiteMesh
velocity	render results in Velocity
xslt	render results using XSLT

Dependency resolving in your Webwork based projects

Manual resolving

As stated previously, a look at the [dependency page](#) will provide you with the information which jars have to be integrated into your Webwork based project.

Integrating Ivy to resolve dependencies

The much easier way for dependency resolving is to integrate [Ivy](#) into your project. See [Building WebWork](#) for an introduction to Ivy and installation instructions. Here is a sample *ivy.xml* for a Webwork based project, requiring the latest release of Webwork 2.2 with freemarker, sitemesh and jasperreports functionality:

```
<?xml version="1.0" encoding="ISO-8859-1"?><?xml-stylesheet type="text/xsl"
href="http://www.jayasoft.fr/org/ivyrep/ivy-doc.xsl"?><ivy-module version="1.0">
  <info organisation="my.organisation.net" module="myproject"
    revision="1.0-alpha-1"
    status="integration"
    publication="20051022053520">
    <license name="Apache"
url="http://www.apache.org/licenses/LICENSE-2.0.txt"/><ivyauthor name="Me"
url="http://my.organisation.net/"><description
homepage="http://my.organisation.net/myproject">
  My first Webwork2 based project.
  <br/></description></info><configurations><conf name="build"
visibility="private"/><conf name="default"/></configurations><publications><artifact
name="myproject" type="jar" conf="default"/></publications><dependencies><!-- build
only dependencies --><dependency org="junit" name="junit" rev="3.8.1"
conf="build->*" />
  <dependency org="servletapi" name="servletapi" rev="2.4" conf="build->*" />

  <!-- runtime (and build) dependencies --><dependency org="log4j"
name="log4j" rev="1.2.9" conf="default->default" />
  <dependency org="opensymphony" name="webwork" rev="2.2+"
conf="default->default,freemarker,sitemesh,jasperreports" />

</dependencies></ivy-module>
```

Following is a sample repository resolver configuration *ivyconf.xml*

```
<ivyconf><properties file="ivyconf.properties"/><conf defaultResolver="default"
checkUpToDate="true"/><resolvers><ivyrep name="libraries"/><chain
name="default"><url name="opensymphony" checkmodified="true"><ivy
pattern="http://ivyrep.opensymphony.com/[organisation]/[module]/ivy-[revision].xml"/>
  <artifact
    pattern="http://ivyrep.opensymphony.com/[organisation]/[module]/[artifact]"
  </url><url name="contegix"><ivy
pattern="http://repository.contegix.com/ivyrep/[organisation]/[module]/ivy-[revision].xml"/>
  <artifact
    pattern="http://repository.contegix.com/ivyrep/[organisation]/[module]/[artifact]"
  </url></ivyrep></chain></resolvers><ibiblio name="contegix-maven"
root="http://repository.contegix.com/maven"/><url name="maven"><artifact
```



```
"http://www.ibiblio.org/maven/[organisation]/jars/[module]-[revision].[type]"/></url></chain></r
```

After integrating an appropriate Ivy init task into your project build file, Ivy will resolve **all** dependencies induced by your Webwork requirements and download all needed jars. See [Ivy documentation](#) for more information on how to integrate Ivy in your own project, or just have a quick look in the Webwork2 build process.

Deployment Notes

This page last changed on Jan 07, 2006 by [plightbo](#).

WebWork runs on most application servers without any problems. However, you may need to do a few modifications in order to get it running in your environment.

WebLogic 6.1

A subproject has been added to the WebWork CVS repository that vastly simplifies getting WebWork to work under BEA Weblogic Server 6.1. Documentation is included. Look for the subproject under the main folder "misc".

WebLogic 8.1

Seems to have some difficulty loading the Velocity templates. If you run into this problem, the work-around is documented [here](#).

SunONE 7.0

You need to grant permissions to WebWork:

```
grant {  
    permission java.security.AllPermission;  
};
```

or more specifically,

- Give Write Permissions to java.util.PropertyPermission.
- Add java.lang.reflect.ReflectPermission "suppressAccessChecks"
- OgnlInvoke Permission

```
grant {  
    permission java.util.PropertyPermission "*", "read, write";  
    permission java.lang.reflect.ReflectPermission "suppressAccessChecks";  
    permission ognl.OgnlInvokePermission "*";  
};
```

Previous releases

This page last changed on Dec 06, 2005 by [plightbo](#).

- Release Notes
 - [WebWork 2.2](#)

Old format of release notes and upgrade guides

- Release Notes
 - [WebWork 2.1.7](#)
 - [Release Notes - 2.1.6](#)
 - [Release Notes - 2.1.5](#)
 - [Release Notes - 2.1.4](#)
 - [Release Notes - 2.1.3](#)
 - [Release Notes - 2.1.2](#)
 - [Release Notes - 2.1.1](#)
 - [Release Notes - 2.1](#)
- Upgrading from previous versions
 - [Upgrading from 2.1.5](#)
 - [Upgrading from 2.1.4](#)
 - [Upgrading from 2.1.3](#)
 - [Upgrading from 2.1.2](#)
 - [Upgrading from 2.1.1](#)
 - [Upgrading from 2.1](#)
 - [Upgrading from 2.0](#)
 - [Upgrading from 1.4](#)

Key Changes

- JavaScript client validation support - not totally complete, but basic validators work well. Look at the validators.xml file include in src/example to see how you can configure your validators to do client side validation on top of their normal duties
- The label attribute in UI tags are no longer required
- The themes and templates in UI tags behave like they did in 1.x
- A new theme, in addition to the existing "xhtml" one, called "simple" is included that doesn't have any of the labels, error reporting, or table rows that the "xhtml" template has. This is more in line with the tags included with Struts.
- New UI tags for CSS styles and classes added: cssStyle and cssClass
- Old action!command URL support works again. This means you can invoke a doCommand() method like in 1.x
- ww:param tag no longer requires the name attribute (for ordered params, like with ww:text). It also evaluates the the body as the value if no value is given.
- UI tags now have access to the FormTag parameter map using the "form" key. This means \$parameters.form.name would return the form name, for example. The result is that complex JavaScript-based components can be built.

Migration Notes

Version	Description	Old Code	New Code
2.0	WebWorkUtil has been refactored into a number of classes, and the constructor has changed. If you were using it for Velocity support before, look at VelocityWebWorkUtil now		

2.0	The <i>webwork.ui.templateDir</i> configuration property has been broken into <i>webwork.ui.templateDir</i> and <i>webwork.ui.theme</i>	<code>webwork.ui.templateDir = /webwork/mytheme</code>	<code>webwork.ui.templateDir = /webwork webwork.ui.theme = mytheme</code>
2.0	"namespace" attribute of the <code>ww:action</code> tag is now evaluated; those upgrading from 2.0 will need to place single quotes around the attribute value	<code><ww:action namespace="/foo" .../></code>	<code><ww:action namespace="'/foo'" .../></code>
2.0, but not 1.x	theme and template attributes in UI tags have changed are now evaluated; those upgrading from 2.0 will need to place single quotes around the attribute value	<code><ww:xxxx theme="/template/foo" template="bar.vm"/></code>	<code><ww:xxxx theme="'foo'" template="'bar.vm'"/></code>
1.x, 2.0	label UI tag evaluates the value attribute now instead of the name attribute	<code><ww:label name="'Foo'"/></code>	<code><ww:label value="'Foo'"/></code>

Changelog

OpenSymphony JIRA (25 issues)		
T	Key	Summary
	WW-592	Upgrade commons-logging
	WW-560	SessionMap holds on to requests when it doesn't need to
	WW-546	Make the config-browser show validators applied via the XML validation files
	WW-544	Velocity result hardcodes contenttype and encoding
	WW-541	Webpage link for download
	WW-537	Velocity tag outputs to the response, not the velocity writer
	WW-530	Config Browser doesn't work after lates ActionConfig refactoring
	WW-519	ActionTag should evaluate namespace attribute
	WW-518	Label attribute shouldn't be required
	WW-517	Themes and templates should behave like 1.x
	WW-516	Simple theme that has no tables and xhtml extends from
	WW-515	Class attribute is illegal
	WW-514	Form tag double evaluates name attribute
	WW-503	Fix tag libraries
	WW-502	foo!default.action should work
	WW-501	JavaScript-based client side validation

	WW-500	ww:param tag fixes
	WW-499	UI tags should have access to form
	WW-488	Check QuickStart Guide to make sure it works
	WW-487	WebWorkConversionErrorInterceptorTe in wrong branch
	WW-484	label tag problems
	WW-478	URLTag tld entry does not correspond with actual property
	WW-476	WebWork needs a simple changelog for each release
	WW-475	Multipart encoding still not fixed
	WW-474	Ability to dynamically create array of Objects from a given request

WebWork 2.1.1 Release Notes

Key Changes

- Improved integration with Sitemesh
 - WebWork taglibs can be used in Sitemesh decorators to access Action properties
- Validator short-circuiting to allow validation to stop on first invalid data
- Improved class hierarchy resource bundle searching
- File upload support has been rebuilt to allow for multiple files with the same HTTP parameter name. Besides "cos" and "pell" support, "jakarta" support has been added, utilizing the Commons-FileUpload library. Only "jakarta" supports multiple files with the same HTTP parameter name. In future versions "jakarta" may become the default upload library, replacing "pell".










Migration Notes














Version	Description	Old Code	New Code
2.1	There is a new validator DTD: xwork-validator-1.0.2.dtd. You aren't required to use this, but you will need to if you wish to use the new short-circuiting validation	N/A	N/A
2.1	File upload support has been rebuilt, although we don't see any compatibility problems with 2.1.	N/A	N/A


	However, many of the methods in MultiPartRequest have become deprecated in favor of new ones. Please switch to these as soon as possible.		
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Changelog









WebWork 2.1.1

OpenSymphony JIRA (25 issues)		
T	Key	Summary
	WW-1078	Broken links in Shopping-Cart
	WW-1076	Move all Velocity templates to archive
	WW-1075	url validator docs
	WW-1074	AJAX docs screwed up
	WW-1073	control tags docs snippets are borken
	WW-1072	select.ftl emptyOption evaluation
	WW-1071	DoubleSelect's second select does not allow a predefined value to be selected
	WW-1070	double select created option with key and value wrongly
	WW-1069	Ability to use freemarker map built-ins (?keys, ?values) as well as plain

		map methods (.keySet(), get(foo))
	WW-1065	TestCase for the Property component
	WW-1064	have a link in tags page to altsyntax page
	WW-1062	Add a OptionTransferSelect component
	WW-1061	checkboxlist.ftl does not allow disabled parameter handling in WW2.2beta4
	WW-1059	Make the dojo configuration in ww:head hook into the il8n infrastructure
	WW-1058	xhtml theme's form-validate.ftl onsubmit javascript is bad
	WW-1057	DefaultActionMapper appending extra slash when namespace is "/"
	WW-1056	Change defaultStack order
	WW-1055	Warn when properties are null
	WW-1054	Include common build in project
	WW-1053	AJAX Validation Documentation
	WW-1052	Always cleanup ActionContext
	WW-1051	Enable tag attribute description to be usable for both javadoc and tagdoclet
	WW-1050	Add DWR 1.1-beta2 jar to ivy-repository
	WW-1049	ChainingInterceptor doesn't

		accept null of CompoundRoot element
	WW-1048	RemoteCallUIBean uses UrlHelper to build url for href attribute breaks <ww:a /> tag

Xwork 1.0.2

OpenSymphony JIRA (15 issues)		
T	Key	Summary
	XW-210	Make default type conversion message a localized text that can be overridden
	XW-205	missing xwork 1.0.2.dtd in jar and website and typo in ValidationInterceptor
	XW-204	TextProvider.getText() should look in child property files
	XW-203	Add "trim" parameter to string validators
	XW-202	Integer and Float conversion dont work in CVS HEAD
	XW-200	i18n broken when the name of the text to find starts with a property exposed by the action
	XW-195	Add interface XWorkStatics which contains XWork-related constants from WebWorkStatics
	XW-194	Patch to help

		LocalizedTextUtil deal with messages for indexed fields (collections)
	XW-193	InstantiatingNullHandler and Typeconversion fails
	XW-192	Create a version 1.0.2 of the XWork validation DTD with short circuit
	XW-191	Type conversion improvement.
	XW-190	Provide a xwork-default.xml.
	XW-189	Improve ActionValidationManager's short circuit behaviour
	XW-179	Optimise OgnlUtil.copy method
	XW-172	XWorkBasicConverter doesn't care about the current locale

WebWork 2.1.2 Release Notes




Key Changes

- This version ships with XWork 1.0.3 – we recommend you make sure you are running this version (or later) of XWork.
- Minor bug fixes for file upload support with Jakarta
- New StreamResult type which allows you to stream content directly back from an action
- UI tags may now be written in languages other than Velocity. JSP is supported, though you currently must write your own templates similar to the Velocity templates. Future versions of WebWork will include more languages supported as well as templates shipped out of the box.

Migration Notes

Migration should require nothing more than copying over the new libs. Specifically note that XWork 1.0.3 and WebWork 2.1.2 should be copied over.

Changelog

OpenSymphony JIRA (14 issues)		
T	Key	Summary
	WW-642	Allow the 'name' attribute of the TextTag to be evaluated at runtime
	WW-639	"Could not open template ", possible a bug
	WW-634	File Upload Interceptor stack



	WW-633	Jakarta File Upload fails with mixed content (normal and file)
	WW-630	upload newest webwork files to ibiblio
	WW-629	checkboxlist doesn't have a disabled attribute tag
	WW-628	Bug with request parameter handling with WebLogic 8.1sp3
	WW-624	If/Else tag do not render body
	WW-622	The changelog for WW2.1.1 shows open issues not the closed ones!
	WW-616	ww:label and ww:textarea problem with null values
	WW-612	WebworkStatistics.SERVLET DISPATCH is spelled incorrectly
	WW-611	Error in Freemarker docs
	WW-602	Stream Result Type
	WW-485	Add docs for WebWork2 tags

WebWork 2.1.3 Release Notes

Key Changes

WebWork version 2.1.3 resolves a critical problem preventing UI tags from working under certain circumstances. It is recommended that all users use 2.1.3 in place of 2.1.1 or 2.1.2

Changelog

OpenSymphony JIRA (2 issues)		
T	Key	Summary
	WW-659	VelocityTemplateEngine broken
	WW-321	ActionMessage as the companion of ActionError

WebWork 2.1.4 Release Notes

Key Changes

This release is the first release to include the re-vamped JSP tag support. Specifically, there is an option (off by default) that now lets you use an alternative syntax for JSP tags.

When **webwork.tag.altSyntax** is set to true in `webwork.properties`, all attributes in the JSP tags (both UI and non-UI) that evaluate to a String (as opposed to a Boolean, Integer, Collection, or anything else) shall not be evaluated like it normally is.

Rather, the string will be parsed for the pattern `"%{...}"` and only the text between those braces shall be evaluated. This should make using all the tags, but especially the UI tags, much easier.

The only exception to this rule of parsing String attributes is for the `<ww:property/>` tag. That is because the usage for `<ww:property/>` is so commonly used for pulling values from the stack, enforcing the `"%{..}"` syntax on it would be overly tedious.

Migration Notes


There is nothing to migrate for now. Because this new syntax is optional and turned off by default, you don't need to do anything to migrate as long as you don't plan to use this new syntax. If you DO plan to use this new syntax, you must modify all your tag attributes that previously had the pattern of `"..."` to just be `"..."`. Basically, you must remove single quotes where they once were.

Also, any place where an attribute did not have single quotes, you must check to see if the attribute is expected to be a String attribute. If so, you should replace the pattern of `"..."` with `"%{...}"` so that the expression is still being evaluated.

Note that attributes such as disabled, maxlength, etc do not need the new syntax. **That is because the syntax is only applied to attributes that are expected to be strings.** This is very important to remember!

Finally, please note that this release is a preview release for the new syntax. The new syntax will not be finalized and turned on by default until 2.2.0. You are free to use it, but it is not guaranteed to be stable and may change in the coming releases.

Changelog

OpenSymphony JIRA (1 issues)		
T	Key	Summary
	WW-581	JSP Tags should support better syntax

WebWork 2.1.5 Release Notes





Key Changes

- All UI tags now support the complete set of JavaScript event listeners now, such as onChange, onBlur, etc.
- ExecuteAndWaitInterceptor is easier to use
- Several important bug fixes for Velocity integration

Migration Notes

Version	Description	Old Code	New Code
2.1.4 and below	TLD updated – be sure you are using the latest webwork.tld file	N/A	N/A

Changelog

OpenSymphony JIRA (18 issues)		
T	Key	Summary
	WW-666	ExecAndWaitInterceptor should put executing action on the stack
	WW-663	VelocityResult doesn't initialize VelocityManager
	WW-660	xhtml's checkbox.vm vertical alignment
	WW-658	JSP Tags do not support onFocus, onBlur js handlers





	WW-653	url taglib does not support 'page' attribute but the webwork-example.war uses it all over the place.
	WW-651	IfTag does not convert to Boolean
	WW-644	Xhtml generated by the ui tags is (still) invalid
	WW-632	OnClick for radiotag
	WW-627	select.vm requires htmlEncode for name parameter
	WW-626	Principal Interceptor
	WW-614	Cannot set velocity macro autoreloading
	WW-554	Bad value for IMAGES_URI in JasperReportsResult.java
	WW-526	Velocity using include ignores character encoding
	WW-479	getValueClassType() in ComboboxTag returns Boolean.class
	WW-425	Refactoring to decouple the UI Tag dependency on velocity
	WW-392	Update doubleselect tag
	WW-223	Multipart & SaveDir
	WW-161	ServletDispatcher could be a lot simpler to extend

WebWork 2.1.6 Release Notes

Key Changes

This release includes a few bug fixes for the URL tag, a new base class to make type conversion easier, and better documentation. It also includes the latest XWork release: version 1.0.4

Changelog

OpenSymphony JIRA (4 issues)		
T	Key	Summary
	WW-673	Create a WebWorkTypeConverter for extension
	WW-671	URLTag does not include parameters when value is specified
	WW-664	Document WebFlow
	WW-585	ComboBoxTag should subclass TextFieldTag

Package changes

Webwork1.x was separated into two projects, XWork and Webwork. From this, several classes have been moved to different package names.

- **ActionSupport** has moved from **webwork.ActionSupport** to **com.opensymphony.xwork.ActionSupport**
 - `doExecute()` no longer exists, override `execute()`
 - the methods `addError` and `addErrorMessage` are now `addFieldError` and `addActionError` respectively

Configuration changes

- **actions.xml/views.properties needs to be converted to xwork.xml**

If you're using an `actions.xml` file to configure your webwork 1, you can use the attached XSLT to convert the `actions.xml` file to a vanilla `xwork.xml` file.

To apply this XSLT, you'll need to do the following:

Get a copy of the XSLT. You can find the latest version in CVS in `webwork/src/etc/actions.xsl`. Next, find yourself an XSLT rendering engine. Xalan is a good choice and can be found at <http://xml.apache.org/xalan-j/index.html>

Finally, do the conversion.

```
java org.apache.xalan.xslt.Process -IN actions.xml -XSL actions.xsl -OUT xwork.xml
```

Remember that you'll need to Xalan libraries in your classpath to run the above command.

If you want to look at these pages directly in your browser, I recommend user Internet Explorer as it automagically formats XML documents reasonably. There one caveat though. WW1 had a way to shorten the declaration of actions by allowing you to specify a package prefix in `webwork.properties` file. Since this information is outside the `actions.xml` file, the XSLT is unable to take advantage of it. Consequently, you might need to edit the `xwork.xml` file to update the class names.

WebWork 1.x configuration used a pull paradigm to load action configurations when

they are asked for, whereas WebWork2 builds the configuration up-front to make the configuration queryable. The `webwork.MigrationConfiguration` must therefore act as an adapter between these two paradigms. It does this by returning a custom `RuntimeConfiguration` which first tries the default `XWork Configuration` (which, by default, loads configuration information from a file named "xwork.xml" in the root of the classpath) and then attempts to load action configuration using the `Configuration` classes from WebWork 1.x. In this way, an application can be slowly converted over to WebWork2 while reusing the configuration and Actions from a WebWork 1.x application. One caveat in this is that your migrated application **MUST** be rebuilt against the WebWork2 and migration jar files, as the classloader will rightly recognize that the `webwork.Action` and `webwork.ActionSupport` in WebWork 1.x are not the same as those provided by the migration jar files. Other than that, it should be seamless (and let us know if it isn't).

If the `webwork.MigrationRuntimeConfiguration` does not find the action configuration using the `RuntimeConfiguration` from the supplied `RuntimeConfiguration` (which is acquired from the `Xwork DefaultConfiguration` and will load configurations from all of the sources configured for `XWork / WebWork2`), it will build an `ActionConfiguration` by instantiating an Action using the `ActionFactories` from WebWork 1.x. The `ActionFactory` stack used is a subset of the default `ActionFactory` stack used in WebWork 1.x:

```
factory = new JavaActionFactory();
factory = new ScriptActionFactoryProxy(factory);
factory = new XMLActionFactoryProxy(factory);
factory = new PrefixActionFactoryProxy(factory);
factory = new JspActionFactoryProxy(factory);
factory = new CommandActionFactoryProxy(factory);
factory = new AliasingActionFactoryProxy(factory);
factory = new CommandActionFactoryProxy(factory);
factory = new ContextActionFactoryProxy(factory);
```

Some of the `ActionFactory` classes have been left out as they are handled by `Interceptors` in WebWork2. If the Action instance is created (meaning that the configuration has been found in the `webwork.properties` or `actions.xml` files used by the WebWork 1.x configuration classes) a parameter `Map` is created by introspecting the Action instance. A `Map` is needed for results and, again, WebWork 1.x used a pull paradigm to find results when they were needed, so a `LazyResultMap` is created which extends `HashMap` and overrides `get()` to look up the `Result` configuration if it has not previously been loaded. If the result ends in the Action suffix (defaulting to ".action"), then a `ChainingResult` is created, otherwise a `ServletDispatcherResult` is created.

Using the Action class of the instantiated Action, the Map of parameters introspected from the Action instance, and the LazyResultMap, a new ActionConfig is created. The ActionConfig is saved into a special Package, "webwork-migration", so that it will pick up the default Interceptor stack defined for that package. The "webwork-migration" package is defined in a webwork-migration.xml file which is included in the migration jar file and which is automatically added to the Xwork configuration providers when the MigrationConfiguration is used:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd"><xwork><include
file="webwork-default.xml"/><package name="webwork-migration" abstract="true"
extends="webwork-default"><interceptors><interceptor-stack
name="migrationStack"><interceptor-ref name="timer"/><interceptor-ref
name="logger"/><interceptor-ref name="chain"/><interceptor-ref
name="static-params"/><interceptor-ref name="prepare"/><interceptor-ref
name="params"/><interceptor-ref
name="workflow"/></interceptor-stack></interceptors><default-interceptor-ref
name="migrationStack"/></package></xwork>
```

Here we can see that a number of the functions previously performed by ActionFactories in WebWork 1.x are now replaced by Interceptors in WebWork2, including the parameters, the chaining, calling prepare(), and the workflow (which was formerly implemented in ActionSupport in WebWork 1.x).

By creating and saving the ActionConfig in the PackageConfig for the "webwork-migration" package, the ActionConfig for the migrated Action is available for future calls, obviating the need to re-parse the old configuration files and making the configuration for the Action available for querying via the configuration API for tools such as the configuration browser.

Tag Changes

The biggest change is the use of OGNL for accessing object properties. Properties are no longer accessed with a forward slash "/" but with a dot "." Also, rather than using ".." to traverse down the stack, we now use "[n]" where n is some positive number. Lastly, in WebWork 1.x one could access special named objects (the request scope attributes to be exact) by using "@foo", but now special variables are accessed using "#foo". However, it is important to note that "#foo" does NOT access the request attributes. "#foo" is merely a request to another object in the OgnlContext other than

the root. See [OGNL](#) reference for more details.

Also see [JSP Expression Language Comparison with WebWork 1.x](#) for a table of the expression language changes.

property tag

The [property](#) tag is now only used to print out values from the stack. In WW1, it was also used to set a variable in the scope, and to push properties to the top of the stack. These functions are now performed by the [set](#) and [push](#) tags.

action tag

The [action](#) tag does not evaluate the body section any more and does not push the executed action onto the ValueStack. Instead, use the "**id**" attribute to assign a name to the action and reference it as "**#id**".

Examples

Lets enumerate some examples of differences between code snips using [WW:WebWork](#) and [WW:WebWork](#).

- *New JSP syntax*

There are numerous changes in syntax. First of all there are new tags and secondly there is a new expression language. Here's a small example:

Webwork 1

```
<ww:property value="a/b"><ww:property value="foo" /></ww:property>
```

Webwork 2

```
<ww:push value="a.b"><ww:property value="foo" /></ww:push>
```


One can note that the "push" tag doesn't just push it pops too at the end of the tag. Surprise! Also note the "." instead of the "/" for traversing object properties.

- *List errors posted by an Action*

Webwork 1

```
<webwork:if test="hasErrorMessages == true">
  ERROR:<br /><font color="red"><webwork:iterator
value="errorMessages"><webwork:property/><br
/></webwork:iterator></font></webwork:if>
```

Webwork 2

```
<webwork:if test="hasErrors()">
  ERROR:<br /><font color="red"><webwork:iterator
value="actionErrors"><webwork:property/><br
/></webwork:iterator></font></webwork:if>
```

Update your web.xml file

- If you're using Velocity for views, you'll need to make sure you have the following snippet. Specifically note that the `<load-on-startup>` tag is now required so that the servlet can initialize some important Velocity properties.

```
<servlet>
  <servlet-name>velocity</servlet-name>
  <servlet-class>com.opensymphony.webwork.views.velocity.WebWorkVelocityServlet</servlet-class>
  <load-on-startup>1</load-on-startup>
</servlet>
```

- Set the property **webwork.velocity.configfile** in your `_webwork.properties_`. For example:

```
webwork.velocity.configfile=velocity.properties
```

WebWork will use this file to initialize the Velocity engine. The search path for the file is:

1. context root (web root)
2. WEB-INF/

3. classpath

- Additional Steps:

1. If you used the `<ww:action` taglib in 1.3... you used to reference the java Action classname. In 2.x this reference is now the action name not the class. you will need to change all your old references in your view.

ResultException doesn't exist anymore

It might be possible to copy WW1's `ResultException`, and write an `Interceptor` that catches the `ResultExceptions` and add the result of `getMessage()` to the `actionErrors` of the executed Action and return `ResultException.getResult()`.

Maybe it would be possible to include `ResultException` in WW2 too to make migration easier?!

DateFormatter doesn't exist anymore

It can be replaced by directly using **`java.text.DateFormat`**

`addError(String, String)` in `webwork.action.ActionSupport` has been removed

The new method to use is **`addFieldError(String, String)`**.

`addErrorMessage(String)` in `webwork.action.ActionSupport` has been removed

The new method is now **`addActionError(String)`**.

`webwork.util.ValueStack` has been removed

The ValueStack is **com.opensymphony.xwork.util.OgnlValueStack**

The old methods **pushValue** and **popValue** are renamed to simply **push** and **pop**.

An instance of the ValueStack can be obtained by using **ActionContext.getContext().getValueStack** instead of the old **ValueStack.getStack()**.

***Aware-Interfaces have been removed**

Instead of implementing **ServletRequestAware** etc the **[Servlet]ActionContext.getXXX**-methods can be used to obtain application-map, request, response etc.

CommandDriven interface removed

The **CommandDriven** interface is removed. It is not necessary to implement a special interface when working with commands anymore. Use the **method** attribute in your **action**-Element in xwork.xml to tell xwork which method to invoke on your action.

isCommand(String) method has been removed

You can see which alias you're accessing by doing this:
ActionContext.getContext().getActionInvocation().getProxy().getActionName()

JSP Expression Language Comparison with WebWork 1.x

This page last changed on Apr 12, 2005 by [plightbo](#).

Situation	Previous (WW-1.4)	Current (WW-2.1)
Referring to an object in the PageContext scope	@itemIdOrName	#attr['itemIdOrName']
Referring to an object in the Request scope	itemIdOrName	Same, but use #request['itemIdOrName'] if nested in an iteration.
Referring to an object in the Session scope	@itemIdOrName	#session['itemIdOrName']
Referring to an object in the Application scope	@itemIdOrName	#application['itemIdOrName']
Property Setters	foo/bar translates to getFoo().setBar()	foo.bar translates to getFoo().setBar()
Property Getters	foo/bar translates to getFoo().getBar()	foo.bar translates to getFoo().getBar()
Boolean/boolean Property Getters	foo/bar translates to getFoo().getBar() if bar is java.lang.Boolean, if primitive bar translates to getFoo().isBar()	Same, except uses dot notation instead of a slash (i.e. foo.bar)
Collections as Properties	N/A	Collections (including arrays) are similar to other objects, except they allow indexing: foo.bar[indexOrKeyName] translates to getFoo().getBar().get(indexOrKeyName)
curly braces - {}, evaluates contents of braces first, and use the result as the property to then evaluate.	<webwork:property value="{ 'name' }"/> translates to getName() on the curent object.	No longer used.
Reference a static variable	@com.fully.qualified.class.name.staticVariable	Still The Actual Class@STATIC_ATTRIBUTE

Originally written by Jay Bose and sent to the mailing list

Upgrading from 2.0

This page last changed on Dec 14, 2004 by [plightbo](#).

Upgrading from Webwork 2.0 is rather trivial. This version of webwork adds enhancements and bug fixes with hardly any configuration or syntax changes. Follow these two simple steps and you should be on your way with the latest and greatest from the OS crew.

1. Update/Replace your current binaries with the new binaries located in the distribution download under the `lib/core`. You may also want to grab any related jars from the `lib/optional` folder. Don't forget the webwork binary `webwork-2.1.jar` in the base directory of the distribution download. Review the [Dependencies](#) for Webwork.
2. Check out the [Release Notes - 2.1](#) to see if any of changes need to be applied to your code base.

Upgrading from 2.1

This page last changed on Dec 14, 2004 by [plightbo](#).

Upgrading from 2.1 to 2.1.1 is very easy. Simply copy over the new webwork.jar file and make sure you are running all the correct [Dependencies](#).

Upgrading from 2.1.1

This page last changed on Dec 14, 2004 by [plightbo](#).

Upgrading from 2.1.1 to 2.1.2 is very easy. Simply copy over the new webwork.jar file and make sure you are running all the correct [Dependencies](#) – especially make sure you are using XWork 1.0.3.

Upgrading from 2.1.2

This page last changed on Dec 14, 2004 by [plightbo](#).

Upgrading from 2.1.2 to 2.1.3 is very easy. Simply copy over the new webwork.jar. There have been no new dependencies.

Upgrading from 2.1.3

This page last changed on Dec 14, 2004 by [plightbo](#).

Since this release is merely a preview release of the new tag syntax (see [Release Notes - 2.1.4](#)) and no other changes have been made, simply copying over the new webwork jar file is all that is needed to upgrade. No other libraries have changed.

Upgrading from 2.1.4

This page last changed on Dec 14, 2004 by [plightbo](#).

Upgrading from 2.1.4 is pretty easy as no new libraries have been introduced. However, the TLD (taglib definition file) has been modified to support more JavaScript events, such as onBlur, onChange, etc. Be sure to check that you are using the latest TLD. This is automatic if you point web.xml to **/WEB-INF/webwork.jar**.

Upgrading from 2.1.5

This page last changed on Dec 14, 2004 by [plightbo](#).

Upgrading from 2.1.5 to 2.1.6 requires that you copy over the new webwork-2.1.6.jar and xwork-1.0.4.jar. Note that WebWork 2.1.6 includes a new version of XWork, version 1.0.4.

WebWork 2.1.7 release notes

Key changes

- XWork upgraded to 1.0.5
 - Using `i18n`, especially the `ww:text` tag, is now possible in SiteMesh decorators. See [SiteMesh](#).
 - Issues where the `ActionContext` wasn't properly cleaned up (after `ww:include` and `ww:action`) have been resolved.
 - Configuration
 - If the action class is not specified, it now defaults to `com.opensymphony.xwork.ActionSupport`.
 - If the result name is not specified, it is assumed to be "success".
- Non-UI tags
 - `ww:text` and `ww:url` have an `id` attribute that, when specified, causes the tag not to print out the localized text but rather store the result in the `ActionContext` to be referenced later. See [SiteMesh](#), [URL](#) tag, and [Text](#) tag.
- UI tags
 - `ww:form` has an added `target` attribute.
 - `ww:form` exposes "namespace" in the parameters Map in templates.
 - `ww:form` tag defaults the `id` and `name` attribute to the action name that it is submitting to.
 - Form elements default the `id` attribute to "`[formId]_[elementName]`".
 - Form elements default the "required" attribute to true if there is any validator associated with that field and the form's `validate` attribute is enabled.
 - `ww:textarea` has an added "wrap" attribute.
 - XHTML theme: added a parameter called "after" and that will add text to the right of the form element.
- Replaced old prototype client-side validation with XMLHttpRequest-based solution (STILL IN PROTOTYPE PHASE, works in XHTML theme only).
- Interceptors
 - `ServletConfigInterceptor` now checks for actions implementing `PrincipalAware` and adds a `Principal` that ties in to the `HttpServletRequest`'s `Principal`.
 - Minor bug fixes in the `ExecuteAndWaitInterceptor` and `FileUploadInterceptor`.
- Results
 - `JasperReportsResult` and `StreamResult` both support the Content-disposition header.
 - `JasperReports` integration has been upgraded to 0.6.3.

- WebWorkResultSupport has a simple conditionalParse() method making support for \${} notation in your results easier (it will parse only if the parse attribute is true).





Upgrade steps








1. Copy over the new webwork.jar and xwork.jar files.
2. If you are using JasperReports, you will need to upgrade to the latest JasperReports jars of 0.6.3 because the package name has changed.
3. Read the migration notes for anything that you should be aware of.

Migration notes

- If you were using the old client-side validation code, it is still possible to keep using it but you will likely need to modify form-close.vm and controlheader.vm in the XHTML theme and form.vm in the simple theme. We recommend supporting the new prototype as it is a lot easier to use and doesn't require special validators.
- It is possible, though very unlikely, that the default ids for the UI tags and the default name for the form tag might cause you some trouble. Please be aware of this change.

Changelog

OpenSymphony JIRA (26 issues)		
T	Key	Summary
	WW-706	Text tag and URL tag should have option to store contents to context
	WW-704	Integrate PrincipalInterceptor with ServletConfigInterceptor
	WW-703	Add wrap attribute to textarea
	WW-702	Required (*) should be on by default if a validator

		exists
	WW-701	UI tags should have default ids and names
	WW-698	webwork.i18n.encoding does not get set by the ServletDispatcher
	WW-696	StreamResult should accept file option
	WW-695	JSP Form Tags does not have a target attribute
	WW-694	ExecuteAndWaitInterceptor can return null results
	WW-693	FileUploadInterceptor don't check the allowed files's Enumeration which is null.
	WW-692	Webwork package of jasper reports packaged as dori.jasper. Latest release of Jasper Reports packaged as net.sf.jasperreports
	WW-691	JasperReports 0.6.3 support
	WW-687	Freemarker - add method buildUrl to FreemakerWebworkUtil
	WW-686	JasperReport result - Content-Disposition management
	WW-684	Default action class and result name.
	WW-681	getText() doesn't work in Sitemesh filters
	WW-677	ww:include replaces existing value stack with new one
	WW-676	Freemarker Support:TemplatePath in

		web.xml has no effect
	WW-668	Externalise the JavaScript validation support from the JSP taglibs
	WW-649	Field errors should be displayed in the order they're in the POJO
	WW-638	Freemarker result encoding error
	WW-637	textarea does not have maxlength attribute
	WW-617	Stale Action Invocation left in Stack Context
	WW-490	Is WW ignoring webwork.locale setting?
	WW-455	Select tag template does not work properly for Object like BigDecima
	WW-351	Forwarding unknown tag attributes

WebWork 2.2 Release Notes

Key Changes

Productivity enhancements

Tools

- Fully functional WebFlow support for JSP, FreeMarker, and Velocity
- [QuickStart](#): simple embedded application server for getting started immediately

Documentation

- Improved documentation, including detailed information for every interceptor
- Totally new example application: now the example application is a set of tutorials and only teaches best practices of WebWork, rather than every single feature.

Enhanced framework feedback

- Better and more intelligent error reporting
- "Developer" mode where inline errors are displayed when possible
- Common interceptor stack issues, such as validation+workflow with no "input" result, are now reported in a more obvious way

Other

- Deprecated WebWork IoC container in favor of Spring
- Built-in support for Spring
- Official support for wizards/workflows using the [Scope Interceptor](#) and a pre-release of [Continuations](#)
- Removed support for WebWork 1.x migration jar

User interface improvements

UI tag overhaul

- FreeMarker is now the default UI tag implementation
- Refactored UI tag base classes such that they are no longer tied to JSP
- New native Velocity and FreeMarker UI tag support, built on top of new base classes
- UI tags now use "altSyntax" (available since 2.1.4) as the default syntax (the 2.0 - 2.1 syntax is deprecated but still available)
- New [Head](#) tag that links the correct CSS and JavaScript files for each theme

Velocity Support Improvements

- Upgraded support to velocity 1.4
- `webwork.velocity.contexts` now chains contexts on each request, i.e. contexts do not need to be thread-safe

AJAX support

- Official support for client side validation using DWR
- New tabbed panel widget
- Built in support for Dojo widgets

Result changes

- Velocity and FreeMarker Servlets are now deprecated in favor of direct results

Other

- Easy way to invoke different action name or command, making forms with multiple buttons easy to use
- Initial JSR168 integration

Core API changes

Type conversion

- Typing support in Maps, Sets, and Lists is now supported even when the collection is not null
- Map type conversion support for keys and values
- Support for Java 5 generics and annotations for Collections and enums

Other





- Improved exception handling, with support for exception-to-result mapping in xwork.xml
- Parameters interceptor updated to let you include and/or exclude certain parameters, thereby providing a simple way to secure what data can be changed from the web













Migration Notes

WebWork 2.2 is the most significant release since the 2.0 release two years ago. There are some significant changes, deprecated items, and various issues to be aware of when upgrading or if you're just curious what is new. **Please see the [WebWork 2.2 Migration Notes](#) for more info.**

Changelog













For a complete list of all the changes, please refer to the [complete changelog](#)


OpenSymphony JIRA (321 issues)		
T	Key	Summary
	WW-1076	Move all Velocity templates to archive
	WW-1075	url validator docs
	WW-1074	AJAX docs screwed up
	WW-1073	control tags docs snippets are borken


	WW-1072	select.ftl emptyOption evaluation
	WW-1071	DoubleSelect's second select does not allow a predefined value to be selected
	WW-1070	double select created option with key and value wrongly
	WW-1069	Ability to use freemarker map built-ins (?keys, ?values) as well as plain map methods (.keySet(), get(foo))
	WW-1065	TestCase for the Property component
	WW-1064	have a link in tags page to altsyntax page
	WW-1062	Add a OptionTransferSelect component
	WW-1061	checkboxlist.ftl does not allow disabled parameter handling in WW2.2beta4
	WW-1059	Make the dojo configuration in ww:head hook into the il8n infrastructure
	WW-1058	xhtml theme's form-validate.ftl onsubmit javascript is bad
	WW-1057	DefaultActionMapper appending extra slash when namespace is "/"
	WW-1056	Change defaultStack order
	WW-1055	Warn when properties are null
	WW-1054	Include common build in project

	WW-1053	AJAX Validation Documentation
	WW-1052	Always cleanup ActionContext
	WW-1051	Enable tag attribute description to be usable for both javadoc and tagdoclet
	WW-1050	Add DWR 1.1-beta2 jar to ivy-repository
	WW-1049	ChainingInterceptor doesn't accept null of CompoundRoot element
	WW-1048	RemoteCallUIBean uses UrlHelper to build url for href attribute breaks <ww:a /> tag
	WW-1047	Fix broken locale files of jscalendar
	WW-1046	DefaultActionMapper ignores the root ("/") namespace
	WW-1045	Include datepicker css in new ww:head tag
	WW-1044	Add a fielderror tag to display field errors if exist
	WW-1043	Validation Errors with DWR (AJAX Tutorial)
	WW-1041	Showcase - Edit Employee form broken
	WW-1036	Include datepicker css in new ww:head tag
	WW-1035	Add a actionerror tag that will display action error if they exist
	WW-1034	Datepicker uses wrong date format for en locales

	WW-1033	Generate tld attribute descriptions from property javadoc
	WW-1032	Document new head tag
	WW-1031	Remote forms don't work with new dojo
	WW-1030	Loading Freemarker templates with the ActionContext's Locale
	WW-1025	Showcase example: Spring throws strange exception while wiring action instance
	WW-1024	dist build target is broken, webapps are not longer packaged
	WW-1023	Item keys should use findValue
	WW-1022	A tag doesn't work with params
	WW-1021	VelocityTools 1.2 ToolboxManager implementation causes NPE in VelocityManager
	WW-1020	Consolidate ww:a and ww:href tag into ww:a
	WW-1019	Pico/nano integration
	WW-1017	Update DOJO to release 0.20
	WW-1016	Merge Quick Start Guide into Getting Started document
	WW-1015	Cannot create Portlet instance com.opensymphony.webwork.portlet.W for Portlet Application webwork

	WW-1014	i18n reloading in Tomcat
	WW-1013	Typo!
	WW-1012	tabbedpanel-close.ftl is broken due to iterator refactoring
	WW-1010	AbstractListTag no longer allows nulls for the list attribute
	WW-1009	AJAX tutorial broken
	WW-1008	Iterator tag throwing NullPointerException
	WW-1007	SiteMesh docs out of date
	WW-1006	Java 5 support
	WW-1005	Action chaining docs
	WW-1004	OGNL docs need new examples
	WW-1002	I18n docs out of date
	WW-1001	Client side validation
	WW-1000	Validation examples outdated
	WW-999	Make all result types based on snippets
	WW-998	Document Exception Handling
	WW-997	document for each validators type its usage, parameter and example using snippet
	WW-996	Type conversion not working for map
	WW-995	Please update documentation for the FileUploadInterceptor - allowedTypes parameter.

	WW-994	Component based IteratorTag never prints out is body
	WW-993	Add Exception Mappings to Config Browser
	WW-991	FilterDispatcher setup and cleanup non-webwork request
	WW-990	is extremely unhelpful for new people a exception thrown message
	WW-989	WW Action Tag does not go through ActionMapper
	WW-987	org.opensymphony used in text constants instead of com.opensymphony
	WW-986	Re-add uri declaration in WW 2.2 tld
	WW-985	New FM templates don't support booleans very well
	WW-984	Please define the scope interceptor in webwork-default.xml
	WW-982	Quickstart broken on OS X
	WW-981	Calls made to Configuration instances are not centralized constants.
	WW-979	Verify on WebLogic 9.0
	WW-977	Input and Output streams not closed in StreamResult
	WW-976	WW Portlets can't be deployed in Liferay or JBoss Portal
	WW-975	Snippet macro doing weird things with text tag

	WW-974	set useAltSyntax problem
	WW-973	Make datepicker locale aware
	WW-972	ww:property tag does not recognize alt-syntax
	WW-971	Setup XDoclet to build tag documentation and tld from component sources
	WW-969	Fix Subset Tag
	WW-968	Fix Append Tag
	WW-967	Fix Merge Tag
	WW-966	i18n issue, locale is randomly switched
	WW-965	Fix WW Generator Tag
	WW-964	Support for JasperReports 1.1.0
	WW-963	Add overridable publishException method to ExceptionMappingInterceptor
	WW-961	chainStack defined twice in webwork-defaults.xml
	WW-960	Action tag does not do include properly
	WW-958	Config-Browser don't respect webwork.action.extension = jsp
	WW-957	TabbedPaneTag doesn't have openTemplate setter
	WW-956	UIBean NPE with ww.submit tag
	WW-955	Switch to using [and] in Freemarker templates
	WW-954	Freemarker does not handle map correctly, cant lookup
















		value
	WW-953	Very bad performance using new WW 2.2 tags
	WW-952	Superfluous logging with config-browser
	WW-951	Config browser problem
	WW-950	config-browser showConfig.action not work
	WW-949	UI Form element should support theme attribute
	WW-948	Make build from distribution package self-contained
	WW-947	Sample webapps build process is broken in the distribution
	WW-946	File interceptor should allow all files unless otherwise specified
	WW-944	Disabled namespace attribute when not using AJAX validation
	WW-943	AJAX validation and devMode don't play nice
	WW-941	Cleanup and SiteMesh problems
	WW-940	Dates cause problem with UI tags in FM
	WW-939	Clean-up the Release Notes
	WW-938	WW:Sort Tag is not working
	WW-937	theme css xhtml is missing form-close.ftl
	WW-936	problem with ww:form tag
	WW-933	Add a page to test all UI components
	WW-931	Add dojo Color-Chooser














		functionality.
	WW-930	ClassCastException in WW2 label tag rendering when value expression evaluates to a non-String type
	WW-929	Freemarker rendering of input tags should not apply locale formatting
	WW-928	Seems like download page gives wrong file of ww 2.2 beta 2
	WW-926	Type conversion fails with ModelDriven actions
	WW-925	Document the config-browser in Related Tools
	WW-923	Fix up validation documentation
	WW-921	Defect in com.opensymphony.webwork.views.ut
	WW-920	Missing attribute for ww:form tag
	WW-919	Bug in DefaultActionMapper (could be Weblogic specific)
	WW-918	Setting webwork locale or Action locale has no effect on JasperReports result
	WW-917	HttpServletRequest locale/encoding problem
	WW-916	Complete Architecture section of Documentation
	WW-915	Complete Introduction section of Documentation
	WW-913	Alt Syntax Migration - Page Specific altSyntax Change
	WW-912	ww:a support for

		preInvokeJS
	WW-911	Fix velocity code bug
	WW-910	Update the IOC section to reflect Spring intergration.
	WW-909	Document FreeMarker simple map change
	WW-907	ww:a does not support nested param tags
	WW-905	Update Scope Interceptor Documentation
	WW-904	Update Execute and Wait Interceptor Documentation
	WW-903	Update File Upload Interceptor Documentation
	WW-902	Update Chaining Interceptor Documentation
	WW-901	Complete Conversion Error Interceptor Documentation
	WW-900	Complete Prepare Interceptor Documentation
	WW-899	Complete Servlet Config Interceptor Documentation
	WW-898	Complete Workflow Interceptor Documentation
	WW-897	Complete Validation Interceptor Documentation
	WW-896	Complete Token Session Interceptor Documentation
	WW-895	Complete Token Interceptor Documentation
	WW-894	Complete Component Interceptor Documentation
	WW-893	Complete Model Driven Interceptor Documentation
	WW-892	Complete Parameters

		Interceptor Documentation
	WW-891	Complete Static Parameters Interceptor Documentation
	WW-890	Complete I18n Interceptor Documentation
	WW-889	Complete Interceptor Documentation
	WW-887	Clean up FAQ
	WW-885	Document how validation picks up a default validators.xml now
	WW-884	Document new type conversion/collection stuff
	WW-883	Document general FM result integration (very basics)
	WW-882	Document general jsp result integration (very basics)
	WW-881	Document general velocity result integration (very basics)
	WW-880	Rename Prototype to QuickStart
	WW-878	Document ivy build process and how dependencies are handled
	WW-877	Start new, clean "best practices" section
	WW-876	Document how to launch "WebFlow" (SiteGraph?)
	WW-875	Document changes to the Session Map impl
	WW-873	Document how static content is served
	WW-872	Document date picker tag
	WW-871	Document altSyntax and

		TagSyntax
	WW-870	Document JSP-only tags
	WW-869	Document JSP tag syntax (like Velocity and FM)
	WW-868	Document each generic tag
	WW-867	Document new webwork.properties settings
	WW-866	Document ActionMapper feature
	WW-865	Document ParameterNameAware feature
	WW-864	Document new redirect-action result type
	WW-863	Document special button names (action:, etc)
	WW-862	Document themes and new theme extension feature
	WW-861	Pure client side validation
	WW-860	Document deleted/deprecated items
	WW-859	Document AJAX features
	WW-858	Document prototype/launcher info
	WW-857	Document execAndWait changes
	WW-856	Document file upload interceptor/file upload
	WW-855	Document i18n interceptor
	WW-854	Document continuations
	WW-853	Document XWork IOC deprecation
	WW-851	webwork.components.Form small bug:


	WW-850	taglib.tld form tag missing afterLoading attribute
	WW-849	reloadingText attribute not on PanelTag
	WW-848	example webapp starter throws NullPointerException in com.acme.CreatePerson.execute()
	WW-847	WW2.2 Tag Syntax Issues
	WW-846	css_xhtml validation.js addError IE bug fix
	WW-845	css_xhtml/submit.ftl remove controlfooter include
	WW-844	JspTaglibs in freemarker isn't working
	WW-842	datepicker always set the value in the last field
	WW-841	Illegal flush with URL Tag and Sitemesh Tags
	WW-840	Shopping cart add to cart not working
	WW-839	css_xhtml theme
	WW-836	DispatcherUtils not JDK 1.3 compliant
	WW-835	FileUploadInterceptor should use a deny-all policy instead of both a allow and disallow.
	WW-834	Freemarker CallbackWriter does not properly write out content if usesBody() is true
	WW-833	DWRValidator not populating entire context














	WW-832	Shopping-Cart Example Has Several Issues
	WW-831	Incorrect wrap attribute of the TextArea UI component
	WW-829	VelocityResult does not always call OutputStreamWriter flush() method
	WW-828	maxlength is broken
	WW-825	The onsubmit attribute in the form tag is missing
	WW-824	redundant ServletDispatcher error handling complicates filters
	WW-823	Displaytag still doesn't work
	WW-821	FileUploadInterceptor Error When not set parameter, and should save message in properties
	WW-820	Reconcile dojo with the newest release
	WW-819	Orionserver filter request doesn't contain action name in getServletPath()
	WW-817	Sitemesh decorator not finding actions when using FilterDispatcher
	WW-815	Ability to Specify ObjectFactory
	WW-813	Make ExecuteAndWaitInterceptor easier to extend
	WW-812	JasperReports: support for delimiter
	WW-811	StreamResult doesn't close













		InputStream
	WW-810	Iterator Sort tag fails
	WW-806	Better logging of parameters interceptor
	WW-804	Not clear where ww2 looks for webwork.velocity.configfile
	WW-800	ACTION_NAME is never put on the stack
	WW-798	JakartaMultiPartRequest does not set the header encoding, so the filename can not be parsed correctly when using a UTF-8 encoding in request.
	WW-792	ActionTag does not replace old stack on exception
	WW-791	Configuration browser does not work with velocity 1.4
	WW-790	WebWork does not refresh ressource bundle when told to do so
	WW-787	support for onclick scripting event missing in checkboxlist tag
	WW-786	Add contains to ComponentTag
	WW-784	ww:property does not escape HTML by default
	WW-783	Checkboxlist.vm in xhtml should point to Checkboxlist.vm under simple template dir
	WW-781	Velocity contexts are shared between threads
	WW-780	Manifest problem with

		dependency commons-logging
	WW-779	WebWorkTagSupport.translateVariables doesn't work with lists or maps
	WW-778	WW2: IfTag does not always return true or false
	WW-776	MultipartRequestWrapper swallows errors coming from a parser
	WW-775	ww:if/else expression bug
	WW-774	WW framework creates extraneous Session objects
	WW-773	UrlHelper SHOULD use &amp; entity instead of & to add GET parameters
	WW-768	The label.vm template uses attribute "id" instead of "for"
	WW-767	2.1.7 AbstractListTag throw NullPointerException in method evaluateExtraParams
	WW-763	True velocity macros for UI tags
	WW-761	FileUploadInterceptor does not use parameters defined in JavaDocs.
	WW-760	white space issue with webwork.custom.i18n.resources webwork.properties property
	WW-759	LogFactory.releaseAll() should be called at application end
	WW-758	Use

		Introspector.flushCashes() to deal with memory leaks on application reload
	WW-756	broken link in wikidoc
	WW-755	XMLHttpRequest component to replace DOM node with new HTML
	WW-754	Infinite Loop in XSLTResult's DOM adapter
	WW-753	Website 404s
	WW-751	xslt view support needs to implement additional methods to support 1.5
	WW-748	StreamResult should be close inputStream
	WW-747	URLHelper class does not use charset for encoding
	WW-745	no scripting attributes on the submit tag
	WW-744	Tutorial needs to have latest jar
	WW-743	execAndWait Interceptor Override Default Action Method
	WW-742	wrap attribute in textarea.vm in 'simple' template
	WW-740	UI tag checkboxlist should have html scripting events attribute
	WW-738	Use ObjectFactory in velocityManager for setting webwork.velocity.contexts
	WW-737	JasperReports examples in the webwork-example app

		not working
	WW-736	XmlHttpRequest validation breaks on IE
	WW-735	\$webwork.evaluate() throws NPE
	WW-730	2.1.7 text taglib is not compatible with old version
	WW-729	UrlTag always includes parameters unless includeParams is explicitly set to false
	WW-725	The include tag doesn't cleanup after itself
	WW-721	<ww:subset/> problem
	WW-720	Add content-length to StreamResult
	WW-719	Session object not auto-shared with Velocity context
	WW-717	The "label" tags is missing the "for" attribute
	WW-713	The <ww:url> tag does not correctly construct the URL when the scheme attribute is set and the scheme changes.
	WW-712	Update config browser to work with the new syntax
	WW-709	Allow specifying a text for empty option on the select tag
	WW-708	AbstractListTag classes throw NPE for null value
	WW-707	Velocity templates in UTF-8 still do not work

	WW-700	Validation lacking logging of missing field.
	WW-697	Regex Field Validator
	WW-682	change webwork.ui.templateDir=otherDir, tag class, doEndTag: Unable to find resource '/template/simple/scripting-events.vm' error.
	WW-679	The "Component" UI tag can't be used as part of a Velocity #bodytag directive
	WW-672	URLTag does not reset between invocations
	WW-654	Error occurs with Page Context when having request dispatcher code in the Action code
	WW-650	CoolUriServletDispatcher throws StringIndexOutOfBoundsException
	WW-648	Client-side validation doesn't allow cancelling
	WW-636	Improve URL-Tag to support value stack and namespaces
	WW-621	Lesson 2 web.xml refers to webwork-2.1.jar file
	WW-609	Velocity context available in Sitemesh 2.1 and WebWork use different keys for the request and response
	WW-603	Create a NumericFieldValidator using JavaScript
	WW-596	IllegalArgumentException

		when setting an indexed property
	WW-591	Wrong output when using nesting #bodytags (with a custom tag)
	WW-589	Printer-friendly of all documentatioon
	WW-588	Unexpected behaviour of SessionMap.clear()
	WW-572	Lesson 2 incorrectly references the xwork-validator-1.0.dtd for validators.xml
	WW-570	Table tag parameters and sorting
	WW-558	Exception Handler Interceptor and Exception Action
	WW-556	Allow ComponentManager scopes to be independant
	WW-540	Add a ServletFilter to clean up the ActionContext, allowing Sitemesh decorators to use the ActionContext with the taglib
	WW-536	Lost the session on OC4J 9.0.4 using WebWork2
	WW-533	Add support for Velocity 1.4 - Changes WebWork directives
	WW-528	Switch to using VelocityViewServlet from VelocityTools
	WW-520	Wrong & management in XML based output (WML

		and XHTML)
	WW-513	IOC Application and Session scopes do not work in Tomcat 5
	WW-507	"command" parameter isn't honored for command driven actions
	WW-505	Re-opened WW-430 (double action tag bug)
	WW-491	Spring/Xwork Action configuration
	WW-489	Setting of pageContext in directive (tag)
	WW-477	WebWork needs a simple "Hello World" demo app
	WW-463	ww:error tag
	WW-452	Pell Multipart library dies if content type is too long
	WW-447	CoolUriServletDispatcher errors related to getServletPath()
	WW-439	Simple wizard framework
	WW-436	ParamTag inconsistently evaluates the 'name' attribute
	WW-416	Reload resourcebundle from filesystem during runtime
	WW-405	Escaping text in form fields from velocity tags not working.
	WW-395	urltag doesnt show the exact url used
	WW-394	ServletDispatcher to use requestURI instead of servletPath

	WW-341	ScopeInterceptor
	WW-337	Text formatting support from tag library
	WW-329	Date picker component
	WW-304	client-side validations based on validation framework declared validations
	WW-291	Too sophisticated exception handling in servlet dispatcher
	WW-270	Component UI tag should allow body content manipulation
	WW-220	Velocity template for ui:textarea needs improvement
	WW-159	ServletRedirectResult should be aware of context paths
	WW-157	Better JSTL Support
	WW-16	More velocity macros, etc
	WW-6	Support for Portlet API

This document covers a step-by-step guide for upgrading to WebWork 2.2 from 2.1.x, as well as a list of the key individual changes for reference.

Upgrade Guide

1. Get the [latest 2.2 release](#)
2. Check out the [dependencies](#) to see what the required libraries are. One change of note is the dependency on Rife-Continuations. Click through the tabs for the dependencies for different usage profiles. If you use FreeMarker for instance, click on that tab to see those dependencies. Note that if you use the JSP tags you are now using FreeMarker by default for the UI component templates.
3. Check the **Individual Changes** section below to see if any of those changes affect your code
4. Update to use the **FilterDispatcher** instead of the **ServletDispatcher**. Check out the [web.xml 2.1.x compatibility](#) page for some compatibility discussions, and see [web.xml](#) for what needs to go in the *web.xml* file.

Deprecated Items

- The ServletDispatcher is now deprecated, please use the FilterDispatcher if possible. See [web.xml 2.1.x compatibility](#) for more information about potential problems you might have when switching to FilterDispatcher.
- The Velocity and FreeMarker servlets are no longer supported. We highly recommend you don't use these servlets but rather the [FreeMarker Result](#) or [Velocity Result](#) directly.
- If you were using JSP tags within Velocity, this is no longer supported and will soon be removed. You can use the instructions explained in [web.xml 2.1.x compatibility](#) to get along for now, but we highly recommend using the new native Velocity tag support provided by WebWork.
- The table tag is now considered deprecated. We may undeprecate it in the future if more time can be invested, but we recommend that you look at alternative options such as [Display Tag](#).
- All support for including actions (using the [include](#) tag or `jsp:include`) is no longer available when using the FilterDispatcher. We recommend you use the [action](#) tag instead.

- The cos and pell file upload parsers are no longer actively maintained and will be deleted soon. We highly recommend you use the Jakarta file upload parser, which is now the default parser.

Deleted Items

- All VoiceXML tags have been removed from WebWork.
- The Velocity-based [Tags](#) have been removed. If you were using or extending these tags (advanced users typically), you can copy them from the /template/archive directory in the webwork jar.

Individual Changes

Version	Description	Old Code	New Code
2.1.x	<p>If you implemented your own ObjectFactory or ActionInvocation classes, you will notice that there have been some minor changes to make an "extraContext" Map available for the build* methods. This allows, for instance, access to the Session map during object creation, even before the ActionContext ThreadLocal has been set.</p>	ObjectFactory.getObjectFactory().buildObject(clazz, ctx, extraContext);	ObjectFactory().buildObject(clazz, ctx, extraContext);

2.0+	<p>If you've used the WebWork base classes for building templated tags, you'll run into the refactoring of the UI tags to use common Component classes as the templated back-end. The tags now use these Component classes, as do Velocity and FreeMarker. This allows Velocity and FreeMarker to use the same UI components directly, without pretending to be a JSP page, but it also means you need to refactor your custom tags to use the new API's</p>	...your code..	See the existing UI tags in the 2.2 source
2.1.x	<p>If you were <i>not</i> using the Alt Syntax, it is now enabled by default. You can either upgrade or change the Tag Syntax</p>	<pre><ww:url value=""http://www.yahoo.com"></pre>	<pre><ww:url value="http://www.yahoo.com"></pre>
2.1.x	<p>If you are using FreeMarker and</p>	<pre>\${parameters?size} /</pre>	<pre>\${parameters.size()} /</pre>

	your code uses psuedo properties on collections and maps, you need to modify the code to call methods instead.	<code>\${parameters.size?html}</code>	<code>\${parameters.get("size"?html}</code>
2.1.x	The defaultStack has been renamed to the basicStack.	<code><interceptor-ref name="defaultStack"/></code>	<code><interceptor-ref name="basicStack"/></code>
2.1.x	The completeStack has been renamed to the defaultStack.	<code><interceptor-ref name="completeStack"/></code>	<code><interceptor-ref name="defaultStack"/></code>
2.1.x	The defaultStack (previously the completeStack) is now the default interceptor stack in webwork-default.xml. In addition, this stack now configures the Workflow Interceptor and the Validation Interceptor to not run if the method names are <i>input</i> , <i>back</i> , or <i>cancel</i>	N/A	N/A
2.1.x	The component interceptor has been deprecated (along with all WebWork IOC features) and has been removed from	N/A	N/A

	<p>the basicStack and completeStack.</p> <p>You'll need to add it back by hand if you wish to use this deprecated feature.</p>		
2.0+	<p>The include tag's page attribute has been deprecated since 1.x and is now removed from 2.2. Please use the value attribute.</p>	<pre><ww:include page="..." /></pre>	<pre><ww:include value="..." /></pre>
2.0+	<p>The text tag's value0, value1, value2, and value3 attributes have been deprecated since 1.x and are now removed from 2.2. Please use the param tag instead.</p>	<pre><ww:text value0="..." /></pre>	<pre><ww:text> <ww:param value="someValue"> ... </ww:p</pre>
2.0+	<p>The session map wrapper (found in ActionContext) has been changed to no longer create sessions for every request. If your application depends on sessions being automatically created, WebWork 2.2 no longer does that. Instead, you must create the session yourself or</p>	N/A	N/A

	the session will be created as soon as a value is put in the session Map.		
2.0+	The VUI tags have been removed from WebWork. They haven't been actively worked on in over 4 years and are not used in the community.	N/A	N/A
2.0+	The URI of the WebWork TLD was change from <i>webwork</i> to <i>/webwork</i> . If you were already using the packaged TLD from webwork.jar, you will have to adjust URI in your JSPs	<%@ taglib uri="webwork" prefix="ww" %>	<%@ taglib uri="/webwork" prefix="ww" %>
2.0+	The default encoding has changed from ISO-8859-1 to UTF-8 . If you wish to continue to use ISO-8859-1, you must change your webwork.properties .	N/A	webwork.i18n.encoding=ISO-8

WebWork 2.3 Release Notes

Key Changes

Productivity enhancements

Tools

- IDE plugins for Eclipse and IDEA (Ricardo)
- Enhanced WebFlow support using new features introduced in [WebWork 2.2](#) (Patrick)

Other

- Improved support for action chaining and how it interacts with validation (Jason)

User interface improvements

AJAX support

- New AJAX widgets?

Other

- Better JSP 2.0/JSTL integration
- Native support for checkboxes, even when they aren't checked
- Improved JSR 168 support

Core API changes

Configuration

- API updated to allow for multiple deployments in a single classloader (Jason)
- Removal of many statics and overall cleaner API (Jason)
- All configuration-related files (xwork-conversion.properties, xwork.xml, etc) can easily be looked up from any path (Jason)
- Support for Java 5 annotations (Rainer, Nils)

Type conversion

- Support for Java 5 generics and annotations for Collections and enums (Gabe?)
- Support for Java 5 annotations (Rainer, Nils)





Validation

- Easier support for typical validation GET/POST lifecycle (see [AppFuse](#)) (Jason)
- Support for Java 5 annotations (Jason, Rainer, Nils)

Migration Notes

Version	Description	Old Code	New Code
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Changelog

OpenSymphony JIRA (25 issues)		
T	Key	Summary
	WW-1077	setting theme in page, context, or session scope has not effect
	WW-1066	ImageValidator
	WW-1018	validation problem for webwork's !command pattern action
	WW-1011	Problem with SiteMesh tags and ww:action

	WW-980	how to reload xwork configuration
	WW-945	Global Results conflict
	WW-942	Content length not sent when using SiteMesh
	WW-934	FreeMarker/SiteMesh applyDecorator tag
	WW-922	Add CaveatEmptor example
	WW-914	Create new ww:errors tag
	WW-908	Client side validation?
	WW-888	Clean up tutorials
	WW-886	Clean up Cookbook
	WW-874	Document Portlet stuff
	WW-838	Create a new ww:css tag
	WW-830	PROTOTYPE: Add configuration options for flexibility
	WW-827	Error in a tags theme template causes fallback
	WW-809	Expression Support Properteis Configuration
	WW-805	ww:date tag
	WW-803	JFreeReport Result
	WW-799	OgnlValueStackDataSource Field Name X Description Bug
	WW-796	SetTag "scope" attribute do not put the object to stack if the scope is given.
	WW-795	Can't override default webwork messages
	WW-794	Issue with ServletDispatcherResponse after a JasperException

	WW-793	Message with key "webwork.internal.invalid.token" is never used
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Reference

This page last changed on Jan 01, 2006 by [tm_je](#).

The Basics

1. [Architecture](#)
2. [Configuration Files](#)
3. [XWork Configuration](#)
4. [Interceptors](#)
5. [Result Types](#)
6. [Exception Handling](#)

UI-related Topics

1. [Tags](#)
2. [OGNL](#)
3. View technologies:
 - a. [JSP](#)
 - b. [Velocity](#)
 - c. [FreeMarker](#)
 - d. [JasperReports](#)

Advanced Functionality

1. [Action Chaining](#)
2. [Inversion of Control](#) (IOC)
3. [Type Conversion](#)
4. [Validation](#)
5. [Internationalization](#)
6. [Continuations](#)
7. [ActionMapper](#)

Other

1. [Related Tools](#)
2. [J2SE 5 Support](#)
3. [3rd Party Integration](#)

3rd Party Integration

This page last changed on Nov 28, 2005 by [phil](#).

1. [Sitemesh](#)
2. [Spring](#)
3. [Pico](#)
4. [Hibernate](#)
5. [JSTL](#)
6. [JUnit](#)
7. [Quartz](#)
8. [JasperReports](#)

Hibernate

This page last changed on Jan 03, 2006 by [phil](#).

There's nothing more that you have to do use Hibernate with WebWork than with other Web framework. Just setup Hibernate according to the <http://www.hibernate.org/5.html>. However, there're a number of good patterns that people have used successfully in the following projects:

- AdminApp<http://www.hibernate.org/159.html#a5>
- Petsoar <http://www.wiley.com/legacy/compbooks/walnes>

TODO: Documenting updated version (currently at <http://www.i-tao.com/adminapp.html>). IN PROGRESS.

Introduction

This page aims at providing some additional information about the [HibernateAdminApp](#). The Hibernate AdminApp (hereafter referred to as AA) was created by the Hibernate developers to show a possible implementation strategy for Hibernate with Webwork. Although AA can still be used as a starting point for webapplications, most of its libraries become quite aged (WW 2.0 beta, Hibernate 2, XWork 1.0 beta). Therefore, a shiny [new fork](#) (AA2) has been created by Ron Chan.

AA2 relies on WW2.2, Hibernate 3.1, and Spring as its IoC container (rather than XWork's, which has been deprecated in WW 2.2). We'll first discuss the original AA. Later on, we'll show the differences with AA2. Ron, if you're reading this, feel free to point out any mistakes/edit this document.

Like we pointed out before, AA shows a possible implementation strategy to use Hibernate in WebWork in combination with a so-called open-session-in-view pattern ([more info](#), [even more](#)). This pattern allows maximum flexibility in our view layer by creating a Hibernate Session object that will live till the end of the request (after the view has been rendered). This allows lazy loading of objects in our view, rather than having to preload all objects and their associations in our business layer, and yet ensures the correct disposing of the Session object.

To accomplish this, AA uses XWork's [components](#) and [interceptors](#):

- [components](#): XWork manages the lifecycle of objects in several scopes (application, session, request) and takes care of the IoC through the .Aware interfaces (so called enablers). Hibernate's expensive-to-create SessionFactory will thus be created in the application scope (meaning it will only be initialised once when the application starts up), while the Session objects, used to load our models, is registered in the request scope (will be created once per request).

- [interceptors](#): AA uses an interceptor (the HibernateInterceptor) to extract the Session from the WebWork action, so it can control the transactions, redirect/rollback on errors and properly dispose the Session after the view is rendered.

AdminApp Source Overview

Now, let's properly dissect the AA files:

- /lib: contains the various jars for our application. Nothing special here.
- /src/java/org/hibernate/admin/action: lists our WebWork actions. All actions extend an abstract AbstractAction file, which overrides the execute() method from our XWork's ActionSupport. This is where we define a setHibernateSession() method, which is the method we declared in our enabler interface (HibernateSessionAware). This will notify XWork to invoke its IoC magic to set the HibernateSession.

org.hibernate.admin.action.AbstractAction

```
publicString execute() throws Exception {  
    // We go to INPUT on field and data errors  
    if ( hasErrors() ) {  
        LOG.debug("action not executed, field or action errors");  
        LOG.debug( "Field errors: " + getFieldErrors() );  
        LOG.debug( "Action errors: " + getActionErrors() );  
        return INPUT;  
    }  
  
    LOG.debug("executing action");  
    return go();  
}  
  
protectedabstractString go() throws HibernateException;  
  
public void setHibernateSession(HibernateSession session) {  
    this.session = session;  
}  
  
protected Session getSession() throws HibernateException {  
    return session.getSession();  
}
```

In this execute() method we'll simply call a abstract go() method (which is then defined in each of the actions). When we need the Hibernate Session, we use the getSession() method, inherited from our AbstractAction. Don't worry about transactions or saving so called dirty objects (our HibernateInterceptor takes care of

all that). As you can see, this totally minimizes the LoC (lines of code) needed to retrieve or manipulated our models).

```
org.hibernate.admin.action.EditUserAction

public class EditUserAction extends AbstractAction {
    //.. ommited for brevity
    protectedString go() throws HibernateException {
        ..
        getSession().update(user);
        ..
        return SUCCESS;
    }

    //.. getters and setters ommited
}
```

There are 3 more *-validation.xml files in this directory containing the validation logic for the Actions. XWork will validate your request before the action gets executed, so you can decouple your (simple) validation logic from your Action. For example, take a look at the CreateUserAction-validation.xml:

```
CreateUserAction-validation.xml

..
    <field name="user.name.lastName"><field-validator
type="requiredstring"><message>You must enter a last
name.</message></field-validator></field><field name="user.email"><field-validator
type="email"><message>Please correct the e-mail
address.</message></field-validator><field-validator type="required"><message>Please
enter an e-mail address.</message></field-validator></field>
..
```

[Several validator types](#) are available. Here we rely on XWork to validate our Actions, but it's also possible to validate our object Models (see [WW Validation](#)). You will mostly use these to validate submitted forms in your webapp.

When a validator fails, you will automatically be returned to the input page with a clear indication which field failed to validate if:

a) actually provided an input type in your [xwork.xml](#) file

```
xwork.xml

..
    <result name="input" type="dispatcher"><param
```



```
</param></result>
..
```

b) you enabled the validation interceptor in your [xwork.xml](#)

```
xwork.xml

..
<interceptor-ref name="defaultStack"/><interceptor-ref name="validation"/>
..
```

c) you use the WebWork tag library (warning: this is the old syntax):

```
CreateUser.jsp

..
<ww:form name="'createUserForm'" action="'createUser.action'"
method="'POST'"><ww:textfield label="'Username'" name="'user.handle'"/>
..
```

New syntax (since 2.2):

```
CreateUser.jsp

..
<ww:form name="createUserForm" action="createUser" method="POST"><ww:textfield
label="Username" name="user.handle"/>
..
```

- /src/java/org/hibernate/admin/component: contains the components and enablers for both the HibernateSessionFactory and the HibernateSession. These components are declared in the /src/java/[components.xml](#) file (which will be copied to the root of your compiled classes afterwards):

```
components.xml

<components><component><scope>request</scope><class>org.hibernate.admin.component.HibernateSession
```

- /src/java/org/hibernate/admin/interceptor: contains the Hibernate interceptor. [Interceptors](#) are an incredibly powerful feature of WebWork - it allows you to control invocations before and after they execute, manipulate their results, or, as in our case, extract the HibernateSession object and dispose it after the Action has been executed (and the view rendered). Because we use a try/catch/finally block, we're able to catch exceptions and yet make sure our Session gets closed properly (the number one cause of db connection leaks).

```
org.hibernate.admin.interceptor.HibernateInterceptor
```

```

publicString intercept(ActionInvocation invocation) throws Exception {
    Action action = invocation.getAction();
    if ( !(action instanceof AbstractAction) ) return invocation.invoke();

    HibernateSession hs = ( (AbstractAction) action ).getHibernateSession();
    try {
        return invocation.invoke();
    }

    // Note that all the cleanup is done
    // after the view is rendered, so we
    // have an open session in the view
    catch (Exception e) {
        hs.setRollBackOnly(true);
        if (e instanceof HibernateException) {
            LOG.error("HibernateException in execute()", e);
            return Action.ERROR;
        }
        else {
            LOG.error("Exception in execute()", e);
            throw e;
        }
    }

    finally {
        try {
            hs.disposeSession();
        }
        catch (HibernateException e) {
            LOG.error("HibernateException in dispose()", e);
            return Action.ERROR;
        }
    }
}

```

Conclusion

In this document, we tried to point out several key features in the Hibernate AdminApp. In part II, we'll have a look at the new AdminApp, which is far more up to date, and uses Spring as its IoC container. No more implements ActionSupport or Aware interfaces, resulting in even cleaner code.

AdminApp is a very good example of how a webapp can be structured, using as many advantages from the various frameworks as possible.

JSTL

This page last changed on Oct 30, 2005 by [plightbo](#).

JSTL integration is built in to WebWork 2.2+ - there are no steps required to enable it. Simply refer to your JSTL expressions just as you would with a normal WebWork JSP tag, such as the property tag. This is accomplished a request wrapper called For more info, see the javadocs of the `WebWorkRequestWrapper` object:

All WebWork requests are wrapped with this class, which provides simple JSTL accessibility. This is because JSTL works with request attributes, so this class delegates to the value stack except for a few cases where required to prevent infinite loops. Namely, we don't let any attribute name with "#" in it delegate out to the value stack, as it could potentially cause an infinite loop. For example, an infinite loop would take place if you called: `request.getAttribute("#attr.foo")`.

There's a number of approaches you can take to unit-test your WebWork actions.

The simplest is to instantiate your actions, call setters then execute(). This allows you to bypass all the complicated container setup.

Taken from Petsoar:

```
package org.petsoar.actions.inventory;

import com.mockobjects.constraint.IsEqual;
import com.mockobjects.dynamic.C;
import com.mockobjects.dynamic.Mock;
import com.opensymphony.xwork.Action;
import junit.framework.TestCase;
import org.petsoar.pets.Pet;
import org.petsoar.pets.PetStore;

public class TestViewPet extends TestCase {
    private Mock mockPetStore;
    private ViewPet action;

    protected void setUp() throws Exception {
        mockPetStore = new Mock(PetStore.class);
        PetStore petStore = (PetStore) mockPetStore.proxy();

        action = new ViewPet();
        action.setPetStore(petStore);
    }

    public void testViewPet() throws Exception {
        Pet existingPet = new Pet();
        existingPet.setName("harry");
        existingPet.setId(1);

        Pet expectedPet = new Pet();
        expectedPet.setName("harry");
        expectedPet.setId(1);

        mockPetStore.expectAndReturn("getPet", C.args(new IsEqual(new Long(1))),
existingPet);
        action.setId(1);

        String result = action.execute();

        assertEquals(Action.SUCCESS, result);
        assertEquals(expectedPet, existingPet);
    }
}
```

```

        mockPetStore.verify();
    }

    public void testViewPetNoId() throws Exception {
        mockPetStore.expectAndReturn("getPet", C.ANY_ARGS, null);

        String result = action.execute();

        assertEquals(Action.ERROR, result);
        assertEquals(1, action.getActionErrors().size());
        assertEquals("Invalid pet selected.",
            action.getActionErrors().iterator().next());
        assertNull(action.getPet());
        mockPetStore.verify();
    }

    public void testViewPetInvalidId() throws Exception {
        action.setId(-1);
        testViewPetNoId();
    }
}

```

Test interceptors and/or result types

Check out the test suites in XWork/WebWork. These are pretty comprehensive and provide a good starting point. For example, this is how the **ParametersInterceptor** is tested:

```

public void testDoesNotAllowMethodInvocations() {
    Map params = new HashMap();
    params.put("@java.lang.System@exit(1).dummy", "dumb value");

    HashMap extraContext = new HashMap();
    extraContext.put(ActionContext.PARAMETERS, params);

    try {
        ActionProxy proxy = ActionProxyFactory.getFactory().
            createActionProxy("",
                MockConfigurationProvider.MODEL_DRIVEN_PARAM_TEST, extraContext);
        assertEquals(Action.SUCCESS, proxy.execute());

        ModelDrivenAction action = (ModelDrivenAction) proxy.getAction();
        TestBean model = (TestBean) action.getModel();

        String property = System.getProperty("webwork.security.test");
        assertNull(property);
    } catch (Exception e) {
        e.printStackTrace();
        fail();
    }
}

```

Note: these are not the ONLY ways so make your own judgement.

Pico

This page last changed on Dec 30, 2005 by [plightbo](#).

Pico is an Inversion of Control container available at <http://picocontainer.codehaus.org>. There have been several reports of integration between WebWork and Pico. As of WebWork 2.2, Pico integration is built in. To use Pico, you must first install the Pico [Dependencies](#). Then, instead of using the normal filter dispatcher in [web.xml](#) that maps to `/*`, you simply need to use the class **`com.opensymphony.webwork.pico.PicoFilterDispatcher`**.

For WebWork versions previous to 2.2, <http://www.nanocontainer.org/NanoWar+WebWork> contains information on integrating WebWork and Pico/Nano.

The following class performs the glue between Quartz and WebWork:

```
package com.trantek.sit.action;

import com.opensymphony.xwork.ActionProxy;
import com.opensymphony.xwork.ActionProxyFactory;
import com.opensymphony.xwork.interceptor.component.ComponentInterceptor;
import org.quartz.Job;
import org.quartz.JobExecutionContext;
import org.quartz.JobExecutionException;
import java.util.HashMap;

public class WebWorkJob implements Job
{
    public void execute(JobExecutionContext context) throws JobExecutionException
    {
        try
        {
            HashMap ctx = new HashMap();
            ctx.put(ActionContext.PARAMETERS,
context.getJobDetail().getJobDataMap());
            ctx.put(ComponentInterceptor.COMPONENT_MANAGER, ???);
            ctx.put(???, ???)
            ServletDispatcher.createContextMap()
            ActionProxy proxy = ActionProxyFactory.getFactory().
                createActionProxy("", context.getJobDetail().getName(), ctx);

            proxy.execute();
        }
        catch (Exception e)
        {
            thrownew JobExecutionException(e);
        }
    }
}
```

To schedule webwork actions you simply create a job where

- the name of your job is the name of the WW action to execute (no ".action" suffix).
- all the parameters you want to send to the WW action is contained in the JobDataMap of the JobDetail

(the Quartz scheduler is setup as a servlet according to the javadocs of `org.quartz.ee.servlet.QuartzInitializerServlet`.)

The following code schedules an e-mail action:

```
Scheduler scheduler = StdSchedulerFactory.getDefaultScheduler();

JobDetail jobDetail = new JobDetail("email.send",
                                     scheduler.DEFAULT_GROUP, WebWorkJob.class);

Map m = jobDetail.getJobDataMap();
m.put("to", "me@bogusdomain.com");
m.put("subject", "quartz test");
m.put("body", "This is a quartz test, Hey ho");
m.put("smtpServer", "smtp.bogusdomain.com");
m.put("from", "quartz@bogusdomain.com");

SimpleTrigger trigger = new SimpleTrigger("myTrigger",
                                          scheduler.DEFAULT_GROUP,
                                          new Date(), null, 0, 0L);

scheduler.deleteJob("email.send", scheduler.DEFAULT_GROUP);
scheduler.scheduleJob(jobDetail, trigger);
```

This example is based on [WW1: Integrating Webwork and Quartz](#)

Overview

[SiteMesh](#) is a web-page layout and decoration framework and web- application integration framework to aid in creating large sites consisting of many pages for which a consistent look/feel, navigation and layout scheme is required.

Integrating WebWork with SiteMesh is amazingly simple: you don't have to do anything in fact. WebWork stores all its value stack information in the request attributes, meaning that if you wish to display data that is in the stack (or even the ActionContext) you can do so by using the normal tag libraries that come with WebWork. That's it!

ActionContextCleanUp

In WebWork's [Architecture](#), the standard filter-chain optionally starts with the **ActionContextCleanUp** filter, followed by other desired filters. Lastly, the **FilterDispatcher** handles the request, usually passing it on to the ActionMapper. The primary purpose of the **ActionContextCleanUp** is for SiteMesh integration. This tells the FilterDispatcher when exactly, to clean-up the request. Otherwise, the ActionContext may be removed before the decorator attempts to access it.



Warning

If ActionContext access is required within the decorators, the **ActionContextCleanUp** filter *must* be placed at the beginning of the filter-chain.

For more information, see the javadocs of the `ActionContextCleanUp` filter:

Special filter designed to work with the `FilterDispatcher` and allow for easier

integration with SiteMesh. Normally, ordering your filters to have SiteMesh go first, and then FilterDispatcher go second is perfectly fine. However, sometimes you may wish to access WebWork-features, including the value stack, from within your SiteMesh decorators. Because FilterDispatcher cleans up the ActionContext, your decorator won't have access to the data you want. By adding this filter, the FilterDispatcher will know to not clean up and instead defer cleanup to this filter. The ordering of the filters should then be:

- this filter
- SiteMesh filter
- FilterDispatcher

Velocity and FreeMarker Decorators

WebWork provides extension of the SiteMesh PageFilter that assist with integration with [Velocity](#) and [FreeMarker](#). We strongly recommend using these filters, instead of the support provided by SiteMesh, because they also will provide the standard variables and [Tags](#) that you are used to when created views in your favorite template language.

Velocity

If you are using Velocity for your SiteMesh decorators, we recommend using the VelocityPageFilter. This is an extension of the SiteMesh PageFilter, which should be placed in the web.xml in between the **ActionContextCleanUp** and the **FilterDispatcher**. Now the Velocity decorators will have access to WebWork variables such as \$stack and \$request.

```
<filter><filter-name>webwork-cleanup</filter-name><filter-class>com.opensymphony.webwork.dispatcher
```

FreeMarker

If you are using FreeMarker for your SiteMesh decorators, we recommend using the FreeMarkerPageFilter. This is an extension of the SiteMesh PageFilter, which should be

placed in the web.xml in between the **ActionContextCleanUp** and the **FilterDispatcher**. Now the FreeMarker decorators will have access to WebWork variables such as `${stack}` and `${request}`.

```
<filter><filter-name>webwork-cleanup</filter-name><filter-class>com.opensymphony.webwork.dispatcher
```

Spring is, among other things, an Inversion of Control framework. As of WebWork 2.2, it is the only supported IoC container. You can find out more about Spring at <http://www.springframework.org>.



This section covers the only *supported* Spring integration technique. However, there are many other ways to tie in to Spring with WebWork. Please see [Other Spring Integration](#) for more info. Note that *none* of the other methods are currently supported and could change at any time!

Enabling Spring Integration

Turning on Spring support in WebWork is simply a matter of installing the latest Spring jars in to your classpath and then adding the following entry to [webwork.properties](#):

```
webwork.objectFactory = spring
```

If you want to change from the default autowiring mode, which is to auto-wire by name (i.e. to look for beans defined in Spring with the same name as your bean property), then you'll also need a setting for this in your [webwork.properties](#):

```
webwork.objectFactory.spring.autoWire = type
```

Options for this setting are:

name	Auto-wire by matching the name of the bean in Spring with the name of the property in your action. This is the
------	---

	default
type	Auto-wire by looking for a bean registered with Spring of the same type as the property in your action. This requires you to have only one bean of this type registered with Spring
auto	Spring will attempt to auto-detect the best method for auto-wiring your action
constructor	Spring will auto-wire the parameters of the bean's constructor

At this point, all objects will at least try to get created by Spring. If they cannot be created by Spring, then WebWork will create the object itself. Next, you'll need to turn on the Spring listener in web.xml:

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



More ApplicationContext configuration files needed?

Since the Spring integration uses a standard Listener, it can be configured to support configuration files other than applicationContext.xml.

Adding the following to your web.xml will cause Spring's ApplicationContext to be initialized from all files matching the given pattern:

```
<!-- Context Configuration locations
for Spring XML files
--><context-param><param-name>contextConfigLocation
```

See the Spring documentation for a full description of this parameter.

Sample Spring Configuration

At this point, you can add the standard Spring configuration at **WEB-INF/applicationContext.xml**. An example of this configuration is:

```
<?xml version="1.0" encoding="UTF-8"?><!DOCTYPE beans PUBLIC "-//SPRING//DTD  
BEAN//EN" "http://www.springframework.org/dtd/spring-beans.dtd"><beans  
default-autowire="autodetect"><bean id="personManager"  
class="com.acme.PersonManager"/>  
...  
</beans>
```

Switching from Builtin IoC to Spring

Switching is quite easy. Spring setup is done as described above. To complete migration, you will have to

1. transfer your configured components from components.xml to applicationContext.xml appropriately. You can safely delete components.xml afterwards.
2. remove the [Component Interceptor](#) from your interceptor stack in [xwork.xml](#). Although it does not hurt to leave it there, it is simply redundant from now on.



Session Scope & Spring

Spring does not support session scoped components right now. There are plans for integrating this in the Spring 2.0 release. Right now, you will have to use [Spring Session Components Workarounds](#).

Initializing Actions from Spring

Normally, in `xwork.xml` you specify the class for each action. When using the `SpringObjectFactory` (configured as shown above) `WebWork` will ask Spring to create the action and wire up dependencies as specified by the default auto-wire behavior. The `SpringObjectFactory` will also apply all bean post processors to do things like proxy your action for transactions, security, etc. which Spring can automatically determine without explicit configuration. For most usages, this should be all you need for configuring your actions to have services and dependencies applied.



We **strongly** recommend that you find declarative ways of letting Spring know what to provide for your actions. This includes making your beans able to be autowired by either naming your dependent properties on your action the same as the bean defined in Spring which should be provided (to allow for name-based autowiring), or using `autowire-by-type` and only having one of the required type registered with Spring. It also can include using JDK5 annotations to declare transactional and security requirements rather than having to explicitly set up proxies in your Spring configuration. If you can find ways to let Spring know what it needs to do for your action without needing any explicit configuration in the Spring *applicationContext.xml*, then you won't have to maintain this configuration in both places.

However, sometimes you might want the bean to be completely managed by Spring. This is useful, for example, if you wish to apply more complex AOP or Spring-enabled technologies, such as Acegi, to your beans. To do this, all you have to do is configure the bean in your Spring **applicationContext.xml** and then *change* the class attribute from your `WebWork` action in the *xwork.xml* to use the bean name defined in Spring instead of the class name.

Your xwork.xml file would then have the action class attributes changed, leaving it like this:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.1.dtd"><xwork><include
file="webwork-default.xml"/><package name="default"
extends="webwork-default"><action name="foo"
class="com.acme.Foo"><result>foo.ftl</result></action></package><package
name="secure" namespace="/secure" extends="default"><action name="bar"
class="bar"><result>bar.ftl</result></action></package></xwork>
```

Where you have a Spring bean defined in your **applicationContext.xml** named "bar". Note that the *com.acme.Foo* action did not need to be changed, because it can be autowired.

A typical spring configuration for bar could look as following.

```
<?xml version="1.0" encoding="UTF-8"?><!DOCTYPE beans PUBLIC "-//SPRING//DTD
BEAN//EN" "http://www.springframework.org/dtd/spring-beans.dtd"><beans
default-autowire="autodetect"><bean id="bar" class="com.my.BarClass"
singleton="false"/>
...
</beans>
```



Note the id attribute in the spring configuration corresponds to the class attribute in the xwork configuration. Also note that in the spring configuration, the singleton attribute is set to false. This would generally be the case that is desired as Webwork creates a new action class upon each request. Hence when Spring integration is used, this would be the desired behaviour. Making Springs singleton attribute false would allow this.

Remember: **this is not required**. This is only needed if you wish to override the default behavior when the action is created in WebWork by decorating it with Spring-enabled interceptors and IoC that cannot be automatically determined by Spring. Keep in mind that WebWork's Spring integration will do standard IoC, using

whatever auto-wiring you specify, even if you don't explicitly map each action in Spring. So typically you don't need to do this, but it is good to know how this can be done if you need to.

Other Spring Integration

This page last changed on Sep 21, 2005 by [plightbo](#).



This document is provided by the WebWork user community and does not represent the *supported* Spring integration methods. Please refer to [Spring](#) for documentation on the recommended integration.

I started out using the original WebWork documentation to get Spring to initialize Webwork actions, but it appears that a lot has changed since the days of WebWork 1.x. This will be my attempt to clarify some of those changes and to list the steps necessary to get the two to play nicely. Please comment with clarifications or corrections!

WebWork 1.x

(these are assumptions based on the 1.x [WW1:Spring Framework Integration](#) documentation)

It seems that the way you got Spring to initialize WebWork 1.x action classes was to add this line into your webwork.properties file:

```
webwork.action.factory=webwork.action.factory.SpringActionFactory
```

so that WebWork would know to use Spring's view of the world to create actions. The WebWork action classes would then need to be declared in the Spring applicationContext.xml file so that Spring would know directly of the action objects. Upon invocation of an action, WebWork would know to first use the SpringActionFactory to try and create an instance of the requested action which would ask Spring to create the object using its configuration. If there was no Spring definition of that action object, then WebWork would use it's normal instantiation methods to create that action. Well, things have changed slightly since WebWork 1.x.

WebWork 2

In WebWork 2 (the functionality actually exists in XWork), you specify relationships from action classes to other objects in XWork's `xwork.xml` file instead of Spring's `applicationContext.xml` file. So if you have an action class that utilizes a DAO, instead of having a bean definition like so in `applicationContext.xml`:

```
<bean id="myAction" class="com.ryandaigle.web.actions.MyAction"
singleton="false"><property name="DAO"><ref bean="myDAO"/></property><bean
id="myDAO" class="com.ryandaigle.persistence.MyDAO" singleton="true" />
```

you move the action definition to `xwork.xml` and keep the DAO definition in `applicationContext.xml` so that `xwork.xml` looks like:

```
<action name="myAction" class="com.ryandaigle.web.actions.MyAction"><external-ref
name="DAO">myDAO</external-ref><result name="success" type="dispatcher"><param
name="location">/success.jsp</param></result></action>
```

and `applicationContext.xml` looks like:

```
<bean id="myDAO" class="com.ryandaigle.persistence.MyDAO" singleton="true" />
```

Notice how there is the `external-ref` element in the action definition that points to an object that Spring is managing. There are several things that need to be in place for the `external-ref` to work, but I just wanted to give an overview of what has changed before going into the specific steps.

Steps for Configuring Spring/WebWork2 (XWork) Integration:

Get the files you need to externally resolve Spring beans. I've bundled them all here: <http://www.ryandaigle.com/pebble/images/webwork2-spring.jar> . They were originally spread between two JIRA issues filed against XWork 1.0 (see references below). This zip includes the source, the class files (so you can just include it in your classpath) and my example configuration files. Either extract the source files into your application, or put the file onto your classpath. (You may want to take the `applicationContext.xml` and `xwork.xml` files out, I don't know if they'll override your files... They're just there as an example configuration).

Now, let's get your XWork configuration file (xwork.xml) to resolve external references. XWork resolves external references (using the external-ref element) by utilizing an external reference resolver per package. You specify your external reference resolver as an attribute of the package element:

```
<package name="default" extends="webwork-default"
  externalReferenceResolver="com.atlassian.xwork.ext.SpringServletContextReferenceResolver">
```

This `SpringServletContextReferenceResolver` class reference is a class not part of the XWork distribution written as an extensions for XWork/Spring that I got from this JIRA issue filed against XWork addressing this Spring integration effort. (I have bundled it with the rest of the necessary files later on down for your convenience). This class will intercept all external-refs and resolve the references using Spring's context. There is also a `SpringApplicationContextReferenceResolver` included in the zip file that will allow you to resolve Spring references for applications not executing within the web context. But as this is a WebWork/Spring article, the servlet resolver is what we need to use.

Now we need to add the XWork reference resolver as part of the interceptor stack you're using. This will allow any references to be resolved (using the reference resolver you specified in the `externalReferenceResolver` attribute). This is how I've added that interceptor:

```
<interceptors><interceptor name="reference-resolver"
class="com.opensymphony.xwork.interceptor.ExternalReferencesInterceptor"/><interceptor-stack
name="myDefaultWebStack"><interceptor-ref name="defaultStack"/><interceptor-ref
name="reference-resolver"/></interceptor-stack></interceptors><default-interceptor-ref
name="myDefaultWebStack"/>
```

As I briefly outlined before, you can now reference Spring beans that your action classes need in xwork.xml:

```
<action name="myAction" class="com.ryandaigle.web.actions.MyAction"><external-ref
name="DAO">myDAO</external-ref><result name="success" type="dispatcher"><param
name="location">/success.jsp</param></result></action>
```

And that's all we have to do to xwork.xml to let XWork know how to resolve references to Spring's managed beans.

Now let's setup our web environment to properly notify Spring and our external reference resolver of the web context. We do this by adding two context listeners to your application's web.xml file:

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

The first listener is Spring's that you would need independent of whether or not you were integrating with WebWork 2. The second listener is our external resolver's that will use the servlet context to retrieve Spring's application context. This is the link between WebWork and Spring.

At this point, we've set up Spring and our XWork reference resolver to work within a web context, and we've told XWork how to resolve external references to Spring. We're done! Fire it up and let me know if there are some steps I've missed or assumptions I've made that I shouldn't have.

References

- Here is my bundled source, class and example configuration files (that contains all the needed referenced files below); <http://www.ryandaigle.com/pebble/images/webwork2-spring.jar> .
- My searching started with the original WebWork 1.x + Spring documentation and comments on the Wiki; [WW1:Spring Framework Integration](#)
- The Wiki pointed me to the two JIRA issues that contained the source files for the reference resolvers:
- <http://jira.opensymphony.com/browse/XW-122> The "SpringExternalResolver.zip" attachment is the one needed for externally resolving Spring objects.
- <http://jira.opensymphony.com/browse/XW-132> The "xwork-springServletImpl.zip" attachment is the one needed for externally resolving Spring objects. It just contains some files missing from the original source.

Credits

Judging by the comments etc... of the JIRA issues filed against XWork, it appears that Ross Mason (of Atlassian?) is the man to thank for the external reference resolver code. And of course we have to thank the people of Spring and WebWork 2 for making this all possible.

Using the SpringObjectFactory

Rather than using an external reference resolver with releases of XWork from 1.0.1 and onwards, it's possible to use the SpringObjectFactory from the [xwork-optional](#) package. This uses Spring to wire up the dependencies for an Action before passing it to XWork. Each action should be configured within a Spring application context as a prototype (because XWork assumes a new instance of a class for every action invocation):

```
<bean name="some-action" class="fully.qualified.class.name"
singleton="false"><property name="someProperty"><ref
bean="someOtherBean" /></property></bean>
```

Within xwork.xml:

```
<action name="myAction" class="some-action"><result
name="success">view.jsp</result></action>
```

Notice that the XWork Action's class name is the bean name defined in the Spring application context.

The 1.1.3 release of the Spring/XWork integration library allows the user to configure everything in the **xwork.xml** file without needing to add extra entries to the **applicationContext.xml**. This is done by configuring the actions with the fully qualified class name (as if not using the SpringObjectFactory) It also added the ability to make use of constructor-based dependency injection without any further changes. The major caveat when using constructor-based DI is that objects passed in to the constructor must be unambiguous within the applicationContext (as is normally required by Spring) If there is any ambiguity, then you can still configure things the more traditional way, splitting the configuration of the action between **xwork.xml** and **applicationContext.xml** as described above.

One other advantage of the SpringObjectFactory approach is that it can also be used to load interceptors using the same sort of logic. If the interceptor is stateless, then it's possible to create the interceptor as a singleton instance, but otherwise it's best to create it as a Spring prototype.

In order to be used, the default ObjectFactory that XWork uses should be replaced with an instance of the SpringObjectFactory. The xwork-optional package ships with a ContextListener that does this, assuming that the Spring application context has already been configured.

ActionAutowiringInterceptor

Another alternative to using the SpringObjectFactory is to use the ActionAutowiringInterceptor. The interceptor will autowire any action class based on the autowire strategy defined. An advantage to using the interceptor over the SpringObjectFactory is that the action classes do not have to be defined in the Spring's application context. The following is an example of how it can be configured in xwork.xml:

```
<interceptors><interceptor name="autowire"
class="com.opensymphony.xwork.spring.interceptor.ActionAutowiringInterceptor"><param
name="autowireStrategy">1</param></interceptor><interceptor-stack
name="autowireDefault"><interceptor-ref name="autowire"/><interceptor-ref
name="defaultStack"/></interceptor-stack></interceptors>
```

Note that the autowireStrategy parameter is optional. If you do not define it, then the SpringObjectFactory will default to autowiring by name. The interceptor looks for Spring's application context in the XWork's application context. To initialize the application context, add the following listener to your web.xml:

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

You do not have to configure the SpringObjectFactory separately unless you plan on instantiating results, interceptors, or validators as Spring beans. As a convenience method to get access to the application context for other uses, it is placed in the ActionContext map under the key ActionAutowiringInterceptor.APPLICATION_CONTEXT for each Action.

Motivation

Spring currently does not support session scoped beans/components out of the box. You can decide between singleton or prototype lifecycle, but you cannot have your beans bound to the session lifecycle of web applications. There are plans for integrating such a feature in the Spring 2.0 release.

We will try to point out some possible workarounds for your WebWork based applications. First we look at the general solutions found among the Spring community, dealing with HttpSession and all that. After that we will discuss the special conditions and requirements found in XWork/WebWork and how that might affect possible solutions. We will show some XWork/WebWork specific solutions for the given problem.



The first milestone of Spring 2.0 (formerly 1.3) will be released the second week of December 2005. It is confirmed that it does contain Session Scope components using the Proxy (CGLIB or JDK) approach.

General Solutions for Webapplications

The Spring 2.0 Way

Interface21 added support for session (and request) scoped beans in Spring 2.0. This approach creates a CGLIB or JDK Dynamic proxy of the session scoped bean using the

org.springframework.aop.target.scope.ScopedProxyFactoryBean and setting the scopeMap to org.springframework.web.context.scope.SessionScopeMap.

Since the jars are backwards compatible simply build Spring and replace the jars shipped with WebWork. (Spring 2.0 M1 should be out by the time you read this.).

There are 2 ways to set this up depending upon whether or not XML simplification is used. The first method uses the traditional bean definitions and is useful to understand what is happening under the covers.

A modified applicationContext.xml for the shopping cart example using the traditional XML DTD is below.

```
<?xml version="1.0" encoding="UTF-8"?><!DOCTYPE beans PUBLIC "-//SPRING//DTD
BEAN//EN" "http://www.springframework.org/dtd/spring-beans.dtd"><beans>
  <bean id="shoppingCart"
class="org.springframework.aop.target.scope.ScopedProxyFactoryBean"
  singleton="false">
    <property name="scopeKey" value="shoppingCart"/><property
name="targetBeanName" value="__shoppingCart"/><property name="scopeMap"><bean
class="org.springframework.web.context.scope.SessionScopeMap"/></property></bean>

  <bean id="__shoppingCart"
class="com.opensymphony.webwork.example.ajax.cart.DefaultCart"
  singleton="false"/>

</beans>
```

A modified applicationContext.xml for the shopping cart example using the XML simplification is below.

```
<?xml version="1.0" encoding="UTF-8"?>
<beans
xmlns="http://www.springframework.org/schema/beans"xmlns:xsi="http://www.w3.org/2001/XMLSchema-
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">

  <bean id="catalog"
class="com.opensymphony.webwork.example.ajax.catalog.TestCatalog"
  singleton="true"/>

  <bean id="shoppingCart"
class="com.opensymphony.webwork.example.ajax.cart.DefaultCart"><aop:scope
type="session"/></bean></beans>
```

You will also need to modify the web.xml to include the following filter.

```
<filter><filter-name>springFilter</filter-name><filter-class>org.springframework.web.filter.Reg
```

Custom TargetSource with a ServletFilter

A quite "clean" solution for web applications in general can be found at [JA-SIG](#). The solution is well documented and can be found [here](#). Below you will find a WebWork adoption of this solution.

XWork/WebWork specific solutions

Preface

WebWork is based on XWork, and XWork is not tied to the web layer. So when dealing with session scoped objects, WW users might want to use XWork's session abstraction features to keep their application independent from the web context. This is why we will discuss some XW/WW specific solutions below.

Custom TargetSource, the WebWork way

Here is a modified version of the TargetSource solution pointed out above that integrates with the existing WebWork session and doesn't require an additional filter or listener. Usage is pretty much the same, create an interface for your object and make sure that you always use that interface and not the underlying implementation or autowiring will fail. You can find more information on how to make this work by looking at the [WebWorkTargetSource Shopping Cart Example](#).

```
WebWorkTargetSource.java
```

```

package org.tuxbot.webwork.spring;

/* Portions Copyright 2005 The JA-SIG Collaborative. All rights reserved.
 * See license distributed with this file and
 * available online at http://www.uportal.org/license.html
 */

import org.apache.commons.logging.Log;
import org.apache.commons.logging.LogFactory;
import org.springframework.aop.target.AbstractPrototypeBasedTargetSource;
import org.springframework.beans.factory.DisposableBean;
import com.opensymphony.xwork.ActionContext;

import java.util.Map;

/**
 * This target source is to be used in collaboration with WebWork.
 * The target source binds the target bean to the Session retrieved from
 * WebWork. By default the bean is bound to the session
 * using the name of the target bean as part of the key. This can be overridden by
 * setting
 * the sessionKey property to a not null value.
 *
 * @author Eric Dalquist <a href="mailto:edalquist@unicon.net">edalquist@unicon.net</a>
 * @author Eric Molitor <a href="mailto:eric@tuxbot.com">eric@tuxbot.com</a>
 * @version 1.0
 */
public class WebWorkTargetSource extends AbstractPrototypeBasedTargetSource
implements DisposableBean {
    private final static Log LOG = LogFactory.getLog(WebWorkTargetSource.class);

    private transient Object noSessionInstance = null;
    private String sessionKey = null;
    private String compiledSessionKey = null;

    public WebWorkTargetSource() {
        this.updateBeanKey();
    }

    /**
     * @return Returns the sessionKey.
     */
    public String getSessionKey() {
        return this.sessionKey;
    }

    /**
     * @param sessionKey The sessionKey to set.
     */
    public void setSessionKey(String sessionKey) {
        this.sessionKey = sessionKey;
        this.updateBeanKey();
    }

    /**
     * @see
     * org.springframework.aop.target.AbstractBeanFactoryBasedTargetSource#setTargetBeanName(java.lang.
     */
    public void setTargetBeanName(String targetBeanName) {
        super.setTargetBeanName(targetBeanName);
        this.updateBeanKey();
    }
}

```

```

/**
 * @see org.springframework.aop.TargetSource#getTarget()
 */
public Object getTarget() throws Exception {
    final Map session = ActionContext.getContext().getSession();

    if (session == null) {
        LOG.warn("No Session found for thread '" +
Thread.currentThread().getName() + "'");

        if (this.noSessionInstance == null) {
            this.noSessionInstance = this.newPrototypeInstance();

            if (LOG.isDebugEnabled()) {
                LOG.debug("Created instance of '" + this.getTargetBeanName() +
"', not bound to any webWorkSession.");
            }
        }
        else {
            if (LOG.isDebugEnabled()) {
                LOG.debug("Found instance of '" + this.getTargetBeanName() + "',
not bound to any webWorkSession.");
            }
        }

        return this.noSessionInstance;
    }
    else {
        String beanKey = this.compiledSessionKey;

        Object instance = session.get(beanKey);
        if (instance == null) {
            instance = this.newPrototypeInstance();
            session.put(beanKey, instance);

            if (LOG.isDebugEnabled()) {
                LOG.debug("Created instance of '" + this.getTargetBeanName() +
"', bound to webWorkSession for '"
+ Thread.currentThread().getName() + "' using key '" +
beanKey + "'.");
            }
        }
        elseif (LOG.isDebugEnabled()) {
            LOG.debug("Found instance of '" + this.getTargetBeanName() + "',
bound to webWorkSession for '"
+ Thread.currentThread().getName() + "' using key '" +
beanKey + "'.");
        }

        return instance;
    }
}

/**
 * @see org.springframework.beans.factory.DisposableBean#destroy()
 */
public void destroy() throws Exception {
    if (this.noSessionInstance != null && this.noSessionInstance instanceof
DisposableBean) {
        if (LOG.isDebugEnabled()) {
            LOG.debug("Destroying sessionless bean instance '" +

```

```

.noSessionInstance + "");
    }

    ((DisposableBean)this.noSessionInstance).destroy();
}

/**
 * Generates the key to store the bean in the session with.
 */
private void updateBeanKey() {
    if (this.sessionKey == null) {
        finalStringBuffer buff = newStringBuffer();

        buff.append(this.getClass().getName());
        buff.append("_");
        buff.append(this.getTargetBeanName());

        this.compiledSessionKey = buff.toString();
    }
    else {
        this.compiledSessionKey = this.sessionKey;
    }
}
}

```

Customized Implementation

ApplicationContext

TODO: Document

Customized WW/XW ObjectFactory

TODO: Document

Session backed Bean Factory

The idea is to simply create a retrieve-or-create bean factory:

SessionBackedBeanFactory.java

```

package net.itneering.core.spring.session;

import org.springframework.beans.BeansException;

```

```

import org.springframework.beans.factory.BeanFactory;
import org.springframework.beans.factory.BeanFactoryAware;

import com.opensymphony.xwork.ActionContext;

import java.util.Map;
import java.io.Serializable;

/**
 * SessionBackedBeanFactory tries to lookup beans by name in XWork session. If not
 * found,
 * it tries to instantiate new bean and attaches it to said session.
 *
 * @author <a href="mailto:gielen@it-neering.net">Rene Gielen</a>
 */

public class SessionBackedBeanFactory implements Serializable, BeanFactoryAware {

    BeanFactory beanFactory = null;

    /**
     * Find a component by name in session scoped storage implementation. If not
     * found, try to instantiate new one by
     * {@link org.springframework.beans.factory.BeanFactory#getBean(String)}. Then
     * found component will be attached
     * to session store implementation.
     *
     * @param componentName
     * @return The requested component, if found.
     */
    public Object getSessionComponent( String componentName ) {
        Object result = getSession().get(componentName);
        if ( result == null ) {
            result = beanFactory.getBean(componentName);
            storeComponent(componentName, result);
        }
        return result;
    }

    public void storeComponent(String componentName, Object component ) {
        getSession().put(componentName, component);
    }

    /**
     * Actual implementation of the session scoped storage Map.
     * Lookup {@link com.opensymphony.xwork.ActionContext#getSession()}.
     *
     * @return The Map for keeping session objects.
     */
    public Map getSession() {
        return ActionContext.getContext().getSession();
    }

    /**
     * Callback that supplies the owning factory to a bean instance.
     * <p>Invoked after population of normal bean properties but before an init
     * callback like InitializingBean's afterPropertiesSet or a custom init-method.
     *
     * @param beanFactory owning BeanFactory (may not be null).
     * The bean can immediately call methods on the factory.
     *
     * @throws org.springframework.beans.BeansException

```

```

    *          in case of initialization errors
    * @see org.springframework.beans.factory.BeanInitializationException
    */
    public void setBeanFactory( BeanFactory beanFactory ) throws BeansException {
        this.beanFactory = beanFactory;
    }
}

```

Example applicationContext setup (note that the session scoped bean has to be setup with singleton="false"):

applicationContext.xml

```

<?xml version="1.0" encoding="UTF-8"?><!DOCTYPE beans PUBLIC "-//SPRING//DTD
BEAN//EN" "http://www.springframework.org/dtd/spring-beans.dtd"><beans
default-autowire="byName"><bean id="sessionBeanProxy"
class="net.itneering.core.spring.session.SessionBackedBeanFactory"
singleton="true"/><bean id="securityContextComponent"
class="net.itneering.security.component.DefaultSecurityContextComponent"
singleton="false" /></beans>

```

Example action use:

SecurityAwareAction.java

```

package net.itneering.xwork.action;

import com.opensymphony.xwork.ActionSupport;
import net.itneering.core.spring.session.SessionBackedBeanFactory;
import net.itneering.security.component.DefaultSecurityContextComponent;

/**
 * Simple sessionBeanProxy aware action.
 *
 * @author <a href="mailto:gielen@it-neering.net">Rene Gielen</a>
 * @version $Revision: 1.1 $
 */

public class SecurityAwareAction extends ActionSupport implements PrincipalAware {

    private static final Logger log = Logger.getLogger(SecurityAwareAction.class);

    protected SessionBackedBeanFactory sessionBeanProxy;

    /**
     * For Spring wiring usage.
     *
     * @param sessionBeanProxy The sessionBeanProxy to use.
     */
    public void setSessionBeanProxy( SessionBackedBeanFactory sessionBeanProxy ) {
        this.sessionBeanProxy = sessionBeanProxy;
    }

    /**
     * Getter for actions security context.
     */
}

```

```

    * @return The securityContextComponent set by IoC.
    */
    public SecurityContextComponent getSecurityContextComponent() {
        return sessionBeanProxy != null ?
        sessionBeanProxy.getSessionComponent("securityContextComponent") : null;
    }

    /**
     * Get the current User Principal for this session.
     *
     * @return The User Principal.
     */
    public UserEntity getPrincipal() {
        try {
            return getSecurityContextComponent().getPrincipal();
        } catch ( NullPointerException e ) {
            return null;
        }
    }
    ...
}

```

For well known session scoped components, you might get more convenience by subclassing SessionBackedBeanFactory:

SecurityAwareSessionBeanProxy.java

```

package net.itneering.security.component;

import net.itneering.core.spring.session.SessionBackedBeanFactory;

/**
 * SecurityAwareSessionBeanProxy.
 *
 * @author <a href="mailto:gielen@it-neering.net">Rene Gielen</a>
 */
public class SecurityAwareSessionBeanProxy extends SessionBackedBeanFactory {

    String securityContextComponentName = "securityContextComponent";

    /**
     * Make component name configurable by spring setup
     */
    public void setSecurityContextComponentName( String securityContextComponentName
    ) {
        this.securityContextComponentName = securityContextComponentName;
    }

    public SecurityContextComponent getSecurityContextComponent() {
        return (SecurityContextComponent)
        getSessionComponent(securityContextComponentName);
    }
}

```

Again example applicationContext setup:

applicationContext2.xml

```
<?xml version="1.0" encoding="UTF-8"?><!DOCTYPE beans PUBLIC "-//SPRING//DTD  
BEAN//EN" "http://www.springframework.org/dtd/spring-beans.dtd"><beans  
default-autowire="byName"><bean id="mySecurityContextComponent"  
class="net.itneering.security.component.DefaultSecurityContextComponent"  
singleton="false" /><bean id="sessionBeanProxy"  
class="net.itneering.security.component.SecurityAwareSessionBeanProxy"  
singleton="true"><property name="securityContextComponentName"  
value="mySecurityContextComponent" /></bean></beans>
```

Example action use:

SecurityAwareAction2.java

```
package net.itneering.xwork.action;  
  
import com.opensymphony.xwork.ActionSupport;  
import net.itneering.security.component.SecurityAwareSessionBeanProxy;  
import net.itneering.security.component.DefaultSecurityContextComponent;  
  
/**  
 * Simple sessionBeanProxy aware action.  
 *  
 * @author <a href="mailto:gielen@it-neering.net">Rene Gielen</a>  
 * @version $Revision: 1.1 $  
 */  
  
public class SecurityAwareAction extends ActionSupport implements PrincipalAware {  
    private static final Logger log = Logger.getLogger(SecurityAwareAction.class);  
    protected SecurityAwareSessionBeanProxy sessionBeanProxy;  
  
    /**  
     * For Spring wiring usage.  
     *  
     * @param sessionBeanProxy The sessionBeanProxy to use.  
     */  
    public void setSessionBeanProxy( SecurityAwareSessionBeanProxy sessionBeanProxy  
    ) {  
        this.sessionBeanProxy = sessionBeanProxy;  
    }  
  
    /**  
     * Get the current User Principal for this session.  
     *  
     * @return The User Principal.  
     */  
    public UserEntity getPrincipal() {  
        try {  
            return sessionBeanProxy.getSecurityContextComponent().getPrincipal();  
        } catch ( NullPointerException e ) {  
            return null;  
        }  
    }  
    ...  
}
```

As said, the solution is very simple. You will get no ties to web layer, and the configuration is really simple, there is no need for proxy definitions in applicationContext.xml etc.

The main disadvantage is that you will not be able to wire session scoped beans directly into your actions, you will have to use the indirection via the session backed bean factory. And, as always when dealing with XWork session abstraction, you have to take care for a action context to be setup.

Auto proxied Session backed Component Factory

Does anyone have an implementation of this? (Eric Molitor)

The intention was a bit different for this one, so I tried to clarify headings. Nice idea, though ... (Rene Gielen).

The theory here is to create a custom Pointcut class that utilizes the ComponentConfiguration retrieved from the DefaultComponentManager (which loads the Component list from components.xml). The getClassFilter() matches anything that implements one of the Components in the ComponentConfiguration. The Pointcut is then registered as an advisor for all beans (AutoProxy via Springs DefaultAdvisorAutoProxyCreator). The Advice implementation looks at which Component is implmented and fetches the apporiate value out of the Session and calls the Components setter method.

TODO: Document, create example

WebWorkTargetSource Shopping Cart Example

Here is a modified version of the shopping cart example which uses the WebWorkTargetSource. Its a quick hack to show how the WebWorkTargetSource and not as a complete solution or template for usage. If my documentation is unclear (probable) or none of this makes sense (quite possible too) then just replace the existing versions of DefaultCart.java and applicationContext.xml with these versions and fire up the example.

DefaultCart Modifications

Two modifications to DefaultCart.java are necessary in order to make the autowiring work. When spring goes to look for beans to autowire it will see two ShoppingCarts and barf as for autowiring to work it needs to see only one. To avoid this the DefaultCart has been modified to not implement the ShoppingCart interface. However there is a fun inner class and inner interface that makes this change a bit more complex. In order to make the DefaultCart compile (and still work) all references to CartEntry need to be changed to ShoppingCart.CartEntry.

DefaultCart.java

```
package com.opensymphony.webwork.example.ajax.cart;

import com.opensymphony.webwork.example.ajax.catalog.Product;

import java.util.HashMap;
import java.util.HashSet;
import java.util.Map;
import java.util.Set;

import sun.reflect.Reflection;

/**
 * DefaultCart - Poorly Modified by Eric Molitor <eric@tuxbot.com>
 *
 * @author Jason Carreira <jcarreira@eplus.com>
```

```

*/
public class DefaultCart {
    Map contents = new HashMap();

    public static DefaultCart getCart() {
        return new DefaultCart();
    }

    public void addToCart(int quantity, Product product) {
        ShoppingCart.CartEntry entry = (ShoppingCart.CartEntry)
contents.get(product);
        if (entry == null) {
            entry = new DefaultCartEntry(quantity, product);
            contents.put(product, entry);
        } else {
            entry.setQuantity(entry.getQuantity() + quantity);
        }
    }

    public void setQuantity(int quantity, Product product) {
        if (quantity <= 0) {
            contents.remove(product);
            return;
        }
        ShoppingCart.CartEntry entry = (ShoppingCart.CartEntry )
contents.get(product);
        if (entry == null) {
            entry = new DefaultCartEntry(quantity, product);
            contents.put(product, entry);
        } else {
            entry.setQuantity(quantity+entry.getQuantity());
        }
    }

    public void removeFromCart(Product product) {
        contents.remove(product);
    }

    public Set getContents() {
        return new HashSet(contents.values());
    }

    public int getQuantityForProduct(Product product) {
        ShoppingCart.CartEntry entry = (ShoppingCart.CartEntry)
contents.get(product);
        if (entry == null) {
            return 0;
        }
        return entry.getQuantity();
    }

    public String toString() {
        return "DefaultCart{" +
            "contents=" + contents +
            "}";
    }

    public static Object getBean() {

        System.out.println("!!!!!!!!!!!!!! Parent is:" + Reflection.getCallerClass(1));
        new Exception("poo").printStackTrace();
        return new DefaultCart();
    }
}

```

```

    }

    class DefaultCartEntry implements ShoppingCart.CartEntry {
        private int quantity;
        private Product product;

        public DefaultCartEntry(int quantity, Product product) {
            this.quantity = quantity;
            this.product = product;
        }

        public int getQuantity() {
            return quantity;
        }

        public void setQuantity(int quantity) {
            this.quantity = quantity;
        }

        public Product getProduct() {
            return product;
        }
    }
}

```

applicationContext.xml Modifications

In order to get a session specific shopping cart we need to modify the applicationContext to call our WebWorkTargetSource. We do this by using a ProxyFactory which creates an object based on our interface (ShoppingCart) and uses the targetSource to invoke our custom TargetSource (WebWorkTargetSource). WebWorkTargetSource however needs to know the underlying implementation in order to fetch and create new instances. We pass a reference to the new shoppingCartTarget bean definition which just references our new DefaultCart. In order to keep things from getting confused we're set both beans to autowire by name.

```

<?xml version="1.0" encoding="UTF-8"?><!DOCTYPE beans PUBLIC "-//SPRING//DTD
BEAN//EN" "http://www.springframework.org/dtd/spring-beans.dtd"><beans
default-autowire="autodetect">

    <bean id="catalog"
        singleton="true"
        class="com.opensymphony.webwork.example.ajax.catalog.TestCatalog"/>

    <bean id="shoppingCart"
        class="org.springframework.aop.framework.ProxyFactoryBean"
        autowire="byName"><property
        name="proxyTargetClass"><value>true</value></property><property
        name="proxyInterfaces"><list><value>com.opensymphony.webwork.example.ajax.cart.ShoppingCart</value></list></property><property
        name="targetSource"><bean
        class="org.tuxbot.webwork.spring.WebWorkTargetSource"><property

```

```
"targetBeanName"><value>shoppingCartTarget</value></property></bean></property></bean>

<bean id="shoppingCartTarget"
      class="com.opensymphony.webwork.example.ajax.cart.DefaultCart"
      singleton="false" autowire="byName">
</bean></beans>
```

Overview

WebWork provides the ability to chain multiple actions into a defined sequence or workflow. This feature works by applying a [Chain Result](#) to a given action, and intercepting its target action's invocation with a [ChainingInterceptor](#).



Warning

In general, Action Chaining is not recommended. However, there are other options, such as the [redirect after post](#) technique.

Chain Result

The [Chain Result](#) is a result type that invokes an action with its own interceptor stack and result. This allows an action to forward requests to a target action, while propagating the state of the source action. Below is an example of how to define this sequence.

```
<package name="public" extends="webwork-default"><!-- Chain creatAccount to login,
using the default parameter --><action name="createAccount" class="..."><result
type="chain">login</result></action><action name="login" class="..."><!-- Chain to
another namespace --><result type="chain"><param
name="actionName">dashboard</param><param
name="namespace">/secure</param></result></action></package><package name="secure"
extends="webwork-default" namespace="/secure"><action name="dashboard"
class="..."><result>dashboard.jsp</result></action></package>
```

Another action in the same namespace (or the default "" namespace) can be executed after this action (see [Configuration Files](#)). An optional "namespace" parameter may also be added to specify an action in a different namespace.

Chaining Interceptor

If you need to copy the properties from your previous Actions in the chain to the current action, you should apply the [ChainingInterceptor](#). The interceptor will copy the original parameters from the request, and the ValueStack is passed in to the target action. The source action is remembered by the ValueStack, allowing the target action to access the properties of the preceding action(s) using the ValueStack, and also makes these properties available to the final result of the chain, such as the JSP or Velocity page.

One common use of action chaining is to provide lookup lists (like for a dropdown list of states, etc). Since these actions get put on the ValueStack, these properties will be available in the view. This functionality can also be done using the ActionTag to execute an action from the display page. You may also use the [Redirect Action Result](#) to accomplish this.

ActionMapper

The ActionMapper is responsible for providing a mapping between HTTP requests and action invocation requests and vice-versa. When given an `HttpServletRequest`, the ActionMapper may return null if no action invocation request maps, or it may return an `ActionMapping` that describes an action invocation that WebWork should attempt to try. The ActionMapper is not required to guarantee that the `ActionMapping` returned be a real action or otherwise ensure a valid request. This means that most ActionMappers do not need to consult WebWork's configuration to determine if a request should be mapped.

Just as requests can be mapped from HTTP to an action invocation, the opposite is true as well. However, because HTTP requests (when shown in HTTP responses) must be in String form, a String is returned rather than an actual request object.

DefaultActionMapper

By default, the `DefaultActionMapper` is used:

Default action mapper implementation, using the standard `*.[ext]` (where ext usually "action") pattern. The extension is looked up from the WebWork configuration key **webwork.action.exaction**.

To help with dealing with buttons and other related requirements, this mapper (and other ActionMappers, we hope) has the ability to name a button with some predefined prefix and have that button name alter the execution behaviour. The four prefixes are:

-
- Method prefix - *method:default*

-
- Action prefix - *action:dashboard*
-
- Redirect prefix - *redirect:cancel.jsp*
-
- Redirect-action prefix - *redirect-action:cancel*
-

In addition to these four prefixes, this mapper also understands the action naming pattern of *foo!bar* in either the extension form (eg: *foo!bar.action*) or in the prefix form (eg: *action:foo!bar*). This syntax tells this mapper to map to the action named *foo* and the method *bar*.

Method prefix

With method-prefix, instead of calling baz action's `execute()` method (by default if it isn't overridden in `xwork.xml` to be something else), the baz action's `anotherMethod()` will be called. A very elegant way determine which button is clicked. Alternatively, one would have submit button set a particular value on the action when clicked, and the `execute()` method decides on what to do with the setted value depending on which button is clicked.

```
<ww:form name="baz"><ww:textfield label="Enter your name"
name="person.name"/><ww:submit value="Create person"/><ww:submit
name="method:anotherMethod" value="Cancel"/></ww:form>
```

Action prefix

With action-prefix, instead of executing baz action's `execute()` method (by default if it isn't overridden in `xwork.xml` to be something else), the `anotherAction` action's `execute()` method (assuming again if it isn't overridden with something else in `xwork.xml`) will be executed.

```
<ww:form name="baz"><ww:textfield label="Enter your name"
name="person.name"/><ww:submit value="Create person"/><ww:submit
name="action:anotherAction" value="Cancel"/></ww:form>
```

Redirect prefix

With redirect-prefix, instead of executing baz action's execute() method (by default it isn't overridden in xwork.xml to be something else), it will get redirected to, in this case to www.google.com. Internally it uses ServletRedirectResult to do the task.

```
<ww:form name="baz"><ww:textfield label="Enter your name"
name="person.name"/><ww:submit value="Create person"/><ww:submit
name="redirect:www.google.com" value="Cancel"/></ww:form>
```

Redirect-action prefix

With redirect-action-prefix, instead of executing baz action's execute() method (by default it isn't overridden in xwork.xml to be something else), it will get redirected to, in this case 'dashboard.action'. Internally it uses ServletRedirectResult to do the task and read off the extension from the webwork.properties.

```
<ww:form name="baz"><ww:textfield label="Enter your name"
name="person.name"/><ww:submit value="Create person"/><ww:submit
name="redirect-action:dashboard" value="Cancel"/></ww:form>
```

ActionMapperFactory

You can define your own ActionMapper by configuring the ActionMapperFactory:

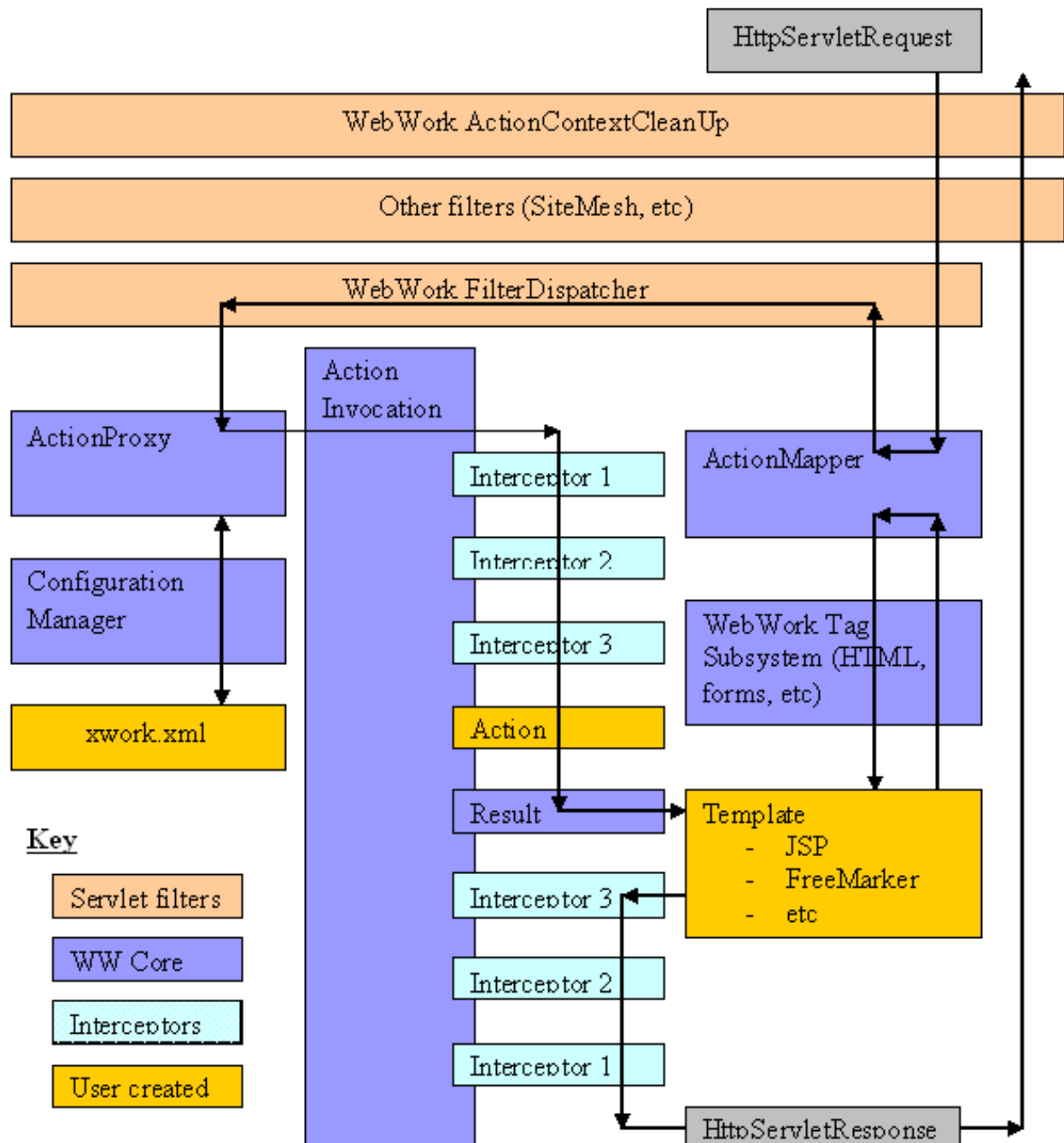
Factory that creates ActionMappers. This factory looks up the class name of the ActionMapper from WebWork's configuration using the key **webwork.mapper.class**.

Possible uses of the ActionMapper include defining your own, cleaner namespaces, such as URLs like **/person/1**, which would be similar to a request to **/getPerson.action?personID=1** using the DefaultActionMapper.

Architecture

This page last changed on Jan 01, 2006 by [tm_je](#).

The WebWork architecture can best be explained with a diagram:



In the diagram, an initial request goes to the Servlet container (such as Tomcat or Resin), the request goes through the standard filter chain. This includes the (optional)

ActionContextCleanUp filter, which is required if you wish to integrate in with technologies such as [SiteMesh](#). Next, the required **FilterDispatcher** is called, which in turn consults the [ActionMapper](#) to determine if the request should invoke an action.

If the ActionMapper determines that an action should be invoked, the FilterDispatcher than delegates to the **ActionProxy**, which in turn consults the WebWork [Configuration Files](#) manager, which finally reads your [xwork.xml](#) file. Next, the ActionProxy creates an **ActionInvocation**, which is responsible for the command pattern implementation. This includes invoking any **interceptors** (the *before()* method) before finally invoking the **action** itself.

Once the action returns, the ActionInvocation is responsible for looking up the proper **result** associated with the **action result code** mapped in xwork.xml. The result is then executed, which often (but not always, as is the case for [Action Chaining](#)) involves a template written in [JSP](#) or [FreeMarker](#) to be rendered. While rendering, the templates can utilize the [Tags](#) provided by WebWork. Some of those components will work with the ActionMapper to render proper URLs for additional requests.



All objects in this architecture (action, result, interceptor, etc) are created by an ObjectFactory. This ObjectFactory is pluggable and is how frameworks like [Spring](#) and [Pico](#) integrate. You can also provide your own ObjectFactory for any reason that requires knowing when objects in WebWork are created.

Finally, the interceptors are executed again (in reverse order, calling the *after()* method) and finally returning back through the filters configured in web.xml. If the **ActionContextCleanUp** filter is present, the FilterDispatcher will *not* clean up the ThreadLocal **ActionContext**. If the **ActionContextCleanUp** filter is not present, the FilterDispatcher will cleanup all ThreadLocals.

Main Configuration Files

WebWork has two main configuration files you need to be aware of: `web.xml` and `xwork.xml`. Here you will find out all the information you need for both WebWork's required and optional configuration files.

Below are all the files that you may need to be aware of. Some of this configuration files can be reloaded dynamically, making development much easier. See [Reloading configuration](#) for more information.

File	Optional	Location (relative to webapp)	Purpose
web.xml	no	/WEB-INF/	Web deployment descriptor to include all necessary WebWork components
xwork.xml	no	/WEB-INF/classes/	Main configuration, contains result/view types, action mappings, interceptors, etc
webwork.properties	yes	/WEB-INF/classes/	WebWork properties
webwork-default.xml	yes	/WEB-INF/lib/webwork-default/	Default configuration that should be included in <code>xwork.xml</code>
velocity.properties	yes	/WEB-INF/classes/	Override the default velocity

			configuration
--	--	--	---------------

Static Content

Common static content that is needed by webwork (JavaScript and CSS files, etc.) is served automatically by the `FilterDispatcher` filter. Any request starting with `"/webwork/"` denotes that static content is required, and then mapping the value after `"/webwork/"` to common packages in WebWork and, optionally in your class path.

By default, the following packages are searched:

- `com.opensymphony.webwork.static`
- `template`

Additional packages can be specified by providing a comma separated list to the configuration parameter named `"packages"` (configured in `web.xml` for the `FilterDispatcher` filter). When specifying additional static content, you should be careful not to expose sensitive configuration information (i.e. database password).

Reloading configuration

This page last changed on May 14, 2004 by [mgreer](#).

Webwork allows for dynamic reloading of xml configuration file (ie, reloading actions.xml).

This allows you to reconfigure your action mapping during development. There may be a slight performance penalty, so this is not recommended for production use.

In order to enable this feature, add the following to your webwork.properties file:

```
webwork.configuration.xml.reload=true
```


web.xml

This page last changed on Aug 30, 2005 by [plightbo](#).

For those using all the latest features of WebWork and have no requirement for backwards compatibility, configuring web.xml is a matter of adding a single filter and, if you're using JSP, a taglib. However, those upgrading from version 2.1.7 or earlier may need to do a bit more work to get everything in order. See [web.xml 2.1.x compatibility](#) for more information.

The filter is configured as:

```
<filter><filter-name>webwork</filter-name><filter-class>com.opensymphony.webwork.dispatcher.Filter
```

For those using JSP, you may also configuration the tag library as:

```
<!--  
    This typically isn't required, as the taglib is included in webwork.jar.  
    If you really need a taglib configuration within web.xml, copy  
webwork/src/java/META-INF/taglib.tld  
    to the WEB-INF directory as webwork.tld.  
-->  
<!--taglib><taglib-uri>webwork</taglib-uri><taglib-location>/WEB-INF/webwork.tld</taglib-location>
```

web.xml 2.1.x compatibility

This page last changed on Dec 12, 2005 by bruce@jivesoftware.com.

Before WebWork 2.2, a `ServletDispatcher` was used to handle action requests. In addition, JSP tags were emulated from within Velocity. WebWork 2.2 made a key changes in this area: The `ServletDispatcher` was deprecated and replaced with a `FilterDispatcher`. This generally works perfectly for users who follow the best practices of WebWork, which is what version 2.2 is pushing. However, due to some small behavioral changes in WebWork 2.2, older applications may require the `ServletDispatcher`.

The biggest change to note is that any application that was including another action, either via a result dispatcher or `jsp/ww:include` tag, no longer works with the `FilterDispatcher`. This is because Servlet containers don't support `RequestDispatchers` out to filter mappings – only servlet mappings are supported. To get around this, you can either change your code to use action chaining in liue of a result dispatcher and the `ww:action` tag in liue of a `jsp/ww:include`.

As a consequence of switching the `FilterDispatcher`, JSP tag emulation from within Velocity does not work. While this feature was never fully robust and supported, we recognize that many users take advantage of this feature. As of WebWork 2.2, native Velocity tags are supplied and are the only supported tags within WebWork/Velocity integration.

However, we do provide a deprecated way to avoid changing your code. We recommend that when possible you update your code as suggested. In the meantime, you may add the following Servlets to [web.xml](#):

```
<servlet><servlet-name>JspSupportServlet</servlet-name><servlet-class>com.opensymphony.webwork.v
```

webwork-default.xml

This page last changed on Jan 08, 2006 by [plightbo](#).

A base configuration file named webwork-default.xml is included in the webwork jar file. This file may be included at the top of your xwork.xml file to include the standard configuration settings without having to copy them, like so:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd"><xwork><include
file="webwork-default.xml"/><package name="default" extends="webwork-default">
...
</package></xwork>
```

The contents of webwork-default.xml are here:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.1.dtd"><xwork><package
name="webwork-default"><result-types><result-type name="chain"
class="com.opensymphony.xwork.ActionChainResult"/>
    <result-type name="dispatcher"
class="com.opensymphony.webwork.dispatcher.ServletDispatcherResult"
    default="true"/>
    <result-type name="freemarker"
class="com.opensymphony.webwork.views.freemarker.FreemarkerResult"/><result-type
name="httpheader"
class="com.opensymphony.webwork.dispatcher.HttpHeaderResult"/><result-type
name="jasper"
class="com.opensymphony.webwork.views.jasperreports.JasperReportsResult"/><result-type
name="redirect" class="com.opensymphony.webwork.dispatcher.ServletRedirectResult"/>
    <result-type name="redirect-action"
        class="com.opensymphony.webwork.dispatcher.ServletActionRedirectResult"/>
    <result-type name="stream"
class="com.opensymphony.webwork.dispatcher.StreamResult"/><result-type
name="velocity"
class="com.opensymphony.webwork.dispatcher.VelocityResult"/><result-type name="xslt"
class="com.opensymphony.webwork.views.xslt.XSLTResult"/></result-types><interceptors><interceptor
name="alias" class="com.opensymphony.xwork.interceptor.AliasInterceptor"/>
    <interceptor name="autowiring"
        class="com.opensymphony.xwork.spring.interceptor.ActionAutowiringInterce
    <interceptor name="chain"
class="com.opensymphony.xwork.interceptor.ChainingInterceptor"/><interceptor
name="component"
class="com.opensymphony.xwork.interceptor.component.ComponentInterceptor"/>
    <interceptor name="conversionError"
        class="com.opensymphony.webwork.interceptor.WebWorkConversionErrorInter
    <interceptor name="external-ref"
class="com.opensymphony.xwork.interceptor.ExternalReferencesInterceptor"/><interceptor
name="execAndWait"
class="com.opensymphony.webwork.interceptor.ExecuteAndWaitInterceptor"/><interceptor
name="exception"
class="com.opensymphony.xwork.interceptor.ExceptionMappingInterceptor"/><interceptor
name="fileUpload"
class="com.opensymphony.webwork.interceptor.FileUploadInterceptor"/><interceptor
name="i18n" class="com.opensymphony.xwork.interceptor.I18nInterceptor"/><interceptor
```

```

name="logger"
class="com.opensymphony.xwork.interceptor.LoggingInterceptor"/><interceptor
name="model-driven"
class="com.opensymphony.xwork.interceptor.ModelDrivenInterceptor"/><interceptor
name="params"
class="com.opensymphony.xwork.interceptor.ParametersInterceptor"/><interceptor
name="prepare"
class="com.opensymphony.xwork.interceptor.PrepareInterceptor"/><interceptor
name="static-params"
class="com.opensymphony.xwork.interceptor.StaticParametersInterceptor"/><interceptor
name="scope"
class="com.opensymphony.webwork.interceptor.ScopeInterceptor"/><interceptor
name="servlet-config"
class="com.opensymphony.webwork.interceptor.ServletConfigInterceptor"/>
    <interceptor name="sessionAutowiring"
        class="com.opensymphony.webwork.spring.interceptor.SessionContextAutowiringInterceptor"/>
    <interceptor name="timer"
class="com.opensymphony.xwork.interceptor.TimerInterceptor"/><interceptor
name="token" class="com.opensymphony.webwork.interceptor.TokenInterceptor"/>
    <interceptor name="token-session"
        class="com.opensymphony.webwork.interceptor.TokenSessionStoreInterceptor"/>
    <interceptor name="validation"
class="com.opensymphony.xwork.validator.ValidationInterceptor"/><interceptor
name="workflow"
class="com.opensymphony.xwork.interceptor.DefaultWorkflowInterceptor"/><!-- Basic
stack --><interceptor-stack name="basicStack"><interceptor-ref
name="exception"/><interceptor-ref name="servlet-config"/><interceptor-ref
name="prepare"/><interceptor-ref name="static-params"/><interceptor-ref
name="params"/><interceptor-ref name="conversionError"/></interceptor-stack><!--
Sample validation and workflow stack --><interceptor-stack
name="validationWorkflowStack"><interceptor-ref name="basicStack"/><interceptor-ref
name="validation"/><interceptor-ref name="workflow"/></interceptor-stack><!-- Sample
file upload stack --><interceptor-stack name="fileUploadStack"><interceptor-ref
name="fileUpload"/><interceptor-ref name="basicStack"/></interceptor-stack>

    <!-- Sample WebWork Inversion of Control stack
        Note: WebWork's IoC is deprecated - please
        look at alternatives such as Sprint -->
    <interceptor-stack name="componentStack"><interceptor-ref
name="component"/><interceptor-ref name="basicStack"/></interceptor-stack><!--
Sample model-driven stack --><interceptor-stack
name="modelDrivenStack"><interceptor-ref name="model-driven"/><interceptor-ref
name="basicStack"/></interceptor-stack><!-- Sample action chaining stack
--><interceptor-stack name="chainStack"><interceptor-ref
name="chain"/><interceptor-ref name="basicStack"/></interceptor-stack><!-- Sample
i18n stack --><interceptor-stack name="i18nStack"><interceptor-ref
name="i18n"/><interceptor-ref name="basicStack"/></interceptor-stack>

    <!-- Sample execute and wait stack.
        Note: execAndWait should always be the *last* interceptor. -->
    <interceptor-stack name="executeAndWaitStack"><interceptor-ref
name="basicStack"/><interceptor-ref name="execAndWait"/></interceptor-stack>

    <!-- An example of the params-prepare-params trick. This stack
        is exactly the same as the defaultStack, except that it
        includes one extra interceptor before the prepare interceptor:
        the params interceptor.

        This is useful for when you wish to apply parameters directly
        to an object that you wish to load externally (such as a DAO
        or database or service layer), but can't load that object
        until at least the ID parameter has been loaded. By loading

```

```

        the parameters twice, you can retrieve the object in the
        prepare() method, allowing the second params interceptor to
        apply the values on the object. -->
        <interceptor-stack name="paramsPrepareParamsStack"><interceptor-ref
name="exception"/><interceptor-ref name="alias"/><interceptor-ref
name="params"/><interceptor-ref name="servlet-config"/><interceptor-ref
name="prepare"/><interceptor-ref name="i18n"/><interceptor-ref
name="chain"/><interceptor-ref name="model-driven"/><interceptor-ref
name="fileUpload"/><interceptor-ref name="static-params"/><interceptor-ref
name="params"/><interceptor-ref name="conversionError"/><interceptor-ref
name="validation"><param
name="excludeMethods">input,back,cancel</param></interceptor-ref><interceptor-ref
name="workflow"><param
name="excludeMethods">input,back,cancel</param></interceptor-ref></interceptor-stack>

        <!-- A complete stack with all the common interceptors in place.
        Generally, this stack should be the one you use, though it
        may may do more than you need. Also, the ordering can be
        switched around (ex: if you wish to have your servlet-related
        objects applied before prepare() is called, you'd need
        servlet-config interceptor up.

        This stack also excludes from the normal validation and workflow
        the method names input, back, and cancel. These typically are
        associated with requests that should not be validated.
        -->
        <interceptor-stack name="defaultStack"><interceptor-ref
name="exception"/><interceptor-ref name="alias"/><interceptor-ref
name="servlet-config"/><interceptor-ref name="prepare"/><interceptor-ref
name="i18n"/><interceptor-ref name="chain"/><interceptor-ref
name="model-driven"/><interceptor-ref name="fileUpload"/><interceptor-ref
name="static-params"/><interceptor-ref name="params"/><interceptor-ref
name="conversionError"/><interceptor-ref name="validation"><param
name="excludeMethods">input,back,cancel</param></interceptor-ref><interceptor-ref
name="workflow"><param
name="excludeMethods">input,back,cancel</param></interceptor-ref></interceptor-stack>

        <!-- The completeStack is here for backwards compatibility for
        applications that still refer to the defaultStack by the
        old name -->
        <interceptor-stack name="completeStack"><interceptor-ref
name="defaultStack"/></interceptor-stack></interceptors><default-interceptor-ref
name="defaultStack"/></package></xwork>

```

This file defines all of the default bundled results and interceptors and many interceptor stacks which you can use either as-is or as a basis for your own application-specific interceptor stacks. **Notice the name of the package is "webwork-default".**

webwork.properties

This page last changed on Aug 30, 2005 by [plightbo](#).

WebWork uses a number of properties that can be changed to fit your needs. To change them, specify your values in `webwork.properties` in the classpath (typically `/WEB-INF/classes`). The list of properties can be found in `default.properties` (inside `webwork.jar`):

```
### Webwork default properties
###(can be overridden by a webwork.properties file in the root of the classpath)
###

### Specifies the Configuration used to configure webwork
### one could extend com.opensymphony.webwork.config.Configuration
### to build one's customize way of getting the configurations parameters into
webwork
# webwork.configuration=com.opensymphony.webwork.config.DefaultConfiguration

### This can be used to set your default locale and encoding scheme
# webwork.locale=en_US
webwork.il8n.encoding=UTF-8

### if specified, the default object factory can be overridden here
### Note: short-hand notation is supported in some cases, such as "spring"
### Alternatively, you can provide a com.opensymphony.xwork.ObjectFactory
subclass name here
# webwork.objectFactory = spring

### specifies the autoWiring logic when using the SpringObjectFactory.
### valid values are: name, type, auto, and constructor (name is the default)
webwork.objectFactory.spring.autoWire = name

### Parser to handle HTTP POST requests, encoded using the MIME-type
multipart/form-data
# webwork.multipart.parser=cos
# webwork.multipart.parser=pell
webwork.multipart.parser=jakarta
# uses javax.servlet.context.tempdir by default
webwork.multipart.saveDir=
webwork.multipart.maxSize=2097152

### Load custom property files (does not override webwork.properties!)
# webwork.custom.properties=application,com/webwork/extension/custom

### How request URLs are mapped to and from actions
webwork.mapper.class=com.opensymphony.webwork.dispatcher.mapper.DefaultActionMapper

### Used by the DefaultActionMapper
webwork.action.extension=action

### use alternative syntax that requires %{ } in most places
### to evaluate expressions for String attributes for tags
webwork.tag.altSyntax=true

### when set to true, WebWork will act much more friendly for developers. This
### includes:
```

```

### - webwork.i18n.reload = true
### - webwork.configuration.xml.reload = true
### - raising various debug or ignorable problems to errors
###   For example: normally a request to foo.action?someUnknownField=true should
###                 be ignored (given that any value can come from the web and it
###                 should not be trusted). However, during development, it may be
###                 useful to know when these errors are happening and be told of
###                 them right away.
webwork.devMode = false

### when set to true, resource bundles will be reloaded on _every_ request.
### this is good during development, but should never be used in production
webwork.i18n.reload=false

### Standard UI theme
### Change this to reflect which path should be used for JSP control tag templates
by default
webwork.ui.theme=xhtml
webwork.ui.templateDir=template
#sets the default template type. Either ftl, vm, or jsp
webwork.ui.templateSuffix=ftl

### Configuration reloading
### This will cause the configuration to reload xwork.xml when it is changed
webwork.configuration.xml.reload=false

### Location of velocity.properties file. defaults to velocity.properties
# webwork.velocity.configfile = velocity.properties

### Comma separated list of VelocityContext classnames to chain to the
WebWorkVelocityContext
# webwork.velocity.contexts =

### used to build URLs, such as the UrlTag
webwork.url.http.port = 80
webwork.url.https.port = 443

### Load custom default resource bundles
# webwork.custom.i18n.resources=testmessages,testmessages2

### workaround for some app servers that don't handle
HttpServletRequest.getParameterMap()
### often used for WebLogic, Orion, and OC4J
webwork.dispatcher.parametersWorkaround = false

### configure the Freemarker Manager class to be used
### Allows user to plug-in customised Freemarker Manager if necessary
### MUST extends off com.opensymphony.webwork.views.freemarker.FreemarkerManager
#webwork.freemarker.manager.classname=com.opensymphony.webwork.views.freemarker.FreemarkerManager

### See the WebWorkBeanWrapper javadocs for more information
webwork.freemarker.wrapper.altMap=true

```

Example


```
<xwork><include file="webwork-default.xml"/><include
file="config-browser.xml"/><include file="xwork-continuations.xml"/><include
file="xwork-tags.xml"/><include file="xwork-validation.xml" /><include
file="xwork-actionchaining.xml" /><include file="xwork-ajax.xml" /><package
name="default" extends="webwork-default"><interceptors><interceptor-stack
name="crudStack"><interceptor-ref name="params" /></interceptor-stack></interceptors><action
name="showcase"><result>showcase.jsp</result></action></package><package
name="skill" extends="default" namespace="/skill"><default-interceptor-ref
name="crudStack"/><action name="list"
class="com.opensymphony.webwork.showcase.action.SkillAction"
method="list"><result>/empmanager/listSkills.jsp</result><interceptor-ref
name="basicStack"/></action><action name="edit"
class="com.opensymphony.webwork.showcase.action.SkillAction"
method="execute"><result>/empmanager/editSkill.jsp</result><interceptor-ref
name="params" /><interceptor-ref name="basicStack"/></action><action name="save"
class="com.opensymphony.webwork.showcase.action.SkillAction" method="save"><result
name="input">/empmanager/editSkill.jsp</result><result
type="redirect">edit.action?skillName=${currentSkill.name}</result></action><action
name="delete" class="com.opensymphony.webwork.showcase.action.SkillAction"
method="delete"><result name="error">/empmanager/editSkill.jsp</result><result
type="redirect">edit.action?skillName=${currentSkill.name}</result></action></package><package
name="employee" extends="default" namespace="/employee"><default-interceptor-ref
name="crudStack"/><action name="list"
class="com.opensymphony.webwork.showcase.action.EmployeeAction"
method="list"><result>/empmanager/listEmployees.jsp</result></action><action
name="edit" class="com.opensymphony.webwork.showcase.action.EmployeeAction"
method="execute"><result>/empmanager/editEmployee.jsp</result></action><action
name="save" class="com.opensymphony.webwork.showcase.action.EmployeeAction"
method="save"><result name="error">/empmanager/editEmployee.jsp</result><result
type="redirect">edit.action?empId=${currentEmployee.empId}</result></action><action
name="delete" class="com.opensymphony.webwork.showcase.action.EmployeeAction"
method="delete"><result name="error">/empmanager/editEmployee.jsp</result><result
type="redirect">edit.action?empId=${currentEmployee.empId}</result></action></package></xwork>
```

For more information about the configuration details see [XWork Configuration](#)

Continuations

This page last changed on Dec 20, 2005 by [plightbo](#).

Continuations are a feature in WebWork, borrowed from the [RIFE project](#), that allow for extremely simple state management and wizard-like functionality.

	Continuations are currently experimental, and as such, we cannot recommend they be used for heavy-use production deployments at this time. We will continue to work with the community to stabilize and enhance this feature until we are confident it can be used in the most extreme site traffic and use-cases.
---	--

Setting it Up

Setting up continuation support requires identifying the base package that your classes are in. This is done in [webwork.properties](#) using the key **webwork.continuations.package**. Typically, this can be the root package that your classes are found in, such as **com.acme**.

Once you've done this, WebWork will analyze your classes and automatically apply continuation support for any class that uses the continuation features - specifically a class that extends `ActionSupport` that has an **execute()** method that calls a **pause()** method.

URL Concerns

Because continuations require the state of your flow be managed by WebWork, it is up to you to make sure your application inform WebWork what the flow's ID is. This is done via a **continue** parameter that provides a unique ID for every request in the flow. Assuming you are generating your URLs using the [URL](#) tag or the [Form](#) tag, this

is handled for you automatically. If you are *not* using these tags, continuations will not work.

Interceptor Concerns

Because continuations radically change the way your actions are invoked, it is important to understand how this affects interceptors. The most important thing to know is that continuations kick in only when the `execute()` method is called. This means that on every request (regardless of whether it is a new request or a continuation), the interceptors will be called. This is what makes it possible to apply new request parameters to your action even though the rest of the call stack appears to look the same.

This is generally exactly what you would want, except some interceptors, namely the [Execute and Wait Interceptor](#) and possibly the [Token Session Interceptor](#), have very different expectations about the workflow/lifecycle of the action invocation. In these cases, continuations should not be used.

Example

Getting started with continuations is extremely simple. The biggest thing to get used to is the very different conversational style with application workflow. Typically, you might have used session variables or hidden form fields to pass the state around. Using continuations, you use the Java language to handle that state. See the following body of a `Guess` class extending `ActionSupport`:

```
public class Guess extends ActionSupport {
    int guess;

    public String execute() throws Exception {
        int answer = new Random().nextInt(100) + 1;
        int tries = 5;

        while (answer != guess && tries > 0) {
            pause(Action.SUCCESS);

            if (guess > answer) {
```

```

        addFieldError("guess", "Too high!");
    } elseif (guess < answer) {
        addFieldError("guess", "Too low!");
    }

    tries--;
}

if (answer == guess) {
    addActionMessage("You got it!");
} else {
    addActionMessage("You ran out of tries, the answer was " + answer);
}

return Action.SUCCESS;
}

public void setGuess(int guess) {
    this.guess = guess;
}
}

```

Note how the class keeps the state (tries, in this example) as a local variable in the `execute()` method. WebWork's continuations will automatically pick up the invocation after the `pause()` method call and will restore all local variables, as if the logical loop is continuing "magically" (read on for more info on how it works).

The view is nothing special, except for that fact that it adheres to the URL concerns and uses the [Form](#) tag to render the URL. This makes sure that the **continue** parameter is included in all requests.

```

<html><head><title></title></head><body><#list actionMessages as msg>
    ${msg}
</#list><@ww.form action="guess" method="post"><@ww.textfield label="Guess"
name="guess"/><@ww.submit value="Guess"/></@ww.form></body></html>

```

Advanced: How it Works

Continuations are not magic, though sometimes they might seem like they are. In fact, they work by using some very intelligent byte-code manipulation. This means that **in order to use continuations, your deployment environment allow for custom class loaders to handle loading your actions**. Typically this is not a problem, but it should be called out.

Once the class is requested to be loaded, WebWork will hand off the request to the RIFE/Continuations module, which will then check a few conditions:

1. Does the class extend `ActionSupport`?
2. Does the class have an `execute()` method?
3. In the `execute()` method, are there any calls to `pause()`?

If the answer is *yes* to all three conditions, the class is then instrumented and the `execute()` method is rewritten with try/catch code, goto statements, and intelligent "state restoration" code. All this happens transparently and does not affect the ability to debug the class or otherwise code it.

See the `pause()` method JavaDocs in the `ActionSupport` class for more info:

Stops the action invocation immediately (by throwing a `PauseException`) and causes the action invocation to return the specified result, such as `#SUCCESS`, `#INPUT`, etc.

The next time this action is invoked (and using the same continuation ID), the method will resume immediately after where this method was called, with the entire call stack in the `execute` method restored.

Note: this method can **only** be called within the `#execute()` method.

Overview

Exception mappings are a powerful feature for dealing with an Action that throws an exception. The core idea is that exception throws during the Action method can be caught and mapped to a result, either global or action scoped results. This is especially useful for frameworks, like Hibernate and Acegisecurity, that throw `RuntimeExceptions`.

As with many other parts of WebWork, an interceptor is needed to activate the exception mapping functionality. Below is a snippet from `webwork-default.xml` which has exception mapping already activated.

snippet of webwork-default.xml

```
...
<interceptors>
  ...
  <interceptor name="exception"
class="com.opensymphony.xwork.interceptor.ExceptionMappingInterceptor"/>
  ...
</interceptors><!-- Basic stack --><interceptor-stack
name="basicStack"><interceptor-ref name="exception"/><interceptor-ref
name="servlet-config"/><interceptor-ref name="prepare"/><interceptor-ref
name="static-params"/><interceptor-ref name="params"/><interceptor-ref
name="conversionError"/></interceptor-stack>
...
```

The next step in exception mapping is to actually map exception to specific results. WebWork provides two ways to declare an exception mapping `<exception-mapping/>` - globally or for a specific action. The exception mapping element takes two attributes, `exception` and `result`.

When declaring an exception mapping, the interceptor will find the closest class inheritance match between the exception thrown and the exception declared. The interceptor will examine all declared mappings applicable to the Action, both Action specific and global mappings. The result (either global or Action scope) is then used.

This follows the same rules as a result returned from an Action. It first looks for the

result in the action, and then if not found, it looks for the result as a global result.

Below is an example of global and Action scoped exception mappings.

snippet from xwork.xml

```
<xwork><package name="default">
  ...
  <global-results><result name="login"
type="redirect">/login.action</result><result name="rootException"
type="freemarker">/WEB-INF/views/exception.ftl</result></global-results><global-exception-mapping
exception="java.sql.SQLException" result="sqlException"/><exception-mapping
exception="java.lang.Exception" result="rootException"/></global-exception-mappings>
  ...
  <action name="myAction" class="..."><interceptor-ref name="exception"
/><exception-mapping exception="com.acme.foo.SecurityException"
result="login"/><result name="sqlException"
type="chain">sqlExceptionHandler</result><result name="success"
type="freemarker">/WEB-INF/views/acme/success.ftl</result></action>
  ...
</package></xwork>
```

In the example above, here is what happens based upon each exception:

- A `java.sql.SQLException` will chain to the `sqlExceptionHandler`
- A `com.acme.foo.SecurityException` will redirect to `/login.action`
- Any other exception that extends `java.lang.Exception` will execute the FreeMarker result `rootException` for the page `/WEB-INF/views/exception.ftl`

Exception Values on the ValueStack

By default, the `ExceptionMappingInterceptor` adds the following values to the Value Stack:

- `exception` - The exception object itself
- `exceptionMessage` - the value from the stack trace

FreeMarker is a template Java template language that is a great alternative to [JSP](#). FreeMarker is ideal for situations where your action results can possibly be loaded from outside a Servlet container. For example, if you wished to support plugins in your application, you might wish to use FreeMarker so that the plugins could provide the entire action class and view in a single jar that is loaded from the classloader.

For more information on FreeMarker itself, please visit the [FreeMarker website](#).



FreeMarker is very similar to [Velocity](#), as both are template languages that can be used outside of a Servlet container. The WebWork team recommends FreeMarker over Velocity simply because FreeMarker has better error reporting, support for JSP tags, and slightly better features. However, both are good alternatives to JSP.

Getting Started

Getting started with FreeMarker is as simple as ensuring all the [dependencies](#) are included in your project's classpath. This typically requires simply **freemarker.jar**. Other than that, [webwork-default.xml](#) already configures the [FreeMarker Result](#) needed to map your actions to your templates. You may now try out the following **xwork.xml** configuration:

```
<action name="test" class="com.acme.TestAction"><result name="success" type="freemarker">test-success.ftl</result></action>
```

Then in **test-success.ftl**:

```
<html><head><title>Hello</title></head><body>
```

```
Hello, ${name}  
  
</body></html>
```

Where **name** is a property on your action. That's it! Read the rest of this document for details on how templates are loaded, variables are resolved, and tags can be used.

Template Loading

WebWork looks for FreeMarker templates in two locations (in this order):

1. Web application
2. Class path

This ordering makes it ideal for providing templates inside a fully built jar, but allowing for overrides of those templates to be defined in your web application. In fact, this is how you can override the default UI tags and [Form Tags](#) included with WebWork.

Variable Resolution

In FreeMarker, variables are looked up in several different places, in this order:

1. The value stack
2. The action context
3. Request scope
4. Session scope
5. Application scope
6. Built-in variables

Note that the action context is looked up after the value stack. This means that you can reference the variable without the typical preceding has marker (#) like you would have to when using the JSP `ww:property` tag. This is a nice convenience, though be careful because there is a small chance it could trip you up.


```
<@ww.url id="url" value="http://www.yahoo.com"/>
Click <a href="${url}">here</a>!
```

The built-in variables that WebWork-FreeMarker integration provides are:

Name	Description
stack	The value stack itself, useful for calls like <code>\${stack.findString('ognl expr')}</code>
action	The action most recently executed
response	The <code>HttpServletResponse</code>
res	Same as response
request	The <code>HttpServletRequest</code>
req	Same as request
session	The <code>HttpSession</code>
application	The <code>ServletContext</code>
base	The request's context path

Tag Support

FreeMarker is a great template language because it has complete tag support. See the [FreeMarker Tags](#) documentation for information on how to use the generic [Tags](#) provided by WebWork. In addition to this, you can use any JSP tag, like so:

```
<#assign mytag=JspTaglibs["/WEB-INF/mytag.tld"]><@mytag.tagx attributel="some
${value}"/>
```

Where **mytag.tld** is the JSP Tag Library Definition file for your tag library. Note: in order to use this support in FreeMarker, you must enable the `JSPSupportServlet` documented in [web.xml 2.1.x compatibility](#).

Tips and Tricks

There are some advanced features that may be useful when building WebWork applications with FreeMarker.

Type Conversion and Locales

FreeMarker has built in support for formatting dates and numbers. The formatting rules are based on the locale associated with the action request, which is by default set in [webwork.properties](#) but can be over-ridden using the [I18n Interceptor](#). This is normally perfect for your needs, but it is important to remember that these formatting rules are handled by FreeMarker and not by WebWork's [Type Conversion](#) support.

If you want WebWork to handle the formatting according to the [Type Conversion](#) you have specified, you shouldn't use the normal `${...}` syntax. Instead, you should use the [property](#) tag. The difference is that the property tag is specifically designed to take an [OGNL](#) expression, evaluate it, and then convert it to a String using any [Type Conversion](#) rules you have specified. The normal `${...}` syntax will use a FreeMarker expression language, evaluate it, and then convert it to a String using the built in formatting rules. *This difference is subtle but important to understand.*

Extending

Sometimes you may wish to extend the FreeMarker support provided with WebWork. The most common reason for doing this is that you wish to include your own [Tags](#), such as those that you have extended from the built in WebWork [Tags](#).

To do so, write a new class that extends **`com.opensymphony.webwork.views.freemarker.FreeMarkerManager`** and overrides it as needed. Then add the following to [webwork.properties](#):

```
webwork.freemarker.manager.classname = com.yourcompany.YourFreeMarkerManager
```

ObjectWrapper Settings

Once you get familiar with FreeMarker, you will find certain *subtleties* with it that may become frustrating. The most common thing you'll likely run in to is the BeansWrapper provided by FreeMarker. If you don't know what this is, don't worry. However, if you do, know this:

The WebWorkBeanWrapper extends the default FreeMarker BeansWrapper and provides almost no change in functionality, **except** for how it handles maps. Normally, FreeMarker has two modes of operation: either support for friendly map built-ins (?keys, ?values, etc) but only support for String keys; OR no special built-in support (ie: ?keys returns the methods on the map instead of the keys) but support for String and non-String keys alike. WebWork provides an alternative implementation that gives us the best of both worlds.

It is possible that this special behavior may be confusing or can cause problems. Therefore, you can set the **webwork.freemarker.wrapper.altMap** property in webwork.properties to false, allowing the normal BeansWrapper logic to take place instead.

Syntax Notes

As of FreeMarker 2.3.4, an alternative syntax is supported. This alternative syntax is great if you find that your IDE (especially IntelliJ IDEA) makes it difficult to work with the default syntax. You can read more about this syntax [here](#).

Interceptors

This page last changed on Jan 07, 2006 by [plightbo](#).

See [Interceptor Configuration](#) for basic information about how interceptors are configured.

Overview

Interceptors are objects that dynamically intercept Action invocations. They provide the developer with the opportunity to define code that can be executed before and/or after the execution of an action. They also have the ability to prevent an action from executing. Interceptors provide developers a way to encapsulate common functionality in a re-usable form that can be applied to one or more Actions.

Webwork & XWork Interceptors

Interceptor classes are also defined using a key-value pair specified in the xwork configuration file. The names specified below come specified in [webwork-default.xml](#). If you extend the webwork-default package, then you can use the names below. Otherwise they must be defined in your package with a name-class pair specified in the <interceptors> tag.

Interceptor	Name	Description
Alias Interceptor	alias	Converts similar parameters that may be named differently between requests.
Chaining Interceptor	chain	Makes the previous action's properties available to the current action. Commonly used together with <result type="chain"> (in the previous action).

Component Interceptor	component	Enables and makes the components available to the Actions. Refer to components.xml
Conversion Error Interceptor	conversionError	adds conversion errors from the ActionContext to the Action's field errors
Execute and Wait Interceptor	execAndWait	an interceptor that executes the action in the background and then sends the user off to an intermediate waiting page.
Exception Interceptor	exception	Maps exceptions to a result.
File Upload Interceptor	fileUpload	an interceptor that adds easy access to file upload support. See the javadoc for more info
I18n Interceptor	i18n	remembers the locale selected for a user's session
Logger Interceptor	logger	Outputs the name of the action
Model Driven Interceptor	model-driven	If the action implements ModelDriven, pushes the getModel() result onto the valuestack.
Parameters Interceptor	params	Sets the request parameters onto the action.
Prepare Interceptor	prepare	If the action implements Preparable, calls its prepare() method.
Scope Interceptor	scope	simple mechanism for

		storing action state in the session or application scope
Servlet Config Interceptor	servlet-config	Give access to <code>HttpServletRequest</code> and <code>HttpServletResponse</code> (think twice before using this since this ties you to the Servlet api)
Static Parameters Interceptor	static-params	Sets the <code>xwork.xml</code> defined parameters onto the action. These are the <code><param></code> tags that are direct children of the <code><action></code> tag.
Timer Interceptor	timer	Outputs how long the action (including nested interceptors and view) takes to execute
Token Interceptor	token	Checks for valid token presence in action, prevents duplicate form submission
Token Session Interceptor	token-session	Same as above, but storing the submitted data in session when handed an invalid token
Validation Interceptor	validation	Performs validation using the validators defined in <code>{Action}-validation.xml</code>
Workflow Interceptor	workflow	Calls the <code>validate</code> method in your action class. If action errors created then it returns the INPUT view.

Order of Interceptor Execution

Interceptors provide an excellent means to wrap before/after processing. The concept reduces code duplication (think AOP).

```
<interceptor-stack name="xaStack">
  <interceptor-ref name="thisWillRunFirstInterceptor"/>
  <interceptor-ref name="thisWillRunNextInterceptor"/>
  <interceptor-ref name="followedByThisInterceptor"/>
  <interceptor-ref name="thisWillRunLastInterceptor"/>
</interceptor-stack>
```

Note that some interceptors will interrupt the stack/chain/flow... so the order is very important.

Interceptors implementing `com.opensymphony.xwork.interceptor.PreResultListener` will run after the Action executes its action method but before the Result executes

```
thisWillRunFirstInterceptor
  thisWillRunNextInterceptor
    followedByThisInterceptor
      thisWillRunLastInterceptor
        MyAction1
        MyAction2 (chain)
        MyPreResultListener
        MyResult (result)
      thisWillRunLastInterceptor
    followedByThisInterceptor
  thisWillRunNextInterceptor
thisWillRunFirstInterceptor
```

Alias Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

The aim of this Interceptor is to alias a named parameter to a different named parameter. By acting as the glue between actions sharing similar parameters (but with different names), it can help greatly with action chaining.

Action's alias expressions should be in the form of `#{"name1" : "alias1", "name2" : "alias2" }`. This means that assuming an action (or something else in the stack) has a value for the expression named *name1* and the action this interceptor is applied to has a setter named *alias1*, *alias1* will be set with the value from *name1*.

Parameters

-
- aliasesKey (optional) - the name of the action parameter to look for the alias map (by default this is *aliases*).
-

Extending the Interceptor

This interceptor does not have any known extension points.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><!-- The value for the foo
parameter will be applied as if it were named bar --><param name="aliases">#{ 'foo'
: 'bar' }</param><!-- note: the alias interceptor is included with the defaultStack
in webwork-default.xml --><interceptor-ref name="alias"/><interceptor-ref
name="basicStack"/><result name="success">good_result.ftl</result></action>
```


Chaining Interceptor

This page last changed on Oct 24, 2005 by [plightbo](#).

An interceptor that copies all the properties of every object in the value stack to the currently executing object, except for any object that implements `Unchainable`. A collection of optional *includes* and *excludes* may be provided to control how and which parameters are copied. Only includes or excludes may be specified. Specifying both results in undefined behavior. See the javadocs for `{@link OgnlUtil#copy(Object, Object, java.util.Map, java.util.Collection, java.util.Collection)}` for more information.

It is important to remember that this interceptor does nothing if there are no objects already on the stack. This means two things: One, you can safely apply it to all your actions without any worry of adverse affects. Two, it is up to you to ensure an object exists in the stack prior to invoking this action. The most typical way this is done is through the use of the **chain** result type, which combines with this interceptor to make up the action chaining feature.

Parameters

-
- `excludes` (optional) - the list of parameter names to exclude from copying (all others will be included).
-
- `includes` (optional) - the list of parameter names to include when copying (all others will be excluded).
-

Extending the Interceptor

There are no known extension points to this interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="basicStack"/><result name="success"  
type="chain">otherAction</result></action><action name="otherAction"  
class="com.examples.OtherAction"><interceptor-ref name="chain"/><interceptor-ref  
name="basicStack"/><result name="success">good_result.ftl</result></action>
```

Component Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

A simple interceptor that applies the WebWork IOC container ComponentManager against the executing action. Note, WebWork IOC is deprecated and it is highly recommended that you look at alternative solutions, such as Spring.

Parameters

-
- None
-

Extending the Interceptor

There are no known extension points to this interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="componentStack"/><interceptor-ref name="basicStack"/><result  
name="success">good_result.ftl</result></action>
```

Conversion Error Interceptor

This page last changed on Oct 25, 2005 by [plightbo](#).

To fully document this interceptor, it is best to look at the JavaDocs for the subclass of the interceptor, `ConversionErrorInterceptor`:

This interceptor adds any error found in the `ActionContext`'s `conversionErrors` map as a field error (provided that the action implements `ValidationAware`). In addition, any field that contains a validation error has its original value saved such that any subsequent requests for that value return the original value rather than the value in the action. This is important because if the value "abc" is submitted and can't be converted to an int, we want to display the original string ("abc") again rather than the int value (likely 0, which would make very little sense to the user).

... as well as the JavaDocs for the interceptor itself, `WebWorkConversionErrorInterceptor`:

This interceptor extends `ConversionErrorInterceptor` but only adds conversion errors from the `ActionContext` to the field errors of the action if the field value is not null, "", or `{""}` (a size 1 `String` array with only an empty `String`). See `ConversionErrorInterceptor` for more information, as well as the `Type Conversion` documentation.

Parameters

-
- None
-

Extending the Interceptor

There are no known extension points for this interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="params"/><interceptor-ref name="conversionError"/><result  
name="success">good_result.ftl</result></action>
```

Exception Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

This interceptor forms the core functionality of the exception handling feature. Exception handling allows you to map an exception to a result code, just as if the action returned a result code instead of throwing an unexpected exception. When an exception is encountered, it is wrapped with an `ExceptionHandler` and pushed on the stack, providing easy access to the exception from within your result.

Note: While you can configure exception mapping in your configuration file at any point, the configuration will not have any effect if this interceptor is not in the interceptor stack for your actions. It is recommended that you make this interceptor the first interceptor on the stack, ensuring that it has full access to catch any exception, even those caused by other interceptors.

Parameters

-
- None
-

Extending the Interceptor

If you want to add custom handling for publishing the Exception, you may override `{@link ExceptionHandler #publishException(com.opensymphony.xwork.ActionInvocation, ExceptionHolder)}`. The default implementation pushes the given `ExceptionHandler` on value stack. A custom implementation could add additional logging etc.

Examples

```
<xwork><include file="webwork-default.xml"/><package name="default"
extends="webwork-default"><global-results><result name="success"
type="freemarker">error.ftl</result></global-results><global-exception-mappings><exception-mapping
exception="java.lang.Exception" result="error"/></global-exception-mappings><action
name="test"><interceptor-ref name="exception"/><interceptor-ref
name="basicStack"/><exception-mapping exception="com.acme.CustomException"
result="custom_error"/><result name="custom_error">custom_error.ftl</result><result
name="success" type="freemarker">test.ftl</result></action></package></xwork>
```

Execute and Wait Interceptor

This page last changed on Oct 18, 2005 by [plightbo](#).

The `ExecuteAndWaitInterceptor` is great for running long-lived actions in the background while showing the user a nice progress meter. This also prevents the HTTP request from timing out when the action takes more than 5 or 10 minutes.

Using this interceptor is pretty straight forward. Assuming that you are including `webwork-default.xml`, this interceptor is already configured but is not part of any of the default stacks. Because of the nature of this interceptor, it must be the **last** interceptor in the stack.

This interceptor works on a per-session basis. That means that the same action name (`myLongRunningAction`, in the above example) cannot be run more than once at a time in a given session. On the initial request or any subsequent requests (before the action has completed), the **wait** result will be returned. **The wait result is responsible for issuing a subsequent request back to the action, giving the effect of a self-updating progress meter.**

If no "wait" result is found, WebWork will automatically generate a wait result on the fly. This result is written in FreeMarker and cannot run unless FreeMarker is installed. If you don't wish to deploy with FreeMarker, you must provide your own wait result. This is generally a good thing to do anyway, as the default wait page is very plain.

Whenever the wait result is returned, the **action that is currently running in the background will be placed on top of the stack**. This allows you to display progress data, such as a count, in the wait page. By making the wait page automatically reload the request to the action (which will be short-circuited by the interceptor), you can give the appearance of an automatic progress meter.

Important: Because the action will be running in a separate thread, you can't use `ActionContext` because it is a `ThreadLocal`. This means if you need to access, for example, session data, you need to implement `SessionAware` rather than calling `ActionContext.getSession()`.

The thread kicked off by this interceptor will be named in the form

BackgroundProcess. For example, the *search* action would run as a thread named *searchBackgroundProcess*.

Parameters

-
- threadPriority (optional) - the priority to assign the thread
-

Extending the Interceptor

If you wish to make special preparations before and/or after the invocation of the background thread, you can extend the BackgroundProcess class and implement the beforeInvocation() and afterInvocation() methods. This may be useful for obtaining and releasing resources that the background process will need to execute successfully. To use your background process extension, extend ExecuteAndWaitInterceptor and implement the getNewBackgroundProcess() method.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref
name="completeStack"/><interceptor-ref name="execAndWait"/><result
name="success">longRunningAction-wait.jsp</result><result
name="success">longRunningAction-success.jsp</result></action><%@ taglib prefix="ww"
uri="/webwork" %><html><head><title>Please wait</title><meta http-equiv="refresh"
content="5;url=<ww:url includeParams="all" />" />/>
</head><body>
    Please wait while we process your request.
    Click <a href="<ww:url includeParams="all" />"></a> if this page does not reload
automatically.
</body></html>
```

HibernateAndSpringEnabledExecuteAndWaitInterceptor

This page last changed on Oct 17, 2005 by [plightbo](#).

Find example code below for an extension of the *ExecuteAndWaitInterceptor*.

The goal of this code is to allow a background process to execute while having access to the same open Hibernate session object.

The `SessionFactory` dependency is injected into the *OpenSessionExecuteAndWaitInterceptor* by Spring. You may use other methods of dependency injection if you are more comfortable with them. By overriding the *getNewBackgroundProcess()* method, this interceptor uses our custom *OpenSessionBackgroundProcess* instead of the WebWork default.

Overriding the *beforeInvocation()* and *afterInvocation()* methods in the *OpenSessionBackgroundProcess* ensure that the session will stay open throughout the life of the background process, and any Spring transaction management will also be used.

As this code is heavily dependent on Spring and Hibernate, you shouldn't expect to see it packaged with a WebWork distribution. It does, however, serve as a useful example of extending the [Execute and Wait Interceptor](#)

OpenSessionExecuteAndWaitInterceptor.java

```
import net.sf.hibernate.SessionFactory;

import com.opensymphony.webwork.interceptor.BackgroundProcess;
import com.opensymphony.webwork.interceptor.ExecuteAndWaitInterceptor;
import com.opensymphony.xwork.ActionInvocation;

/**
 * The OpenSessionExecuteAndWaitInterceptor will obtain a Hibernate
 * Session Factory from a Spring.
 *
 * The session factory will then be passed to the BackgroundProcess,
 * to open a session, enable Spring's transaction management
 * capabilities, and bind the Session to the background thread.
 */
public class OpenSessionExecuteAndWaitInterceptor extends ExecuteAndWaitInterceptor
{
    SessionFactory sessionFactory;
```

```

    public SessionFactory getSessionFactory() {
        return sessionFactory;
    }

    public void setSessionFactory(SessionFactory sessionFactory) {
        this.sessionFactory = sessionFactory;
    }

    protected BackgroundProcess getNewBackgroundProcess(String arg0,
        ActionInvocation arg1, int arg2) {
        return new OpenSessionBackgroundProcess(arg0, arg1, arg2, sessionFactory);
    }
}

```

OpenSessionBackgroundProcess.java

```

import net.sf.hibernate.FlushMode;
import net.sf.hibernate.Session;
import net.sf.hibernate.SessionFactory;

import org.springframework.orm.hibernate.SessionFactoryUtils;
import org.springframework.orm.hibernate.SessionHolder;
import org.springframework.transaction.support.TransactionSynchronizationManager;

import com.opensymphony.webwork.interceptor.BackgroundProcess;
import com.opensymphony.xwork.ActionInvocation;

/**
 * The OpenSessionBackgroundProcess, when instantiated with a
 * HibernateSessionFactory, will open a session, enable Spring's transaction
 * management capabilities, and bind the Session to the background thread.
 */
public class OpenSessionBackgroundProcess extends BackgroundProcess {

    SessionFactory sessionFactory;

    Session openSession;

    public OpenSessionBackgroundProcess(String name,
        ActionInvocation invocation, int threadPriority,
        SessionFactory factory) {
        super(name, invocation, threadPriority);
        this.sessionFactory = factory;
    }

    protected void beforeInvocation() throws Exception {
        openSession = SessionFactoryUtils.getSession(sessionFactory, true);
        openSession.setFlushMode(FlushMode.NEVER);
        TransactionSynchronizationManager.bindResource(sessionFactory,
            new SessionHolder(openSession));
        super.beforeInvocation();
    }

    protected void afterInvocation() throws Exception {
        super.afterInvocation();
        TransactionSynchronizationManager.unbindResource(sessionFactory);
    }
}

```

```
        sessionFactoryUtils
            .closeSessionIfNecessary(openSession, sessionFactory);
    }

}
```

An interceptor that handles setting the locale specified in a session as the locale for the current action request. In addition, this interceptor will look for a specific HTTP request parameter and set the locale to whatever value is provided. This means that this interceptor can be used to allow for your application to dynamically change the locale for the user's session. This is very useful for applications that require multi-lingual support and want the user to be able to set his or her language preference at any point. The locale parameter is removed during the execution of this interceptor, ensuring that properties aren't set on an action (such as `request_locale`) that have no typical corresponding setter in your action.

For example, using the default parameter name, a request to **foo.action?request_locale=en_US**, then the locale for US English is saved in the user's session and will be used for all future requests.

Parameters

-
- `parameterName` (optional) - the name of the HTTP request parameter that dictates the locale to switch to and save in the session. By default this is **request_locale**
-
- `attributeName` (optional) - the name of the session key to store the selected locale. By default this is **WW_TRANS_I18N_LOCALE**
-

Extending the Interceptor

There are no known extensions points for this interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="i18n"/><interceptor-ref name="basicStack"/><result  
name="success">good_result.ftl</result></action>
```

Logger Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

This interceptor logs the the start and end of the execution an action (in English-only, not internationalized).

Parameters

There are no parameters for this interceptor.

Extending the Interceptor

There are no obvious extensions to the existing interceptor.

Examples

```
<!-- prints out a message before and after the immediate action execution --><action
name="someAction" class="com.examples.SomeAction"><interceptor-ref
name="completeStack"/><interceptor-ref name="logger"/><result
name="success">good_result.ftl</result></action><!-- prints out a message before any
more interceptors continue and after they have finished --><action name="someAction"
class="com.examples.SomeAction"><interceptor-ref name="logger"/><interceptor-ref
name="completeStack"/><result name="success">good_result.ftl</result></action>
```

Model Driven Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

Watches for ModelDriven actions and adds the action's model on to the value stack.

Note: The ModelDrivenInterceptor must come before the both StaticParametersInterceptor and ParametersInterceptor if you want the parameters to be applied to the model.

Parameters

-
- None
-

Extending the Interceptor

There are no known extension points to this interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="model-driven"/><interceptor-ref name="basicStack"/><result  
name="success">good_result.ftl</result></action>
```


Parameters Interceptor

This page last changed on Oct 20, 2005 by [plightbo](#).

This interceptor gets all parameters from `ActionContext#getParameters()` and sets them on the value stack by calling `{@link OgnlValueStack#setValue(String, Object)}`, typically resulting in the values submitted in a form request being applied to an action in the value stack. Note that the parameter map must contain a `String` key and often contains a `String[]` for the value.

Because parameter names are effectively OGNL statements, it is important that security be taken in to account. This interceptor will not apply any values in the parameters map if the expression contains an assignment (`=`), multiple expressions (`,`), or references any objects in the context (`#`). This is all done in the `{@link #acceptableName(String)}` method. In addition to this method, if the action being invoked implements the `{@link ParameterNameAware}` interface, the action will be consulted to determine if the parameter should be set.

In addition to these restrictions, a flag (`XWorkMethodAccessor#DENY_METHOD_EXECUTION`) is set such that no methods are allowed to be invoked. That means that any expression such as *person.doSomething()* or *person.getName()* will be explicitly forbidden. This is needed to make sure that your application is not exposed to attacks by malicious users.

While this interceptor is being invoked, a flag (`InstantiatingNullHandler#CREATE_NULL_OBJECTS`) is turned on to ensure that any null reference is automatically created - if possible. See the type conversion documentation and the `InstantiatingNullHandler` javadocs for more information.

Finally, a third flag (`XWorkConverter#REPORT_CONVERSION_ERRORS`) is set that indicates any errors when converting the the values to their final data type (`String[]` -> `int`) an unrecoverable error occurred. With this flag set, the type conversion errors will be reported in the action context. See the type conversion documentation and the `XWorkConverter` javadocs for more information.

If you are looking for detailed logging information about your parameters, turn on `DEBUG` level logging for this interceptor. A detailed log of all the parameter keys and values will be reported.

For more information on ways to restrict the parameter names allowed, see the `ParameterNameAware` javadocs:

This interface is implemented by actions that want to declare acceptable parameters. Works in conjunction with `{@link ParametersInterceptor}`. For example, actions may want to create a whitelist of parameters they will accept or a blacklist of parameters they will reject to prevent clients from setting other unexpected (and possibly dangerous) parameters.

Parameters

-
- None
-

Extending the Interceptor

The best way to add behavior to this interceptor is to utilize the `ParameterNameAware` interface in your actions. However, if you wish to apply a global rule that isn't implemented in your action, then you could extend this interceptor and override the `#acceptableName(String)` method.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="params"/><result name="success">good_result.ftl</result></action>
```

Prepare Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

This interceptor calls `prepare()` on actions which implement `Preparable`. This interceptor is very useful for any situation where you need to ensure some logic runs before the actual execute method runs.

A typical use of this is to run some logic to load an object from the database so that when parameters are set they can be set on this object. For example, suppose you have a `User` object with two properties: `id` and `name`. Provided that the params interceptor is called twice (once before and once after this interceptor), you can load the `User` object using the `id` property, and then when the second params interceptor is called the parameter `user.name` will be set, as desired, on the actual object loaded from the database. See the example for more info.

Parameters

-
- None
-

Extending the Interceptor

There are no known extension points to this interceptor.

Examples

```
<!-- Calls the params interceptor twice, allowing you to
pre-load data for the second time parameters are set -->
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref
name="params"/><interceptor-ref name="prepare"/><interceptor-ref
```

```
<result name="success">good_result.ftl</result></action>
```

This is designed to solve a few simple issues related to wizard-like functionality in WebWork. One of those issues is that some applications have a application-wide parameters commonly used, such *pageLen* (used for records per page). Rather than requiring that each action check if such parameters are supplied, this interceptor can look for specified parameters and pull them out of the session.

This works by setting listed properties at action start with values from session/application attributes keyed after the action's class, the action's name, or any supplied key. After action is executed all the listed properties are taken back and put in session or application context.

To make sure that each execution of the action is consistent it makes use of session-level locking. This way it guarantees that each action execution is atomic at the session level. It doesn't guarantee application level consistency however there has yet to be enough reasons to do so. Application level consistency would also be a big performance overkill.

Note that this interceptor takes a snapshot of action properties just before result is presented (using a `{@link PreResultListener}`), rather than after action is invoked. There is a reason for that: At this moment we know that action's state is "complete" as it's values may depend on the rest of the stack and specifically - on the values of nested interceptors.

Parameters

-
- session - a list of action properties to be bound to session scope
-
- application - a list of action properties to be bound to application scope
-
- key - a session/application attribute key prefix, can contain following values:

- -
 - CLASS - that creates a unique key prefix based on action namespace and action class, it's a default value
 -
 - ACTION - creates a unique key prefix based on action namespace and action name
 -
 - any other value is taken literally as key prefix
 -
- type - with one of the following
 - -
 - start - means it's a start action of the wizard-like action sequence and all session scoped properties are reset to their defaults
 -
 - end - means that session scoped properties are removed from session after action is run
 -
 - any other value or no value means that it's in-the-middle action that is set with session properties before it's executed, and it's properties are put back to session after execution
 -
- sessionReset - boolean value causing all session values to be reset to action's default values or application scope values, note that it is similliar to type="start" and in fact it does the same, but in our team it is sometimes semantically preferred. We use session scope in two patterns - sometimes there are wizzard-like action sequences that have start and end, and sometimes we just want simply reset current session values.
-

Extending the Interceptor

There are no know extension points for this interceptor.

Examples

```
<!-- As the filter and orderBy parameters are common for all my browse-type actions,
      you can move control to the scope interceptor. In the session parameter you can
list
      action properties that are going to be automatically managed over session. You
can
      do the same for application-scoped variables-->
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref
name="basicStack"/><interceptor-ref name="hibernate"/><interceptor-ref
name="scope"><param name="session">filter,orderBy</param></interceptor-ref><result
name="success">good_result.ftl</result></action>
```

Servlet Config Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

An interceptor which sets action properties based on the interfaces an action implements. For example, if the action implements `ParameterAware` then the action context's parameter map will be set on it.

This interceptor is designed to set all properties an action needs if it's aware of servlet parameters, the servlet context, the session, etc. Interfaces that it supports are:

-
- `ServletContextAware`
-
- `ServletRequestAware`
-
- `ServletResponseAware`
-
- `ParameterAware`
-
- `SessionAware`
-
- `ApplicationAware`
-
- `PrincipalAware`
-

Parameters

-
- `None`
-

Extending the Interceptor

There are no known extension points for this interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="servlet-config"/><interceptor-ref name="basicStack"/><result  
name="success">good_result.ftl</result></action>
```

Static Parameters Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

This interceptor populates the action with the static parameters defined in the action configuration. If the action implements `Parameterizable`, a map of the static parameters will be also be passed directly to the action.

Parameters are typically defined with `<param>` elements within `xwork.xml`.

Parameters

-
- None
-

Extending the Interceptor

There are no extension points to this interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref
name="static-params"/><result name="success">good_result.ftl</result></action>
```

Timer Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

This interceptor logs the amount of time in milliseconds. In order for this interceptor to work properly, the logging framework must be set to at least the [INFO](#) level. This interceptor relies on the [Commons Logging API](#) to report its execution-time value.

Parameters

TODO: Describe the paramters for this Interceptor.

Extending the Interceptor

TODO: Discuss some possible extension of the Interceptor.

Examples

```
<!-- records only the action's execution time --><action name="someAction"
class="com.examples.SomeAction"><interceptor-ref
name="completeStack"/><interceptor-ref name="timer"/><result
name="success">good_result.ftl</result></action><!-- records action's execution time
as well as other interceptors--><action name="someAction"
class="com.examples.SomeAction"><interceptor-ref name="timer"/><interceptor-ref
name="completeStack"/><result name="success">good_result.ftl</result></action>
```

Token Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

Ensures that only one request per token is processed. This interceptor can make sure that back buttons and double clicks don't cause un-intended side affects. For example, you can use this to prevent careless users who might double click on a "checkout" button at an online store. This interceptor uses a fairly primitive technique for when an invalid token is found: it returns the result **invalid.token**, which can be mapped in your action configuration. A more complex implementation, `TokenSessionStoreInterceptor`, can provide much better logic for when invalid tokens are found.

Note: To set a token in your form, you should use the **token tag**. This tag is required and must be used in the forms that submit to actions protected by this interceptor. Any request that does not provide a token (using the token tag) will be processed as a request with an invalid token.

Parameters

-
- None
-

Extending the Interceptor

While not very common for users to extend, this interceptor is extended by the `TokenSessionStoreInterceptor`. The `#handleInvalidToken` and `#handleValidToken` methods are protected and available for more interesting logic, such as done with the token session interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="token"/><interceptor-ref name="basicStack"/><result  
name="success">good_result.ftl</result></action>
```

Token Session Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

This interceptor builds off of the `TokenInterceptor`, providing advanced logic for handling invalid tokens. Unlike the normal token interceptor, this interceptor will attempt to provide intelligent fail-over in the event of multiple requests using the same session. That is, it will block subsequent requests until the first request is complete, and then instead of returning the *invalid.token* code, it will attempt to display the same response that the original, valid action invocation would have displayed if no multiple requests were submitted in the first place.

Parameters

-
- None
-

Extending the Interceptor

There are no known extension points for this interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="token-session"/><interceptor-ref name="basicStack"/><result  
name="success">good_result.ftl</result></action>
```

Validation Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

This interceptor runs the action through the standard validation framework, which in turn checks the action against any validation rules (found in files such as *ActionClass-validation.xml*) and adds field-level and action-level error messages (provided that the action implements `com.opensymphony.xwork.ValidationAware`). This interceptor is often one of the last (or second to last) interceptors applied in a stack, as it assumes that all values have already been set on the action.

This interceptor does nothing if the name of the method being invoked is specified in the **excludeMethods** parameter. **excludeMethods** accepts a comma-delimited list of method names. For example, requests to **foo!input.action** and **foo!back.action** will be skipped by this interceptor if you set the **excludeMethods** parameter to "input, back".

Note that this has nothing to do with the `com.opensymphony.xwork.Validateable` interface and simply adds error messages to the action. The workflow of the action request does not change due to this interceptor. Rather, this interceptor is often used in conjunction with the **workflow** interceptor.

Parameters

-
- None
-

Extending the Interceptor

There are no known extension points for this interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="params"/><interceptor-ref name="validation"/><interceptor-ref  
name="workflow"/><result name="success">good_result.ftl</result></action>
```


Workflow Interceptor

This page last changed on Oct 18, 2005 by [digi9ten](#).

An interceptor that does some basic validation workflow before allowing the interceptor chain to continue.

This interceptor does nothing if the name of the method being invoked is specified in the **excludeMethods** parameter. **excludeMethods** accepts a comma-delimited list of method names. For example, requests to **foo!input.action** and **foo!back.action** will be skipped by this interceptor if you set the **excludeMethods** parameter to "input, back".

The order of execution in the workflow is:

- 1.
2. If the action being executed implements `Validateable`, the action's `{@link Validateable#validate() validate}` method is called.
- 3.
4. Next, if the action implements `ValidationAware`, the action's `{@link ValidationAware#hasErrors() hasErrors}` method is called. If this method returns true, this interceptor stops the chain from continuing and immediately returns `Action#INPUT`
- 5.

Note: if the action doesn't implement either interface, this interceptor effectively does nothing. This interceptor is often used with the **validation** interceptor. However, it does not have to be, especially if you wish to write all your validation rules by hand in the `validate()` method rather than in XML files.

Parameters

-
- None

-

Extending the Interceptor

There are no known extension points for this interceptor.

Examples

```
<action name="someAction" class="com.examples.SomeAction"><interceptor-ref  
name="params"/><interceptor-ref name="validation"/><interceptor-ref  
name="workflow"/><result name="success">good_result.ftl</result></action>
```

Description

WebWork supports internationalization (in short, i18n) in two different places: the UI tags and the action/field error messages.

- [Tags](#) Typically the [i18n](#) and [text](#) tag
- [Validation](#)

Resource Bundle Search Order

Resource bundles are searched in the following order:

1. ActionClass.properties
2. BaseClass.properties (all the way to Object.properties)
3. Interface.properties (every interface and sub-interface)
4. ModelDriven's model (if implements ModelDriven), for the model object repeat from 1
5. package.properties (every of every base class, all the way to java/lang/package.properties)
6. search up the i18n message key hierarchy itself
7. global resource properties (webwork.custom.i18n.resources) defined in webwork.properties

For more information, checkout the `LocalizationTextUtil` class.

Examples

To display i18n text, you can use a call to `getText()` in the [property](#) tag, or any other

tag such as the UI tags (this is especially useful for labels of UI tags):

```
<ww:property value="getText('some.key')" />
```

You may also use the [text](#) tag:

```
<ww:text name="some.key" />
```

Also, note that there is an `i18n` tag that will push a resource bundle on to the stack, allowing you to display text that would otherwise not be part of the resource bundle search hierarchy mentioned previously.

```
<ww:i18n name="some.package.bundle" ><ww:text name="some.key" /></ww:i18n>
```



Internationalization in SiteMesh decorators is possible, but there are a few quirks about it. Check out the [SiteMesh](#) page to learn how to be integrate WebWork and SiteMesh, including integration tips.

I18n Interceptor

See [I18n Interceptor](#) for more info. It basically pushes a locale into the ActionContext map upon every request. Webwork (components, ActionSupport etc.) honours this and hence every `i18n` related aspect will used this locale. Its a pretty elegant way of changing locale upon request as well.

**Global resource
(webwork.custom.i18n.resources)
in webwork.properties**

A global resource bundle could be specified through the 'webwork.custom.i18n.resources' property in webwork.properties. The locale can be switched by 'webwork.locale' in the webwork.properties as well.

Comparison with Struts

Struts users should be familiar with the application.properties resource bundle, where you can put all the messages in the application that are going to be translated. WebWork, though, splits the resource bundles per action or model class, and you may end up with duplicated messages in those resource bundles. A quick fix for that is to create a file called ActionSupport.properties in com/opensymphony/xwork and put it on your classpath. This will only work well if all your actions subclass ActionSupport.

Inversion of Control

This page last changed on Oct 17, 2005 by [plightbo](#).



These documents are out of date. As of WebWork 2.2, the WebWork IoC container has been deprecated (though not removed) and the WebWork team recommends you use [Spring](#) for all your IoC needs

Inversion of control is a way to handle dependencies of objects. In WebWork, objects that have their dependencies managed are called "components". For an overview of Inversion of Control (also referred to now as Dependency Injection), please read Martin Fowler's article on IoC at <http://www.martinfowler.com/articles/injection.html>. Besides WebWork's IoC container, there are numerous other containers available for you to use, including [Spring](#) and [Pico](#).

- [IoC Overview](#)
- [Xwork's Component Architecture](#)
- [How Webwork Uses Components](#)
- [Configuration of Components in Webwork and XWork](#)

Components

This page last changed on Oct 25, 2005 by [plightbo](#).



These documents are out of date. As of WebWork 2.2, the WebWork IoC container has been deprecated (though not removed) and the WebWork team recommends you use [Spring](#) for all your IoC needs

Overview

WebWork builds on XWork's component implementation by providing lifecycle management of component objects and then making these components available to your action classes (or any other user code for that matter) as required.

Two types of classes in WebWork can use an enabler interface for inversion of control: Actions and Components. In order for an Action class to have its components set, the ComponentInterceptor must be made available for the Action to set those resources. In turn, if those components require other components to be initialized and set for their own use, those initializations take place at the time the ComponentInterceptor intercepts the action as well.

Scopes and Lifecycle

Components can be configured to exist across three different scopes in WebWork:

1. for the duration of a single request,
2. across a user session, or
3. for the entire lifetime of the web application.

WW:WebWork lazy loads components, meaning that components, no matter what scope, are initialized at the time they are used and disposed of at the end of the given lifecycle of that scope. Thus, an application scoped component, for example, will be initialized the first time a user makes a request to an action that implements the

enabler interface of that component and will be disposed of at the time the application closes.

While components are allowed to have dependencies on other components they must not depend on another component that is of a narrower scope. So, for example, a session component cannot depend on a component that is only of request scope.

All components must be registered in the components.xml file, which is discussed in the Configuration section.

Obtaining a ComponentManager

During any request there are three component managers in existence, one for each scope. They are stored as an attribute called "DefaultComponentManager" in their respective scope objects. So if for example you need to retrieve the ComponentManager object for the request scope, the following code will do the trick:

```
ComponentManager cm = (ComponentManager)
request.getAttribute("DefaultComponentManager");
```


IoC Configuration

This page last changed on Oct 25, 2005 by [plightbo](#).



These documents are out of date. As of WebWork 2.2, the WebWork IoC container has been deprecated (though not removed) and the WebWork team recommends you use [Spring](#) for all your IoC needs

Configuration - web.xml

To configure WebWork's component management, the following lines must be added in the appropriate places to web.xml:

```
<filter><filter-name>container</filter-name><filter-class>com.opensymphony.webwork.lifecycle.Rec
modify appropriately --></filter-mapping><!-- Optionally you may instead apply the
filter to EVERY URI instead of just *.action. --><!-- You might want to do this for
example: --><!-- * your page flow goes to a jsp directly (as opposed to only
*.action URIs) --><!-- * the jsp has an action in it to be run with the ww:action
tag --><!-- * the action in the jsp implements any enabler interfaces to get
components served to it --><!-- The reason: (Per Patrick Lightbody) --><!-- "The
components work by looking for a ComponentManager in the request --><!-- attributes.
It gets placed there by a filter. If it is on *.action and a --><!-- request comes
in through a JSP, the filter won't be applied and it will --><!-- never work."
--><!-- The overhead in doing this is small, so don't worry overly much about the
--><!-- performance of this. --><!-- <filter-mapping> --><!--
<filter-name>container</filter-name> --><!-- <url-pattern>*/</url-pattern>
--><!-- </filter-mapping>
--><listener><listener-class>com.opensymphony.webwork.lifecycle.SessionLifecycleListener</listen
```

These settings allow WebWork to manage components across the application, session and request scopes. Note that even if one or more of the scopes are not required by your application, all three scopes need to be specified in web.xml for WebWork's component management to function correctly.

Configuration - xwork.xml

The ComponentInterceptor class is used to apply the IoC pattern to XWork actions (ie, to supply components to actions). The ComponentInterceptor should be declared in

the <interceptors> block of xwork.xml as follows:

```
<interceptor name="component"  
    class="com.opensymphony.xwork.interceptor.component.ComponentInterceptor"/>
```

You should ensure that any actions that are to be supplied with components have this interceptor applied. (See OS:XWork Interceptors for information on how to apply interceptors to actions.)

If you want to apply IoC to objects other than actions or other components, you will need to use the ComponentManager object directly.

Note too, that the ComponentInterceptor is applied as part of the webwork defaultStack. Thus, if you are applying the defaultStack to the action, you would include the ComponentInterceptor.

Configuration - components.xml

The components.xml file is used to specify the components that are to be available. The components specified here are loaded into XWork's ComponentManager and are then made available to any actions that are an instance of the specified enabler. The components.xml file must be placed in the root of the classpath (ie, in the WEB-INF/classes directory).

Here is an example components.xml file that configures a Counter component. The Counter object will live in session scope, and will be passed to any objects that are enabled due to their implementing the CounterAware interface:

```
<components><component><scope>session</scope><class>com.opensymphony.webwork.example.counter.Cou
```

Each component must have the following three attributes:

- *scope*: Valid values are *application*, *session* and *request*. This determines the component's lifetime. Application scope components will be created when the webapp starts up, and they will survive for the whole lifetime of the webapp. Session scoped components exist for the duration of a user session, while components in request scope only last for the duration of a single client request.
- *class*: This specifies the component's class. An instance of this object will live for

the duration of the specified scope, and will be made available to any actions (or other code) as required. Note that components are lazy-loaded, so if nothing makes use of the component during its lifetime, the component will never actually be instantiated. At the moment components must have a zero argument constructor.

- *enabler*: Any actions that are an instance of the enabler class or interface will be passed an instance of the component.

Note that while components are allowed to have dependencies on other components they must not depend on another component that is of a narrower scope. So for example, a session component cannot depend on a component that is only of request scope.



These documents are out of date. As of WebWork 2.2, the WebWork IoC container has been deprecated (though not removed) and the WebWork team recommends you use [Spring](#) for all your IoC needs

Overview

In many applications you have component objects that are required by a given class to use. In a nutshell, the IoC pattern allows a parent object (in the case of Webwork, XWork's ComponentManager instance) to give a resource Object to the action Object that needs it (usually an action, but it could be any object that implements the appropriate *enabler*) rather than said Object's needing to obtain the resource itself.

There are two ways of implementing IoC: Instantiation and using an enabler interface. With instantiation, a given action Object is instantiated with the resource Object as a constructor parameter. With enablers interfaces, the action will have an interface with a method, say "setComponent(ComponentObject r);" that will allow the resource to be passed to said action Object after it is instantiated. The ComponentObject is passed, because the Object implements the given interface. XWork uses *enablers* to pass components.

Why IoC?

So why is IoC useful? It means that you can develop components (generally services of some sort) in a top-down fashion, without the need to build a registry class that the client must then call to obtain the component instance.

Traditionally when implementing services you are probably used to following steps similar to these:

1. Write the component (eg an ExchangeRateService)
2. Write the client class (eg an XWork action)
3. Write a registry class that holds the component object (eg Registry)
4. Write code that gives the component object to the registry (eg Registry.registerService(new MyExchangeRateService()))
5. Use the registry to obtain the service from your client class (eg ExchangeRateService ers = Registry.getExchangeRateService())
6. Make calls to the component from the client class (eg String baseCurrencyCode = ers.getBaseCurrency())

Using IoC, the process is reduced to the following:

1. Write the component class (eg an ExchangeRateService)
2. Register the component class with XWork (eg componentManager.addEnabler(MyExchangeRateService, ExchangeRateAware))
3. Write the client class, making sure it implements the enabling interface (eg an XWork action that implements ExchangeRateAware)
4. Access the component instance directly from your client action (eg String baseCurrencyCode = ers.getBaseCurrency())

More advantages of Inversion of Control are the following:

1. Testability - You can more easily test your objects by passing mock objects using the enabler method rather than needing to create full containers that allow your objects to get the components they need.
2. A component describes itself. When you instantiate a component, you can easily determine what dependencies it requires without looking at the source or using trial and error.
3. Dependencies can be discovered easily using reflection. This has many benefits ranging from diagram generation to runtime optimization (by determining in advance which components will be needed to fulfill a request and preparing them asynchronously, for example).
4. Avoids the super-uber-mega-factory pattern where all the components of the app are held together by a single class that is directly tied back to other domain specific classes, making it hard to 'just use that one class'.
5. Adheres to Law of Demeter. Some people think this is silly, but in practise I've found it works much better. Each class is coupled to only what it actually uses (and it should never use too much) and no more. This encourages smaller responsibility specific classes which leads to cleaner design.
6. Allows context to be isolated and explicitly passed around. ThreadLocals may be ok in a web-app, but they aren't well suited for high concurrency async applications (such as message driven applications).



These documents are out of date. As of WebWork 2.2, the WebWork IoC container has been deprecated (though not removed) and the WebWork team recommends you use [Spring](#) for all your IoC needs

Writing Component Classes

In XWork the actual component class can be virtually anything you like. The only constraints on it are that it must be a concrete class with a default constructor so that XWork can create instances of it as required. Optionally, a component may implement the `Initializable` and/or `Disposable` interfaces so it will receive lifecycle events just after it is created or before it is destroyed. Simply:

```
public class MyComponent implements Initializable, Disposable {
    public void init () {
        //do initialization here
    }

    public void dispose() {
        //do any clean up necessary before garbage collection of this component
    }
}
```

Component Dependencies

One feature that is not immediately obvious is that it is possible for components to depend on other components. For example if the `ExchangeRateService` described above depended on a `Configuration` component, XWork will pass the `Configuration` component through to the `ExchangeRateService` instance after `ExchangeRateService` is instantiated. Note that XWork automatically takes care of initializing the components in the correct order, so if A is an action or component that depends on B and C, and B depends on C and if A, B, and C have not been previously instantiated, the `ComponentManager` will in the following order:

1. Instantiate C and call its `init()` method if it implements `Initializable`.
2. Instantiate B, then using the enabler method, set C to be used by B
3. Call B's `init()` method, if it implements `Initializable`.
4. Set B using B's enabler method to be used by A.

And so on and so forth. Of course, if there are instances of B or C that would be reused in this case, those instances would be passed using the enabler method rather than a new instance.

Writing Enablers

An enabler should consist of just a single method that accepts a single parameter. The parameter class should either be the component class that is to be enabled, or one of the component's superclasses. XWork does not care what the name of the enabler's method is.

Here is an example of what the `ExchangeRateAware` enabler might look like:

```
public interface ExchangeRateAware {  
    public void setExchangeRateService(ExchangeRateService exchangeRateService);  
}
```

Note that typically an enabler would be an interface, however there is nothing to prevent you from using a class instead if you so choose.

Writing "Enabler-aware" Actions

All an action needs to do is implement the relevant enabler interface. XWork will then call the action's enabler method just prior to the action's execution. As a simple example:

```
public class MyAction extends ActionSupport implements ExchangeRateAware {  
    ExchangeRateService ers;  
  
    public void setExchangeRateService(ExchangeRateService exchangeRateService) {  
        ers = exchangeRateService;  
    }  
}
```

```

publicString execute() throws Exception {
    System.out.println("The base currency is " + ers.getBaseCurrency());
}
}

```

If you have an object that is not an action or another component, you must explicitly tell XWork to supply any enabled components to your object by calling `componentManager.initializeObject(enabledObject);`

Using an external reference resolver

You can also use an external reference resolver in XWork, i.e., references that will be resolved not by XWork itself. One such example is using an external resolver to integrate XWork with the [Spring Framework](#)

You just need to write an external reference resolver and then tell XWork to use it in the package declaration:

```

<package
  name="default"
  externalReferenceResolver="com.atlassian.xwork.ext.SpringServletContextReferenceResolver">

```

Now, to use external references you do something like this:

```

<external-ref name="foo">Foo</external-ref>

```

Where the name attribute is the setter method name and Foo is the reference to lookup.

For more details and sample code about this integration, take a look at the javadocs to the `com.opensymphony.xwork.config.ExternalReferenceResolver` class (unfortunately unavailable online) and at [XW-122](#)

-Chris

Using J2SE 5 ("Tiger") support with WebWork



Work in progress

This is a work in progress and not yet finished! More complex examples will follow. For now, have a look at the unit tests within the xwork-tiger project path.

To use J2SE 5 support with WebWork, you have to add xwork-tiger.jar to your classpath.

The xwork-tiger.jar can be obtained via the ivy repository and is located in the lib/tiger directory.

Interceptor Annotations

To use these annotations, you have to specify the [AnnotationWorkflowInterceptor](#) to your interceptor stack.

Annotation	Description
After Annotation	Marks a action method that needs to be executed before the result.
Before Annotation	Marks a action method that needs to be executed before the main action method.
BeforeResult Annotation	Marks a action method that needs to be executed before the result.

Validation Annotations

If you want to use annotation based validation, you have to annotate the class or interface with [Validation Annotation](#).

These are the standard validator annotations that come with XWork-tiger:

Annotation	Description
ConversionErrorFieldValidator Annotation	Checks if there are any conversion errors for a field.
DateRangeFieldValidator Annotation	Checks that a date field has a value within a specified range.
EmailValidator Annotation	Checks that a field is a valid e-mail address.
ExpressionValidator Annotation	Validates an expression.
FieldExpressionValidator Annotation	Uses an OGNL expression to perform its validator.
IntRangeFieldValidator Annotation	Checks that a numeric field has a value within a specified range.
RegexFieldValidator Annotation	
RequiredFieldValidator Annotation	Checks that a field is non-null.
RequiredStringValidator Annotation	Checks that a String field is not empty.
StringLengthFieldValidator Annotation	Checks that a String field is of the right length.
StringRegexValidator Annotation	
UrlValidator Annotation	Checks that a field is a valid URL.
Validation Annotation	Marker annotation for validation at Type level.
Validations Annotation	Used to group validation annotations.
VisitorFieldValidator Annotation	

Type Conversion Annotations

If the `xwork-tiger.jar` is added to the classpath, you will directly have type conversion support for Maps and Collections using generics.

In short, instead of specifying the types found in collections and maps as documented in [Type Conversion](#), **the collection's generic type is used**. This means you most likely don't need any **ClassName-conversion.properties** files.

If you want to use annotation based type conversion, you have to annotate the class or interface with the [Conversion Annotation](#).

Annotation	Description
Conversion Annotation	Marker annotation for type conversions at Type level.
KeyProperty Annotation	For Generic types: Specify the key property name value.
TypeConversion Annotation	Used for class and application wide conversion rules.

Create ClassName-conversion.properties via "ant apt" target

This is an example for the apt ant target:

```
<target name="apt"><mkdir dir="${build}/generated"/><path
id="classpath"><pathelement path="${basedir}/build/java"/><pathelement
path="${basedir}/build/test"/><!-- xwork.jar and xwork-tiger.jar must be in one of
the following lib dirs --><fileset dir="${basedir}/lib/build"
includes="*.jar"/><fileset dir="${basedir}/lib/default" includes="*.jar"/><fileset
dir="${basedir}/lib/spring" includes="*.jar"/></path><property name="pclasspath"
refid="classpath"/><!-- Change the includes attribute value to match your annotated
```

```
java files --><fileset id="sources" dir="." includes="src/test/**/*.java"
/><pathconvert pathsep=" " property="sourcefiles" refid="sources"/><echo>

    CLASSPATH ${pclasspath}

    SOURCES: ${sourcefiles}

    </echo><exec executable="apt" ><arg value="-s"/><arg
value="${build}/generated"/><arg value="-classpath"/><arg pathref="classpath"/><arg
value="-nocompile"/><arg value="-factory"/><arg
value="com.opensymphony.xwork apt.XWorkProcessorFactory"/><arg
line="${sourcefiles}"/></exec></target>
```

After Annotation

Marks a action method that needs to be called after the main action method and the result was executed. Return value is ignored.

Usage

The After annotation can be applied at method level.

Parameters

no parameters

Examples

```
public class SampleAction extends ActionSupport {

    @After
    public void isValid() throws ValidationException {
        // validate model object, throw exception if failed
    }

    public String execute() {
        // perform action
        return SUCCESS;
    }
}
```

AnnotationWorkflowInterceptor

Invokes any annotated methods on the action. Specifically, it supports the following annotations:

- @Before - will be invoked before the action method. If the returned value is not null, it is returned as the action result code
- @BeforeResult - will be invoked after the action method but before the result execution
- @After - will be invoked after the action method and result execution

There can be multiple methods marked with the same annotations, but the order of their execution is not guaranteed. However, the annotated methods on the superclass chain are guaranteed to be invoked before the annotated method in the current class in the case of a Before annotations and after, if the annotations is After.

Examples

```
public class BaseAnnotatedAction {
    protectedString log = "";

    @Before
    publicString baseBefore() {
        log = log + "baseBefore-";
        returnnull;
    }
}

public class AnnotatedAction extends BaseAnnotatedAction {
    @Before
    publicString before() {
        log = log + "before";
        returnnull;
    }
}
```

```

publicString execute() {
    log = log + "-execute";
    return Action.SUCCESS;
}

@BeforeResult
public void beforeResult() throws Exception {
    log = log + "-beforeResult";
}

@After
public void after() {
    log = log + "-after";
}
}

```

Configure a stack in xwork.xml that replaces the PrepareInterceptor with the AnnotationWorkflowInterceptor:

```

<interceptor-stack name="annotatedStack"><interceptor-ref
name="static-params"/><interceptor-ref name="params"/><interceptor-ref
name="conversionError"/><interceptor-ref
name="annotationInterceptor"/></interceptor-stack>

```

Given an Action, AnnotatedAction, add a reference to the AnnotationWorkflowInterceptor interceptor.

```

<action name="AnnotatedAction" class="com.examples.AnnotatedAction"><interceptor-ref
name="annotationInterceptor"/><result name="success"
type="freemarker">good_result.ftl</result></action>

```

With the interceptor applied and the action executed on AnnotatedAction the log instance variable will contain baseBefore-before-execute-beforeResult-after.

Before Annotation

Marks a action method that needs to be executed before the main action method.

Usage

The Before annotation can be applied at method level.

Parameters

no parameters

Examples

```
public class SampleAction extends ActionSupport {

    @Before
    public void isAuthorized() throws AuthenticationException {
        // authorize request, throw exception if failed
    }

    public String execute() {
        // perform secure action
        return SUCCESS;
    }
}
```


BeforeResult Annotation

Marks a action method that needs to be executed before the result. Return value is ignored.

Usage

The BeforeResult annotation can be applied at method level.

Parameters

no parameters

Examples

```
public class SampleAction extends ActionSupport {

    @BeforeResult
    public void isValid() throws ValidationException {
        // validate model object, throw exception if failed
    }

    public String execute() {
        // perform action
        return SUCCESS;
    }
}
```

Conversion Annotation

A marker annotation for type conversions at Type level.

Usage

The Conversion annotation must be applied at Type level.

Parameters

Parameter	Required	Default	Description
conversion	no		used for Type Conversions applied at Type level.

Examples

```
@Conversion()  
public class ConversionAction implements Action {  
}
```

ConversionErrorFieldValidator Annotation

This validator checks if there are any conversion errors for a field and applies them if they exist. See [Type Conversion Error Handling](#) for details.

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.

Examples

```
@ConversionErrorFieldValidator(message = "Default message", key = "il8n.key",  
shortCircuit = true)
```

DateRangeFieldValidator Annotation

This validator checks that a date field has a value within a specified range.

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.
min	no		Date property. The minimum the date must be.
max	no		Date property. The

			maximum date can be.
--	--	--	----------------------

If neither *min* nor *max* is set, nothing will be done.

Examples

```
@DateRangeFieldValidator(message = "Default message", key = "i18n.key", shortCircuit
= true, min = "2005/01/01", max = "2005/12/31")
```

EmailValidator Annotation

This validator checks that a field is a valid e-mail address if it contains a non-empty String.

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.

Examples

```
@EmailValidator(message = "Default message", key = "i18n.key", shortCircuit = true)
```

ExpressionValidator Annotation

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.
expression	yes		An OGNL expression that returns a boolean value.

Examples


```
@ExpressionValidator(message = "Default message", key = "i18n.key", shortCircuit =  
true, expression = "an OGNL expression" )
```

FieldExpressionValidator Annotation

This validator uses an OGNL expression to perform its validation. The error message will be added to the field if the expression returns false when it is evaluated against the value stack.

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.
expression	yes		An OGNL expression that

			returns a boolean value.
--	--	--	--------------------------

Examples

```
@FieldExpressionValidator(message = "Default message", key = "i18n.key",  
shortCircuit = true, expression = "an OGNL expression")
```

IntRangeFieldValidator Annotation

This validator checks that a numeric field has a value within a specified range. If neither min nor max is set, nothing will be done.

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.
min	no		Integer property. The minimum the number must be.
max	no		Integer property. The maximum

			number can be.
--	--	--	----------------

If neither *min* nor *max* is set, nothing will be done.

The values for min and max must be inserted as String values so that "0" can be handled as a possible value.

Examples

```
@IntRangeFieldValidator(message = "Default message", key = "i18n.key", shortCircuit  
= true, min = "0", max = "42")
```

KeyProperty Annotation

Sets the KeyProperty for type conversion.

Usage

The KeyProperty annotation must be applied at method level. This annotation should be used with Generic types, if the key property of the key element needs to be specified.

Parameters

Parameter	Required	Default	Description
id	no	id	The key property value.

Examples

```
// The key property for User objects within the users collection is the
// <code>userName</code> attribute.
List<User> users = null;

@KeyProperty( value = "userName" )
public void setUsers(List<User> users) {
    this.users = users;
}
```

RegexFieldValidator Annotation

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.

Examples

RequiredFieldValidator Annotation

This validator checks that a field is non-null.

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.

Examples

```
@RequiredFieldValidator(message = "Default message", key = "i18n.key", shortCircuit = true)
```


RequiredStringValidator Annotation

This validator checks that a String field is not empty (i.e. non-null with a length > 0).

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.
trim	no	true	Boolean property. Determines whether the String is trimmed before

			performing the length check.
--	--	--	------------------------------

Examples

```
@RequiredStringValidator(message = "Default message", key = "i18n.key", shortCircuit = true, trim = true)
```

StringLengthFieldValidator Annotation

This validator checks that a String field is of the right length. It assumes that the field is a String. If neither minLength nor maxLength is set, nothing will be done.

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.
trim	no	true	Boolean property. Determines

			whether the String is trimmed before performing the length check.
minLength	no		Integer property. The minimum length the String must be.
maxLength	no		Integer property. The maximum length the String can be.

If neither *minLength* nor *maxLength* is set, nothing will be done.

Examples

```
@StringLengthFieldValidator(message = "Default message", key = "i18n.key",
shortCircuit = true, trim = true, minLength = "5", maxLength = "12")
```

StringRegexValidator Annotation

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.
regex	yes	"."	String property. The Regular Expression for which to check a match.
caseSensitive	no	true	Whether the matching of alpha characters in the

			expression should be done case-sensitively.
--	--	--	---

Examples

```
@StringRegexValidator(message = "Default message", key = "i18n.key", shortCircuit = true, regex = "a regular expression", caseSensitive = true)
```

TypeConversion Annotation

This annotation is used for class and application wide conversion rules.

Class wide conversion:

The conversion rules will be assembled in a file called `XXXAction-conversion.properties` within the same package as the related action class. Set type to: `type = ConversionType.CLASS`

Allication wide conversion:

The conversion rules will be assembled within the `xwork-conversion.properties` file within the classpath root. Set type to: `type = ConversionType.APPLICATION`

Usage

The TypeConversion annotation can be applied at property and method level.

Parameters

Parameter	Required	Default	Description
key	no	The annotated property/key name	The optional property name mostly used within TYPE level annotations.
type	no	ConversionType.CLASS	Enum value of ConversionType. Determines whether

Parameter	Required	Default	Description
			the conversion should be applied at application or class level.
rule	no	ConversionRule.PROPERTY	Enum value of ConversionRule. The ConversionRule can be a property, a Collection or a Map.
converter	either this or value		The class name of the TypeConverter to be used as converter.
value	either converter or this		The value to set for ConversionRule.KEY_PROPERTY

Examples

```

@Conversion()
public class ConversionAction implements Action {

    privateString convertInt;

    privateString convertDouble;
    private List users = null;

    private HashMap keyValues = null;

    @TypeConversion(type = ConversionType.APPLICATION, converter =
"com.opensymphony.xwork.util.XWorkBasicConverter")
    public void setConvertInt( String convertInt ) {
        this.convertInt = convertInt;
    }

    @TypeConversion(converter = "com.opensymphony.xwork.util.XWorkBasicConverter")
    public void setConvertDouble( String convertDouble ) {
        this.convertDouble = convertDouble;
    }

    @TypeConversion(rule = ConversionRule.COLLECTION, converter = "java.util.String")
    public void setUsers( List users ) {
        this.users = users;
    }

    @TypeConversion(rule = ConversionRule.MAP, converter = "java.math.BigInteger")

```



```
public void setKeyValues( HashMap keyValues ) {
    this.keyValues = keyValues;
}

@TypeConversion(type = ConversionType.APPLICATION, property = "java.util.Date",
converter = "com.opensymphony.xwork.util.XWorkBasicConverter")
public String execute() throws Exception {
    return SUCCESS;
}
}
```

UrlValidator Annotation

This validator checks that a field is a valid URL.

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.

Examples

```
@UrlValidator(message = "Default message", key = "i18n.key", shortCircuit = true)
```

Validation Annotation

If you want to use annotation based validation, you have to annotate the class or interface with Validation Annotation.

Usage

The Validation annotation must be applied at Type level.

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used here.

Examples

An Annotated Interface

- Mark the interface with @Validation()
- Apply standard or custom annotations at method level

```
@Validation()
public interface AnnotationDataAware {

    void setBarObj(Bar b);

    Bar getBarObj();

    @RequiredFieldValidator(message = "You must enter a value for data.")
    @RequiredStringValidator(message = "You must enter a value for data.")
    void setData(String data);

    String getData();
}
```

An Annotated Class

```
@Validation()
public class SimpleAnnotationAction extends ActionSupport {

    @RequiredFieldValidator(type = ValidatorType.FIELD, message = "You must enter a value for bar.")
    @IntRangeFieldValidator(type = ValidatorType.FIELD, min = "6", max = "10",
message = "bar must be between ${min} and ${max}, current value is ${bar}.")
    public void setBar(int bar) {
        this.bar = bar;
    }

    public int getBar() {
        return bar;
    }

    @Validations(
        requiredFields =
            { @RequiredFieldValidator(type = ValidatorType.SIMPLE, fieldName
= "customfield", message = "You must enter a value for field.") },
        requiredStrings =
            { @RequiredStringValidator(type = ValidatorType.SIMPLE,
fieldName = "stringisrequired", message = "You must enter a value for string.") },
        emails =
            { @EmailValidator(type = ValidatorType.SIMPLE, fieldName =
"emailaddress", message = "You must enter a value for email.") },
        urls =
            { @UrlValidator(type = ValidatorType.SIMPLE, fieldName =
"hreflocation", message = "You must enter a value for email.") },
        stringLengthFields =
            { @StringLengthFieldValidator(type = ValidatorType.SIMPLE, trim
= true, minLength="10", maxLength = "12", fieldName = "needstringlength", message =
"You must enter a stringlength.") },
        intRangeFields =
            { @IntRangeFieldValidator(type = ValidatorType.SIMPLE,
```

```

fieldName = "intfield", min = "6", max = "10", message = "bar must be between ${min}
and ${max}, current value is ${bar}.")}},
    dateRangeFields =
        {@DateRangeFieldValidator(type = ValidatorType.SIMPLE,
fieldName = "datefield", min = "-1", max = "99", message = "bar must be between
${min} and ${max}, current value is ${bar}.")}},
    expressions = {
        @ExpressionValidator(expression = "foo > 1", message = "Foo must be
greater than Bar 1. Foo = ${foo}, Bar = ${bar}."),
        @ExpressionValidator(expression = "foo > 2", message = "Foo must be
greater than Bar 2. Foo = ${foo}, Bar = ${bar}."),
        @ExpressionValidator(expression = "foo > 3", message = "Foo must be
greater than Bar 3. Foo = ${foo}, Bar = ${bar}."),
        @ExpressionValidator(expression = "foo > 4", message = "Foo must be
greater than Bar 4. Foo = ${foo}, Bar = ${bar}."),
        @ExpressionValidator(expression = "foo > 5", message = "Foo must be
greater than Bar 5. Foo = ${foo}, Bar = ${bar}.")
    }
)
publicString execute() throws Exception {
    return SUCCESS;
}
}

```

Validations Annotation

If you want to use several annotations of the same type, these annotation must be nested within the `@Validations()` annotation.

Usage

Used at METHOD level.

Parameters

Parameter	Required	Notes
requiredFields	no	Add list of RequiredFieldValidators
customValidators	no	Add list of CustomValidators
conversionErrorFields	no	Add list of ConversionErrorFieldValidators
dateRangeFields	no	Add list of DateRangeFieldValidators
emails	no	Add list of EmailValidators
fieldExpressions	no	Add list of FieldExpressionValidators
intRangeFields	no	Add list of IntRangeFieldValidators
requiredFields	no	Add list of RequiredFieldValidators

requiredStrings	no	Add list of RequiredStringValidators
stringLengthFields	no	Add list of StringLengthFieldValidators
urls	no	Add list of UrlValidators
visitorFields	no	Add list of VisitorFieldValidators
stringRegexs	no	Add list of StringRegexValidator
regexFields	no	Add list of RegexFieldValidator
expressions	no	Add list of ExpressionValidator

Examples

```
@Validations(
    requiredFields =
        {@RequiredFieldValidator(type = ValidatorType.SIMPLE, fieldName =
"customfield", message = "You must enter a value for field.")},
    requiredStrings =
        {@RequiredStringValidator(type = ValidatorType.SIMPLE, fieldName =
"stringisrequired", message = "You must enter a value for string.")},
    emails =
        { @EmailValidator(type = ValidatorType.SIMPLE, fieldName =
"emailaddress", message = "You must enter a value for email.")},
    urls =
        { @UrlValidator(type = ValidatorType.SIMPLE, fieldName =
"hreflocation", message = "You must enter a value for email.")},
    stringLengthFields =
        {@StringLengthFieldValidator(type = ValidatorType.SIMPLE, trim =
true, minLength="10" , maxLength = "12", fieldName = "needstringlength", message =
"You must enter a stringlength.")},
    intRangeFields =
        { @IntRangeFieldValidator(type = ValidatorType.SIMPLE, fieldName =
"intfield", min = "6", max = "10", message = "bar must be between ${min} and ${max},
current value is ${bar}.")},
    dateRangeFields =
        {@DateRangeFieldValidator(type = ValidatorType.SIMPLE, fieldName =
"datefield", min = "-1", max = "99", message = "bar must be between ${min} and
${max}, current value is ${bar}.")},
    expressions = {
        @ExpressionValidator(expression = "foo > 1", message = "Foo must be
greater than Bar 1. Foo = ${foo}, Bar = ${bar}.")},
        @ExpressionValidator(expression = "foo > 2", message = "Foo must be
```

```
greater than Bar 2. Foo = ${foo}, Bar = ${bar}."),
    @ExpressionValidator(expression = "foo > 3", message = "Foo must be
greater than Bar 3. Foo = ${foo}, Bar = ${bar}."),
    @ExpressionValidator(expression = "foo > 4", message = "Foo must be
greater than Bar 4. Foo = ${foo}, Bar = ${bar}."),
    @ExpressionValidator(expression = "foo > 5", message = "Foo must be
greater than Bar 5. Foo = ${foo}, Bar = ${bar}.")
}
)
publicString execute() throws Exception {
    return SUCCESS;
}
```


VisitorFieldValidator Annotation

The validator allows you to forward validator to object properties of your action using the objects own validator files. This allows you to use the ModelDriven development pattern and manage your validations for your models in one place, where they belong, next to your model classes.


The VisitorFieldValidator can handle either simple Object properties, Collections of Objects, or Arrays. The error message for the VisitorFieldValidator will be appended in front of validator messages added by the validations for the Object message.

Usage

Parameters

Parameter	Required	Default	Notes
message	yes		field error message
key	no		i18n key from language specific properties file.
fieldName	no		
shortCircuit	no	false	If this validator should be used as shortCircuit.
type	yes	ValidatorType.FIELD	Enum value from ValidatorType. Either FIELD or SIMPLE can be used

			here.
context	no	action alias	Determines the context to use for validating the Object property. If not defined, the context of the Action validation is propagated to the Object property validation. In the case of Action validation, this context is the Action alias.
appendPrefix	no	true	Determines whether the field name of this field validator should be prepended to the field name of the visited field to determine the full field name when an error occurs. For example, suppose that the bean being validated has a "name" property. If <i>appendPrefix</i> is true, then the field error will be stored under the field "bean.name". If <i>appendPrefix</i> is false, then the field error will be stored

			<p>under the field "name".</p> <p> If you are using the VisitorFieldValidator to validate the model from a ModelDriven Action, you should set <i>appendPrefix</i> to false unless you are using "model.name" to reference the properties on your model.</p>
--	--	--	--

Examples



```
@VisitorFieldValidator(message = "Default message", key = "i18n.key", shortCircuit = true, context = "action alias", appendPrefix = true)
```

Introduction

JasperReports (<http://jasperreports.sourceforge.net>) is one of the leading open-source java reporting libraries. It compiles .jrxml (XML source) to .jasper (=compiled version) files, which in turn can be transformed to several output types (PDF, CSV, XLS and HTML).

In the following example, we will use Webwork to dynamically create a PDF with a list of persons. Our WW action will be used to create a List with objects, and our JasperReport Result will use this list to fill our template, and return the PDF.

I assume you already have a WW webapp working.

	Note: although this is a very simple example, I suggest you read the fine documentation of both WW and JR.
	Used versions Webwork 2.2 beta 3 (but should apply to previous versions) JasperReports 1.1.0 JDK 1.4.2

Right, let's begin.

Our Person class

We start by defining a simple POJO class: Person.java

```
com.mevipro.test.Person.java
```

```

package com.mevipro.test;

public class Person {

    privateLong id;

    privateString name;

    privateString lastName;

    public Person() {
        super();
    }

    public Person(String name, String lastName) {
        super();
        this.name = name;
        this.lastName = lastName;
    }

    public Person(Long id, String name, String lastName) {
        super();
        this.id = id;
        this.name = name;
        this.lastName = lastName;
    }

    /**
     * @return Returns the id.
     */
    publicLong getId() {
        return id;
    }

    /**
     * @param id The id to set.
     */
    public void setId(Long id) {
        this.id = id;
    }

    /**
     * @return Returns the lastName.
     */
    publicString getLastName() {
        return lastName;
    }

    /**
     * @param lastName The lastName to set.
     */
    public void setLastName(String lastName) {
        this.lastName = lastName;
    }

    /**
     * @return Returns the name.
     */
    publicString getName() {

```

```

        return name;
    }

    /**
     * @param name The name to set.
     */
    public void setName(String name) {
        this.name = name;
    }
}

```

Nothing special. Just your basic properties, constructor, getters and setters.

JasperReports libraries

Before we can continue, we need to add the JR libraries to our classpath. You can download the JR project here: <http://www.sourceforge.net/projects/jasperreports>
Save the jasperreports-X-project.zip to your harddisk, and extract the files.

We need the following files:

- dist/jasperreports-X.jar
- lib/commons-*.jar (all the commons - except maybe for commons-logging)
- lib/itext-X.jar
- lib/jdt-compiler.jar

Copy these jars over to your WW_WEBAPP/WEB-INF/lib directory, and add them to your classpath.

Show me the Action

com.mevipro.test.action.JasperAction

```

package com.mevipro.test.action;

import java.util.ArrayList;
import java.util.List;

import net.sf.jasperreports.engine.JasperCompileManager;

import com.mevipro.test.Person;

```

```

import com.opensymphony.xwork.ActionSupport;

public class JasperAction extends ActionSupport {

    //basic List - it will serve as our dataSource later on
    private List myList;

    /*
     * (non-Javadoc)
     *
     * @see com.opensymphony.xwork.ActionSupport#execute()
     */
    public String execute() throws Exception {

        // create some imaginary persons
        Person p1 = new Person(new Long(1), "Patrick", "Lightbuddie");
        Person p2 = new Person(new Long(2), "Jason", "Carrora");
        Person p3 = new Person(new Long(3), "Alexandru", "Papesco");
        Person p4 = new Person(new Long(4), "Jay", "Boss");

        /*
         * store everything in a list - normally, this should be coming from a
         * database but for the sake of simplicity, I left that out
         */
        myList = new ArrayList();
        myList.add(p1);
        myList.add(p2);
        myList.add(p3);
        myList.add(p4);

        /*
         * Here we compile our xml jasper template to a jasper file.
         * Note: this isn't exactly considered 'good practice'.
         * You should either use precompiled jasper files (.jasper) or provide some
kind of check
         * to make sure you're not compiling the file on every request.
         * If you don't have to compile the report, you just setup your data source
(eg. a List)
         */
        try {
            JasperCompileManager.compileReportToFile(
                "WW_WEBAPP/jasper/our_jasper_template.jrxml",
                "WW_WEBAPP/jasper/our_compiled_template.jasper");
        } catch (Exception e) {
            e.printStackTrace();
            return ERROR;
        }
        //if all goes well ..
        return SUCCESS;
    }

    /**
     * @return Returns the myList.
     */
    public List getMyList() {
        return myList;
    }

}

```

Once again - I guess everything is pretty clear. Our JasperAction will create a list of

several People. The JasperCompileManager will then compile the jrxml template to a .jasper file.



Again, don't use this in production code. You should of course either provide compiled templates, or do some sort of checking to avoid compiling the template on every request. But for our demonstration, or development, this suits our needs just fine.

Our Jasper template

JR uses a special XML page to define templates which will be compiled to .jasper files. These templates will be used to design the resulting report. It's pretty straightforward. This is a handwritten version - for more complex versions I seriously suggest taking a look at the various GUI designers.

our_jasper_template.jrxml

```
<?xml version="1.0"?>
  <!DOCTYPE jasperReport
    PUBLIC "-//JasperReports//DTD Report
    Design//EN" "http://jasperreports.sourceforge.net/dtds/jasperreport.dtd">
  <jasperReport name="jasper_test"><!-- our fields --><field name="name"
    class="java.lang.String"/><field name="lastName"
    class="java.lang.String"/><title><band height="50"><staticText><reportElement x="0"
    y="0" width="180" height="15"/><textElement><text><![CDATA[Webwork JasperReports
    Sample]]></text></staticText></band></title><pageHeader><band></band></pageHeader><columnHeader>
    height="20"><staticText><reportElement x="180" y="0" width="180"
    height="20"/><textElement><font
    isUnderline="true"/></textElement><text><![CDATA[NAME]]></text></staticText><staticText><reportE
    x="360" y="0" width="180" height="20"/><textElement><font
    isUnderline="true"/></textElement><text><![CDATA[LASTNAME]]></text></staticText></band></columnH
    height="20"><textField><reportElement x="180" y="0" width="180"
    height="15"/><textElement><textFieldExpression><![CDATA[${name}]]></textFieldExpression></text
    x="360" y="0" width="180"
    height="15"/><textElement><textFieldExpression><![CDATA[${lastName}]]></textFieldExpression></
    height="15"><staticText><reportElement x="0" y="0" width="40"
    height="15"/><textElement><text><![CDATA[Page:]]></text></staticText><textField><reportElement
    x="40" y="0" width="100" height="15"/><textElement><textFieldExpression
    class="java.lang.Integer"><![CDATA[${PAGE_NUMBER}]]></textFieldExpression></textField></band></
```

Save this file in WW_WEBAPP/jasper/ as 'our_jasper_template.jrxml'.

Most important: we declared the fields name and lastName (not surprisingly, two properties from our Person.class). This means we will now be able to use these fields in our Jasper template.

We define two columnheaders (NAME and LASTNAME), and then add our fields to the detail band (for a better explanation, look at the JR tutorial). This 'detail' band will iterate over our List of People. This is the default behaviour of JR - so if you want to display more information from the Person, add them to this band.

In the detail band we use the

```
$F{name}
```

expression. This means JR will ask WW how to retrieve the field value. WW will happily look up this value in the stack (find the person, and invoke the getName() getter), and return it. Similar for the

```
$F{lastName}
```

The rest is mostly markup to define the layout.



Use a logger (commons-logging, log4j, ..) to watch com.opensymphony.webwork.views.jasperreports in debug mode, if you have any troubles

Register the Action

Alright, time to add the action to our xwork.xml file:

xwork.xml

```
<action name="myJasperTest" class="com.mevipro.test.action.JasperAction">
  <result name="success" type="jasper">
    <param name="location">/jasper/our_compiled_template.jasper</param>
    <param name="dataSource">myList</param>
    <param name="format">PDF</param>
  </result>
</action>
```

Let's explore this a bit further. I assume you are familiar with the xwork notation & schema, if not, check the documentation.

```
<action name="myJasperTest" class="com.mevipro.test.action.JasperAction">
```

We simply register our JasperAction with the name 'myJasperTest' - this means that we can execute this Action by sending a request to myJasperTest.action in our browser.

```
<result name="success" type="jasper">
```

When our JasperAction executes correctly, we will use the Result type registered with the name 'jasper'. This is already done when you include the webwork-default (

```
<include file="webwork-default.xml"/>
```

). This result type will be configured by our params, which we'll specify below:

```
<param name="location">/jasper/our_compiled_template.jasper</param>
```

This parameter defines the location of our compiled jasper file, which will be filled by WW with our dataSource:

```
<param name="dataSource">myList</param>
```

The name of the dataSource - this is the name of the getter you want to call (this will result in a getMyList() call to your JasperAction). It will be used to fill the template with data.

```
<param name="format">PDF</param>
```

This specifies the format to which the jasper file will be transformed. Possible values are: PDF, CSV, XLS and HTML.

Conclusion

You should now be able to execute http://localhost:8080/YOUR_WEBAPP/myJasperTest.action - and you should see a nice list of names.

WW provides probably the most elegant way to deal with JasperReport files; specify the location of the .jasper file, specify what dataSource you want to use, and there you go.

JSP

This page last changed on Dec 16, 2005 by [rgielen](#).

JSP support in WebWork is very easy: by default [webwork-default.xml](#) configures the [Dispatcher Result](#) as the default result (see [Result Types](#)). This means any JSP 1.2+ container can work with WebWork immediately.

Getting Started

Because JSP support occurs through the [Dispatcher Result](#), which is the default result type, you don't need to specify the type attribute when configuration [xwork.xml](#):

```
<action name="test" class="com.acme.TestAction"><result  
name="success">test-success.jsp</result></action>
```

Then in **test-success.jsp**:

```
<%@ taglib prefix="ww" uri="webwork" %><html><head><title>Hello</title></head><body>  
Hello, <ww:property value="name" /></body></html>
```

Where **name** is a property on your action. That's it!

Tag Support

See the [JSP Tags](#) documentation for information on how to use the generic [Tags](#) provided by WebWork.

Overview

OGNL is the Object Graph Navigation Language - see <http://www.ognl.org> for the full documentation of OGNL. In this document we will only show a few examples of OGNL features that co-exist with Webwork. To review basic concepts, refer to [OGNL Basics](#).

Webwork uses a standard naming context to evaluate OGNL expressions. The top level object dealing with OGNL is a map (usually referred as a context map). OGNL has a concept of a root object (in webwork terms, this is the `OGNLValueStack`). Along with the root, other objects are placed in the context map (referred as in the context) including your session/application/request/attr maps. These objects have nothing to do with the root, they just exist along side it in the context map. So, to access these objects, the `#` is used telling ognl not to look in the root object, but within the rest of the context

```
context map---|--request
               |--application
               |--OgnlValueStack(root)
               |--session
               |--attr
               |--parameters
```

Note that there are other objects in the context map, I'm just referring to a few for this example. Now, your actions instances are placed in the `OGNLValueStack` so you can refer to your bean properties without the `#`.

```
<ww: property value="myBean.myProperty"/>
```

For sessions, request, and the rest that lie in the context map:

```
ActionContext.getContext().getSession().put("mySessionPropKey", mySessionObject);
```

```
<ww: property value="#session.mySessionPropKey"/> or  
<ww: property value="#session['mySessionPropKey']"/> or  
<ww: property value="#attr.mySessionPropKey"/>
```

Collections (Maps, Lists, Sets)

Dealing with collections (maps, lists, and sets) in webwork comes often, so here are a few examples using the select tag:

Syntax for list: {e1,e2,e3}. This creates a List containing the String "name1", "name2" and "name3". It also selects "name2" as the default value. Notice the use of the [Alt Syntax](#) to provide the literal "name2".

```
<webwork:select label="label" name="name" list="{ 'name1', 'name2', 'name3' }"  
value="%{'name2'}" />
```

Syntax for map: #{key1:value1,key2:value2}. This creates a map that maps the string "foo" to the string "foovalue" and "bar" to the string "barvalue":

```
<webwork:select label="label" name="name" list="#{ 'foo': 'foovalue',  
'bar': 'barvalue' }" />
```

You may need to determine if an element exists in a collection. You can accomplish this with the operations `in` and `not in`

```
<ui:if test="'foo' in { 'foo', 'bar' }">  
  muhahaha  
</ui:if><ui:else>  
  boo  
</ui:else><ui:if test="'foo' not in { 'foo', 'bar' }">  
  muhahaha  
</ui:if><ui:else>  
  boo  
</ui:else>
```

To select a subset of a collection (called projection), you can use a wildcard within the collection.

- ? - All elements matching the selection logic
- ^ - Only the first element matching the selection logic
- \$ - Only the last element matching the selection logic

To obtain a subset of just male relatives from the object person:

```
person.relatives.{? #this.gender == 'male'}
```

Lambda Expressions

OGNL supports basic lambda expression syntax enabling you to write simple functions. For example:

For all you math majors who didn't think you would ever see this one again.

Fibonacci: if $n=0$ return 0; elseif $n=1$ return 1; else return $\text{fib}(n-2)+\text{fib}(n-1)$;

$\text{fib}(0) = 0$

$\text{fib}(1) = 1$

$\text{fib}(11) = 89$



Useful Information

The lambda expression is everything inside the brackets. The `#this` variable holds the argument to the expression, which initially starts at 11.

```
<ww:property value="#fib =:[#this==0 ? 0 : #this==1 ? 1 :  
#fib(#this-2)+#fib(#this-1)], #fib(11)" />
```

XWork-specific language features

The biggest addition that XWork provides on top of OGNL is the support for the ValueStack. While OGNL operates under the assumption there is only one "root", XWork's ValueStack concept requires there be many "roots".

For example, suppose we are using standard OGNL (not using XWork) and there are two objects in the OgnlContext map: "foo" -> foo and "bar" -> bar and that the foo object is also configured to be the single **root** object. The following code illustrates how OGNL deals with these three situations:

```
#foo.blah // returns foo.getBlah()
#bar.blah // returns bar.getBlah()
blah      // returns foo.getBlah() because foo is the root
```

What this means is that OGNL allows many objects in the context, but unless the object you are trying to access is the root, it must be prepended with a namespaces such as @bar. Now let's talk about how XWork is a little different...



Useful Information

In XWork, the entire ValueStack is the root object in the context. Rather than having your expressions get the object you want from the stack and then get properties from that (ie: peek().blah), XWork has a special OGNL PropertyAccessor that will automatically look at the all entries in the stack (from the top down) until it finds an object with the property you are looking for.

For example, suppose the stack contains two objects: Animal and Person. Both objects

have a "name" property, Animal has a "species" property, and Person has a "salary" property. Animal is on the top of the stack, and Person is below it. The follow code fragments help you get an idea of what is going on here:

```
species    // call to animal.getSpecies()  
salary     // call to person.getSalary()  
name       // call to animal.getName() because animal is on the top
```

In the last example, there was a tie and so the animal's name was returned. Usually this is the desired effect, but sometimes you want the property of a lower-level object. To do this, XWork has added support for indexes on the ValueStack. All you have to do is:

```
[0].name    // call to animal.getName()  
[1].name    // call to person.getName()
```

With expression like [0] ... [3] etc. WebWork will cut the stack and still returned back a CompoundRoot object. To get the top of that particular stack cut, use 0.top

ognl expression	description
[0].top	would get the top of the stack cut starting from element 0 in the stack (similar to top in this case)
[1].top	would get the top of the stack cut starting from element 1 in the stack

Accessing static properties

OGNL supports accessing static properties as well as static methods. As the OGNL docs point out, you can explicitly call statics by doing the following:

```
@some.package.ClassName@FOO_PROPERTY  
@some.package.ClassName@someMethod()
```

However, XWork allows you to avoid having to specify the full package name and call static properties and methods of your action classes using the "vs" prefix:

```
@vs@FOO_PROPERTY
@vs@someMethod()

@vs1@FOO_PROPERTY
@vs1@someMethod()

@vs2@BAR_PROPERTY
@vs2@someOtherMethod()
```

"vs" stands for "value stack". The important thing to note here is that if the class name you specify is just "vs", the class for the object on the top of the stack is used. If you specify a number after the "vs" string, an object's class deeper in the stack is used instead.

Differences from the WebWork 1.x EL

Besides the examples and descriptions given above, there are a few major changes in the EL since WebWork 1.x. The biggest one is that properties are no longer accessed with a forward slash (/) but with a dot (.). Also, rather than using ".." to traverse down the stack, we now use "[n]" where n is some positive number. Lastly, in WebWork 1.x one could access special named objects (the request scope attributes to be exact) by using "@foo", but now special variables are accessed using "#foo". However, it is important to note that "#foo" does NOT access the request attributes. Because XWork is not built only for the web, there is no concept of "request attributes", and thus "#foo" is merely a request to another object in the OgnlContext other than the root.

Old Expression	New Expression
foo/blah	foo.blah
foo/someMethod()	foo.someMethod()
../bar/blah	[1].bar.blah
@baz	not directly supported, but #baz is similar
.	top or [0]

WebWork-specific named objects

name	value
#parameters['foo'] or #parameters.foo	request parameter ['foo'] (request.getParameter())
#request['foo'] or #request.foo	request attribute ['foo'] (request.getAttribute())
#session['foo'] or #session.foo	session attribute 'foo'
#application['foo'] or #application.foo	ServletContext attributes 'foo'
#attr['foo'] or #attr.foo	Access to PageContext if available, otherwise searches request/session/application respectively

Related Tools

This page last changed on Nov 21, 2005 by [plightbo](#).

WebWork has several tools that can help when developing WebWork-based applications. Some of these, such as the [Config Browser](#), are used within your web applications. Others, such as those run from `webwork.jar`, are used at build-time.

Runtime tools

1. [Config Browser](#)

Build-time tools

WebWork comes with various related tools included in the `webwork.jar` file. You can access these tools by simply unpacking the WebWork distribution and running **`java -jar webwork.jar`**. WebWork will automatically include all jars in the same directory as the `webwork.jar` file as well as all jars in the *lib* directory. This means you can invoke these tools either from within the standard directory structure found in the WebWork distribution, or from within your `WEB-INF/lib` directory.

You can access the help information for these tools by simply running the jar without any arguments.

1. [SiteGraph](#)
2. [QuickStart](#)

Config Browser

This page last changed on Dec 29, 2005 by [niko2416](#).

The config browser is a simple tool to help view your WebWork action configuration at runtime. It is very useful when debugging problems that could be related to configuration. To install it, you need to follow these two steps:

1. Add the FreeMarker [dependencies](#) to your web application
2. Add the following to your xwork.xml: **<include file="config-browser.xml"/>**

Once you have done this, you can access the tool but going to the action named *index* in the *config-browser* namespace. In most cases (if you are using the default [ActionMapper](#)), the URL is something like <http://localhost:8080/starter/config-browser/index.action>.

WebWork provides a quick way to get started called QuickStart. QuickStart is essentially a combination of a few technologies and some general conventions for developing web applications. What it lets you do is write applications without the need to even compile your sources, let alone have to deploy and redeploy them after every change. Instead, you can now develop your web applications just like if you were writing perl or PHP – on the fly and as quickly as you can think.

How to Use It

QuickStart is included in the WebWork distribution and can be launched by simply running **java -jar webwork.jar quickstart:mywebapp**. At this point you can access <http://localhost:8080/mywebapp> and begin developing your application. **At this time, QuickStart requires Java 1.5.**

OK, it's a little more work than that, but not much more. QuickStart assumes the following directory structure:

- webwork
 - lib - all your required libs, usually the ones you would put in WEB-INF/lib
 - webapps
 - mywebapp
 - src
 - java - your java sources that would normally be compiled to WEB-INF/classes
 - webapp
 - WEB-INF
 - classes - any additional configuration if you'd like
 - web.xml
 - webwork.jar
 - launcher.jar

You can quickly get started by copying one of the existing webapps in the WebWork distribution.

Once you have it up and running, you are free to change your classes, JSPs, template files, and other files on the fly – all without compiling or redeploying. Some files, such as web.xml, will require that you restart QuickStart for the changes to take affect. Similarly, some frameworks, such as Hibernate, do not offer the full class-reloading support that WebWork does. Your mileage may vary, but we think no matter what you'll love developing in QuickStart.

How It Works

QuickStart works by using the combination of WebWork's "share nothing" (or rather, "share very little") architecture, an embedded Jetty server, some advanced class loading, and the Eclipse Java compiler (don't worry, the Eclipse IDE is not required!)

Running webwork.jar bootstraps the classpath and includes every jar found in the **lib** directory. It also includes webwork.jar, of course. It then invokes the QuickStart application. This, in turn, starts a Jetty server that is configured to the webapp specified in the **quickstart:xxx** argument.

The Jetty server's context ClassLoader is specified as a custom ClassLoader that looks at the source files in **webapps/xxx/src/java** and compiles them on the fly. These classes are also reloaded whenever a change is detected.

Because WebWork creates a new action on every request, reloading the classes works great. You are free to change the entire class schema (methods, fields, inheritance, etc). Because none of the objects are cached or stored in long-term storage, you usually won't run in to any problems here.

Running in Your IDE

Running QuickStart from your IDE is no different than running it from the command line. The only difference is that you need to set up the structure and classpath in your IDE properly. It doesn't really matter what is in the **classpath** as long the WebWork

jar is included. Pay close attention to your **working directory**.

An example of what IntelliJ IDEA looks like when launching QuickStart from within the WebWork project is included for reference (click for a larger view):

Common Pitfalls

While WebWork is pretty good about making class reloading in QuickStart easy, other libraries and code are not. As a general rule of thumb, if any objects have long term state (singleton, session scope, etc), they will *not* be reloaded. The reloaded classes will *only* take affect after a new instance has been created with the *new* keyword or through reflection.

For example, Hibernate has been found to store references to the objects it persists for long periods of time because of it's caching mechanism. It also happens to hold a reference to the Class instance itself. This makes it very difficult, if not impossible, to allow you to change your models on the fly.

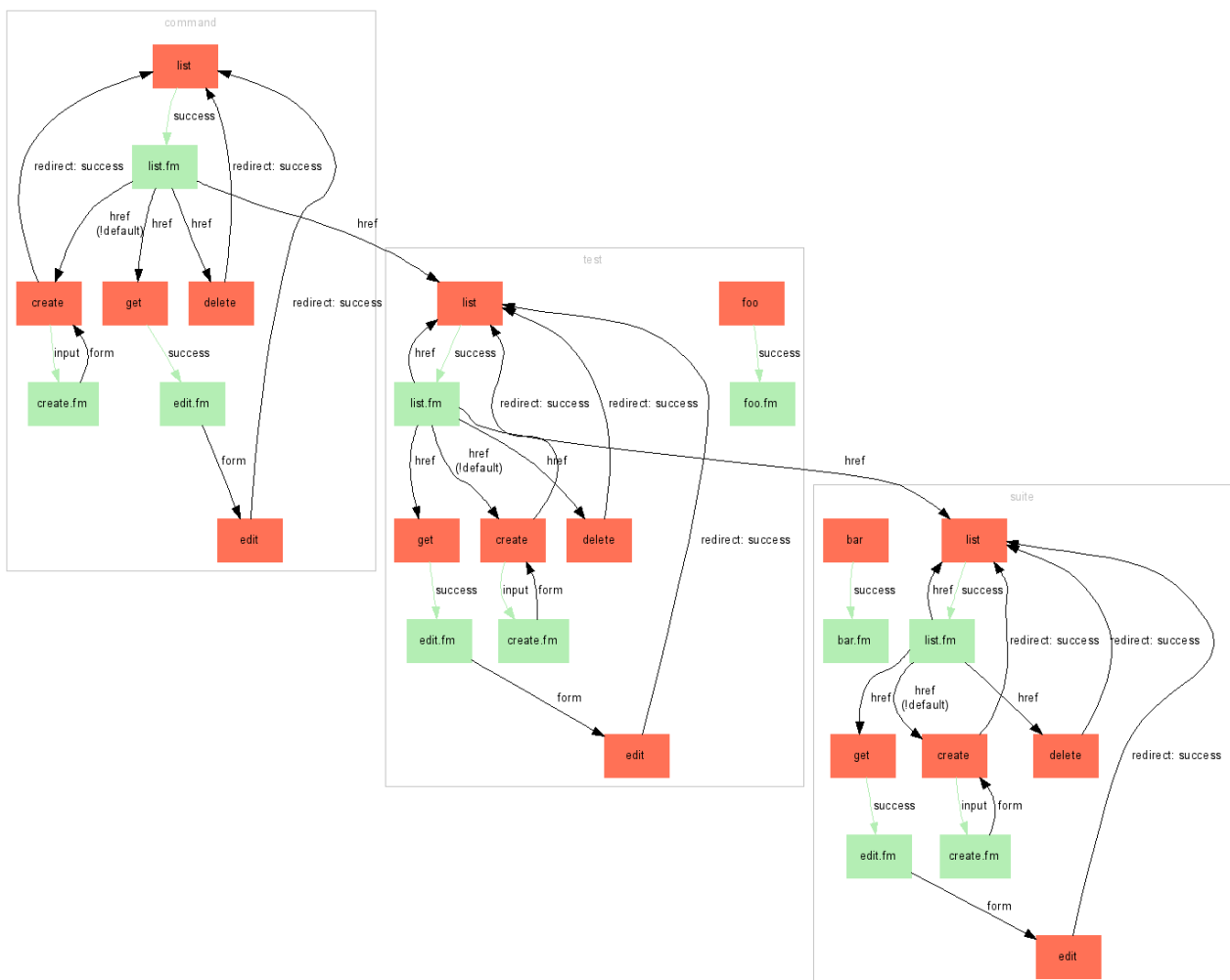


Most problems will manifest themselves through a `ClassCastException`, or some other weird class-related error. You may even find yourself banging your head against the wall because some `Foo` instance can't be cast to the `Foo` class. This is the biggest challenge with using QuickStart and can best be mitigated by using libraries and code that share very little state.

A final word of warning: QuickStart is not meant for production use, or even to be used as the sole environment for application development. Rather, it is meant to help you quickly develop proof-of-concepts see results quickly. We recommend you always at least test in other applications servers, such as Tomcat, Resin, or even standalone Jetty.

Introduction

WebWork comes with a utility called SiteGraph. SiteGraph is used to generate graphical diagrams representing the flow of your web application. It does this by parsing your configuration files, action classes, and view (JSP, Velocity, and FreeMarker) files. An example of a typical output of SiteGraph is provided (for the full size, click [here](#)):



Additional information can be found in the JavaDocs:

SiteGraph is a tool that renders out GraphViz-generated images depicting your

WebWork-powered web application's flow. SiteGraph requires GraphViz be installed and that the "dot" executable be in your command path. You can find GraphViz at <http://www.graphviz.org>.

Understanding the Output

There are several key things to notice when looking at the output from SiteGraph:

- Boxes: those shaded red indicate an action; those shaded green indicate a view file (JSP, etc).
- Links: arrows colored green imply that no new HTTP request is being made; black arrows indicate a new HTTP request.
- Link labels: labels may sometimes contain additional useful information. For example, a label of **href** means that the link behavior is that of a hyper-text reference. The complete label behaviors are provided:
 - **href** - a view file references an action by name (typically ending with the extension ".action")
 - **action** - a view file makes a call to the [Action](#) tag
 - **form** - a view file is linked to an action using the [Form](#) tag
 - **redirect** - an action is redirecting to another view or action
 - **! notation** - a link to an action overrides the method to invoke

Requirements

SiteGraph requires that your view files be structured in a very specific way. Because it has to read these files, only certain styles are supported. The requirements are:

- The JSP tags must use the "ww" namespace.
 - In JSP: `<ww:xxx/>`
 - In FreeMarker: `<@ww.xxx/>`
 - In Velocity: N/A
- Use of the [Form](#) tag and [Action](#) tag must be linking directly to the action name (and optional namespace). This means that `<ww:form action="foo"/>` is OK, but `<ww:form action="foo.action"/>` is not.
- All code is expected to be using the [Alt Syntax](#).

Setting up

SiteGraph is built in to WebWork, so if you're up and running with WebWork, you don't need to do anything additional java packages. However, SiteGraph does require the "dot" package by [GraphViz](#).

You'll need to download the latest version of GraphViz and make sure that the dot executable (dot.exe in Windows) is in your command path. In Windows the GraphViz installer typically automatically adds dot.exe to your path. However, you may need to do this by hand depending on your system configuration.

Usage

You can use SiteGraph with the following command:

```
java -cp ... -jar webwork.jar
sitegraph
-config CONFIG_DIR
-views VIEWS_DIRS
-output OUTPUT
[-ns NAMESPACE]
```

Where:

```
Usage: -config CONFIG_DIR -views VIEWS_DIRS -output OUTPUT [-ns NAMESPACE]
CONFIG_DIR => a directory containing xwork.xml
VIEWS_DIRS => comma seperated list of dirs containing JSPs, VMs, etc
OUTPUT      => the directory where the output should go
NAMESPACE   => the namespace path restriction (/ , /foo, etc)
```



You must supply the correct classpath when invoking the SiteGraph tool. Specifically, the XWork, WebWork, and their dependencies must be included in the classpath. Furthermore, **you must also include your action class files**

	referenced in xwork.xml . Without the proper class path entries, SiteGraph will not function properly.
--	---

Once you have run SiteGraph, check the directory specified in the "output" argument (OUTPUT). In there you will find two files: **out.dot** and **out.gif**. You may immediately open up **out.gif** and view the web application flow. However, you may also wish to either run the **out.dot** file through a different GraphVis layout engine (neato, twopi, etc), so the original dot file is provided as well. You may also wish to edit the dot file before rendering the final flow diagram.

Automatic Execution

Some advanced users may wish to execute SiteGraph from within their application – this could be required if you are developing an application that supports WebWork plugin capabilities. This can easily be done. See the JavaDocs for more info:

If you wish to use SiteGraph through its API rather than through the command line, you can do that as well. All you need to do is create a new SiteGraph instance, optionally specify a Writer to output the dot content to, and then call #prepare().

The command line version of SiteGraph does exactly this (except for overriding the Writer):

```
SiteGraph siteGraph = new SiteGraph(configDir, views, output, namespace);
siteGraph.prepare();
siteGraph.render();
```

Result Types

This page last changed on Dec 11, 2005 by [plightbo](#).

See [Result Configuration](#) for basic information about how results are configuration.

Overview

Result Types are classes that determine what happens after an Action executes and a Result is returned. Developers are free to create their own Result Types according to the needs of their application or environment. In WebWork 2 for example, Servlet and Velocity Result Types have been created to handle rendering views in web applications.

Note: All built in webwork result types implement the `com.opensymphony.xwork.Result` interface, which represents a generic interface for all action execution results, whether that be displaying a webpage, generating an email, sending a JMS message, etc.

Result types define classes and map them to names to be referred in the action configuration results. This serves as a shorthand name-value pair for these classes.

snippet of webwork-default.xml

```
...
<result-types><result-type name="dispatcher"
class="com.opensymphony.webwork.dispatcher.ServletDispatcherResult"
default="true"/><result-type name="redirect"
class="com.opensymphony.webwork.dispatcher.ServletRedirectResult"/><result-type
name="velocity"
class="com.opensymphony.webwork.dispatcher.VelocityResult"/><result-type
name="chain" class="com.opensymphony.xwork.ActionChainResult"/><result-type
name="xslt" class="com.opensymphony.webwork.views.xslt.XSLTResult"/><result-type
name="jasper"
class="com.opensymphony.webwork.views.jasperreports.JasperReportsResult"/><result-type
name="freemarker"
class="com.opensymphony.webwork.views.freemarker.FreemarkerResult"/><result-type
name="httpheader"
class="com.opensymphony.webwork.dispatcher.HttpHeaderResult"/><result-type
name="stream"
class="com.opensymphony.webwork.dispatcher.StreamResult"/></result-types>
...
```

snippet of your xwork.xml

```
<include file="webwork-default.xml"/><package name="myPackage"
extends="default"><action name="bar" class="myPackage.barAction"><!-- default result
type is "dispatcher" --><!-- default result name is "success"
--><result>foo.jsp</result><result
name="error">error.jsp</result></result></action></package>
```

Result Types

Webwork provides several implementations of the `com.opensymphony.xwork.Result` interface to make web-based interactions with your actions simple. These result types include:

- [Chain Result](#) - used for [Action Chaining](#)
- [Dispatcher Result](#) - used for [JSP](#) integration
- [FreeMarker Result](#) - used for [FreeMarker](#) integration
- [HTTPHeader Result](#) - used to control special HTTP behaviors
- [JasperReports Result](#) - used for [JasperReports](#) integration
- [Redirect Result](#) - used to redirect to another URL
- [Redirect Action Result](#) - used to redirect to another action
- [Stream Result](#) - used to stream an `InputStream` back to the browser (usually for file downloads)
- [Velocity Result](#) - used for [Velocity](#) integration
- [XSL Result](#) - used for XML/XSLT integration

Results are specified in a xwork xml config file(xwork.xml) nested inside `<action>`. If the `location` param is the only param being specified in the result tag, you can simplify it as follows:

```
<action name="bar" class="myPackage.barAction"><result name="success"
type="dispatcher"><param name="location">foo.jsp</param></result></action>
```

or simplified

```
<action name="bar" class="myPackage.barAction"><result name="success"
type="dispatcher">foo.jsp</result></action>
```

if you are extending `webwork-default.xml`, then the default result type is "dispatcher". Also, if you don't specify the name of a result, it is assumed to be "success". This means you can simply the result down to

```
<action name="bar" class="myPackage.barAction"><result>foo.jsp</result></action>
```

NOTE: The Parse attribute enables the location element to be parsed for expressions. An example of how this could be useful:

```
<result name="success" type="redirect">/displayCart.action?userId=${userId}</result>
```

NOTE: You can also specify global-results to use with multiple actions. This can save time from having to add the same result to many different actions. For more information on result tags and global-results, see [Result Configuration](#) section.

Chain Result

This page last changed on Dec 11, 2005 by [plightbo](#).

This result invokes an entire other action, complete with it's own interceptor stack and result.

Parameters

-
- **actionName (default)** - the name of the action that will be chained to
-
- **namespace** - used to determine which namespace the Action is in that we're chaining. If namespace is null, this defaults to the current namespace
-

Examples

```
<package name="public" extends="webwork-default"><!-- Chain creatAccount to login,
using the default parameter --><action name="createAccount" class="..."><result
type="chain">login</result></action><action name="login" class="..."><!-- Chain to
another namespace --><result type="chain"><param
name="actionName">dashboard</param><param
name="namespace">/secure</param></result></action></package><package name="secure"
extends="webwork-default" namespace="/secure"><action name="dashboard"
class="..."><result>dashboard.jsp</result></action></package>
```


Dispatcher Result

This page last changed on Dec 20, 2005 by [mrdon](#).

Includes or forwards to a view (usually a jsp). Behind the scenes WebWork will use a `RequestDispatcher`, where the target servlet/JSP receives the same request/response objects as the original servlet/JSP. Therefore, you can pass data between them using `request.setAttribute()` - the WebWork action is available. There are three possible ways the result can be executed:

- If we are in the scope of a JSP (a `PageContext` is available), `PageContext`'s `{@link PageContext#include(String) include}` method is called.
- If there is no `PageContext` and we're not in any sort of include (there is no `"javax.servlet.include.servlet_path"` in the request attributes), then a call to `{@link RequestDispatcher#forward(javax.servlet.ServletRequest, javax.servlet.ServletResponse) forward}` is made.
- Otherwise, `{@link RequestDispatcher#include(javax.servlet.ServletRequest, javax.servlet.ServletResponse) include}` is called.

Parameters

-
- **location (default)** - the location to go to after execution (ex. jsp).
-
- **parse** - true by default. If set to false, the location param will not be parsed for Ognl expressions.
-

Examples

```
<result name="success" type="dispatcher"><param
name="location">foo.jsp</param></result>
```

FreeMarker Result

This page last changed on Dec 20, 2005 by [mrdon](#).

Renders a view using the Freemarker template engine. Alternatively, the `{@link com.opensymphony.webwork.dispatcher.ServletDispatcherResult dispatcher}` result type can be used in conjunction Webwork's `{@link FreemarkerServlet}`.

The FreemarkerManager class configures the template loaders so that the template location can be either

-
- relative to the web root folder. eg `/WEB-INF/views/home.ftl`
-
- a classpath resource. eg `com/company/web/views/home.ftl`
-

Also see [WebWork Freemarker Support](#).

Parameters

-
- **location (default)** - the location of the template to process.
-
- **parse** - true by default. If set to false, the location param will not be parsed for Ognl expressions.
-
- **contentType** - defaults to "text/html" unless specified.
-

Examples

```
<result name="success" type="freemarker">foo.ftl</result>
```

Freemarker Support in WebWork

Freemarker views can be rendered either via the webwork result type `freemarker`, or by using the `dispatcher` result type in conjunction Webwork's `FreemarkerServlet`.

This document will focus on using the `freemarker` result since it is the recommended approach. An section follows to show how to use the `FreemarkerServlet`.

Configure your action to use the `freemarker` result type

The `freemarker` result type is defined in `webwork-default.xml`, so normally you just include it, and define your results to use `type="freemarker"`.

```
<include file="webwork-default.xml"/>
...
<action name="test" class="package.Test"><result name="success"
type="freemarker">/WEB-INF/views/testView.ftl</result></action>
...
```

Property Resolution

Your action properties are automatically resolved - just like in a velocity view.

for example `${name}` will result in `stack.findValue("name")`, which *generally* results in `action.getName()` being executed.

A search process is used to resolve the variable, searching the following scopes in order, until a value is found :

- freemarker variables
- value stack
- request attributes

- session attributes
- servlet context attributes

Objects in the Context

The following variables exist in the freemarker views

- `req` - the current `HttpServletRequest`
- `res` - the current `HttpServletResponse`
- `stack` - the current `OgnlValueStack`
- `ognl` - the `OgnlTool` instance
 - This class contains useful methods to execute OGNL expressions against arbitrary objects, and a method to generate a select list using the `<ww:select>` pattern. (i.e. taking the name of the list property, a `listKey` and `listValue`)
- `webwork` - an instance of `FreemarkerWebWorkUtil`
- `action` - the current `WebWork` action
- `exception` - *optional* the `Exception` instance, if the view is a JSP exception or Servlet exception view

FreeMarker configuration with recent (post 2.1) releases

To configure the freemarker engine that webwork uses, just add a file `freemarker.properties` to the classpath. The supported properties are those that the freemarker Configuration object expects - see the freemarker documentation for these. These properties are used for both the `freemarker` result type, and the webwork provided `FreemarkerServlet`.

```
default_encoding=ISO-8859-1
template_update_delay=5
locale=no_NO
```

Using webwork UI tags - or any JSP Tag Library

Freemarker has builtin support for using any JSP taglib. You can use JSP taglibs in FreeMarker even if

a) your servlet container has no support for JSP, or

b) you didn't specify the taglib in your web.xml - note how in the example below we refer to the taglib by its webapp-absolute URL, so no configuration in web.xml is needed.

```
<#assign ww=JspTaglibs["/WEB-INF/webwork.tld"] />

<@ww.form method="'post'" name="'inputform'" action="'save.action'" >
  <@ww.hidden name="'id'" />
  <@ww.textarea label="'Details'" name="'details'" rows=5 cols=40 />
  <@ww.submit value="'Save'" align="center" />
</@ww.form>
```

NOTE : numeric properties for tags MUST be numbers, not strings. as in the rows and cols properties above. if you use cols="40" you will receive an exception. Other than that, the freemarker tag container behaves as you would expect.

Using the FreemarkerServlet

The FreemarkerServlet provided in the freemarker.jar will work out of the box **however** it won't provide any webwork specific functionality such as the context variables, property resolution etc. Therefore webwork provides its own servlet to provide this integration.

Register the FreemarkerServlet in web.xml

To use freemarker as a view engine, the webwork2 FreemarkerServlet needs to be configured, and mapped to the file extension that you use for your templates.

```
<servlet><servlet-name>freemarker</servlet-name><servlet-class>com.opensymphony.webwork.views.freemarker.FreemarkerServlet</servlet-class></servlet>
```

Configure Actions to use this servlet (xwork.xml configuration)

To use the freemarker view, just use the `dispatcher` result type, and specify the location to the template file.

```
<action name="test" class="package.Test"><result name="success"
type="dispatcher">/WEB-INF/views/testView.ftl</result></action>
```

Extending the servlet

NOTE: these docs need to be revised, since the FreemarkerServlet has changed since they were written.

Please refer to the freemarker site for details about the base freemarker servlet.

Be careful when subclassing `com.opensymphony.webwork.views.freemarker.FreemarkerServlet` when overriding

```
protected TemplateModel createModel(
    ObjectWrapper wrapper,
    ServletContext servletContext,
    HttpServletRequest request,
    HttpServletResponse response)
```

Please call `super.createModel(...)` and wrap it with a new model to avoid problems with action property resolution.

HTTPHeader Result

This page last changed on Dec 20, 2005 by [mrdon](#).

A custom Result type for evaluating HTTP headers against the ValueStack.

Parameters

-
- **status** - the http servlet response status code that should be set on a response.
-
- **parse** - true by default. If set to false, the headers param will not be parsed for Ognl expressions.
-
- **headers** - header values.
-

Examples

```
<result name="success" type="httpheader"><param name="status">204</param><param name="headers.a">a custom header value</param><param name="headers.b">another custom header value</param></result>
```


Generates a JasperReports report using the specified format or PDF if no format is specified.

Parameters

- **location (default)** - the location where the compiled jasper report definition is (foo.jasper), relative from current URL.
- **dataSource (required)** - the Ognl expression used to retrieve the datasource from the value stack (usually a List).
- **parse** - true by default. If set to false, the location param will not be parsed for Ognl expressions.
- **format** - the format in which the report should be generated. Valid values can be found in JasperReportConstants. If no format is specified, PDF will be used.
- **contentDisposition** - disposition (defaults to "inline", values are typically *filename="document.pdf"*).
- **documentName** - name of the document (will generate the http header `Content-disposition = X; filename=X.[format]`).
- **delimiter** - the delimiter used when generating CSV reports. By default, the character used is ",".
- **imageServletUrl** - name of the url that, when prefixed with the context page, can return report images.

This result follows the same rules from WebWorkResultSupport. Specifically, all parameters will be parsed if the "parse" parameter is not set to false.

Examples

```
<result name="success" type="jasper"><param name="location">foo.jasper</param><param name="dataSource">mySource</param><param name="format">CSV</param></result>
```

or for pdf:

```
<result name="success" type="jasper"><param name="location">foo.jasper</param><param
```

```
name="dataSource">mySource</param></result>
```

Redirect Action Result

This page last changed on Dec 11, 2005 by [plightbo](#).

This result uses the ActionMapper provided by the ActionMapperFactory to redirect the browser to a URL that invokes the specified action and (optional) namespace. This is better than the ServletRedirectResult because it does not require you to encode the URL patterns processed by the ActionMapper in to your xwork.xml configuration files. This means you can change your URL patterns at any point and your application will still work. It is strongly recommended that if you are redirecting to another action, you use this result rather than the standard redirect result.



See [ActionMapper](#) for more details

Parameters

-
- **actionName (default)** - the name of the action that will be redirect to
-
- **namespace** - used to determine which namespace the action is in that we're redirecting to . If namespace is null, this defaults to the current namespace
-

Examples

```
<package name="public" extends="webwork-default"><action name="login"
class="..."><!-- Redirect to another namespace --><result
type="redirect-action"><param name="actionName">dashboard</param><param
name="namespace">/secure</param></result></action></package><package name="secure"
extends="webwork-default" namespace="/secure"><!-- Redirect to an action in the same
namespace --><action name="dashboard"
class="..."><result>dashboard.jsp</result><result name="error"
type="redirect-action">error</result></action><action name="error"
class="..."><result>error.jsp</result></action></package>
```

Redirect Result

This page last changed on Dec 20, 2005 by [mrdon](#).

Calls the {@link HttpServletResponse#sendRedirect(String) sendRedirect} method to the location specified. The response is told to redirect the browser to the specified location (a new request from the client). The consequence of doing this means that the action (action instance, action errors, field errors, etc) that was just executed is lost and no longer available. This is because actions are built on a single-thread model. The only way to pass data is through the session or with web parameters (url?name=value) which can be OGNL expressions.

Parameters

-
- **location (default)** - the location to go to after execution.
-
- **parse** - true by default. If set to false, the location param will not be parsed for Ognl expressions.
-

This result follows the same rules from WebWorkResultSupport.

Examples

```
<result name="success" type="redirect"><param name="location">foo.jsp</param><param name="parse">false</param></result>
```

A custom Result type for send raw data (via an `InputStream`) directly to the `HttpServletResponse`. Very useful for allowing users to download content.

Parameters

-
- **contentType** - the stream mime-type as sent to the web browser (default = `text/plain`).
-
- **contentLength** - the stream length in bytes (the browser displays a progress bar).
-
- **contentDisposition** - the content disposition header value for specifying the file name (default = `inline`, values are typically `filename="document.pdf"`).
-
- **inputName** - the name of the `InputStream` property from the chained action (default = `inputStream`).
-
- **bufferSize** - the size of the buffer to copy from input to output (default = 1024).
-

Examples

```
<result name="success" type="stream"><param
name="contentType">image/jpeg</param><param
name="inputName">imageStream</param><param
name="contentDisposition">filename="document.pdf"</param><param
name="bufferSize">1024</param></result>
```

Velocity Result

This page last changed on Dec 21, 2005 by [mrdon](#).

Using the Servlet container's JspFactory, this result mocks a JSP execution environment and then displays a Velocity template that will be streamed directly to the servlet output.

Parameters

-
- **location (default)** - the location of the template to process.
-
- **parse** - true by default. If set to false, the location param will not be parsed for Ognl expressions.
-

This result follows the same rules from WebWorkResultSupport.

Examples

```
<result name="success" type="velocity"><param
name="location">foo.vm</param></result>
```

XSL Result

This page last changed on Dec 21, 2005 by [mrdon](#).

XSLTResult uses XSLT to transform action object to XML. Recent version has been specifically modified to deal with Xalan flaws. When using Xalan you may notice that even though you have very minimal stylesheet like this one

```
<xsl:template match="/result">
  <result />
</xsl:template>
```

then Xalan would still iterate through every property of your action and it's all descendants.

If you had double-linked objects then Xalan would work forever analysing infinite object tree. Even if your stylesheet was not constructed to process them all. It's because current Xalan eagerly and extensively converts everything to it's internal DTM model before further processing.

That's why there's a loop eliminator added that works by indexing every object-property combination during processing. If it notices that some object's property were already walked through, it doesn't get any deeper. Say, you have two objects x and y with the following properties set (pseudocode):

```
x.y = y;
and
y.x = x;
action.x=x;
```

Due to that modification the resulting XML document based on x would be:

```
<result>
  <x>
    <y/>
  </x>
</result>
```

Without it there would be an endless x/y/x/y/x/y/... elements.

The XSLTResult code tries also to deal with the fact that DTM model is built in a manner that childs are processed before siblings. The result is that if there is object x that is both set in action's x property, and very deeply under action's a property then it would only appear under a, not under x. That's not what we expect, and that's why XSLTResult allows objects to repeat in various places to some extent.

Sometimes the object mesh is still very dense and you may notice that even though you have relatively simple stylesheet execution takes a tremendous amount of time. To help you to deal with that obstacle of Xalan you may attach regexp filters to elements paths (xpath).

In the following example the XSLT result would only walk through action's properties without their childs. It would also skip every property that has "hugeCollection" in their name. Element's path is first compared to excludingPattern - if it matches it's no longer processed. Then it is compared to matchingPattern and processed only if there's a match.

```
<result name="success" type="xslt"><param name="location">foo.xslt</param><param
name="matchingPattern">^/result/[^/*]$/</param><param
name="excludingPattern">.*(hugeCollection).*</param></result>
```

Parameters

-
- **location (default)** - the location to go to after execution.
-
- **parse** - true by default. If set to false, the location param will not be parsed for Ognl expressions.
-

- **matchingPattern** - Pattern that matches only desired elements, by default it matches everything.
-
- **excludingPattern** - Pattern that eliminates unwanted elements, by default it matches none.
-

webwork.properties related configuration:

-
- **webwork.xslt.nocache** - Defaults to false. If set to true, disables stylesheet caching. Good for development, bad for production.
-

Examples

```
<result name="success" type="xslt"><param name="location">foo.xslt</param><param
name="matchingPattern">^/result/[^/*]${</param><param
name="excludingPattern">.*(hugeCollection).*</param></result>
```

Tags

This page last changed on Dec 11, 2005 by [plightbo](#).

Webwork provides a tag library decoupled from the view technology. In this section, we describe each tag in general terms, such as the attributes it supports, what the behaviors are, etc. Most tags are supported in all template languages (see [JSP Tags](#), [Velocity Tags](#), and [FreeMarker Tags](#)), but some are currently only specific to one language. Whenever a tag doesn't have complete support for every language, it will be noted in the reference documents.

The types of tags can be broken in to two types: general and HTML. Besides function and responsibility, the biggest difference between the general tags and the HTML tags is the fact that the HTML tags support *templates* and *themes*. In addition to the general tag reference, we also provide examples for using these generic tags in each of the support languages.



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

General Tags

General tags are used for controlling the execution flow when your pages render. They also allow for data extraction from places other than your action or the value stack, such as [Internationalization](#), JavaBeans, and including additional URLs or action executions.

1. [Control Tags](#) provide control flow, such as *if*, *else*, and *iterator*.
2. [Data Tags](#) allow for data manipulation or creation, such as *bean*, *push*, and *i18n*.

HTML Tags

Unlike the general tags, the HTML tags do not provide much control structure or logic.

Rather, they are focussed on using data, either from your action/value stack or from the [Data Tags](#), and displaying it in rich and reusable HTML. All HTML tags have a unique behavior that they are driven by *templates* and *themes*. While the general tags simply output some content directly from the tag (if there is any content to output), the HTML tags defer to a template, often grouped together as a theme, to do the actual rendering.

This unique template support allows for you to use the HTML tags to build a rich set of reusable UI components that fit your exact requirements. Please read the [Themes and Templates](#) guide for more information on this powerful feature.

1. [Themes and Templates](#): a must-read explanation of how themes and templates are uses when rendering HTML tags.
2. [Form Tags](#) provide all form-related HTML output, such as *form*, *textfield*, and *select*.
3. [Non Form Tags](#) provide all non-form-related HTML output, such as *a*, *div*, and *tabbedPanel*.

Language Specific Tag Support

WebWork strives to support whatever environment you are most comfortable working in. That is why WebWork does not require a single template language, but instead allows for almost any common language to be used and even provides hooks for new languages. By default, almost every single tag is supported in JSP, Velocity, and FreeMarker. In each of these sections, you'll find examples and techniques for applying the generic tag reference toward your specific language or template choice.



As of WebWork 2.2, FreeMarker has become the "standard" template language recommended by the WebWork team. There are many reasons for this decision, which can be found in various forums archives, but it pretty much boils down to this: FreeMarker provides a richer set of features than Velocity and is also more developer-friendly when errors

	occur (ie: the error reports are more accurate). JSP, while still used, is much more difficult for applications that demand a more modular approach, such as changing the templates at runtime or uploading packaged "modules" of WebWork actions and template files.
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1. [JSP Tags](#)
2. [Velocity Tags](#)
3. [FreeMarker Tags](#)

Control Tags

This page last changed on Jan 07, 2006 by [tm_jee](#).

Controls tags provide the ability to manipulate collections and conditionally produce content.



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

1. [if](#)
2. [elseif / elseif](#)
3. [else](#)
4. [append](#)
5. [generator](#)
6. [iterator](#)
7. [merge](#)
8. [sort](#)
9. [subset](#)

@see `src/META-INF/taglib.tld`



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Component for AppendIteratorTag, which jobs is to append iterators to form an appended iterator whereby entries goes from one iterator to another after each respective iterator is exhausted of entries.

For example, if there are 3 iterator appended (each iterator has 3 entries), the following will be how the appended iterator entries will be arranged:

1. First Entry of the First Iterator
2. Second Entry of the First Iterator
3. Third Entry of the First Iterator
4. First Entry of the Second Iterator
5. Second Entry of the Second Iterator
6. Third Entry of the Second Iterator
7. First Entry of the Third Iterator
8. Second Entry of the Third Iterator
9. Third Entry of the Third Iterator

Parameters

Name	Required	Default	Type	Description

id	false		Object/String	the id of which if supplied will have the resultant appended iterator stored under in the stack's context
----	-------	--	---------------	---

Example

```

public class AppendIteratorTagAction extends ActionSupport {

    private List myList1;
    private List myList2;
    private List myList3;

    public String execute() throws Exception {

        myList1 = new ArrayList();
        myList1.add("1");
        myList1.add("2");
        myList1.add("3");

        myList2 = new ArrayList();
        myList2.add("a");
        myList2.add("b");
        myList2.add("c");

        myList3 = new ArrayList();
        myList3.add("A");
        myList3.add("B");
        myList3.add("C");

        return "done";
    }

    public List getMyList1() { return myList1; }
    public List getMyList2() { return myList2; }
    public List getMyList3() { return myList3; }
}

```

```

<ww:append id="myAppendIterator"><ww:param value="%{myList1}" /><ww:param
value="%{myList2}" /><ww:param value="%{myList3}" /></ww:append><ww:iterator
value="%{#myAppendIterator}"><ww:property /></ww:iterator>

```

else

This page last changed on Jan 07, 2006 by [tm_jee](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Perform basic condition flow. 'If' tag could be used by itself or with 'Else If' Tag and/or single/multiple 'Else' Tag.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples


```
<ww:if test="%{false}"><div>Will Not Be Executed</div></ww:if><ww:elseif  
test="%{true}"><div>Will Be Executed</div></ww:elseif><ww:else><div>Will Not Be  
Executed</div></ww:else>
```

Description

Parameters

Examples

Description

NOTE: JSP-TAG

Generate an iterator based on the val attribute supplied.

NOTE: The generated iterator will **ALWAYS** be pushed into the top of the stack, and popped at the end of the tag.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

count	false		Integer	the max number entries to be in the iterator
-------	-------	--	---------	--

separator	true		String	the separator to be used in separating the <i>val</i> into entries
-----------	-------------	--	--------	--

				of the iterator
--	--	--	--	-----------------

val	true		Object/String	the source to be parsed into an iterator
-----	-------------	--	---------------	--

converter	false		com.opensymphony.webwork.util.IteratorGenerator	convert the String entry parsed from <i>val</i> into an object
-----------	-------	--	---	--

id	false		String	the id to store the resultant iterator into page context, if such id is supplied
----	-------	--	--------	--

Examples

Example One:

```
<pre>
Generate a simple iterator
<ww:generator val="%{'aaa,bbb,ccc,ddd,eee'}"><ww:iterator><ww:property
```

```
</ww:iterator></ww:generator></pre>
```

This generates an iterator and print it out using the iterator tag.

Example Two:

```
<pre>
```

Generate an iterator with count attribute

```
<ww:generator val="%{'aaa,bbb,ccc,ddd,eee'}" count="3"><ww:iterator><ww:property
/><br/></ww:iterator></ww:generator></pre>
```

This generates an iterator, but only 3 entries will be available in the iterator generated, namely aaa, bbb and ccc respectively because count attribute is set to 3

Example Three:

```
<pre>
```

Generate an iterator with id attribute

```
<ww:generator val="%{'aaa,bbb,ccc,ddd,eee'}" count="4" separator="," id="myAtt" />
<%
```

```
    Iterator i = (Iterator) pageContext.getAttribute("myAtt");
    while(i.hasNext()) {
        String s = (String) i.next(); %>
        <%=s%><br/>
```

```
<%    }
```

```
%>
```

```
</pre>
```

This generates an iterator and put it in the PageContext under the key as specified by the id attribute.

Example Four:

```
<pre>
```

Generate an iterator with comparator attribute

```
<ww:generator val="%{'aaa,bbb,ccc,ddd,eee'}"
converter="%{myConverter}"><ww:iterator><ww:property
/><br/></ww:iterator></ww:generator>
```

```
public class GeneratorTagAction extends ActionSupport {

    ....

    public Converter getMyConverter() {
        return new Converter() {
            public Object convert(String value) throws Exception {
                return "converter-"+value;
            }
        };
    }

    ...

}
</pre>
```

This will generate an iterator with each entries decided by the converter supplied. With this converter, it simply add "converter-" to each entries.



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Perform basic condition flow. 'If' tag could be used by itself or with 'Else If' Tag and/or single/multiple 'Else' Tag.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

test	true		Boolean	Expression to determine if body of tag is to be displayed
------	-------------	--	---------	---

id	false		Object/String	id for referencing
----	-------	--	---------------	--------------------

				element. For UI and form tags it will be used as HTML id attribute
--	--	--	--	--

Examples

```
<ww:if test="%{false}"><div>Will Not Be Executed</div></ww:if><ww:elseif  
test="%{true}"><div>Will Be Executed</div></ww:elseif><ww:else><div>Will Not Be  
Executed</div></ww:else>
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Iterator will iterate over a value. An iterable value can be either of: `java.util.Collection`, `java.util.Iterator`,

Parameters

Name	Required	Default	Type	Description

status	false	false	Boolean	if specified, an instance of <code>IteratorStatus</code> will be pushed into stack upon each iteration
--------	-------	-------	---------	--

value	false		Object/String	the iterable
-------	-------	--	---------------	--------------

				source to iterate over, else an the object itself will be put into a newly created List
--	--	--	--	---

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

The following example retrieves the value of the `getDays()` method of the current object on the value stack and uses it to iterate over. The `<ww:property/>` tag prints out the current value of the iterator.

```
<ww:iterator value="days"><p>day is: <ww:property/></p></ww:iterator>
```

The following example uses a `Bean` tag and places it into the `ActionContext`. The `iterator` tag will retrieve that object from the `ActionContext` and then calls its `getDays()` method as above. The `status` attribute is also used to create a `IteratorStatus` object, which in this example, its `odd()` method is used to alternate row colours:

```
<ww:bean name="com.opensymphony.webwork.example.IteratorExample" id="it"><ww:param
name="day" value="'foo'"/><ww:param name="day" value="'bar'"/></ww:bean><p/><table
border="0" cellspacing="0" cellpadding="1"><tr><th>Days of the
week</th></tr><p/><ww:iterator value="#it.days" status="rowstatus"><tr><ww:if
test="#rowstatus.odd == true"><td style="background:
grey"><ww:property/></td></ww:if><ww:else><td><ww:property/></td></ww:else></tr></ww:iterator></p></table>
```

The next example will further demonstrate the use of the status attribute, using a DAO obtained from the action class through OGNL, iterating over groups and their users (in a security context). The last() method indicates if the current object is the last available in the iteration, and if not, we need to separate the users using a comma:

```
<webwork:iterator value="groupDao.groups" status="groupStatus"><tr
class="<webwork:if test="#groupStatus.odd == true
">odd</webwork:if><webwork:else>even</webwork:else>">
    <td><webwork:property value="name" /></td><td><webwork:property
value="description" /></td><td><webwork:iterator value="users"
status="userStatus"><webwork:property value="fullName" /><webwork:if
test="!#userStatus.last">,</webwork:if></webwork:iterator></td></tr></webwork:iterator>
```

The next example iterates over a an action collection and passes every iterator value to another action. The trick here lies in the use of the '[0]' operator. It takes the current iterator value and passes it on to the edit action. Using the '[0]' operator has the same effect as using >ww:property />. (The latter, however, does not work from inside the param tag).

```
<ww:action name="entries" id="entries"/><ww:iterator value="#entries.entries"
><ww:property value="name" /><ww:property /><ww:push value="..."><ww:action
name="edit" id="edit" ><ww:param name="entry" value="[0]"
/></ww:action></push></ww:iterator>
```

merge

This page last changed on Jan 07, 2006 by [tm_jee](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Component for MergeIteratorTag, which job is to merge iterators and successive call to the merged iterator will cause each merge iterator to have a chance to expose its element, subsequently next call will allow the next iterator to expose its element. Once the last iterator is done exposing its element, the first iterator is allowed to do so again (unless it is exhausted of entries).

Internally the task are delegated to MergeIteratorFilter

Example if there are 3 lists being merged, each list have 3 entries, the following will be the logic.

1. Display first element of the first list
2. Display first element of the second list
3. Display first element of the third list
4. Display second element of the first list
5. Display second element of the second list
6. Display second element of the third list
7. Display third element of the first list
8. Display thrid element of the second list
9. Display third element of the thrid list

Parameters

Name	Required	Default	Type	Description

id	false		Object/String	the id where the resultant merged iterator will be stored in the stack's context
----	-------	--	---------------	--

Examples

```

public class MergeIteratorTagAction extends ActionSupport {

    private List myList1;
    private List myList2;
    private List myList3;

    public List getMyList1() {
        return myList1;
    }

    public List getMyList2() {
        return myList2;
    }

    public List getMyList3() {
        return myList3;
    }

    publicString execute() throws Exception {

        myList1 = new ArrayList();
        myList1.add("1");
        myList1.add("2");
        myList1.add("3");

        myList2 = new ArrayList();
        myList2.add("a");
        myList2.add("b");
        myList2.add("c");

        myList3 = new ArrayList();
        myList3.add("A");
        myList3.add("B");
        myList3.add("C");

        return "done";
    }
}

<ww:merge id="myMergedIterator1"><ww:param value="{myList1}" /><ww:param
value="{myList2}" /><ww:param value="{myList3}" /></ww:merge><ww:iterator
value="{#myMergedIterator1}"><ww:property /></ww:iterator>

```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

NOTE: JSP-TAG

A Tag that sorts a List using a Comparator both passed in as the tag attribute. If 'id' attribute is specified, the sorted list will be placed into the PageContext attribute using the key specified by 'id'. The sorted list will ALWAYS be pushed into the stack and popped at the end of this tag.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

comparator	true		java.util.Comparator	The comparator to use
------------	-------------	--	----------------------	-----------------------

source	false		Object/String	The iterable source to sort
--------	-------	--	---------------	-----------------------------

id	false		String	The id of the tag element.
----	-------	--	--------	----------------------------

Examples

USAGE 1:

```
<ww:sort comparator="myComparator" source="myList"><ww:iterator><!-- do something with each sorted elements --><ww:property value="..." /></ww:iterator></ww:sort>
```

USAGE 2:

```
<ww:sort id="mySortedList" comparator="myComparator" source="myList" />
```

```
<%
    Iterator sortedIterator = (Iterator) pageContext.getAttribute("mySortedList");
    for (Iterator i = sortedIterator; i.hasNext(); ) {
        // do something with each of the sorted elements
    }
%>
```

Description

NOTE: JSP-TAG

A tag that takes an iterator and outputs a subset of it. It delegates to `com.opensymphony.webwork.util.SubsetIteratorFilter` internally to perform the subset functionality.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

count	false		Integer	Indicate the number of entries to be in the resulting subset iterator
-------	-------	--	---------	---

source	false		Object/String	Indicate the source of which the resulting
--------	-------	--	---------------	--

				subset iterator is to be derived base on
--	--	--	--	--

start	false		Integer	Indicate the starting index (eg. first entry is 0) of entries in the source to be available as the first entry in the resulting subset iterator
-------	-------	--	---------	---

decider	false		com.opensymphony.xwork2.util.SubsetIterator	Extension to plug-in a decider to determine if that particular entry is to be included in the resulting subset iterator
---------	-------	--	---	---

id	false		String	The id of the tag element.
----	-------	--	--------	-------------------------------

Examples

```
public class MySubsetTagAction extends ActionSupport {
    public String execute() throws Exception {
        l = new ArrayList();
        l.add(new Integer(1));
        l.add(new Integer(2));
        l.add(new Integer(3));
        l.add(new Integer(4));
        l.add(new Integer(5));
        return "done";
    }

    public Integer[] getMyArray() {
        return a;
    }

    public List getMyList() {
        return l;
    }

    public Decider getMyDecider() {
        return new Decider() {
            public boolean decide(Object element) throws Exception {
                int i = ((Integer) element).intValue();
                return ((i % 2) == 0) ? true : false;
            }
        };
    }
}
```

```
<!-- A: List basic --><ww:subset source="myList"><ww:iterator><ww:property
/></ww:iterator></ww:subset>
```

```
<!-- B: List with count --><ww:subset source="myList"
count="3"><ww:iterator><ww:property /></ww:iterator></ww:subset>
```

```
<!-- C: List with start --><ww:subset source="myList" count="13"
start="3"><ww:iterator><ww:property /></ww:iterator></ww:subset>
```

```
<!-- D: List with id --><ww:subset id="mySubset" source="myList" count="13"
start="3" />
<%
    Iterator i = (Iterator) pageContext.getAttribute("mySubset");
    while(i.hasNext()) {
        %>
        <%=i.next() %><%    } %>
```

```
<!-- D: List with Decider --><ww:subset source="myList"
```

```
<ww:iterator><ww:property /></ww:iterator></ww:subset>
```

Data Tags

This page last changed on Nov 28, 2005 by [tm_je](#).

Data tags provide various data-related functionality. This ranges from displaying the direct result of an action, to retrieving localized values.

1. [action](#)
2. [bean](#)
3. [debug](#)
4. [i18n](#)
5. [include](#)
6. [param](#)
7. [push](#)
8. [set](#)
9. [text](#)
10. [url](#)
11. [property](#)



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

This tag enables developers to call actions directly from a JSP page by specifying the action name and an optional namespace. The body content of the tag is used to render the results from the Action. Any result processor defined for this action in `xwork.xml` will be ignored, *unless* the `executeResult` parameter is specified.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

id	false		String	the id (if specified) to put the action under stack's context.
----	-------	--	--------	--

name	true		String	name of the
------	-------------	--	--------	-------------

				action to be executed (without the extension suffix eg. .action)
--	--	--	--	--

namespace	false	namespace from where tag is used	String	namespace for action to call
-----------	-------	----------------------------------	--------	------------------------------

executeResult	false	false	Boolean	whether the result of this action (probably a view) should be executed/rendered
---------------	-------	-------	---------	---

ignoreContextParameters	false	false	Boolean	whether the request parameters are to be included when the action is invoked
-------------------------	-------	-------	---------	--

Examples

```

public class ActionTagAction extends ActionSupport {

    publicString execute() throws Exception {
        return"done";
    }

    publicString doDefault() throws Exception {
        ServletActionContext.getRequest().setAttribute("stringByAction", "This is a
String put in by the action's doDefault()");
        return"done";
    }
}

```

```

<xwork>
    ....
    <action name="actionTagAction1" class="tmjee.testing.ActionTagAction"><result
name="done">success.jsp</result></action><action name="actionTagAction2"
class="tmjee.testing.ActionTagAction" method="default"><result
name="done">success.jsp</result></action>
    ....
</xwork>

```

<div>The following action tag will execute result and include it in this page</div>
<ww:action name="actionTagAction" executeResult="true" />
<div>The following action tag will do the same as above, but invokes method specialMethod in action</div>
<ww:action name="actionTagAction!specialMethod" executeResult="true" />
<div>The following action tag will not execute result, but put a String in request scope

under an id "stringByAction" which will be retrieved using property tag</div><ww:action name="actionTagAction!default" executeResult="false" /><ww:property value="#attr.stringByAction" />



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Instantiates a class that conforms to the JavaBeans specification. This tag has a body which can contain a number of Param elements to set any mutator methods on that class.

If the id attribute is set on the BeanTag, it will place the instantiated bean into the PageContext and the ActionContext.

Parameters

Name	Required	Default	Type	Description

name	true		String	the class name of the bean to be instantiated (must respect JavaBean specification)
------	------	--	--------	---

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<-- in freemarker form -->
[ww:bean name="com.opensymphony.webwork.example.counter.SimpleCounter" id="counter"]
  [ww:param name="foo" value="BAR"/]
  The value of foo is : [ww:property value="foo"/], when inside the bean tag.<br />
[/ww:bean]

<-- in jsp form --><ww:bean
name="com.opensymphony.webwork.example.counter.SimpleCounter" id="counter"><ww:param
name="foo" value="BAR" />
  The value of foot is : <ww:property value="foo"/>, when inside the bean tag <br
/></ww:bean>
```

This example instantiates a bean called SimpleCounter and sets the foo property (setFoo('BAR')). The SimpleCounter object is then pushed onto the Valuestack, which means that we can called its accessor methods (getFoo()) with the Property tag and get their values.

In the above example, the id has been set to a value of *counter*. This means that the SimpleCounter class will be placed into the stack's context. You can access the SimpleCounter class using WW's tag:

```
<-- jsp form -->
<ww:property value="#counter" />

<-- freemarker form -->
[ww:property value="#counter.foo"/]
```

In the property tag example, the # tells Ognl to search the context for the SimpleCounter class which has an id(key) of *counter*

debug

This page last changed on Oct 11, 2005 by [digi9ten](#).

debug

Attribute	Type	Required	Default	Description
id	string	FALSE		



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Gets a resource bundle and place it on the value stack. This allows the text tag to access messages from any bundle, and not just the bundle associated with the current action.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

name	true	String	Object/String	Name of ressource bundle to use (eg foo/bar/customBundle)
------	------	--------	---------------	---

id	false		Object/String	id for
----	-------	--	---------------	--------

				referencing element. For UI and form tags it will be used as HTML id attribute
--	--	--	--	--

Examples

```
<ww:i18n name="myCustomBundle">
  The i18n value for key aaa.bbb.ccc in myCustomBundle is <ww:property
value="text('aaa.bbb.ccc') " /></ww:i18n>
```

include

This page last changed on Jan 07, 2006 by [tm_jee](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Include a servlet's output (result of servlet or a JSP page).

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

value	true		String	The jsp/servlet output to include
-------	-------------	--	--------	-----------------------------------

id	false		Object/String	id for referencing element. For UI and form tags it will be used as
----	-------	--	---------------	---

				HTML id attribute
--	--	--	--	-------------------

Example

```

<-- One: -->
<ww:include value="myJsp.jsp" />

<-- Two: -->
<ww:include value="myJsp.jsp">
  <ww:param name="param1" value="value2" />
  <ww:param name="param2" value="value2" />
</ww:include>

<-- Three: -->
<ww:include value="myJsp.jsp">
  <ww:param name="param1">value1</ww:param>
  <ww:param name="param2">value2</ww:param>
</ww:include>

```

Example one - do an include myJsp.jsp page

Example two - do an include to myJsp.jsp page with parameters param1=value1 and param2=value2

Example three - do an include to myJsp.jsp page with parameters param1=value1 and param2=value2

param

This page last changed on Jan 07, 2006 by [tm_jee](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

This tag can be used to parameterize other tags, who implement the ParametricTag interface declared here.

The include tag and bean tag are examples of such tags.

The inner classes, Parametric and UnnamedParametric, are implemented by tags. They indicate that a particular Tag may have embedded params. For example, if we were wanted to use the ComponentTag and wanted to provide custom params to assist with the rendering, we could declare something like

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

name	false		String	Name of Parameter to set
------	-------	--	--------	--------------------------

value	false	The value of evaluating provided name against stack	Object/String	Value expression for Parameter to set
-------	-------	---	---------------	---------------------------------------

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ui:component><ui:param name="key" value="[0]"/><ui:param name="value" value="[1]"/><ui:param name="context" value="[2]"/></ui:component>
```

where the key will be the identifier and the value the result of an OGNL expression run against the current OgnlValueStack.



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Used to get the property of a *value*, which will default to the top of the stack if none is specified.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

default	false		String	The default value to be used if <u>value</u> attribute is null
---------	-------	--	--------	--

escape	false	true	Boolean	Whether to escape HTML
--------	-------	------	---------	------------------------

value	false	<top of stack>	Object	value to be displayed
-------	-------	----------------	--------	-----------------------

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:push value="myBean"><!-- Example 1: --><ww:property value="myBeanProperty"
/><!-- Example 2: --><ww:property value="myBeanProperty" default="a default value"
/></ww:push>
```

Example 1 prints the result of myBean's getMyBeanProperty() method.
 Example 2 prints the result of myBean's getMyBeanProperty() method and if it is null, print 'a default value' instead.

push

This page last changed on Jan 07, 2006 by [tm_je](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Push value on stack for simplified usage.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

value	true		Object/String	Value to push on stack
-------	------	--	---------------	------------------------

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id
----	-------	--	---------------	---

				attribute
--	--	--	--	-----------

Examples

```
<ww:push value="user"><ww:property value="firstName" /><ww:property value="lastName" /></ww:push>
```

Pushed user into the stack, and hence property tag could access user's properties (firstName, lastName etc) since user is not at the top of the stack

```
<ww:push value="myObject">                ----- (1)
  <ww:bean name="jp.SomeBean" id="myBean"/>  ----- (2)
    <ww:param name="myParam" value="top"/>    ----- (3)
  </ww:bean></ww:push>
```

when in (1), myObject is at the top of the stack
 when in (2), jp.SomeBean is in the top of stack, also in stack's context with key myBean
 when in (3), top will get the jp.SomeBean instance

```
<ww:push value="myObject">                --- (A)
  <ww:bean name="jp.SomeBean" id="myBean"/>  --- (B)
    <ww:param name="myParam" value="top.mySomeOtherValue"/> --- (C)
  </ww:bean></ww:push>
```

when in (A), myObject is at the top of the stack
 when in (B), jp.SomeBean is at the top of the stack, also in context with key myBean
 when in (C), top refers to jp.SomeBean instance. so top.mySomeOtherValue would invoke SomeBean's mySomeOtherValue() method

```
<ww:push value="myObject">                ---- (i)
  <ww:bean name="jp.SomeBean" id="myBean"/>  ---- (ii)
    <ww:param name="myParam" value="[1].top"/> ----(iii)
  </ww:bean></ww:push>
```

when in (i), myObject is at the top of the stack
 when in (ii), jp.SomeBean is at the top of the stack, followed by myObject
 when in (iii), [1].top will returned top of the cut of stack starting from myObject, namely myObject itself



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

The set tag assigns a value to a variable in a specified scope. It is useful when you wish to assign a variable to a complex expression and then simply reference that variable each time rather than the complex expression. This is useful in both cases: when the complex expression takes time (performance improvement) or is hard to read (code readability improvement).

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

name	true		String	The name of the new variable that is assigned the value of <i>value</i>
------	-------------	--	--------	---

scope	false	action	String	The scope in which to assign the variable. Can be application, session, request, page, or action .
-------	-------	--------	--------	---

value	false		Object/String	The value that is assigned to the variable named <i>name</i>
-------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:set name="personName" value="person.name"/>
Hello, <ww:property value="#personName"/>. How are you?
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Render a I18n text message.

The message must be in a resource bundle with the same name as the action that it is associated with. In practice this means that you should create a properties file in the same package as your Java class with the same name as your class, but with .properties extension.

If the named message is not found, then the body of the tag will be used as default message. If no body is used, then the name of the message will be used.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

name	true		Object/String	Name of resource property to fetch
------	------	--	---------------	------------------------------------

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

Accessing messages from a given bundle (the i18n Shop example bundle in the first example) and using bundle defined through ww in the second example.</p>

```
<!-- First Example --><ww:i18n name="webwork.action.test.i18n.Shop"><ww:text name="main.title"/></ww:i18n><!-- Second Example --><ww:text name="main.title" />
```

Other example

```
<ww:text name="format.money"><ww:param name="value" value="myMoneyValue"/></ww:text>
```

where

```
format.money={0,number,currency}
```

For documentation on possibilities for formatting text, see

1. <http://java.sun.com/j2se/1.4.2/docs/api/java/text/MessageFormat.html>
2. <http://java.sun.com/docs/books/tutorial/i18n/format/decimalFormat.html>



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

This tag is used to create a URL.

You can use the "param" tag inside the body to provide additional request parameters.

Parameters

Name	Required	Default	Type	Description
includeParams	false	get	Object/String	The includeParams attribute may have the value 'none', 'get' or 'all'.

scheme	false		Object/String	Set scheme attribute
--------	-------	--	---------------	----------------------

value	false		Object/String	The target value to use, if not using action
-------	-------	--	---------------	--

action	false		Object/String	The action generate url for, if not using value
--------	-------	--	---------------	---

namespace	false		Object/String	The namespace to use
-----------	-------	--	---------------	----------------------

method	false		Object/String	The method of action to use
--------	-------	--	---------------	-----------------------------

encode	false	true	Boolean	whether to encode parameters
--------	-------	------	---------	------------------------------

includeContext	false	true	Boolean	whether actual context should be included in url
----------------	-------	------	---------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:url value="editGadget.action"><ww:param name="id" value="%{selected}"
/></ww:url><ww:url action="editGadget"><ww:param name="id" value="%{selected}"
/></ww:url>
```

Description

Within the form tags, there are two classes of tags: the form tag itself, and all other tags, which make up the individual form elements. This is important as the behavior of the form tag itself is different than that of the elements enclosed within it. Before we go provide a reference for all the form tags, including the form tag itself, we must outline some general characteristics first.



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Form Tag Themes

As previously noted in [Themes and Templates](#), the HTML Tags (which includes Form Tags) are all driven by templates. Templates are grouped together to form themes. By default, WebWork provides three themes:

- simple
- xhtml, which extends simple (default)
- ajax, which extends xhtml

Remember: the xhtml theme renders out a two-column table. If you need a different layout, we highly recommend that you do *not* write your own HTML, but rather create your own theme or utilize the simple theme.

The downside of using the simple theme is that it doesn't support as many of the attributes that the other themes do. For example, the label attribute does nothing in the simple theme. Similarly, the functionality offered by the simple theme is much less than that of the xhtml and ajax themes: the automatic display of error messages is

not supported.

Common Attributes

All the form tags extend the UIBean class. This base class generally common attributes, grouped in to three classes: templated-related, javascript-related, and general attributes. We won't document what these attributes do here as that is taken care of in each individual tag's reference. However, it is a good idea to familiarize yourself with the structure of the UI tags and what attributes are available for all tags.

In addition to these attributes, a special attribute exists for all form element tags: *form* (ie: `${parameters.form}`). This represents the parameters used to render the form tag and allows you to provide interaction between your form elements and the form itself. For example, in a template you could access the form's ID by calling `${parameters.form.id}`.

Template-Related Attributes

Attribute	Theme	Data Types	Description
templateDir	n/a	String	define the template directory
theme	n/a	String	define the theme name
template	n/a	String	define the template name

Javascript-Related Attributes

Attribute	Theme	Data Types	Description
onclick	simple	String	html javascript onclick attribute

Attribute	Theme	Data Types	Description
ondbclick	simple	String	html javascript ondbclick attribute
onmousedown	simple	String	html javascript onmousedown attribute
onmouseup	simple	String	html javascript onmouseup attribute
onmouseover	simple	String	html javascript onmouseover attribute
onmouseout	simple	String	html javascript onmouseout attribute
onfocus	simple	String	html javascript onfocus attribute
onblur	simple	String	html javascript onblur attribute
onkeypress	simple	String	html javascript onkeypress attribute
onkeyup	simple	String	html javascript onkeyup attribute
onkeydown	simple	String	html javascript onkeydown attribute
onselect	simple	String	html javascript onselect attribute
onchange	simple	String	html javascript onchange attribute

General Attributes

Attribute	Theme	Data Types	Description
cssClass	simple	String	define html class attribute

Attribute	Theme	Data Types	Description
cssStyle	simple	String	define html style attribute
disabled	simple	String	define html disabled attribute
label	xhtml	String	define label of form element
labelPosition	xhtml	String	define label position of form element (top/left), default to left
name	simple	String	Form Element's field name mapping
required	xhtml	Boolean	add * to label (true to add false otherwise)
tabIndex	simple	String	define html tabindex attribute
value	simple	Object	define value of form element

When Some Attributes Don't Apply

Note that some tags don't have any templates that utilize certain attributes, either because it doesn't make sense or it isn't required. For example, the form tag, while it supports the *tabindex* attribute, none of the themes render it out. Also, as mentioned, certain themes won't utilize some attributes.

Value/Name Relationship

In many of the tags, except for the form tag, there is a unique relationship between the *name* and *value* attributes. The *name* attribute is what the form element gets

named and eventually submitted as. This effectively is the expression to which you wish to bind the incoming value to. In most cases, it is a simple JavaBean property, such as "firstName". This would eventually call `setFirstName()`.

Similarly, you often wish to also display in your form elements existing data from the same JavaBean property. This time, the attribute *value* is used. A value of `"%{firstName}"` would call `getFirstName()` and display it in your form, allowing users to edit the value and re-submit it.

You could use the following code, and it would work just fine:

```
<@ww.form action="updatePerson"><@ww.textfield label="First name" name="firstName"
value="%{firstName}" />
...
</@ww.form>
```

However, because the relationship between *name* and *value* is so often predictable, we automatically do this for you, allowing you to do:

```
<@ww.form action="updatePerson"><@ww.textfield label="First name" name="firstName" />
...
</@ww.form>
```

While most attributes are exposed to the underlying templates as the same key as the attribute (ie: `${parameters.label}`), the *value* attribute is not. Instead, it can be accessed via the "nameValue" key (ie: `${parameters.nameValue}`) to indicate that it may have been generated from the *name* attribute rather than explicitly defined in the *value* attribute.

ID Name Assignment

All form tags automatically assign an ID for you. You are free to override this ID if you wish. The ID assignment works as follows:

1. For forms, the ID is assumed to the action name. In the previous example, the ID would be "updatePerson".
2. For form elements, the ID is assumed to be [form's ID]_[element name]

Required Attribute

The "required" attribute on many WebWork UI tags defaults to true only if you have client side validation enabled and there is a validator associated with that particular field.

Form Tag Reference



It's very important to note that all tags that insert something into the valuestack (like `i18n` or `bean` tags) will remove those objects from the stack on its end tag. This means that if you instantiate a bean with the `bean` tag (`<ww:bean name=""br.univap.fcc.sgpw.util.FormatterHelper"">` that bean will be available on the valuestack only until the `</ww:bean>` tag.

1. [checkbox](#) - renders a checkbox input field
2. [checkboxlist](#) - renders a list of checkboxes
3. [combobox](#) - renders a widget that fills a text box from a select
4. [datepicker](#) - renders a date selection widget using JavaScript and DOM
5. [doubleselect](#) - renders a double select widget, where the second drop down depends on the first
6. [head](#) - renders the HEAD section for specific themes, such as CSS and JavaScript imports
7. [file](#) - renders a file input field
8. [form](#) - renders an input form
9. [hidden](#) - renders a hidden form field
10. [label](#) - renders renders a label
11. [optiontransferselect](#) - renders an option transfer select component which is basically two select box with buttons in between allowing entries of each select to get transfer between each other.

12. [password](#) - renders a password textfield
13. [radio](#) - renders a radio button
14. [select](#) - renders a select
15. [submit](#) - renders a submit button
16. [textarea](#) - renders a textarea
17. [textfield](#) - renders a textfield
18. [token](#) - renders a hidden field to stop double-submission of containing forms



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Renders an HTML input element of type checkbox, populated by the specified property from the `OgnlValueStack`.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

fieldValue	false	'true'	Object/String	The actual HTML value attribute of the checkbox.
------------	-------	--------	---------------	--

theme	false		Object/String	The theme (other than default) to use for rendering
-------	-------	--	---------------	---

				the element
--	--	--	--	-------------

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	--

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	--

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html
-------------	-------	--	---------------	--------------

				onmousedown attribute on rendered html element
--	--	--	--	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

JSP:

```
<ww:checkbox label="checkbox test" name="checkboxField1" value="aBoolean"
fieldValue="true"/>
```

Velocity:

```
#tag( Checkbox "label=checkbox test" "name=checkboxField1" "value=aBoolean" )
```

Resulting HTML (simple template, aBoolean == true):

```
<input type="checkbox" name="checkboxField1" value="true" checked="checked" />
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Creates a series of checkboxes from a list. Setup is like `<ww:select />` or `<ww:radio />`, but creates checkbox tags.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

list	true		Object/String	Iterable source to populate from.
------	------	--	---------------	-----------------------------------

listKey	false		Object/String	Property of list objects to get field value from
---------	-------	--	---------------	--

listValue	false		Object/String	Property of list objects to get field content from
-----------	-------	--	---------------	--

theme	false		Object/String	The theme (other than default) to use for renerding the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for renerding the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for
----------	-------	--	---------------	-------------------------------

				element ro use
--	--	--	--	----------------

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered
---------	-------	--	---------------	--

				html element
--	--	--	--	--------------

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover
-------------	-------	--	---------------	--------------------------

				attribute on rendered html element
--	--	--	--	------------------------------------

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:checkboxlist name="foo" list="bar"/>
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

The combo box is basically an HTML INPUT of type text and HTML SELECT grouped together to give you a combo box functionality. You can place text in the INPUT control by using the SELECT control or type it in directly in the text field.

In this example, the SELECT will be populated from id=year attribute. Counter is itself an Iterator. It will span from first to last. The population is done via javascript, and requires that this tag be surrounded by a <form>.

Note that unlike the <ww:select/> tag, there is no ability to define the individual <option> tags' id attribute or content separately. Each of these is simply populated from the toString() method of the list item. Presumably this is because the select box isn't intended to actually submit useful data, but to assist the user in filling out the text field.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

list	true		Object/String	Iterable
------	------	--	---------------	----------

				source to populate from. If this is missing, the select widget is simply not displayed.
--	--	--	--	---

maxlength	false		Integer	HTML maxlength attribute
-----------	-------	--	---------	--------------------------

maxLength	false		Object/String	Deprecated. Use maxlength instead.
-----------	-------	--	---------------	------------------------------------

readonly	false	false	Boolean	Whether the input is readonly
----------	-------	-------	---------	-------------------------------

size	false		Integer	HTML size attribute
------	-------	--	---------	---------------------

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on
----------	-------	--	---------------	------------------------------------

				rendered html element
--	--	--	--	-----------------------

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html
------------	-------	--	---------------	--------------

				ondblclick attribute on rendered html element
--	--	--	--	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

JSP:

```
<ww:bean name="webwork.util.Counter" id="year"><ww:param name="first"
value="text('firstBirthYear')"/><ww:param name="last" value="2000"/><ww:combobox
label="Birth year" size="6" maxlength="4" name="birthYear" list="#year"/></ww:bean>
```

Velocity:

```
#tag( ComboBox "label=Birth year" "size=6" "maxlength=4" "name=birthYear" "list=#year" )
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Renders datepicker element.

Implementation was changed in WebWork 2.2 to use [jscalendar](#) instead of non locale aware tigracalendar. Check locale and format settings if you used the old widget in your applications. Be sure to include proper stylesheet as described below if you don't want the calender widget to look transparent.

Important: Be sure to set the id attributs if not used within a `<ww:form />` tag, as it takes care of setting the id for you, being required to copy selected date to text input element.

Following a reference for the format parameter (copied from [jscalendar](#) documentation):

%a	abbreviated weekday name
%A	full weekday name
%b	abbreviated month name
%B	full month name
%C	century number
%d	the day of the month (00 .. 31)
%e	the day of the month (0 .. 31)
%H	hour (00 .. 23)
%I	hour (01 .. 12)
%j	day of the year (000 .. 366)

%k	hour (0 .. 23)
%l	hour (1 .. 12)
%m	month (01 .. 12)
%M	minute (00 .. 59)
%n	a newline character
%p	` `PM" or ` `AM"
%P	` `pm" or ` `am"
%S	second (00 .. 59)
%s	number of seconds since Epoch (since Jan 01 1970 00:00:00 UTC)
%t	a tab character
%U, %W, %V	the week number
%u	the day of the week (1 .. 7, 1 = MON)
%w	the day of the week (0 .. 6, 0 = SUN)
%y	year without the century (00 .. 99)
%Y	year including the century (ex. 1979)
%%	a literal % character

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

language	false	The language of the current Locale	String	The language to use for the widget texts and localization presets.
----------	-------	------------------------------------	--------	--

format	false	Dateformat specified by language preset (%Y/%m/%d for en)	String	The format to use for date field.
--------	-------	---	--------	-----------------------------------

showtime	false	false	String	Whether time selector is to be shown. Valid values are "true", "false", "24" and "12".
----------	-------	-------	--------	--

singleclick	false	true	Boolean	Whether to use selected value after single or double click.
-------------	-------	------	---------	---

maxlength	false		Integer	HTML maxlength attribute
-----------	-------	--	---------	--------------------------

maxLength	false		Object/String	Deprecated. Use
-----------	-------	--	---------------	-----------------

				maxlength instead.
--	--	--	--	-----------------------

readonly	false	false	Boolean	Whether the input is readonly
----------	-------	-------	---------	----------------------------------

size	false		Integer	HTML size attribute
------	-------	--	---------	------------------------

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element ro use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input
-------	-------	--	---------------	---------------------------

				element.
--	--	--	--	----------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on
-----------	-------	--	---------------	-------------------------------------

				rendered html element
--	--	--	--	-----------------------

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html
---------	-------	--	---------------	--------------

				onfocus attribute on rendered html element
--	--	--	--	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	---

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

Date in application's locale format:

```
<ww:datepicker name="order.date" id="order.date" />
```

Date in german locale, with german texts:

```
<ww:datepicker name="delivery.date" id="delivery.date"
template="datepicker_js.ftl" language="de" />
```

Date in german locale, with german texts and custom date format, including time:

```
<ww:datepicker name="invoice.date" id="invoice.date"
template="datepicker_js.ftl" language="de" format="%d. %b &Y %H:%M" showstime="true"
/>
```

If you use this jscalendar based datepicker widget, you might want to use one of the standard stylesheets provided with jscalendar (all distribution stylesheets are included in webwork jar). The easiest way to do so is to place the `<ww:head/>` tag in the head of your html page, as it takes care of including calendar css. Otherwise, to manually activate the calendar-blue style, include the following in your stylesheet definition:

```
<link href="<ww:url value="/webwork/jscalendar/calendar-blue.css" />"
rel="stylesheet" type="text/css" media="all"/>
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Renders two HTML select elements to represent eg. "available|selected" type input.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

doubleList	true		Object/String	The second iterable source to populate from.
------------	-------------	--	---------------	--

doubleListKey	false		Object/String	The key expression to use for second list
---------------	-------	--	---------------	---

doubleListValue	false		Object/String	The value expression to use for second list
-----------------	-------	--	---------------	---

doubleName	true		Object/String	The name for complete component
------------	-------------	--	---------------	---------------------------------

doubleValue	false		Object/String	The value expression for complete component
-------------	-------	--	---------------	---

formName	false		Object/String	The form name this component resides in and populates to
----------	-------	--	---------------	--

doubleCssClass	false		Object/String	The css class for the second list
----------------	-------	--	---------------	-----------------------------------

doubleCssStyle	false		Object/String	The css style for the second list
----------------	-------	--	---------------	-----------------------------------

doubleHeaderKey	false		Object/String	The header key for the second list
-----------------	-------	--	---------------	------------------------------------

doubleHeaderValue	false		Object/String	The header value for the second list
-------------------	-------	--	---------------	--------------------------------------

doubleEmptyOption	false		Object/String	Decides if the second list will add an empty option
-------------------	-------	--	---------------	---

doubleDisabled	false		Object/String	Decides if a disable attribute should be added to the second list
----------------	-------	--	---------------	---

doubleId	false		Object/String	The id of the second list
----------	-------	--	---------------	---------------------------

doubleMultiple	false		Object/String	Decides if multiple attribute should be set on the second list
----------------	-------	--	---------------	--

doubleOnblur	false		Object/String	Set the onblur attribute of the second list
--------------	-------	--	---------------	---

doubleOnChange	false		Object/String	Set the onchange attribute of the second list
----------------	-------	--	---------------	---

doubleOnclick	false		Object/String	Set the onclick attribute of the second list
---------------	-------	--	---------------	--

doubleOndblclick	false		Object/String	Set the ondblclick attribute of the second list
------------------	-------	--	---------------	---

doubleOnfocus	false		Object/String	Set the onfocus attribute of the second list
---------------	-------	--	---------------	--

doubleOnkeydown	false		Object/String	Set the onkeydown attribute of the second list
-----------------	-------	--	---------------	--

doubleOnkeypress	false		Object/String	Set the onkeypress attribute of the second list
------------------	-------	--	---------------	---

doubleOnkeyup	false		Object/String	Set the onkeyup attribute of the second list
---------------	-------	--	---------------	--

doubleOnmousedown	false		Object/String	Set the onmousedown attribute of the second list
-------------------	-------	--	---------------	--

doubleOnmousemove	false		Object/String	Set the onmousemove attribute of the second list
-------------------	-------	--	---------------	--

doubleOnmouseout	false		Object/String	Set the onmouseout attribute of the second list
------------------	-------	--	---------------	---

doubleOnmouseover	false		Object/String	Set the onmouseover attribute of the second list
-------------------	-------	--	---------------	--

doubleOnmouseup	false		Object/String	Set the onmouseup
-----------------	-------	--	---------------	-------------------

				attribute of the second list
--	--	--	--	------------------------------

doubleOnselect	false		Object/String	Set the onselect attribute of the second list
----------------	-------	--	---------------	---

doubleSize	false		Object/String	Set the size attribute of the second list
------------	-------	--	---------------	---

doubleListKey	false		Object/String	Set the list key of the second attribute
---------------	-------	--	---------------	--

emptyOption	false	false	Boolean	Decides of an empty option is to be inserted in the second list
-------------	-------	-------	---------	---

headerKey	false		Object/String	Set the header key of the second list
-----------	-------	--	---------------	---------------------------------------

headerValue	false		Object/String	Set the header value of the second list
-------------	-------	--	---------------	---

multiple	false		Object/String	Creates a multiple select. The tag will pre-select multiple values if the values are passed as an Array (of appropriate types) via the value attribute.
----------	-------	--	---------------	---

size	false		Integer	Size of the element box (# of elements to show)
------	-------	--	---------	---

list	true		Object/String	Iterable source to populate from.
------	-------------	--	---------------	-----------------------------------

listKey	false		Object/String	Property of list objects to get field value from
---------	-------	--	---------------	--

listValue	false		Object/String	Property of list objects to get field content from
-----------	-------	--	---------------	--

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use
----------	-------	--	---------------	--

				for rendering the element
--	--	--	--	---------------------------

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html
-----------	-------	--	---------------	--------------

				onmouseup attribute on rendered html element
--	--	--	--	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:doubleselect label="doubleselect test1" list="{ 'one','two' }" doubleList="top ==  
'one' ? { 'apple', 'orange' } : { 'monkey', 'chicken' }" /><ww:doubleselect  
label="doubleselect test2" list="{ 1:'one', 2:'two' }" doubleList="top == 1 ?  
{ 'apple', 'orange' } : { 'monkey', 'chicken' }" />
```

Description

Render field errors if they exists. Specific layout depends on the particular theme.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

theme	false		Object/String	The theme (other than default) to use for renerding the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for renerding the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element ro use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input
-------	-------	--	---------------	---------------------------

				element.
--	--	--	--	----------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on
-----------	-------	--	---------------	-------------------------------------

				rendered html element
--	--	--	--	-----------------------

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html
---------	-------	--	---------------	--------------

				onfocus attribute on rendered html element
--	--	--	--	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	---

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<!-- example 1 --><ww:fielderror /><!-- example 2
--><ww:fielderror><ww:param>field1</ww:param><ww:param>field2</ww:param></ww:fielderror><ww:form
.... >>
    ....
</ww:form>

OR

<ww:fielderror><ww:param value="%{'field1'}" /><ww:param value="%{'field2'}"
/></ww:fielderror><ww:form .... >>
    ....
</ww:form>
```

Example 1: display all field errors Example 2: display field errors only for 'field1' and 'field2'



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Renders an HTML file input element.

Parameters

Name	Required	Default	Type	Description
accept	false		Object/String	HTML accept attribute to indicate accepted file mimetypes
size	false		Integer	HTML size attribute

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on
----------	-------	--	---------------	------------------------------------

				rendered html element
--	--	--	--	-----------------------

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html
------------	-------	--	---------------	--------------

				ondblclick attribute on rendered html element
--	--	--	--	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:file name="anUploadFile" accept="text/*" /><ww:file name="anohterUploadFile"
accept="text/html,text/plain" />
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Renders HTML an input form.

The remote form allows the form to be submitted without the page being refreshed. The results from the form can be inserted into any HTML element on the page.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

onsubmit	false		Object/String	HTML onsubmit attribute
----------	-------	--	---------------	-------------------------

action	false	current action	Object/String	Set action nane to submit to, without .action
--------	-------	----------------	---------------	---

				suffix
--	--	--	--	--------

target	false		Object/String	HTML form target attribute
--------	-------	--	---------------	----------------------------

enctype	false		Object/String	HTML form enctype attribute
---------	-------	--	---------------	-----------------------------

method	false		Object/String	HTML form method attribute
--------	-------	--	---------------	----------------------------

namespace	false	current namespace	Object/String	namespace for action to submit to
-----------	-------	-------------------	---------------	-----------------------------------

validate	false	false	Boolean	Whether client side/remote validation should be performed. Only usefull with theme xhtml/ajax
----------	-------	-------	---------	---

openTemplate	false		Object/String	Set template to use for opening the rendered html.
--------------	-------	--	---------------	--

theme	false		Object/String	The theme (other than default) to use for renedring the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for renedring the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element ro use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input
-------	-------	--	---------------	---------------------------

				element.
--	--	--	--	----------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on
-----------	-------	--	---------------	-------------------------------------

				rendered html element
--	--	--	--	-----------------------

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html
---------	-------	--	---------------	--------------

				onfocus attribute on rendered html element
--	--	--	--	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	---

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:form ... />
```

Validation

There are two flavours [Client Side Validation](#), depening on the theme you are using (xhtml, ajax, etc). If you are using the [xhtml theme](#) or [css_xhtml theme](#), pure client side validation will be used. If you are using the [ajax theme](#), a special AJAX-based validation will take place. Read the [Client Side Validation](#) docs for more information.

head

This page last changed on Jan 07, 2006 by [tm_jee](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Renders parts of the HEAD section for an HTML file. This is useful as some themes require certain CSS and JavaScript includes.

If, for example, your page has ajax components integrated, without having the default theme set to ajax, you might want to use the head tag with **theme="ajax"** so that the typical ajax header setup will be included in the page.

The tag also includes the option to set a custom datepicker theme if needed. See `calendarcss` parameter for description for details.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

calendarcss	false	calendar-blue.css	Object/String	The jscalendar css theme to use
-------------	-------	-------------------	---------------	---------------------------------

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on
----------	-------	--	---------------	------------------------------------

				rendered html element
--	--	--	--	-----------------------

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html
------------	-------	--	---------------	--------------

				ondblclick attribute on rendered html element
--	--	--	--	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<head><title>My page</title><ww:head/></head>
```

```
<head><title>My page</title><ww:head theme="ajax"
calendarcss="calendar-green"/></head>
```

hidden

This page last changed on Jan 07, 2006 by [tm_je](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Renders an HTML input element of type hidden, populated by the specified property from the `OgnlValueStack`.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than
----------	-------	--	---------------	--------------------------

				default) to use for rendering the element
--	--	--	--	---

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html
-----------	-------	--	---------------	--------------

				onmouseup attribute on rendered html element
--	--	--	--	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<-- example one --><ww:hidden name="foo" /><-- example two --><ww:hidden name="foo" value="bar" />
```

Example One Resulting HTML (if foo evaluates to bar):

```
<input type="hidden" name="foo" value="bar" />
```

Example Two Resulting HTML (if getBar method of the action returns 'bar')

```
<input type="hidden" name="foo" value="bar" />
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Renders an HTML LABEL that will allow you to output label:name combination that has the same format treatment as the rest of your UI controls.

Parameters

Name	Required	Default	Type	Description
for	false		Object/String	HTML for attribute
theme	false		Object/String	The theme (other than default) to use for renerding the element

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a
-------	-------	--	---------------	---------------------------------------

				element specific label
--	--	--	--	------------------------

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	--

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	--

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html
-------------	-------	--	---------------	--------------

				onmousedown attribute on rendered html element
--	--	--	--	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:label label="%{text('user_name')}}" name="userName" />
```

In this example, a label is rendered. The label is retrieved from a ResourceBundle by calling ActionSupport's `getText()` method giving you an output of 'User Name:tm_je'. Assuming that i18n message `user_name` corresponds to 'User Name' and the action's `getUserName()` method returns 'tm_je'



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Create a option transfer select component which is basically two <select ...> tag with buttons in the middle of them allowing options in each of the <select ...> to be moved between themselves.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

addAllToLeftLabel	false		Object/String	set Add To Left button label
-------------------	-------	--	---------------	------------------------------

addAllToRightLabel	false		Object/String	set Add All To Right button label
--------------------	-------	--	---------------	-----------------------------------

addToLeftLabel	false		Object/String	set Add To Left button label
----------------	-------	--	---------------	------------------------------

addToRightLabel	false		Object/String	set Add To Right button label
-----------------	-------	--	---------------	-------------------------------

allowAddAllToLeft	false		Object/String	enable Add All To Left button
-------------------	-------	--	---------------	-------------------------------

allowAddAllToRight	false		Object/String	enable Add All To Right button
--------------------	-------	--	---------------	--------------------------------

allowAddToLeft	false		Object/String	enable Add To Left button
----------------	-------	--	---------------	---------------------------

allowAddToRight	false		Object/String	enable Add To Right button
-----------------	-------	--	---------------	----------------------------

leftTitle	false		Object/String	set Left title
-----------	-------	--	---------------	----------------

rightTitle	false		Object/String	set Right title
------------	-------	--	---------------	-----------------

allowSelectAll	false		Object/String	enable Select All button
----------------	-------	--	---------------	--------------------------

selectAllLabel	false		Object/String	set Select All button label
----------------	-------	--	---------------	-----------------------------

buttonCssClass	false		Object/String	set buttons css class
----------------	-------	--	---------------	-----------------------

buttonCssStyle	false		Object/String	set button css style
----------------	-------	--	---------------	----------------------

doubleList	true		Object/String	The second iterable source to populate from.
------------	-------------	--	---------------	--

doubleListKey	false		Object/String	The key expression to use for second list
---------------	-------	--	---------------	---

doubleListValue	false		Object/String	The value expression to use for second list
-----------------	-------	--	---------------	---

doubleName	true		Object/String	The name for complete component
------------	-------------	--	---------------	---------------------------------

doubleValue	false		Object/String	The value expression for complete
-------------	-------	--	---------------	-----------------------------------

				component
--	--	--	--	-----------

formName	false		Object/String	The form name this component resides in and populates to
----------	-------	--	---------------	---

doubleCssClass	false		Object/String	The css class for the second list
----------------	-------	--	---------------	--------------------------------------

doubleCssStyle	false		Object/String	The css style for the second list
----------------	-------	--	---------------	--------------------------------------

doubleHeaderKey	false		Object/String	The header key for the second list
-----------------	-------	--	---------------	--

doubleHeaderVal	false		Object/String	The header value for the second list
-----------------	-------	--	---------------	--------------------------------------

doubleEmptyOption	false		Object/String	Decides if the second list will add an empty option
-------------------	-------	--	---------------	---

doubleDisabled	false		Object/String	Decides if a disable attribute should be added to the second list
----------------	-------	--	---------------	---

doubleId	false		Object/String	The id of the second list
----------	-------	--	---------------	---------------------------

doubleMultiple	false		Object/String	Decides if multiple attribute should be set on the
----------------	-------	--	---------------	--

				second list
--	--	--	--	-------------

doubleOnblur	false		Object/String	Set the onblur attribute of the second list
--------------	-------	--	---------------	---

doubleOnchange	false		Object/String	Set the onchange attribute of the second list
----------------	-------	--	---------------	---

doubleOnclick	false		Object/String	Set the onclick attribute of the second list
---------------	-------	--	---------------	--

doubleOndbclick	false		Object/String	Set the ondbclick attribute of the second list
-----------------	-------	--	---------------	--

doubleOnfocus	false		Object/String	Set the onfocus attribute of the second list
---------------	-------	--	---------------	--

doubleOnkeydown	false		Object/String	Set the onkeydown attribute of the second list
-----------------	-------	--	---------------	--

doubleOnkeypress	false		Object/String	Set the onkeypress attribute of the second list
------------------	-------	--	---------------	---

doubleOnkeyup	false		Object/String	Set the onkeyup attribute of the second list
---------------	-------	--	---------------	--

doubleOnmousedown	false		Object/String	Set the onmousedown attribute of the second list
-------------------	-------	--	---------------	--

doubleOnmousedown	false		Object/String	Set the onmousedown attribute of the second list
-------------------	-------	--	---------------	--

doubleOnmouseout	false		Object/String	Set the onmouseout attribute of the second list
------------------	-------	--	---------------	---

doubleOnmouseover	false		Object/String	Set the onmouseover attribute of the second list
-------------------	-------	--	---------------	--

doubleOnmouseup	false		Object/String	Set the onmouseup attribute of the second list
-----------------	-------	--	---------------	--

doubleOnselect	false		Object/String	Set the onselect attribute of the
----------------	-------	--	---------------	-----------------------------------

				second list
--	--	--	--	-------------

doubleSize	false		Object/String	Set the size attribute of the second list
------------	-------	--	---------------	---

doubleListKey	false		Object/String	Set the list key of the second attribute
---------------	-------	--	---------------	--

emptyOption	false	false	Boolean	Decides of an empty option is to be inserted in the second list
-------------	-------	-------	---------	---

headerKey	false		Object/String	Set the header key of the second list
-----------	-------	--	---------------	---------------------------------------

headerValue	false		Object/String	Set the header value of the second list
-------------	-------	--	---------------	---

multiple	false		Object/String	Creates a multiple select. The tag will pre-select multiple values if the values are passed as an Array (of appropriate types) via the value attribute.
----------	-------	--	---------------	---

size	false		Integer	Size of the element box (# of elements to show)
------	-------	--	---------	---

list	true		Object/String	Iterable source to populate from.
------	-------------	--	---------------	-----------------------------------

listKey	false		Object/String	Property of list objects to get field value from
---------	-------	--	---------------	--

listValue	false		Object/String	Property of list objects to get field content from
-----------	-------	--	---------------	--

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to
----------	-------	--	---------------	------------------

				use for element
--	--	--	--	-----------------

cssStyle	false		Object/String	The css style definitions for element ro use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input
-------	-------	--	---------------	---------------------------

				element.
--	--	--	--	----------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on
-----------	-------	--	---------------	-------------------------------------

				rendered html element
--	--	--	--	-----------------------

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html
---------	-------	--	---------------	--------------

				onfocus attribute on rendered html element
--	--	--	--	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	---

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<-- minimum configuration -->
<ww:optiontransfersselect
  label="Favourite Cartoons Characters"
  name="leftSideCartoonCharacters"
  list="{ 'Popeye', 'He-Man', 'Spiderman' }"
  doubleName="rightSideCartoonCharacters"
  doubleList="{ 'Superman', 'Mickey Mouse', 'Donald Duck' }"
/>

<-- possible configuration -->
<ww:optiontransfersselect
  label="Favourite Cartoons Characters"
  name="leftSideCartoonCharacters"
  leftTitle="Left Title"
  rightTitle="Right Title"
  list="{ 'Popeye', 'He-Man', 'Spiderman' }"
  multiple="true"
  headerKey="headerKey"
  headerValue="--- Please Select ---"
  emptyOption="true"
  doubleList="{ 'Superman', 'Mickey Mouse', 'Donald Duck' }"
  doubleName="rightSideCartoonCharacters"
  doubleHeaderKey="doubleHeaderKey"
  doubleHeaderValue="--- Please Select ---"
  doubleEmptyOption="true"
  doubleMultiple="true"
/>
```

password

This page last changed on Jan 07, 2006 by [tm_jee](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Render an HTML input tag of type password.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

showPassword	false	false	Boolean	Whether to show input
--------------	-------	-------	---------	-----------------------

show	false		Object/String	Deprecated. Use showPassword instead.
------	-------	--	---------------	---------------------------------------

maxlength	false		Integer	HTML maxlength attribute
-----------	-------	--	---------	--------------------------

maxLength	false		Object/String	Deprecated. Use maxlength instead.
-----------	-------	--	---------------	------------------------------------

readonly	false	false	Boolean	Whether the input is readonly
----------	-------	-------	---------	-------------------------------

size	false		Integer	HTML size attribute
------	-------	--	---------	---------------------

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a
-------	-------	--	---------------	---------------------------------------

				element specific label
--	--	--	--	------------------------

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	--

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	--

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html
-------------	-------	--	---------------	--------------

				onmousedown attribute on rendered html element
--	--	--	--	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

In this example, a password control is displayed. For the label, we are calling ActionSupport's `getText()` to retrieve password label from a resource bundle.<p/>

```
<ww:password label="%{text('password')}}" name="password" size="10" maxlength="15" />
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Render a radio button input field.

Parameters

Name	Required	Default	Type	Description
list	true		Object/String	Iterable source to populate from.
listKey	false		Object/String	Property of list objects to get field value from

listValue	false		Object/String	Property of list objects to get field content from
-----------	-------	--	---------------	--

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for
----------	-------	--	---------------	-------------------------------

				element ro use
--	--	--	--	----------------

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered
---------	-------	--	---------------	--

				html element
--	--	--	--	--------------

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover
-------------	-------	--	---------------	--------------------------

				attribute on rendered html element
--	--	--	--	------------------------------------

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

In this example, a radio control is displayed with a list of genders. The gender list is built from attribute id=genders. WW calls getGenders() which will return a Map. For examples using listKey and listValue attributes, see the section select tag. The default selected one will be determined (in this case) by the getMale() method in the action class which should return a value similar to the key of the getGenders() map if that particular gender is to be selected.

```
<ww:action name="GenderMap" id="genders"/><ww:radio label="Gender" name="male"  
list="#genders.genders" />
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Render an HTML input tag of type password.

Parameters

Name	Required	Default	Type	Description
emptyOption	false	false	Boolean	Whether or not to add an empty (--) option after the header option
headerKey	false		Object/String	Key for first item in list

headerValue	false		Object/String	Value expression for first item in list
-------------	-------	--	---------------	---

multiple	false	false	Boolean	Creates a multiple select. The tag will pre-select multiple values if the values are passed as an Array (of appropriate types) via the value attribute. Passing a Collection may work too? Haven't tested this.
----------	-------	-------	---------	---

size	false		Integer	Size of the element box (# of elements to show)
------	-------	--	---------	---

list	true		Object/String	Iterable source to populate from.
------	-------------	--	---------------	-----------------------------------

listKey	false		Object/String	Property of list objects to get field value from
---------	-------	--	---------------	--

listValue	false		Object/String	Property of list objects to get field content from
-----------	-------	--	---------------	--

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use
----------	-------	--	---------------	--

				for rendering the element
--	--	--	--	---------------------------

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html
-----------	-------	--	---------------	--------------

				onmouseup attribute on rendered html element
--	--	--	--	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

Note: For any of the tags that use lists (select probably being the most ubiquitous), which uses the OGNL list notation (see the "months" example above), it should be noted that the map key created (in the months example, the '01', '02', etc.) is typed. '1' is a char, '01' is a String, "1" is a String. This is important since if the value returned by your "value" attribute is NOT the same type as the key in the "list" attribute, they WILL NOT MATCH, even though their String values may be equivalent. If they don't match, nothing in your list will be auto-selected.<p/>

```
<ww:select label="Pets"
    name="petIds"
    list="petDao.pets"
    listKey="id"
    listValue="name"
    multiple="true"
    size="3"
    required="true"
/>

<ww:select label="Months"
    name="months"
    headerKey="-1" headerValue="Select Month"
    list="#{'01':'Jan', '02':'Feb', [...]}"
    value="selectedMonth"
    required="true"
/>

// The month id (01, 02, ...) returned by the getSelectedMonth() call
// against the stack will be auto-selected
```

submit

This page last changed on Jan 10, 2006 by [plightbo](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Render a submit button. The submit tag is used together with the form tag to provide asynchronous form submissions.

THE FOLLOWING IS ONLY VALID WHEN AJAX IS CONFIGURED

- resultDivId
- notifyTopics
- onLoadJS
- preInvokeJS

The remote form has three basic modes of use, using the resultDivId, the notifyTopics, or the onLoadJS. You can mix and match any combination of them to get your desired result. All of these examples are contained in the Ajax example webapp. Lets go through some scenarios to see how you might use it:



This tag works with all themes, but has special importance when combined with the [form](#) tag in the [ajax theme](#). Please read up on the [ajax theme](#) for more information.

Parameters

Name	Required	Default	Type	Description

action	false		String	Set action attribute
--------	-------	--	--------	----------------------

method	false		String	Set method attribute
--------	-------	--	--------	----------------------

align	false		String	HTML align attribute
-------	-------	--	--------	----------------------

resultDivId	false		String	The id of the HTML element to place the result (this can be the form's id or any id on the page)
-------------	-------	--	--------	--

onLoadJS	false		String	Javascript code that will be executed after the form has been submitted.
----------	-------	--	--------	--

				<p>The format is onLoadJS='yourMethodNam</p> <p>NOTE: the words data and type must be left like that if you want the event type and the returned data.</p>
--	--	--	--	--

notifyTopics	false		String	Topic names to post an event to after the form has been submitted
--------------	-------	--	--------	---

listenTopics	false		String	Set listenTopics attribute
--------------	-------	--	--------	-------------------------------

preInvokeJS	false		String	<p>Javascript code that will be executed before invocation. The format is preInvokeJS='yourMethodN</p>
-------------	-------	--	--------	--

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on
----------	-------	--	---------------	------------------------------------

				rendered html element
--	--	--	--	-----------------------

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html
------------	-------	--	---------------	--------------

				ondblclick attribute on rendered html element
--	--	--	--	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

Example 1

```
<ww:submit value="%{'Submit'}" />
```

Example 2

Show the results in another div. If you want your results to be shown in a div, use the resultDivId where the id is the id of the div you want them shown in. This is an inner HTML approach. Your results get jammed into the div for you. Here is a sample of this approach:

```
Remote form replacing another div:
<div id='two' style="border: 1px solid yellow;">Initial content</div>
<ww:form
  id='theForm2'
  cssStyle="border: 1px solid green;"
```



```

        action='/AjaxRemoteForm.action'
        method='post'
        theme="ajax">

        <input type='text' name='data' value='WebWork User' /><ww:submit value="GO2"
        theme="ajax" resultDivId="two" /></ww:form >

```

Example 3

Notify other controls(divs) of a change. Using an pub-sub model you can notify others that your control changed and they can take the appropriate action. Most likely they will execute some action to refresh. The notifyTopics does this for you. You can have many topic names in a comma delimited list. eg: notifyTopics="newPerson, dataChanged" . Here is an example of this approach:

```

<ww:form id="frm1" action="newPersonWithXMLResult" theme="ajax" ><ww:textfield
label="Name" name="person.name" value="person.name" size="20" required="true"
/><ww:submit id="submitBtn" value="Save" theme="ajax" cssClass="primary"
notifyTopics="personUpdated, systemWorking" /></ww:form >

<ww:div href="/listPeople.action" theme="ajax" errorText="error opps"
loadingText="loading..." id="cart-body" >
    <ww:action namespace="" name="listPeople" executeResult="true" /></ww:div>

```

Example 4

Massage the results with JavaScript. Say that your result returns some happy XML and you want to parse it and do lots of cool things with it. The way to do this is with a onLoadJS handler. Here you provide the name of a JavaScript function to be called back with the result and the event type. The only key is that you must use the variable names 'data' and 'type' when defining the callback. For example: onLoadJS="myFancyDancyFunction(data, type)". While I talked about XML in this example, your not limited to XML, the data in the callback will be exactly whats returned as your result. Here is an example of this approach:

```

<script language="JavaScript" type="text/javascript">
    function doGreatThings(data, type) {
        //Do whatever with your returned fragment...
        //Perhapps.... if xml...
        var xml = dojo.xml.domUtil.createDocumentFromText(data);
        var people = xml.getElementsByTagName("person");
        for(var i = 0;i < people.length; i++){
            var person = people[i];

```

```
        var name = person.getAttribute("name")
        var id = person.getAttribute("id")
        alert('Thanks dude. Person: ' + name + ' saved great!!!');
    }

}

</script><ww:form id="frm1" action="newPersonWithXMLResult" theme="ajax"
><ww:textfield label="Name" name="person.name" value="person.name" size="20"
required="true" /><ww:submit id="submitBtn" value="Save" theme="ajax"
cssClass="primary" onLoadJS="doGreatThings(data, type)" /></ww:form>
```

textarea

This page last changed on Jan 07, 2006 by [tm_jee](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Render HTML textarea tag.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

cols	false		Integer	HTML cols attribute
------	-------	--	---------	---------------------

readonly	false	false	Boolean	Whether the textarea is readonly
----------	-------	-------	---------	----------------------------------

rows	false		Integer	HTML rows attribute
------	-------	--	---------	---------------------

wrap	false		String	HTML wrap attribute
------	-------	--	--------	---------------------

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element ro use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered
---------	-------	--	---------------	--

				html element
--	--	--	--	--------------

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover
-------------	-------	--	---------------	--------------------------

				attribute on rendered html element
--	--	--	--	------------------------------------

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Example

```
<ww:textarea label="Comments" name="comments" cols="30" rows="8"/>
```



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Render an HTML input field of type text

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

maxlength	false		Integer	HTML maxlength attribute
-----------	-------	--	---------	--------------------------

maxLength	false		Object/String	Deprecated. Use maxlength instead.
-----------	-------	--	---------------	------------------------------------

readonly	false	false	Boolean	Whether the input is readonly
----------	-------	-------	---------	-------------------------------

size	false		Integer	HTML size attribute
------	-------	--	---------	---------------------

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element ro use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered
---------	-------	--	---------------	--

				html element
--	--	--	--	--------------

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover
-------------	-------	--	---------------	--------------------------

				attribute on rendered html element
--	--	--	--	------------------------------------

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

In this example, a text control is rendered. The label is retrieved from a ResourceBundle by calling ActionSupport's `getText()` method.<p/>

```
<ww:textfield label="%{text('user_name')}}" name="user" />
```

token

This page last changed on Jan 07, 2006 by [tm_jee](#).



Please make sure you have read the [Tag Syntax](#) document and understand how tag attribute syntax works.

Description

Stop double-submission of forms.

The token tag is used to help with the "double click" submission problem. It is needed if you are using the TokenInterceptor or the TokenSessionInterceptor. The ww:token tag merely places a hidden element that contains the unique token.

Parameters

Name	Required	Default	Type	Description
theme	false		Object/String	The theme (other than default) to use for rendering the element

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a
-------	-------	--	---------------	---------------------------------------

				element specific label
--	--	--	--	------------------------

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	--

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	--

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html
-------------	-------	--	---------------	--------------

				onmousedown attribute on rendered html element
--	--	--	--	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:token />
```

FreeMarker tags are extensions of the generic [Tags](#) provided by WebWork. You can get started almost immediately by simply knowing the generic structure in which the tags can be accessed: `<@ww.xxx> ...</@ww.xxx>`, where xxx is any of the tags supported by WebWork.

Syntax

For example, in JSP you might create a form like so:

```
<ww:form action="updatePerson"><ww:textfield label="First name"
name="firstName"/><ww:submit value="Update"/></ww:form>
```

In FreeMarker the same form is built like so:

```
<@ww.form action="updatePerson"><@ww.textfield label="First name"
name="firstName"/><@ww.submit value="Update"/></@ww.form>
```

While this covers almost all you need to know for FreeMarker tags, there are a few other advanced features you should read about, specifically with how attributes and parameters work together, and how attribute types (String, List, etc) can affect the tag behavior.

Attributes and Parameters

Unlike older versions of JSP (in which the [JSP Tags](#) are based), FreeMarker allows for *dynamic attributes*, much like JSP 2.0. What this means is that you can supply attributes to the tags that the tag doesn't even support. Those attributes that cannot be applied directly to the tag object will instead be set on the tag's general **parameters** map.

For example, suppose you have the following code in JSP:

```
<ww:url value="somePage"><ww:param name="personId" value="%{personId}" /></ww:url>
```

In FreeMarker, you can simplify this as:

```
<@ww.url value="somePage" personId="%{personId}" />
```

In addition to being able to replace cases where you might use the [param](#) tag, you can also use this functionality when building additional templates or themes for your [Form Tags](#). For example, suppose you created a "three column" theme to replace the typical two column theme (xhtml). You might want an additional parameter to display in the third column called "description". Your form can be:

```
<@ww.form action="updatePerson"><@ww.textfield label="First name" name="firstName" description="..." /><@ww.submit value="Update" /></@ww.form>
```

And then in your new template you can refer to the description using **`${parameters.description}`**.



Sometimes you may still wish to use the `param` tag, such as when you are nesting complex HTML within tags. The `param` tag has support beyond what FreeMarker can provide as inline attributes: it can take the entire body of the `param` tag and apply that as the *value* attribute.

Attribute Types

Remember that all tag attributes must first be set as Strings – they are then later evaluated (using [OGNL](#)) to a different type, such as List, int, or boolean. This generally works just fine, but it can be limiting when using FreeMarker which provides more advanced ways to apply attributes. Suppose the following example:

```
<@ww.select label="Foo label - ${foo}" name="${name}" list="%{{1, 2, 3}}"/>
```

What will happen here is that each attribute will be evaluated to a string as best it can. This may involve calling the `toString()` method on the internal FreeMarker objects in the hash. In this case, all objects will end up being exactly what you would expect. Then, when the tag runs, the *list* attribute will be converted from a String to a List using [OGNL](#)'s advanced collection support.

But suppose you wish to use FreeMarker's list or hash support instead? You can do this:

```
<@ww.select label="Foo label - ${foo}" name="${name}" list={1, 2, 3}/>
```

Notice that the list attribute no longer has quotes around it. Now it will come in to the tag as an object that can't easily be converted to a String. Normally, the tag would just call `toString()`, which would return `"[1, 2, 3]"` and be unable to be converted back to a List by OGNL. Rather than go through all this back and forth anyway, the FreeMarker tag support within WebWork will recognize collections and not pass them through the normal tag attribute, but instead set them directly in the **parameters** map, ready to be consumed by the template.

In the end, everything tends to do what you would expect, but it can help to understand the difference of when OGNL is being used and when it isn't, and how attribute types get converted.

JSP Tag Support

While WebWork provides native FreeMarker Tags, you might wish to use other third-party tags that are only available for JSP. Fortunately, FreeMarker has the ability to run JSP tags. To do so, you must include the `JspSupportServlet` outlined in [web.xml 2.1.x compatibility](#), as this allows the FreeMarker integration to get access to the required objects needed to emulate a JSP taglib container.

Once you've done that, you can simply add something like this in your templates:

```
<#assign cewolf=JspTaglibs["/WEB-INF/cewolf.tld"] />
```

```
...  
<@cewold.xxx ... />
```

JSP Tags

This page last changed on Dec 11, 2005 by [plightbo](#).

JSP tags are extensions of the generic Tags provided by WebWork. You can get started almost immediately by simply knowing the generic structure in which the tags can be accessed: `<ww:xxx> ... </ww:xxx>`, where xxx is any of the tags supported by WebWork.

Tag Library Definition (TLD)

The JSP TLD is included in **webwork.jar**, meaning you can define the TLD as explained in the [web.xml](#) documentation. Once you've done this, you can add the following to your JSP:

```
<%@ taglib prefix="ww" uri="webwork" %>
```

Now you can use the tags, like so:

```
<ww:iterator value="people"><ww:property value="lastName"/>, <ww:property  
value="firstName"/></ww:iterator>
```

Non Form Tags

This page last changed on Jan 01, 2006 by [tm_jee](#).

1. [a](#)
2. [component](#)
3. [div](#)
4. [panel](#)
5. [table](#)
6. [tabbedPane](#) (deprectated in favour of `tabbedPanel`)
7. [tabbedPanel](#)
8. [actionmessage](#) - renders the action messages if they exists
9. [actionerror](#) - renders the error messages if they exists
10. [fielderror](#) - render the field error message if they exists

Description

A tag that creates a HTML `` that when clicked calls a URL remote XMLHttpRequest call via the dojo framework. The result from the URL is executed as JavaScript. If a "listenTopics" is supplied, it will publish a 'click' message to that topic when the result is returned.



While this tag can be used with the [simple theme](#), [xhtml theme](#), and others, it is really designed to work best with the [ajax theme](#). We recommend reading the [ajax a template](#) documentation for more details.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

id	false		String	The id to assign the component
----	-------	--	--------	--------------------------------

notifyTopics	false		Object/String	Topic names to post an event to after the remote call has been made
--------------	-------	--	---------------	---

preInvokeJS	false		String	
-------------	-------	--	--------	--

theme	false		String	The theme to use for the element. This tag will usually use the ajax theme.
-------	-------	--	--------	--

href	false		String	The URL to call to obtain the content
------	-------	--	--------	---------------------------------------

errorText	false		String	The text to display to the
-----------	-------	--	--------	----------------------------

				user if the is an error fetching the content
--	--	--	--	--

showErrorTransport	false	false	Boolean	when to show the error message as content when the URL had problems
--------------------	-------	-------	---------	---

afterLoading	false		String	Javascript code that will be executed after the content has been fetched
--------------	-------	--	--------	--

openTemplate	false		Object/String	Set template to use for opening the rendered html.
--------------	-------	--	---------------	--

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a
-------	-------	--	---------------	---------------------------------------

				element specific label
--	--	--	--	------------------------

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	--

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	--

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html
-------------	-------	--	---------------	--------------

				onmousedown attribute on rendered html element
--	--	--	--	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

Usage

To get started, use the [head](#) tag and the [ajax theme](#). See [ajax head template](#) for more information. Then look at the usage details for the [ajax a template](#).

Description

Render action errors if they exists the specific layout of the rendering depends on the theme itself.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

theme	false		Object/String	The theme (other than default) to use for renedring the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for renedring the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element ro use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input
-------	-------	--	---------------	---------------------------

				element.
--	--	--	--	----------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on
-----------	-------	--	---------------	-------------------------------------

				rendered html element
--	--	--	--	-----------------------

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html
---------	-------	--	---------------	--------------

				onfocus attribute on rendered html element
--	--	--	--	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	---

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:actionerror /><ww:form .... >>  
    ....  
</ww:form>
```

Description

Render action messages if they exists, specific rendering layout depends on the theme itself.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element ro use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input
-------	-------	--	---------------	---------------------------

				element.
--	--	--	--	----------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on
-----------	-------	--	---------------	-------------------------------------

				rendered html element
--	--	--	--	-----------------------

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html
---------	-------	--	---------------	--------------

				onfocus attribute on rendered html element
--	--	--	--	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	---

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

```
<ww:actionmessage /><ww:form .... >  
....  
</ww:form>
```

Description

Renders an custom UI widget using the specified templates. Additional objects can be passed in to the template using the param tags. Objects provided can be retrieve from within the template via `$parameters.paramname`.

In the bottom JSP and Velocity samples, two parameters are being passed in to the component. From within the component, they can be accessed as `$parameters.get('key1')` and `$parameters.get('key2')`. Velocity also allows you reference them as `$parameters.key1` and `$parameters.key2`.

Currently, your custom UI components can be written in Velocity, JSP, or Freemarker, and the correct rendering engine will be found based on file extension.

Remember: the value params will always be resolved against the OgnlValueStack so if you mean to pass a string literal to your component, make sure to wrap it in quotes i.e. `value="value1"` otherwise, the the value stack will search for an Object on the stack with a method of `getValue1()`. (now that i've written this, i'm not entirely sure this is the case. i should verify this manana)

Parameters

Name	Required	Default	Type	Description

theme	false		Object/String	The theme
-------	-------	--	---------------	-----------

				(other than default) to use for rendering the element
--	--	--	--	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html
----------	-------	--	---------------	--

				element
--	--	--	--	---------

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html
------------	-------	--	---------------	--------------

				ondblclick attribute on rendered html element
--	--	--	--	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

JSP

```
<ww:component template="/my/custom/component.vm"/>
or
<ww:component template="/my/custom/component.vm"><ww:param name="key1"
value="value1"/><ww:param name="key2" value="value2"/></ww:component>
```

Velocity


```
#tag( Component "template=/my/custom/component.vm" )
or
#bodytag( Component "template=/my/custom/component.vm" )
#param( "key1" "value1" )
#param( "key2" "value2" )
#end
```

Description

The div tag is primarily an AJAX tag, providing a remote call from the current page to update a section of content without having to refresh the entire page.

It creates a HTML <DIV /> that obtains it's content via a remote XMLHttpRequest call via the dojo framework.

If a "listenTopics" is supplied, it will listen to that topic and refresh it's content when any message is received.



While this tag can be used with the [simple theme](#), [xhtml theme](#), and others, it is really designed to work best with the [ajax theme](#). We recommend reading the [ajax div template](#) documentation for more details.

Parameters

Name	Required	Default	Type	Description
updateFreq	false	0	Integer	How often to re-fetch the content (in

				milliseconds)
--	--	--	--	---------------

delay	false	0	Integer	How long to wait before fetching the content (in milliseconds)
-------	-------	---	---------	--

loadingText	false		Object/String	The text to display to the user while the new content is being fetched (especially good if the content will take awhile)
-------------	-------	--	---------------	--

listenTopics	false		Object/String	Topic name to listen to (comma delimited), that will cause the DIV's content to be re-fetched
--------------	-------	--	---------------	---

theme	false		String	The theme to use for the element. This tag will usually use the ajax theme.
-------	-------	--	--------	--

href	false		String	The URL to call to obtain the content
------	-------	--	--------	---------------------------------------

errorText	false		String	The text to display to the user if there is an error fetching the content
-----------	-------	--	--------	---

showErrorTransp	false	false	Boolean	when to show the error message as content when the URL had problems
-----------------	-------	-------	---------	---

afterLoading	false		String	Javascript code that will be executed after the content has been fetched
--------------	-------	--	--------	--

openTemplate	false		Object/String	Set template to use for opening the rendered html.
--------------	-------	--	---------------	--

template	false		Object/String	The template (other than default) to use for renerding the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for
----------	-------	--	---------------	-------------------------------

				element ro use
--	--	--	--	----------------

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered
---------	-------	--	---------------	--

				html element
--	--	--	--	--------------

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover
-------------	-------	--	---------------	--------------------------

				attribute on rendered html element
--	--	--	--	------------------------------------

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Usage

To get started, use the [head](#) tag and the [ajax theme](#). See [ajax head template](#) for more information. Then look at the usage details for the [ajax div template](#).

Description

Render a panel for tabbedPanel.

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

tabName	true		Object/String	The text of the tab to display in the header tab list
---------	------	--	---------------	---

subscribeTopicName	false		Object/String	Set subscribeTopicName attribute
--------------------	-------	--	---------------	----------------------------------

remote	false	false	Boolean	determines whether this is a remote panel (ajax) or a local panel (content loaded into visible/hidden containers)
--------	-------	-------	---------	---

updateFreq	false	0	Integer	How often to re-fetch the content (in milliseconds)
------------	-------	---	---------	---

delay	false	0	Integer	How long to wait before fetching the content (in milliseconds)
-------	-------	---	---------	--

loadingText	false		Object/String	The text to display to the user while the new content is being fetched (especially good if the content
-------------	-------	--	---------------	--

				will take awhile)
--	--	--	--	-------------------

listenTopics	false		Object/String	Topic name to listen to (comma delimited), that will cause the DIV's content to be re-fetched
--------------	-------	--	---------------	---

theme	false		String	The theme to use for the element. This tag will usually use the ajax theme.
-------	-------	--	--------	--

href	false		String	The URL to call to obtain the content
------	-------	--	--------	---------------------------------------

errorText	false		String	The text to display to the user if there is an error fetching the content
-----------	-------	--	--------	---

showErrorTransparent	false	false	Boolean	when to show the error message as content when the URL had problems
----------------------	-------	-------	---------	---

afterLoading	false		String	Javascript code that will be executed after the content has been fetched
--------------	-------	--	--------	--

openTemplate	false		Object/String	Set template to use for opening the rendered html.
--------------	-------	--	---------------	--

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a
-------	-------	--	---------------	---------------------------------------

				element specific label
--	--	--	--	------------------------

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	--

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	--

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html
-------------	-------	--	---------------	--------------

				onmousedown attribute on rendered html element
--	--	--	--	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Examples

The following is an example of a tabbedpanel and panel tag utilizing local and remote content.

If you are looking for the "nifty" rounded corner look, there is additional configuration. This assumes that the background color of the tabs is white. If you are using a different color, please modify the parameter in the Rounded() method.

```
<link rel="stylesheet" type="text/css" href="<ww:url value="/webwork/tabs.css"/>">
<link rel="stylesheet" type="text/css" href="<ww:url
value="/webwork/niftycorners/niftyCorners.css"/>">
<link rel="stylesheet" type="text/css" href="<ww:url
value="/webwork/niftycorners/niftyPrint.css"/>" media="print">
<script type="text/javascript" src="<ww:url
value="/webwork/niftycorners/nifty.js"/>"></script><script type="text/javascript">
    dojo.event.connect(window, "onload", function() {
        if (!NiftyCheck())
            return;
        Rounded("li.tab_selected", "top", "white", "transparent", "border
#ffffffS");
        Rounded("li.tab_unselected", "top", "white", "transparent", "border
#ffffffS");
        // "white" needs to be replaced with the background color
    });
</script>
```

tabbedpane

This page last changed on Dec 03, 2005 by [tm_je](#).



Deprecated

This tag has been deprecated in favour of TabbedPanel.

tabbedpane

Attribute	Type	Required	Default	Description
id	string	FALSE		
contentName	string	TRUE		name of collection to use
selectedIndex	integer	FALSE		
name	string	TRUE		
value	string	FALSE		
required	boolean	FALSE		
disabled	boolean	FALSE		
theme	string	FALSE		
template	string	FALSE	tabbedpane	
cssClass	string	FALSE		
cssStyle	string	FALSE		
label	string	FALSE		
labelposition	string	FALSE		
tabindex	string	FALSE		
onclick	string	FALSE		
ondblclick	string	FALSE		
onmousedown	string	FALSE		
onmouseup	string	FALSE		

onmouseover	string	FALSE		
onmousemove	string	FALSE		
onmouseout	string	FALSE		
onfocus	string	FALSE		
onblur	string	FALSE		
onkeypress	string	FALSE		
onkeydown	string	FALSE		
onselect	string	FALSE		
onchange	string	FALSE		

Description

The tabbedpanel widget is primarily an AJAX component, where each tab can either be local content or remote content (refreshed each time the user selects that tab).



This tag only works with the [ajax theme](#). Be sure to read up on the theme before using this tag.

Parameters

Name	Required	Default	Type	Description

id	true		String	The id to assign to the component.
----	-------------	--	--------	------------------------------------

openTemplate	false		Object/String	Set template to use for opening the rendered html.
--------------	-------	--	---------------	--

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element to use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on
----------	-------	--	---------------	------------------------------------

				rendered html element
--	--	--	--	-----------------------

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered html element
---------	-------	--	---------------	---

ondblclick	false		Object/String	Set the html
------------	-------	--	---------------	--------------

				ondblclick attribute on rendered html element
--	--	--	--	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover attribute on rendered html element
-------------	-------	--	---------------	---

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

Examples

The following is an example of a tabbedpanel and panel tag utilizing local and remote content.

```
<ww:tabbedPanel id="test2" theme="simple" ><ww:panel id="left" tabName="left"
theme="ajax">
    This is the left pane<br/><ww:form ><ww:textfield name="tt" label="Test
Text" /><br/><ww:textfield name="tt2" label="Test Text2"
/></ww:form></ww:panel><ww:panel remote="true" href="/AjaxTest.action" id="ryh1"
theme="ajax" tabName="remote one" /><ww:panel id="middle" tabName="middle"
theme="ajax">
    middle tab<br/><ww:form ><ww:textfield name="tt" label="Test Text44"
/><br/><ww:textfield name="tt2" label="Test Text442"
/></ww:form></ww:panel><ww:panel remote="true" href="/AjaxTest.action" id="ryh21"
theme="ajax" tabName="remote right" /></ww:tabbedPanel>
```

If you are looking for the "nifty" rounded corner look, there is additional configuration. This assumes that the background color of the tabs is white. If you are using a different color, please modify the parameter in the Rounded() method.

```
<link rel="stylesheet" type="text/css" href="<ww:url value="/webwork/tabs.css"/>">
<link rel="stylesheet" type="text/css" href="<ww:url
value="/webwork/niftycorners/niftyCorners.css"/>">
<link rel="stylesheet" type="text/css" href="<ww:url
value="/webwork/niftycorners/niftyPrint.css"/>" media="print">
<script type="text/javascript" src="<ww:url
value="/webwork/niftycorners/nifty.js"/>"></script><script type="text/javascript">
    dojo.event.connect(window, "onload", function() {
        if (!NiftyCheck())
            return;
        Rounded("li.tab_selected", "top", "white", "transparent", "border
#ffffffS");
        Rounded("li.tab_unselected", "top", "white", "transparent", "border
#ffffffS");
        // "white" needs to be replaced with the background color
    });
</script>
```

Parameters

Name	Required	Default	Type	Description
------	----------	---------	------	-------------

modelName	true		String	The name of model to use
-----------	------	--	--------	--------------------------

sortColumn	false		Integer	Index of column to sort data by
------------	-------	--	---------	---------------------------------

sortOrder	false	NONE	String	Set sort order. Allowed values are NONE, ASC and DESC
-----------	-------	------	--------	---

sortable	false	false	Boolean	Whether the table should be sortable. Requires that model implements <code>com.opensymphony.webwork</code> if set to true.
----------	-------	-------	---------	---

theme	false		Object/String	The theme (other than default) to use for rendering the element
-------	-------	--	---------------	---

template	false		Object/String	The template (other than default) to use for rendering the element
----------	-------	--	---------------	--

cssClass	false		Object/String	The css class to use for element
----------	-------	--	---------------	----------------------------------

cssStyle	false		Object/String	The css style definitions for element ro use
----------	-------	--	---------------	--

disabled	false		Object/String	Set the html disabled attribute on rendered html element
----------	-------	--	---------------	--

label	false		Object/String	Label expression used for rendering a element specific label
-------	-------	--	---------------	--

labelPosition	false	left	Object/String	deprecated.
---------------	-------	------	---------------	-------------

labelposition	false		Object/String	define label position of form element (top/left)
---------------	-------	--	---------------	--

name	false		Object/String	The name to set for element
------	-------	--	---------------	-----------------------------

required	false	false	Boolean	If set to true, the rendered element will indicate that input is required
----------	-------	-------	---------	---

tabindex	false		Object/String	Set the html tabindex attribute on rendered html element
----------	-------	--	---------------	--

value	false		Object/String	Preset the value of input element.
-------	-------	--	---------------	------------------------------------

onclick	false		Object/String	Set the html onclick attribute on rendered
---------	-------	--	---------------	--

				html element
--	--	--	--	--------------

ondblclick	false		Object/String	Set the html ondblclick attribute on rendered html element
------------	-------	--	---------------	--

onmousedown	false		Object/String	Set the html onmousedown attribute on rendered html element
-------------	-------	--	---------------	---

onmouseup	false		Object/String	Set the html onmouseup attribute on rendered html element
-----------	-------	--	---------------	---

onmouseover	false		Object/String	Set the html onmouseover
-------------	-------	--	---------------	--------------------------

				attribute on rendered html element
--	--	--	--	------------------------------------

onmousemove	false		Object/String	Set the html onmousemove attribute on rendered html element
-------------	-------	--	---------------	---

onmouseout	false		Object/String	Set the html onmouseout attribute on rendered html element
------------	-------	--	---------------	--

onfocus	false		Object/String	Set the html onfocus attribute on rendered html element
---------	-------	--	---------------	---

onblur	false		Object/String	Set the html onblur attribute on rendered html element
--------	-------	--	---------------	--

onkeypress	false		Object/String	Set the html onkeypress attribute on rendered html element
------------	-------	--	---------------	--

onkeydown	false		Object/String	Set the html onkeydown attribute on rendered html element
-----------	-------	--	---------------	---

onkeyup	false		Object/String	Set the html onkeyup attribute on rendered html element
---------	-------	--	---------------	---

onselect	false		Object/String	Set the html onselect attribute on rendered html element
----------	-------	--	---------------	--

onchange	false		Object/String	Set the html onchange attribute on rendered html element
----------	-------	--	---------------	--

id	false		Object/String	id for referencing element. For UI and form tags it will be used as HTML id attribute
----	-------	--	---------------	---

Tag Syntax

This page last changed on Dec 11, 2005 by [plightbo](#).

The tag syntax in WebWork is extremely easy to understand. To quickly get started, all you need to know is that all attributes are applied as Strings initially. They are then parsed for the syntax `%{ ... }`, and anything in between the braces is evaluated against the value stack.



Upgrade note!

The tag syntax was not always this easy – if you are upgrading from WebWork 2.1.7 or previous versions, you may wish to read about the [Alt Syntax](#).

Like most things in life, it turns out that this isn't quite *that* simple. Specifically, there are actually three rules to be aware of:

1. All *String* attribute types are *parsed* for the `%{ ... }` characters.
2. All *non-String* attribute types are **not** parsed, but instead evaluated directly as an [OGNL](#) expression
3. The exception to rule #2 is that if the *non-String* attribute starts with `%{` and ends with `}`, those characters are cut off before evaluating the expression.

The best way to understand these rules is by looking at some examples.



We recognize that these rules can be confusing. Generally, you should not need to know them at all, as 99.9% of the time everything will "just work". However, as we see in the examples, there are some tricky situations that require understanding of these rules. In future versions of WebWork, will be trying to make the tag syntax even simpler

Some Examples

The most basic example explaining how the tag syntax works is as follows. This example shows off rule #1 only:

```
<ww:textfield label="%{getText("state.label")}" name="state"/>
```

In this example, the label is dynamically evaluated and set to the outcome of the [OGNL](#) expression **getText("state.label")**, which will in turn invoke the [Internationalization](#) system to retrieve the value of the i18n key *state.label*. The name, being a String attribute, is simply set to the string **state**.

The next example shows off rule #2:

```
<ww:select label="%{getText("state.label")}" name="state" multiple="true"/>
```

While this looks very similar to the last example, the key thing to recognize is that the *multiple* attribute is of type *Boolean*, which means it falls under rule #2. Generally you won't even notice this, because **true** as an [OGNL](#) expression evaluated to true, which is what you want.

Now let's suppose we want to extend this example to show off rule #3 by making the multiple attribute dynamic:

```
<ww:select label="%{getText("state.label")}" name="state"
multiple="%{allowMultiple}"/>
```

Because the attribute is of type *Boolean* and starts and ends with the correct characters from rule #3, it is reduced to the expression *allowMultiple*, which is evaluated against the value stack, returning a true or false value, just like in the previous example.

There is one trick example to keep an eye on, however. For example, the following is probably **incorrect**:

```
<ww:textfield label="%{getText("state.label")}" name="state" value="CA"/>
```

This example will only work if the expression *CA* can result in something, meaning

that your action has a method *getCA()*, which is probably not what you expected. This is because the *value* attribute is of type *Object* and therefore rule #2 applies. If the desire is to set a static String as the initial value, you would need to supply an [OGNL](#) expression that returns a String. For example, this is the **correct** way to do it:

```
<ww:textfield label="%{getText("state.label")}" name="state" value="%{'CA'}"/>
```

While you could set the value attribute as just "CA", we recommend the parsed expressions so that, in the future when WebWork supports parsed attributes for all types, your code will still work.

Alt Syntax

This page last changed on Jan 07, 2006 by [plightbo](#).

The *altSyntax* is an option that can be defined in [webwork.properties](#). By default it is set to true and it is **strongly** recommend you do not change that unless you are upgrading from WebWork 2.1.7 or previous versions.



Migration tip

You can also turn on the altSyntax on a per-page basis by using the [set](#) tag. Simply set the name *useAltSyntax* to the value *true*. From this point on, all tags will use the altSyntax for the rest of the request.

The altSyntax changes the behavior of how tags are interpreted. Instead of evaluating each tag parameter against the value stack and needing single quotes to mark string literals, only marked expressions are evaluated.

Example:

the following code uses the [Tag Syntax](#):

```
<ww:iterator value="cart.items">
  ...
  <ww:textfield label="'Cart item No.' + #rowstatus.index + ' note'"
    name="'cart.items[' + #rowstatus.index + '].note'"
    value="note" />
</ww:iterator>
```

this is somewhat counter intuitive to normal HTML tag behaviour, and you get loads of single quotes. Now the same example in altSyntax:

```
<ww:iterator value="cart.items">
  ...
  <ww:textfield label="Cart item No. %{#rowstatus.index} note"
    name="cart.items[%{#rowstatus.index}].note"
    value="%{note}" />
</ww:iterator>
```

Only expressions enclosed with `%{ }` are evaluated. The code is shorter and clearer, very similar to JSTL EL usage. Quoting problems, eg. with javascript function calls, are avoided.

In order to fully understand why this option exists and what the differences are, it is best to get a bit of history about WebWork.



If you are *not* upgrading from WebWork 2.1.7 or previous versions and you don't care about the history of WebWork's evolution, you can skip this section. See the [Tag Syntax](#) section for more information on the standard tag syntax support

History

In WebWork 2.1.4, the `altSyntax` option was introduced. The book, *WebWork in Action*, while based around WebWork 2.1.7, was entirely written with the assumption that the `altSyntax` was enabled. As of WebWork 2.2, the `altSyntax` is turned on by default and eventually the old syntax will no longer be supported and will be removed from the code.

Themes and Templates

This page last changed on Jan 07, 2006 by [plightbo](#).

At the core of the HTML [Tags](#) provided by WebWork are **themes** and **templates**. We'll first start off with a simple definition of three key terms:

- **tag** - a small piece of code executed from within [JSP](#), [FreeMarker](#), or [Velocity](#).
- **template** - a bit of code, usually written in [FreeMarker](#), that can be rendered by certain tags (HTML tags)
- **theme** - a collection of *templates* packaged together to provide common functionality

Tags are covered in the [Tags](#) section, so we won't discuss them much here other than their relationship to themes and templates already stated. Instead, we'll focus on several important topics:

- [Template Loading](#) - how templates are loaded by WebWork
- [Selecting Themes](#) - how you can pick a theme when writing your results
- [Extending Themes](#) - how to create your own themes based on already existing themes
- Themes - a detailed overview of each theme included with WebWork
 - [simple theme](#) - a minimal theme with know additional "bells and whistles"
 - [xhtml theme](#) - the default theme that uses common HTML practices
 - [css xhtml theme](#) - the [xhtml theme](#) re-implemented using strictly CSS for layout
 - [ajax theme](#) - a theme based on the [xhtml theme](#) that provides advanced AJAX features

The ajax theme extends the [xhtml theme](#), providing AJAX features on top of everything provided by its parent theme. This theme uses two popular AJAX/JavaScript libraries: Dojo and DWR. These AJAX features are:

- [AJAX Client Side Validation](#)
- Remote [form](#) submission support (works with the [submit](#) tag as well)
- An advanced [div](#) template that provides dynamic reloading of partial HTML
- An advanced [a](#) template that provides the ability to load and evaluate JavaScript remotely
- An AJAX-only [tabbedPanel](#) implementation
- A rich pub-sub event model

Extending the XHTML Theme


The wrapping behavior provided by this theme is almost exactly like that provided by the [xhtml theme](#). The only difference is that the **controlheader.ftl** template is slightly different:

```
<#include "${parameters.templateDir}/xhtml/controlheader-core.ftl" /><#if
parameters.form?exists && parameters.form.validate?default(false) == true><!-- can't
mutate the data model in freemarker --><#if parameters.onblur?exists>
    ${tag.addParameter('onblur', "validate(this);${parameters.onblur}")}
<#else>
    ${tag.addParameter('onblur', "validate(this);")}
</#if></#if><td>
```

This provides for [AJAX Client Side Validation](#) by checking if the *validate* attribute is set to true. If it is, on each **onblur** event for HTML [Tags](#), a validation request is made. Some people don't like the onblur behavior and would rather a more advanced timer (say, 200ms) be kicked off after every keystroke. You can override this template and provide that type of behavior if you would like.

Special Notes

While most of the templates in this theme are self explanatory, there are some templates that should be called out and explained in detail:

	Especially with this theme, it is strongly recommended you use the head tag. See the ajax head template for more information. Without it, you most likely not have AJAX support set up properly.
---	--

- [ajax head template](#)
- [ajax div template](#)
- [ajax a template](#)

In addition to these templates, it is important to make yourself familiar with the [ajax event system](#) provided by WebWork and Dojo.

The ajax a template is used to make asynchronous calls to the server when the user clicks on the a href link. It is useful when you need to communicate information back to the application from the UI, without requiring the entire page to be re-rendered. An example would be removing an item from a list.

The *preInvokeJS* attribute is used to determine whether the URL specified should be called or not, and must contain Javascript that returns *true* or *false*. If you want to call a JavaScript function, use the format *preInvokeJS*='yourMethodName(data,type)'. An example would be to show a confirm dialog to the user to double check whether they want to remove a user from a list.

Remember: the content returned by the *href* attribute must be JavaScript. That JavaScript will then be evaluated within the webpage. If you only wish to publish an event to the topic specified, then simply return no result (or NONE) from your action and utilize the *notifyTopics* attribute to specific the topic names.

For an example of the interaction between the [div](#) tag and the [a](#) tag using the topic pub/sub model, see the examples in the [ajax div template](#).

The ajax [div](#) template provides a much more interesting div rendering option that the other themes do. Rather than simply rendering a `<div>` tag, this template relies on advanced AJAX features provided by the [Dojo Toolkit](#). While the [div](#) tag could be used outside of the [ajax theme](#), it is usually not very useful. See the [div](#) tag for more information on what features are provided.

Features

The remote div has a few features, some of which can be combined with the [a](#) tag and the [ajax a template](#). These uses are:

- Retrieve remote data
- Initialize the div with content before the remote data is retrieved
- Display appropriate error and loading messages
- Refresh data on a timed cycle
- Listen for events and refresh data
- JavaScript control support

Retrieve Remote Data

The simplest way to use the div tag is to provide an *href* attribute. For example:

```
<ww:div theme="ajax" id="weather" href="http://www.weather.com/weather?zip=97239"/>
```

What this does after the HTML page is completely loaded, the specified URL will be retrieved asynchronously in the browser. The entire contents returned by that URL will be injected in to the div.

Initializing the Div

Because the remote data isn't loaded immediately, it is sometimes useful to have some placeholder content that exists before the remote data is retrieved. The content is essentially just the body of the div element. For example:

```
<ww:div theme="ajax" id="weather" href="http://www.weather.com/weather?zip=97239">
  Placeholder...
</ww:div>
```

If you wish to load more complex initial data, you can use the [action](#) tag and the *executeResult* attribute:

```
<ww:div theme="ajax" id="weather"
href="http://www.weather.com/weather?zip=97239"><ww:action id="weather"
name="weatherBean" executeResult="true"><ww:param name="zip"
value="97239"/></ww:action></ww:div>
```

Loading and Error Messages

If you'd like to display special messages when the data is being retrieved or when the data cannot be retrieved, you can use the *errorText* and *loadingText* attributes:

```
<ww:div theme="ajax" id="weather" href="http://www.weather.com/weather?zip=97239"
  loadingText="Loading weather information..."
  errorText="Unable to contact weather server">
  Placeholder...
</ww:div>
```

Refresh Timers

Another feature this div template provides is the ability to refresh data on a timed basis. Using the *updateFreq* and the *delay* attributes, you can specify how often the timer goes off and when the timer starts (times in milliseconds). For example, the following will update every minute after a two second delay:

```
<ww:div theme="ajax" id="weather" href="http://www.weather.com/weather?zip=97239"
  loadingText="Loading weather information..."
  errorText="Unable to contact weather server">
  delay="2000"
  updateFreq="60000"
```

```
Placeholder...
</ww:div>
```

Listening for Events

The [a](#) tag (specifically the [ajax a template](#)) and the `div` tag support an [ajax event system](#), providing the ability to broadcast events to topics. You can specify the **topics** to listen to using a comma separated list in the `listenTopics` attribute. What this means is that when a topic is published, usually through the [ajax a template](#), the URL specified in the `href` attribute will be re-requested.

```
<ww:div theme="ajax" id="weather" href="http://www.weather.com/weather?zip=97239"
        loadingText="Loading weather information..."
        errorText="Unable to contact weather server"
        listenTopics="weather_topic,some_topic">
    Placeholder...
</ww:div>
<ww:a id="link1"
      theme="ajax"
      href="refreshWeather.action"
      notifyTopics="weather_topic,other_topic"
      errorText="An Error occurred">Refresh</ww:a>
```

JavaScript Support

There are also javascript functions to refresh the content and stop/start the refreshing of the component. For the remote div with the component id "remotediv1":

To start refreshing use the javascript:

```
remotediv1.start();
```

To stop refreshing use the javascript:

```
remotediv1.stop();
```

To refresh the content use the javascript:

```
remotediv1.bind();
```

ajax event system

This page last changed on Jan 09, 2006 by [roughley](#).

As you may have seen with the [ajax div template](#) and [ajax a template](#), WebWork and Dojo provide a nice way to subscribe and notify of topics from within the browser. A benefit of using Dojo as the basis of many of these components is being able to loosely couple UI components. There are two attributes of importance: *listenTopics* and *notifyTopics*.

- If a component has a *notifyTopics* attribute, then after the processing has been completed a message will be published to the topic names supplied as a value (comma delimited).
- If a component has a *listenTopics* attribute, then when a message is published to the topic names supplied as a value (comma delimited), the component will perform custom tag-specific logic (i.e a DIV tag will re-fresh its content).

As well as this, you can publish and subscribe to topic names with javascript code. To publish to the *topic_name* topic:

```
dojo.event.topic.publish("topic_name", "content");
```

The *topic_name* attribute is required, the *content* attribute is not and most elements are triggered without having this attribute. See the [ajax div template](#) for an example of this type of interaction.

To subscribe to the *topic_name* topic:

```
function doSomethingWithEvent(data) {  
    ...  
}  
  
dojo.event.topic.getTopic("topic_name").subscribe(null, "doSomethingWithEvent");
```

The *subscribe* method takes 2 parameters, the first is the JavaScript object variable (or null if the function is not from an object) and the second is the name of the function to call when an event is received on the topic.

ajax head template

This page last changed on Jan 09, 2006 by [plightbo](#).

The ajax [head](#) template builds upon the [xhtml head template](#) by providing additional JavaScript includes for the [Dojo Toolkit](#), which is used by the [ajax a template](#), [ajax div template](#), , and the [ajax tabbedPanel template](#). It is required to use this tag, `<ww:head theme="ajax"/>`, in your HTML `<head>` block if you wish to use AJAX feature. The contents of **head.ftl** are:

```
<#include "${parameters.templateDir}/xhtml/head.ftl" /><script
language="JavaScript" type="text/javascript">
    // Dojo configuration
    djConfig = {
        baseRelativePath: "<@ww.url includeParams='none' value='/webwork/dojo/'/>",
        isDebug: false,
        bindEncoding: "${parameters.encoding}",
        debugAtAllCosts: true // not needed, but allows the Venkman debugger to work
with the includes
    };
</script>
<script language="JavaScript" type="text/javascript"
src="<@ww.url includeParams='none' value='/webwork/dojo/dojo.js'
/>"></script>
<script language="JavaScript" type="text/javascript"
src="<@ww.url includeParams='none' value='/webwork/CommonFunctions.js'
/>"></script>
<script language="JavaScript" type="text/javascript"
src="<@ww.url includeParams='none' value='/webwork/ajax/dojoRequire.js'
/>"></script>
```

Note that Dojo is configured to use the same character encoding specified in [webwork.properties](#), typically UTF-8. For a simple example of how to use the [head](#) tag with the AJAX theme, simply do the following in your HTML:

```
<ww:head theme="ajax"/>
```


ajax submit template

This page last changed on Jan 09, 2006 by [plightbo](#).

TODO: Describe the Ajax Submit template

ajax tabbedPanel template

This page last changed on Jan 09, 2006 by [plightbo](#).

TODO: Describe the Ajax TabbedPanel template

The `css_xhtml` theme is the default theme in WebWork. It provides all the basics that the [simple theme](#) provides, plus these additional features:

- Standard two-column CSS-based layout, using `<div>` for the HTML [Tags](#) ([form](#), [textfield](#), [select](#), etc)
- Labels for each of the HTML [Tags](#), placed according to the CSS stylesheet
- [Validation](#) error reporting
- [Pure JavaScript Client Side Validation](#) using 100% JavaScript on the browser

Wrapping the Simple Theme

The `css_xhtml` theme uses the **wrapping** technique mentioned in [Extending Themes](#), also done by the [xhtml theme](#). As such, it is important to understand how the HTML tags are wrapped by a standard header and footer. For example, take a look at the [textfield](#) template, **text.ftl**:

```
<#include "${parameters.templateDir}/css_xhtml/controlheader.ftl" /><#include  
"${parameters.templateDir}/simple/text.ftl" /><#include  
"${parameters.templateDir}/css_xhtml/controlfooter.ftl" />
```

As you can see, the **controlheader.ftl** and **controlfooter.ftl** templates are wrapped around the simple template.

CSS XHTML Theme Header

Now let's look at the `controlheader.ftl`:

```
<#--  
    Only show message if errors are available.  
    This will be done if ActionSupport is used.  
-->  
<#assign hasFieldErrors = fieldErrors?exists &&  
fieldErrors[parameters.name]?exists/><div <#rt/><#if  
parameters.id?exists>id="wwgrp_${parameters.id}"<#rt/></#if> class="wwgrp">
```

```

<#if hasFieldErrors><div <#rt/><#if
parameters.id?exists>id="wwerr_${parameters.id}"<#rt/></#if> class="wwerr">
<#list fieldErrors[parameters.name] as error><div<#rt/><#if parameters.id?exists>
errorFor="${parameters.id}"<#rt/></#if>
class="errorMessage">
    ${error?html}
</div><#t/></#list></div><#t/></#if><div <#rt/><#if
parameters.id?exists>id="wwctrl_${parameters.id}"<#rt/></#if> class="wwctrl">

<#if parameters.label?exists><label <#t/><#if parameters.id?exists>
for="${parameters.id?html}"<#t/></#if><#if hasFieldErrors>
class="errorLabel"<#t/><#else>
class="label"<#t/></#if>
><#t/><#if parameters.required?default(false)><span
class="required">*</span><#t/></#if>
    ${parameters.label?html}</label><#t/></#if><#lt/>

```

The header used by the HTML tags in the `css_xhtml` theme is somewhat complex. Unlike the [xhtml theme](#), this theme does not support the `labelposition` attribute. Instead, your CSS rules can define how the layout is done.

Also note that the **fieldErrors**, usually caused by [Validation](#), are displayed in a div block before the element is displayed.

CSS XHTML Theme Footer

And the `controlfooter.ftl` contents:

```

${parameters.after?if_exists}<#t/><#lt/></div></div>

```

Special Notes

While most of the templates in this theme are self explanatory, there are some templates that should be called out and explained in detail:

- [css_xhtml head template](#)
- [css_xhtml form template](#)

css_xhtml form template

This page last changed on Jan 08, 2006 by [plightbo](#).

The `css_xhtml` [form](#) template is almost exactly like the [xhtml form template](#), including support for [Pure JavaScript Client Side Validation](#). The only difference is that instead of printing out an opening and closing `<table>` element, there are no elements. Instead, the CSS rules for the individual HTML tags are assumed to handle all display logic. However, as noted, client side validation is still supported.

css_xhtml head template

This page last changed on Jan 08, 2006 by [plightbo](#).

The `css_xhtml` [head](#) template is very similar to the [xhtml head template](#). The only difference is that CSS that is included is specifically designed to provide the layout for the [css_xhtml theme](#). The contents of **head.ftl** are:

```
<link rel="stylesheet" href="@ww.url value='/webwork/css_xhtml/styles.css' />"
type="text/css"/>
<#include "${parameters.templateDir}/simple/head.ftl" />
```

The contents of **styles.css** are:

```
.wwFormTable {}
.label {
    font-style:italic;
    float:left;
    width:30%
}
.errorLabel {font-style:italic; color:red; }
.errorMessage {font-weight:bold; text-align: center; color:red; }
.checkboxLabel {}
.checkboxErrorLabel {color:red; }
.required {color:red;}
```

This page last changed on Jan 08, 2006 by [plightbo](#).

Sometimes you may want to simply override a template (see [Template Loading](#)) or create an alternative template in an existing theme. However, other times you might want to create your own entire theme, especially if you are planning to build a rich set of unique and reusable templates for your organization.

There are three ways to create new themes:

- Create a new theme from scratch (**hard!**)
- Extend an existing theme
- Wrap an existing theme

We don't ever recommend creating a new theme from scratch. Rather, we believe that the [simple theme](#) provides enough of the basics for you to either extend or wrap, thereby creating your own unique theme. No matter which method you choose (often you end up using a bit of both methods, as they aren't mutually exclusive), we **strongly** you unpack the WebWork jar and look at the source templates for all the provided themes. This will give you a good understanding of how to make your own templates and themes.

Wrapping an Existing Theme

Taking a look at the [xhtml theme](#), we can see that the templates there make extensive use of a **wrapping** technique. For example, a template might look like:

```
<#include "${parameters.templateDir}/xhtml/controlheader.ftl" /><#include  
"${parameters.templateDir}/simple/xxx.ftl" /><#include  
"${parameters.templateDir}/xhtml/controlfooter.ftl" />
```

This template is simply wrapping the [simple theme](#)'s existing template with a header and a footer. This is a great way to add additional behavior around the basic HTML elements provided by the [simple theme](#).

Extending an Existing Theme

The theme infrastructure provided by WebWork also allows themes to **extend** an existing theme. What this means is that a theme may contain a **theme.properties** with a **parent** entry that contains the name of the theme that you would like to extend. For example, the [ajax theme](#) extends the [xhtml theme](#) in this way.

By extending a theme, you are not required to implement every single template that the [Tags](#) use. Rather, you only need to implement templates that you wish to override. All other templates will be loaded from the parent template.

Selecting Themes

This page last changed on Jan 07, 2006 by [plightbo](#).

Themes can be selected using several different rules, in this order:

1. The *theme* attribute on the specific tag
2. The *theme* attribute on a tag's surrounding [form](#) tag
3. The page-scoped attribute named *theme*
4. The request-scoped attribute named *theme*
5. The session-scoped attribute named *theme*
6. The application-scoped attribute named *theme*
7. The **webwork.ui.theme** property in [webwork.properties](#) (defaults to *xhtml*)

A few important concepts come from this order:

- You can override an entire form's theme by only changing the *theme* attribute for the forum. This makes it easy to use the [ajax theme](#) in just a few select places.
- You can change the theme for a user's session. This might be useful if users can customize their look and feel.
- If you want to change the theme for the entire application, adjust your [webwork.properties](#).

simple theme

This page last changed on Jan 08, 2006 by [plightbo](#).

The simple theme provides the "bare bones" HTML element support and is considered the low end of the structure and can be to build additional functionality or behavior (see [Extending Themes](#) for more information). For example, the [textfield](#) tag renders the HTML `<input/>` tag without any additional labels, validation error reporting, or anything else. If you require additional behavior, see the [xhtml theme](#).



The [xhtml theme](#) and [css xhtml theme](#) both directly extend this theme. Look to them for examples of how to utilize the basics provided by this theme.

While most of the templates in this theme are self explanatory, there are some templates that should be called out and explained in detail:

- [simple head template](#)

simple head template

This page last changed on Jan 08, 2006 by [plightbo](#).

The [simple themehead](#) template only does one thing: it prints out an HTML `<link/>` to the CSS required for the [datepicker](#) tag to render properly.

The source of the simple head.ftl template is:

```
<#if parameters.calendarcss?exists><link rel="stylesheet" href="@ww.url
value='/webwork/jscalendar/${parameters.calendarcss?html}' />" type="text/css"/>
</#if>
```

Template Loading

This page last changed on Jan 07, 2006 by [plightbo](#).

Unless you have some advanced or unusual requirements, template loading is very straight forward. The simple description is this:

Templates, by default, are always [FreeMarker](#) templates and are loaded the same way other FreeMarker templates (such as your results) are: by first searching the web application and then the classpath.

Template and Themes

Templates are loaded based on the theme (see [Selecting Themes](#)) and the template directory. The template directory is defined by the **webwork.ui.templateDir** property in [webwork.properties](#) (defaults to *template*). This means, by default, if a tag is using the **ajax** theme, the following two locations will be searched (in this order):

1. In the web app: /template/ajax/template.ftl
2. In the classpath: /template/ajax/template.ftl

Overriding Templates

Because most of the templates you will need are included in the WebWork jar (the classpath), you may find a few situations where you need to override a particular template to provide behavior that is unique to your application. For example, you might wish to change how [select](#) tags render. Rather than creating a brand new template and changing every tag to use that template, you can override the built in **select.ftl** template by copying the file from in the jar over to a new **/template/xhtml/select.ftl** directory.

Altering Template Loading

Behavior

Sometimes it may be important to load templates from elsewhere other than the classpath and web app. For example, you might wish to load templates from the file system or a URL. This is useful for not only HTML [Tags](#), but also for any result your write.

You can do this by consulting the [FreeMarker](#) documentation and extending the FreeMarkerManager.

Alternative Template Engines

WebWork provides for template rendering engines other than [FreeMarker](#). We almost never recommend using anything other than FreeMarker templates, if only because WebWork provides templates already written in FreeMarker and not in JSP or Velocity. However, some users, especially advanced users of older versions of WebWork (pre-2.2) may find it necessary to use a different template engine.



Alternative template engines are for advanced users. Please use with care!

WebWork supports three template engines, which can be controlled by the **webwork.ui.templateSuffix** in [webwork.properties](#):

- **ftl (default)** - [FreeMarker](#)-based template engine
- **vm** - [Velocity](#)-based template engine
- **jsp** - [JSP](#)-based template engine

If you choose to use *vm* or *jsp*, you must implement your own templates and themes entirely, which is a large amount of work.



Just because your views aren't written in FreeMarker doesn't mean you can't use

the FreeMarker template engine. Again, we **strongly** discourage you from writing your own templates from scratch. Rather, we recommend you learn a small bit of FreeMarker and extend existing templates

The xhtml theme is the default theme in WebWork. It provides all the basics that the [simple theme](#) provides, plus these additional features:

- Standard two-column table layout for the HTML [Tags](#) ([form](#), [textfield](#), [select](#), etc)
- Labels for each of the HTML [Tags](#) on the left hand side (or top, depending on the `labelposition` attribute)
- [Validation](#) error reporting
- [Pure JavaScript Client Side Validation](#) using 100% JavaScript on the browser

Wrapping the Simple Theme

The xhtml theme uses the **wrapping** technique mentioned in [Extending Themes](#). As such, it is important to understand how the HTML tags are wrapped by a standard header and footer. For example, take a look at the [textfield](#) template, **text.ftl**:

```
<#include "${parameters.templateDir}/${parameters.theme}/controlheader.ftl"
/><#include "${parameters.templateDir}/simple/text.ftl" /><#include
"${parameters.templateDir}/xhtml/controlfooter.ftl" />
```

As you can see, the **controlheader.ftl** and **controlfooter.ftl** templates are wrapped around the simple template. In case you are wondering, the reason the controlheader.ftl is referred using `${parameters.theme}` is to assist with code re-use for the [ajax theme](#). For now, assume that the xhtml theme is used there as well.

XHTML Theme Header

Now let's look at the controlheader.ftl and controlheader-core.ftl (again, these are split up for easy re-use with the [ajax theme](#)) contents:

```
<#include "${parameters.templateDir}/xhtml/controlheader-core.ftl" /><td>
```

```
<!--
```

```

Only show message if errors are available.
This will be done if ActionSupport is used.
-->
<#assign hasFieldErrors = fieldErrors?exists &&
fieldErrors[parameters.name]?exists/><#if hasFieldErrors><#list
fieldErrors[parameters.name] as error><tr errorFor="{parameters.id}"><#if
parameters.labelposition?default("") == 'top'><td align="left" valign="top"
colspan="2"><#rt/><#else><td align="center" valign="top"
colspan="2"><#rt/></#if><span
class="errorMessage">${error?html}</span><#t/></td><#lt/></tr></#list></#if>
<#--
    if the label position is top,
    then give the label it's own row in the table
-->
<tr><#if parameters.labelposition?default("") == 'top'><td align="left" valign="top"
colspan="2"><#rt/><#else><td align="right" valign="top"><#rt/></#if><#if
parameters.label?exists><label <#t/><#if parameters.id?exists>
    for="{parameters.id?html}"<#t/></#if><#if hasFieldErrors>
    class="errorLabel"<#t/><#else>
    class="label"<#t/></#if>
    ><#t/><#if parameters.required?default(false)><span
class="required">*</span><#t/></#if>
    ${parameters.label?html}</label><#t/></#if></td><#lt/><#-- add the extra
row --><#if parameters.labelposition?default("") == 'top'></tr><tr></#if>

```

The header used by the HTML tags in the xhtml theme is somewhat complex. However, if you look closely you will see that the logic produces two behaviors: either a two-column format or a two-row format. Generally the two-column approach is what you want, so that is the default option. However, you can use the two-row approach by changing the *labelposition* parameter to "top".

Also note that the **fieldErrors**, usually caused by [Validation](#), are printed out as a row above the HTML form element. Some people prefer these errors elsewhere, such as in a third column. If you wish to place these elsewhere, overriding the headers is easy, allowing you to continue to use the other features provided by this theme. See [Template Loading](#) for more information on how to do this.

XHTML Theme Footer

And the control/footer.ftl contents:

```

${parameters.after?if_exists}<#t/></td><#lt/></tr>

```

The important thing to note here is that the table cell and row is closed. Before that,

however, note that a special *after* parameter is checked for. While this isn't an official attribute supported by any of the [Tags](#), if you are using [FreeMarker Tags](#), [Velocity Tags](#), or the [param](#) tag in any template language, you can add an *after* parameter to place any content you like after the [simple theme](#) template renders. This makes it easier to fine-tune your HTML forms as you please.

Special Notes

While most of the templates in this theme are self explanatory, there are some templates that should be called out and explained in detail:

- [xhtml head template](#)
- [xhtml form template](#)

xhtml form template

This page last changed on Jan 08, 2006 by [plightbo](#).

The xhtml form template sets up the wrapping table around all the other [xhtml theme](#) form elements. In addition to creating this wrapping table, the opening and closing templates also, if the *validate* parameter is set to true, enable [Pure JavaScript Client Side Validation](#). See the **form.ftl** contents:

```
<#include "${parameters.templateDir}/xhtml/form-validate.ftl" /><#include  
"${parameters.templateDir}/simple/form.ftl" /><table class="wwFormTable">
```

The closing template, **form-close.ftl**:

```
</table><#include "${parameters.templateDir}/simple/form-close.ftl" /><#include  
"${parameters.templateDir}/xhtml/form-close-validate.ftl" />
```

xhtml head template

This page last changed on Jan 08, 2006 by [plightbo](#).

The xhtml [head](#) template extends the [simple head template](#) and provides an additional CSS that helps render the [xhtml theme](#) form elements. The contents of **head.ftl** are:

```
<link rel="stylesheet" href="@ww.url value='/webwork/xhtml/styles.css' />"
type="text/css"/>
<#include "${parameters.templateDir}/simple/head.ftl" />
```

The contents of **styles.css** are:

```
.wwFormTable {}
.label {font-style:italic; }
.errorLabel {font-style:italic; color:red; }
.errorMessage {font-weight:bold; text-align: center; color:red; }
.checkboxLabel {}
.checkboxErrorLabel {color:red; }
.required {color:red;}
```

Velocity Tags

This page last changed on Jan 07, 2006 by [plightbo](#).

Velocity tags are extensions of the generic [Tags](#) provided by WebWork. You can get started almost immediately by simply knowing the structure in which the tags can be accessed: **#wwxxx (...)** ... **#end**, where **xxx** is any of the [Tags](#) supported by WebWork.



As of WebWork 2.2, the use of Velocity for templating internal WebWork UI Tags have been removed. The new and legacy 2.2 UI tags have been implemented in FreeMarker. However, support for the Velocity result type as well as the Velocity directives shown below will continue to be supported and developed. By default, WebWork's TemplateEngine will call the FreeMarker UI Tags using the Velocity syntax noted below (through Velocity directives). See [Template Loading](#) for more information.

Syntax

For example, in JSP you might create a form like so:

```
<ww:form action="updatePerson"><ww:textfield label="First name"
name="firstName"/><ww:submit value="Update"/></ww:form>
```

In Velocity the same form is built like so:

```
#wwform ("action=updatePerson")
  #wwtextfield ("label=First name" "name=firstName")
  #wwsubmit ("value=Update")
#end
```

Block and Inline Tags

You may notice that some tags require an `#end` statement, while others do not. Due to a limitation in Velocity, tags must declare if they are a *block* or *inline* tag up front. As such, by default all tags are *inline* except for a few key ones, such as the [form](#) tag. We **strongly** encourage you to look at FreeMarker, which provides much better flexibility in this area as well as others.

WebWork has one of the most advanced type conversion abilities in any web-based framework in any Java language. Generally, you don't need to do anything to take advantage of it, other than name your HTML inputs (form elements and other GET/POST parameters) names that are valid [OGNL](#) expressions.

A Simple Example

Type conversion is great for situations where you need to turn a String in to a more complex object. Because the web is type-agnostic (everything is a string in HTTP), WebWork's type conversion features are very useful. For instance, if you were prompting a user to enter in coordinates in the form of a string (such as "3, 22"), you could have WebWork do the conversion both from String to Point and from Point to String.

Using this "point" example, if your action (or another compound object in which you are setting properties on) has a corresponding `ClassName-conversion.properties` file, WebWork will use the configured type converters for conversion to and from strings. So turning "3, 22" in to new `Point(3, 22)` is done by merely adding the following entry to **ClassName-conversion.properties** (Note that the `PointConverter` should impl the `ognl.TypeConverter` interface):


point = com.acme.PointConverter

Your type converter should be sure to check what class type it is being requested to convert. Because it is used for both to and from strings, you will need to split the conversion method in to two parts: one that turns Strings in to Points, and one that turns Points in to Strings.

After this is done, you can now reference your point (using `<ww:property value="post"/>` in JSP or `${point}` in FreeMarker) and it will be printed as "3, 22" again. As such, if you submit this back to an action, it will be converted back to a Point once again.

In some situations you may wish to apply a type converter globally. This can be done by editing the file **xwork-conversion.properties** in the root of your class path (typically WEB-INF/classes) and providing a property in the form of the class name of the object you wish to convert on the left hand side and the class name of the type converter on the right hand side. For example, providing a type converter for all Point objects would mean adding the following entry:

com.acme.Point = com.acme.PointConverter

	Type conversion should not be used as a substitute for i18n. It is not recommended to use this feature to print out properly formatted dates. Rather, you should use the i18n features of WebWork (and consult the JavaDocs for JDK's MessageFormat object) to see how a properly formatted date should be displayed.
---	---

WebWork ships with a helper base class that makes converting to and from Strings very easy. The class is **com.opensymphony.webwork.util.WebWorkTypeConverter**. This class makes it very easy for you to write type converters that handle converting objects to Strings as well as from Strings. From the JavaDocs for this class:

Base class for type converters used in WebWork. This class provides two abstract methods that are used to convert both to and from strings – the critical functionality that is core to WebWork's type coversion system.

Type converters do not have to use this class. It is merely a helper base class, although it is recommended that you use this class as it provides the common type conversion contract required for all web-based type conversion.

Built in Type Conversion Support

WebWork will automatically handle the most common type conversion for you. This includes support for converting to and from Strings for each of the following:

-
- String
-
- boolean / Boolean
-
- char / Character
-
- int / Integer, float / Float, long / Long, double / Double
-
- dates - uses the SHORT format for the Locale associated with the current request
-
- arrays - assuming the individual strings can be converted to the individual items
-
- collections - if not object type can be determined, it is assumed to be a String and a new ArrayList is created
-

Note that with arrays the type conversion will defer to the type of the array elements and try to convert each item individually. As with any other type conversion, if the conversion can't be performed the standard type conversion error reporting is used to indicate a problem occurred while processing the type conversion.

Relationship to Parameter Names

The best way to take advantage of WebWork's type conversion is to utilize complete objects (ideally your domain objects directly), rather than submitting form values on to intermediate primitives and strings in your action and then converting those values to full objects in the execute() method. Some tips for achieving this are:

- Use complex OGNL expressions - WebWork will automatically take care of

creating the actual objects for you.

- Use JavaBeans! WebWork can only create objects for you if your objects obey the JavaBean specification and provide no-arg constructions, as well as getters and setters where appropriate.
- Remember that *person.name* will call **getPerson().setName()**, but if you are expecting WebWork to create the Person object for you, a **setPerson()** must also exist.
- For lists and maps, use index notation, such as *people[0].name* or *friends['patrick'].name*. Often these HTML form elements are being rendered inside a loop, so you can use the iterator tag's status attribute if you're using [JSP Tags](#) or the `${foo_index}` special property if you're using [FreeMarker Tags](#).
- For multiple select boxes, you obviously can't name each individual item using index notation. Instead, name your element simply *people.name* and WebWork will understand that it should create a new Person object for each selected item and set its name accordingly.

Advanced Type Conversion

WebWork also has some very advanced, yet easy-to-use, type conversion features. Null property handling will automatically create objects where null references are found. Collection and map support provides intelligent null handling and type conversion for Java Collections. Type conversion error handling provides an easy way to distinguish the difference between an input validation problem from an input type conversion problem.

Null Property Handling

Provided that the key `#CREATE_NULL_OBJECTS` is in the action context with a value of `true` (this key is set only during the execution of the `com.opensymphony.xwork.interceptor.ParametersInterceptor`), OGNL expressions that have caused a `NullPointerException` will be temporarily stopped for evaluation while the system automatically tries to solve the null references by automatically creating the object.

The following rules are used when handling null references:

-
- If the property is declared *exactly* as a Collection or List, then an ArrayList shall be returned and assigned to the null references.
-
- If the property is declared as a Map, then a HashMap will be returned and assigned to the null references.
-
- If the null property is a simple bean with a no-arg constructor, it will simply be created using the `{@link ObjectFactory#buildBean(Class)}` method.
-

For example, if a form element has a text field named **person.name** and the expression *person* evaluates to null, then this class will be invoked. Because the *person* expression evaluates to a *Person* class, a new Person is created and assigned to the null reference. Finally, the name is set on that object and the overall effect is that the system automatically created a Person object for you, set it by calling `setPerson()` and then finally called `getPerson().setName()` as you would typically expect.

Collection and Map Support

WebWork supports ways to determine the object type found in collections. This is done via an *ObjectTypeDeterminer*. The default implementation is provided. The JavaDocs explain how map and collection support is determined in the *DefaultObjectTypeDeterminer*:

This *ObjectTypeDeterminer* looks at the **Class-conversion.properties** for entries that indicated what objects are contained within Maps and Collections. For Collections, such as Lists, the element is specified using the pattern **Element_xxx**, where xxx is the field name of the collection property in your action or object. For Maps, both the key and the value may be specified by using the pattern **Key_xxx** and **Element_xxx**, respectively.

From WebWork 2.1.x, the **Collection_xxx** format is still supported and honored, although it is deprecated and will be removed eventually.

Additionally, you can create your own custom `ObjectTypeDeterminer` by implementing the `ObjectTypeDeterminer` interface. There is also an optional `ObjectTypeDeterminer` that utilizes Java 5 generics. See the [J2SE 5 Support](#) page for more information.

Indexing a collection by a property of that collection

It is also possible using webwork to get a unique element of a collection, by passing the value of a given property of that element. By default, the property of the element of the collection is determined in `Class-conversion.properties` using `KeyProperty_xxx=yyy` where `xxx` is the property of the bean 'Class' that returns the collection and `yyy` is the property of the collection element that we want to index on. Here is an example with the following two classes:

MyAction.java

```
/**
 * @return a Collection of Foo objects
 */
public Collection getFooCollection()
{
    return foo;
}
```

Foo.java

```
/**
 * @return a unique identifier
 */
public Long getId()
{
    return id;
}
```

Then put **`KeyProperty_fooCollection=id`** in my `MyAction-conversion.properties` file. This would allow to the use of **`fooCollection(someIdValue)`** to get the `Foo` object with value *someIdValue* in the Set `fooCollection`. For example, **`fooCollection(22)`** would return the `Foo` object in the `fooCollection` collection whose `id` property value was 22.

This is useful, because it ties a collection element directly to its unique identifier and therefore does not force you to use an index and thus allows you to edit the elements of a collection associated to a bean without any additional code. For example, parameter name **`fooCollection(22).name`** and value **`Phil`** would set name the `Foo`

object in the `fooCollection` collection whose `id` property value was 22 to be Phil.

Webwork automatically converts the type of the parameter sent in to the type of the key property using type conversion.

Unlike Map and List element properties, if `fooCollection(22)` does not exist it will not be created. To do that, use the notation **`fooCollection.makeNew[index]`** where `index` is an integer 0, 1, and so on. Thus, parameter value pairs **`fooCollection.makeNew[0]=Phil`** and **`fooCollection.makeNew[1]=John`** would add two new Foo objects to `fooCollection` one with name property value Phil and the other with name property value Bar. Note, however, that in the case of a Set, the `equals` and `hashCode` methods should be defined such that they don't only include the `id` property. That will cause one element of the null `id` propertied Foes to be removed from the Set.

Type Conversion Error Handling

Any error that occurs during type conversion may or may not wish to be reported. For example, reporting that the input "abc" could not be converted to a number might be important. On the other hand, reporting that an empty string, "", cannot be converted to a number might not be important - especially in a web environment where it is hard to distinguish between a user not entering a value vs. entering a blank value.

By default, all conversion errors are reported using the generic `i18n` key **`xwork.default.invalid.fieldvalue`**, which you can override (the default text is *Invalid field value for field "xxx"*, where `xxx` is the field name) in your global `i18n` resource bundle.

However, sometimes you may wish to override this message on a per-field basis. You can do this by adding an `i18n` key associated with just your action (`Action.properties`) using the pattern **`invalid.fieldvalue.xxx`**, where `xxx` is the field name.

It is important to know that none of these errors are actually reported directly. Rather, they are added to a map called *conversionErrors* in the `ActionContext`. There are several ways this map can then be accessed and the errors can be reported

accordingly.

There are two ways the error reporting can occur:

1. globally, using the [Conversion Error Interceptor](#)
2. on a per-field basis, using the [conversion validator](#)

By default, the conversion interceptor is included in [webwork-default.xml](#) in the default stack, so if you don't want conversion errors reporting globally, you'll need to change the interceptor stack and add additional validation rules.

Validation

This page last changed on Jan 10, 2006 by [plightbo](#).

WebWork relies on XWork validation framework to enable the application of input validation rules to your Actions before they are executed. This section only provides the bare minimum to get you started and focuses on WebWork's extension of the XWork validators to support client-side validation.



There is also an option for Client Side (Javascript and/or AJAX) based validation, please see [Client Side Validation](#) for more information.

Examples

1. [Basic Validation](#)
2. [Client Validation](#)
3. [AJAX Validation](#)
4. [Using Field Validators](#)
5. [Using Non Field Validators](#)
6. [Using Visitor Field Validator](#)

Validators available in WebWork



Note

When using a Field Validator, Field Validator Syntax is ALWAYS preferable than using the Plain Validator Syntax as it facilitates grouping of field-validators according to fields. This is very handy especially if a field needs to have many field-validators which is almost always the case. Examples: [validatortypes](#)

1. [required validator](#)
2. [requiredstring validator](#)

3. [int validator](#)
4. [date validator](#)
5. [expression validator](#)
6. [fieldexpression validator](#)
7. [email validator](#)
8. [url validator](#)
9. [visitor validator](#)
10. [conversion validator](#)
11. [stringlength validator](#)
12. [regex validator](#)

Registering Validators

Validation rules are handled by validators, which must be registered with the ValidatorFactory (using the registerValidator method). The simplest way to do so is to add a file name validators.xml in the root of the classpath (/WEB-INF/classes) that declares all the validators you intend to use.


This list declares all the validators that comes with WebWork.

```
<validators><validator name="required"
class="com.opensymphony.xwork.validator.validators.RequiredFieldValidator"/><validator
name="requiredstring"
class="com.opensymphony.xwork.validator.validators.RequiredStringValidator"/><validator
name="int"
class="com.opensymphony.xwork.validator.validators.IntRangeFieldValidator"/><validator
name="date"
class="com.opensymphony.xwork.validator.validators.DateRangeFieldValidator"/><validator
name="expression"
class="com.opensymphony.xwork.validator.validators.ExpressionValidator"/><validator
name="fieldexpression"
class="com.opensymphony.xwork.validator.validators.FieldExpressionValidator"/><validator
name="email"
class="com.opensymphony.xwork.validator.validators.EmailValidator"/><validator
name="url"
class="com.opensymphony.xwork.validator.validators.URLValidator"/><validator
name="visitor"
class="com.opensymphony.xwork.validator.validators.VisitorFieldValidator"/><validator
name="conversion"
class="com.opensymphony.xwork.validator.validators.ConversionErrorFieldValidator"/><validator
name="stringlength"
class="com.opensymphony.xwork.validator.validators.StringLengthFieldValidator"/><validator
name="regex"
class="com.opensymphony.xwork.validator.validators.RegexFieldValidator"/></validators>
```



Note

	<p>validators.xml if being defined should be available in the classpath. However this is not necessary, if no custom validator is needed. Webwork will automatically picked up a predefined sets of validators defined in</p> <p>com/opensymphony/xwork/validator/validators/default</p> <p>packaged together in xwork jar file that comes with webwork distribution. See ValidatorFactory static block for details.</p>
--	--

	<p>Warning</p> <p>If custom validator is being defined and a validators.xml is created and place in the classpath, do remember to copy all the other pre-defined validators that is needed into the validators.xml as if not they will not be registered. Once a validators.xml is detected in the classpath, the default one (com/opensymphony/xwork/validator/validators/default) will not be loaded. It is only loaded when a custom validators.xml cannot be found in the classpath. Be careful.</p>
---	---

Turning on Validation

The default validationWorkflowStack already includes this.

All that is required to enable validation for an Action is to put the ValidationInterceptor in the interceptor refs of the action (see xwork.xml) like so:

```
<interceptor name="validator"
class="com.opensymphony.xwork.validator.ValidationInterceptor"/>
```


Note: The default **validationWorkflowStack** already includes this.

Validator Scopes

Field validators, as the name indicate, act on single fields accessible through an action. A validator, in contrast, is more generic and can do validations in the full action context, involving more than one field (or even no field at all) in validation rule. Most validations can be defined on per field basis. This should be preferred over non-field validation wherever possible, as field validator messages are bound to the related field and will be presented next to the corresponding input element in the respecting view.

Non-field validators only add action level messages. Non-field validators are mostly domain specific and therefore often custom implementations. The most important standard non-field validator provided by XWork/WebWork is ExpressionValidator.

Notes

Non-field validators takes precedence over field validators regardless of the order they are defined in *-validation.xml. If a non-field validator is short-circuited, it will causes its non-field validator to not being executed. See validation framework documentation for more info.

Defining Validation Rules

Validation rules can be specified:

1. Per Action class: in a file named ActionName-validation.xml
2. Per Action alias: in a file named ActionName-alias-validation.xml
3. Inheritance hierarchy and interfaces implemented by Action class: WebWork searches up the inheritance tree of the action to find default validations for parent classes of the Action and interfaces implemented

Here is an example for SimpleAction-validation.xml:

```
<!DOCTYPE validators PUBLIC "-//OpenSymphony Group//XWork Validator
1.0.2//EN" "http://www.opensymphony.com/xwork/xwork-validator-1.0.2.dtd">
<validators><field name="bar"><field-validator type="required"><message>You must
enter a value for bar.</message></field-validator><field-validator type="int"><param
name="min">6</param><param name="max">10</param><message>bar must be between ${min}
and ${max}, current value is ${bar}.</message></field-validator></field><field
name="bar2"><field-validator type="regex"><param
name="regex">[0-9],[0-9]</param><message>The value of bar2 must be in the format "x,
y", where x and y are between 0 and 9</message></field-validator></field><field
name="date"><field-validator type="date"><param name="min">12/22/2002</param><param
name="max">12/25/2002</param><message>The date must be between 12-22-2002 and
12-25-2002.</message></field-validator></field><field name="foo"><field-validator
type="int"><param name="min">0</param><param name="max">100</param><message
key="foo.range">Could not find
foo.range!</message></field-validator></field><validator type="expression"><param
name="expression"><foo < bar</param><message>Foo must be greater than Bar. Foo =
${foo}, Bar = ${bar}.</message></validator></validators>
```

Here we can see the configuration of validators for the SimpleAction class. Validators (and field-validators) must have a type attribute, which refers to a name of an Validator registered with the ValidatorFactory as above. Validator elements may also have <param> elements with name and value attributes to set arbitrary parameters into the Validator instance. See below for discussion of the message element.

Each Validator or Field-Validator element must define one message element inside the validator element body. The message element has 1 attributes, key which is not required. The body of the message tag is taken as the default message which should be added to the Action if the validator fails. Key gives a message key to look up in the Action's ResourceBundles using getText() from LocaleAware if the Action implements that interface (as ActionSupport does). This provides for Localized messages based on the Locale of the user making the request (or whatever Locale you've set into the LocaleAware Action). After either retrieving the message from the ResourceBundle using the Key value, or using the Default message, the current Validator is pushed onto the ValueStack, then the message is parsed for \\${...} sections which are replaced with the evaluated value of the string between the \${ and }. This allows you to parameterize your messages with values from the Validator, the Action, or both.

If the validator fails, the validator is pushed onto the ValueStack and the message ☐☐☐ either the default or the locale-specific one if the key attribute is defined (and such a message exists) ☐☐☐ is parsed for \${...} sections which are replaced with the evaluated value of the string between the \${ and }. This allows you to parameterize your messages with values from the validator, the Action, or both.

NOTE: Since validation rules are in an XML file, you must make sure you escape special characters. For example, notice that in the expression validator rule above we use ">" instead of ">". Consult a resource on XML for the full list of characters that must be escaped. The most commonly used characters that must be escaped are: & (use &), > (use >), and < (use <).

Here is an example of a parameterized message:

This will pull the min and max parameters from the `IntRangeFieldValidator` and the value of `bar` from the `Action`.

```
bar must be between ${min} and ${max}, current value is ${bar}.
```

To define validation rules for an `Action`, create a file named `ActionName-validation.xml` in the same package as the `Action`. You may also create alias-specific validation rules which add to the default validation rules defined in `ActionName-validation.xml` by creating another file in the same directory named `ActionName-aliasName-validation.xml`. In both cases, `ActionName` is the name of the `Action` class, and `aliasName` is the name of the `Action` alias defined in the `xwork.xml` configuration for the `Action`.

The framework will also search up the inheritance tree of the `Action` to find validation rules for directly implemented interfaces and parent classes of the `Action`. This is particularly powerful when combined with `ModelDriven` Actions and the `VisitorFieldValidator`. Here's an example of how validation rules are discovered. Given the following class structure:

- interface `Animal`;
- interface `Quadrapped` extends `Animal`;
- class `AnimalImpl` implements `Animal`;
- class `QuadrappedImpl` extends `AnimalImpl` implements `Quadrapped`;
- class `Dog` extends `QuadrappedImpl`;

The framework method will look for the following config files if `Dog` is to be validated:

- `Animal`
- `Animal-aliasname`

- AnimalImpl
- AnimalImpl-aliasname
- Quadraped
- Quadraped-aliasname
- QuadrapedImpl
- QuadrapedImpl-aliasname
- Dog
- Dog-aliasname

While this process is similar to what the XW:Localization framework does when finding messages, there are some subtle differences. The most important difference is that validation rules are discovered from the parent downwards.

NOTE:Child's *-validation.xml will override parent's *-validation.xml according to the class hierarchy defined above.

Validator Flavour

The validators supplied by the Xwork distribution (and any validators you might write yourself) come in two different flavors:

1. Plain Validators / Non-Field validators
2. FieldValidators

Plain Validators (such as the ExpressionValidator) perform validation checks that are not inherently tied to a single specified field. When you declare a plain Validator in your -validation.xml file you do not associate a fieldname attribute with it. (You should avoid using plain Validators within the syntax described below.)

FieldValidators (such as the EmailValidator) are designed to perform validation checks on a single field. They require that you specify a fieldname attribute in your -validation.xml file. There are two different (but equivalent) XML syntaxes you can use to declare FieldValidators (see " vs. syntax" below).

There are two places where the differences between the two validator flavors are important to keep in mind:

1. when choosing the xml syntax used for declaring a validator (either or)
2. when using the short-circuit capability

NOTE: Note that you do not declare what "flavor" of validator you are using in your -validation.xml file, you just declare the name of the validator to use and WebWork will know whether it's a "plain Validator" or a "FieldValidator" by looking at the validation class that the validator's programmer chose to implement.

Non-Field Validator Vs Field-Validator

There are two ways you can define validators in your -validation.xml file:

1. <validator>
2. <field-validator>

Keep the following in mind when using either syntax:

Non-Field-Validator The <validator> element allows you to declare both types of validators (either a plain Validator a field-specific FieldValidator).

```
<!-- Declaring a plain Validator using the <validator> syntax: --><validator
type="expression"><param name="expression">foo gt bar</param><message>foo must be
great than bar.</message></validator>
```

```
<!-- Declaring a field validator using the <validator> syntax: --><validator
type="required"><param name="fieldName">bar</param><message>You must enter a value
for bar.</message>
</validator>
```

Declaring a FieldValidator using the <field-validator> syntax:

```
<field name="email_address"><field-validator type="required"><message>You cannot
leave the email address field empty.</message></field-validator><field-validator
type="email"><message>The email address you entered is not
valid.</message></field-validator></field>
```

The choice is yours. It's perfectly legal to only use elements without the elements and set the fieldName attribute for each of them. The following are effectively equal:

```
<field name="email_address"><field-validator type="required"><message>You cannot
leave the email address field empty.</message></field-validator><field-validator
type="email"><message>The email address you entered is not
valid.</message></field-validator></field><validator type="required"><param
name="fieldName">email_address</param><message>You cannot leave the email address
field empty.</message></validator><validator type="email"><param
name="fieldName">email_address</param><message>The email address you entered is not
valid.</message></validator>
```

Short-Circuiting Validator

Beginning with XWork 1.0.1 (bundled with WebWork 2.1), it is possible to short-circuit a stack of validators. Here is another sample config file containing validation rules from the Xwork test cases: Notice that some of the `<field-validator>` and `<validator>` elements have the short-circuit attribute set to true.

```
<!DOCTYPE validators PUBLIC
    "-//OpenSymphony Group//XWork Validator
1.0.2//EN" "http://www.opensymphony.com/xwork/xwork-validator-1.0.2.dtd">
<validators><!-- Field Validators for email field --><field
name="email"><field-validator type="required" short-circuit="true"><message>You must
enter a value for email.</message></field-validator><field-validator type="email"
short-circuit="true"><message>Not a valid
e-mail.</message></field-validator></field><!-- Field Validators for email2 field
--><field name="email2"><field-validator type="required"><message>You must enter a
value for email2.</message></field-validator><field-validator
type="email"><message>Not a valid e-mail2.</message></field-validator></field><!--
Plain Validator 1 --><validator type="expression"><param
name="expression">email.equals(email2)</param><message>Email not the same as
email2</message></validator><!-- Plain Validator 2 --><validator type="expression"
short-circuit="true"><param
name="expression">email.startsWith('mark')</param><message>Email does not start with
mark</message></validator></validators>
```

short-circuiting and Validator flavors

Plain validator takes precedence over field-validator. They get validated first in the order they are defined and then the field-validator in the order they are defined. Failure of a particular validator marked as short-circuit will prevent the evaluation of subsequent validators and an error (action error or field error depending on the type of validator) will be added to the ValidationContext of the object being validated.

In the example above, the actual execution of validator would be as follows:

1. Plain Validator 1
2. Plain Validator 2
3. Field Validators for email field
4. Field Validators for email2 field

Since Field Validator 2 is short-circuited, if its validation failed, it will causes Field validators for email field and Field validators for email2 field to not be validated as well.

Usefull Information: More complecated validation should probably be done in the validate() method on the action itself (assuming the action implements Validatable interface which ActionSupport already does).

A plain Validator (non FieldValidator) that gets short-circuited will completely break out of the validation stack ☐☐☐ no other validators will be evaluated and plain validator takes precedence over field validator meaning that they get evaluated in the order they are defined before field validator gets a chance to be evaludated again according to their order defined.

Short cuircuiting and validator flavours

A FieldValidator that gets short-circuited will only prevent other FieldValidators for the same field from being evaluated. Note that this "same field" behavior applies regardless of whether the or syntax was used to declare the validation rule. By way of example, given this -validation.xml file:

```
<validator type="required" short-circuit="true"><param
name="fieldName">bar</param><message>You must enter a value for
bar.</message></validator><validator type="expression"><param name="expression">foo
gt bar</param><message>foo must be great than bar.</message></validator>
```




both validators will be run, even if the "required" validator short-circuits. "required" validators are FieldValidator's and will not short-circuit the plain ExpressionValidator because FieldValidators only short-circuit other checks on that same field. Since the plain Validator is not field specific, it is not short-circuited.

How Validators of an Action Are found

As mentioned above, the framework will also search up the inheritance tree of the action to find default validations for interfaces and parent classes of the Action. If you are using the short-circuit attribute and relying on default validators higher up in the inheritance tree, make sure you don't accidentally short-circuit things higher in the tree that you really want!

Description

The following is describes how to do simple ajax validation in webwork.

	This requires DWR servlet being setup, dojo and the ajax theme being used.
	In the Ajax theme, dwr is used for normal validation while dojo everything else (widgets, XHR, browser JS events etc.)
	In order for validation to function properly it is advised to used standard WebWork Tags.

Setup DWR

DWR could be setup by having the following dwr configuration (dwr.xml) at /WEB-INF/ directory. If it needs to be in other places, refer to <http://getahead.ltd.uk/dwr/> for more information.

```
<!DOCTYPE dwr PUBLIC
    "-//GetAhead Limited//DTD Direct Web Remoting
    1.0//EN" "http://www.getahead.ltd.uk/dwr/dwr10.dtd">

<dwr><allow><create creator="new" javascript="validator"><param name="class"
value="com.opensymphony.webwork.validators.DWRValidator"/></create><convert
converter="bean"
match="com.opensymphony.xwork.ValidationAwareSupport"/></allow><signatures>
    <![CDATA[
        import java.util.Map;
        import com.opensymphony.webwork.validators.DWRValidator;

        DWRValidator.doPost(String, String, Map<String, String>);
```

```
    ]]>
</signatures></dwr>
```

A DWRServlet need to be registered with the web application as well. The following shows a typical web.xml with DWRServlet.

```
<servlet><servlet-name>dwr</servlet-name><servlet-class>uk.ltd.getahead.dwr.DWRServlet</servlet-
```

Step 1

Create the jsp page. Note the <ww:head ...> tag is used to set the theme which will put in necessary dojo sripts etc. See ajax's theme head.ftl for more information.

```
<html><head><title>Validation - Basic</title><ww:head
theme="ajax"/></head><body><ww:form method="post" validate="true"
theme="ajax"><ww:textfield label="Name" name="name"/><ww:textfield label="Age"
name="age"/><ww:textfield label="Favorite color"
name="answer"/><ww:submit/></ww:form></body></html>
```

Step 2

Create the action class

```
public class QuizAction extends ActionSupport {
    String name;
    int age;
    String answer;

    publicString getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    publicint getAge() {
        return age;
    }

    public void setAge(int age) {
        this.age = age;
    }
}
```

```
publicString getAnswer() {  
    return answer;  
}  
  
public void setAnswer(String answer) {  
    this.answer = answer;  
}  
}
```

Step 3

Create the validation.xml

```
<validators><field name="name"><field-validator type="requiredstring"><message>You  
must enter a name</message></field-validator></field><field  
name="age"><field-validator type="int"><param name="min">13</param><param  
name="max">19</param><message>Only people ages 13 to 19 may take this  
quiz</message></field-validator></field></validators>
```

Description

The following are the steps to configure a basic validation using Webwork.

Step 1:

Write up a html form.

```
<html><head><title>Validation - Basic</title><ww:head/></head><body><b>What is your  
favorite color?</b><p><ww:form method="post"><ww:textfield label="Name"  
name="name"/><ww:textfield label="Age" name="age"/><ww:textfield label="Favorite  
color" name="answer"/><ww:submit/></ww:form></body></html>
```

Step 2:

Write up the action class

```
public class QuizAction extends ActionSupport {  
    String name;  
    int age;  
    String answer;  
  
    public String getName() {  
        return name;  
    }  
  
    public void setName(String name) {  
        this.name = name;  
    }  
  
    public int getAge() {  
        return age;  
    }  
  
    public void setAge(int age) {  
        this.age = age;  
    }  
  
    public String getAnswer() {
```

```
        return answer;
    }

    public void setAnswer(String answer) {
        this.answer = answer;
    }
}
```

Step3:

Write up the validators to be used. The validation.xml format is either
<ActionClassName>-validation.xml or
<ActionClassName>-<ActionContextName>-validation.xml

```
<validators><field name="name"><field-validator type="requiredstring"><message>You
must enter a name</message></field-validator></field><field
name="age"><field-validator type="int"><param name="min">13</param><param
name="max">19</param><message>Only people ages 13 to 19 may take this
quiz</message></field-validator></field></validators>
```

Description

WebWork adds support for client-side validation on top of XWork's standard validation framework. It can be enabled on a per-form basis by specifying **validate="true"** in the [form](#) tag:

```
<ww:form name="test" action="javascriptValidation" validate="true">
  ...
</ww:form>
```



A *name* for the form can be supplied, else the action name will be used as the form name.

A correct *action* and *namespace* attributes must be provided to the `<ww:form>` tag. For example, the Action named "submitProfile" is used in the "/user" namespace, the following must be used.

```
<ww:form namespace="/user" action="submitProfile" validate="true">
  ...
</ww:form>
```

While the following will "work" in the sense that the form will function correctly, client-side validation will not. That is because WebWork must know the exact namespace and action (rather than a URL) to properly support validation.

```
<ww:form action="/user/submitProfile.action" validate="true">
  ...
</ww:form>
```

All the standard [validation configuration](#) steps still apply. Client-side validation uses the same validation rules as server-side validation. If server-side validation doesn't work, then client-side validation won't work either.



i Note that the *required* attribute on many WebWork [Tags](#) has nothing to do with client-side validation. It is just used by certain theme (like xhtml) to put a '*' on the field marked as required.

Client Side Validation Types

There are two styles of client side validation:

- [Pure JavaScript Client Side Validation](#) - used by the [xhtml theme](#) and [css_xhtml theme](#)
- [AJAX Client Side Validation](#) - used by the [ajax theme](#)

AJAX Client Side Validation

This page last changed on Jan 07, 2006 by [plightbo](#).

AJAX-based client side validation improves upon [Pure JavaScript Client Side Validation](#) by using a combination of JavaScript, DOM manipulation, and remote server communication via [DWR](#). Unlike the pure client side implementation, AJAX-based validation communicates with the server. This means all your validation rules that worked when submitting a form will still work within the browser.



This validation mode only works with the [ajax theme](#)

The validation occurs on each **onblur** event for each form element. As each user types in some values and moves to the next form element, the value (and all other values previously entered) will be sent to the server for validation. The entire validation stack is run, including visitor validators and your action's `validate()` method.

If there is an error, like the pure implementation, the HTML and DOM will be updated immediately.

For an example of this, see [AJAX Validation](#).

Pure JavaScript Client Side Validation

This page last changed on Jan 07, 2006 by [plightbo](#).

Pure JavaScript client side validation is the simplest but least feature-rich type of [Client Side Validation](#). This type of validation uses 100% client-side JavaScript code to try to validate the values entered by the user. Because the validation logic is actually repeated in the JavaScript code, it is important to understand that some values will be considered acceptable by the JavaScript code but will be marked as unacceptable by the server-side [Validation](#).

Only the following validators are supported:

- required validator
- requiredstring validator
- email validator
- url validator
- int validator

Error reporting

Because client side validation does not talk to the server, the theme ([xhtml theme](#) or [css xhtml theme](#)) is responsible for properly manipulating the HTML DOM to display the error message inline. The JavaScript that is responsible for doing this logic is **validation.js** and can be found in each theme.



Errors are reported using the default validation message, not the internationalized version that the server-side might be aware of. This is a known issue. You may want to try the [AJAX Client Side Validation](#) for messages that are fully internationalized.

Additional Validator Support

If you wish to add additional validator support beyond those listed, you may override the [xhtml theme](#) template **form-close-validate.ftl**. This file contains the JavaScript that tries to validate each user-entered value from within the browser. The [css_xhtml theme](#) extends the [xhtml theme](#) and therefore doesn't have its own form-close-validate.ftl template.

Description

The following is the step to create a Client-Side validation using webwork. Note the validate attribute is set to true. Note also that not all themes support this feature (client-side validation)

Step 1

Create the jsp page. Note the <ww:head > tag being used, it will setup the css in this case (xhtml theme)

```
<html><head><title>Validation - Basic</title><ww:head/></head><body><ww:form
method="post" validate="true"><ww:textfield label="Name" name="name"/><ww:textfield
label="Age" name="age"/><ww:textfield label="Favorite color"
name="answer"/><ww:submit/></ww:form></body></html>
```

Step 2

Create the action class

```
public class QuizAction extends ActionSupport {
    String name;
    int age;
    String answer;

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public int getAge() {
        return age;
    }
}
```

```
public void setAge(int age) {  
    this.age = age;  
}  
  
public String getAnswer() {  
    return answer;  
}  
  
public void setAnswer(String answer) {  
    this.answer = answer;  
}  
}
```

Step 3

Create the validation.xml to configure the validators to be used.

```
<validators><field name="name"><field-validator type="requiredstring"><message>You  
must enter a name</message></field-validator></field><field  
name="age"><field-validator type="int"><param name="min">13</param><param  
name="max">19</param><message>Only people ages 13 to 19 may take this  
quiz</message></field-validator></field></validators>
```

Description

Field Validator that checks if a conversion error occurred for this field.

Parameters

- **fieldName** - The field name this validator is validating. Required if using Plain-Validator Syntax otherwise not required

Examples

```
<!-- Plain Validator Syntax --><validator type="conversion"><param
name="fieldName">myField</param><message>Conversion Error
Occurred</message></validator><!-- Field Validator Syntax --><field
name="myField"><field-validator type="conversion"><message>Conversion Error
Occurred</message></field-validator></field>
```

Description

Field Validator that checks if the date supplied is within a specific range.

Parameters

- **fieldName** - The field name this validator is validating. Required if using Plain-Validator Syntax otherwise not required
- **min** - the min date range. If not specified will not be checked.
- **max** - the max date range. If not specified will not be checked.

Examples

```
<validators><!-- Plain Validator syntax --><validator type="date"><param
name="fieldName">birthday</param><param name="min">01/01/1990</param><param
name="max">01/01/2000</param><message>Birthday must be within ${min} and
${max}</message></validator><!-- Field Validator Syntax --><field
name="birthday"><field-validator type="date"><param
name="min">01/01/1990</param><param name="max">01/01/2000</param><message>Birthday
must be within ${min} and ${max}</message></field></field></validators>
```

Description

EmailValidator checks that a given String field, if not empty, is a valid email address. The regular expression used to validate that the string is an email address is:

```
"\\b(^(\\S+@).+((\\.com)|\\.net)|\\.org)|\\.info)|\\.edu)|\\.mil)|\\.gov)|\\.biz)|\\.ws)
```

Parameters

- **fieldName** - The field name this validator is validating. Required if using Plain-Validator Syntax otherwise not required

Examples

```
<!-- Plain Validator Syntax --><validators><validator type="email"><param  
name="fieldName">myEmail</param><message>Must provide a valid  
email</message></validator></validators><!-- Field Validator Syntax --><field  
name="myEmail"><field-validator type="email"><message>Must provide a valid  
email</message></field-validator></field>
```

Description

A Non-Field Level validator that validates based on regular expression supplied.

Parameters

- expression - the Ognl expression to be evaluated against the stack (Must evaluate to a Boolean)

Examples

```
<validators><validator type="expression"><param name="expression"> ....  
</param><message>Failed to meet Ognl Expression  ....  
</message></validator></validators>
```


Description

Validates a field using an OGNL expression.

Parameters

- fieldName - The field name this validator is validating. Required if using Plain-Validator Syntax otherwise not required
- expression - The Ognl expression (must evaluate to a boolean) which is to be evaluated the stack

Examples

```
<!-- Plain Validator Syntax --><validators><!-- Plain Validator Syntax --><validator
type="fieldexpression"><param name="fieldName">myField</param><param
name="expression"><![CDATA[#myCreditLimit >
#myGirlfriendCreditLimit]]></param><message>My credit limit should be MORE than my
girlfriend</message></validator><!-- Field Validator Syntax --><field
name="myField"><field-validator type="fieldexpression"><param
name="expression"><![CDATA[#myCreditLimit >
#myGirlfriendCreditLimit]]></param><message>My credit limit should be MORE than my
girlfriend</message></field-validator></field></validators>
```

Description

Field Validator that checks if the integer specified is within a certain range.

Parameters

- `fieldName` - The field name this validator is validating. Required if using Plain-Validator Syntax otherwise not required
- `min` - the minimum value (if none is specified, it will not be checked)
- `max` - the maximum value (if none is specified, it will not be checked)

Examples

```
<validators><!-- Plain Validator Syntax --><validator type="int"><param
name="fieldName">age</param><param name="min">20</param><param
name="max">50</param><message>Age needs to be between ${min} and
${max}</message></validator><!-- Field Validator Syntax --><field
name="age"><field-validator type="int"><param name="min">20</param><param
name="max">50</param><message>Age needs to be between ${min} and
${max}</message></field-validator></field></validators>
```

Description

Validates a string field using a regular expression.

Parameters

- fieldName - The field name this validator is validating. Required if using Plain-Validator Syntax otherwise not required
- expression - The RegExp expression REQUIRED

Examples

```
<validators><!-- Plain Validator Syntax --><validator type="regex"><param
name="fieldName">myStrangePostcode</param><param
name="expression"><![CDATA([ [aAbBcCdD][123][eEfFgG][456]) ]]></param>
</validator><!-- Field Validator Syntax --><field
name="myStrangePostcode"><field-validator type="regex"><param
name="expression"><![CDATA([ [aAbBcCdD][123][eEfFgG][456]) ]]></param></field-validator></field></pre>
```

Description

RequiredFieldValidator checks if the specified field is not null.

Parameters

- `fieldName` - field name if plain-validator syntax is used, not needed if field-validator syntax is used

Examples

```
<validators><!-- Plain Validator Syntax --><validator type="required"><param
name="fieldName">username</param><message>username must not be
null</message></validator><!-- Field Validator Syntax --><field
name="username"><field-validator type="required"><message>username must not be
null</message></field-validator></field></validators>
```

Description

RequiredStringValidator checks that a String field is non-null and has a length > 0 (i.e. it isn't ""). The "trim" parameter determines whether it will {@link String#trim()} trim the String before performing the length check. If unspecified, the String will be trimmed.

Parameters

- fieldName - The field name this validator is validating. Required if using Plain-Validator Syntax otherwise not required
- trim - trim the field name value before validating (default is true)

Examples

```
<validators><!-- Plain-Validator Syntax --><validator type="requiredstring"><param
name="fieldName">username</param><param name="trim">true</param><message>username is
required</message></validator><!-- Field-Validator Syntax --><field
name="username"><field-validator type="requiredstring"><param
name="trim">true</param><message>username is
required</message></field-validator></field></validators>
```

Description

StringLengthFieldValidator checks that a String field is of a certain length. If the "minLength" parameter is specified, it will make sure that the String has at least that many characters. If the "maxLength" parameter is specified, it will make sure that the String has at most that many characters. The "trim" parameter determines whether it will {[@link String#trim\(\)](#) trim} the String before performing the length check. If unspecified, the String will be trimmed.

Parameters

- fieldName - The field name this validator is validating. Required if using Plain-Validator Syntax otherwise not required
- maxLength - The max length of the field value. Default ignore.
- minLength - The min length of the field value. Default ignore.
- trim - Trim the field value before evaluating its min/max length. Default true

Examples

```
<validators><!-- Plain Validator Syntax --><validator type="stringlength"><param
name="fieldName">myPurchaseCode</param><param name="minLength">10</param><param
name="maxLength">10</param><param name="trim">true</param><message>Your purchase
code needs to be 10 characters long</message></validator><!-- Field Validator Syntax
--><field name="myPurchaseCode"><param name="minLength">10</param><param
name="maxLength">10</param><param name="trim">true</param><message>Your purchase code
needs to be 10 characters long</message></field-name></validators>
```

Description

URLValidator checks that a given field is a String and a valid URL

Parameters

- `fieldName` - The field name this validator is validating. Required if using Plain-Validator Syntax otherwise not required

Examples

```
<validators><!-- Plain Validator Syntax --><validator type="url"><param
name="fieldName">myHomePage</param><message>Invalid homepage
url</message></validator><!-- Field Validator Syntax --><field
name="myHomepage"><message>Invalid homepage url</message></field></validators>
```

Description

The followings show a simple example using Webwork's Field Validators

Step 1

Create the jsp page

```
<h3>All Field Errors Will Appear Here</h3><ww:fielderror /><hr/><h3>Field Error due  
to 'Required String Validator Field' Will Appear Here</h3><ww:fielderror><ww:param  
value="%{'requiredStringValidatorField'}" /></ww:fielderror><hr/><h3>Field Error due  
to 'String Length Validator Field' Will Appear  
Here</h3><ww:fielderror><ww:param>stringLengthValidatorField</ww:param></ww:fielderror><hr/><ww:  
action="submitFieldValidatorsExamples" namespace="/validation"  
method="POST"><ww:textfield label="Required Validator Field"  
name="requiredValidatorField" /><ww:textfield label="Required String Validator  
Field" name="requiredStringValidatorField" /><ww:textfield label="Integer Validator  
Field" name="integerValidatorField" /><ww:textfield label="Date Validator Field"  
name="dateValidatorField" /><ww:textfield label="Email Validator Field"  
name="emailValidatorField" /><ww:textfield label="String Length Validator Field"  
name="stringLengthValidatorField" /><ww:textfield label="Regex Validator Field"  
name="regexValidatorField"/><ww:textfield label="Field Expression Validator Field"  
name="fieldExpressionValidatorField" /><ww:submit label="Submit" /></ww:form>
```

Step 2

Create the actoin class

```
public class FieldValidatorsExampleAction extends AbstractValidationActionSupport {  
  
    privateString requiredValidatorField = null;  
    privateString requiredStringValidatorField = null;  
    privateInteger integerValidatorField = null;  
    private Date dateValidatorField = null;  
    privateString emailValidatorField = null;  
    privateString stringLengthValidatorField = null;  
    privateString regexValidatorField = null;  
    privateString fieldExpressionValidatorField = null;  
}
```



```

privateString randomNumber = null;

public Date getDateValidatorField() {
    return dateValidatorField;
}
public void setDateValidatorField(Date dateValidatorField) {
    this.dateValidatorField = dateValidatorField;
}
publicString getEmailValidatorField() {
    return emailValidatorField;
}
public void setEmailValidatorField(String emailValidatorField) {
    this.emailValidatorField = emailValidatorField;
}
publicInteger getIntegerValidatorField() {
    return integerValidatorField;
}
public void setIntegerValidatorField(Integer integerValidatorField) {
    this.integerValidatorField = integerValidatorField;
}
publicString getRegexValidatorField() {
    return regexValidatorField;
}
public void setRegexValidatorField(String regexValidatorField) {
    this.regexValidatorField = regexValidatorField;
}
publicString getRequiredStringValidatorField() {
    return requiredStringValidatorField;
}
public void setRequiredStringValidatorField(String requiredStringValidatorField)
{
    this.requiredStringValidatorField = requiredStringValidatorField;
}
publicString getRequiredValidatorField() {
    return requiredValidatorField;
}
public void setRequiredValidatorField(String requiredValidatorField) {
    this.requiredValidatorField = requiredValidatorField;
}
publicString getStringLengthValidatorField() {
    return stringLengthValidatorField;
}
public void setStringLengthValidatorField(String stringLengthValidatorField) {
    this.stringLengthValidatorField = stringLengthValidatorField;
}
publicString getFieldExpressionValidatorField() {
    return fieldExpressionValidatorField;
}
public void setFieldExpressionValidatorField(
    String fieldExpressionValidatorField) {
    this.fieldExpressionValidatorField = fieldExpressionValidatorField;
}
}

```

Step 3

Create the validator.xml.

```
<validators><field name="requiredValidatorField"><field-validator
type="required"><message><![CDATA[ required
]]></message></field-validator></field><field
name="requiredStringValidatorField"><field-validator type="requiredstring"><param
name="trim">true</param><message><![CDATA[ required and must be string
]]></message></field-validator></field><field
name="integerValidatorField"><field-validator type="int"><param
name="min">1</param><param name="max">10</param><message><![CDATA[ must be integer
min 1 max 10 if supplied ]]></message></field-validator></field><field
name="dateValidatorField"><field-validator type="date"><param
name="min">01/01/1990</param><param name="max">01/01/2000</param><message><![CDATA[
must be a min 01-01-1990 max 01-01-2000 if supplied
]]></message></field-validator></field><field
name="emailValidatorField"><field-validator type="email"><message><![CDATA[ must be
a valid email if supplied ]]></message></field-validator></field><field
name="stringLengthValidatorField"><field-validator type="stringlength"><param
name="maxLength">4</param><param name="minLength">2</param><param
name="trim">true</param><message><![CDATA[ must be a String of a specific greater
than 1 less than 5 if specified ]]></message></field-validator></field><field
name="regexValidatorField"><field-validator type="regex"><param
name="expression">.*\\.txt</param><message><![CDATA[ regexValidatorField must match a
regexp (.*)\\.txt) if specified ]]></message></field-validator></field><field
name="fieldExpressionValidatorField"><field-validator type="fieldexpression"><param
name="expression">(fieldExpressionValidatorField ==
requiredValidatorField)</param><message><![CDATA[ must be the same as the Required
Validator Field if specified ]]></message></field-validator></field></validators>
```

Description

The followings show a simple example using Webwork's Non Field Validators

Step 1

Create the jsp page

```
<ww:actionerror /><ww:form method="POST" action="submitNonFieldValidatorsExamples"
namespace="/validation"><ww:textfield name="someText" label="Some Text"
/><ww:textfield name="someTextRetype" label="Retype Some Text" /><ww:textfield
name="someTextRetypeAgain" label="Retype Some Text Again" /><ww:submit
label="Submit" /></ww:form>
```

Step 2

Create the action class

```
public class NonFieldValidatorsExampleAction extends AbstractValidationActionSupport
{
    privateString someText;
    privateString someTextRetype;
    privateString someTextRetypeAgain;

    publicString getSomeText() {
        return someText;
    }
    public void setSomeText(String someText) {
        this.someText = someText;
    }
    publicString getSomeTextRetype() {
        return someTextRetype;
    }
    public void setSomeTextRetype(String someTextRetype) {
        this.someTextRetype = someTextRetype;
    }
    publicString getSomeTextRetypeAgain() {
        return someTextRetypeAgain;
    }
}
```

```
    }  
    public void setSomeTextRetypeAgain(String someTextRetypeAgain) {  
        this.someTextRetypeAgain = someTextRetypeAgain;  
    }  
}
```

Step 3

Create the validator.xml.

```
<validators><validator type="expression"><param name="expression"><![CDATA[ (  
(someText == someTextRetype) && (someTextRetype == someTextRetypeAgain) )  
]]></param><message><![CDATA[ all three text must be exactly the same  
]]></message></validator></validators>
```

Description

The followings show a simple example using Webwork's Field Validators

Step 1

Create the jsp page

```
<ww:fielderror /><ww:form method="POST" action="submitVisitorValidatorsExamples"
namespace="/validation"><ww:textfield name="user.name" label="User Name"
/><ww:textfield name="user.age" label="User Age" /><ww:textfield
name="user.birthday" label="Birthday" /><ww:submit label="Submit" /></ww:form>
```

Step 2

Create the actoin class

```
public class VisitorValidatorsExampleAction extends AbstractValidationActionSupport
{
    private User user;

    public User getUser() {
        return user;
    }

    public void setUser(User user) {
        this.user = user;
    }
}
```

Step 3

Create the validator.xml.

```
<validators><field name="user"><field-validator type="visitor"><param
name="context">userContext</param><param
name="appendPrefix">true</param><message>User:</message></field-validator></field></validators>
```

Description

The VisitorFieldValidator allows you to forward validation to object properties of your action using the object's own validation files. This allows you to use the ModelDriven development pattern and manage your validations for your models in one place, where they belong, next to your model classes. The VisitorFieldValidator can handle either simple Object properties, Collections of Objects, or Arrays.

Parameters

- fieldName - field name if plain-validator syntax is used, not needed if field-validator syntax is used
- context - the context of which validation should take place. Optional
- appendPrefix - the prefix to be added to field. Optional

Examples

```
<validators><!-- Plain Validator Syntax --><validator type="visitor"><param
name="fieldName">user</param><param name="context">myContext</param><param
name="appendPrefix">true</param></validator><!-- Field Validator Syntax --><field
name="user"><field-validator type="visitor"><param
name="context">myContext</param><param
name="appendPrefix">true</param></field-validator></field></validators>
```

In the example above, if the action's getUser() method return User object, WebWork will look for User-myContext-validation.xml for the validators. Since appendPrefix is true, every field name will be prefixed with 'user' such that if the actual field name for 'name' is 'user.name'

Velocity

This page last changed on Dec 11, 2005 by [plightbo](#).

Velocity is a template Java template language.

For more information on Velocity itself, please visit the [Velocity website](#).



Velocity is very similar to [FreeMarker](#), as both are template languages that can be used outside of a Servlet container. The WebWork team recommends FreeMarker over Velocity simply because FreeMarker has better error reporting, support for JSP tags, and slightly better features. However, both are good alternatives to JSP.

Getting Started

Getting started with Velocity is as simple as ensuring all the [dependencies](#) are included in your project's classpath. Other than that, [webwork-default.xml](#) already configures the [Velocity Result](#) needed to map your actions to your templates. You may now try out the following **xwork.xml** configuration:

```
<action name="test" class="com.acme.TestAction"><result name="success"
type="velocity">test-success.vm</result></action>
```

Then in **test-success.vm**:

```
<html><head><title>Hello</title></head><body>

Hello, ${name}

</body></html>
```

Where **name** is a property on your action. That's it! Read the rest of this document for details on how templates are loaded, variables are resolved, and tags can be used.

Template Loading

WebWork looks for Velocity templates in two locations (in this order):

1. Web application
2. Class path

This ordering makes it ideal for providing templates inside a fully built jar, but allowing for overrides of those templates to be defined in your web application. In fact, this is how you can override the default UI tags and [Form Tags](#) included with WebWork.

Variable Resolution

In Velocity, variables are looked up in several different places, in this order:

1. The value stack
2. The action context
3. Built-in variables

Note that the action context is looked up after the value stack. This means that you can reference the variable without the typical preceding has marker (#) like you would have to when using the JSP `ww:property` tag. This is a nice convenience, though be careful because there is a small chance it could trip you up.

```
#wwurl "id=url" "value=http://www.yahoo.com"
Click <a href="${url}">here</a>!
```

The built-in variables that WebWork-Velocity integration provides are:

Name	Description
stack	The value stack itself, useful for calls like <code>\${stack.findString('ognl expr')}</code>

action	The action most recently executed
response	The HttpServletResponse
res	Same as response
request	The HttpServletRequest
req	Same as request
session	The HttpSession
application	The ServletContext
base	The request's context path

Tag Support

See the [Velocity Tags](#) documentation for information on how to use the generic [Tags](#) provided by WebWork.

Tips and Tricks

There are some advanced features that may be useful when building WebWork applications with Velocity.

Extending

Sometimes you may wish to extend the Velocity support provided with WebWork. The most common reason for doing this is that you wish to include your own [Tags](#), such as those that you have extended from the built in WebWork [Tags](#).

To do so, write a new class that extends **com.opensymphony.webwork.views.velocity.VelocityManager** and overrides it as needed. Then add the following to [webwork.properties](#):

```
webwork.velocity.manager.classname = com.yourcompany.YourVelocityManager
```

Configuring

You can configure Velocity by placing configuration items in [velocity.properties](#).

velocity.properties

This page last changed on Dec 11, 2005 by [plightbo](#).

This file if provided (/WEB-INF/classes) will be loaded by Velocity. It can be used to load custom macros:

```
# Velocity Macro libraries.  
velocimacro.library = webwork.vm, tigris-macros.vm, myapp.vm
```

See the [Velocity](#) documentation for more information.

Overview

All action configuration is done from within [xwork.xml](#) (see [Configuration Files](#) for more info). In this section we discuss the various elements that make up the action configuration, such as actions, interceptors, results, and package.

1. [Package Configuration](#)
2. [Namespace Configuration](#)
3. [Include configuration](#)
4. [Action configuration](#)
5. [Result Configuration](#)
6. [Interceptor Configuration](#)
7. [Views](#)

Description

```
<action name="formTest" class="com.opensymphony.webwork.example.FormAction"
method="processForm">
```

Actions are the basic "unit-of-work" in WebWork, they define, well, actions. An action will usually be a request, (and usually a button click, or form submit). The main action element (tag is too synonymous with JSP) has two parts, the friendly name (referenced in the URL, i.e. `saveForm.action`) and the corresponding "handler" class.

The optional "**method**" parameter tells WebWork which method to call based upon this action. If you leave the method parameter blank, WebWork will call the method **execute()** by default. If there is no `execute()` method and no method specified in the xml file, WebWork will throw an exception.

Also, you can tell WebWork to invoke "**doSomething**" method in your action by using the pattern "**actionName!something**" in your form. For example, "**formTest!save.action**" will invoke the method "**save**" in `FormAction` class. The method must be public and take no arguments:

```
publicString save() throws Exception
{
    ...
    return SUCCESS;
}
```

All the configuration for "**actionName**" will be used for "**actionName!something**" (interceptors, result types, etc...)

Most of the content here provided by Matt Dowell <matt.dowell@notiva.com>

Description

To make it easy to manage large scale development (lots of actions + configuration), WebWork allows you to include other configuration files from xwork.xml :

```
<xwork><include file="webwork-default.xml"/><include file="user.xml"/><include  
file="shoppingcart.xml"/><include file="product.xml"/>  
....  
</xwork>
```

The included files must be the same format as xwork.xml (with the doctype and everything) and be placed on classpath (usually in /WEB-INF/classes or jar files in /WEB-INF/lib).

Most of the content here provided by Matt Dowell <matt.dowell@notiva.com>

Description

Interceptors allow you to define code to be executed before and/or after the execution of an action. Interceptors can be a powerful tool when writing web applications. Some of the most common implementations of an Interceptor might be:

- Security Checking (ensuring the user is logged in)
- Trace Logging (logging every action)
- Bottleneck Checking (start a timer before and after every action, to check bottlenecks in your application)

You can also chain Interceptors together to create an interceptor **stack**. If you wanted to do a login check, security check, and logging all before an Action call, this could easily be done with an interceptor package.

Interceptors must first be defined (to give name them) and can be chained together as a stack:

```
<interceptors><interceptor name="security"
class="com.mycompany.security.SecurityInterceptor"/><interceptor-stack
name="defaultComponentStack"><interceptor-ref name="component"/><interceptor-ref
name="defaultStack"/></interceptor-stack></interceptors>
```

To use them in your actions:

```
<action name="VelocityCounter"
class="com.opensymphony.webwork.example.counter.SimpleCounter"><result
name="success">...</result><interceptor-ref name="defaultComponentStack"/></action>
```

NOTE: Reference name can be either the name of the interceptor or the name of a stack

For more details, see [Interceptors](#) reference.

Most of the content here provided by Matt Dowell <matt.dowell@notiva.com>

Namespaces

The namespace attribute allows you to segregate action configurations into namespaces, so that you may use the same action alias in more than one namespace with different classes, parameters, etc. This is in contrast to Webwork 1.x, where all action names and aliases were global and could not be re-used in an application.

Default Namespace

The default namespace, which is "" (an empty string) is used as a "catch-all" namespace, so if an action configuration is not found in a specified namespace, the default namespace will also be searched. This allows you to have global action configurations outside of the "extends" hierarchy, as well as to allow the previous Webwork 1.x behavior by not specifying namespaces. It is also intended that the namespace functionality can be used for security, for instance by having the path before the action name be used as the namespace by the Webwork 2.0 ServletDispatcher, thus allowing the use of J2EE declarative security on paths to be easily implemented and maintained.

Root Namesapce

Root namespace, which is "/" is also allowed in WebWork. It will be the namespace when a request directly under the context path is received. As with other namespace, it will fall back to the default namespace if no such action alias is found in it.

Namespace example

```
<package name="default"><action name="foo" class="mypackage.simpleAction"><result
name="success" type="dispatcher">greeting.jsp</result></action><action name="bar"
class="mypackage.simpleAction"><result name="success"
type="dispatcher">bar1.jsp</result></action></package><package name="mypackage1"
namespace="/"><action name="moo" class="mypackage.simpleAction"><result
name="success" type="dispatcher">moo.jsp</result></action></package><package
name="mypackage2" namespace="/barspace"><action name="bar"
class="mypackage.simpleAction"><result name="success"
type="dispatcher">bar2.jsp</result></action></package>
```

Explanation

If a request for `/barspace/bar.action` is made, `/barspace` namespace is searched and if it is found the `bar` action is executed, else it will fall back to the default namespace. In this example `bar` alias does exist in the `/barspace` namespace, so it will get executed and if success, the request will be forwarded to `bar2.jsp`.

Note: If a request is made to `/barspace/foo.action`, the action `foo` will be searched for in a namespace of `/barspace`. If the action is not found, the action will then be searched for in the default namespace. Unless specified, the default namespace will be `""`. In our example above, there is no action `foo` in the namespace `/barspace`, therefore the default will be searched and `/foo.action` will be executed.

If a request for `/moo.action` is made, the root namespace (`/`) is searched for `'moo'` action alias, if it is not found it will fall back to trying to find it in the default namespace. In this example, `moo` action alias does exist and hence will be executed. Upon success, the request will get forwarded to `bar2.jsp`.

Note: If a request is made to `/foo.action`, `/` namespace will be searched and if it is found it will be executed, else an attempt to try to find it in the default namespace will occur. In this example `foo` action alias does not exist in the `/` namespace, hence it will fall back to the default namespace and execute the `foo` alias there.

Note: Namespace is only one level. For example if the url `'/barspace/myspace/bar.action'` is requested, Webwork will try to search for namespace `'/barspace/myspace'`, which does not exist in this case, and will fall back to the default namespace `""` and tried the search for action with `'bar'` alias. As a result the `bar` action in the default will be used.

Overview

Packages are a way to group Actions, Results, Result Types, Interceptors and Stacks into a logical unit that shares a common configuration. Packages are similar to objects in that they can be extended and have individual parts overridden by "sub" packages.

Packages

The package element has one required attribute, "name", which acts as the key for later reference to this package. The "extends" attribute is optional and allows one package to inherit the configuration of one or more previous packages including all interceptor, interceptor-stack, and action configurations. Note that the configuration file is processed sequentially down the document, so the package referenced by an "extends" should be defined above the package which extends it. The "abstract" optional attribute allows you to make a package abstract, which will allow you to extend from it without the action configurations defined in the abstract package actually being available at runtime.

Attribute	Required	Description
name	yes	key to for other packages to reference
extends	no	inherits package behavior of the package it extends
namespace	no	see Namespace Configuration
abstract	no	declares package to be abstract (no action configurations required in package)

Sample usage of packages in xwork.xml

```
<xwork><include file="webwork-default.xml"/><include
file="config-browser.xml"/><include file="xwork-continuations.xml"/><include
file="xwork-tags.xml"/><include file="xwork-validation.xml" /><include
file="xwork-actionchaining.xml" /><include file="xwork-ajax.xml" /><package
name="default" extends="webwork-default"><interceptors><interceptor-stack
name="crudStack"><interceptor-ref name="params" /><interceptor-ref
name="defaultStack" /></interceptor-stack></interceptors><action
name="showcase"><result>showcase.jsp</result></action></package><package
name="skill" extends="default" namespace="/skill"><default-interceptor-ref
name="crudStack"/><action name="list"
class="com.opensymphony.webwork.showcase.action.SkillAction"
method="list"><result>/empmanager/listSkills.jsp</result><interceptor-ref
name="basicStack"/></action><action name="edit"
class="com.opensymphony.webwork.showcase.action.SkillAction"
method="execute"><result>/empmanager/editSkill.jsp</result><interceptor-ref
name="params" /><interceptor-ref name="basicStack"/></action><action name="save"
class="com.opensymphony.webwork.showcase.action.SkillAction" method="save"><result
name="input">/empmanager/editSkill.jsp</result><result
type="redirect">edit.action?skillName=${currentSkill.name}</result></action><action
name="delete" class="com.opensymphony.webwork.showcase.action.SkillAction"
method="delete"><result name="error">/empmanager/editSkill.jsp</result><result
type="redirect">edit.action?skillName=${currentSkill.name}</result></action></package><package
name="employee" extends="default" namespace="/employee"><default-interceptor-ref
name="crudStack"/><action name="list"
class="com.opensymphony.webwork.showcase.action.EmployeeAction"
method="list"><result>/empmanager/listEmployees.jsp</result></action><action
name="edit" class="com.opensymphony.webwork.showcase.action.EmployeeAction"
method="execute"><result>/empmanager/editEmployee.jsp</result></action><action
name="save" class="com.opensymphony.webwork.showcase.action.EmployeeAction"
method="save"><result name="error">/empmanager/editEmployee.jsp</result><result
type="redirect">edit.action?empId=${currentEmployee.empId}</result></action><action
name="delete" class="com.opensymphony.webwork.showcase.action.EmployeeAction"
method="delete"><result name="error">/empmanager/editEmployee.jsp</result><result
type="redirect">edit.action?empId=${currentEmployee.empId}</result></action></package></xwork>
```

Description

Results are string constants that Actions return to indicate the status of an Action execution. A standard set of Results are defined by default: error, input, login, none and success. Developers are, of course, free to create their own Results to indicate more application specific cases. Results are mapped to defined [Result Types](#) using a name-value pair structure.

- [Global results](#)
- [Default results](#)

Result tags

Result tags tell WebWork what to do next after the action has been called. There are a standard set of result codes built-in to WebWork, (in the Action interface) they include:

```
String SUCCESS = "success";
String NONE    = "none";
String ERROR   = "error";
String INPUT   = "input";
String LOGIN   = "login";
```

You can extend these as you see fit. Most of the time you will have either **SUCCESS** or **ERROR**, with **SUCCESS** moving on to the next page in your application;

```
<result name="success" type="dispatcher"><param
name="location">/thank_you.jsp</param></result>
```

...and **ERROR** moving on to an error page, or the preceding page;

```
<result name="error" type="dispatcher"><param
```

```
</result>
```

Results are specified in a xwork xml config file(xwork.xml) nested inside <action>. If the location param is the only param being specified in the result tag, you can simplify it as follows:

```
<action name="bar" class="myPackage.barAction"><result name="success"
type="dispatcher"><param name="location">foo.jsp</param></result></action>
```

or simplified

```
<action name="bar" class="myPackage.barAction"><result name="success"
type="dispatcher">foo.jsp</result></action>
```

or even simplified further

```
<action name="bar" class="myPackage.barAction"><result>foo.jsp</result></action>
```



Default Action Class

If the class attribute is not specified in the action tag, it will default to WebWork's ActionSupport.



Default Location Parameter

If no param tag eg. <param name="location">,,, </param> is given as child of the <result ..> tag, WebWork will assume the text enclosed within the <result> </result> tags to be the location.



Default Result Type

If no type attribute is specified in the <result ...> tag, WebWork assume the type to be dispatcher. (Analogous to

	Servlet's Specs. ServletDispatcher's forward).
--	--

Description

Webwork has the ability to define a default result type for your actions. Thus, you don't have to specify the result-type for results using the default. If a package extends another package and you don't specify a new default result type for the child package, then the parent package default type will be used when the type attribute is not specified in the result tag.

```
<!-- parts of xwork.xml -->
....

<result-types><result-type name="dispatcher"
class="com.opensymphony.webwork.dispatcher.ServletDispatcherResult"
default="true"/><result-type name="redirect"
class="com.opensymphony.webwork.dispatcher.ServletRedirectResult"/><result-type
name="velocity"
class="com.opensymphony.webwork.dispatcher.VelocityResult"/></result-types>

....

<action name="bar" class="myPackage.barAction"><!-- this result uses dispatcher, so
you can omit the type="dispatcher" if you want --><result
name="success">foo.jsp</result><!-- this result uses velocity result, so the type
needs to be specified --><result name="error"
type="velocity">error.vm</result></action>

....
```


Description

Global results allows you to define result mappings which will be used as defaults for all action configurations and will be automatically inherited by all action configurations in this package and all packages which extend this package. In other words, if you have the same result specified within multiple actions, then you can define it as a global result.

Example

```
<package name="default">
....
<global-results><result name="login" type="dispatcher"><param
name="location">login.jsp</param></result></global-results><action name="foo"
class="mypackage.fooAction"><result name="success"
type="dispatcher">bar.jsp</result></action><action name="submitForm"
class="mypackage.submitFormAction"><result name="success"
type="dispatcher">submitSuccess.jsp</result></action>
...
</package>
```

Same thing

```
<package name="default">
....
<action name="foo" class="mypackage.fooAction"><result name="success"
type="dispatcher">bar.jsp</result><result name="login"
type="dispatcher">login.jsp</result></action><action name="submitForm"
class="mypackage.submitFormAction"><result name="success"
type="dispatcher">submitSuccess.jsp</result><result name="login"
type="dispatcher">login.jsp</result></action>
...
</package>
```

Description

WebWork supports JSP and Velocity for your application presentation layer. For this example we will use a JSP file. Webwork comes packaged with a tag library (taglibs). You can use these taglibs as components in your JSP file. Here is an section of our form.jsp page:

```
<%@ taglib prefix="ww" uri="webwork" %><html><head><title>Webwork Form  
Example</title></head><body><ww:form name="myForm" action="'formTest'" namespace="/"  
method="POST"><table><ww:textfield label="First Name" name="'formBean.firstName'"  
value="formBean.firstName"/><ww:textfield label="Last Name"  
name="'formBean.lastName'" value="formBean.lastName"/><ww:submit value="Save  
Form"/></table></ww:form></body>
```

The process of events will go as follows:

1. WebWork will take notice since the URI ends in **.action** (defined in **web.xml** files)
2. WebWork will look up the action **formTest** in its action hierarchy and call any Interceptors that might have been defined.
3. WebWork will translate **formTest** and decide to call the method **processForm** in the class **com.opensymphony.webwork.example.FormAction** as defined in **xwork.xml** file.
4. The method will process successfully and give WebWork the **SUCCESS** return parameter.
5. WebWork will translate the **SUCCESS** return parameter into the location **formSuccess.jsp** (as defined in **xwork.xml**) and redirect accordingly.

Most of the content here provided by Matt Dowell <matt.dowell@notiva.com>

Related Projects

This page last changed on Oct 30, 2005 by [plightbo](#).

1. [EclipseWork](#)
2. [IDEA Plugin](#)
3. [Struts Ti](#)

EclipseWork

This page last changed on Oct 30, 2005 by [plightbo](#).

EclipseWork is a third-party project created by Ricardo Lecheta. It is an Eclipse plugin for WebWork. Future plans include abstracting the plugin and providing for a plugin base that can be used to build both the Eclipse plugin and a new [IDEA Plugin](#). For more information, check out the [EclipseWork home page](#).



This document is an MRD (Marketing Requirements Document) for the ideal vision of what the WebWork IDEA Plugin will be. At this point, no WebWork IDEA plugin has been created. When it is created, it will be based on [EclipseWork](#).

A key success for WebWork is its ability to provide tools that make developers lives easier. This isn't just some configuration editor, but rather a complex integrated environment where developers can write their code, build JSPs, and have much of the redundant work related to WebWork automated or assisted. WebWork's IDEA integration enables developers to not only write WebWork-based applications faster, but also with much higher quality.

The IDEA Plugin has the following features:

- **Configuration browser** - you can browse namespaces and see both actions and views as well as their relationships. The browser lets you avoid hunting through xwork.xml and all the included files and instead presents a logical view of all your actions and their associated views. The browser also allows for very quick access to an action if you know it by name (and optional namespace).
- **Find by usages** - finding usages on a field will show you where all the views that use that field are located.
- **Refactoring support** - similar to find by usages, it is very useful to rename a field in an action (or even an object that is someone in the stack/object graph) and know that all the views that reference it have been updated as well
- **Internationalization support** - you can select text in a JSP or other views and automatically extract it into the a choice of the correct resource bundles (package.properties, Action.properties, etc). Conversely, you can press Ctrl-Q on `<ww:text/>` tags to see what the actual text for a particular i18n key are.
- **Error reporting** - the plugin is excellent at notifying you of errors before you deploy your application. Since many aspects of WebWork are based around loosely coupled and dynamic interactions, the plugin helps you see when you've had a typo such as "document" instead of "document". It highlights errors in OGNL expressions, i18n locations, and configuration mixups automatically for you. When these errors happen the plugin also gives you a choice of possible fixes (Ctrl-Enter).
- **Code completion** - when using WebWork tags such as `<ww:select value="..."/>`

pressing Ctrl-Space pops up a code completion dialog that introspects through all the available properties that are in the value stack, including those in your action.

- **OGNL expression evaluator** - When you're editing a page you should be able to have an OGNL expression evaluator that can execute your action and use its properties to evaluate OGNL expressions to show you what you get.

Struts Ti

This page last changed on Oct 30, 2005 by [plightbo](#).

Struts Ti is a new version of Struts created by the Struts developers to succeed Struts 1.x. It is based on WebWork and aims to make web development as simple as possible by taking advantage of the newest Java 5 features. You can find out more at the [Struts Ti homepage](#).

This page contains my suggestions on documentation style. I will *try* to demonstrate my suggestions by writing a document that justifies them. I'm an advocate of **learning by example**. As Mark Twain said, "*Few things are harder to put up with than the annoyance of a good example*" ([Samuel Langhorne Clemens \(1835-1910\)](#)).

Pulling content from CVS

A large part of the WebWork 2.2 documentation effort is to make documentation easier to handle in the future. At on the onset of this effort, everyone agreed that pulling as much source code, examples, and documentation from source control would help greatly. As such, we've installed a modified version of the **snippet macro** in the OpenSymphony wiki.



Important!

Whenever you write documentation, ask yourself if you can somehow have this documentation checked in to source control in the form of example code or JavaDocs. This will make the documentation much more likely to be useful for years to come.

The standard way to use it is to do the following:

```
{snippet:id=description|javadoc=true|url=com.opensymphony.xwork.interceptor.LoggingInterce
```

or

```
{snippet:id=example|javadoc=true|lang=xml|url=com.opensymphony.xwork.interceptor.Logging
```

or


```
{snippet:id=sitegraph-usage|lang=none|url=webwork/src/java/com/opensymphony/webwork/si
```

or

```
{snippet:id=ajax-validation-example|lang=xml|url=webwork/webapps/ajax/src/webapp/lesson1.
```

Where:

- id is the *name* of the snippet (*required).
- url is the URL where the snippet can be found (**required**).
- lang is the language that the code block should be required as. If this snippet is simply text, don't include this parameter and the content will be printed outside of a code block.
- javadoc indicates if the content is within a JavaDoc block. If this is set to true, then the preceeding "* " (asterisk-space) characters will be stripped before printing the content out. Also, the content is assumed to be HTML escaped already and therefore won't be escaped again.

All snippets are marked off by the pattern **START SNIPPET: XXX** and **END SNIPPET: XXX** where **XXX** is the *name* of the snippet that is assigned in the id attribute of the macro. The URL is typically a location that points to the project's source control contents.

A note about URLs

As you probably noticed in the examples, there are several formats that the URL patterns can be in. A fully-qualified URL is always allowed, though that is often not practical. We've customized the macro to be a bit more intelligent with the URL attribute:

- If the URL appears to be a class, we assume it lives in *src/java*, convert all the dots to slashes, and then append *.java* to it.
- If the URL doesn't start with "http", then it is assumed to start with https://opensymphony.dev.java.net/source/browse/*checkout*/, as you saw in the third example.

Note that the short-hand class notation will only work for top-level projects

(WebWork, OSWorkflow, etc) and not any sub-projects within the projects, such as example webapps in WebWork. If you wish to include content from a class in a sub-project, you'll need to list out the full path, like in the fourth example.

A note about snippet markers

All snippet markers should be commented out if possible. How they are commented out depends on where the snippet is. If the snippet is for HTML or XML, you can do:

```
<!-- START SNIPPET: xxx -->
...
<!-- END SNIPPET: xxx -->
```

If the snippet is in Java code, you can do:

```
if (true != false) {
    // START SNIPPET: xxx
    System.out.println("This is some silly code!");
    // END SNIPPET: xxx
}
```

If the snippet is found in JavaDocs, you should use HTML comments as they won't render in the JavaDocs. For XML examples in JavaDocs (see [Timer Interceptor](#) for an example), it can be a bit tricky. This is because in your JavaDocs you want to use the `<pre>` tag, but you don't want the wiki to display it. A good technique is to embed the snippet markers *inside* the `<pre>` tag:

```
* <pre>
* <!-- START SNIPPET: example -->
* &lt;!-- records only the action's execution time --&gt;
* &lt;action name="someAction" class="com.examples.SomeAction"&gt;
*     &lt;interceptor-ref name="completeStack"/&gt;
*     &lt;interceptor-ref name="timer"/&gt;
*     &lt;result name="success"&gt;good_result.ftl&lt;/result&gt;
* &lt;/action&gt;
* <!-- END SNIPPET: example -->
```

About Headings

★ This section refers to: [Notation Guide >> Headings](#).

Headings should definitely be used. This section tries to justify why.

First rule: don't use "h1" at the top of each page. The page title serves as the "top level header" already, so there is no need to duplicate that information again. Also, when the docs end up on the website, SiteMesh will place a top level "h1" element using the page title.

Document sections

Headings can help you divide your document into sections, subsections, sub-subsections and so forth.

Advantages

Your document becomes more organized.

Disadvantages

If you exaggerate you could fragment your text too much.



Warning

This is definitely an example of this, since this whole "Headings" section has such few paragraphs that it really should have been written in just one section.

Aren't warning boxes neat?

Headings capitalization

I think headers `h1` and `h2` should have all words capitalized (such as "Vitor's Suggestions on Documentation Style" and "About Headings"), but `h3` and smaller

would have just the first word (such as "Headings capitalization"). Except, of course, for words that are always capitalized (eg. "Understanding WebWork's importance to OpenSymphony and its community"). This gives even more importance to bigger headings.

Avoid skipping headers

I mean, avoid going from a `h1` directly to a `h3` without using `h2` before. This would be like havin a section 1.1.1 directly below section 1, without the existence of section 1.1.



Handy Hint

One thing that I like to do is leave **five** blank lines before `h1` headings, **three** before `h2`'s and **two** before `h3`'s. Also, in Portuguese (I'm Brazilian), we write small numbers using their names instead of numeric representation (**five** instead of **5**). I don't know if this is also a good practice in written english.

Aren't tip boxes neat?



Be Careful

If you find yourself writting too many `h1` headings in a single page, consider breaking the page into child pages and linking to them.


Aren't note boxes neat?

More on Text Effects

★ This section refers to: [Notation Guide >> Text Effects](#).

Text effects should be largely used, although I have some questions on some of them. **Strong**, *emphasis*, and inserted can be used to denote importante parts of a sentence. But I really think inserted should have been called underline in [the notation guide](#). I don't see the point of using ~~deleted~~, since when someone changes a page and deletes stuff, [Confluence](#) keeps the old versions in history.

I can't think of a situation in WebWork's doc for superscript and subscript, but it doesn't hurt to mention them. I can't say anything about %span% because I frankly don't know what it does. Monospaced is heavily used, for instance, to refer to webwork-default.xml file or items in source code examples: <xmltag />, JavaClass or javaVariable.

	<p>Boxes vs. Block Quotes</p> <p>I think boxes and block quotes do the same job, but boxes are better. Therefore, I suggest we don't use block quotes.</p> <p><i>Aren't info boxes neat? Aren't them all neat? By now you may have realized I think we should definetly use them...</i></p>
---	--

Colors should be used in very specific cases, or else each documentation writers would color his/her pages the way he/she thinks it's better, and it would look like a mess. One such specific case in which colors can help is when you want them to work as tags or captions. For (a lame) example, in this paragraph, guidelines are in red and justifications are in blue. Yes, it's a really really lame example, I know. 😊

Text Breaks

★ This section refers to: [Notation Guide >> Text Breaks](#).

Text breaks shouldn't be used. If you'd like paragraphs or headings to have more spacing (before or after), the style sheet should be changed, not the contents. Patrick explained this a long time ago. Other stuff in this section (paragraphs, horizontal ruler, — symbol and – symbol) can be used when necessary.

Links

★ This section refers to: [Notation Guide >> Links](#).

All types of links can and should be used. I already used a few in this document. Just watch out for links to non-existing pages when writing on the official documentation.

Lists

★ This section refers to: [Notation Guide >> Lists](#).

Lists can be used for many purposes. Every time we list some things that are in order, ordered lists are used. If they don't have a specific order, unordered lists are the case. List should be nested if needed for a better organization. Unordered lists should be created only with the * (star) notation only, so all pages use the same style of bullet.

- This is an unordered list in star notation;
- Items can have sub-items
 - That can have sub-items
 - That can have sub-items...
 - What is the limit?
- Mixing ordered and unordered lists is possible:
 1. One;
 2. Two;
 3. Three.



List indentation

Use tabs to indent nested lists. This way your page's markup is more readable

	and easier to maintain.
--	-------------------------







Images and Icons

★ This section refers to: [Notation Guide >> Images](#) and [Notation Guide >> Misc](#).

External images should be used only when strictly necessary (meaning, don't use images as list bullets or box icons). Also, try to use only images that are very unlikely to be removed from its current URL, to reduce document maintenance. Pay attention on copyright issues too! Attached images are less prone to become missing links, however, we should not clutter the documentation with unnecessary attachments and copyrights are also a issue here.

Example:



Icons are cool in a number of situations. Some of them, such as , ,  or  can make the documentation look professional, but some others, such as  and  may give a feeling of amateurship and I wouldn't advise them for pages that are exported to form the official documentation.

Tables

★ This section refers to: [Notation Guide >> Tables](#).

Tables are very useful when lists just don't do it. Meaning: don't write a table when a list suffices. Tables are more organized, because you can align the text in columns. Since the markup text for tables in confluence is not very easy to read, remember complex and big tables are very hard to maintain.

The table below was copied from a reference page on WebWork's configuration (just the first two lines were copied). This is an example where tables are good: a list

wouldn't be as organized as this table to display these files and their properties.

File	Optional	Location (relative to webapp)	Purpose
web.xml	no	/WEB-INF/	Web deployment descriptor to include all necessary WebWork components
xwork.xml	no	/WEB-INF/classes/	Main configuration, contains result/view types, action mappings, interceptors, etc

Advanced Formatting

★ This section refers to: [Notation Guide >> Advanced Formatting](#).

I've already made my point about info, warning, tip and note boxes. Other interesting markups are `noformat` and `code`. The former can be used for general purpose text while the latter is used to display example source code, be it HTML, XML, Java or anything that is part of a software solution. When displaying something that has a name, use a title, as the example below demonstrates.

HelloWorld.java
<pre>/** Hello World class. */ public class HelloWorld { /** Main method. */ public static void main(String[] args) { System.out.println("Hello, World!"); } }</pre>

A typical example of `noformat` would be the command line statements to compile and run the code above. We should also standardize terminal notation (`{ $ }`) for command

prompt).

```
$ javac HelloWorld.java  
  
$ java HelloWorld  
Hello, World!
```

Do not use tabs inside `noformat` and `code`, use two spaces instead. This way your code is indented but keeps lines short. Large lines should be splitted as to fit in a 800x600 resolution screen without horizontal scroll bars.

Your Comments Please

Please contribute to this page. Let me know if you have a different opinion on something (please justify it). Please warn me if I wrote something wrong or if this proposed Style Guide is missing something. Feel free to correct my english, since I'm not a native speaker.

Tutorial

This page last changed on Jan 07, 2006 by [plightbo](#).



In Progress

This is a work in progress. Thank you for your patience.

1. [Getting Started](#)
2. [Basic configuration and your first action - Hello WebWorld](#)
3. [Understanding actions](#)
4. [Understanding results](#)
5. [Understanding interceptors](#)

Old tutorials:

1. [Lesson 1 - Setting up webwork in a web application](#)
2. [Lesson 2 - An html form with no data](#)
3. [Lesson 3 - An html form with data](#)
4. [Lesson 4 - An html form with data, without getters or setters](#)
5. [Lesson 5 - Views](#) (JSP, Velocity, Freemarker)
6. [Lesson 6 - Interceptors](#)

Your first action - Hello WebWorld

An action is a piece of code that is executed when a particular URL is requested. After actions are executed, a result visually displays the outcome of whatever code was executed in the action. A result is generally an HTML page, but it can also be a PDF file, an Excel spreadsheet, or even a Java applet window. In this book, we'll primarily focus on HTML results, because those are most specific to the Web.

When you submit an html form using WebWork, the form is sent to a Java class that you write yourself, not to a JSP page. These classes are called WebWork actions. The form html typically looks like: `<form action="foo.action">`.

In a Model-View-Controller approach, the WebWork action is part of the Controller, leaving to JSP pages what they do best: the View. (If you don't know what a Model-View-Controller is, don't worry about this.)

Suppose you want to create a simple "Hello, World" example in which a message is displayed whenever a user goes to a URL such as <http://localhost/helloWorld.action>. Because you've mapped WebWork's servlet to *.action, you need an action named helloWorld. To create the "Hello, World" example, you need to do three things:

1. Create an action class: HelloWorld.
2. Create a result: hello.jsp.
3. Configure the action and result.

The Code

HelloWorld.java

```
package example.helloworld;
import com.opensymphony.xwork.Action;
import java.util.*;

public class HelloWorld implements Action {
    privateString message;
```

```

publicString execute() {
    message = "Hello, WebWorld!\n";
    message += "The time is:\n";
    message += DateFormat.getDateInstance().format(new Date());

    return SUCCESS;
}

publicString getMessage() {
    return message;
}
}

```

Paste this code into a file webapp/hello.jsp:

hello.jsp

```

<%@ taglib prefix="ww" uri="webwork" %>
<html>
  <head>
    <title>Hello Page</title>
  </head>
  <body>
    The message generated by my first action is:
    <ww:property value="message"/>
  </body>
</html>

```

Edit the xwork.xml file as shown below, adding the helloWorld action and something called an interceptor to the default package. Read more: [xwork.xml](#)

xwork.xml

```

<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">
<xwork>
  <include file="webwork-default.xml"/>

  <package name="default" extends="webwork-default">
    <!-- Include webwork defaults (from WebWork JAR). -->
    <default-interceptor-ref name="completeStack"/>

    <action name="helloWorld"
      class="example.helloworld.HelloWorld">
      <result name="success">hello.jsp</result>
    </action>
  </package>
</xwork>

```



Don't forget

Compile your action to webapp/WEB-INF/classes, and to restart

	your web application if necessary.
--	------------------------------------

Go ahead and try it now: go to the url <http://localhost/helloWorld.action> and see what happens. You should see a page that says "Hello, WebWorld!".

How the code works

The above four files work together like this.

- When you go to the url <http://localhost/helloWorld.action>, sending it to your web application server.
- The server receives the request for `helloWorld.action`. Looking in [webapp/WEB-INF/web.xml](#), it sees that all `*.action` requests are to be handed off to `com.opensymphony.webwork.dispatcher.ServletDispatcher`. Essentially, the request is handed to WebWork now.
- WebWork looks in `xwork.xml` for an action named "helloWorld". There it finds that this corresponds to the class "HelloWorld," instantiates it, and calls its `execute()` method.
- `execute()` returns `SUCCESS`, and WebWork looks again in `xwork.xml` to see what page to load if `SUCCESS` is returned. It finds the page "hello.jsp".
- The page `hello.jsp` is processed (the `<ww:property value="hello" />` tag calls the getter `getHello()` of `HelloWorld.java`) and sent back to the browser.

In conclusion, with WebWork, all html forms are sent to an action. This action returns a constant result-name such as `SUCCESS`, `ERROR` or `INPUT`. Based on the [xwork.xml](#), a given result-name may produce a page (as in this example), another action, or some other web resource (image, pdf). In this example, the form contained no data.

Preface

WebWork is a popular, easy-to-use MVC framework, for more information on the WebWork project, please visit [WebWork](#).

This site is geared towards developers that have an understanding towards certain technologies. Before diving into how Webwork works and running demos, it is recommended that you review the concepts below:

- Java
- Servlets, JSP, and Tag Libraries
- JavaBeans
- HTML and HTTP
- Web Containers (ex. Tomcat)
- XML

Distribution Download and Information Resources

Download Webwork Distribution

You can download the full WebWork distribution [here](#). It contains the webwork.jar file as well as full documentation, sources, all [required and optional dependent libraries](#) and examples. For more information on how to build WebWork from source or even checkout from CVS, please refer to [Building Webwork](#).

Information and Project Resources

This site is set up with many features. Here are links to help you around:

- [Download Webwork](#) - download Webwork Distribution
- [Join the WebWork Forums](#) - The forums are full of active developers, contributors, and power users - often even available for chat. This is the best and quickest way to get a question answered.
- [Subscribe to Mailing List or browse Mail Archive](#) or [post a question](#). All posts from the forum are posted to the mailing lists, as well as your posts to the list will make it to the forum.
- [CVS](#) - Browse CVS and source at java.net
- [Webwork Wiki](#) - Powered by [Confluence](#), the professional J2EE wiki
- [Webwork Bugs & Issues](#) - Powered by [JIRA:Bug & Issue Traking System](#)
- [OpenSymphony Home](#)

Distribution Quickstart

Overview

The distribution contains the following directory layout:

```
docs/  
lib/  
src/  
src/java/template/  
webapps/  
README.txt  
build.properties  
build.xml  
webwork-(VERSION)-src.jar  
webwork-(VERSION).jar  
webwork.jar
```

The docs directory contains the current Javadocs, the full user documentation including the document you are reading, taglib documentation, as well as Clover, JUnit and dependency reports for the build.

The lib directory contains the required as well as the optional dependencies for Webwork, organized in subdirectories to represent different optional configurations and thereby induced [Dependencies](#):

```
lib/  
    ajax/
```

```
build/  
default/  
fileupload/  
fileupload-cos/  
fileupload-pell/  
freemarker/  
jasperreports/  
jfree/  
portlet/  
quickstart/  
sitemesh/  
spring/  
velocity/  
xslt/
```

Note that none of the optional packages are required to use Webwork. If you wish to use certain features such as JasperReports and FreeMarker results, you must include the optional packages.

Webwork also comes packaged with all the source files and the templates for the JSP tags.

Running demos with QuickStart

WebWork provides a quick way to get started called QuickStart. QuickStart is essentially a combination of a few technologies, including the possibility to run web applications such as the provided examples out of the box with a stripped [Jetty](#) container.

With that, running the demos is as easy as can be. You just need to call

```
java -jar webwork.jar quickstart:<application-name>
```

from the distribution's top directory, whereby <application-name> is to be replaced by one of the subdirectory names under webapps/, representing the various supplied demo applications. So if you want to start the shopping cart example, just type on your commandline

```
java -jar webwork.jar quickstart:shopping-cart
```


The packaged examples are:

ajax	Demonstration of the AJAX Features of WebWork
portlet	Demonstration of WebWork porlet integration (to be deployed in a Portal Server)
shopping-cart	Nice example application demostrating various aspects of WebWork
showcase	Demonstration of tag features and some best practices
starter	Web application template, meant as an easy starting point for developing applications with WebWork
wwia	The Cevet Emptor example from "WebWork in Action" book

Read [Quickstart](#) documentation to learn more about how it works and how you can utilize it for your own applications.

Running Demos with Your Favorite Webcontainer

TODO: Review / comment lastest changes

In order to run webwork applications and demos, you need to have a servlet/jsp engine. If you don't, we suggest you learn about [Apache Tomcat](#), which is a free Servlet container from the Apache Jakarta Project, or Resin, from [Caucho Technology](#), which is free for non-comercial use. Once you a Servlet container setup, you can install the webwork example applications (*.war) and any other demos by placing the .war file inside the containers webapp directory. Example of location with tomcat:

```
<TOMCAT_HOME>/webapps/webwork-example.war
```

After the war file is in the correct location, start your web container and access your application through a web browser with the following url.

[http://??HOST:PORT?*/webwork-example*](http://*??HOST:PORT?*/webwork-example*)

Your first WebWork Application

Using the Starter Template

The distribution contains a simple webapp called `starter` in meant as a template for your webapplications. Just copy `starter` directory to a newly named destination and edit the configuration files as needed.

Setting up from Scratch

Structure of your Webapplication

The following illustrates how your web application should be set up. Copy the `webwork-(VERSION).jar`, all the `*.jar` files in `/lib/core` and any necessary optional `*.jar` files in `/lib/optional` to your `webapp/lib` directory. If you need to customize your own templates (how HTML is rendered from webwork UI tags), copy the `/src/java/template` directory into your `webapp/` directory. Your webapp should look similar to this:

```
/mywebapp/  
/mywebapp/template/  
/mywebapp/META-INF/  
/mywebapp/WEB-INF/  
/mywebapp/WEB-INF/classes/  
/mywebapp/WEB-INF/lib/  
/mywebapp/WEB-INF/lib/CORE&OPTIONAL *.jar  
/mywebapp/WEB-INF/web.xml
```

Minimum Set of Libraries and Config Files

The following files are a minium requirement for your application.

Filename	Description
webwork.jar	WebWork library itself, found in distribution root directory
xwork.jar	XWork library on which WebWork is built
oscore.jar	OSCore, a general-utility library from OpenSymphony
ongl.jar	Object Graph Navigation Language (OGNL), the expression language used throughout WebWork
commons-logging.jar	Commons logging, which WebWork uses to support transparently logging to either Log4J or JDK 1.4+
javamail by sun	for mail
rife-continuations by rife	for continuations feature
web.xml	J2EE web application configuration file that defines the servlets, JSP tag libraries, and so on for your web application
xwork.xml	WebWork configuration file that defines the actions, results, and interceptors for your application

The library files (*.jar) needs to be copied to your /mywebapp/WEB-INF/lib/ directory. If you need optional functionalities inducing dependencies to optional jars, they need to be copied to this directory, too.

web.xml:

Create the following web.xml file in [webapp]/WEB-INF. If you already have a web.xml file, just add the content of the <web-app> tag below to your existing <web-app> tag.

```
<?xml version="1.0"?>
<!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application
2.3//EN" "http://java.sun.com/dtd/web-app_2_3.dtd">

<web-app><display-name>My WebWork
Application</display-name><filter><filter-name>webwork</filter-name><filter-class>com.opensympho
```

This registers `FilterDispatcher` to induce webwork functionality in your requests. The `ContextLoaderListener` will take care of setting up [Spring](#) as your IoC container for WebWork. The taglib entry will help you use [Tags](#) in your JSP pages.

Read more: [web.xml](#)

xwork.xml:

Create the following file `xwork.xml` in `[webapp]/WEB-INF/classes/`.

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"></package></xwork>
```

For now, this `xwork.xml` does only two things:

- It informs WebWork that it should import the configuration information from `webwork-default.xml`. (This file is located at the root of the `webwork.jar`, so it is sure to be found.)
- It defines a default package (with the `<package>` section) where WebWork elements like actions, results and interceptors are registered.

Read more: [xwork.xml](#)

Basic Concepts

We will briefly cover the three main components on a WebWork2 based application, the configuration the action classes, and the views. Especially the example in this section should be helpful to seasoned Java developers with previous experience in MVC frameworks.

Actions

```
<action name="saveForm" class="com.acme.FormAction" method="processForm">
```

Actions are the basic "unit-of-work" in WebWork, they define, well, actions. An action will usually be a request, (and usually a button click, or form submit). The main action element (tag is too synonymous with JSP) has two parts, the friendly name (referenced in the URL, i.e. **saveForm.action**) and the corresponding "handler" class.

The method parameter tells WebWork which method to call based upon this action. If you leave the method parameter blank, WebWork will call the method **execute()** from the Action Interface by default. Since every Action must implement the Action Interface, this method will always be available.

Results

```
<result name="missing-data" type="dispatcher"><param  
name="location">/form.jsp</param></result>
```

Result tags tell WebWork what to do next after the action has been called. There are a standard set of result codes built-in to WebWork, (in the Action interface) they include:

```
String SUCCESS = "success";  
String NONE    = "none";  
String ERROR   = "error";  
String INPUT   = "input";  
String LOGIN   = "login";
```

You can extend these as you see fit. Most of the time you will have either **SUCCESS** or **ERROR**, with **SUCCESS** moving on to the next page in your application;

```
<result name="success" type="dispatcher"><param
name="location">/thank_you.jsp</param></result>
```

...and **ERROR** moving on to an error page, or the preceding page;

```
<result name="error" type="dispatcher"><param
name="location">/error.jsp</param></result>
```

You can stack as many result tags within a single action tag as you wish.

For further reading on Result types, see [Result Types](#).

Interceptors

Interceptors allow you to define code to be executed before and/or after the execution of an action. Interceptors can be a powerful tool when writing web applications. Some of the most common implementations of an Interceptor might be:

- Security Checking (ensuring the user is logged in)
- Trace Logging (logging every action)
- Bottleneck Checking (start a timer before and after every action, to check bottlenecks in your application)

You can also group Interceptors together to create "stacks". If you wanted to do a login check, security check, and logging all before an Action call, this could easily be done with an interceptor stack.

For further reading on interceptor configuration, as well as a discussion of WebWork's builtin interceptors, see [Interceptors](#)

Action Classes

The action classes do what they say, they handle the action. They are called by the actions specified in the **xwork.xml** file and initiated by the user in the "views". To turn your class into an action class, you simply need to extend the class

ActionSupport or implement the **Action** interface.

Here is what our **saveForm** action looks like in its Java form:

```
package com.acme;
import com.opensymphony.xwork.*;

public class FormAction extends ActionSupport {

    private FormBean myFormBean = new FormBean();

    public void setFormBean(FormBean inBean) {
        myFormBean = inBean;
    }

    public FormBean getFormBean() {
        return myFormBean;
    }

    public String execute() {

        FormParameters formParams = this.getFormBean();
        checkBizRules(formParams);
        this.saveParamsToDb(formParams);

        return SUCCESS;
    }
    ...
}
```

Views

WebWork supports JSP, Velocity, and FreeMarker for your application presentation layer. For this example, we will use a JSP file. The appropriate presentation layer is denoted by the result type specified. For JSPs, the result type is the name mapped to the **com.opensymphony.webwork.dispatcher.ServletDispatcherResult**. Typically, this is "dispatcher".

WebWork comes packaged with a tag library (taglibs). You can use these taglibs as components in your JSP file. Here is an section of our **form.jsp** page:

```
<%@ taglib prefix="ww" uri="webwork" %><html><head><title>Webwork Form
Example</title></head><body><ww:form name="myForm" action="'saveForm.action'"
method="'POST'"><table><ww:textfield label="'First Name'"
name="'formBean.firstName'" value="formBean.firstName"/><ww:textfield label="'Last
Name'" name="'formBean.lastName'" value="formBean.lastName"/></table><input
type="submit" value="Save Form"/></ww:form></body>
```


The process of events will go as follows:

1. WebWork will take notice since the URI ends in **.action** (defined in our **web.xml** files)
2. WebWork will look up the action **saveForm** in its action hierarchy and call any Interceptors that we might have defined.
3. WebWork will translate **saveForm** and decide we would like to call the method **processForm** in our class **com.acme.FormAction** as defined in our **xwork.xml** file.
4. Our method will process successfully and give WebWork the **SUCCESS** return parameter.
5. WebWork will translate the **SUCCESS** return parameter into the location **thank_you.jsp** (as defined in **xwork.xml**) and redirect us accordingly.

Onward to [Configuration](#) or the [Webwork Tutorial](#)

Lesson 1: Setting up webwork in a web application

For this lesson, you need to have a Servlet container set up and know how to create a web application. If you don't, we suggest you learn about [Apache Tomcat](#), which is a free Servlet container from the Apache Jakarta Project, or Resin, from [Caucho Technology](#), which is free for noncommercial use.

	Notation Throughout these lessons, we'll assume that your web application root is the directory [webapp], and that your Java source files are kept in [src].
---	--

To install WebWork in a web application:


1. Download WebWork. The current version can be found at [WebWork's home page](#). This tutorial is based on version 2.1.7.
2. Set up an empty web application. For example, if you are using Tomcat, this will have something like the following directories (the directory "webwork-lessons" is referred to as [webapp] in these lessons):

```
[the tomcat root directory]
\|_webapps
  \|_webwork-lessons
    \|_WEB-INF
      \|_classes
      \|_lib
```

3. Copy the required WebWork libraries to your web application:

- copy webwork-2.1.7.jar to [webapp]/WEB-INF/lib ,
- copy lib/core/*.jar to [webapp]/WEB-INF/lib (not to [webapp]/WEB-INF/lib/core).

1. Configure `[webapp]/WEB-INF/web.xml`, and create `[webapp]/WEB-INF/classes/xwork.xml` and `[webapp]/WEB-INF/classes/validators.xml`, as described below.

	<p>WebWork jar name</p> <p>If you have a later version of WebWork than 2.1.7, the WebWork jar will not be named <code>webwork-2.1.7.jar</code>. Be sure to replace all occurrences of this jar's name below with the name of the jar you are using.</p>
---	--

web.xml:

Create the following `web.xml` file in `[webapp]/WEB-INF`. If you already have a `web.xml` file, just add the content of the `<web-app>` tag below to your existing `<web-app>` tag.

```
<?xml version="1.0"?>
<!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application
2.3//EN" "http://java.sun.com/dtd/web-app_2_3.dtd">

<web-app><display-name>My WebWork
Application</display-name><servlet><servlet-name>webwork</servlet-name><servlet-class>com.opensymphony.webwork.servlet.ServletDispatcher</servlet-class></web-app>
```

This registers `ServletDispatcher` as a servlet, and maps it to the suffix `*.action`. We will go into this more in the section on Actions in the [next lesson](#). WebWork's taglib descriptor allows WebWork tags to be used (see [lesson 4.1](#)).

Read more: [web.xml](#)

xwork.xml:

Create the following file `xwork.xml` in `[webapp]/WEB-INF/classes/`.

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"></package></xwork>
```

For now, this xwork.xml does only two things:

- It informs WebWork that it should import the configuration information from webwork-default.xml. (This file is located at the root of the webwork-2.1.7.jar, so it is sure to be found.)
- It defines a default package (with the <package> section) where WebWork elements like actions, results and interceptors are registered.

Read more: [xwork.xml](#)

validators.xml:

Create a file validators.xml in [webapp]/WEB-INF/classes/ with the following content:

```
<validators>
  <validator name="required"
    class="com.opensymphony.xwork.validator.validators.RequiredFieldValidator"/>
  <validator name="requiredstring"
    class="com.opensymphony.xwork.validator.validators.RequiredStringValidator"/>
  <validator name="int"
    class="com.opensymphony.xwork.validator.validators.IntRangeFieldValidator"/>
  <validator name="date"
    class="com.opensymphony.xwork.validator.validators.DateRangeFieldValidator"/>
  <validator name="expression"
    class="com.opensymphony.xwork.validator.validators.ExpressionValidator"/>
  <validator name="fieldexpression"
    class="com.opensymphony.xwork.validator.validators.FieldExpressionValidator"/>
  <validator name="email"
    class="com.opensymphony.xwork.validator.validators.EmailValidator"/>
  <validator name="url"
    class="com.opensymphony.xwork.validator.validators.URLValidator"/>
  <validator name="visitor"
    class="com.opensymphony.xwork.validator.validators.VisitorFieldValidator"/>
  <validator name="conversion"
    class="com.opensymphony.xwork.validator.validators.ConversionErrorFieldValidator"/>
</validators>
```

This file defines the validators used, for example, for validating html form fields.

Read more: [Validation](#)

All Set Up!

Restart your servlet container (for example, restart Tomcat), and your webapp should be ready for use as a skeleton WebWork application.

To test whether everything is working, create `[webapp]/test.jsp`:

```
<html>
<body>
Hello html world
<hr/>
<%
    out.println("Hello jsp world.");
%>
</body>
</html>
```

If you can load this file in your browser and see the two Hello messages, your web application is working.

[Next Lesson](#)

Lesson 2: An html form with no data

In this lesson, we are going to create a JSP with a form which, when submitted, loads a different JSP page saying "Hello, WebWorld!". To do that, we are going to write our first WebWork **action**.

Background: what are actions?

In JSP programming, submitting a form typically loads another JSP page where the form is processed using `request.getProperty()`. The form html looks like: `<form action="foo.jsp">`.

When you submit an html form using WebWork, the form is sent to a Java class that you write yourself, not to a JSP page. These classes are called WebWork **actions**. The form html typically looks like: `<form action="foo.action">`.

In a Model-View-Controller approach, the WebWork action is part of the Controller, leaving to JSP pages what they do best: the View. (If you don't know what a Model-View-Controller is, don't worry about this.)

The code

These are typical steps for creating a form and its action:

1. Create a JSP page with a form that calls the action.
2. Create the action class.
3. Register the action in `xwork.xml`.
4. Create a JSP page that will display the result.

5. Compile the action class. If necessary, restart your webapp.



Watch out for typos!

If something doesn't work properly, the first thing you'll want to do in this lesson is check all the files for typos, both in the files themselves as well as in the file names. This is a common source of errors.

1. Create a JSP page with a form that calls the action

Past this code into file called `page02.jsp`.

```
<html><head><title>A simple form with no data</title></head><body><p>Click the  
button below to activate Form02Action.</p><form action="form02.action"  
method="post"><p><input type="submit" value="Click me." /></p></form></body></html>
```

This is a form with no entry fields, just a submit button. Notice that the form's action attribute doesn't point to a jsp page, but to something strange called `form02.action`. We'll soon see why.

2. Create the action class

We are now going to create a Java class that will be part of the Java package "lessons". It doesn't matter where you keep this and other .java files; for example, they could be in these directories (if you are using Windows):

```
c:  
 \_java  
   \_src  
     \_lessons
```

In these lessons, the above "src" directory is referred to as [src].

All our Java classes will be compiled to [webapp]/WEB-INF/classes. You'll have to

include all the [webapp]/WEB-INF/lib/*.jar files in your CLASSPATH in order to compile these classes.

Paste this code into a file [src]/lessons/Form02Action.java:

```
package lessons;

import com.opensymphony.xwork.ActionSupport;

public class Form02Action extends ActionSupport {
    String hello;

    publicString getHello() {
        return hello;
    }

    publicString execute() throws Exception {
        hello = "Hello, WebWorld!";
        return SUCCESS;
    }
}
```

3. Register the action in xwork.xml

Edit the xwork.xml file as shown below, adding the form02 action and something called an interceptor to the default package.

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"><!-- Default interceptor stack.
--><default-interceptor-ref name="defaultStack" /><!-- 02 --><action name="form02"
class="lessons.Form02Action"><result name="success"
type="dispatcher">page02-success.jsp</result></action></package></xwork>
```

Read more: [xwork.xml](#)

4. Create a JSP page that will display the result

Paste this code into a file [webapp]/page02-success.jsp:

```
<%@ taglib uri="webwork" prefix="ww" %><html><head><title>Success page for form with  
no data</title></head><body><ww:property value="hello" /></body></html>
```

Try it

Don't forget to compile your action to [webapp]/WEB-INF/classes, and to restart your web application if necessary.

Go ahead and try it now: click the form submit button on page02.jsp and see what happens. You should see a page that says "Hello, WebWorld!".

How the code works

The above four files work together like this.

- You click the form submit button on page02.jsp, sending it to your web application server.
- The server receives the request for `helloWebWebWorld.action`. Looking in [webapp]/WEB-INF/web.xml, it sees that all *.action requests are to be handed off to `com.opensymphony.webwork.dispatcher.ServletDispatcher`. Essentially, the request is handed to WebWork now.
- WebWork looks in `xwork.xml` for an action named "form02". There it finds that this corresponds to the class "lessons/Form02Action," instantiates it, and calls its `execute()` method.
- `execute()` returns SUCCESS, and WebWork looks again in `xwork.xml` to see what page to load if SUCCESS is returned. It finds the page "form02-success.jsp".
- The page page02.jsp is processed (the `<ww:property value="hello" />` tag calls the getter `getHello()` of Form02Action) and sent back to the browser.

To sum up: with WebWork, all html forms are sent to actions. The actions return constants like SUCCESS to specify (via `xwork.xml`) what page to return.

In this example, the form contained no data. In the next lesson, we'll see how to send form data to an action. Since page02-success.jsp called a getter of the action, you

might guess that the form fields are going to call setters. You'd be right.

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Lesson 3: An html form with data

In this lesson, we will create a form in which you can enter your name. For example, if you enter "Bob" and click the submit button, you'll get a page saying "Hello, Bob!". If you don't enter a name, you'll get a screen saying: "Hmm, you don't seem to have entered a name. Go back and try again please."

As before, we set everything up in four steps: create the form, create the action, register the action, and create the landing page (or in this case, pages).

1. Create the form

Paste this html into [webapp]/page03.jsp:

```
<html><head><title>A simple form with data</title></head><body><p>What is your
name?</p><form action="form03.action" method="post"><p><input type="text"
name="yourName"></p><p><input type="submit" value="Submit your name."
/></p></form></body></html>
```

2. Create the form action

Paste this code into [src]/lessons/Form03Action.java:

```
package lessons;

import com.opensymphony.xwork.ActionSupport;

public class Form03Action extends ActionSupport {

    String yourName;

    public void setYourName(String p_yourName) {
        yourName = p_yourName;
    }
}
```

```

publicString getYourName() {
    return yourName;
}

publicString execute() throws Exception {
    if (yourName == null || yourName.length() == 0)
        return ERROR;
    else return SUCCESS;
}
}

```

3. Register the action in xwork.xml:

Edit [webapp]/WEB-INF/classes/xwork.xml:

```

<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"><!-- Default interceptor stack.
--><default-interceptor-ref name="defaultStack" /><!-- 02 --><action name="form02"
class="lessons.Form02Action"><result name="success"
type="dispatcher">page02-success.jsp</result></action><!-- 03 --><action
name="form03" class="lessons.Form03Action"><result name="success"
type="dispatcher">page03-success.jsp</result><result name="error"
type="dispatcher">page03-error.jsp</result></action></package></xwork>

```

4. Create the success and error pages

Create [webapp]/page03-success.jsp:

```

<%@ taglib uri="webwork" prefix="ww" %><html><head><title>Success page for form with
data</title></head><body>

Hello, <ww:property value="yourName" />!

</body></html>

```

Create [webapp]/page03-error.jsp:

```

<html><head><title>Error page for form with data</title></head><body>

Hmm, you don't seem to have entered a name. Go back and try again please.

</body></html>

```

Try it

Don't forget to compile your action to [webapp]/WEB-INF/classes, and to restart your web application if necessary.

Go ahead and try it now: click the form submit button and see what happens. Try it with and without entering a name.

How the code works

There are only two differences between this example and the previous lesson.

- When the action is called, its `setYourName()` setter is called with the contents of the form field named `yourName`.
- After the action has been called (which is when its `execute()` method returns), `WebWork` has two options. If `ERROR` is returned, `WebWork` will return `page03-error.jsp`; if `SUCCESS`, `page03-success.jsp`. Just as in the last lesson, the `<ww:property>` tag calls the action's getter (in this case, `getYourName()`).

[Lesson 2 - An html form with no data](#) | [Lesson 4 - An html form with data, without getters or setters](#)

Lesson 4: An html form with data, without getters or setters

For the form field named "yourName" in the previous lesson, we also had to create the getters and setters `getYourName()` and `setYourName()` in the action, as well as the private variable `yourName`. With dozens of forms and hundreds of form fields, you'll be typing thousands of getters and setters. That can get old fast. In this lesson, we'll repeat the last lesson, but without any of that extra typing.

1. Create the html form

Use the same JSP form from the previous lesson, but change the form action to `page04.action`:

```
<html><head><title>A simple form with data</title></head><body><p>What is your
name?</p><form action="form04.action" method="post"><p><input type="text"
name="yourName"></p><p><input type="submit" value="Submit your name."
/></p></form></body></html>
```

2. Create the form action

Paste this code into `[src]/lessons/Form04Action.java`:

```
package lessons;

import com.opensymphony.xwork.ActionSupport;
import com.opensymphony.webwork.interceptor.ParameterAware;

import java.util.Map;

public class Form04Action extends ActionSupport implements ParameterAware {

    Map parameters;

    public Map getParameters() {
```

```

    return parameters;
}

public void setParameters(Map parameters) {
    this.parameters = parameters;
}

public String execute() {
    String[] yourName = (String[]) parameters.get("yourName");
    if(yourName == null || yourName[0] == null || yourName[0].length() == 0)
        return ERROR;
    else return SUCCESS;
}
}

```

Register the action in xwork.xml:

Edit [webapp]/WEB-INF/classes/xwork.xml:

```

<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"><!-- Default interceptor stack.
--><default-interceptor-ref name="defaultStack" /><!-- 02 --><action name="form02"
class="lessons.Form02Action"><result name="success"
type="dispatcher">page02-success.jsp</result></action><!-- 03 --><action
name="form03" class="lessons.Form03Action"><result name="success"
type="dispatcher">page03-success.jsp</result><result name="error"
type="dispatcher">page03-error.jsp</result></action><!-- 04 --><action name="form04"
class="lessons.Form04Action"><result name="success"
type="dispatcher">page04-success.jsp</result><result name="error"
type="dispatcher">page03-error.jsp</result><interceptor-ref
name="servlet-config" /></action></package></xwork>

```

Create the success and error pages

We'll use the same error page, but create a slightly different success page page04-success.jsp. The only difference is the <ww:property> tag.

```

<%@ taglib uri="webwork" prefix="ww" %><html><head><title>Success page for form with
data</title></head><body>

Hello, <ww:property value="parameters.yourName" />!

</body></html>

```

Try it

Don't forget to compile your action to [webapp]/WEB-INF/classes, and to restart your web application if necessary.

Go ahead and try it now. Load `page04.jsp`, enter "Bob" in the text field, and click the form submit button. You should see `page04-success.jsp` saying "Hello, Bob!"

How the code works

You've probably figured out what is going on just from looking at the code.

Instead of a setter `setYourName()` setting a private variable `yourName` in the action, `setParameters()` magically extracts everything from the JSP request object and puts into a private local Map `parameters`. Then `execute()`, instead of looking for a `yourName` variable, is able to get the value of the "yourName" field from `parameters`. So far so good .

Back on the `page04-success.jsp` page, `<ww:property value="yourName" />` isn't going to work any more, because there is no `getYourName()` getter in the action. Instead, `<ww:property value="parameters.yourName" />` calls the `getParameters()` getter, and is able to get the value of the "yourName" field. Pretty neat!

We haven't covered how to handle radio buttons, checkboxes, and other strange html form fields. That involves dealing with the fact that every entry in the `parameters` Map is a `String[]`. We'll cover this in a later lesson.

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Lesson 5: Views

There are some different technologies that you could use as the view, i.e., to construct the user interface:

Lesson 5.1 - Java Server Pages

JSP is the common choice, because most Java web developers are already familiar with the technology. This lesson assumes you already have experience with Java Server Pages and demonstrates how you can use the WebWork features in JSP, mostly by using WebWork tags.

[Go to lesson 4.1](#) (Currently named 4.x while documentation is being rewritten.)

Lesson 5.2 - Velocity

Velocity is a Java-based template engine that provides a simple, but powerful, template language that replaces JSP and allows for separation of concerns. This lesson assumes that you are already familiar with Velocity and teaches you how to use WebWork features from it.

[Go to lesson 4.2](#) (Currently named 4.x while documentation is being rewritten.)

Lesson 5.3 - Freemarker

Designed for MVC pattern, Freemarker is another Java-based template engine that provides a powerful template language that replaces JSP, but can remain JSP-compatible with a JSP taglib support. This lesson teaches you how to use

WebWork and Freemarker together.

[Go to lesson 5.3](#) (Currently named 4.x while documentation is being rewritten.)

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Lesson 4.1: Using JSP as the View

When using JSP to render the views, you can choose to access the action's data using scriptlets or tags. Tags are the recommended approach.

Accessing Action Data through Scriptlets:

Action data can be accessed through an object called *Value Stack*. The example below does the same thing as the result page of [lesson 3](#)'s second example (*Supplying Data to the Action*), but using scriptlets:

```
<%@ page import="com.opensymphony.xwork.util.OgnlValueStack"
%><html><head><title>WebWork Tutorial - Lesson 4.1 - Lesson 3's example
modified</title></head><body>

<%
OgnlValueStack stack = (OgnlValueStack)request.getAttribute("webwork.valueStack");
out.write("Hello, " + stack.findValue("person"));
%>

</body></html>
```

WebWork tags, however, are recommended over scriptlets. For instance, `<ww:property />` tags do exactly what the scriptlet above does, with a cleaner syntax and also handles the case where the Value Stack doesn't exist.

WebWork Tag Library:

We've already showed in [lesson 3](#)'s example how to access an action's property using tags. This section describes and exemplifies the use of the WebWork Tag Library, which can be divided in seven categories:

- **Common tags:** the most frequently used, basic tags;

- **Componentisation tags:** foster componentisation within your views;
- **Flow control tags:** govern the flow of control within the JSP page;
- **Iteration tags:** iterate over elements and manipulate iterable objects;
- **UI tags:** generate HTML form fields and controls;
- **VUI tags:** *volunteers needed to write this part*;
- **Internationalisation tags:** internationalise your views.

Common tags

<code><ww:property /></code>	Gets the value of a result attribute. If the value isn't given, the top of the stack will be returned.
<code><ww:push /></code>	Pushes a value onto the Value Stack.
<code><ww:param /></code>	Sets a parent tag's parameter. This tag is used only inside another tag to set the value of some property of the parent tag.
<code><ww:set /></code>	Sets the value of an object in the Value Stack to a scope (page, stack, application, session). If the value is not given, the top of the stack is used. If the scope is not given, the default scope of "webwork" is used.
<code><ww:url /></code>	Builds an encoded URL.

EXAMPLE NEEDED.

Componentisation tags

<code><ww:action /></code>	Executes an Action from within the context of a taglib. The body of the tag is used to display the results of the action invocation.
<code><ww:bean /></code>	Creates a JavaBean, instantiate its properties and place it in the ActionContext for later use.
<code><ww:include /></code>	Includes another page or action.

EXAMPLE NEEDED.

Flow control tags

This if-else set of tags works just like if-else scriptlets.

<code><ww:if /></code>	Conditional execution path. That is, evaluates the tag body if a boolean expression is true.
<code><ww:else /></code>	Negative execution path for the if tag. That is, if the preceeding conditional tag's boolean expression evaluated to false, then evaluate this tag's body.
<code><ww:elseif /></code>	Negative conditional execution path for the if tag. That is, if the preceeding conditional tag's boolean expression evaluated to false and if this tag's boolean expression evaluates to true, then evaluate this tag's body.

EXAMPLE NEEDED.

Iteration tags

<code><ww:iterator /></code>	Iterates over a collection.
<code><ww:generator /></code>	Generates iterators.
<code><ww:append /></code>	Appends several iterators.
<code><ww:subset /></code>	Gets a subset of an iterator.
<code><ww:merge /></code>	Merges several iterators into one.
<code><ww:sort /></code>	Sorts an iterator.

EXAMPLE NEEDED.

UI tags

The UI tags wrap generic HTML controls while providing tight integration with the core framework. The tags have been designed to minimize the amount of logic in compiled code and delegate the actual rendering of HTML to a template system. The UI tags attempt to cover the most common scenarios, while providing a Component Tag for creating custom components. The UI tags also provide built-in support for displaying inline error messages.

There is a separate lesson about WebWork UI Tags which explains in detail how they work, how you could customize their appearance through the use of templates, how to create custom components, etc.

[Go to WebWork UI Tags Lesson.](#)

VUI(Voice UI) tags

<code><ww:audio /></code>	???
<code><ww:prompt /></code>	???
<code><ww:filled /></code>	???
<code><ww:log /></code>	???

Volunteers needed to write this part.

Internationalisation tags

<code><ww:text /></code>	Prints out an internationalized string.
<code><ww:i18n /></code>	Places a resource bundle on the Value Stack, for access by the text tag.

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Lesson 4.1.1: WebWork UI Tags

In WebWork, the UI tags wrap generic HTML controls while providing tight integration with the core framework. The tags have been designed to minimize the amount of logic in compiled code and delegate the actual rendering of HTML to a template system. The UI tags attempt to cover the most common scenarios, while providing a Component Tag for creating custom components. The UI tags also provide built-in support for displaying inline error messages.

This lesson tries to explain how to take advantage of the UI tags to build forms and other graphical controls and, by explaining how the template system works, teaches you how to change the look of existing components and create your own UI components.

Building forms:

WebWork comes with ready-to-use tags to construct forms. Some of these tags relate directly to HTML tags that are used to make forms and you probably can figure them out by their names: `<ww:checkbox />`, `<ww:file />`, `<ww:form />`, `<ww:hidden />`, `<ww:label />`, `<ww:password />`, `<ww:radio />`, `<ww:select />`, `<ww:submit />`, `<ww:textarea />` and `<ww:textfield />`.

To build forms with these tags, place them in your page as you would do with the HTML tags. The only difference is that the parameters should be enclosed in double quotes and single quotes (`key='value'`). That's because names that are not single-quoted are evaluated against the Value Stack.

Let's check out an example:

ex01-index.jsp:

```

<%@ taglib uri="webwork" prefix="ww" %><html><head><title>WebWork Tutorial - Lesson
4.1.1 - Example 1</title><meta http-equiv="Content-Type" content="text/html;
charset=iso-8859-1"><style type="text/css">
    .errorMessage { color: red; }
</style></head><body><p>UI Form Tags Example:</p><ww:form
action="'formProcessing.action'" method="'post'"><ww:checkbox name="'checkbox'"
label="'A checkbox'" fieldValue="'checkbox_value'" /><ww:file name="'file'"
label="'A file field'" /><ww:hidden name="'hidden'" value="'hidden_value'"
/><ww:label label="'A label'" /><ww:password name="'password'" label="'A password
field'" /><ww:radio name="'radio'" label="'Radio buttons'" list="{ 'One', 'Two',
'Three' }" />
    <ww:select name="'select'" label="'A select list'" list="{ 'One', 'Two',
'Three' }"
        emptyOption="true" />
    <ww:textarea name="'textarea'" label="'A text area'" rows="3" cols="40"
/><ww:textfield name="'textfield'" label="'A text field'" /><ww:submit value="'Send
Form'" /></ww:form></body></html>

```

HTML result after processing ex01-index.jsp:

```

<html><head><title>WebWork Tutorial - Lesson 4.1.1 - Example 1</title><style
type="text/css">
    .errorMessage { color: red; }
</style></head><body><p>UI Form Tags Example:</p><table>
<form
action="formProcessing.action" method="post" >

<tr><td valign="top" colspan="2"><table width="100%" border="0" cellpadding="0"
cellspacing="0"><tr><td valign="top">
<input type="checkbox"
name="checkbox"
value="checkbox_value"
/>
</td><td width="100%" valign="top"><span class="checkboxLabel">
A checkbox
</span></td></tr></table></td></tr><tr><td align="right" valign="top"><span
class="label">

A file field:
</span></td><td>

<input type="file"
name="file"
/>

</td></tr>

    <input
type="hidden"
name="hidden" value="hidden_value" />

```

```

<tr><td align="right" valign="top"><span class="label">

A label:
</span></td><td><label></label></td></tr><tr><td align="right" valign="top"><span
class="label">

A password field:
</span></td><td>

<input type="password"
name="password"

/>

</td></tr><tr><td align="right" valign="top"><span class="label">

Radio buttons:
</span></td><td>

<input
type="radio"
name="radio"
id="radioOne"
value="One" />
<label for="radioOne">One</label>

<input
type="radio"
name="radio"
id="radioTwo"
value="Two" />
<label for="radioTwo">Two</label>

<input
type="radio"
name="radio"
id="radioThree"
value="Three" />
<label for="radioThree">Three</label></td></tr><tr><td align="right"
valign="top"><span class="label">

A select list:
</span></td><td>

<select name="select"
>

<option value=""></option>

```



```

<option value="One"
>One</option>

<option value="Two"
>Two</option>

<option value="Three"
>Three</option></select></td></tr><tr><td align="right" valign="top"><span
class="label">

A text area:
</span></td><td>

<textarea name="textarea"
cols="40"
rows="3"
></textarea></td></tr><tr><td align="right" valign="top"><span class="label">

A text field:
</span></td><td>

<input type="text"
name="textfield"
/>

</td></tr><tr><td colspan="2"><div
align="right" ><input
type="submit"
value="Send Form" /></div></td></tr></form></table></body></html>

```

xwork.xml:

```

<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"><action name="formProcessing"
class="lesson04_01_01.FormProcessingAction"><result name="input"
type="dispatcher">ex01-index.jsp</result><result name="success"
type="dispatcher">ex01-success.jsp</result><interceptor-ref
name="validationWorkflowStack" /></action></package></xwork>

```

FormProcessingAction.java:

```
package lesson04_01_01;

import com.opensymphony.xwork.ActionSupport;

public class FormProcessingAction extends ActionSupport {
    privateString checkbox;
    privateString file;
    privateString hidden;
    privateString password;
    privateString radio;
    privateString select;
    privateString textarea;
    privateString textfield;

    publicString getCheckbox() { return checkbox; }
    publicString getFile() { return file; }
    publicString getHidden() { return hidden; }
    publicString getPassword() { return password; }
    publicString getRadio() { return radio; }
    publicString getSelect() { return select; }
    publicString getTextArea() { return textarea; }
    publicString getTextfield() { return textfield; }

    public void setCheckbox(String checkbox) { this.checkbox = checkbox; }
    public void setFile(String file) { this.file = file; }
    public void setHidden(String hidden) { this.hidden = hidden; }
    public void setPassword(String password) { this.password = password; }
    public void setRadio(String radio) { this.radio = radio; }
    public void setSelect(String select) { this.select = select; }
    public void setTextarea(String textarea) { this.textarea = textarea; }
    public void setTextfield(String textfield) { this.textfield = textfield; }

    publicString execute() throws Exception {
        return SUCCESS;
    }
}
```

FormProcessingAction-validation.xml:

```
<!DOCTYPE validators PUBLIC "-//OpenSymphony Group//XWork Validator
1.0//EN" "http://www.opensymphony.com/xwork/xwork-validator-1.0.dtd">

<validators><field name="checkbox"><field-validator
type="requiredstring"><message>Please, check the
checkbox.</message></field-validator></field><field name="file"><field-validator
type="requiredstring"><message>Please select a
file.</message></field-validator></field><field name="password"><field-validator
type="requiredstring"><message>Please type something in the password
field.</message></field-validator></field><field name="radio"><field-validator
type="requiredstring"><message>Please select a radio
button.</message></field-validator></field><field name="select"><field-validator
type="requiredstring"><message>Please select an option from the
```

```
</field-validator></field><field name="textarea"><field-validator
type="requiredstring"><message>Please type something in the text
area.</message></field-validator></field><field name="textfield"><field-validator
type="requiredstring"><message>Please type something in the text
field.</message></field-validator></field></validators>
```

ex01-success.jsp:

```
<%@ taglib uri="webwork" prefix="ww" %><html><head><title>WebWork Tutorial - Lesson
4.1.1 - Example 1</title></head><body><p>UI Form Tags Example
result:</p><ul><li>checkbox: <ww:property value="checkbox" /></li><li>file:
<ww:property value="file" /></li><li>hidden: <ww:property value="hidden"
/></li><li>password: <ww:property value="password" /></li><li>radio: <ww:property
value="radio" /></li><li>select: <ww:property value="select" /></li><li>textarea:
<ww:property value="textarea" /></li><li>textfield: <ww:property value="textfield"
/></li></ul></body></html>
```

Notice how much cleaner `ex01-index.jsp` is, compared to its HTML result. The default layout of the form components is a table layout, with the label on the left column and the field to the right. You can learn how to create your own layouts when we explain the template system, below.

Another thing to notice is the reference to the `validationWorkflowStack` in the action's configuration. This makes WebWork validate the parameters that are sent to our actions according to a configuration file we place in the same location as the action class – in our case, `FormProcessingAction-validation.xml` (see [Validation](#)). In case something is not valid, it prevents the action from executing and dispatches the request to the input result with error messages attached to each field (using the method `addFieldError(String fieldName, String errorMessage)`).

But don't worry about how the validation framework works for now. Run the example and try leaving some fields blank. You will see that the UI tags provide error messages that integrate with the validation framework and that's what we want to demonstrate here. This separation of concerns can help programmers and designers concentrate more on their part of the work.

Try the example!

Other UI Controls:

Besides the standard form controls that HTML designers are already familiar with, WebWork provides some other controls and also the ability to create a custom control. Let's take a look at the custom controls that are already provided by WebWork:

<code><ww:checkboxlist /></code>	Works just like the <code><ww:radio /></code> tag, but with check boxes instead of radio buttons. It gets the keys and values from a collection and creates a list of checkboxes, all with the same name.
<code><ww:combobox /></code>	Simulates a combo box, which is a control that mixes a selection list with a text field. It does this by placing a text field with a <code><select /></code> list right below it and a JavaScript code that fills the text field with the selection of the list every time it changes.
<code><ww:tabbedpane /></code>	<i>Help needed here.</i>
<code><ww:token /></code>	<i>Help needed here.</i>

The Template System:

WebWork uses the Velocity template system to render the actual HTML output for all UI tags. A default implementation of all templates has been included with the core distribution allowing users to use WebWork's UI tags "out of the box". Templates can be edited individually or replaced entirely allowing for complete customization of the resulting HTML output. In addition, the default template can be overridden on a per tag basis allowing for a very fine level of control. The default templates are located in the `webwork-2.1.1.jar` file under `/template/xhtml`.

If you unpack `webwork-2.1.1.jar` and look under the `/template/xhtml` directory you will see a bunch of velocity templates. Most of them correspond to a specific UI Tag, and those have the name of the tag they render. If you're familiar with Velocity, I recommend you analyse the template files to see what you're capable of doing with them. Since version 2.1, there's also a `/template/simple` directory, which is a simpler version of the HTML form controls (just the control, no table or label).

If you want to display your UI components in a different layout than the one that comes with WebWork, you can:

- Edit and replace the files in `/template/xhtml` (repack the JAR or create the same directory structure somewhere else and make sure your container looks that path before the JAR);
- Change the location of the templates by editing the `webwork.ui.theme` property in `webwork.properties` (file that should be placed in the root of your classpath);
- Specifying the location of the templates for each tag individually using the `theme` or the `template` property. The former allows you to specify the directory where all templates are (thus, WebWork looks for templates with the same name as the ones in `/template/xhtml`), while the latter allows you to indicate the exact template to be used for that component.

Read more: [Themes and Templates](#)

The third approach is demonstrated in the example below. Note that, by default, the specified theme directory should be under `/template` and the specified template file should be under `/template/xhtml`.

ex02.jsp:

```
<%@ taglib uri="webwork" prefix="ww" %><html><head><title>WebWork Tutorial - Lesson 4.1.1 - Example 2</title></head><body><p>Template Change Example:</p><p><ww:checkbox name="checkbox" label="A checkbox" fieldValue="checkbox_value" theme="mytheme" /></p><p><ww:textfield name="textfield" label="A text field" template="mytextfield.vm" /></p></body></html>
```

/template/mytheme/checkbox.vm:

```
<div align="center">
  <input type="checkbox"
    name=" ${webwork.htmlEncode($parameters.name)} "
    value=" ${webwork.htmlEncode($parameters.fieldValue)} "
    #if ($parameters.nameValue) checked="checked" #end
    #if ($parameters.disabled == true) disabled="disabled" #end
```

```

    #if ($parameters.tabindex) tabindex="$!webwork.htmlEncode($parameters.tabindex)"
#end
    #if ($parameters.onChange) onChange="$!webwork.htmlEncode($parameters.onChange)"
#end
    #if ($parameters.id) id="$!webwork.htmlEncode($parameters.id)" #end
    /><br />
    $!webwork.htmlEncode($parameters.label)
</div>

```

/template/xhtml/mytextfield.vm:

```

<div align="center">
    <input type="text"
        name="$!webwork.htmlEncode($parameters.name)"
        #if ($parameters.size) size="$!webwork.htmlEncode($parameters.size)" #end
        #if ($parameters.maxlength)
maxlength="$!webwork.htmlEncode($parameters.maxlength)" #end
        #if ($parameters.nameValue) value="$!webwork.htmlEncode($parameters.nameValue)"
#end
        #if ($parameters.disabled == true) disabled="disabled" #end
        #if ($parameters.readonly) readonly="readonly" #end
        #if ($parameters.onkeyup) onkeyup="$!webwork.htmlEncode($parameters.onkeyup)"
#end
        #if ($parameters.tabindex) tabindex="$!webwork.htmlEncode($parameters.tabindex)"
#end
        #if ($parameters.onChange) onChange="$!webwork.htmlEncode($parameters.onChange)"
#end
        #if ($parameters.id) id="$!webwork.htmlEncode($parameters.id)" #end
    /><br />
    $!webwork.htmlEncode($parameters.label)
</div>

```

HTML result after processing ex02.jsp:

```

<html><head><title>WebWork Tutorial - Lesson 4.1.1 - Example
2</title></head><body><p>Template Change Example:</p><p><div align="center">
    <input type="checkbox"
        name="checkbox"
        value="checkbox_value"
    /><br />
    A checkbox
</div></p><p><div align="center">
    <input type="text"
                                name="textfield"
                                /><br />
    A text field
</div></p></body></html>

```

Try the example!

Building Customized UI Components:

There are some situations in which none of the UI Components that come bundled with WebWork fit your requirements. In this case, the recommended approach would be to create your own custom component. In this way, you keep your web page clean of layout and error-checking issues and also promote component reuse.

To create a custom component, just create a Velocity template for it, just like the ones that already exist. To place it in a web page, use the `<ww:component />` tag and specify the location of the template in its `template` parameter.

To pass parameters to be used by your template, use the `<ww:param />` tag (see [lesson 4.1](#)). The example below demonstrates the creation of a custom date field.

ex03.jsp:

```
<%@ taglib uri="webwork" prefix="ww" %><html><head><title>WebWork Tutorial - Lesson
4.1.1 - Example 3</title></head><body><p>Custom Component
Example:</p><p><ww:component template="datefield.vm"><ww:param name="'label'"
value="'Date'" /><ww:param name="'name'" value="'mydatefield'" /><ww:param
name="'size'" value="3" /></ww:component></p></body></html>
```

/template/xhtml/datefield.vm:

```
#set ($name = $parameters.get('name'))
#set ($size = $parameters.get('size'))
#set ($yearSize = $size * 2)

$parameters.get('label'):
<input type="text" name="${name}.day" size="$size" /> /
<input type="text" name="${name}.month" size="$size" /> /
<input type="text" name="${name}.year" size="$yearSize" /> (dd/mm/yyyy)
```

HTML result after processing ex03.jsp:

```
<html><head><title>WebWork Tutorial - Lesson 4.1.1 - Example
3</title></head><body><p>Custom Component Example:</p><p>
Date:
```

```
<input type="text" name="mydatefield.day" size="3" /> /  
<input type="text" name="mydatefield.month" size="3" /> /  
<input type="text" name="mydatefield.year" size="6" /> (dd/mm/yyyy)  
</p></body></html>
```

Try the example!

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Lesson 4.2: Using Velocity with WebWork

There are two ways of using Velocity as the view.

- Using the `velocity` result-type to render velocity templates;
- Registering `WebWorkVelocityServlet` in your `web.xml` file to render Velocity templates accessed directly through browser requests.

To use the second approach, we have to modify `web.xml` and add a servlet and a servlet mapping for `WebWorkVelocityServlet`, as demonstrated below:

```
<servlet><servlet-name>velocity</servlet-name><servlet-class>com.opensymphony.webwork.views.velocity
```

Read more: [xwork.xml](#)

Using `velocity` result-type means that Velocity templates can only be rendered through an action, i.e., request to `.vm` pages will not render the file and it will be returned as plain text. If you choose this approach, it's recommended that you place your Velocity files under `WEB-INF` so they become unaccessible.

Using `WebWorkVelocityServlet` means that Velocity templates can be rendered through requests to `.vm` pages. That also means that you should implement security checks in your templates so an user doesn't access it directly without going through an action first (if that is required).

No matter which approach you choose (and you can choose to use both at the same time), not only all the features from Velocity are available to you when you're writing templates, but also some other functionalities, specific of WebWork, are available. It is supposed that you are already familiar with Velocity, so we will focus only in the

WebWork-specific features. If that's not the case, please [get started with Velocity](#) before continuing.

The main feature of it is to provide easy access to objects that are on the Value Stack, which contains some things that WebWork provides to you automatically, because you may find them useful at some point. These are some of the things that are available in the value stack:

- The current `HttpServletRequest`;
- The current `HttpServletResponse`;
- The current `OgnlValueStack`;
- An instance of `OgnlTool`;
- All the properties of the current action class.

To access the objects in the value stack, all you have to do is use appropriate Velocity references:

- `$req` = `HttpServletRequest`;
- `$res` = `HttpServletResponse`;
- `$stack` = `OgnlValueStack`;
- `$ognl` = `OgnlTool`;
- `$name-of-property` = property of the current action class.

The example below does the same thing as the Hello example from [lesson 3](#), but now, using a Velocity template as the result. Notice that the `<property value="person" />` tag was replaced by the `$person` reference, which returns the same thing: a property from the action class. In this example we chose to use the *velocity result-type* approach.

xwork.xml:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"><!-- Default interceptor stack.
--><default-interceptor-ref name="defaultStack" /><!-- Action: Lesson 4.2:
HelloAction using Velocity as result. --><action name="helloVelocity"
class="lesson03.HelloAction"><result name="error">
```

```
</result><result name="success"
type="velocity">ex01-success.vm</result></action></package></xwork>
```

HelloAction.java (same as lesson 3):

```
package lesson03;

import com.opensymphony.xwork.ActionSupport;

public class HelloAction extends ActionSupport {
    String person;
    publicString getPerson() {
        return person;
    }
    public void setPerson(String person) {
        this.person = person;
    }
    publicString execute() throws Exception {
        if ((person == null) || (person.length() == 0)) return ERROR;
        elsereturn SUCCESS;
    }
}
```

ex01-index.jsp (same as lesson 3):

```
<html><head><title>WebWork Tutorial - Lesson 3 - Example
2</title></head><body><p>What's your name?</p><form action="helloVelocity.action"
method="post"><p><input type="text" name="person" /><input type="submit"
/></p></form></body></html>
```

ex01-success.vm:

```
<html><head><title>WebWork Tutorial - Lesson 4.2 - Example 1</title></head><body>

Hello, $person

</body></html>
```

Try the example!

Using WebWork Tags from Velocity:

As you already know, when you switch from JSP to Velocity you lose the ability of using JSP Tags. But WebWork's Velocity Servlet provides a way of doing this through the use of #tag, #bodytag and #param velocimacros. The general syntax is:

```
#tag (name-of-tag list-of-attributes)
```

– or –

```
#bodytag (name-of-tag list-of-attributes)
    #param (key value)
    #param (key value)
    ...
#end
```

Let's revisit [lesson 4.1.1](#)'s form example to demonstrate the usage of the UI tags from velocity:

xwork.xml:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"><!-- Default interceptor stack.
--><default-interceptor-ref name="defaultStack" /><!-- Actions: Lesson 4.2:
FormProcessingAction using Velocity. --><action name="formProcessingVelocityIndex"
class="lesson04_02.FormProcessingIndexAction"><result name="success"
type="velocity">ex02-index.vm</result></action><action name="formProcessingVelocity"
class="lesson04_01_01.FormProcessingAction"><result name="input"
type="velocity">ex02-index.vm</result><result name="success"
type="velocity">ex02-success.vm</result><interceptor-ref
name="validationWorkflowStack" /></action></package></xwork>
```

ex02-index.vm:

```
<html><head><title>WebWork Tutorial - Lesson 4.2 - Example 2</title><style
type="text/css">
    .errorMessage { color: red; }
</style></head><body><p>UI Form Tags Example using Velocity:</p>

#bodytag (Form "action='formProcessingVelocity.action'" "method='post'")
    #tag (Checkbox "name='checkbox'" "label='A
checkbox'" "fieldValue='checkbox_value'")
    #tag (File "name='file'" "label='A file field'")
```

```

#tag (Hidden "name='hidden'" "value='hidden_value'")
#tag (Label "label='A label'")
#tag (Password "name='password'" "label='A password field'")
#tag (Radio "name='radio'" "label='Radio buttons'" "list={'One', 'Two', 'Three'}")
#tag (Select "name='select'" "label='A select list'" "list={'One', 'Two',
'Three'}" "emptyOption=true")
#tag (Textarea "name='textarea'" "label='A text area'" "rows='3'" "cols='40'")
#tag (TextField "name='textfield'" "label='A text field'")
#tag (Submit "value='Send Form'")
#end

</body></html>

```

ex02-success.vm:

```

<html><head><title>WebWork Tutorial Lesson 4.2 - Example 2</title></head><body><p>UI
Form Tags Example result using Velocity:</p><ul><li>checkbox:
$!checkbox</li><li>file: $!file</li><li>hidden: $!hidden</li><li>password:
$!password</li><li>radio: $!radio</li><li>select: $!select</li><li>textarea:
$!textarea</li><li>textfield: $!textfield</li></ul></body></html>

```

FormProcessingAction.java (same as lesson 4.1.1):

```

package lesson04_01_01;

import com.opensymphony.xwork.ActionSupport;

public class FormProcessingAction extends ActionSupport {
    privateString checkbox;
    privateString file;
    privateString hidden;
    privateString password;
    privateString radio;
    privateString select;
    privateString textarea;
    privateString textfield;

    publicString getCheckbox() { return checkbox; }
    publicString getFile() { return file; }
    publicString getHidden() { return hidden; }
    publicString getPassword() { return password; }
    publicString getRadio() { return radio; }
    publicString getSelect() { return select; }
    publicString getTextArea() { return textarea; }
    publicString getTextField() { return textfield; }

    public void setCheckbox(String checkbox) { this.checkbox = checkbox; }
    public void setFile(String file) { this.file = file; }
    public void setHidden(String hidden) { this.hidden = hidden; }
    public void setPassword(String password) { this.password = password; }
    public void setRadio(String radio) { this.radio = radio; }
    public void setSelect(String select) { this.select = select; }
    public void setTextArea(String textarea) { this.textarea = textarea; }
    public void setTextField(String textfield) { this.textfield = textfield; }
}

```

```

    publicString execute() throws Exception {
        return SUCCESS;
    }
}

```

FormProcessingAction-validation.xml (same as lesson 4.1.1):

```

<!DOCTYPE validators PUBLIC "-//OpenSymphony Group//XWork Validator
1.0//EN" "http://www.opensymphony.com/xwork/xwork-validator-1.0.dtd">

<validators><field name="checkbox"><field-validator
type="requiredstring"><message>Please, check the
checkbox.</message></field-validator></field><field name="file"><field-validator
type="requiredstring"><message>Please select a
file.</message></field-validator></field><field name="password"><field-validator
type="requiredstring"><message>Please type something in the password
field.</message></field-validator></field><field name="radio"><field-validator
type="requiredstring"><message>Please select a radio
button.</message></field-validator></field><field name="select"><field-validator
type="requiredstring"><message>Please select an option from the
list.</message></field-validator></field><field name="textarea"><field-validator
type="requiredstring"><message>Please type something in the text
area.</message></field-validator></field><field name="textfield"><field-validator
type="requiredstring"><message>Please type something in the text
field.</message></field-validator></field></validators>

```

Try the example!

The example above does not use the `#param` tag. So, let's revisit another example from [lesson 4.1.1](#) - custom components:

ex03.vm:

```

<html><head><title>WebWork Tutorial - Lesson 4.2 - Example
3</title></head><body><p>Custom Component Example:</p><p>
#bodytag (Component "template=datefield.vm")
    #param ("label" "Date")
    #param ("name" "mydatefield")
    #param ("size" "3")
#end
</p></body></html>

```

/template/xhtml/datefield.vm (same as lesson 4.1.1):

```
#set ($name = $parameters.get('name'))
#set ($size = $parameters.get('size'))
#set ($yearSize = $size * 2)

$parameters.get('label'):

```

Notice that, this time, we did not enclose `Date` and `mydatefield` with single quotes, as we had to do when we used the JSP tag.

Try the example!

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- `$stack` = `OgnlValueStack`;
- `$webwork` = `FreemarkerWebWorkUtil`, a toolbox providing services like formatting url, accessing the value stack, etc;
- `$name-of-property` = property retrieved from the value stack. If that fails, it looks up an attribute with that name in the `HttpServletRequest`, `HttpSession` and `ServletContext`, in that order;
- `$Request` = `HttpServletRequest`;
- `$Session` = `HttpServletResponse`;
- `$Application` = `OgnlValueStack`.

The example below does the same thing as example 2 from [lesson 3](#), but now, using Freemarker templates.

xwork.xml:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"><!-- Default interceptor stack.
--><default-interceptor-ref name="defaultStack" /><!-- Action: Lesson 4.3:
HelloAction. --><action name="indexFreemarker"
class="com.opensymphony.xwork.ActionSupport"><result name="success"
type="dispatcher">/WEB-INF/ftl/lesson3/index.ftl</result></action><action
name="helloFreemarker" class="lesson03.HelloAction"><result name="error"
type="dispatcher">/WEB-INF/ftl/lesson3/index.ftl</result><result name="success"
type="dispatcher">/WEB-INF/ftl/lesson3/success.ftl</result></action></package></xwork>
```

HelloAction.java (same as lesson 3):

```
package lesson03;

import com.opensymphony.xwork.ActionSupport;

public class HelloAction extends ActionSupport {
    String person;
    public String getPerson() {
        return person;
    }
    public void setPerson(String person) {
        this.person = person;
    }
    public String execute() throws Exception {
        if ((person == null) || (person.length() == 0)) return ERROR;
        else return SUCCESS;
    }
}
```

ex02-index.ftl

```
<#assign ww=JspTaglibs["/WEB-INF/lib/webwork.tld"] /><html><head><title>WebWork  
Tutorial - Lesson 4.3 - Example 1</title></head><body><p>Click <a  
href="${wwUtil.buildUrl('indexFreemarker.action')}">here</a> to reload this  
page.</p><@ww.form name="nameForm" action="helloFreemarker.action"  
method="POST"><@ww.textfield label="What is your name ?" name="person"  
value="person" size="20"/><@ww.submit name="submit"  
value="Submit"/></@ww.form></body></html>
```

If you don't want to use WebWork's UI Tags, you could do it like this:

ex02-index-notags.ftl

```
<html><head><title>WebWork Tutorial - Lesson 4.3 - Example  
1</title></head><body><p>Click <a  
href="${wwUtil.buildUrl('indexFreemarker.action')}">here</a> to reload this  
page.</p><form name="nameForm" action="${wwUtil.buildUrl('helloFreemarker.action')}"  
method="POST">  
    What is your name ?  
    <input type="text" name="person" value="${person}" size="20"><input  
type="submit" name="submit" value="Submit"></form></body></html>
```

However, if you choose not to use tags, it's recommended that you use Freemarker Macros to write the form elements.

ex02-success.ftl:

```
<#assign ww=JspTaglibs["/WEB-INF/lib/webwork.tld"] /><html><head><title>WebWork  
Tutorial - Lesson 4.3 - Example 1</title></head><body>  
  
Come from the property WW tag (taglibs support) : <@ww.property value="person"/><br>  
Come from the Freemarker lookup in the WW stack : ${person}  
  
</body></html>
```

You can use either WebWork `property` tag or the Freemarker `$person` reference. Both of them return the same thing: a property from the action class.

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Lesson 5: Interceptors

Interceptors allow arbitrary code to be included in the call stack for your action before and/or after processing the action, which can vastly simplify your code itself and provide excellent opportunities for code reuse. Many of the features of XWork and WebWork are implemented as interceptors and can be applied via external configuration along with your own Interceptors in whatever order you specify for any set of actions you define.

In other words, when you access a *.action URL, WebWork's `ServletDispatcher` proceeds to the invocation of the an action object. Before it is executed, however, the invocation can be intercepted by another object, that is hence called interceptor. To have an interceptor executed before (or after) a given action, just configure `xwork.xml` properly, like the example below, taken from [lesson 4.1.1](#):

Interceptor configuration from lesson 4.1.1:

```
<action name="formProcessing" class="lesson04_01_01.FormProcessingAction"><result
name="input" type="dispatcher">ex01-index.jsp</result><result name="success"
type="dispatcher">ex01-success.jsp</result><interceptor-ref
name="validationWorkflowStack" /></action>
```

As you can see, lesson 4.1.1's `formProcessing` Action uses the `validationWorkflowStack`. That is an interceptor stack, which organizes a bunch of interceptors in the order in which they are to be executed. That stack is configured in `webwork-default.xml`, so all we have to do to use it is declare a `<interceptor-ref />` under the action configuration or a `<default-interceptor-ref />`, under package configuration, as seen in [lesson 3](#)'s first example:

Interceptor configuration from lesson 3.1:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"><!-- Default interceptor stack.
--><default-interceptor-ref name="defaultStack" /><!-- Action: Lesson 03:
HelloWebWorldAction. --><action name="helloWebWorld"
class="lesson03.HelloWebWorldAction"><result name="success"
type="dispatcher">ex01-success.jsp</result></action></package></xwork>
```

But let's see how it works from scratch:

1. Create an interceptor class, which is a class that implements the `com.opensymphony.xwork.interceptor.Interceptor` interface (bundled in `xwork-1.0.jar`);
2. Declare the class in your XML configuration file (`xwork.xml`) using the element `<interceptor />` nested within `<interceptors />`;
3. Create stacks of interceptors, using the `<interceptor-stack />` element (*optional*);
4. Determine which interceptors are used by which action, using `<interceptor-ref />` or `<default-interceptor-ref />`. The former defines the interceptors to be used in a specific action, while the latter determines the default interceptor stack to be used by all actions that do not specify their own `<interceptor-ref />`.

Looking inside `webwork-default.xml` we can see how it's done:

webwork-default.xml:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><package name="webwork-default"><result-types>
  <result-type name="dispatcher" default="true"
    class="com.opensymphony.webwork.dispatcher.ServletDispatcherResult"/>
  <result-type name="redirect"
    class="com.opensymphony.webwork.dispatcher.ServletRedirectResult"/>
  <result-type name="velocity"
    class="com.opensymphony.webwork.dispatcher.VelocityResult"/>
  <result-type name="chain"
    class="com.opensymphony.xwork.ActionChainResult"/>
  <result-type name="xslt"
    class="com.opensymphony.webwork.views.xslt.XSLTResult"/>
</result-types><interceptors>
  <interceptor name="timer"
    class="com.opensymphony.xwork.interceptor.TimerInterceptor"/>
  <interceptor name="logger"
    class="com.opensymphony.xwork.interceptor.LoggingInterceptor"/>
```

```

<interceptor name="chain"
  class="com.opensymphony.xwork.interceptor.ChainingInterceptor"/>
<interceptor name="static-params"
  class="com.opensymphony.xwork.interceptor.StaticParametersInterceptor"/>
<interceptor name="params"
  class="com.opensymphony.xwork.interceptor.ParametersInterceptor"/>
<interceptor name="model-driven"
  class="com.opensymphony.xwork.interceptor.ModelDrivenInterceptor"/>
<interceptor name="component"
  class="com.opensymphony.xwork.interceptor.component.ComponentInterceptor"/>
<interceptor name="token"
  class="com.opensymphony.webwork.interceptor.TokenInterceptor"/>
<interceptor name="token-session"
  class="com.opensymphony.webwork.interceptor.TokenSessionStoreInterceptor"/>
<interceptor name="validation"
  class="com.opensymphony.xwork.validator.ValidationInterceptor"/>
<interceptor name="workflow"
  class="com.opensymphony.xwork.interceptor.DefaultWorkflowInterceptor"/>
<interceptor name="servlet-config"
  class="com.opensymphony.webwork.interceptor.ServletConfigInterceptor"/>
<interceptor name="prepare"
  class="com.opensymphony.xwork.interceptor.PrepareInterceptor"/>
<interceptor name="conversionError"
  class="com.opensymphony.webwork.interceptor.WebWorkConversionErrorInterceptor"/>
<interceptor-stack name="defaultStack"><interceptor-ref
name="static-params"/><interceptor-ref name="params"/><interceptor-ref
name="conversionError"/></interceptor-stack><interceptor-stack
name="validationWorkflowStack"><interceptor-ref
name="defaultStack"/><interceptor-ref name="validation"/><interceptor-ref
name="workflow"/></interceptor-stack></interceptors></package></xwork>

```

Since we included `webwork-default.xml` in our `xwork.xml`, all the interceptors and stacks above are available for us to use in our actions. Here's what these interceptors do:

- **timer**: clocks how long the action (including nested interceptors and view) takes to execute;
- **logger**: logs the action being executed;
- **chain**: makes the previous action's properties available to the current action. Used to make action chaining (reference: [Result Types](#));
- **static-params**: sets the parameters defined in `xwork.xml` onto the action. These are the `<param />` tags that are direct children of the `<action />` tag;
- **params**: sets the request (POST and GET) parameters onto the action class. We have seen an example of this in [lesson 3](#);
- **model-driven**: if the action implements `ModelDriven`, pushes the `getModel()` result onto the Value Stack;
- **component**: enables and makes registered components available to the actions. (reference: [\[IoC & Components\]](#));
- **token**: checks for valid token presence in action, prevents duplicate form submission;
- **token-session**: same as above, but storing the submitted data in session when handed an invalid token;

- **validation:** performs validation using the validators defined in {Action}-validation.xml (reference: [Validation](#)). We've seen an example of this in [lesson 4.1.1](#);
- **workflow:** calls the validate method in your action class. If action errors created then it returns the INPUT view. Good to use together with the validation interceptor (reference: [Validation](#));
- **servlet-config:** give access to HttpServletRequest and HttpServletResponse (think twice before using this since this ties you to the Servlet API);
- **prepare:** allows you to programmatic access to your Action class before the parameters are set on it.;
- **conversionError:** *help needed here.*

Building your own Interceptor

If none of the above interceptors suit your particular need, you will have to implement your own interceptor. Fortunately, this is an easy task to accomplish. Suppose we need an interceptor that places a greeting in the Session according to the time of the day (morning, afternoon or evening). Here's how we could implement it:

GreetingInterceptor.java:

```
package lesson05;

import java.util.Calendar;
import com.opensymphony.xwork.interceptor.Interceptor;
import com.opensymphony.xwork.ActionInvocation;

public class GreetingInterceptor implements Interceptor {
    public void init() { }
    public void destroy() { }
    public String intercept(ActionInvocation invocation) throws Exception {
        Calendar calendar = Calendar.getInstance();
        int hour = calendar.get(Calendar.HOUR_OF_DAY);
        String greeting = (hour < 6) ? "Good evening" :
            ((hour < 12) ? "Good morning":
            ((hour < 18) ? "Good afternoon": "Good evening"));

        invocation.getInvocationContext().getSession().put("greeting", greeting);

        String result = invocation.invoke();

        return result;
    }
}
```

xwork.xml:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"><interceptors><interceptor name="greeting"
class="section02.lesson05.GreetingInterceptor" /></interceptors><!-- Action: Lesson
5: GreetingInterceptor. --><action name="greetingAction"
class="lesson05.GreetingAction"><result name="success"
type="velocity">ex01-result.vm</result><interceptor-ref name="greeting"
/></action></package></xwork>
```

GreetingAction.java:

```
package lesson05;

import com.opensymphony.xwork.ActionSupport;

public class GreetingAction extends ActionSupport {
    public String execute() throws Exception {
        return SUCCESS;
    }
}
```

ex01-result.vm:

```
<html><head><title>WebWork Tutorial - Lesson 5 - Example 1</title></head><body>

#set ($ses = $req.getSession())
<p><b>${ses.getAttribute('greeting')}!</b></p></body></html>
```

Let's take a look at our interceptor class first. As explained before, the interceptor must implement `com.opensymphony.xwork.interceptor.Interceptor`'s methods: `init()`, called during interceptor initialization, `destroy()`, called during destruction, and most importantly, `intercept(ActionInvocation invocation)`, which is where we place the code that does the work.

Notice that our interceptor returns the result from `invocation.invoke()` which is the method responsible for executing the next interceptor in the stack or, if this is the last one, the action. This means that the interceptor has the power of short-circuiting the action invocation and return a result string without executing the action at all! Use this

with caution, though.

One other thing that interceptors can do is execute code after the action has executed. To do that, just place code after the `invocation.invoke()` call. WebWork provides an abstract class that already implements this kind of behaviour: `com.opensymphony.xwork.interceptor.AroundInterceptor`. Just extend it and implement the methods `before(ActionInvocation invocation)` and `after(ActionInvocation dispatcher, String result)`.

The `xwork.xml` configuration, the action class and the result page are pretty straightforward and require no further explanation.

Try the example!

[Previous Lesson](#) | End of Tutorial

Actions

we will create a form in which you can enter your name. For example, if you enter "Bob" and click the submit button, you'll get a page saying "Hello, Bob!". If you don't enter a name, you'll get a screen saying: "Hmm, you don't seem to have entered a name. Go back and try again please."

As before, we set everything up in four steps: create the form, create the action, register the action, and create the landing page (or in this case, pages).

1. Create the form

Paste this html into webapp/page03.jsp:

```
<html><head><title>A simple form with data</title></head><body><p>What is your
name?</p><form action="form03.action" method="post"><p><input type="text"
name="yourName"></p><p><input type="submit" value="Submit your name."
/></p></form></body></html>
```

2. Create the form action

Paste this code into src/lessons/Form03Action.java:

```
package lessons;

import com.opensymphony.xwork.ActionSupport;

public class Form03Action extends ActionSupport {

    String yourName;

    public void setYourName(String p_yourName) {
        yourName = p_yourName;
    }

    public String getYourName() {
```

```

    return yourName;
}

public String execute() throws Exception {
    if (yourName == null || yourName.length() == 0)
        return ERROR;
    else return SUCCESS;
}
}

```

3. Register the action in xwork.xml:

Edit webapp/WEB-INF/classes/xwork.xml:

```

<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd"><xwork><!-- Include
webwork defaults (from WebWork JAR). --><include file="webwork-default.xml" /><!--
Configuration for the default package. --><package name="default"
extends="webwork-default"><!-- Default interceptor stack.
--><default-interceptor-ref name="defaultStack" /><!-- 02 --><action name="form02"
class="lessons.Form02Action"><result name="success"
type="dispatcher">page02-success.jsp</result></action><!-- 03 --><action
name="form03" class="lessons.Form03Action"><result name="success"
type="dispatcher">page03-success.jsp</result><result name="error"
type="dispatcher">page03-error.jsp</result></action></package></xwork>

```

4. Create the success and error pages

Create webapp/page03-success.jsp:

```

<%@ taglib uri="webwork" prefix="ww" %><html><head><title>Success page for form with
data</title></head><body>

Hello, <ww:property value="yourName" />!

</body></html>

```

Create webapp/page03-error.jsp:

```

<html><head><title>Error page for form with data</title></head><body>

Hmm, you don't seem to have entered a name. Go back and try again please.

</body></html>

```

Try it

Don't forget to compile your action to webapp/WEB-INF/classes, and to restart your web application if necessary.

Go ahead and try it now: click the form submit button and see what happens. Try it with and without entering a name.

How the code works

There are only two differences between this example and the previous lesson.

- When the action is called, its `setYourName()` setter is called with the contents of the form field named `yourName`.
- After the action has been called (which is when its `execute()` method returns), `WebWork` has two options. If `ERROR` is returned, `WebWork` will return `page03-error.jsp`; if `SUCCESS`, `page03-success.jsp`. Just as in the last lesson, the `<ww:property>` tag calls the action's getter (in this case, `getYourName()`).

Lesson 4: An html form with data, without getters or setters

For the form field named "yourName" in the previous lesson, we also had to create the getters and setters `getYourName()` and `setYourName()` in the action, as well as the private variable `yourName`. With dozens of forms and hundreds of form fields, you'll be typing thousands of getters and setters. That can get old fast. In this lesson, we'll repeat the last lesson, but without any of that extra typing.

1. Create the html form

Use the same JSP form from the previous lesson, but change the form action to

page04.action:

```
<html><head><title>A simple form with data</title></head><body><p>What is your
name?</p><form action="form04.action" method="post"><p><input type="text"
name="yourName"></p><p><input type="submit" value="Submit your name."
/></p></form></body></html>
```

2. Create the form action

Paste this code into src/lessons/Form04Action.java:

```
package lessons;

import com.opensymphony.xwork.ActionSupport;
import com.opensymphony.webwork.interceptor.ParameterAware;

import java.util.Map;

public class Form04Action extends ActionSupport implements ParameterAware {

    Map parameters;

    public Map getParameters() {
        return parameters;
    }

    public void setParameters(Map parameters) {
        this.parameters = parameters;
    }

    public String execute() {
        String[] yourName = (String[]) parameters.get("yourName");
        if(yourName == null || yourName[0] == null || yourName[0].length() == 0)
            return ERROR;
        else return SUCCESS;
    }
}
```

Register the action in xwork.xml:

Edit webapp/WEB-INF/classes/xwork.xml:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd"><xwork><!-- Include
webwork defaults (from WebWork JAR). --><include file="webwork-default.xml" /><!--
Configuration for the default package. --><package name="default"
extends="webwork-default"><!-- Default interceptor stack.
--><default-interceptor-ref name="defaultStack" /><!-- 02 --><action name="form02"
class="lessons.Form02Action"><result name="success"
```

```

page02-success.jsp</result></action><!-- 03 --><action name="form03"
class="lessons.Form03Action"><result name="success"
type="dispatcher">page03-success.jsp</result><result name="error"
type="dispatcher">page03-error.jsp</result></action><!-- 04 --><action name="form04"
class="lessons.Form04Action"><result name="success"
type="dispatcher">page04-success.jsp</result><result name="error"
type="dispatcher">page03-error.jsp</result><interceptor-ref
name="servlet-config" /></action></package></xwork>

```

Create the success and error pages

We'll use the same error page, but create a slightly different success page `page04-success.jsp`. The only difference is the `<ww:property>` tag.

```

<%@ taglib uri="webwork" prefix="ww" %><html><head><title>Success page for form with
data</title></head><body>

Hello, <ww:property value="parameters.yourName" />!

</body></html>

```

Try it

Don't forget to compile your action to `webapp/WEB-INF/classes`, and to restart your web application if necessary.

Go ahead and try it now. Load `page04.jsp`, enter "Bob" in the text field, and click the form submit button. You should see `page04-success.jsp` saying "Hello, Bob!"

How the code works

You've probably figured out what is going on just from looking at the code.

Instead of a setter `setYourName()` setting a private variable `yourName` in the action, `setParameters()` magically extracts everything from the JSP request object and puts into a private local Map `parameters`. Then `execute()`, instead of looking for a `yourName` variable, is able to get the value of the "yourName" field from `parameters`. So far so good .

Back on the `page04-success.jsp` page, `<ww:property value="yourName" />` isn't going to work any more, because there is no `getYourName()` getter in the action. Instead, `<ww:property value="parameters.yourName" />` calls the `getParameters()` getter, and is able to get the value of the "yourName" field. Pretty neat!

We haven't covered how to handle radio buttons, checkboxes, and other strange html form fields. That involves dealing with the fact that every entry in the `parameters` Map is a `String[]`. We'll cover this in a later lesson.

[Lesson 2 - An html form with no data](#) | [Lesson 4 - An html form with data, without getters or setters](#)



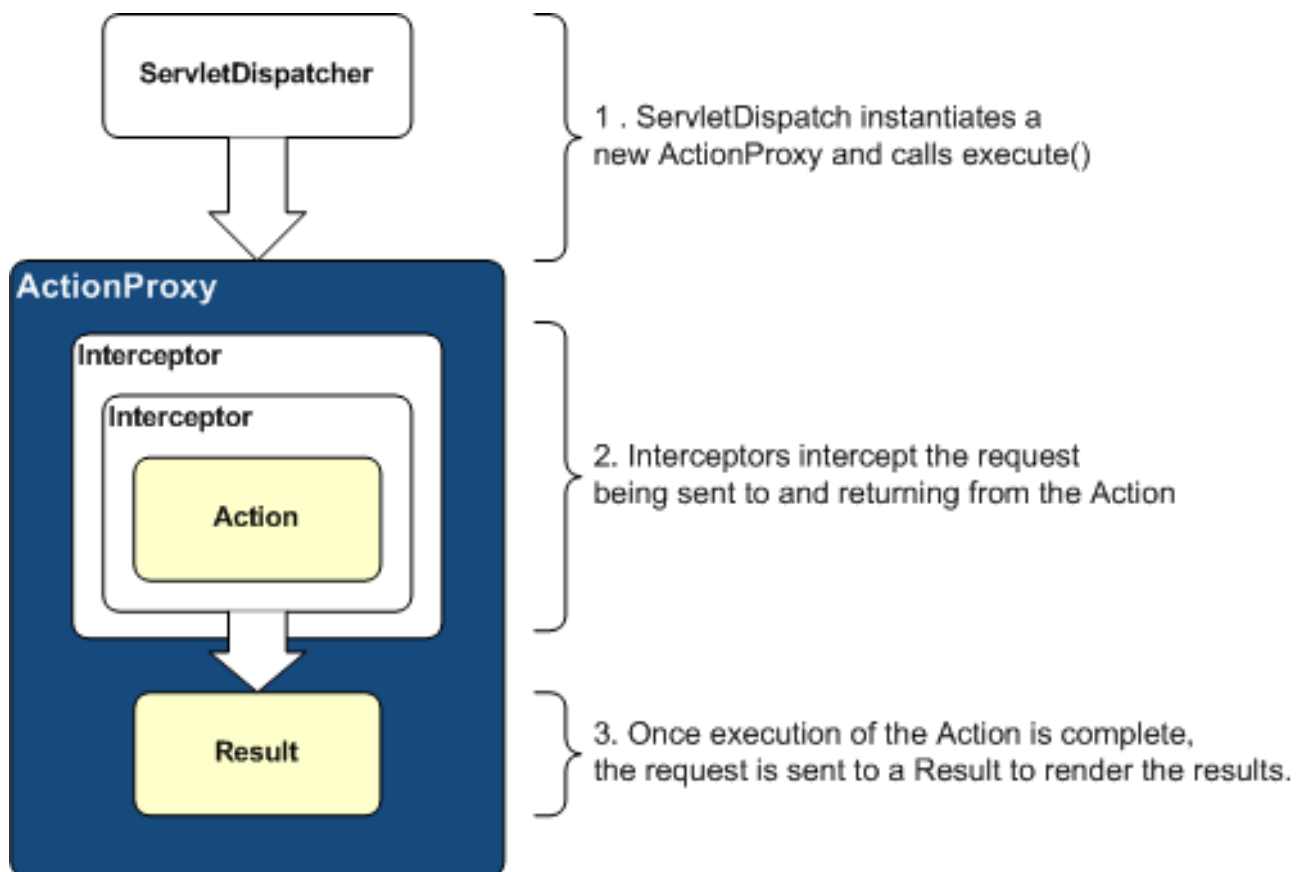
TODO

Update the info about the new interceptors

Interceptors

Interceptors allow arbitrary code to be included in the call stack for your action before and/or after processing the action, which can vastly simplify your code itself and provide excellent opportunities for code reuse. Many of the features of XWork and WebWork are implemented as interceptors and can be applied via external configuration along with your own Interceptors in whatever order you specify for any set of actions you define.

In other words, when you access a `*.action` URL, WebWork's `ServletDispatcher` proceeds to the invocation of the an action object. Before it is executed, however, the invocation can be intercepted by another object, that is hence called interceptor. To have an interceptor executed before (or after) a given action,



Be Careful

Note that some interceptors will interrupt the stack/chain/flow... so the order is very important.

Interceptor configuration:

```
<package name="default" extends="webwork-default"><interceptors><interceptor
name="timer" class=".." /><interceptor name="logger" class=".." /></interceptors>

  <action name="login"
    class="org.hibernate.auction.web.actions.users.Login">
    <interceptor-ref name="timer" /><interceptor-ref name="logger" /><result
name="input">login.jsp</result>
    <result name="success"
      type="redirect">/secure/dashboard.action</result></action></package>
```

Grouping interceptors as stacks

With most web applications, you'll find yourself wanting to apply the same

interceptors over and over. Rather than declare numerous interceptor-refs for each action, you can bundle these interceptors together using an interceptor stack.

```
<package name="default" extends="webwork-default"><interceptors><interceptor
name="timer" class=".." /><interceptor name="logger" class=".." /><interceptor-stack
name="myStack"><interceptor-ref name="timer" /><interceptor-ref
name="logger" /></interceptor-stack></interceptors>

<action name="login"
class="org.hibernate.auction.web.actions.users.Login">
  <interceptor-ref name="myStack" /><result name="input">login.jsp</result>
  <result name="success"
type="redirect">/secure/dashboard.action</result></action></package>
```

Looking inside `webwork-default.xml` we can see how it's done:

webwork-default.xml:

```
<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.1.dtd"><!-- // START SNIPPET:
webwork-default --><xwork><package name="webwork-default"><result-types><result-type
name="chain" class="com.opensymphony.xwork.ActionChainResult" />
  <result-type name="dispatcher"
class="com.opensymphony.webwork.dispatcher.ServletDispatcherResult"
default="true" />
  <result-type name="freemarker"
class="com.opensymphony.webwork.views.freemarker.FreemarkerResult" /><result-type
name="httpheader"
class="com.opensymphony.webwork.dispatcher.HttpHeaderResult" /><result-type
name="jasper"
class="com.opensymphony.webwork.views.jasperreports.JasperReportsResult" /><result-type
name="redirect" class="com.opensymphony.webwork.dispatcher.ServletRedirectResult" />
  <result-type name="redirect-action"
class="com.opensymphony.webwork.dispatcher.ServletActionRedirectResult" />
  <result-type name="stream"
class="com.opensymphony.webwork.dispatcher.StreamResult" /><result-type
name="velocity"
class="com.opensymphony.webwork.dispatcher.VelocityResult" /><result-type name="xslt"
class="com.opensymphony.webwork.views.xslt.XSLTResult" /></result-types><interceptors><interceptor
name="alias" class="com.opensymphony.xwork.interceptor.AliasInterceptor" />
  <interceptor name="autowiring"
class="com.opensymphony.xwork.spring.interceptor.ActionAutowiringInterce
  <interceptor name="chain"
class="com.opensymphony.xwork.interceptor.ChainingInterceptor" /><interceptor
name="component"
class="com.opensymphony.xwork.interceptor.component.ComponentInterceptor" />
  <interceptor name="conversionError"
class="com.opensymphony.webwork.interceptor.WebWorkConversionErrorInter
  <interceptor name="external-ref"
class="com.opensymphony.xwork.interceptor.ExternalReferencesInterceptor" /><interceptor
name="execAndWait"
class="com.opensymphony.webwork.interceptor.ExecuteAndWaitInterceptor" /><interceptor
name="exception"
```

```

"com.opensymphony.xwork.interceptor.ExceptionMappingInterceptor"/><interceptor
name="fileUpload"
class="com.opensymphony.webwork.interceptor.FileUploadInterceptor"/><interceptor
name="i18n" class="com.opensymphony.xwork.interceptor.I18nInterceptor"/><interceptor
name="logger"
class="com.opensymphony.xwork.interceptor.LoggingInterceptor"/><interceptor
name="model-driven"
class="com.opensymphony.xwork.interceptor.ModelDrivenInterceptor"/><interceptor
name="params"
class="com.opensymphony.xwork.interceptor.ParametersInterceptor"/><interceptor
name="prepare"
class="com.opensymphony.xwork.interceptor.PrepareInterceptor"/><interceptor
name="static-params"
class="com.opensymphony.xwork.interceptor.StaticParametersInterceptor"/><interceptor
name="servlet-config"
class="com.opensymphony.webwork.interceptor.ServletConfigInterceptor"/>
    <interceptor name="sessionAutowiring"
        class="com.opensymphony.webwork.spring.interceptor.SessionContextAutowiringInterceptor"/>
    <interceptor name="timer"
class="com.opensymphony.xwork.interceptor.TimerInterceptor"/><interceptor
name="token" class="com.opensymphony.webwork.interceptor.TokenInterceptor"/>
    <interceptor name="token-session"
        class="com.opensymphony.webwork.interceptor.TokenSessionStoreInterceptor"/>
    <interceptor name="validation"
class="com.opensymphony.xwork.validator.ValidationInterceptor"/><interceptor
name="workflow"
class="com.opensymphony.xwork.interceptor.DefaultWorkflowInterceptor"/><!-- Basic
stack --><interceptor-stack name="basicStack"><interceptor-ref
name="exception"/><interceptor-ref name="servlet-config"/><interceptor-ref
name="prepare"/><interceptor-ref name="static-params"/><interceptor-ref
name="params"/><interceptor-ref name="conversionError"/></interceptor-stack><!--
Sample validation and workflow stack --><interceptor-stack
name="validationWorkflowStack"><interceptor-ref name="basicStack"/><interceptor-ref
name="validation"/><interceptor-ref name="workflow"/></interceptor-stack><!-- Sample
file upload stack --><interceptor-stack name="fileUploadStack"><interceptor-ref
name="fileUpload"/><interceptor-ref name="basicStack"/></interceptor-stack>

    <!-- Sample WebWork Inversion of Control stack
    Note: WebWork's IoC is deprecated - please
    look at alternatives such as Sprint -->
    <interceptor-stack name="componentStack"><interceptor-ref
name="component"/><interceptor-ref name="basicStack"/></interceptor-stack><!--
Sample model-driven stack --><interceptor-stack
name="modelDrivenStack"><interceptor-ref name="model-driven"/><interceptor-ref
name="basicStack"/></interceptor-stack><!-- Sample action chaining stack
--><interceptor-stack name="chainStack"><interceptor-ref
name="chain"/><interceptor-ref name="basicStack"/></interceptor-stack><!-- Sample
i18n stack --><interceptor-stack name="chainStack"><interceptor-ref
name="i18n"/><interceptor-ref name="basicStack"/></interceptor-stack>

    <!-- Sample execute and wait stack.
    Note: execAndWait should always be the *last* interceptor. -->
    <interceptor-stack name="executeAndWaitStack"><interceptor-ref
name="basicStack"/><interceptor-ref name="execAndWait"/></interceptor-stack>

    <!-- A complete stack with all the common interceptors in place.
    Generally, this stack should be the one you use, though it
    may process additional stuff you don't need, which could
    lead to some performance problems. Also, the ordering can be
    switched around (ex: if you wish to have your components
    before prepare() is called, you'd need to move the component
    interceptor up -->

```

```

        <interceptor-stack name="defaultStack"><interceptor-ref
name="exception"/><interceptor-ref name="alias"/><interceptor-ref
name="prepare"/><interceptor-ref name="servlet-config"/><interceptor-ref
name="i18n"/><interceptor-ref name="chain"/><interceptor-ref
name="model-driven"/><interceptor-ref name="fileUpload"/><interceptor-ref
name="static-params"/><interceptor-ref name="params"/><interceptor-ref
name="conversionError"/><interceptor-ref name="validation"/><interceptor-ref
name="workflow"/></interceptor-stack>

        <!-- The completeStack is here for backwards compatibility for
            applications that still refer to the defaultStack by the
            old name -->
        <interceptor-stack name="completeStack"><interceptor-ref
name="defaultStack"/></interceptor-stack></interceptors><default-interceptor-ref
name="defaultStack"/></package></xwork><!-- // END SNIPPET: webwork-default -->

```

Since we included `webwork-default.xml` in our `xwork.xml`, all the interceptors and stacks above are available for us to use in our actions. Here's what these interceptors do:

- **timer**: clocks how long the action (including nested interceptors and view) takes to execute;
- **logger**: logs the action being executed;
- **chain**: makes the previous action's properties available to the current action. Used to make action chaining (reference: [Result Types](#));
- **static-params**: sets the parameters defined in `xwork.xml` onto the action. These are the `<param />` tags that are direct children of the `<action />` tag;
- **params**: sets the request (POST and GET) parameters onto the action class. We have seen an example of this in **TODO**;
- **model-driven**: if the action implements `ModelDriven`, pushes the `getModel()` result onto the Value Stack;
- **component**: enables and makes registered components available to the actions. (reference: [\[IoC & Components\]](#));
- **token**: checks for valid token presence in action, prevents duplicate form submission;
- **token-session**: same as above, but storing the submitted data in session when handed an invalid token;
- **validation**: performs validation using the validators defined in `{Action}-validation.xml` (reference: [Validation](#)).;
- **workflow**: calls the `validate` method in your action class. If action errors created then it returns the `INPUT` view. Good to use together with the validation interceptor (reference: [Validation](#));
- **servlet-config**: give access to `HttpServletRequest` and `HttpServletResponse` (think twice before using this since this ties you to the Servlet API);
- **prepare**: allows you to programmatic access to your Action class before the parameters are set on it.;
- **conversionError**: Adds field errors if any type-conversion errors occurred.

- **execAndWait**: Spawns a separate thread to execute the action
- **fileUpload**: Sets uploaded files as action files (File objects)

In addition to the prepackaged interceptors, `webwork-default.xml` includes prepackaged combinations of these interceptors in named interceptor stacks.

Building your own Interceptor

If none of the above interceptors suit your particular need, you will have to implement your own interceptor. Fortunately, this is an easy task to accomplish. Suppose we need an interceptor that places a greeting in the Session according to the time of the day (morning, afternoon or evening). Here's how we could implement it:

But let's see how it works from scratch:

1. Create an interceptor class, which is a class that implements the `com.opensymphony.xwork.interceptor.Interceptor` interface (bundled in `xwork-1.1.jar`);
2. Declare the class in your XML configuration file (`xwork.xml`) using the element `<interceptor />` nested within `<interceptors />`;
3. Create stacks of interceptors, using the `<interceptor-stack />` element (*optional*);
4. Determine which interceptors are used by which action, using `<interceptor-ref />` or `<default-interceptor-ref />`. The former defines the interceptors to be used in a specific action, while the latter determines the default interceptor stack to be used by all actions that do not specify their own `<interceptor-ref />`.

GreetingInterceptor.java:

```
package lesson05;

import java.util.Calendar;
import com.opensymphony.xwork.interceptor.Interceptor;
import com.opensymphony.xwork.ActionInvocation;

public class GreetingInterceptor implements Interceptor {
    public void init() { }
    public void destroy() { }
    public String intercept(ActionInvocation invocation) throws Exception {
```

```

        Calendar calendar = Calendar.getInstance();
        int hour = calendar.get(Calendar.HOUR_OF_DAY);
        String greeting = (hour < 6) ? "Good evening" :
            ((hour < 12) ? "Good morning":
            ((hour < 18) ? "Good afternoon": "Good evening"));

        invocation.getInvocationContext().getSession().put("greeting", greeting);

        String result = invocation.invoke();

        return result;
    }
}

```

xwork.xml:

```

<!DOCTYPE xwork PUBLIC "-//OpenSymphony Group//XWork
1.0//EN" "http://www.opensymphony.com/xwork/xwork-1.0.dtd">

<xwork><!-- Include webwork defaults (from WebWork JAR). --><include
file="webwork-default.xml" /><!-- Configuration for the default package. --><package
name="default" extends="webwork-default"><interceptors><interceptor name="greeting"
class="section02.lesson05.GreetingInterceptor" /></interceptors><!-- Action: Lesson
5: GreetingInterceptor. --><action name="greetingAction"
class="lesson05.GreetingAction"><result name="success"
type="velocity">ex01-result.vm</result><interceptor-ref name="greeting"
/></action></package></xwork>

```

GreetingAction.java:

```

package lesson05;

import com.opensymphony.xwork.ActionSupport;

public class GreetingAction extends ActionSupport {
    public String execute() throws Exception {
        return SUCCESS;
    }
}

```

ex01-result.vm:

```

<html><head><title>WebWork Tutorial - Lesson 5 - Example 1</title></head><body>

#set ($ses = $req.getSession())
<p><b>${ses.getAttribute('greeting')}!</b></p></body></html>

```

Let's take a look at our interceptor class first. As explained before, the interceptor

must implement `com.opensymphony.xwork.interceptor.Interceptor`'s methods: `init()`, called during interceptor initialization, `destroy()`, called during destruction, and most importantly, `intercept(ActionInvocation invocation)`, which is where we place the code that does the work.

Notice that our interceptor returns the result from `invocation.invoke()` which is the method responsible for executing the next interceptor in the stack or, if this is the last one, the action. This means that the interceptor has the power of short-circuiting the action invocation and return a result string without executing the action at all! Use this with caution, though.

One other thing that interceptors can do is execute code after the action has executed. To do that, just place code after the `invocation.invoke()` call. WebWork provides an abstract class that already implements this kind of behaviour: `com.opensymphony.xwork.interceptor.AroundInterceptor`. Just extend it and implement the methods `before(ActionInvocation invocation)` and `after(ActionInvocation dispatcher, String result)`.

The `xwork.xml` configuration, the action class and the result page are pretty straightforward and require no further explanation.

Try the example!

Understanding results

This page last changed on Dec 02, 2005 by [victorsosa](#).

TODO
