

Adam Retter

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JSP Tag Libraries

- What are JSP Tag Libraries?
 - Declarative tags that can be reused in your JSP pages (and Facelets) e.g. <tag/>
 - Similar to HTML tags, but typically dynamic and provide some sort of processing
 - Typically, generate some sort of output (e.g. html) which is substituted for the tag at page serialization time.
 - Useful for encapsulating reusable/complicated UI design and/or programming
 - Most often packaged as a Tag Library, consisting of 1 or more tags
 - You have already seen some from the JSP tag library -

```
<jsp:useBean id="taxBean" class="..." scope="session"/>
```

```
<jsp:setProperty name="taxBean" property="*" />
```

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JSP Tag Libraries

- Using a Tag Library in your JSP Pages
 - Copy the tag library's .jar file to your Web Applications library e.g. *webapp/WEB-INF/lib*
 - Import the tag library in your JSP Page with the tag library directive -

```
<%@taglib uri="..." prefix="..."%>
```

- URI is the pre-defined URI of the Tag Library, set by the Tag Library author
- Prefix is the local prefix that you wish to use to refer to the Tag library

- e.g. -

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@taglib uri="http://mydomain.com/jsp/magic-tag-library" prefix="magic"%>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>JSP Page</title>
  </head>
  <body>
    <magic:showCalendar/>
  </body>
</html>
```



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JSP Tag Libraries

- Existing Tag Libraries -
 - JSTL 1.2 (JSP Standard Tag Library) → <http://jstl.java.net/download.html>
 - Incredibly useful basic functions that reduce scriptlet coding
 - Core operations (if, for, redirect, safe output, etc.) ← c:out can reduce injection attacks!
URI = <http://java.sun.com/jsp/jstl/core>
 - XML (XPath select, XSLT transform, parse etc.)
URI = <http://java.sun.com/jsp/jstl/xml>
 - Internationalization (Format/Parse Dates and Numbers, I18N Resource Bundles)
URI = <http://java.sun.com/jsp/jstl/fmt>
 - SQL (SQL Query and Update) ← Not a good idea for Separation of Concerns
URI = <http://java.sun.com/jsp/jstl/sql>
 - Functions (Collection length and String Manipulation)
URI = <http://java.sun.com/jsp/jstl/functions>

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JSP Tag Libraries

- Existing Tag Libraries (Contd.) -
 - Reduce *your* development time
 - Do not reinvent the UI wheel, if complex components already exist!
 - Plenty of Tag Libraries are freely available -
 - Everything from Ajax components to Ldap to Google Maps.
 - See here - <http://java-source.net/open-source/jsp-tag-libraries>
 - ...Maybe try and see if you can use these?

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- Create your own Tag Library
 - Driven by complex UI View requirements, NOT complex business logic in the View
 - Promotes reuse of standard complex UI components
 - 1) For each custom tag create a Java Class which extends `javax.servlet.jsp.tagext.TagSupport`
 - 2) Create Tag Library Manifest file `META-INF/'mylibrary.tld'`, simple XML file following `http://java.sun.com/j2ee/dtds/web-jsptaglib_1_1.dtd`
 - 3) JAR up your files and deploy to your web applications library folder.

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- Create your own Tag Library – Example - HelloTag.java

```
public class HelloTag extends TagSupport {  
  
    @Override  
    public int doStartTag() throws JspException {  
        try {  
            pageContext.getOut().print(  
                "<span style=\"color: pink; font-size: xx-large; font-weight: bold;\">Hello World</span>"  
            );  
        } catch (IOException ioe) {  
            throw new JspException(ioe.getMessage(), ioe);  
        }  
  
        return Tag.SKIP_BODY;  
    }  
}
```

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- Create your own Tag Library – Example – META-INF/HelloWorld.tld

```
<!DOCTYPE taglib PUBLIC "-//Sun Microsystems, Inc.//DTD JSP Tag Library 1.1//EN"  
"http://java.sun.com/j2ee/dtds/web-jsptaglib_1_1.dtd">
```

```
<taglib>
```

```
  <tlibversion>1.0</tlibversion>
```

```
  <jspversion>1.2</jspversion>
```

```
  <shortname>ex</shortname>
```

```
  <uri>http://mycompany.com/jsp/exampletaglibrary</uri>
```

```
  <info>
```

```
    A simple tag library for the examples
```

```
  </info>
```

```
  <tag>
```

```
    <name>HelloWorld</name>
```

```
    <tagclass>com.mycompany.exampletaglibrary>HelloTag</tagclass>
```

```
    <bodycontent>empty</bodycontent>
```

```
    <info>
```

```
      Print Hello World
```

```
    </info>
```

```
  </tag>
```

```
</taglib>
```


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- Invoking your own Tag Library – Example – index.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@taglib uri="http://mycompany.com/jsp/exampletaglibrary" prefix="ex"%>
<html>
  <head>
    <title>JSP Page</title>
  </head>
  <body>
    <ex:HelloWorld/>
  </body>
</html>
```

...output as..

```
<html>
  <head>
    <title>JSP Page</title>
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  <body>
    <span style="color: pink; font-size: xx-large; font-weight: bold;">Hello World</span>
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- Good notes can be found here -
http://java.sun.com/j2ee/tutorial/1_3-fcs/doc/JSPTags.html

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- Good link for information on JSTL -

<http://download.oracle.com/javaee/5/tutorial/doc/bnakc.html>

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  <uri>http://mycompany.com/jsp/exampletaglibrary</uri>
  <info>
    A simple tag library for the examples
  </info>
  <tag>
    <name>HelloWorld</name>
    <tagclass>com.mycompany.exampletaglibrary.HelloTag</tagclass>
    <bodycontent>empty</bodycontent>
    <info>
      Print Hello World
    </info>
  </tag>
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