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## Incorporating JSP Custom Tags Into Your ColdFusion Apps

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1

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## Topics

- Why They Can Be Useful to CF Developers
- 5 Steps to Using One in CFMX
- Finding Custom Tag Libraries
- Where to Learn More

2

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## What They Are

- JSP custom tags are similar to CF custom tags
  - They're tags that any developer can create:
    - Enabling reuse of code
    - Encapsulating potentially complicated code
    - Typically producing some desired output
  - More important, they're also downloadable from public repositories
    - Can solve problems faced by every developer
    - They can now be used by CFMX developers too!
  - This talk will focus on using, not creating, them

3

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## A Quick Example of Using One in JSP

```
<!-- caltag.jsp -->
<%@ taglib uri="/WEB-INF/taglib61.tld" prefix="cal" %>
Current Month:
<cal:Calendar />
<p>
Calendar for March, 2002
<cal:Calendar month="3" year="2002" />
```

Cal becomes prefix for new set of tags now available on this page

cal:Calendar creates a calendar

4

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## A Quick Example of Using One in JSP

Address: http://localhost:8500/fruedemc/taglibdemo/caltag.jsp

Current Month:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Calendar for March, 2002

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

5

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## Same Example in a CFMX Template

```
<!-- caltag.cfm -->
<CFIMPORT PREFIX="cal" TAGLIB="/WEB-INF/taglib61.tld">
Current Month:
<cal:Calendar />
<p>
Calendar for March, 2002
<cal:Calendar month="3" year="2002" />
```

Only one line differs!

Generates exact same output


6


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## Why CF Developers Should Consider Them

- Like CF custom tags, JSP custom tags often exist to solve common problems
- They work the same in CF templates as in JSP pages
- There are many publicly available custom tags and tag libraries
- Equivalents may not exist in Macromedia Developers Exchange repository of CF custom tags


7


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## How CF Developers Can Use Them Without Knowing Java

- Notice that there was no Java coding involved
  - Need to know java to *build JSP* custom tags
  - Do **NOT** need to understand Java to *use* them
- Some docs for using public JSP custom tags may show using Java in a sample JSP page
  - Is usually pretty easy to convert that to CF tags

8


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## Resources for Finding Such Custom Tags

- Many resources exist for finding publicly available custom tags
  - Most are free
  - Some are offered commercially
- One example is jsptags.com
  - There are many others, shown later


9


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## Example: JSPTags.com/tags/



10


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## Not All JSP Custom Tags Useful in CF

- Native JSP tags are rather limited in functionality compared to CF
- Many JSP custom tags simply provide functionality that CF already has:
  - Database manipulation tags
  - If/Then/Loop processing
  - Form validation
  - String manipulation
  - Session, form/url variable processing
  - And many more things we don't really need

11


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## Examples of Useful JSP Custom Tags

- Still, many tags can be very useful:
  - Cache portions of generated page output
  - Tracking sessions
  - Create charts and graphs
  - Create page scrolling in familiar formats
  - Perform JMS (java messaging)
  - Provide state/country
  - Provide alternatives to CFMAIL, CFHTTP, CFFTP, more
  - Access J2EE application initialization parameters
  - Reading CSV files
  - Generating Prompt on Delete

And more 12

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## 5 Steps to Using One in CFMX

13

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### Step 1: Obtain the Cal Custom Tag

- Calendar tag example available at
  - <http://coldjava.hypermart.net/servlets/caltag.htm>
- Shows examples, provides link to download tag files
  - 2 files offered for download:
    - Caltag.jar
    - Taglib.tld (actually called taglib61.tld in download)
  - We need to download and implement these in CFMX
- Note: Sometimes tld file is stored within the jar file
  - Can open jar file and extract tld with WinZip-type programs

14

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### Understanding JSP Tag Libraries: .tld and .jar files

- JAR – Java ARchive file format
  - Holds java programs and other information
- TLD – Tag Library Descriptor format
  - Describes JSP custom tags and their use
- We don't really need to understand these two files to use them within CF
  - Just know where to put them in CFMX directories
  - And how to use them in our templates

15

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### Step 2: Place Them in CFMX Directories

- Place .jar files in CfusionMX/wwwroot/WEB-INF/lib
- Place .tld files in CfusionMX/wwwroot/WEB-INF/
- Have Admin do this for you if dirs are restricted
- Place code that calls custom tag in any typical dir.
- Resulting file structure:
  - cfusionmx/wwwroot
    - cfusionmx/wwwroot/taglibdemos/test.cfm
    - cfusionmx/wwwroot/WEB-INF/taglib61.tld
    - cfusionmx/wwwroot/WEB-INF/lib/caltag.jar

16

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### Modification of web.xml Not Needed

- Documentation for using JSP taglibs will often discuss need to add entry to web.xml file
  - We don't typically need to do this in CFMX
- There is a web.xml, used for other purposes, in cfusionmx/wwwroot/WEB-INF
  - But I've not found any need to perform this step to use JSP custom tags in CFMX

17

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### Step 3: Restart CFMX Server

- Before new tags can be used, must restart server
- May seem illogical to have to, but failure to do so will lead to errors when trying to use them
  - "The type for attribute name of tag [tagname] could not be determined."

18

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## Step 4: CFIMPORT the Tag Library

- CFIMPORT tag is key to making tags available
  - Point it to location of either the JAR or the TLD
  - Name a prefix to use for referring to the tags
- Earlier example used:
 

```
<CFIMPORT PREFIX="cal" TAGLIB="/WEB-INF/taglib61.tld">
```

  - Points to TLD, names "cal" as the prefix to use
    - JSP version didn't need to refer to /WEB-INF directory but we must
  - Can use any desired value for PREFIX

19

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## CFIMPORT TAGLIB Alternatives

- Can also often point to JAR instead of TLD:
 

```
<CFIMPORT PREFIX="cal" TAGLIB="/WEB-INF/lib/caltag.jar">
```

  - Sometimes though you MUST point to the TLD
- Might also try putting the jar file in same directory as your code.
  - May be easier if WEB-INF/lib access is restricted
  - Works sometimes. Then code for CFIMPORT is:
 

```
<cfimport taglib="tagLib.jar" prefix="prefixname">
```

20

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## Step 5: Use the Custom Tag

- Use the prefix defined in CFIMPORT
  - And whatever tagname is made available
    - <prefixname:tagname>
- Refer to the custom tag documentation to know what tags exist in a given tag library
  - Points out that a tag library can contain many tags
    - Remember TLD = Tag LIBRARY Descriptor
  - Tags may also support various attributes

21

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## "Cal" Tag Library Offers Multiple Tags

- We used only the basic cal:Calendar tag
- There are also other tags for this tag library, as documented at the taglib web site
- For instance, option available to create a link on the calendar for a given day, with setLink tag and its day attribute
 

```
<cal:Calendar month="3" year="2002">
  <cal:setLink
    day="5">http://www.abc.com/</cal:setLink>
  <cal:setLink
    day="15">http://www.def.com/</cal:setLink>
</cal:Calendar>
```
- That's all there is to it!

22

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## Re-Using CFIMPORT Tag

- CFIMPORT must appear in the page using a custom tag
  - Can't place it in application.cfm
  - Can't place it in a file referenced with CFINCLUDE
  - Makes reusing them in multiple pages a little challenging
    - If ever need to change, must change in all pages
  - There is no default tag location on CFMX server that would negate need to use CFIMPORT

23

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## Finding Custom Tag Libraries


24


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## Several JSP Custom Tag Portals

- Some free, some commercial
  - Jspstags.com
  - coldjava.hypermart.net
  - jspin.com/home/tags
  - aewnet.com/root/webdev/jsp/jspstagslibs/
  - javashareware.com/CFScripts/jervlets.cfm
  - dotjonline.com
  - opensymphony.com
  - Jspsmart.com
  - javaskyline.com/dev.html
  - java.sun.com/products/jsp/jstl
  - jakarta.apache.org/taglibs/

25



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## Some Useful Tags in ColdTags Suite

Title	Description	Filename
Button	create HTML buttons with confirmation dialog	Buttag
Cache	supports dynamic caching of generated output	Cachetag
Calendar	create calendars	Caltag
Country	create country select lists	Cntrtag
Delay	delay execution in page	Delaytag
Sessions Counter	calculate a number of active sessions	Livetag
Sessions Stats	collects statistics for sessions (how many sessions are active, what was the peak value for active sessions, total counter for sessions, minimal, maximal and average life time for sessions)	Sesslist
Smarttag	parses own body converting hyperlinks and mailtos	Smarttag

More info on each at [http://coldjava.hypermart.net/servlets/\[filename\].htm](http://coldjava.hypermart.net/servlets/[filename].htm)


26


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## Efforts to Create Standard JSP Taglibs

- Last two in list of tag portals represent efforts in JSP community to create standardized custom tags
  - Jakarta Taglibs include the reference implementation of the Sun JSTL specification
    - JSTL says what standard taglibs should exist in JSP
    - Jakarta Taglibs include standardized implementation, more
  - We can use them in CFMX and JRun
    - Someday, they may be built into JRun (and hence CFMX)
- Frankly, these tags primarily bring features to JSP that we have long enjoyed in CF
  - Still, among the many libraries in the JSTL, some are useful for CFers

27


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## Jakarta Taglibs That May Be Useful in CF

Application Taglib	used to access information contained in the ServletContext for a web application.
Cache Taglib	lets you cache fragments of your JSP pages.
IO Taglib	perform HTTP GETs or PUT operations and to make XML-RPC and SOAP requests.
JMS Taglib	perform a variety of JMS related operations such as sending and receiving messages
Mailer Taglib	Used to send email
Scrape Taglib	scrape or extract content from web documents
XSL Taglib	for transforming XML input sources with XSL stylesheets
Xtags Taglib	lets you navigate, process and style XML documents with XSLT and XPath

More info on each at <http://jakarta.apache.org/taglibs/doc/>


28


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## Other Tags in Various Taglibs

- Clickstream
  - show the current users on your site, and where they've been in detail
  - <http://www.opensymphony.com/clickstream/>
- Pager
  - generate GoogleSM and AltaVista® style search result navigators
  - <http://jspstags.com/tags/navigation/pager/>

29


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## Leveraging JSP Coding Examples

- We saw earlier that can sometimes use JSP sample code in CF with only change to CFIMPORT
- Still, sometimes example may use some JSP/java code and you'll need to translate
  - May be challenging, or trivial
  - Even without JSP experience, may be able to translate some simple examples

30

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### Example of Translating JSP/Java Code

```

<% taglib uri="taglib.tld"
  prefix="get" %>

<get:Quote symbol="SUNW"
id="A" />
Current Quote for SUNW
Last trade: <%=A[0] %>
Last value: <%=A[1] %>
Change absolute: <%=A[2] %>
Change in percents: <%=A[3] %>
Volume: <%=A[4] %>

<cfimport taglib="/WEB-
INF/lib/quotetag.jar"
  prefix="get">

<get:Quote symbol="SUNW"
id="A" />
Current Quote for SUNW
<cfoutput>
Last trade: #A[1]#
Last value: #A[2]#
Change absolute: #A[3]#
Change in percents: #A[4]#
Volume: #A[5]#
</cfoutput>

```

› From:  
coldjava.hypermart.net/servlets/quotetag.htm

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### CFIMPORT Support and Other Uses

- JSP custom tags not supported in CFMX Professional edition—Enterprise only
- CFIMPORT can also be used to "import" ColdFusion custom tags, naming a directory of them
  - Would them use them with the JSP tag syntax
  - Allows grouping of tags and using relative path to point to them
  - This feature DOES work in Pro

32

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### Where to Learn More

33

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### CFMX Documentation

- Developing ColdFusion MX Applications with CFML
  - Chapter 32, "Integrating J2EE and Java Elements in CFML Applications"
  - Available online at [http://livedocs.macromedia.com/cfm/docs/Developing\\_ColdFusion\\_MX\\_Applications\\_with\\_CFML/Java3.jsp](http://livedocs.macromedia.com/cfm/docs/Developing_ColdFusion_MX_Applications_with_CFML/Java3.jsp)
- My article in May 2002 CFDJ, "Using JSP Custom Tags in CFMX"
  - <http://www.sys-con.com/coldfusion/article.cfm?id=435>

34

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### Books on JSP Custom Tags

- Most focus on creating, rather than using them
  - JSTL in Action, Shawn Bayern; Manning
  - Core JSTL: Mastering the JSP Standard Tag Library, David Geary; Sun Microsystems Press
  - JSP Tag Libraries, Gal Schachor, Adam Chace, Magnus Rydin; Manning
  - JSP and Tag Libraries for Web Development, Wellington L. S. Da Silva; New Riders
  - Professional JSP Tag Libraries, Simon Brown; Wrox

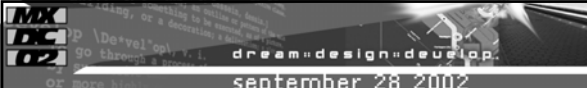
35

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### Portals Pointing to Articles and Tutorials

- [jsptags.com/docs/](http://jsptags.com/docs/)
- [www.jspinsider.com/tutorials/jsp/taglibraries.view](http://www.jspinsider.com/tutorials/jsp/taglibraries.view)
- [www.jspin.com/home/tutorials/tags](http://www.jspin.com/home/tutorials/tags)

36



**Conclusion**

- JSP custom tags can be useful to CF developers
- Easy to use, easy to reuse
- Many useful ones can be found in tag libraries
- Portals and resources exist to find more
- We can get the benefit of CFMX's ease of use and JSP custom tags to solve useful problems

37



**Contact Info**

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38