

## CONTENTS INCLUDE:

- Development Process
- Lifecycle
- Faces-config.xml
- The JSF Expression Language
- JSF Core Tags
- JSF HTML Tags and more...

# JavaServer Faces

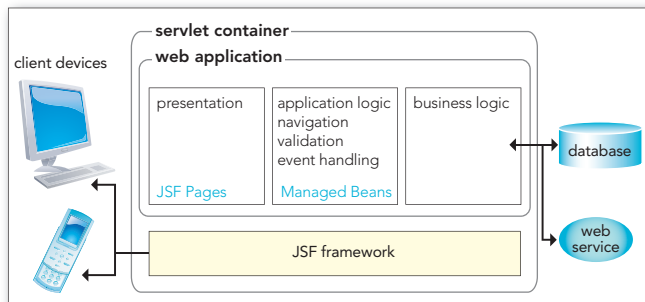
By Cay S. Horstmann

## ABOUT THIS REFCARD

JavaServer Faces (JSF) is the "official" component-based view technology in the Java EE web tier. JSF includes a set of predefined UI components, an event-driven programming model, and the ability to add third-party components. JSF is designed to be extensible, easy to use, and toolable. This refcard describes the JSF development process, standard JSF tags, the JSF expression language, and the `faces-config.xml` configuration file.

## DEVELOPMENT PROCESS

A developer specifies JSF components in JSF pages, combining JSF component tags with HTML and CSS for styling. Components are linked with *managed beans*—Java classes that contain presentation logic and connect to business logic and persistence backends. Entries in `faces-config.xml` contain navigation rules and instructions for loading managed beans.



A JSF page has the following structure:

JSP Style	Proper XML
<pre>&lt;html&gt;   &lt;%@ taglib     uri="http://       java.sun.com/jsf/       core"     prefix="f" %&gt;   &lt;%@ taglib     uri="http://       java.sun.com/jsf/       html"     prefix="h" %&gt;   &lt;f:view&gt;   &lt;head&gt;     &lt;title&gt;...&lt;/title&gt;   &lt;/head&gt;   &lt;body&gt;     &lt;h:form&gt;     ...     &lt;/h:form&gt;   &lt;/body&gt; &lt;/f:view&gt; &lt;/html&gt;</pre>	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;jsp:root xmlns:jsp="http://java.sun.com/ JSP/Page"   xmlns:f="http://java.sun.com/jsf/core"   xmlns:h="http://java.sun.com/jsf/html"   version="2.0"&gt;   &lt;jsp:directive.page contentType="text/ html; charset=UTF-8"/&gt;   &lt;jsp:output omit-xml-declaration="no" doctype-root-element="html" doctype-public="-//W3C//DTD XHTML 1.0 Transitional//EN" doctype-system="http://www.w3.org/TR/ xhtml1/ DTD/xhtml1-transitional.dtd"/&gt;   &lt;f:view&gt;     &lt;html xmlns="http://www.w3.org/1999/ xhtml"&gt;       &lt;head&gt;         &lt;title&gt;...&lt;/title&gt;       &lt;/head&gt;       &lt;body&gt;         &lt;h:form&gt;...&lt;/h:form&gt;       &lt;/body&gt;     &lt;/html&gt;   &lt;/f:view&gt; &lt;/jsp:root&gt;</pre>

These common tasks give you a crash course into using JSF.

**Text field**

**page.jspx**

```
<h:inputText value="#{bean1.luckyNumber}">
```

**faces-config.xml**

```
<managed-bean>
  <managed-bean-name>bean1</managed-bean-name>
  <managed-bean-class>com.corejsf.SampleBean</
    managed-bean-class>
  <managed-bean-scope>session</managed-bean-scope>
</managed-bean>
```

**com/corejsf/SampleBean.java**

```
public class SampleBean {
  public int getLuckyNumber() { ... }
  public void setLuckyNumber(int value) { ... }
  ...
}
```

**Button**

**page.jspx**

```
<h:commandButton value="press me" action="#{bean1.
login}">
```

**faces-config.xml**

```
<navigation-rule>
  <navigation-case>
    <from-outcome>success</from-outcome>
    <to-view-id>success.jspx</to-view-id>
  </navigation-case>
  <navigation-case>
    <from-outcome>error</from-outcome>
    <to-view-id>error.jspx</to-view-id>
    <redirect/>
  </navigation-case>
</navigation-rule>
```

**ICEfaces**  
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SCALAB OPEN SOURCE AJAX PUSH  
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for Java Developers

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## Button, continued

### com/corejsf/SampleBean.java

```
public class SampleBean {
    public String login() { if (...) return
        "success"; else return "error"; }
    ...
}
```

## Radio buttons ☐ Cheese ☒ Pickle ☐ Mustard ☐ Lettuce

### page.jspx

```
<h:selectOneRadio value="#{form.condiment}>
    <f:selectItems value="#{form.condimentItems}"/>
</h:selectOneRadio>
```

### com/corejsf/SampleBean.java

```
public class SampleBean {
    private Map<String, Object> condimentItem = null;
    public Map<String, Object> getCondimentItems() {
        if (condimentItem == null) {
            condimentItem = new LinkedHashMap<String,
                Object>();
            condimentItem.put("Cheese", 1); // label, value
            condimentItem.put("Pickle", 2);
            ...
        }
        return condimentItem;
    }
    public int getCondiment() { ... }
    public void setCondiment(int value) { ... }
    ...
}
```

## Validation and Conversion

### page.jspx

```
<h:inputText value="#{payment.amount}"
    required="true">
    <f:validateDoubleRange maximum="1000"/>
</h:inputText>
<h:outputText value="#{payment.amount}">
    <f:convertNumber type="currency"/>
    <!-- number displayed with currency symbol and
        group separator: $1,000.00 -->
</h:outputText>
```

## Error Messages

Amount  Amount: 'too much' is not a number.  
 Example: 99

### page.jspx

```
<h:outputText value="Amount"/>
<h:inputText id="amount" label="Amount"
    value="#{payment.amount}"/>
    <!-- label is used in message text -->
<h:message for="amount"/>
```

## Resources and Styles

### page.jspx

```
<head>
    <link href="styles.css" rel="stylesheet"
        type="text/css"/>
    ...
</head>
<body>
```

```
...
<h:outputText value="#{msgs.goodbye}!"
    styleClass="goodbye">
    ...
</body>
```

### faces-config.xml

```
<application>
<resource-bundle>
    <base-name>com.corejsf.messages</base-name>
    <var>msgs</var>
</resource-bundle>
</application>
```

### com/corejsf/messages.properties

goodbye=Goodbye

### com/corejsf/messages\_de.properties

goodbye=Auf Wiedersehen

### styles.css

```
.goodbye {
    font-style: italic;
    font-size: 1.5em;
    color: #eee;
}
```

## Table with links

Name	
Washington, George	<a href="#">Delete</a>
Jefferson, Thomas	<a href="#">Delete</a>
Lincoln, Abraham	<a href="#">Delete</a>
Roosevelt, Theodore	<a href="#">Delete</a>

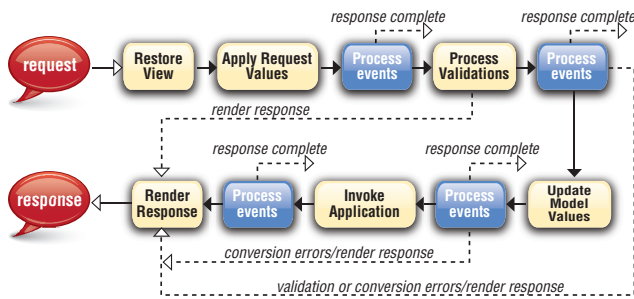
### page.jspx

```
<h:dataTable value="#{bean1.entries}" var="row"
    styleClass="table" rowClasses="even,odd">
    <h:column>
        <f:facet name="header">
            <h:outputText value="Name"/>
        </f:facet>
        <h:outputText value="#{row.name}"/>
    </h:column>
    <h:column>
        <h:commandLink value="Delete" action="#{bean1.
            deleteAction}" immediate="true">
            <f:setPropertyActionListener target="#{bean1.
                idToDelete}"
                value="#{row.id}"/>
        </h:commandLink>
    </h:column>
</h:dataTable>
```

### com/corejsf/SampleBean.java

```
public class SampleBean {
    private int idToDelete;
    public void setIdToDelete(int value) {idToDelete
        = value; }
    public String deleteAction() {
        // delete the entry whose id is idToDelete
        return null;
    }
    public List<Entry> getEntries() {...}
    ...
}
```

## LIFECYCLE



## faces-config.xml

The faces-config.xml file contains a sequence of the following entries.

- **managed-bean**
  1. description, display-name, icon (optional)
  2. managed-bean-name
  3. managed-bean-class
  4. managed-bean-scope
  5. managed-property (0 or more, other optional choices are map-entries and list-entries which are not shown here)
    1. description, display-name, icon (optional)
    2. property-name
    3. value (other choices are null-value, map-entries, list-entries which are not shown here)
- **navigation-rule**
  1. description, display-name, icon (optional)
  2. from-view-id (optional, can use wildcards)
  3. navigation-case (1 or more)
    - from-action (optional, not common)
    - from-outcome
    - to-view-id
- **application**
  - resource-bundle
    1. base-name
    2. var
  - action-listener, default-render-kit-id, resource-bundle, view-handler, state-manager, el-resolver, property-resolver, variable-resolver, application-extension (details not shown)
- **converter**
  - converter-id
  - converter-class
  - Optional initialization (not shown here)
- **validator**
  - validator-id
  - validator-class
  - Optional initialization (not shown here)
- **lifecycle**
  - phase-listener
- **component, factory, referenced-bean, render-kit, faces-config-extension** (details not shown)

## web.xml

```

<?xml version="1.0"?>
<web-app xmlns="http://java.sun.com/xml/ns/javaee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
    http://java.sun.com/xml/ns/javaee/web-app_2_5.xsd"
  version="2.5">
  <servlet>
    <servlet-name>Faces Servlet</servlet-name>
    <servlet-class>javax.faces.webapp.FacesServlet</servlet-class>
    <load-on-startup>1</load-on-startup>
  </servlet>

  <!-- Add this element to change the extension for
  JSF page files (Default: .jsp) -->
  <context-param>
    <param-name>javax.faces.DEFAULT_SUFFIX</param-name>
    <param-value>.jspx</param-value>
  </context-param>

  <servlet-mapping>
    <servlet-name>Faces Servlet</servlet-name>
    <url-pattern>*.faces</url-pattern>
    <!-- Another popular URL pattern is /faces/* -->
  </servlet-mapping>

  <welcome-file-list>
    <welcome-file>index.faces</welcome-file>
    <!-- Create a blank index.faces (in addition to
    index.jsx) -->
    <welcome-file>index.html</welcome-file>
    <!-- Use <meta http-equiv="Refresh" content="
    "0; URL=index.faces"/> -->
  </welcome-file-list>
</web-app>

```

## THE JSF EXPRESSION LANGUAGE (EL)

An EL expression is a sequence of literal strings and expressions of the form `base[expr1][expr2]...` As in JavaScript, you can write `base.identifier` instead of `base['identifier']` or `base["identifier"]`. The base is one of the names in the table below or a name defined in faces-config.xml.

header	A Map of HTTP header parameters, containing only the first value for each name.
headerValues	A Map of HTTP header parameters, yielding a String[] array of all values for a given name.
param	A Map of HTTP request parameters, containing only the first value for each name.
paramValues	A Map of HTTP request parameters, yielding a String[] array of all values for a given name.
cookie	A Map of the cookie names and values of the current request.
initParam	A Map of the initialization parameters of this web application.
requestScope	A Map of all request scope attributes.
sessionScope	A Map of all session scope attributes.
applicationScope	A Map of all application scope attributes.
facesContext	The FacesContext instance of this request.
view	The UIViewRoot instance of this request.

## The JSF Expression Language (EL), continued

There are two expression types:

- Value expression: a reference to a bean property or an entry in a map, list, or array. Examples:
  - `userBean.name` calls `getName` or `setName` on the `userBean` object
  - `pizza.choices[var]` calls `pizza.getChoices().get(var)` or `pizza.getChoices().put(var, ...)`
- Method expression: a reference to a method and the object on which it is to be invoked. Example:
  - `userBean.login` calls the `login` method on the `userBean` object when it is invoked.

In JSF, EL expressions are enclosed in `#{...}` to indicate *deferred evaluation*. The expression is stored as a string and evaluated when needed. In contrast, JSP uses immediate evaluation, indicated by `${...}` delimiters.

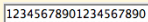
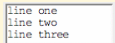

## JSF CORE TAGS

Tag	Description/ Attributes												
<b>f:view</b>	Creates the top-level view <table border="1"> <tr> <td><b>locale</b></td><td>The locale for this view.</td></tr> <tr> <td><b>renderKitId</b> (JSF 1.2)</td><td>The render kit ID for this view</td></tr> <tr> <td><b>beforePhase, afterPhase</b></td><td>Phase listeners that are called in every phase except "restore view"</td></tr> </table>	<b>locale</b>	The locale for this view.	<b>renderKitId</b> (JSF 1.2)	The render kit ID for this view	<b>beforePhase, afterPhase</b>	Phase listeners that are called in every phase except "restore view"						
<b>locale</b>	The locale for this view.												
<b>renderKitId</b> (JSF 1.2)	The render kit ID for this view												
<b>beforePhase, afterPhase</b>	Phase listeners that are called in every phase except "restore view"												
<b>f:subview</b>	Creates a subview of a view <table border="1"> <tr> <td><b>binding, id, rendered</b></td><td>Basic attributes</td></tr> </table>	<b>binding, id, rendered</b>	Basic attributes										
<b>binding, id, rendered</b>	Basic attributes												
<b>f:facet</b>	Adds a facet to a component <table border="1"> <tr> <td><b>name</b></td><td>the name of this facet</td></tr> </table>	<b>name</b>	the name of this facet										
<b>name</b>	the name of this facet												
<b>f:attribute</b>	Adds an attribute to a component <table border="1"> <tr> <td><b>name, value</b></td><td>the name and value of the attribute to set</td></tr> </table>	<b>name, value</b>	the name and value of the attribute to set										
<b>name, value</b>	the name and value of the attribute to set												
<b>f:param</b>	Constructs a parameter child component <table border="1"> <tr> <td><b>name</b></td><td>An optional name for this parameter component.</td></tr> <tr> <td><b>value</b></td><td>The value stored in this component.</td></tr> <tr> <td><b>binding, id</b></td><td>Basic attributes</td></tr> </table>	<b>name</b>	An optional name for this parameter component.	<b>value</b>	The value stored in this component.	<b>binding, id</b>	Basic attributes						
<b>name</b>	An optional name for this parameter component.												
<b>value</b>	The value stored in this component.												
<b>binding, id</b>	Basic attributes												
<b>f:actionListener</b> <b>f:valueChangeListener</b>	Adds an action listener or value change listener to a component <table border="1"> <tr> <td><b>type</b></td><td>The name of the listener class</td></tr> </table>	<b>type</b>	The name of the listener class										
<b>type</b>	The name of the listener class												
<b>f:setPropertyChange</b> <b>Listener (JSF 1.2)</b>	Adds an action listener to a component that sets a bean property to a given value. <table border="1"> <tr> <td><b>value</b></td><td>The bean property to set when the action event occurs</td></tr> <tr> <td><b>binding, id</b></td><td>The value to set it to</td></tr> </table>	<b>value</b>	The bean property to set when the action event occurs	<b>binding, id</b>	The value to set it to								
<b>value</b>	The bean property to set when the action event occurs												
<b>binding, id</b>	The value to set it to												
<b>f:converter</b>	Adds an arbitrary converter to a component <table border="1"> <tr> <td><b>converterId</b></td><td>The ID of the converter</td></tr> </table>	<b>converterId</b>	The ID of the converter										
<b>converterId</b>	The ID of the converter												
<b>f:convertDateTime</b>	Adds a datetime converter to a component <table border="1"> <tr> <td><b>type</b></td><td>date (default), time, or both</td></tr> <tr> <td><b>dateStyle</b></td><td>default, short, medium, long, or full</td></tr> <tr> <td><b>timeStyle</b></td><td>default, short, medium, long, or full</td></tr> <tr> <td><b>pattern</b></td><td>Formatting pattern, as defined in <code>java.text.SimpleDateFormat</code></td></tr> <tr> <td><b>locale</b></td><td>Locale whose preferences are to be used for parsing and formatting</td></tr> <tr> <td><b>timezone</b></td><td>Time zone to use for parsing and formatting</td></tr> </table>	<b>type</b>	date (default), time, or both	<b>dateStyle</b>	default, short, medium, long, or full	<b>timeStyle</b>	default, short, medium, long, or full	<b>pattern</b>	Formatting pattern, as defined in <code>java.text.SimpleDateFormat</code>	<b>locale</b>	Locale whose preferences are to be used for parsing and formatting	<b>timezone</b>	Time zone to use for parsing and formatting
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





## JSF Core Tags, continued

Tag	Description/ Attributes																						
<b>f:convertNumber</b>	Adds a number converter to a component <table border="1"> <tr> <td><b>type</b></td><td>number (default), currency, or percent</td></tr> <tr> <td><b>pattern</b></td><td>Formatting pattern, as defined in <code>java.text.DecimalFormat</code></td></tr> <tr> <td><b>maxFractionDigits</b></td><td>Maximum number of digits in the fractional part</td></tr> <tr> <td><b>minFractionDigits</b></td><td>Minimum number of digits in the fractional part</td></tr> <tr> <td><b>maxIntegerDigits</b></td><td>Maximum number of digits in the integer part</td></tr> <tr> <td><b>minIntegerDigits</b></td><td>Minimum number of digits in the integer part</td></tr> <tr> <td><b>integerOnly</b></td><td>True if only the integer part is parsed (default: <b>false</b>)</td></tr> <tr> <td><b>groupingUsed</b></td><td>True if grouping separators are used (default: <b>true</b>)</td></tr> <tr> <td><b>locale</b></td><td>Locale whose preferences are to be used for parsing and formatting</td></tr> <tr> <td><b>currencyCode</b></td><td>ISO 4217 currency code to use when converting currency values</td></tr> <tr> <td><b>currencySymbol</b></td><td>Currency symbol to use when converting currency values</td></tr> </table>	<b>type</b>	number (default), currency, or percent	<b>pattern</b>	Formatting pattern, as defined in <code>java.text.DecimalFormat</code>	<b>maxFractionDigits</b>	Maximum number of digits in the fractional part	<b>minFractionDigits</b>	Minimum number of digits in the fractional part	<b>maxIntegerDigits</b>	Maximum number of digits in the integer part	<b>minIntegerDigits</b>	Minimum number of digits in the integer part	<b>integerOnly</b>	True if only the integer part is parsed (default: <b>false</b> )	<b>groupingUsed</b>	True if grouping separators are used (default: <b>true</b> )	<b>locale</b>	Locale whose preferences are to be used for parsing and formatting	<b>currencyCode</b>	ISO 4217 currency code to use when converting currency values	<b>currencySymbol</b>	Currency symbol to use when converting currency values
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<b>currencySymbol</b>	Currency symbol to use when converting currency values																						
<b>f:validator</b>	Adds a validator to a component <table border="1"> <tr> <td><b>validatorId</b></td><td>The ID of the validator</td></tr> </table>	<b>validatorId</b>	The ID of the validator																				
<b>validatorId</b>	The ID of the validator																						
<b>f:validateDoubleRange</b> <b>f:validateLongRange</b> <b>f:validateLength</b>	Validates a double or long value, or the length of a string <table border="1"> <tr> <td><b>minimum, maximum</b></td><td>the minimum and maximum of the valid range</td></tr> </table>	<b>minimum, maximum</b>	the minimum and maximum of the valid range																				
<b>minimum, maximum</b>	the minimum and maximum of the valid range																						
<b>f:loadBundle</b>	Loads a resource bundle, stores properties as a Map <table border="1"> <tr> <td><b>basename</b></td><td>The resource bundle name</td></tr> <tr> <td><b>value</b></td><td>The name of the variable that is bound to the bundle map</td></tr> </table>	<b>basename</b>	The resource bundle name	<b>value</b>	The name of the variable that is bound to the bundle map																		
<b>basename</b>	The resource bundle name																						
<b>value</b>	The name of the variable that is bound to the bundle map																						
<b>f:selectItems</b>	Specifies items for a select one or select many component <table border="1"> <tr> <td><b>binding, id</b></td><td>Basic attributes</td></tr> <tr> <td><b>value</b></td><td>Value expression that points to a <code>SelectItem</code>, an array or <code>Collection</code> of <code>SelectItem</code> objects, or a <code>Map</code> mapping labels to values.</td></tr> </table>	<b>binding, id</b>	Basic attributes	<b>value</b>	Value expression that points to a <code>SelectItem</code> , an array or <code>Collection</code> of <code>SelectItem</code> objects, or a <code>Map</code> mapping labels to values.																		
<b>binding, id</b>	Basic attributes																						
<b>value</b>	Value expression that points to a <code>SelectItem</code> , an array or <code>Collection</code> of <code>SelectItem</code> objects, or a <code>Map</code> mapping labels to values.																						
<b>f:selectItem</b>	Specifies an item for a select one or select many component <table border="1"> <tr> <td><b>binding, id</b></td><td>Basic attributes</td></tr> <tr> <td><b>itemDescription</b></td><td>Description used by tools only</td></tr> <tr> <td><b>itemDisabled</b></td><td>Boolean value that sets the item's disabled property</td></tr> <tr> <td><b>itemLabel</b></td><td>Text shown by the item</td></tr> <tr> <td><b>itemValue</b></td><td>Item's value, which is passed to the server as a request parameter</td></tr> <tr> <td><b>value</b></td><td>Value expression that points to a <code>SelectItem</code> instance</td></tr> </table>	<b>binding, id</b>	Basic attributes	<b>itemDescription</b>	Description used by tools only	<b>itemDisabled</b>	Boolean value that sets the item's disabled property	<b>itemLabel</b>	Text shown by the item	<b>itemValue</b>	Item's value, which is passed to the server as a request parameter	<b>value</b>	Value expression that points to a <code>SelectItem</code> instance										
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<b>itemValue</b>	Item's value, which is passed to the server as a request parameter																						
<b>value</b>	Value expression that points to a <code>SelectItem</code> instance																						
<b>f:verbatim</b>	Adds markup to a JSF page <table border="1"> <tr> <td><b>escape</b></td><td>If set to true, escapes <code>&lt;</code>, <code>&gt;</code>, and <code>&amp;</code> characters. Default value is false.</td></tr> <tr> <td><b>rendered (JSF 1.2)</b></td><td>Basic attributes</td></tr> </table>	<b>escape</b>	If set to true, escapes <code>&lt;</code> , <code>&gt;</code> , and <code>&amp;</code> characters. Default value is false.	<b>rendered (JSF 1.2)</b>	Basic attributes																		
<b>escape</b>	If set to true, escapes <code>&lt;</code> , <code>&gt;</code> , and <code>&amp;</code> characters. Default value is false.																						
<b>rendered (JSF 1.2)</b>	Basic attributes																						

## JSF HTML TAGS

Tag	Description
<b>h:form</b>	HTML form
<b>h:inputText</b>	Single-line text input control 
<b>h:inputTextarea</b>	Multiline text input control 
<b>h:inputSecret</b>	Password input control 
<b>h:inputHidden</b>	Hidden field
<b>h:outputLabel</b>	Label for another component for accessibility

## JSF HTML tags, continued

Tag	Description	
<code>h:outputLink</code>	HTML anchor	
<code>h:outputFormat</code>	Like <code>outputText</code> , but formats compound messages	
<code>h:outputText</code>	Single-line text output	
<code>h:commandButton</code>	Button: submit, reset, or pushbutton	
<code>h:commandLink</code>	Link that acts like a pushbutton.	<a href="#">register</a>
<code>h:message</code>	Displays the most recent message for a component	Amount <input type="text" value="too much"/> Amount: 'too much' is not a number. Example: 99
<code>h:messages</code>	Displays all messages	
<code>h:graphicImage</code>	Displays an image	
<code>h:selectOneListbox</code>	Single-select listbox	
<code>h:selectOneMenu</code>	Single-select menu	
<code>h:selectOneRadio</code>	Set of radio buttons	<input type="radio"/> Cheese <input checked="" type="radio"/> Pickle
<code>h:selectBooleanCheckbox</code>	Checkbox	Receive email: <input checked="" type="checkbox"/>
<code>h:selectManyCheckbox</code>	Multiselect listbox	<input checked="" type="checkbox"/> Cheese <input type="checkbox"/> Pickle <input checked="" type="checkbox"/> Mustard
<code>h:selectManyListbox</code>	Multiselect listbox	
<code>h:selectManyMenu</code>	Multiselect menu	
<code>h:panelGrid</code>	HTML table	
<code>h:panelGroup</code>	Two or more components that are laid out as one	
<code>h:dataTable</code>	A feature-rich table component	
<code>h:column</code>	Column in a data table	

## Basic Attributes

Attribute	Description
<code>id</code>	Identifier for a component
<code>binding</code>	Reference to the component that can be used in a backing bean
<code>rendered</code>	A boolean; false suppresses rendering
<code>styleClass</code>	Cascading stylesheet (CSS) class name
<code>value</code>	A component's value, typically a value binding
<code>valueChangeListener</code>	A method binding to a method that responds to value changes
<code>converter</code>	Converter class name
<code>validator</code>	Class name of a validator that's created and attached to a component
<code>required</code>	A boolean; if true, requires a value to be entered in the associated field

## Attributes for `h:form`

Attribute	Description
<code>binding, id, rendered, styleClass</code>	Basic attributes
<code>accept, acceptcharset, dir, enctype, lang, style, target, title</code>	HTML 4.0 attributes ( <code>acceptcharset</code> corresponds to HTML <code>accept-charset</code> )
<code>onblur, onchange, onclick, ondblclick, onfocus, onkeydown, onkeypress, onkeyup, onmousedown, onmousemove, onmouseout, onmouseover, onreset, onsubmit</code>	DHTML events

## Attributes for `h:inputText`, `h:inputSecret`, `h:inputTextarea`, and `h:inputHidden`

Attribute	Description
<code>cols</code>	For <code>h:inputTextarea</code> only—number of columns
<code>immediate</code>	Process validation early in the life cycle
<code>redisplay</code>	For <code>h:inputSecret</code> only—when true, the input field's value is redisplayed when the web page is reloaded
<code>required</code>	Require input in the component when the form is submitted
<code>rows</code>	For <code>h:inputTextarea</code> only—number of rows
<code>valueChangeListener</code>	A specified listener that's notified of value changes
<code>binding, converter, id, rendered, required, styleClass, value, validator</code>	Basic attributes
<code>accesskey, alt, dir, disabled, lang, maxlength, readonly, size, style, tabindex, title</code>	HTML 4.0 pass-through attributes— <code>alt</code> , <code>maxlength</code> , and <code>size</code> do not apply to <code>h:inputTextarea</code> . None apply to <code>h:inputHidden</code>
<code>onblur, onchange, onclick, ondblclick, onfocus, onkeydown, onkeypress, onkeyup, onmousedown, onmousemove, onmouseout, onmouseover, onselect</code>	DHTML events. None apply to <code>h:inputHidden</code>

## Attributes for `h:outputText` and `h:outputFormat`

Attribute	Description
<code>escape</code>	If set to true, escapes <code>&lt;</code> , <code>&gt;</code> , and <code>&amp;</code> characters. Default value is <code>true</code> .
<code>binding, converter, id, rendered, styleClass, value</code>	Basic attributes
<code>style, title</code>	HTML 4.0

## Attributes for `h:outputLabel`

Attribute	Description
<code>for</code>	The ID of the component to be labeled.
<code>binding, converter, id, rendered, value</code>	Basic attributes

## Attributes for `h:graphicImage`

Attribute	Description
<code>binding, id, rendered, styleClass, value</code>	Basic attributes
<code>alt, dir, height, ismap, lang, longdesc, style, title, url, usemap, width</code>	HTML 4.0
<code>onblur, onchange, onclick, ondblclick, onfocus, onkeydown, onkeypress, onkeyup, onmousedown, onmousemove, onmouseout, onmouseover, onmouseup</code>	DHTML events

## Attributes for `h:commandButton` and `h:commandLink`

Attribute	Description
<code>action</code>	If specified as a string: Directly specifies an outcome used by the navigation handler to determine the JSF page to load next as a result of activating the button or link. If specified as a method binding: The method has this signature: <code>String methodName()</code> ; the string represents the outcome
<code>actionListener</code>	A method binding that refers to a method with this signature: <code>void methodName(ActionEvent)</code>
<code>charset</code>	For <code>h:commandLink</code> only—The character encoding of the linked reference
<code>image</code>	For <code>h:commandButton</code> only—A context-relative path to an image displayed in a button. If you specify this attribute, the HTML input's type will be <code>image</code> .
<code>immediate</code>	A boolean. If false (the default), actions and action listeners are invoked at the end of the request life cycle; if true, actions and action listeners are invoked at the beginning of the life cycle.



## h:commandButton and h:commandLink, continued

Attribute	Description
type	For <b>h:commandButton</b> : The type of the generated input element: button, submit, or reset. The default, unless you specify the image attribute, is submit. For <b>h:commandLink</b> : The content type of the linked resource; for example, text/html, image/gif, or audio/basic
value	The label displayed by the button or link. You can specify a string or a value reference expression.
accesskey, alt, binding, id, lang, rendered, styleClass, value	Basic attributes
coords (h:commandLink only), dir, disabled (h:commandButton only), hreflang (h:commandLink only), lang, readonly, rel (h:commandLink only), rev (h:commandLink only), shape (h:commandLink only), style, tabindex, target (h:commandLink only), title, type	HTML 4.0
onblur, onchange, onclick, ondblclick, onfocus, onkeydown, onkeypress, onkeyup, onmousedown, onmousemove, onmouseout, onmouseover, onmouseup, onselect	DHTML events



## Attributes for h:outputLink

Attribute	Description
accesskey, binding, converter, id, lang, rendered, styleClass, value	Basic attributes
charset, coords, dir, hreflang, lang, rel, rev, shape, style, tabindex, target, title, type	HTML 4.0
onblur, onchange, onclick, ondblclick, onfocus, onkeydown, onkeypress, onkeyup, onmousedown, onmousemove, onmouseout, onmouseover, onmouseup	DHTML events

## Attributes for:

**h:selectBooleanCheckbox,**  
**h:selectManyCheckbox, h:selectOneRadio,**  
**h:selectOneListbox, h:selectManyListbox,**  
**h:selectOneMenu, h:selectManyMenu**

☐ Cheese ☒ Pickle ☐ Mustard ☐ Lettuce ☐ Onions

Attribute	Description
disabledClass	CSS class for disabled elements—for <b>h:selectOneRadio</b> and <b>h:selectManyCheckbox</b> only
enabledClass	CSS class for enabled elements—for <b>h:selectOneRadio</b> and <b>h:selectManyCheckbox</b> only
layout	Specification for how elements are laid out: <b>lineDirection</b> (horizontal) or <b>pageDirection</b> (vertical)—for <b>h:selectOneRadio</b> and <b>h:selectManyCheckbox</b> only
binding, converter, id, immediate, styleClass, required, rendered, validator, value, valueChangeListener	Basic attributes
accesskey, border, dir, disabled, lang, readonly, style, size, tabindex, title	HTML 4.0— <b>border</b> is applicable to <b>h:selectOneRadio</b> and <b>h:selectManyCheckbox</b> only. <b>size</b> is applicable to <b>h:selectOneListbox</b> and <b>h:selectManyListbox</b> only
onblur, onchange, onclick, ondblclick, onfocus, onkeydown, onkeypress, onkeyup, onmousedown, onmousemove, onmouseout, onmouseover, onmouseup, onselect	DHTML events

## Attributes for h:message and h:messages

Amount

Amount: 'too much' is not a number.  
Example: 99

Attribute	Description
for	The ID of the component whose message is displayed—applicable only to <b>h:message</b>
errorClass	CSS class applied to error messages
errorStyle	CSS style applied to error messages
fatalClass	CSS class applied to fatal messages
fatalStyle	CSS style applied to fatal messages
globalOnly	Instruction to display only global messages—applicable only to <b>h:messages</b> . Default: false
infoClass	CSS class applied to information messages
infoStyle	CSS style applied to information messages
layout	Specification for message layout: <b>table</b> or <b>list</b> —applicable only to <b>h:messages</b>
showDetail	A boolean that determines whether message details are shown. Defaults are false for <b>h:messages</b> , true for <b>h:message</b>
showSummary	A boolean that determines whether message summaries are shown. Defaults are true for <b>h:messages</b> , false for <b>h:message</b>
tooltip	A boolean that determines whether message details are rendered in a tooltip; the tooltip is only rendered if <b>showDetail</b> and <b>showSummary</b> are true
warnClass	CSS class for warning messages
warnStyle	CSS style for warning messages
binding, id, rendered, styleClass	Basic attributes
style, title	HTML 4.0

## Attributes for h:panelGrid

Attribute	Description
bgcolor	Background color for the table
border	Width of the table's border
cellpadding	Padding around table cells
cellspacing	Spacing between table cells
columnClasses	Comma-separated list of CSS classes for columns
columns	Number of columns in the table
footerClass	CSS class for the table footer
frame	Specification for sides of the frame surrounding the table that are to be drawn; valid values: <b>none</b> , <b>above</b> , <b>below</b> , <b>hsides</b> , <b>vsides</b> , <b>lhs</b> , <b>rhs</b> , <b>box</b> , <b>border</b>
headerClass	CSS class for the table header
rowClasses	Comma-separated list of CSS classes for columns
rules	Specification for lines drawn between cells; valid values: <b>groups</b> , <b>rows</b> , <b>columns</b> , <b>all</b>
summary	Summary of the table's purpose and structure used for non-visual feedback such as speech
binding, id, rendered, styleClass, value	Basic attributes
dir, lang, style, title, width	HTML 4.0
onclick, ondblclick, onkeydown, onkeypress, onkeyup, onmousedown, onmousemove, onmouseout, onmouseover, onmouseup	DHTML events

## Attributes for h:panelGroup

Attribute	Description
binding, id, rendered, styleClass	Basic attributes
style	HTML 4.0

## Attributes for h:dataTable

Attribute	Description
bgcolor	Background color for the table
border	Width of the table's border
cellpadding	Padding around table cells
cellspacing	Spacing between table cells
columnClasses	Comma-separated list of CSS classes for columns
first	Index of the first row shown in the table
footerClass	CSS class for the table footer
frame	Frame Specification for sides of the frame surrounding the table that are to be drawn; valid values: none, above, below, hside, vside, lhs, rhs, box, border
headerClass	CSS class for the table header
rowClasses	Comma-separated list of CSS classes for rows
rules	Specification for lines drawn between cells; valid values: groups, rows, columns, all
summary	Summary of the table's purpose and structure used for non-visual feedback such as speech

## Attributes for h:dataTable, continued

Attribute	Description
var	The name of the variable created by the data table that represents the current item in the value
binding, id, rendered, styleClass, value	Basic attributes
dir, lang, style, title, width	HTML 4.0
onclick, ondblclick, onkeydown, onkeypress, onkeyup, onmousedown, onmousemove, onmouseout, onmouseover, onmouseup	DHTML events

## Attributes for h:column

Attribute	Description
headerClass (JSF 1.2)	CSS class for the column's header
footerClass (JSF 1.2)	CSS class for the column's footer
binding, id, rendered	Basic attributes

## ABOUT THE AUTHOR



### Cay S. Horstmann

Cay S. Horstmann has written many books on C++, Java and object-oriented development, is the series editor for Core Books at Prentice-Hall and a frequent speaker at computer industry conferences. For four years, Cay was VP and CTO of an Internet startup that went from 3 people in a tiny office to a public company. He is now a computer science professor at San Jose State University. He was elected Java Champion in 2005.

### List of recent books/publications

- Core Java, with Gary Cornell, Sun Microsystems Press 1996 - 2007 (8 editions)
- Core JavaServer Faces, with David Geary, Sun Microsystems Press, 2004-2006 (2 editions)
- Big Java, John Wiley & Sons 2001 - 2007 (3 editions)

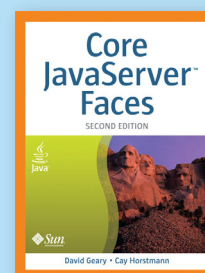
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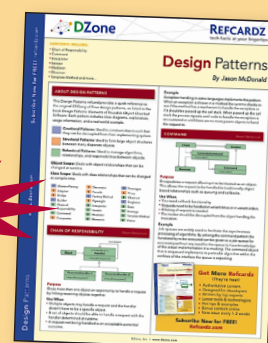
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