



Including Files & Applets in JSP Documents

Core Servlets & JSP book: www.coreservlets.com
More Servlets & JSP book: www.moreservlets.com
Servlet and JSP Training Courses: courses.coreservlets.com

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Agenda

- **Including the output of JSP, HTML or plain text pages at the time the client requests the page**
- **Including JSP files at the time the main page is translated into a servlet**
- **Including applets that use the Java Plug-In**

Including Files at Request Time

- **Format**

- `<jsp:include page="Relative URL" flush="true" />`

- **Purpose**

- To reuse JSP, HTML, or plain text content
 - JSP content cannot affect main page: only *output* of included JSP page is used
 - To permit updates to the included content without changing the main JSP page(s)

- **Notes**

- You are not permitted to specify `false` for the `flush` attribute in JSP 1.1 and earlier
 - Don't forget that trailing slash

Including Files: Example Code

```
...
<BODY>
<CENTER>
<TABLE BORDER=5>
  <TR><TH CLASS="TITLE">
    What's New at JspNews.com</TABLE>
</CENTER>
<P>
Here is a summary of our four most recent news stories:
<OL>
  <LI><jsp:include page="news/Item1.html" flush="true" />
  <LI><jsp:include page="news/Item2.html" flush="true" />
  <LI><jsp:include page="news/Item3.html" flush="true" />
  <LI><jsp:include page="news/Item4.html" flush="true" />
</OL>
</BODY></HTML>
```

Including Files: Example Result



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Including Files at Page Translation Time

- **Format**
 - `<%@ include file="Relative URL" %>`
- **Purpose**
 - To reuse JSP content in multiple pages, *where JSP content affects main page*
- **Notes**
 - Servers are not required to detect changes to the included file, and in practice they don't.
 - Thus, you need to change the JSP files whenever the included file changes.
 - You can use OS-specific mechanisms such as the Unix "touch" command, or
 - `<%-- Navbar.jsp modified 3/1/00 --%>`
`<%@ include file="Navbar.jsp" %>`

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Differences Between `jsp:include` and `@include`

- `jsp:include` includes the *output* of the designated page
 - `@include` includes the actual *code*
- `jsp:include` occurs at *request* time
 - `@include` occurs at *page translation* time
- With `jsp:include`, the main page and the included page become *two separate servlets*
 - With `@include`, they become parts of a *single* servlet
- `jsp:include` automatically handles changes to the included file
 - `@include` might not (big maintenance problem!)

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Reusable JSP Content: ContactSection.jsp

```
<%@ page import="java.util.Date" %>
<!-- The following become fields in each servlet that
      results from a JSP page that includes this file. --%>
<%!
private int accessCount = 0;
private Date accessDate = new Date();
private String accessHost = "<I>No previous access</I>";
%>
<P>
<HR>
This page &copy; 2000
<A HREF="http://www.my-company.com/">my-company.com</A>.
This page has been accessed <%= ++accessCount %>
times since server reboot. It was last accessed from
<%= accessHost %> at <%= accessDate %>.
<% accessHost = request.getRemoteHost(); %>
<% accessDate = new Date(); %>
```

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Using the JSP Content

```
...
<BODY>
<TABLE BORDER=5 ALIGN="CENTER">
  <TR><TH CLASS="TITLE">
    Some Random Page</TH></TR></TABLE>
<P>
Information about our products and services.
<P>
Blah, blah, blah.
<P>
Yadda, yadda, yadda.

<%@ include file="ContactSection.jsp" %>

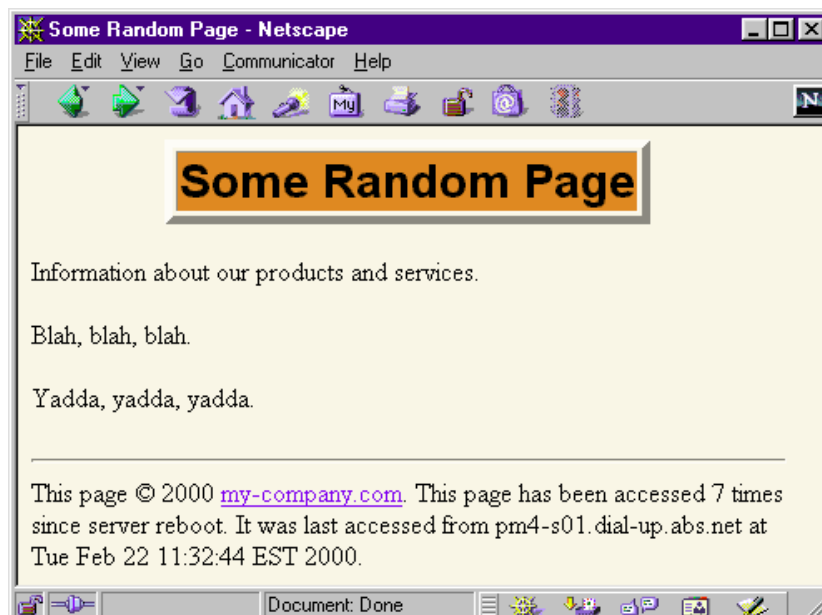
</BODY>
</HTML>
```

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Using the JSP Content: Result



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Including Applets for the Java Plug-In

- **Neither Netscape 4 nor IE 5/6 support Java 2**
 - Netscape 6 supports JDK 1.3
- **Problems using applets**
 - In order to use Swing, you must send the Swing files over the network. This process is time consuming and fails in Internet Explorer 3 and Netscape 3.x and 4.01-4.05 (which only support JDK 1.02).
 - You cannot use Java 2D
 - You cannot use the Java 2 collections package
 - Your code runs more slowly, since most compilers for the Java 2 platform are significantly improved over their 1.1 predecessors

Solution (?) Use the Java Plug-In

- **Only a viable option for intranets**
 - Requires *each* client to install large browser plug-in
- **Cannot use simple APPLET tag**
- **Need long and ugly OBJECT tag for Internet Explorer**
- **Need long and ugly EMBED tag for Netscape**
- **The jsp:plugin action lets you write a simple tag that gets translated into the OBJECT and EMBED tags that are required**
 - Warning: jsp:plugin fails in JRun 3 SP2

Using jsp:plugin

- **APPLET Tag**
 - `<APPLET CODE="MyApplet.class" WIDTH=475 HEIGHT=350>`
`</APPLET>`
- **Equivalent jsp:plugin**
 - `<jsp:plugin type="applet" code="MyApplet.class" width="475" height="350">`
`</jsp:plugin>`
- **Reminder**
 - JSP element and attribute names are case sensitive
 - All attribute values must be in single or double quotes
 - This is like XML but unlike HTML

Attributes of the jsp:plugin Element

- **type**
 - For applets, this should be "applet".
Use "bean" to embed JavaBeans elements in Web pages.
- **code**
 - Used identically to CODE attribute of APPLETT, specifying the top-level applet class file
- **width, height**
 - Used identically to WIDTH, HEIGHT in APPLETT
- **codebase**
 - Used identically to CODEBASE attribute of APPLETT
- **align**
 - Used identically to ALIGN in APPLETT and IMG

Attributes of the `jsp:plugin` Element (Cont.)

- **hspace, vspace**
 - Used identically to HSPACE, VSPACE in APPLET,
- **archive**
 - Used identically to ARCHIVE attribute of APPLET, specifying a JAR file from which classes and images should be loaded
- **name**
 - Used identically to NAME attribute of APPLET, specifying a name to use for inter-applet communication or for identifying applet to scripting languages like JavaScript.
- **title**
 - Used identically to rarely used TITLE attribute

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Attributes of the `jsp:plugin` Element (Cont.)

- **jreversion**
 - Identifies version of the Java Runtime Environment (JRE) that is required. Default is 1.1.
- **iepluginurl**
 - Designates a URL from which plug-in for Internet Explorer can be downloaded. Users who don't already have the plug-in installed will be prompted to download it from this location. Default value will direct user to Sun site, but for intranet use you might want to direct user to a local copy.
- **nspluginurl**
 - Designates a URL from which plug-in for Netscape can be downloaded. Default value will direct user to Sun site, but for intranet use you might want local copy.

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The jsp:param and jsp:params Elements

- **PARAM Tags**

- ```
<APPLET CODE="MyApplet.class"
 WIDTH=475 HEIGHT=350>
 <PARAM NAME="PARAM1" VALUE="VALUE1">
 <PARAM NAME="PARAM2" VALUE="VALUE2">
</APPLET>
```

- **Equivalent jsp:param**

- ```
<jsp:plugin type="applet"
            code="MyApplet.class"
            width="475" height="350">
    <jsp:params>
        <jsp:param name="PARAM1" value="VALUE1" />
        <jsp:param name="PARAM2" value="VALUE2" />
    </jsp:params>
</jsp:plugin>
```

The jsp:fallback Element

- **APPLET Tag**

- ```
<APPLET CODE="MyApplet.class"
 WIDTH=475 HEIGHT=350>
 Error: this example requires Java.
</APPLET>
```

- **Equivalent jsp:plugin with jsp:fallback**

- ```
<jsp:plugin type="applet"
            code="MyApplet.class"
            width="475" height="350">
    <jsp:fallback>
        <B>Error: this example requires Java.</B>
    </jsp:fallback>
</jsp:plugin>
```

Example Using Plugin

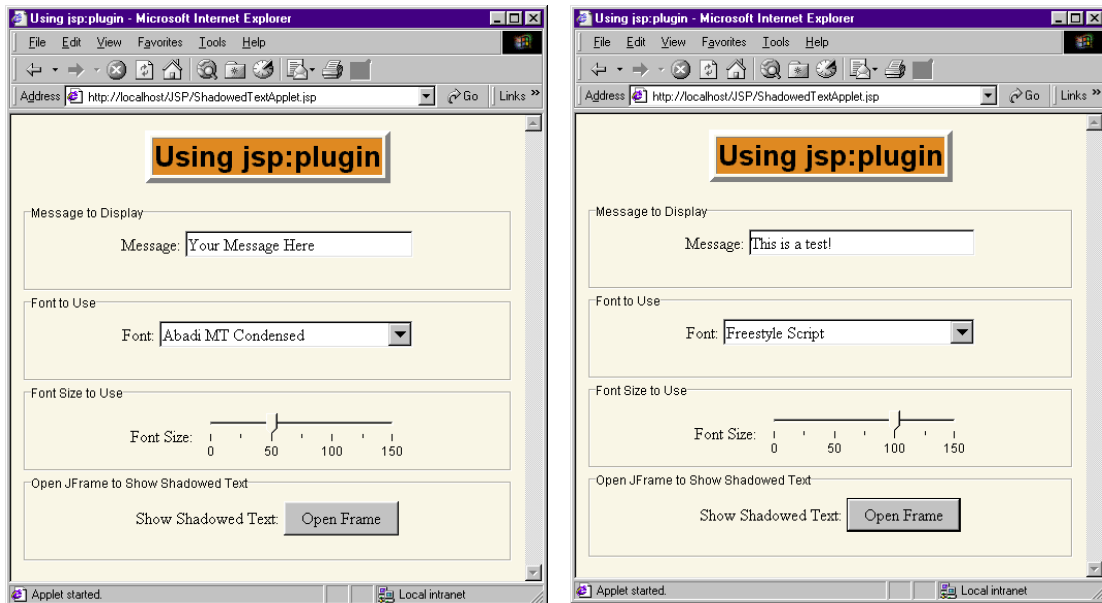
```
<DOCTYPE ...>...
<jsp:plugin
  type="applet"
  code="coreservlets.ShadowedTextApplet.class"
  width="475" height="350">
  <jsp:params>
    <jsp:param name="MESSAGE"
      value="Your Message Here" />
  </jsp:params>
</jsp:plugin>
...
</BODY></HTML>
```

- See book and Web site for applet code

Example Using Plugin: Resultant HTML

```
<DOCTYPE ...>...
<OBJECT
  classid=clsid:8AD9C840-044E-11D1-B3E9-00805F499D93
  width="370" height="420"
  codebase="http://java.sun.com/products/plugin/1.2.2/j
  install-1_2_2-win.cab#Version=1,2,2,0">
  <PARAM name="java_code" value="PluginApplet.class">
  <PARAM name="type" value="application/x-java-applet;">
  <COMMENT>
  <EMBED type="application/x-java-applet;"
    width="370" height="420"
    pluginspage="http://java.sun.com/products/plugin/"
  >
  <NOEMBED>
  </COMMENT>
  </NOEMBED></EMBED>
</OBJECT>
...
</BODY></HTML>
```

Example Using Plugin (Continued)



Example Using Plugin (Continued)



Summary

- **<jsp:include page="Relative URL" flush="true" />**
 - Output of URL inserted into JSP page at request time
 - Cannot contain JSP content that affects entire page
 - Changes to included file do not necessitate changes to pages that use it
- **<%@ include file="Relative URL" %>**
 - File gets inserted into JSP page prior to page translation
 - Thus, file can contain JSP content that affects entire page (e.g., import statements, declarations)
 - Changes to included file require you to manually update pages that use it
- **<jsp:plugin ...> simplifies applets for plugin**

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